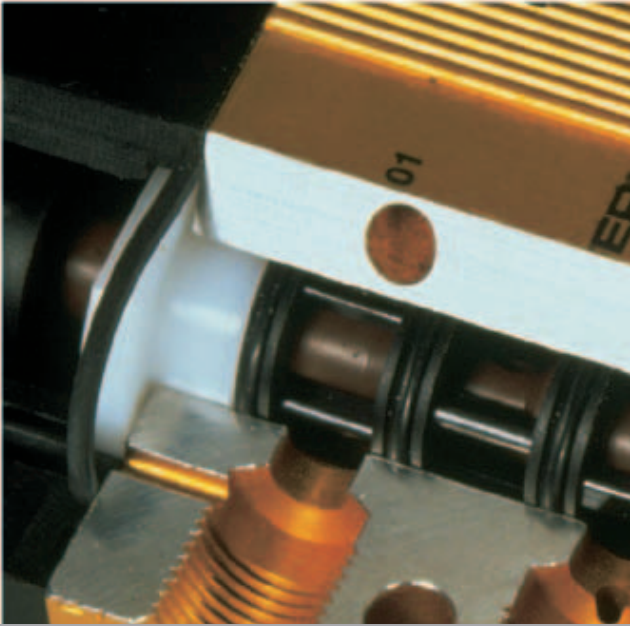
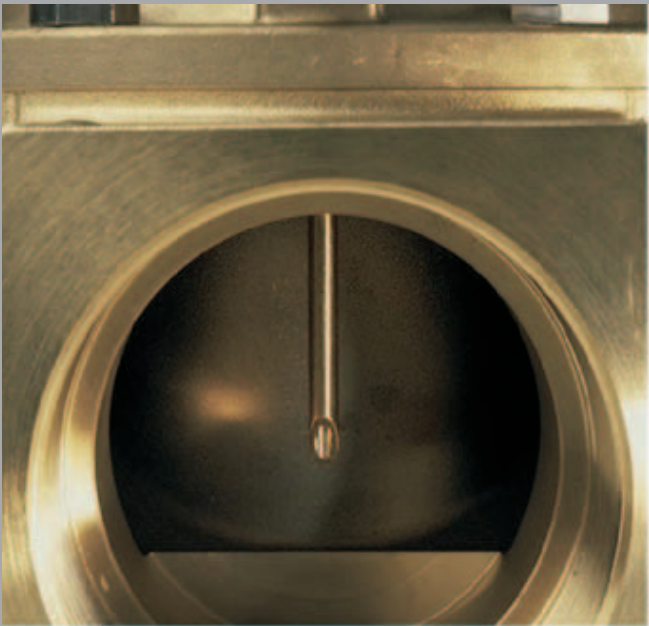


LUCIFER®

General Catalogue Solenoid Valves

Catalogue 8930/GB

CONTENTS ▶



Parker Lucifer SA

Perfect compatibility between a multinational approach and integration into the local industrial community.

Parker Lucifer's Valve Division, manufacturing fluid control solenoid valves and pressure regulators, is located in Carouge-Geneva, Switzerland with manufacturing sites both in Geneva and Gessate near Milan, Italy.

With the multinational structure of the Parker Group we now have support that enables us to face the international market. To date we are represented in over 50 Countries with an established network of distributors in each industrial market open to us. Parker Lucifer is located in Geneva, Switzerland, a European communications and traffic centre.

Mastering technologies in anticipation of your needs.

We aim always to stay a step ahead of our customers' demands. You are looking for someone who has expertise in the latest technology, who has a solid body of know-how and who will participate directly in the development of your products.

Parker Lucifer takes advantage of the developments made in various divisions of Parker Corporation and, in doing so, of all the skills and synergy generated by our Group.

Parker's technology transfer policy provides us with the know-how of a global corporation. You derive direct advantage from this for our expertise in these technologies, which enables us to anticipate your needs.

Total quality and innovation. Our strong points for building the future with you

Quality has now become the essential condition for the survival of a corporation. You know it. We know it.

Your future depends on offering your customers ever more efficient, more reliable products. To do that, you have to be able to rely on first-rate suppliers who share your vision of the future and are capable of understanding your needs.

In order to better meet your demands and to ensure that we can offer you full guarantees of reliability, we have perfected a Total Quality program. At the same time, we pursue a strategy of innovation both in our processes and functions as well as in safety.

Environmental management bears witness to our desire to protect essential values.

Parker Lucifer is committed to respecting and protecting our environment by applying its own solutions. Although not mandatory, the ISO 14001 standards concern the environmental commitment of the company to supply products and service that will help our customers improve environmental quality. It relates to waste reduction, elimination of harmful materials, recycling and development of environment-friendly products. This Certified Management System to ISO 9001 / 14001 will also play a key role as a competitive differentiation in the marketplace.



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Parker Lucifer - the experts in fluid control

Welcome to the Parker Lucifer catalogue. It's your entry point to an entire programme of solenoid valves based on the unique Lucifer modular concept. This gives you the widest choice of specifications and options to match your requirements exactly.

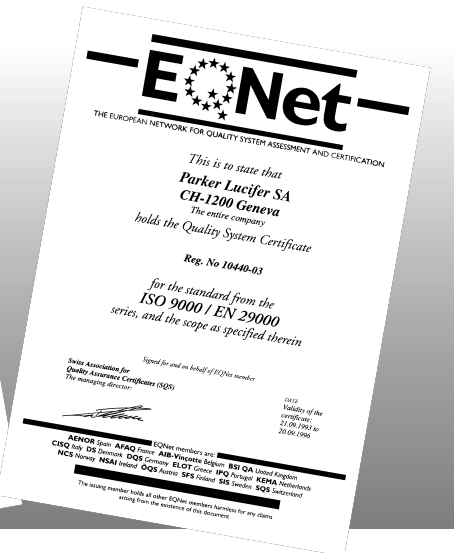
Making business as simple as possible

The catalogue is just one part of a very special kind of supplier-specifier relationship. In short, we want to make doing business as simple as possible. It begins with organising **products by application** for the quickest selection of a product for a specified application. It extends to ease of ordering, fast delivery, and additional customer services. All backed by highly qualified support engineers willing and able to discuss your needs and suggest solutions. Work with us, for example, to create customised products; we have a proud record of customer partnership projects resulting in innovative products - and satisfied customers.

The Parker Lucifer

The Parker Lucifer Series products have been designed to offer customers the ultimate in performance. Every valve is engineered for optimal operation, is constructed with modern machinery that use stringent processes, and provides standard features not necessarily offered in any competitive line.

The Parker Lucifer Series portfolio offers a broad range of solenoid valves. Sizes range from G1/8 to G3, with K_v as high as 1385 L/min. Pressure capabilities range up to 100 bar; the whole range is available with various seal materials, such as NBR, FKM, EPDM, PTFE, PCTFE, PUR and Ruby. Brass, stainless steel and plastic valves are available to control a wide variety of air, neutral gases and liquids, water, oils, process fluids and steam.



Availability

With over 750 product listings, the valve you need is probably available from our standard range. What's more, the same valves are **available from our distributors anywhere in the world**. So wherever you are you can order with complete confidence.

Thanks to the breadth of our product offering, the flexibility of the modular architecture, and the use of automated manufacturing processes, you can count on the ready availability of the valve you require.

Modular construction ensures that even unusual configurations can be assembled from stock components. It provides a high degree of "mix & match" flexibility with a minimum number of parts, giving Parker Lucifer the ability to quickly deliver a great variety of valves.

Quality assured

Certification by SQS (the Swiss Association for Quality Certification), Category ISO 9001/14001, is formal recognition of Parker Lucifer's commitment to total Quality. It is the outward sign of a company dedicated to customer satisfaction at every level of the organisation. It was first achieved back in 1987, long before Quality certification became an everyday business issue, and Parker Lucifer was one of the first to qualify in Switzerland.

All the approvals you need

A wide range of valves and electrical parts are approved by recognised organisations (BASEEFA in UK, PTB in Germany, LCIE in France, CESI in Italy etc.) and meet CENELEC, IEC, and ISO standards. Lucifer valves are also certified by organisations such as TÜV, VDE, SEV/ASE, UL, CSA, etc.



How to select your valve

This catalogue has been designed to make selection as easy as possible. The structure allows you to find your valve step by step, beginning with the most basic features and gradually focusing on more and more precise details.

First, decide what kind of valve you want: 2-way, 3-way, pneumatic or special. Then check the contents page and turn to the beginning of the relevant section.

For ease of use, each valve section is divided by application. At the front of the application sub-section you choose, you will find an overview table of the products featured (see sample below).

Using the table as a guide, decide what kind of actuation you want, then go across the columns, choosing the body material, function, connection, orifice size and maximum pressure: this

process takes you to the specific page number with your product,

Further technical information to help with specification is given in the final section of the catalogue.

General application valves for dry or lubricated air, neutral gases and liquids						2/2
ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	1.5 to 3	70.0	8
			1/4	1.2 to 5	100.0	8
			3/8	4 to 6	10.0	12
			1/2	8.5 to 11	4.0	12
			SB	1.5 to 3	100.0	14

How to order a valve

Normally a complete valve is composed of 3 elements: the valve itself (body + pilot), the coil and the housing. For integrated coil/housings, the housing reference indicates the fixing nut and nameplate.

Two valve body references are indicated in the tables:

- the Lucifer reference
- the global reference

Either reference can be used when ordering. The Global valve reference permits a common numbering system between Lucifer and Skinner products. A complete cross-reference list of valve reference numbers can be found at the end of this catalogue. In both cases, it is necessary to order the coil and housing reference as well.

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
		Liquids kv	Gases Qmax	Qn	Min	DC	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC				
Brass body/Pipe mounting																					
1/8	1.5	1.5	6	80	0	20	20	75	75	75	FKM	7121CBG1GV00	121C14	2995	481865	9	8	270	2	2	
	1.5	1.5	6	80	0	20	20	75	75	75	FKM		121C14	4270	481000	8	8	390	2	2	
	1.5	1.5	6	80	0	20	20	75	75	75	FKM		121C14	2995	482730	7	6	270	2	2	
	1.5	0.9	2.4	70	0	12	20	75	75	75	FKM	-	121M14	8993	481180	5	4	150	1	1	
	1.5	0.9	2.4	70	0	4	20	75	75	75	FKM		121M14	8993	488980	2.5	2	150	1	1	
	1.5	1.5	12.5	80	0	25	60	75	75	75	PCTFE	7121KBG1GF00	E121K14	2995	481865	9	8	300	2	3	
	1.5	1.5	12.5	80	0	30	70	75	75	75	PCTFE		E121K14	4270	481000	8	8	420	2	2	
	1.5	1.5	12.5	80	0	55	70	75	75	75	PCTFE		E121K14	4270	486265	14	14	430			
	2	2	8	160	0	7	10	75	75	75	FKM	-	121M13	8993	481180	5	4	150	1	1	
	2	2	8	160	0	2.5	10	75	75	75	FKM		121M13	8993	488980	2.5	2	150	1	1	
	2.5	2.8	8.5	220	0	10	10	75	75	75	FKM	7121CBG1LV00	E121C13	2995	481865	9	8	270	2	2	

Therefore please specify:

- I. Valve reference **or** Global valve reference
- II. Housing
- III. Coil
- IV. Voltage or voltage code (see tables in the Electrical parts section).

Ordering example:

121K0756-2995-481865-220/50
or
7121KBG2LVM0-2995-481865-220/50

Important : valve, housing or coil can be ordered separately for use as a replacement or spare part.

2-way valves

	Page
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Fast switching valves	117

Applications



AIR



WATER



OIL



STEAM



CORROSION
RESISTANT



OIL BURNER

General application valves for dry or lubricated air, neutral gases and liquids

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE	
Direct operated	Brass body	Normally closed	1/8	1.5 to 3	70.0	8	
			1/4	1.2 to 5	100.0	8	
			3/8	4 to 6	10.0	12	
			1/2	8.5 to 11	4.0	12	
			SB	1.5 to 3	100.0	14	
		Normally open	1/8	2.5	30.0	12	
			1/4	1.5 to 2.5	40.0	12	
			Magnetic latch control	1/4	3 to 5	20.0	12
		Magnalift	Brass body	Normally closed	3/8	15	20.0
1/2	15				20.0	16	
3/4	15				20.0	16	
1	15 to 25				20.0	18	
Normally open	3/8			15	8.5	20	
	1/2			15	8.5	20	
	3/4			19	8.5	20	
	1			15 to 25	20.0	18	
303 Stainless steel body	Normally closed		3/8	15	7.0	20	
			1/2	15	7.0	20	
			3/4	19	7.0	20	
			1	15 to 25	20.0	18	
	Normally open		3/8	16	8.5	20	
			1/2	16	8.5	20	
			3/4	19	8.5	20	
			1	15 to 25	20.0	18	
Pilot operated	Brass body	Normally closed	1/4	8 to 12	40.0	22	
			3/8	11 to 12	40.0	22	
			1/2	12 to 14.5	40.0	22	
			3/4	18 to 20	16.0	24	
			1	18 to 25	16.0	24	
			1 1/4	28	16.0	26	
			1 1/2	40	16.0	26	
			2	40	16.0	28	
			SB	14	40.0	34	
			Normally open	1/4	8 to 12	40.0	30
				3/8	11 to 12	40.0	32
				1/2	12 to 14.5	40.0	32
				3/4	18 to 20	16.0	32
				1	18 to 25	16.0	32
				1 1/4	28	16.0	32
		1 1/2		40	12.0	32	
		2		40	12.0	32	
		SB		14	40.0	34	
		Magnetic latch control	1/4	12	12.0	34	
			3/8	12	12.0	34	
			1/2	12	12.0	34	
			3/4	18	12.0	34	
			1	18	12.0	34	
			1	18	12.0	34	

Notes:

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

General application valves for dry or lubricated air, neutral gases and liquids

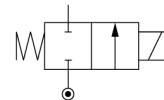
2/2



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar		Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

1/8	1.5	1.5	6	80	0	20	20	75	75	75	FKM	7121ZBG1GV00	-	2995	481865	9	8	270	2	7893
	1.5	1.5	6	80	0	20	20	75	75	75	FKM			4270	481000	8	8	390	2	
	1.5	1.5	6	80	0	20	20	75	75	75	FKM			2995	482730	7	6	270	2	
	1.5	0.9	2.4	70	0	12	20	75	75	75	FKM	-	121M14	8993	481180	5	4	150	1	1
	1.5	0.9	2.4	70	0	4	20	75	75	75	FKM			8993	488980	2.5	2	150	1	
	1.5	1.5	12.5	80	0	25	60	75	75	75	PCTFE	7121KBG1GF00	E121K14	2995	481865	9	8	300	2	3
	1.5	1.5	12.5	80	0	30	70	75	75	75	PCTFE			4270	481000	8	8	420	2	
	1.5	1.5	12.5	80	0	55	70	75	75	75	PCTFE			4270	486265	14	14	430		
	2	2	8	160	0	7	10	75	75	75	FKM	-	121M13	8993	481180	5	4	150	1	1
	2	2	8	160	0	2.5	10	75	75	75	FKM			8993	488980	2.5	2	150	1	
	2.5	2.8	8.5	220	0	10	10	75	75	75	FKM	7121ZBG1LV00	-	2995	481865	9	8	270	2	7893
	2.5	2.8	8.5	220	0	10	10	75	75	75	FKM			4270	481000	8	8	390	2	
2.5	2.8	8.5	220	0	5	10	75	75	75	FKM			2995	482730	7	6	270	2		
2.5	3.5	25	220	0	10	28	100	100	100	Ruby	7121KBG1LR00	E121K23	2995	481865	9	8	300	2	3	
2.5	3.5	25	220	0	12	34	130	130	130	Ruby			4270	481000	8	8	420	2		
2.5	3.5	25	220	0	22	50	120	120	120	Ruby			4270	486265	14	14	430			
3	4.5	9	315	0	7	10	100	100	100	FKM	7121KBG1NV00	121K1302	2995	481865	9	8	300	2	3	
3	4.5	9	315	0	8	10	120	120	120	FKM			4270	481000	8	8	420	2		
3	4.5	9	315	0	10	10	120	120	120	FKM			4270	486265	14	14	430			
3	4.5	9	315	0	7	10	100	100	100	FKM	7121KBG1NVM0	121K1352 1	2995	481865	9	8	300	2	3	
3	4.5	9	315	0	8	10	120	120	120	FKM			4270	481000	8	8	420	2		
3	4.5	9	315	0	10	10	120	120	120	FKM			4270	486265	14	14	430			
1/4	1.2	0.85	8.5	50	0	36	80	100	100	100	Ruby	7121KBG2ER00	E121K65	2995	481865	9	8	290		3
	1.2	0.85	8.5	50	0	43	100	130	130	130	Ruby			4270	481000	8	8	410		
	1.2	0.85	8.5	50	0	75	100	120	120	120	Ruby			4270	486265	14	14	420		
	1.5	1.5	6	80	0	20	20	100	100	100	FKM	7121KBG2GV00	E121K0402	2995	481865	9	8	290	2	3
	1.5	1.5	6	80	0	20	20	120	120	120	FKM			4270	481000	8	8	410	2	

Table continued on page 10

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard

General application valves 2/2 - Direct operated

Dimension reference 1

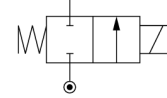
Dimension reference 3

Dimension reference 7893

General application valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

1/4	1.5	1.5	12.5	80	0	25	60	75	75	75	PCTFE	7121KBG2GF00	E121K04	2995	481865	9	8	290	2	3
	1.5	1.5	12.5	80	0	30	70	75	75	75	PCTFE			4270	481000	8	8	410	2	
	1.5	1.5	12.5	80	0	55	70	75	75	75	PCTFE			4270	486265	14	14	420		
	1.5	1.5	15	80	0	25	60	100	100	100	Ruby	7121KBG2GR00	E121K67	2995	481865	9	8	290		3
	1.5	1.5	15	80	0	30	75	130	130	130	Ruby			4270	481000	8	8	410		
	1.5	1.5	15	80	0	55	100	120	120	120	Ruby			4270	486265	14	14	420		
	2.5	3.5	8.5	220	0	7	14	100	100	100	FKM	7121KBG2LV00	121K0706	2995	481865	9	8	290	2	3
	2.5	3.5	8.5	220	0	9	14	120	120	120	FKM			4270	481000	8	8	410	2	
	2.5	3.5	8.5	220	0	14	14	120	120	120	FKM			4270	486265	14	14	420		
	2.5	3.5	8.5	220	0	7	14	100	100	100	FKM	7121KBG2LVM0	121K0756 1	2995	481865	9	8	290	2	3
	2.5	3.5	8.5	220	0	9	14	120	120	120	FKM			4270	481000	8	8	410	2	
	2.5	3.5	8.5	220	0	14	14	120	120	120	FKM			4270	486265	14	14	420		
	2.5	3.5	25	220	0	10	28	75	75	75	PCTFE	7121KBG2LF00	E121K07	2995	481865	9	8	290	2	3
	2.5	3.5	25	220	0	12	34	75	75	75	PCTFE			4270	481000	8	8	410	2	
	2.5	3.5	25	220	0	22	50	75	75	75	PCTFE			4270	486265	14	14	420		
	2.5	3.5	25	220	0	10	28	100	100	100	Ruby	7121KBG2LR00	E121K63	2995	481865	9	8	290		3
	2.5	3.5	25	220	0	12	34	130	130	130	Ruby			4270	481000	8	8	410		
	2.5	3.5	25	220	0	22	50	120	120	120	Ruby			4270	486265	14	14	420		
	3	4.5	9	315	0	7	10	100	100	100	FKM	7121KBG2NV00	E121K0302	2995	481865	9	8	290	2	3
	3	4.5	9	315	0	8.5	10	120	120	120	FKM			4270	481000	8	8	410	2	
	3	4.5	9	315	0	10	10	120	120	120	FKM			4270	486265	14	14	420		
	3	4.5	9	315	0	7	10	100	100	100	FKM	7121KBG2NVM0	E121K0352 1	2995	481865	9	8	290	2	3
	3	4.5	9	315	0	8.5	10	120	120	120	FKM			4270	481000	8	8	410	2	
	3	4.5	9	315	0	10	10	120	120	120	FKM			4270	486265	14	14	420		
	3	4.5	27	315	0	7	20	75	75	75	PCTFE	7121KBG2NF00	E121K03	2995	481865	9	8	290	2	3
	3	4.5	27	315	0	8.5	25	75	75	75	PCTFE			4270	481000	8	8	410	2	
	3	4.5	27	315	0	15	36	75	75	75	PCTFE			4270	486265	14	14	420		
	3	4.5	27	320	0	7	20	100	100	100	Ruby	7121KBG2NR00	E121K64	2995	481865	9	8	290		3
	3	4.5	27	320	0	8.5	25	130	130	130	Ruby			4270	481000	8	8	410		
	3	4.5	27	320	0	15	36	120	120	120	Ruby			4270	486265	14	14	420		
	4	7.5	10.5	480	0	4	10	100	100	100	FKM	7121KBG2QVM0	121K0250 1	2995	481865	9	8	290	2	3
	4	7.5	10.5	480	0	5	10	120	120	120	FKM			4270	481000	8	8	410	2	
	4	7.5	10.5	480	0	10	10	120	120	120	FKM			4270	486265	14	14	420		
	4	7.5	10.5	480	0	4	10	100	100	100	FKM	7121KBG2QV00	121K02	2995	481865	9	8	290	2	3
	4	7.5	10.5	480	0	5	10	120	120	120	FKM			4270	481000	8	8	410	2	
	4	7.5	10.5	480	0	10	10	120	120	120	FKM			4270	486265	14	14	420		
	5	11	11.5	750	0	2	7	100	100	100	FKM	7121KBG2SVM0	121K0150 1	2995	481865	9	8	290	2	3
	5	11	11.5	750	0	2.8	7	120	120	120	FKM			4270	481000	8	8	410	2	
	5	11	11.5	750	0	5	7	120	120	120	FKM			4270	486265	14	14	420		

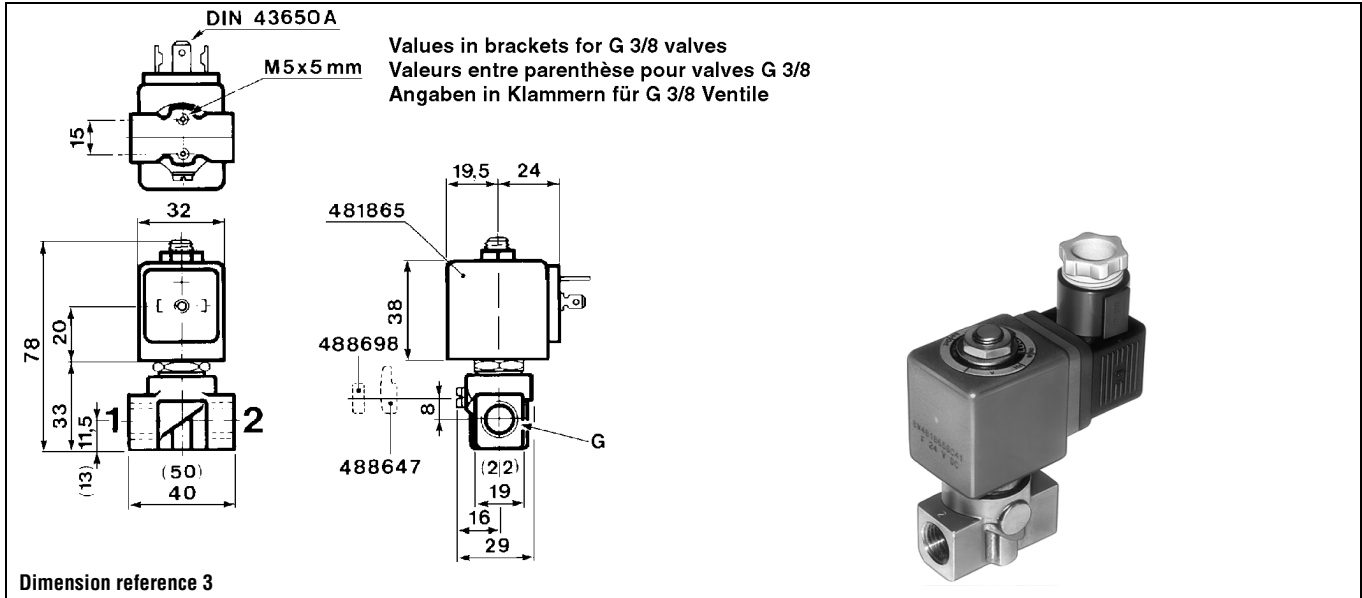
Table continued on page 12

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

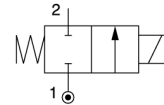
General application valves 2/2 - Direct operated



General application valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																				

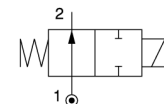
Normally closed



Brass body/Pipe mounting

1/4	5	11	11.5	750	0	2	7	100	100	100	FKM	7121KBG2SV00	121K01	2995	481865	9	8	290	2	3		
	5	11	11.5	750	0	2.8	7	120	120	120	FKM			4270	481000	8	8	410	2			
	5	11	11.5	750	0	5	7	120	120	120	FKM			4270	486265	14	14	420				
3/8	4	7.5	10.5	480	0	4	10	100	100	100	FKM	7121KBG3QV00	121K3206	2995	481865	9	8	340	2	3		
	4	7.5	10.5	480	0	5	10	120	120	120	FKM			4270	481000	8	8	460	2			
	4	7.5	10.5	480	0	10	10	120	120	120	FKM			4270	486265	14	14	470				
	3/8	5	11	11.5	750	0	2	7	100	100	100	FKM	7121KBG3SV00	121K3106	2995	481865	9	8	340	2	3	
		5	11	11.5	750	0	2.8	7	120	120	120	FKM			4270	481000	8	8	460	2		
		5	11	11.5	750	0	5	7	120	120	120	FKM			4270	486265	14	14	470			
		3/8	6	12	12.5	1100	0	1.1	5	100	100	100	FKM	7121KBG3UV00	121K3306	2995	481865	9	8	340	2	3
			6	12	12.5	1100	0	1.5	5	120	120	120	FKM			4270	481000	8	8	460	2	
			6	12	12.5	1100	0	3	5	120	120	120	FKM			4270	486265	14	14	470	2	
1/2	8.5	25	15	1600	0	0.5	1.1	100	100	100	FKM	7121KBG42V00	E121K46	2995	481865	9	8	430	2	7		
	8.5	25	15	1600	0	0.5	2.2	120	120	120	FKM			4270	481000	8	8	550	2			
	8.5	25	15	1600	0	1.2	4	120	120	120	FKM			4270	486265	14	14	560				
	1/2	11	36	20	2500	0	0.3	0.7	100	100	100	FKM	7121KBG44V00	E121K45	2995	481865	9	8	430	2	7	
		11	36	20	2500	0	0.35	1.2	120	120	120	FKM			4270	481000	8	8	550	2		
		11	36	20	2500	0	0.7	2.5	120	120	120	FKM			4270	486265	14	14	560			

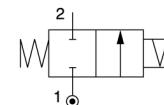
Normally open



Brass body/Pipe mounting

1/8	2.5	3.5	-	-	0	-	30	140	120	140	Ruby	7122KBG1LR00	122K9363	4270	481044	-	14	445		4
	2.5	3.5	-	-	0	30	30	140	120	140	Ruby			4270	486265	14	14	455		
1/4	1.5	1.5	6	80	0	20	20	100	100	100	FKM	7122KBG2GV00	122K8406	2995	481865	9	8	290	2	3
	1.5	1.5	6	80	0	20	20	120	120	120	FKM			4270	481000	8	8	410	2	
	1.5	1.5	8	80	0	30	30	100	100	100	PCTFE	7122KBG2GF00	122K84	2995	481865	9	8	290	2	3
	1.5	1.5	8	80	0	30	30	120	120	120	PCTFE			4270	481000	8	8	410	2	
	1.5	1.5	9.5	96	0	40	40	100	100	100	Ruby	7122KBG2GR00	122K8408	2995	481865	9	8	290	2	3
	1.5	1.5	9.5	96	0	40	40	130	130	130	Ruby			4270	481000	8	8	410	2	
	2.5	3	3.5	180	0	12	12	100	100	100	FKM	7122KBG2LV00	122K8306	2995	481865	9	8	290	2	3
	2.5	3	3.5	180	0	12	12	120	120	120	FKM			4270	481000	8	8	410	2	
	2.5	3	9.5	180	0	12	12	75	75	75	PCTFE	7122KBG2LF00	122K83	2995	481865	9	8	290	2	3
	2.5	3	9.5	180	0	12	12	75	75	75	PCTFE			4270	481000	8	8	410	2	
	2.5	3.5	-	-	0	-	30	140	120	140	Ruby	7122KBG2LR00	122K8363	4270	481044	-	14	425		4
	2.5	3.5	-	-	0	30	30	140	120	140	Ruby			4270	486265	14	14	435		

Magnetic latch control



Brass body/Pipe mounting

1/4	3	4.5	20	320	0	-	20	75	75	75	PCTFE	7125KBG2NF00	125K03	4269	484990	-	11	430	4	3
	3	4.5	20	320	0	7	-	75	75	75	PCTFE			4269	485400	13	-	430	4	

Table continued on page 14

Notes:

* See Electrical Parts Group table at end of section

General application valves 2/2 - Direct operated

DIN 43650A
M5x5 mm
 Values in brackets for G 3/8 valves
 Valeurs entre parenthèse pour valves G 3/8
 Angaben in Klammern für G 3/8 Ventile

Dimension reference 3

M5x6 mm
 ϕ Pg 9

Dimension reference 4

M5x5 mm
 ϕ Pg 9
DIN 43650A

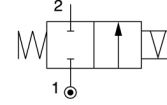
Dimension reference 7

General application valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

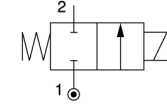
Brass body/Pipe mounting

Magnetic latch control



1/4	5	11	11.5	750	0	-	5	100	100	100	FKM	7125KBG2SV00	125K01	4269	484990	-	11	430	4	3
	5	11	11.5	750	0	1.5	-	100	100	100	FKM			4269	485400	13	-	430	4	

Normally closed



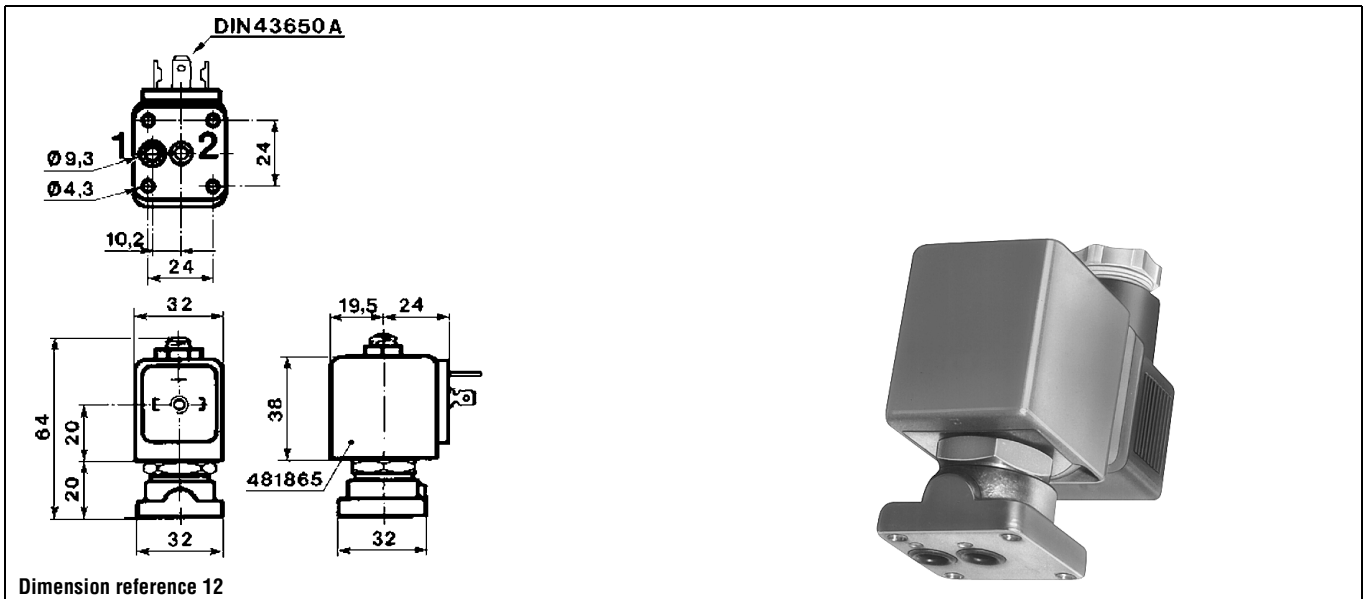
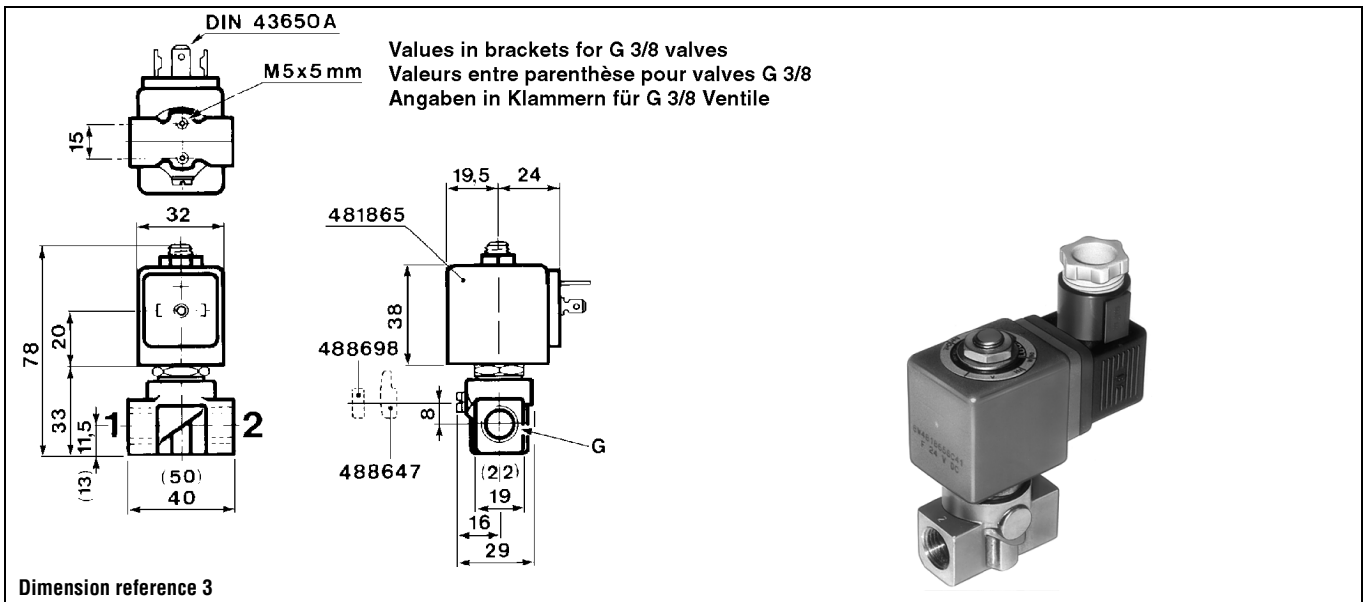
Brass body/Sub-base mounting

SB	1.5	1.6	6	80	0	20	20	100	100	100	FKM	7121FBF4GV00	E121F4406	2995	481865	9	8	250		12
	1.5	1.6	6	80	0	20	20	120	120	120	FKM			4270	481000	8	8	370		
	1.5	1.5	12.5	80	0	25	60	75	75	75	PCTFE	7121FBF4GF00	E121F44	2995	481865	9	8	250	2	12
	1.5	1.5	12.5	80	0	30	70	75	75	75	PCTFE			4270	481000	8	8	370	2	
	1.5	1.5	12.5	80	0	55	70	75	75	75	PCTFE			4270	486265	14	14	380	2	
	1.5	1.5	15	80	0	25	60	100	100	100	Ruby	7121FBF4GR00	121F67	2995	481865	9	8	255	2	12
	1.5	1.5	15	80	0	30	75	130	130	130	Ruby			4270	481000	8	8	375	2	
	1.5	1.5	15	80	0	55	100	120	120	120	Ruby			4270	486265	14	14	385	2	
	2.5	3.5	8.5	220	0	7	14	100	100	100	FKM	7121FBF4LV00	121F4706	2995	481865	9	8	250	2	12
	2.5	3.5	8.5	220	0	9	14	120	120	120	FKM			4270	481000	8	8	370	2	
	2.5	3.5	8.5	220	0	14	14	120	120	120	FKM			4270	486265	14	14	380	2	
	2.5	3.5	25	220	0	10	28	75	75	75	PCTFE	7121FBF4LF00	121F47	2995	481865	9	8	250	2	12
	2.5	3.5	25	220	0	12	34	75	75	75	PCTFE			4270	481000	8	8	370	2	
	2.5	3.5	25	220	0	22	50	75	75	75	PCTFE			4270	486265	14	14	380	2	
	2.5	3.5	25	220	0	10	28	100	100	100	Ruby	7121FBF4LR00	121F63	2995	481865	9	8	255	2	12
	2.5	3.5	25	220	0	12	34	130	130	130	Ruby			4270	481000	8	8	375	2	
	2.5	3.5	25	220	0	22	50	120	120	120	Ruby			4270	486265	14	14	385	2	
	3	4.5	9	315	0	7	10	100	100	100	FKM	7121FBF4NV00	E121F4302	2995	481865	9	8	250	2	12
	3	4.5	9	315	0	8.5	10	120	120	120	FKM			4270	481000	8	8	370	2	
	3	4.5	9	315	0	10	10	120	120	120	FKM			4270	486265	14	14	380	2	
	3	4.5	27	315	0	7	20	75	75	75	PCTFE	7121FBF4NF00	E121F43	2995	481865	9	8	250	2	12
	3	4.5	27	315	0	8.5	25	75	75	75	PCTFE			4270	481000	8	8	370	2	
	3	4.5	27	315	0	15	36	75	75	75	PCTFE			4270	486265	14	14	380	2	
	3	4.5	27	320	0	7	20	100	100	100	Ruby	7121FBF4NR00	121F64	2995	481865	9	8	255	2	12
	3	4.5	27	320	0	8.5	25	130	130	130	Ruby			4270	481000	8	8	375	2	
	3	4.5	27	320	0	15	36	120	120	120	Ruby			4270	486265	14	14	385	2	

Notes:

* See Electrical Parts Group table at end of section

General application valves 2/2 - Direct operated



General application valves for dry or lubricated air, neutral gases and liquids

2/2

Applications

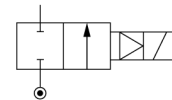
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



Magnalift

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G																			

Normally closed



Brass body/Pipe mounting

3/8	15	65	65	4500	0	10	-	100	-	100	FKM	7221GBG3VVH0	221G2330	2995	481865	¹ 9	-	630	10		
	15	65	65	4500	0	10	10	65	-	65	FKM			4270.06	492070	¹ 8	8	1000			
	15	65	65	4500	0	10	10	75	-	75	FKM			4270.06	492190	¹ 9	11	1000			
	3/8	15	65	65	4500	0	-	16	100	-	100	FKM	7221GBG3VV00	221G23	2995	481865	9	8	630	10	
		15	65	65	4500	0	-	16	120	-	120	FKM			4270	481000	8	8	750		
		15	65	65	4500	0	7	20	120	-	140	FKM			4270	486265	14	14	760		
		3/8	15	65	65	4500	0	10	-	100	75	100	NBR	7221GBG3VNH0	221G1330	2995	481865	¹ 9	-	630	10
			15	65	65	4500	0	10	10	65	65	65	NBR			-	492070	¹ 8	8	1000	
			15	65	65	4500	0	10	10	75	75	75	NBR			-	492190	¹ 9	11	1000	
1/2	15	65	65	4500	0	-	16	100	75	100	NBR	7221GBG3VN00	221G13	2995	481865	-	8	630	10		
	15	65	65	4500	0	-	16	100	75	100	NBR			4270	481000	-	8	750			
	15	65	65	4500	0	7	-	100	75	100	NBR			4270	486265	14	-	760			
	1/2	15	65	65	4500	0	-	16	75	-	75	FKM	7221GBG4VV1D	221G25001D	-	483250	-	8	1605	3846	
		15	65	65	4500	0	10	-	100	-	100	FKM	7221GBG4VVH0		221G2530	2995	481865	¹ 9	-	640	10
		15	65	65	4500	0	10	10	65	-	65	FKM				-	492070	¹ 8	8	1010	
		1/2	15	65	65	4500	0	10	10	75	-	75	FKM			-	492190	¹ 9	11	1010	
			15	65	65	4500	0	-	16	100	-	100	FKM	7221GBG4VV00	221G25	2995	481865	-	8	630	10
			15	65	65	4500	0	-	16	120	-	120	FKM			4270	481000	-	8	760	
15			65	65	4500	0	7	20	120	-	140	FKM		4270		486265	14	14	760		
1/2			15	65	65	4500	0	10	-	100	75	100	NBR	7221GBG4VNH0	221G1530	2995	481865	¹ 9	-	640	10
			15	65	65	4500	0	10	10	65	65	65	NBR			-	492070	¹ 8	9	1010	
		15	65	65	4500	0	10	10	75	75	75	NBR		-		492190	¹ 9	11	1010		
		1/2	15	65	65	4500	0	-	16	100	75	100	NBR	7221GBG4VN00	221G15	2995	481865	-	8	640	10
			15	65	65	4500	0	-	16	100	75	100	NBR			4270	481000	-	8	760	
			15	65	65	4500	0	7	-	100	75	100	NBR			4270	486265	14	-	770	
3/4		15	80	80	6000	0	-	16	75	-	75	FKM	7221GBG51V1D	221G26001D	-	483250	-	8	1635	3847	

Table continued on page 18

Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx m II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.

General application valves 2/2 - Magnalift

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G15/25	75	93	37.5	15	34	27	1/2	53
G13/23	75	93	37.5	15	34	27	3/8	53
G16/26	80	95.5	40	17.5	34	32	3/4	53
G17/27	85	102.5	42.5	22.5	36	41	1	53
G21	100	108	50	23	41	41	1	70

Dimension reference 10

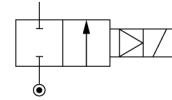
Dimension reference 3846

Dimension reference 3847

General application valves 2/2 - Magnalift

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

Normally closed



Brass body/Pipe mounting

3/4	15	80	80	6000	0	10	-	100	-	100	FKM	7221GBG51VH0	221G2630	2995	481865	¹	9	-	670	10
	15	80	80	6000	0	10	10	65	-	65	FKM			-	492070	¹	8	8	1040	
	15	80	80	6000	0	10	10	75	-	75	FKM			-	492190	¹	9	11	1040	
	15	80	80	6000	0	-	16	100	-	100	FKM	7221GBG51V00	221G26	2995	481865		-	8	670	10
	15	80	80	6000	0	-	16	120	-	120	FKM			4270	481000		-	8	790	
	15	80	65	6000	0	7	20	120	-	140	FKM			4270	486265		14	14	800	
	15	80	80	6000	0	10	-	100	75	100	NBR	7221GBG51NH0	221G1630	2995	481865	¹	9	-	670	10
	15	80	80	6000	0	10	10	65	65	65	NBR			-	492070	¹	8	8	1040	
	15	80	80	6000	0	10	10	75	75	75	NBR			-	492190	¹	9	11	1040	
	15	80	80	6000	0	-	16	100	75	100	NBR	7221GBG51N00	221G16	2995	481865		-	8	670	10
	15	80	80	6000	0	-	16	100	75	100	NBR			4270	481000		-	8	790	
	15	80	80	6000	0	7	-	100	75	100	NBR			4270	486265		14	-	800	
1	15	80	80	6000	0	-	16	75	-	75	FKM	7221GBG61V1D	221G27001D	-	483250		-	8	1775	3848
	15	80	80	6000	0	10	-	100	-	100	FKM	7221GBG61VH0	221G2730	2995	481865	¹	9	-	810	10
	15	80	80	6000	0	10	10	65	-	65	FKM			-	492070	¹	8	8	1180	
	15	80	80	6000	0	10	10	75	-	75	FKM			-	492190	¹	9	11	1180	
	15	80	80	6000	0	-	16	100	-	100	FKM	7221GBG61V00	221G27	2995	481865		-	8	810	10
	15	80	80	6000	0	-	16	120	-	120	FKM			4270	481000		-	8	930	
	15	80	65	6000	0	7	20	120	-	120	FKM			4270	486265		14	14	940	
	15	80	80	6000	0	10	-	100	75	100	NBR	7221GBG61NH0	221G1730	2995	481865	¹	9	-	810	10
	15	80	80	6000	0	10	10	65	65	65	NBR			-	492070	¹	8	8	1180	
	15	80	80	6000	0	10	10	75	75	75	NBR			-	492190	¹	9	11	1180	
	15	80	80	6000	0	-	16	100	75	100	NBR	7221GBG61N00	221G17	2995	481865		-	8	810	10
	15	80	80	6000	0	-	16	100	75	100	NBR			4270	481000		-	8	930	
	15	80	80	6000	0	7	-	100	75	100	NBR			4270	486265		14	-	940	
	25	160	160	14000	0	-	16	100	-	100	FKM	7221GBG64V00	221G2106	2995	481865		-	8	1170	10
	25	160	160	14000	0	-	16	100	-	120	FKM			4270	481000		-	8	1290	
	25	160	160	14000	0	6	16	100	-	120	FKM			4270	486265		14	14	1300	
	25	170	160	14000	0	10	-	100	-	100	FKM	7221GBG64VH0	221G2136	2995	481865		9	-	1170	10
	25	170	160	14000	0	10	10	65	-	65	FKM			-	492070	¹	8	8	1540	
	25	170	160	14000	0	10	10	75	-	75	FKM			-	492190	¹	9	11	1540	
	25	170	160	14000	0	10	-	100	75	100	NBR	7221GBG64NH0	221G2130	2995	481865	¹	9	-	1170	10
	25	170	160	14000	0	10	10	65	65	65	NBR			-	492070	¹	8	8	1540	
	25	170	160	14000	0	10	10	75	75	75	NBR			-	492190	¹	9	11	1540	
	25	160	160	14000	0	-	16	100	75	100	NBR	7221GBG64N00	221G21	2995	481865		-	8	1170	10
	25	160	160	14000	0	-	16	100	75	100	NBR			4270	481000		-	8	1290	
25	160	160	14000	0	6	-	100	75	100	NBR			4270	486265		14	-	1300		

Table continued on page 20

Notes:

- Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.

General application valves 2/2 - Magnalift

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G15/25	75	93	37.5	15	34	27	1/2	53
G13/23	75	93	37.5	15	34	27	3/8	53
G16/26	80	95.5	40	17.5	34	32	3/4	53
G17/27	85	102.5	42.5	22.5	36	41	1	53
G21	100	108	50	23	41	41	1	70

Dimension reference 10

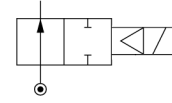
Dimension reference 3848

General application valves 2/2 - Maglift

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G																			

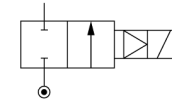
Brass body/Pipe mounting

Normally open



3/8	15	43	43	-	0	8.5	8.5	85	85	85	FKM	72228BG3TV00	222G3306	4270	486265	14	14	940	102
1/2	15	58	58	-	0	8.5	8.5	85	85	85	FKM	72228BG4UV00	222G3506	4270	486265	14	14	940	102
3/4	19	72	72	-	0	8.5	8.5	85	85	85	FKM	72228BG5VV00	222G3606	4270	486265	14	14	940	102

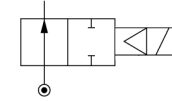
Normally closed



303 Stainless steel body/Pipe mounting

3/8	15	42	42	-	0	-	7	85	85	85	FKM	72218RG3TV00	221G5306	2995	481865	-	8	930	102
	15	42	42	-	0	-	7	85	85	85	FKM			4270	481000	-	8	1050	
	15	42	42	-	0	2.8	-	85	85	85	FKM			4270	486265	14	-	1060	
1/2	15	54	54	-	0	-	7	85	85	85	FKM	72218RG4UV00	221G5506	2995	481865	-	8	930	102
	15	54	54	-	0	-	7	85	85	85	FKM			4270	481000	-	8	1050	
	15	54	54	-	0	2.8	-	85	85	85	FKM			4270	486265	14	-	1060	
3/4	19	71	71	-	0	-	7	85	85	85	FKM	72218RG5VV00	221G5606	2995	481865	-	8	930	102
	19	71	71	-	0	-	7	85	85	85	FKM			4270	481000	-	8	1050	
	19	71	71	-	0	2.8	-	85	85	85	FKM			4270	486265	14	-	1060	

Normally open




303 Stainless steel body/Pipe mounting

3/8	16	43	43	-	0	8.5	8.5	85	85	85	FKM	72228RG3TV00	222G5306	4270	486265	14	14	-	102
1/2	16	58	58	-	0	8.5	8.5	85	85	85	FKM	72228RG4UV00	222G5506	4270	486265	14	14	1050	102

General application valves 2/2 - Magnalift

	H	P	L
	mm	mm	mm
221G53../222G33..	103	89	67
221G55../222G35..	103	89	67
221G56../222G36..	103	89	69

Dimension reference 102



General application valves for dry or lubricated air, neutral gases and liquids

2/2

Applications

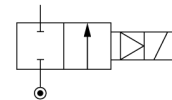
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Gases Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

1/4	8	36	36	-	0.3	25	40	-	100	100	FKM	7321HBG2SV00	E321H21	1	2995	481865	9	8	800	2	9		
	8	36	36	-	0.3	30	40	-	100	100	FKM					4270	481000	8	8	920	2		
	8	36	36	-	0.3	40	40	-	100	100	FKM					4270	486265	14	14	930	2		
	1/4	8	36	36	1600	0.3	25	40	100	75	100	NBR	7321HBG2SN00	E321H11	1	2995	481865	9	8	800	2	9	
		8	36	36	1600	0.3	30	40	100	75	100	NBR					4270	481000	8	8	920	2	
		12	30	30	2150	0.3	10	10	100	100	100	FKM	-	321K3106		8993	481180	5	4	380	1	72	
		12	30	30	2150	0.3	7	10	75	75	75	FKM				8993	488980	2.5	2	380	1		
		12	30	30	2150	0.3	10	10	100	75	100	NBR	-	321K31		8993	481180	5	4	380	1	72	
		12	30	30	2150	0.3	7	10	75	75	75	NBR				8993	488980	2.5	2	380	1		
	3/8	11	50	50	-	0.3	25	40	-	100	100	FKM	7321HBG3TV00	E321H23	1	2995	481865	9	8	780	2	9	
		11	50	50	-	0.3	30	40	-	100	120	FKM					4270	481000	8	8	900	2	
		11	50	50	-	0.3	40	40	-	100	140	FKM					4270	486265	14	14	910	2	
11		50	50	2800	0.3	25	40	100	75	100	NBR	7321HBG3TN00	E321H13	1	2995	481865	9	8	780	2	9		
11		50	50	2800	0.3	30	40	100	75	100	NBR					4270	481000	8	8	900	2		
12		45	45	3050	0.3	10	10	100	100	100	FKM	-	321K3306		8993	481180	5	4	380	1	72		
12		45	45	3050	0.3	7	10	75	75	75	FKM				8993	488980	2.5	2	380	1			
12		45	45	3050	0.3	10	10	100	75	100	NBR	-	321K33		8993	481180	5	4	380	1	72		
12	45	45	3050	0.3	7	10	75	75	75	NBR				8993	488980	2.5	2	380	1				
1/2	12	50	50	3400	0.3	10	10	100	100	100	FKM	-	321K3506		8993	481180	5	4	380	1	72		
	12	50	50	3400	0.3	7	10	75	75	75	FKM				8993	488980	2.5	2	380	1			
	12	50	50	3400	0.3	10	10	100	75	100	NBR	-	321K35		8993	481180	5	4	380	1	72		
	12	50	50	3400	0.3	7	10	75	75	75	NBR				8993	488980	2.5	2	380	1			
	14.5	60	60	-	0.3	25	40	-	100	100	FKM	7321HBG4UV00	E321H25	1	2995	481865	9	8	740	2	9		
	14.5	60	60	-	0.3	30	40	-	100	120	FKM					4270	481000	8	8	860	2		
	14.5	60	60	-	0.3	40	40	-	100	140	FKM					4270	486265	14	14	870	2		
	14.5	60	60	3150	0.3	10	-	75	75	-	NBR	-			321H1590	3	-	483580.01	4	0.4	-	715	7

Table continued on page 24

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
- 3. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
- 4. This reference no. is for the complete electrical part (coil + housing)

General application valves 2/2 - Pilot operated

DIN 43650 A

Dimension reference 9

	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K31	1/4	25	50	6.2	26	27	5.5	81	39	61	40
K33	3/8	25	50	6.2	26	27	5.5	81	39	61	40
K35	1/2	27.5	55	6.2	26	27	5.5	81	39	61	40
K36	3/4	40	80	9	33.5	32	8	96.5	46	68.5	56
K37	1	42.5	85	14.2	33.5	41	8	96.5	56	68.5	56

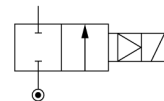
Dimension reference 72

Dimension reference 75

General application valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	DC	AC	Gas	Liquid		Oil	Global valve reference	Valve reference no.	Housing	Coil	DC			

Normally closed



Brass body/Pipe mounting

1/2	14.5	60	60	3150	0.3	25	40	100	75	100	NBR	7321HBG4UN00	E321H15	1	2995	481865	9	8	740	2	9
	14.5	60	60	3150	0.3	30	40	100	75	100	NBR					4270	481000	8	8	860	2
3/4	18	100	100	9400	0.3	10	10	100	100	100	FKM	-	321K3606		8993	481180	5	4	590	1	72
	18	100	100	9400	0.3	7	10	75	75	75	FKM					8993	488980	2.5	2	590	1
	18	100	100	9400	0.3	10	10	100	75	100	NBR	-	321K36		8993	481180	5	4	590	1	72
	18	100	100	9400	0.3	7	10	75	75	75	NBR					8993	488980	2.5	2	590	1
	20	135	135	9500	0.3	16	16	100	100	100	FKM	7321GBG53V00	E321G3606		2995	481865	9	8	1430	2	11
	20	135	135	9500	0.3	16	16	120	100	120	FKM					4270	481000	8	8	1550	2
	20	135	135	9500	0.3	16	16	100	75	100	NBR	7321GBG53N00	E321G36	3	2995	481865	9	8	1430	2	11
	20	135	135	9500	0.3	16	16	100	75	100	NBR					4270	481000	8	8	1550	2
1	18	110	110	10150	0.3	10	10	100	100	100	FKM	-	321K3706		8993	481180	5	4	735	1	72
	18	110	110	10150	0.3	7	10	75	75	75	FKM					8993	488980	2.5	2	735	1
	18	110	110	10150	0.3	10	10	100	75	100	NBR	-	321K37		8993	481180	5	4	735	1	72
	18	110	110	10150	0.3	7	10	75	75	75	NBR					8993	488980	2.5	2	735	1
	25	180	180	14000	0.3	16	16	100	100	100	FKM	7321GBG64V00	E321G3706		2995	481865	9	8	1230	2	11
	25	180	180	14000	0.3	16	16	120	100	120	FKM					4270	481000	8	8	1350	2

Table continued on page 26

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section

General application valves 2/2 - Pilot operated

Dimension reference 9

Dimension reference 11

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

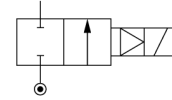
Dimension reference 72

	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K31	1/4	25	50	6.2	26	27	5.5	81	39	61	40
K33	3/8	25	50	6.2	26	27	5.5	81	39	61	40
K35	1/2	27.5	55	6.2	26	27	5.5	81	39	61	40
K36	3/4	40	80	9	33.5	32	8	96.5	46	68.5	56
K37	1	42.5	85	14.2	33.5	41	8	96.5	56	68.5	56

General application valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Gases Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				

Normally closed



Brass body/Pipe mounting

1	25	185	185	14100	0.3	10	-	75	75	-	NBR	-	321G3790	¹	-	483580.01	²	0.4	-	1205	7	76
	25	180	180	14000	0.3	16	16	75	75	75	NBR	7321GBG64N1D	E321G37101D	-	-	483250	-	8	8	2195	5	3849
	25	180	180	14000	0.3	16	16	100	75	100	NBR	7321GBG64N00	E321G37	³	2995	481865	-	9	8	1230	2	11
	25	180	180	14000	0.3	16	16	100	75	100	NBR	-	-	-	-	4270	481000	-	8	8	1350	2
1 1/4	28	280	280	18000	0.3	16	16	100	100	100	FKM	7321GBG76V00	E321G3806	-	2995	481865	-	9	8	1860	2	11
	28	280	280	18000	0.3	16	16	120	100	120	FKM	-	-	-	4270	481000	-	8	8	1980	2	-
	28	280	280	18000	0.3	16	16	100	75	100	NBR	7321GBG76N00	E321G38	³	2995	481865	-	9	8	1860	2	11
	28	280	280	18000	0.3	16	16	100	75	100	NBR	-	-	-	4270	481000	-	8	8	1980	2	-
1 1/2	40	420	420	31500	0.3	7	16	100	100	100	FKM	7321GBG88V00	E321G3906	-	2995	481865	-	9	8	2560	2	11
	40	420	420	31500	0.3	8.5	16	120	100	120	FKM	-	-	-	4270	481000	-	8	8	2680	2	-
	40	425	425	31000	0.5	10	-	75	75	-	NBR	-	321G3990	¹	-	483580.01	²	0.4	-	2635	7	76

Table continued on page 28

Notes:

- * See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section

General application valves 2/2 - Pilot operated

32
481865 19,5 24 DIN43650 A
20
38
B
E
D
A
C
G
F
H

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

50
40
65
2x1mm²
B
E
D
A
C
G
F
H

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G3790	100	135	50	23	60	41	1	70
G3990	140	158	75	33	73	60	1 1/2	99
G4090	150	172.5	80	41.5	79	75	2	99

Dimension reference 76

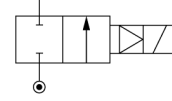
105
53,5
23
100
G1"
41
70

Dimension reference 3849

General application valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

1 1/2	40	420	420	31500	0.3	8.5	16	75	75	75	NBR	7321GBG88N3D	E321G39101D	-	483250	8	8	3525	5	3850
	40	420	420	31500	0.3	7	16	100	75	100	NBR	7321GBG88N00	E321G39 ¹	2995	481865	9	8	2560	2	11
	40	420	420	31500	0.3	8.5	16	100	75	100	NBR			4270	481000	8	8	2680	2	
	40	420	420	31500	0.3	16	16	100	75	100	NBR			4270	486265	14	14	2700	2	
2	40	540	540	40000	0.3	7	16	100	100	100	FKM	7321GBG99V00	E321G4006	2995	481865	9	8	2920	2	11
	40	540	540	40000	0.3	7	16	120	100	120	FKM			4270	481000	8	8	3040	2	
	40	540	540	38100	0.5	10	-	75	75	-	NBR	-	321G4090 ²	-	483580.01 ³	0.4	-	2885	7	76

Table continued on page 30

Notes:

* See Electrical Parts Group table at end of section

1. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
3. This reference no. is for the complete electrical part (coil + housing)

General application valves 2/2 - Pilot operated

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G3790	100	135	50	23	60	41	1	70
G3990	140	158	75	33	73	60	1 1/2	99
G4090	150	172.5	80	41.5	79	75	2	99

Dimension reference 76

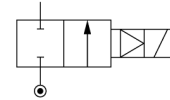
	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G3850	140	118	75	33	66.5	60	1 1/2	99

Dimension reference 3850

General application valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				

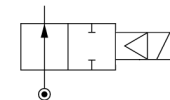
Normally closed



Brass body/Pipe mounting

2	40	540	540	40000	0.3	8.5	16	75	75	75	NBR	7321GBG99N3D	E321G40101D	-	483250	8	8	3865	5	3851
	40	540	540	40000	0.3	7	16	100	75	100	NBR	7321GBG99N00	E321G40	¹ 2995	481865	9	8	2900	2	11
	40	540	540	40000	0.3	8.5	16	100	75	100	NBR			4270	481000	8	8	3040	2	
	40	540	540	40000	0.3	16	16	100	75	100	NBR			4270	486265	14	14	3050	2	

Normally open



Brass body/Pipe mounting

1/4	8	36	36	-	0.3	3	40	40	-	100	100	FKM	7322HBG2SV00	322H7106	² 2995	481865	9	8	820		9
	8	36	36	-	0.3	3	40	40	-	120	120	FKM			4270	481000	8	8	940		
	8	36	36	-	0.3	3	40	40	-	140	140	FKM			4270	486265	14	14	950		
	8	36	36	1600	0.3	3	25	40	100	75	100	NBR	7322HBG2SN00	322H71	² 2995	481865	9	8	840		9
	8	36	36	1600	0.3	3	30	40	100	75	100	NBR			4270	481000	8	8	960		

Table continued on page 32

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
- 2. Pilot seat discs from ruby (synthetic)
- 3. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

General application valves 2/2 - Pilot operated

Dimension reference 9

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

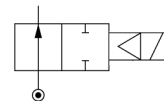
Dimension reference 11

Dimension reference 3851

General application valves 2/2 - Pilot operated

Port size G	Orifice (mm)		Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
	Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil	Global valve reference	Valve reference no.		Housing	Coil	DC	AC					

Normally open



Brass body/Pipe mounting

1/4	12	30	30	2150	0.3	12	12	100	100	100	FKM	7322KBG2SVW0	322K4106	2995	481865	9	8	490		73	
	12	30	30	2150	0.3	12	12	120	100	120	FKM			4270	481000	8	8	610			
3/8	11	50	50	-	0.3	2	40	40	-	75	100	FKM	7322HBG3TV00	322H7306	2995	481865	9	8	800		9
	11	50	50	-	0.3	2	40	40	-	75	100	FKM			4270	481000	8	8	920		
	11	50	50	-	0.3	2	40	40	-	140	140	FKM		4270	486265	14	14	930			
	11	50	50	3240	0.3	2	40	40	100	75	100	NBR	7322HBG3TN00	322H73	2995	481865	9	8	800		9
	11	50	50	3240	0.3	2	40	40	100	75	100	NBR			4270	481000	8	8	920		
	12	45	45	3050	0.3	12	12	100	100	100	100	FKM	7322KBG3TVW0	322K4306	2995	481865	9	8	490		73
12	45	45	3050	0.3	12	12	120	100	120	100	FKM		4270		481000	8	8	610			
1/2	12	50	50	3400	0.3	12	12	100	100	100	FKM	7322KBG4TVW0	322K4506	2995	481865	9	8	490		73	
	12	50	50	3400	0.3	12	12	120	100	120	FKM			4270	481000	8	8	610			
	14.5	60	60	-	0.3	2	40	40	-	100	100	FKM	7322HBG4UV00	322H7506	2995	481865	9	8	760		9
	14.5	60	60	-	0.3	2	40	40	-	100	120	FKM			4270	481000	8	8	880		
	14.5	60	60	-	0.3	2	40	40	-	100	140	FKM		4270	486265	14	14	890			
	14.5	60	60	3890	0.3	2	40	40	100	75	100	NBR	7322HBG4UN00	322H75	2995	481865	9	8	760		9
14.5	60	60	3890	0.3	2	40	40	100	75	100	NBR		4270		481000	8	8	880			
3/4	18	100	100	9400	0.3	12	12	100	100	100	FKM	7322KBG51VW0	322K4606	2995	481865	9	8	700		73	
	18	100	100	9400	0.3	12	12	120	100	120	FKM			4270	481000	8	8	820			
	20	135	135	9500	0.3	16	16	100	100	100	FKM	7322GBG53V00	322G3606	2995	481865	9	8	1430		11	
	20	135	135	9500	0.3	16	16	120	100	120	FKM			4270	481000	8	8	1550			
	20	135	135	9500	0.3	16	16	100	75	100	NBR	7322GBG53N00	322G36	2995	481865	9	8	1430		11	
	20	135	135	9500	0.3	16	16	100	75	100	NBR			4270	481000	8	8	1550			
1	18	110	110	10150	0.3	12	12	100	100	100	FKM	7322KBG62VW0	322K4706	2995	481865	9	8	845		73	
	18	110	110	10150	0.3	12	12	120	100	120	FKM			4270	481000	8	8	965			
	25	180	180	14000	0.3	16	16	100	100	100	FKM	7322GBG64V00	322G3706	2995	481865	9	8	1230		11	
	25	180	180	14000	0.3	16	16	120	100	120	FKM			4270	481000	8	8	1350			
	25	180	180	14000	0.3	16	16	100	75	100	NBR	7322GBG64N00	322G37	2995	481865	9	8	1230		11	
	25	180	180	14000	0.3	16	16	100	75	100	NBR			4270	481000	8	8	1350			
1 1/4	28	270	270	18000	0.3	16	16	100	100	100	FKM	7322GBG76V00	322G3806	2995	481865	9	8	1860		11	
	28	270	270	18000	0.3	16	16	120	100	120	FKM			4270	481000	8	8	1980			
	28	270	270	18000	0.3	16	16	100	75	100	NBR	7322GBG76N00	322G38	2995	481865	9	8	1860		11	
	28	270	270	18000	0.3	16	16	100	75	100	NBR			4270	481000	8	8	1980			
1 1/2	40	420	420	31500	0.3	12	12	100	100	100	FKM	7322GBG88V00	322G3906	2995	481865	9	8	2560		11	
	40	420	420	31500	0.3	12	12	120	100	120	FKM			4270	481000	8	8	2680			
	40	420	420	31500	0.3	12	12	100	75	100	NBR	7322GBG88N00	322G39	2995	481865	9	8	2560		11	
	40	420	420	31500	0.3	12	12	100	75	100	NBR			4270	481000	8	8	2680			
2	40	540	540	40000	0.3	12	12	100	100	100	FKM	7322GBG99V00	322G4006	2995	481865	9	8	2900		11	
	40	540	540	40000	0.3	12	12	120	100	120	FKM			4270	481000	8	8	3040			
	40	540	540	40000	0.3	12	12	100	75	100	NBR	7322GBG99N00	322G40	2995	481865	9	8	2900		11	
	40	540	540	40000	0.3	12	12	100	75	100	NBR			4270	481000	8	8	3040			

Table continued on page 34

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

General application valves 2/2 - Pilot operated

Dimension reference 9

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

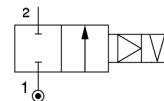
	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K41	1/4	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K43	3/8	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K45	1/2	27.5	55	6.2	29	27	5.5	93.5	39	73.5	40
K46	3/4	40	80	9	36.5	32	8	109	46	81	56
K47	1	42.5	85	14.2	36.5	41	8	109	56	81	56

Dimension reference 73

General application valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																				

Magnetic latch control

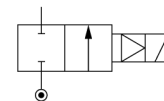


325 K41

Brass body/Pipe mounting

1/4	12	30	30	2150	0.3	-	12	100	100	100	FKM	7325KBG2SVW0	325K4106	4269	484990	-	11	630	4	73
	12	30	30	2150	0.3	12	-	100	100	100	FKM			4269	485400	13	-	630	4	73
3/8	12	45	45	3050	0.3	-	12	100	100	100	FKM	7325KBG3TVW0	325K4306	4269	484990	-	11	630	4	73
	12	45	45	3050	0.3	12	-	100	100	100	FKM			4269	485400	13	-	630	4	73
1/2	12	50	50	3400	0.3	-	12	100	100	100	FKM	7325KBG4TVW0	325K4506	4269	484990	-	11	630	4	73
	12	50	50	3400	0.3	12	-	100	100	100	FKM			4269	485400	13	-	630	4	73
3/4	18	100	100	9400	0.3	-	12	100	100	100	FKM	7325KBG51VW0	325K4606	4269	484990	-	11	840	4	73
	18	100	100	9400	0.3	12	-	100	100	100	FKM			4269	485400	13	-	840	4	73
1	18	110	110	10150	0.3	-	12	100	100	100	FKM	7325KBG62VW0	325K4706	4269	484990	-	11	985	4	73
	18	110	110	10150	0.3	12	-	100	100	100	FKM			4269	485400	13	-	985	4	73

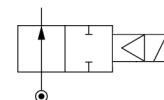
Normally closed



Brass body/Sub-base mounting

SB	14	45	45	-	0.3	2	25	40	-	100	100	FKM	7321FBF3TV00	E321F3202	1	2995	481865	9	8	650	2	13
	14	45	45	-	0.3	2	30	40	-	100	120	FKM			4270	481000	8	8	770	2		
	14	45	45	-	0.3	2	40	40	-	100	120	FKM			4270	486265	14	14	780	2		
SB	14	45	45	2100	0.3	2	25	40	100	75	100	NBR	7321FBF3TN00	E321F32	1	2995	481865	9	8	650	2	13
	14	45	45	2100	0.3	2	30	40	100	75	100	NBR			4270	481000	8	8	770	2		
	14	45	45	2100	0.3	2	40	40	100	75	100	NBR			4270	486265	14	14	780	2		

Normally open



Brass body/Sub-base mounting

SB	14	45	45	-	0.3	2	40	40	-	100	100	FKM	7322FBF3TV00	322F7206	1	2995	481865	9	8	650		13
	14	45	45	-	0.3	2	40	40	-	100	120	FKM			4270	481000	8	8	770			
	14	45	45	-	0.3	2	40	40	-	100	140	FKM			4270	486265	14	14	780			
SB	14	45	45	2100	0.3	2	40	40	75	75	75	NBR	7322FBF3TN00	322F72	1	2995	481865	9	8	650		13
	14	45	45	2100	0.3	2	40	40	75	75	75	NBR			4270	481000	8	8	770			

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

General application valves 2/2 - Pilot operated

Dimension reference 13

	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K41	1/4	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K43	3/8	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K45	1/2	27.5	55	6.2	29	27	5.5	93.5	39	73.5	40
K46	3/4	40	80	9	36.5	32	8	109	46	81	56
K47	1	42.5	85	14.2	36.5	41	8	109	56	81	56

Dimension reference 73

Electrical parts options with 2/2 general application valves for dry or lubricated air, neutral gases and liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50
		IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Miniature valves (2-way direct operated)

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	.8 to 4	56.0	38
		Normally open	1/8	.8 to 2.4	21.0	40
	303 Stainless steel body	Normally closed	1/8	.8 to 4	56.0	40
		Normally open	1/8	.8 to 2.4	21.0	42
	Aluminium alloy body	Normally closed	SB	1.2 to 1.6	35.0	42
		Normally open	SB	1.2 to 2.4	14.0	42

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Miniature valves (2-way direct operated)

2/2

Applications

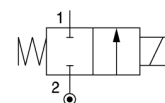
The Miniature Series is a small size and low power consumption valve line. It is available in 2-way (normally closed and normally open) and 3-way (normally closed and normally open) versions. These valves are equipped with integrated molded coils with tab or lead termination.

Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		

Brass body/Pipe mounting

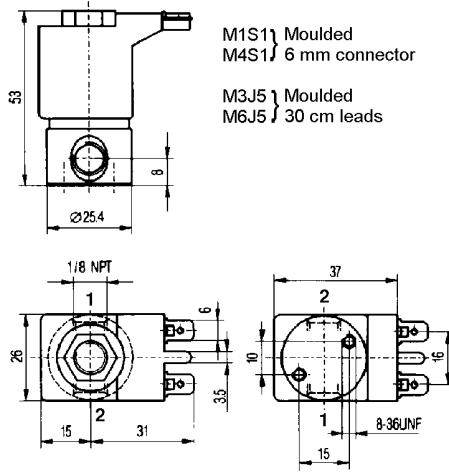
Normally closed



1/8	0.8	0.43	-	-	0	56	56	50	50	50	FKM	3121BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	56	56	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	0.8	0.43	-	-	0	54	54	50	50	50	FKM	3921BBN1AV00	-	NO	M4S1	2.5	2.5	-	100
	0.8	0.43	-	-	0	54	54	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.2	0.72	-	-	0	35	35	50	50	50	FKM	3121BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	35	35	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	21	21	50	50	50	FKM	3921BBN1EV00	-	NO	M4S1	2.5	2.5	-	100
	1.2	0.72	-	-	0	21	21	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	21	21	50	50	50	FKM	3121BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	21	21	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM	3921BBN1GV00	-	NO	M4S1	2.5	2.5	-	100
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2	1.86	-	-	0	14	14	50	50	50	FKM	3121BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	4.5	4.5	50	50	50	FKM	3921BBN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	4.5	4.5	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	12.25	12.25	50	50	50	FKM	3121BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	12.25	12.25	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM	3921BBN1LV00	-	NO	M4S1	2.5	2.5	-	100
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
3.2	3.43	-	-	0	7	7	50	50	50	FKM	3121BBN1NV00	-	NO	M1S1	4.5	4.5	-	100	
3.2	3.43	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-		
3.2	3.43	-	-	0	0.28	0.28	50	50	50	FKM	3921BBN1NV00	-	NO	M4S1	2.5	2.5	-	100	
3.2	3.43	-	-	0	0.28	0.28	50	50	50	FKM			NO	M6J5	2.5	2.5	-		
4	4.3	-	-	0	3.5	3.5	50	50	50	FKM	3121BBN1QV00	-	NO	M1S1	4.5	4.5	-	100	
4	4.3	-	-	0	3.5	3.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-		

Table continued on page 40

Miniature valves 2/2 - Direct operated



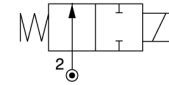
Dimension reference 100

Miniature valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		

Brass body/Pipe mounting

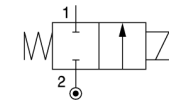
Normally open



1/8	0.8	0.43	-	-	0	21	21	50	50	50	FKM	3129BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	21	21	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	14	14	50	50	50	FKM	3129BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM	3129BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3129BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM	3129BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

303 Stainless steel body/Pipe mounting

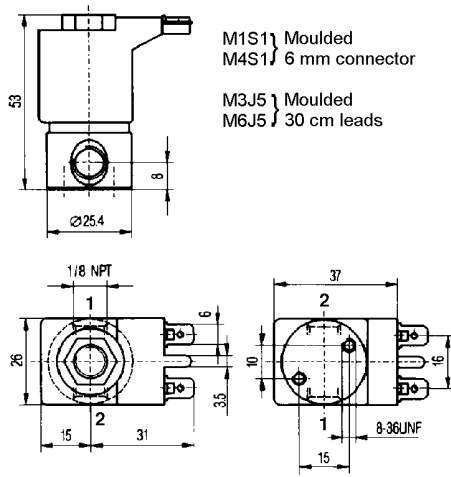
Normally closed



1/8	0.8	0.43	-	-	0	56	56	50	50	50	FKM	3121BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	56	56	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	0.8	0.43	-	-	0	54	54	50	50	50	FKM	3921BSN1AV00	-	NO	M4S1	2.5	2.5	-	100
	0.8	0.43	-	-	0	54	54	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.2	0.72	-	-	0	35	35	50	50	50	FKM	3121BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	35	35	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	21	21	50	50	50	FKM	3921BSN1EV00	-	NO	M4S1	2.5	2.5	-	100
	1.2	0.72	-	-	0	21	21	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	21	21	50	50	50	FKM	3121BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	21	21	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM	3921BSN1GV00	-	NO	M4S1	2.5	2.5	-	100
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2	1.86	-	-	0	14	14	50	50	50	FKM	3121BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	4.5	4.5	50	50	50	FKM	3921BSN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	4.5	4.5	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	12.25	12.25	50	50	50	FKM	3121BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	12.25	12.25	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM	3921BSN1LV00	-	NO	M4S1	2.5	2.5	-	100
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	3.2	3.43	-	-	0	7	7	50	50	50	FKM	3121BSN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	0.28	0.28	50	50	50	FKM	3921BSN1NV00	-	NO	M4S1	2.5	2.5	-	100
	3.2	3.43	-	-	0	0.28	0.28	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	4	4.3	-	-	0	3.5	3.5	50	50	50	FKM	3121BSN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	3.5	3.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Table continued on page 42

Miniature valves 2/2 - Direct operated



M1S1 Moulded
M4S1 6 mm connector

M3J5 Moulded
M6J5 30 cm leads



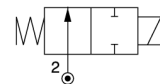
Dimension reference 100

Miniature valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids		Gases	Min	Max		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		
G		kv	Qmax	Qn		DC	AC												

303 Stainless steel body/Pipe mounting

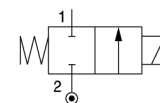
Normally open



1/8	0.8	0.43	-	-	0	21	21	50	50	50	FKM	3129BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	21	21	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	14	14	50	50	50	FKM	3129BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM	3129BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3129BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM	3129BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Aluminium alloy body/Sub-base mounting

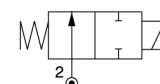
Normally closed



SB	1.2	0.72	-	-	0	35	35	50	50	50	FKM	3121BJA7EVC#	- 1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	35	35	50	50	50	FKM		1	NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	21	21	50	50	50	FKM	3921BJA7EVC#	- 1	NO	M4S1	2.5	2.5	-	101
	1.2	0.72	-	-	0	21	21	50	50	50	FKM		1	NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	21	21	50	50	50	FKM	3121BJA7GVC#	- 1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	21	21	50	50	50	FKM		1	NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM	3921BJA7GVC#	- 1	NO	M4S1	2.5	2.5	-	101
	1.6	1.29	-	-	0	6.6	6.6	50	50	50	FKM		1	NO	M6J5	2.5	2.5	-	

Aluminium alloy body/Sub-base mounting

Normally open

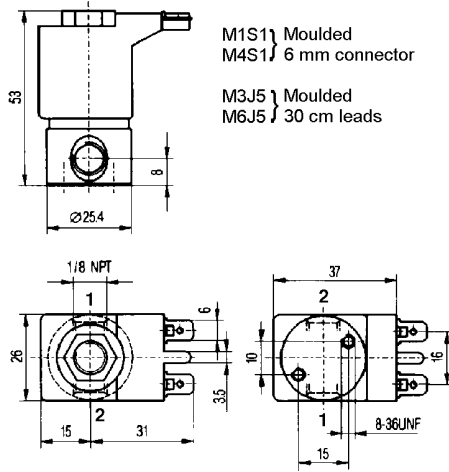


SB	1.2	0.72	-	-	0	14	14	50	50	50	FKM	3129BJA7EVC#	- 1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	14	14	50	50	50	FKM		1	NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM	3129BJA7GVC#	- 1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	10.5	10.5	50	50	50	FKM		1	NO	M3J5	4.5	4.5	-	
	2.4	1.29	-	-	0	2.8	2.8	50	50	50	FKM	3129BJA7LVC#	- 1	NO	M1S1	4.5	4.5	-	101
	2.4	1.29	-	-	0	2.8	2.8	50	50	50	FKM		1	NO	M3J5	4.5	4.5	-	

Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

Miniature valves 2/2 - Direct operated

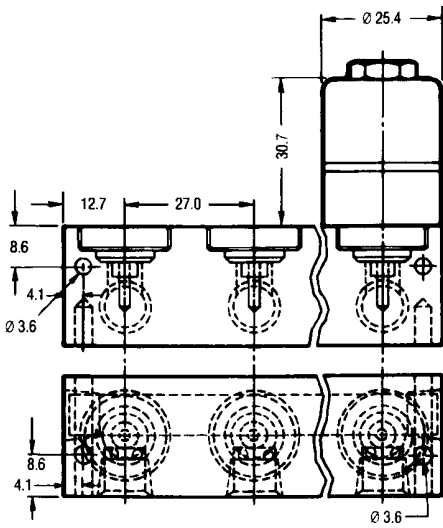


M1S1 } Moulded
M4S1 } 6 mm connector

M3J5 } Moulded
M6J5 } 30 cm leads

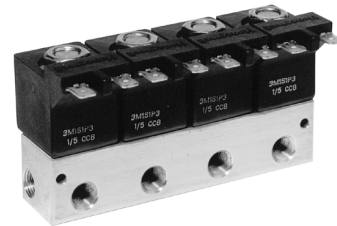


Dimension reference 100



M1S1 } Moulded
M4S1 } 6 mm connector

M3J5 } Moulded
M6J5 } 30 cm leads



Dimension reference 101

Valves for water and neutral liquids

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	1.5 to 3	20.0	46
			1/4	1.5 to 5	20.0	46
			3/8	4 to 6	10.0	48
			1/2	8.5 to 11	4.0	48
			SB	1.5 to 3	20.0	50
		Normally open	1/4	1.5 to 2.5	20.0	48
		Magnetic latch control	1/4	5	5.0	50
Magnalift	Brass body	Normally closed	3/8	15	16.0	52
			1/2	15	16.0	52
			3/4	15	16.0	52
			1	15 to 25	16.0	52
		Normally open	3/8	15	8.5	54
			1/2	15	8.5	54
			3/4	19	8.5	54
	303 Stainless steel body	Normally closed	3/8	15	7.0	54
			1/2	15	7.0	54
		Normally open	3/4	19	7.0	54
Pilot operated	Brass body	Normally closed	1/4	12	10.0	56
			3/8	12 to 13	20.0	56
			1/2	12 to 13	20.0	56
			3/4	18 to 20	20.0	56
			1	18 to 25	20.0	56
			1 1/4	28 to 35	16.0	58
			1 1/2	40	16.0	58
			2	40 to 50	16.0	58
			2 1/2	65	10.0	58
			3	75	10.0	58
			SB	14	40.0	60
			Normally open	3/8	13	20.0
		1/2		13	20.0	58
		3/4		20	20.0	58
		1		25	20.0	60
		1 1/4		28 to 35	16.0	60
		1 1/2		40	12.0	60
		2		40 to 50	12.0	60
		SB		14	40.0	60

Notes:

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Valves for water and neutral liquids

2/2

Applications

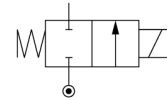
Wide range of valves suited to most industrial applications using liquids compatible with the indicated sealing materials. Typical applications can be found in general water supply, dispensing, industrial washing, laundry, heating-ventilation etc.



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max	DC			AC	Global valve reference	Valve reference no.	Housing	Coil	DC			
G																	

Normally closed



Brass body/Pipe mounting

1/8	1.5	1.5	6	0	20	20	75	FKM	7121ZBG1GV00	-	2995	481865	9	8	270	2	7893
	1.5	1.5	6	0	20	20	75	FKM			4270	481000	8	8	390	2	
	1.5	1.5	6	0	20	20	75	FKM			2995	482730	7	6	270	2	
	1.5	0.9	2.4	0	12	20	75	FKM	-	121M14	8993	481180	5	4	150	1	1
	1.5	0.9	2.4	0	4	20	75	FKM			8993	488980	2.5	2	150	1	
	2	2	8	0	7	10	75	FKM	-	121M13	8993	481180	5	4	150	1	1
	2	2	8	0	2.5	10	75	FKM			8993	488980	2.5	2	150	1	
	2.5	2.8	8.5	0	10	10	75	FKM	7121ZBG1LV00	-	2995	481865	9	8	270	2	7893
	2.5	2.8	8.5	0	10	10	75	FKM			4270	481000	8	8	390	2	
	2.5	2.8	8.5	0	5	10	75	FKM			2995	482730	7	6	270	2	
	3	4.5	9	0	7	10	100	FKM	7121KBG1NVM0	121K1352 1	2995	481865	9	8	300	2	3
	3	4.5	9	0	8	10	120	FKM			4270	481000	8	8	420	2	
3	4.5	9	0	10	10	120	FKM			4270	486265	14	14	430			
1/4	1.5	1.5	6	0	20	20	100	FKM	7121KBG2GV00	E121K0402	2995	481865	9	8	290	2	3
	1.5	1.5	6	0	20	20	120	FKM			4270	481000	8	8	410	2	
	2.5	3.5	8.5	0	7	14	100	FKM	7121KBG2LV00	121K0706	2995	481865	9	8	290	2	3
	2.5	3.5	8.5	0	9	14	120	FKM			4270	481000	8	8	410	2	
	2.5	3.5	8.5	0	14	14	120	FKM			4270	486265	14	14	420		
	2.5	3.5	8.5	0	7	14	100	FKM	7121KBG2LVM0	121K0756 1	2995	481865	9	8	290	2	3
	2.5	3.5	8.5	0	9	14	120	FKM			4270	481000	8	8	410	2	
	2.5	3.5	8.5	0	14	14	120	FKM			4270	486265	14	14	420		
	3	4.5	9	0	7	10	100	FKM	7121KBG2NV00	E121K0302	2995	481865	9	8	290	2	3
	3	4.5	9	0	8.5	10	120	FKM			4270	481000	8	8	410	2	
	3	4.5	9	0	10	10	120	FKM			4270	486265	14	14	420		
	3	4.5	9	0	7	10	100	FKM	7121KBG2NVM0	E121K0352 1	2995	481865	9	8	290	2	3
3	4.5	9	0	8.5	10	120	FKM			4270	481000	8	8	410	2		
3	4.5	9	0	10	10	120	FKM			4270	486265	14	14	420			

Table continued on page 48

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard

Valves for water and neutral liquids 2/2 - Direct operated

M5x5mm

DIN 43650 B

G 1/8

Dimension reference 1

DIN 43650 A

M5x5 mm

Values in brackets for G 3/8 valves
Valeurs entre parenthèse pour valves G 3/8
Angaben in Klammern für G 3/8 Ventile

481865

488698

488647

G

Dimension reference 3

M4x7 (4x)

DIN 43650-A

481865

Torque 4...5 Nm

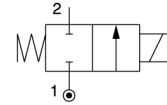
G 1/8 (2x)

Dimension reference 7893

Valves for water and neutral liquids 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

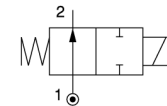
Normally closed



Brass body/Pipe mounting

1/4	4	7.5	10.5	0	4	10	100	FKM	7121KBG2QVM0	121K0250 ¹	2995	481865	9	8	290	2	3		
	4	7.5	10.5	0	5	10	120	FKM			4270	481000	8	8	410	2			
	4	7.5	10.5	0	10	10	120	FKM			4270	486265	14	14	420				
	1/4	4	7.5	10.5	0	4	10	100	FKM	7121KBG2QV00	121K02	2995	481865	9	8	290	2	3	
		4	7.5	10.5	0	5	10	120	FKM			4270	481000	8	8	410	2		
		4	7.5	10.5	0	10	10	120	FKM			4270	486265	14	14	420			
		1/4	5	11	11.5	0	2	7	100	FKM	7121KBG2SVM0	121K0150 ¹	2995	481865	9	8	290	2	3
			5	11	11.5	0	2.8	7	120	FKM			4270	481000	8	8	410	2	
			5	11	11.5	0	5	7	120	FKM			4270	486265	14	14	420		
	1/4		5	11	11.5	0	2	7	100	FKM	7121KBG2SV00	121K01	2995	481865	9	8	290	2	3
			5	11	11.5	0	2.8	7	120	FKM			4270	481000	8	8	410	2	
			5	11	11.5	0	5	7	120	FKM			4270	486265	14	14	420		
3/8	4	7.5	10.5	0	4	10	100	FKM	7121KBG3QV00	121K3206	2995	481865	9	8	340	2	3		
	4	7.5	10.5	0	5	10	120	FKM			4270	481000	8	8	460	2			
	4	7.5	10.5	0	10	10	120	FKM			4270	486265	14	14	470				
	3/8	5	11	11.5	0	2	7	100	FKM	7121KBG3SV00	121K3106	2995	481865	9	8	340	2	3	
		5	11	11.5	0	2.8	7	120	FKM			4270	481000	8	8	460	2		
		5	11	11.5	0	5	7	120	FKM			4270	486265	14	14	470			
	3/8	6	12	12.5	0	1.1	5	100	FKM	7121KBG3UV00	121K3306	2995	481865	9	8	340	2	3	
		6	12	12.5	0	1.5	5	120	FKM			4270	481000	8	8	460	2		
		6	12	12.5	0	3	5	120	FKM			4270	486265	14	14	470	2		
1/2	8.5	25	15	0	0.5	1.1	100	FKM	7121KBG42V00	E121K46	2995	481865	9	8	430	2	7		
	8.5	25	15	0	0.5	2.2	120	FKM			4270	481000	8	8	550	2			
	8.5	25	15	0	1.2	4	120	FKM			4270	486265	14	14	560				
	1/2	11	36	20	0	0.3	0.7	100	FKM	7121KBG44V00	E121K45	2995	481865	9	8	430	2	7	
		11	36	20	0	0.35	1.2	120	FKM			4270	481000	8	8	550	2		
		11	36	20	0	0.7	2.5	120	FKM			4270	486265	14	14	560			

Normally open



Brass body/Pipe mounting

1/4	1.5	1.5	6	0	20	20	100	FKM	7122KBG2GV00	122K8406	2995	481865	9	8	290	2	3
	1.5	1.5	6	0	20	20	120	FKM			4270	481000	8	8	410	2	
	2.5	3	3.5	0	12	12	100	FKM	7122KBG2LV00	122K8306	2995	481865	9	8	290	2	3
	2.5	3	3.5	0	12	12	120	FKM			4270	481000	8	8	410	2	

Table continued on page 50

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

Valves for water and neutral liquids 2/2 - Direct operated

DIN 43650 A

M5x5 mm

Values in brackets for G 3/8 valves
 Valeurs entre parenthèse pour valves G 3/8
 Angaben in Klammern für G 3/8 Ventile

78
15
32
20
33
11,5
1
2
(13)
(50)
40

19,5 24
481865
38
488698
8
488647
(22)
19
16
29

G

Dimension reference 3

M5x5 mm

15
44
37
12
32
20
15
32
55

22 41
481000
485100
486265

19,5 24
38
481865
27
Ø34

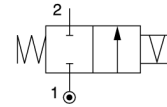
DIN 43650 A

Dimension reference 7

Valves for water and neutral liquids 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
				Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		kv	Qmax		DC	AC											

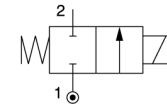
Magnetic latch control



Brass body/Pipe mounting

1/4	5	11	11.5	0	-	5	100	FKM	7125KBBG2SV00	125K01	4269	484990	-	11	430	4	3
	5	11	11.5	0	1.5	-	100	FKM			4269	485400	13	-	430	4	

Normally closed



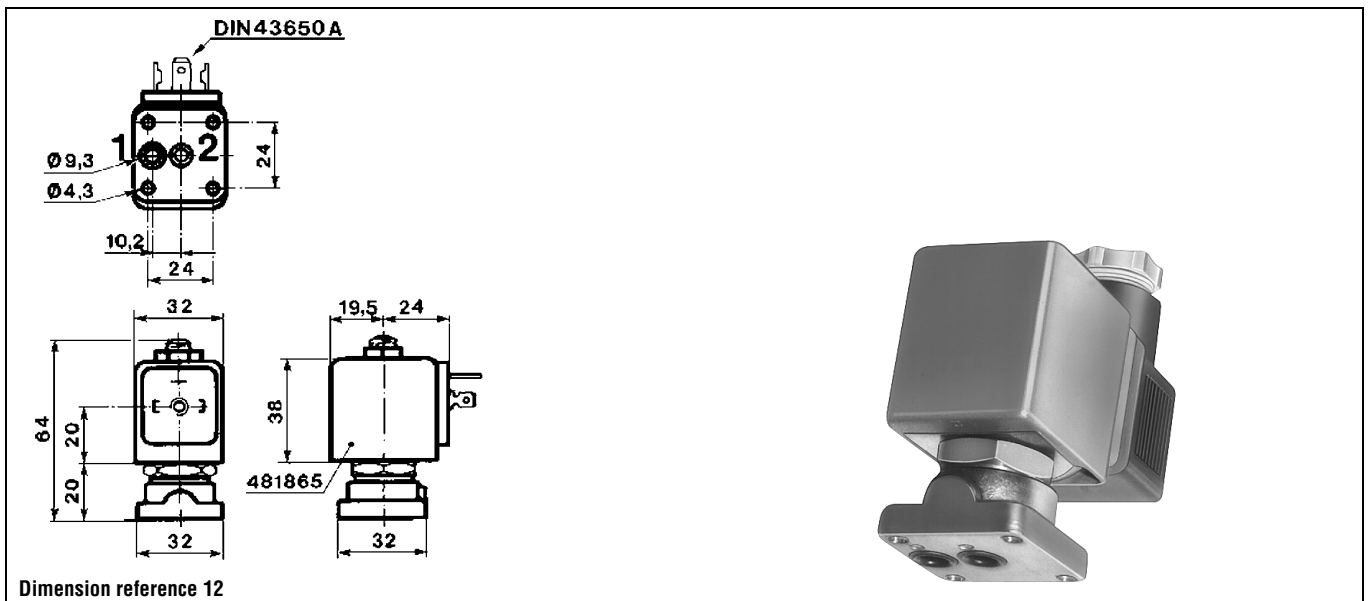
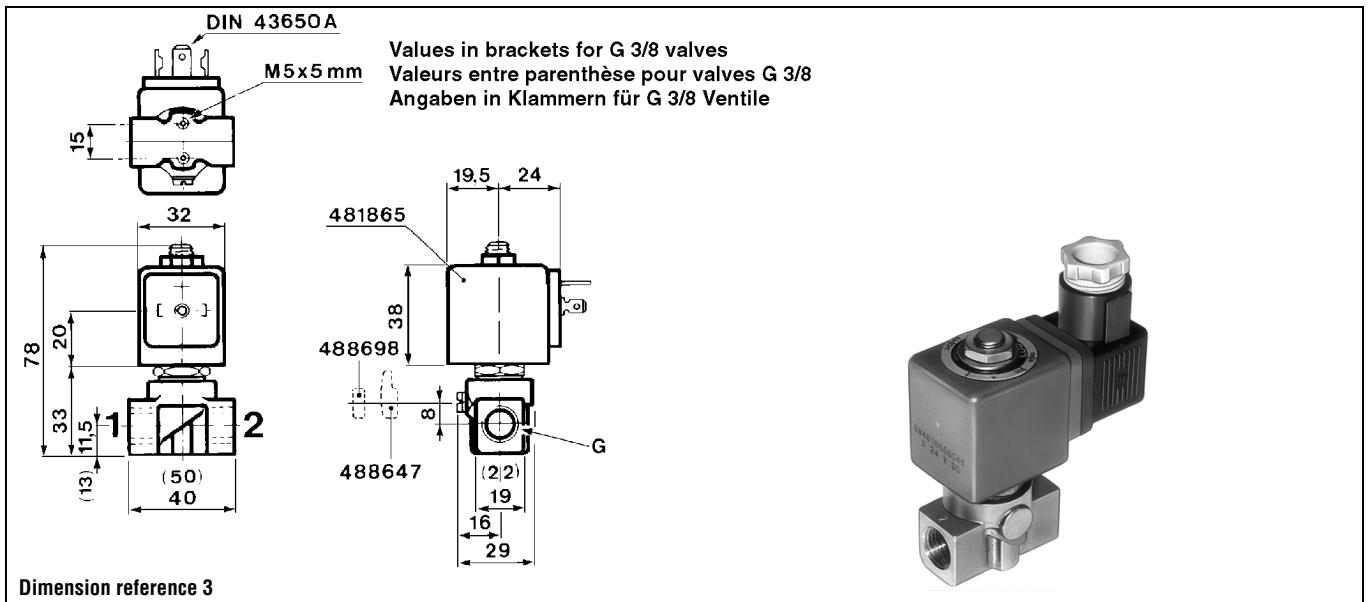
Brass body/Sub-base mounting

SB	1.5	1.6	6	0	20	20	100	FKM	7121FBBF4GV00	E121F4406	2995	481865	9	8	250		12
	1.5	1.6	6	0	20	20	120	FKM			4270	481000	8	8	370		
	2.5	3.5	8.5	0	7	14	100	FKM	7121FBBF4LV00	121F4706	2995	481865	9	8	250	2	12
	2.5	3.5	8.5	0	9	14	120	FKM			4270	481000	8	8	370	2	
	2.5	3.5	8.5	0	14	14	120	FKM			4270	486265	14	14	380	2	
	3	4.5	9	0	7	10	100	FKM	7121FBBF4NV00	E121F4302	2995	481865	9	8	250	2	12
	3	4.5	9	0	8.5	10	120	FKM			4270	481000	8	8	370	2	
	3	4.5	9	0	10	10	120	FKM			4270	486265	14	14	380	2	

Notes:

* See Electrical Parts Group table at end of section

Valves for water and neutral liquids 2/2 - Direct operated



Valves for water and neutral liquids

2/2

Applications

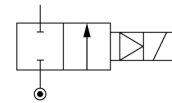
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G																

Normally closed



Brass body/Pipe mounting

3/8	15	65	65	0	10	-	75	NBR	7221GBG3VNH0	221G1330	2995	481865 ¹	9	-	630	10
	15	65	65	0	10	10	65	NBR			-	492070 ¹	8	8	1000	
	15	65	65	0	10	10	75	NBR			-	492190 ¹	9	11	1000	
	15	65	65	0	-	16	75	NBR	7221GBG3VN00	221G13	2995	481865	-	8	630	10
	15	65	65	0	-	16	75	NBR			4270	481000	-	8	750	
1/2	15	65	65	0	10	-	75	NBR	7221GBG4VNH0	221G1530	2995	481865 ¹	9	-	640	10
	15	65	65	0	10	10	65	NBR			-	492070 ¹	8	9	1010	
	15	65	65	0	10	10	75	NBR			-	492190 ¹	9	11	1010	
	15	65	65	0	-	16	75	NBR	7221GBG4VN00	221G15	2995	481865	-	8	640	10
	15	65	65	0	-	16	75	NBR			4270	481000	-	8	760	
3/4	15	80	80	0	10	-	75	NBR	7221GBG51NH0	221G1630	2995	481865 ¹	9	-	670	10
	15	80	80	0	10	10	65	NBR			-	492070 ¹	8	8	1040	
	15	80	80	0	10	10	75	NBR			-	492190 ¹	9	11	1040	
	15	80	80	0	-	16	75	NBR	7221GBG51N00	221G16	2995	481865	-	8	670	10
	15	80	80	0	-	16	75	NBR			4270	481000	-	8	790	
1	15	80	80	0	10	-	75	NBR	7221GBG61NH0	221G1730	2995	481865 ¹	9	-	810	10
	15	80	80	0	10	10	65	NBR			-	492070 ¹	8	8	1180	
	15	80	80	0	10	10	75	NBR			-	492190 ¹	9	11	1180	
	15	80	80	0	-	16	75	NBR	7221GBG61N00	221G17	2995	481865	-	8	810	10
	15	80	80	0	-	16	75	NBR			4270	481000	-	8	930	
	15	80	80	0	7	-	75	NBR			4270	486265	14	-	940	
	25	170	160	0	10	-	75	NBR	7221GBG64NH0	221G2130	2995	481865 ¹	9	-	1170	10
25	170	160	0	10	10	65	NBR			-	492070 ¹	8	8	1540		
25	170	160	0	10	10	75	NBR			-	492190 ¹	9	11	1540		

Table continued on page 54

Notes:

1. Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.

Valves for water and neutral liquids 2/2 - Magnalift

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G15/25	75	93	37.5	15	34	27	1/2	53
G13/23	75	93	37.5	15	34	27	3/8	53
G16/26	80	95.5	40	17.5	34	32	3/4	53
G17/27	85	102.5	42.5	22.5	36	41	1	53
G21	100	108	50	23	41	41	1	70

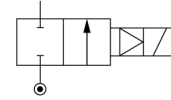
Dimension reference 10

Valves for water and neutral liquids 2/2 - Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

Brass body/Pipe mounting

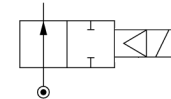
Normally closed



1	25	160	160	0	-	16	75	NBR	7221GBG64N00	221G21	2995	481865	-	8	1170	10
	25	160	160	0	-	16	75	NBR			4270	481000	-	8	1290	
	25	160	160	0	6	-	75	NBR			4270	486265	14	-	1300	

Brass body/Pipe mounting

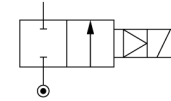
Normally open



3/8	15	43	43	0	8.5	8.5	85	FKM	72228BG3TV00	222G3306	4270	486265	14	14	940	102
1/2	15	58	58	0	8.5	8.5	85	FKM	72228BG4UV00	222G3506	4270	486265	14	14	940	102
3/4	19	72	72	0	8.5	8.5	85	FKM	72228BG5VV00	222G3606	4270	486265	14	14	940	102

303 Stainless steel body/Pipe mounting

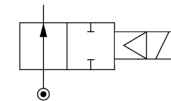
Normally closed



3/8	15	42	42	0	-	7	85	FKM	72218RG3TV00	221G5306	2995	481865	-	8	930	102
	15	42	42	0	-	7	85	FKM			4270	481000	-	8	1050	
	15	42	42	0	2.8	-	85	FKM			4270	486265	14	-	1060	
1/2	15	54	54	0	-	7	85	FKM	72218RG4UV00	221G5506	2995	481865	-	8	930	102
	15	54	54	0	-	7	85	FKM			4270	481000	-	8	1050	
	15	54	54	0	2.8	-	85	FKM			4270	486265	14	-	1060	
3/4	19	71	71	0	-	7	85	FKM	72218RG5VV00	221G5606	2995	481865	-	8	930	102
	19	71	71	0	-	7	85	FKM			4270	481000	-	8	1050	
	19	71	71	0	2.8	-	85	FKM			4270	486265	14	-	1060	

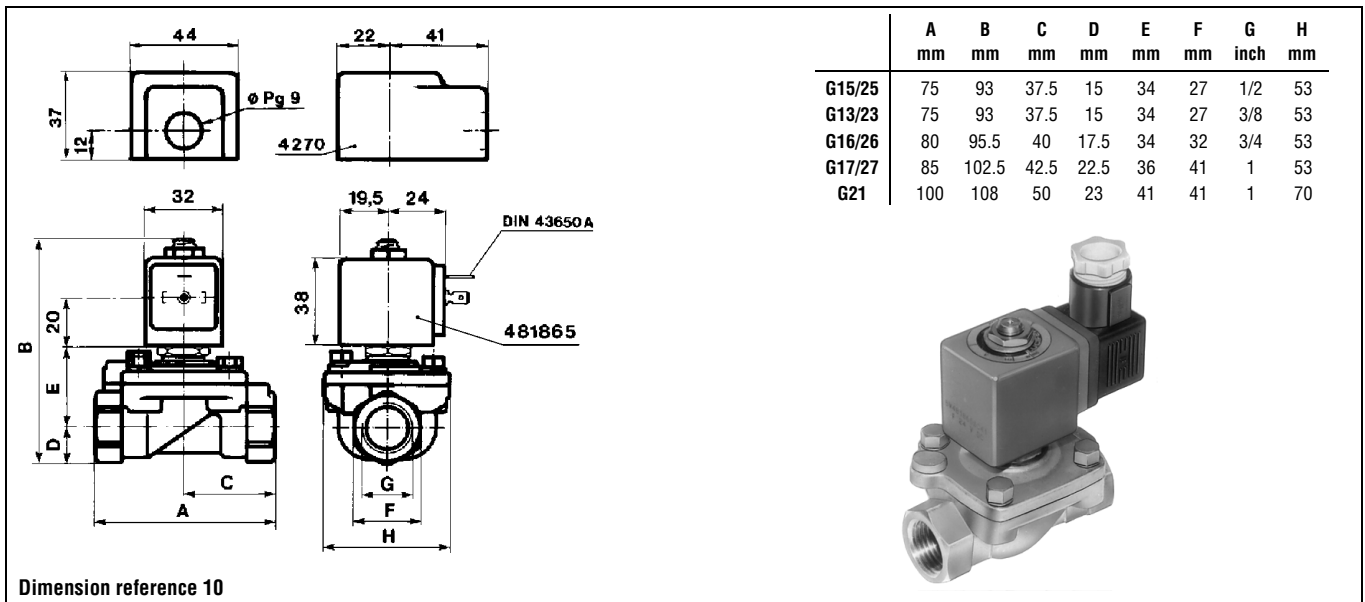
303 Stainless steel body/Pipe mounting

Normally open



3/8	16	43	43	0	8.5	8.5	85	FKM	72228RG3TV00	222G5306	4270	486265	14	14	-	102
1/2	16	58	58	0	8.5	8.5	85	FKM	72228RG4UV00	222G5506	4270	486265	14	14	1050	102

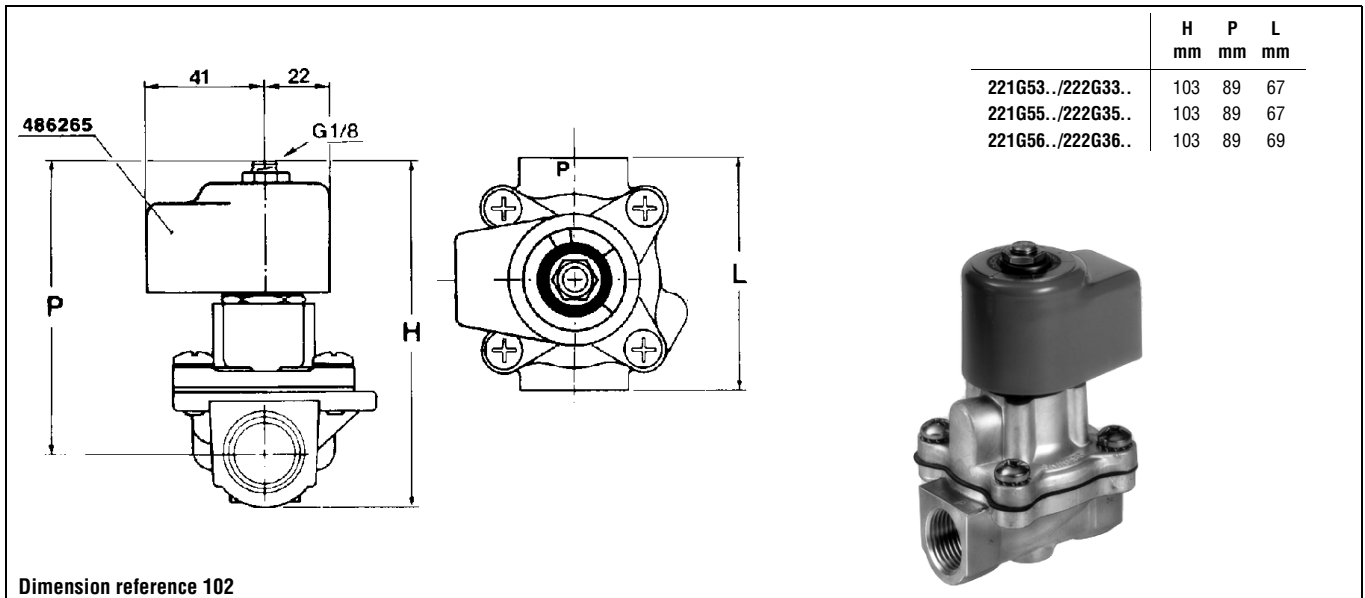
Valves for water and neutral liquids 2/2 - Magnalift



Technical drawings showing dimensions A through H for a 2/2 valve. The drawings include a top view with dimensions 44, 37, 12, and a hole labeled ϕ Pg 9. A side view shows dimensions 22 and 41. A front view shows dimensions 32, 20, D, E, and A. A rear view shows dimensions 19.5, 24, 38, G, F, and H. A detail of the valve body is labeled 481865 and DIN 43650A. A 3D perspective view of the valve is shown to the right.

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G15/25	75	93	37.5	15	34	27	1/2	53
G13/23	75	93	37.5	15	34	27	3/8	53
G16/26	80	95.5	40	17.5	34	32	3/4	53
G17/27	85	102.5	42.5	22.5	36	41	1	53
G21	100	108	50	23	41	41	1	70

Dimension reference 10



Technical drawings showing dimensions H, P, and L for a 2/2 valve. The drawings include a side view with dimensions 41, 22, and a hole labeled G 1/8. A front view shows dimensions P and H. A top view shows a square body with four mounting holes and a port labeled P. A 3D perspective view of the valve is shown to the right.

	H mm	P mm	L mm
221G53../222G33..	103	89	67
221G55../222G35..	103	89	67
221G56../222G36..	103	89	69

Dimension reference 102

Valves for water and neutral liquids

2/2

Applications

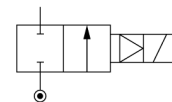
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G					DC	AC											

Normally closed



Brass body/Pipe mounting

1/4	12	30	30	0.3	10	10	75	NBR	-	321K31	8993	481180	5	4	380	1	72
	12	30	30	0.3	7	10	75	NBR			8993	488980	2.5	2	380	1	
3/8	12	45	45	0.3	10	10	75	NBR	-	321K33	8993	481180	5	4	380	1	72
	12	45	45	0.3	7	10	75	NBR			8993	488980	2.5	2	380	1	
	13	50	50	0.1	20	20	90	NBR	7321BBG3TN00	-	2995	481865	9	8	560	2	1000
	13	50	50	0.1	20	20	90	NBR			4270	481000	8	8	560	2	
	13	50	50	0.1	20	20	90	NBR	7321BBG3TNM0	- 1	2995	481865	9	8	560	2	1000
	13	50	50	0.1	20	20	90	NBR			4269	481000	8	8	560	2	
1/2	12	50	50	0.3	10	10	75	NBR	-	321K35	8993	481180	5	4	380	1	72
	12	50	50	0.3	7	10	75	NBR			8993	488980	2.5	2	380	1	
	13	140	140	0.1	20	20	90	NBR	7321BBG4TN00	-	2995	481865	9	8	590	2	1000
	13	140	140	0.1	20	20	90	NBR			4269	481000	8	8	590	2	
	13	140	140	0.1	20	20	90	NBR	7321BBG4TNM0	- 1	2995	481865	9	8	590	2	1000
	13	140	140	0.1	20	20	90	NBR			4269	481000	8	8	590	2	
3/4	18	100	100	0.3	10	10	75	NBR	-	321K36	8993	481180	5	4	590	1	72
	18	100	100	0.3	7	10	75	NBR			8993	488980	2.5	2	590	1	
	20	140	140	0.1	20	20	90	NBR	7321BBG53N00	-	2995	481865	9	8	1050	2	1000
	20	140	140	0.1	20	20	90	NBR			4269	481000	8	8	1050	2	
	20	140	140	0.1	10	10	90	NBR	7321BBG53NM0	- 2	2995	481865	9	8	1050	2	1000
	20	140	140	0.1	10	10	90	NBR			4269	481000	8	8	1050	2	
1	20	135	135	0.3	16	16	75	NBR	7321GBG53N00	E321G36 3	2995	481865	9	8	1430	2	11
	20	135	135	0.3	16	16	75	NBR			4270	481000	8	8	1550	2	
	18	110	110	0.3	10	10	75	NBR	-	321K37	8993	481180	5	4	735	1	72
	18	110	110	0.3	7	10	75	NBR			8993	488980	2.5	2	735	1	
	25	160	160	0.1	20	20	90	NBR	7321BBG64N00	-	2995	481865	9	8	1110	2	1000
	25	160	160	0.1	20	20	90	NBR			4269	481000	8	8	1110	2	

Table continued on page 58

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. For manual override and closure speed control change M0 by M1
- 3. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section

Valves for water and neutral liquids 2/2 - Pilot operated

481865 19.5 24 DIN43650 A

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

488980 / 8993
481180 / 8993

	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K31	1/4	25	50	6.2	26	27	5.5	81	39	61	40
K33	3/8	25	50	6.2	26	27	5.5	81	39	61	40
K35	1/2	27.5	55	6.2	26	27	5.5	81	39	61	40
K36	3/4	40	80	9	33.5	32	8	96.5	46	68.5	56
K37	1	42.5	85	14.2	33.5	41	8	96.5	56	68.5	56

Dimension reference 72

G	Size			
	A	B	C	D
	mm	mm	mm	mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

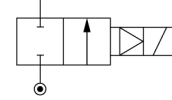
Dimension reference 1000

Valves for water and neutral liquids 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

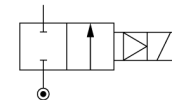
Brass body/Pipe mounting

Normally closed



1	25	160	160	0.1	10	10	90	NBR	7321BBG64NM0	-	1	2995	481865	9	8	1110	2	1000
	25	160	160	0.1	10	10	90	NBR				4269	481000	9	8	1110	2	
	25	180	180	0.3	16	16	75	NBR	7321GBG64N00	E321G37	2	2995	481865	9	8	1230	2	11
	25	180	180	0.3	16	16	75	NBR				4270	481000	8	8	1350	2	
1 1/4	28	280	280	0.3	16	16	75	NBR	7321GBG76N00	E321G38	2	2995	481865	9	8	1860	2	11
	28	280	280	0.3	16	16	75	NBR				4270	481000	8	8	1980	2	
	35	420	420	0.1	10	10	90	NBR	7321BBG78N00	-		2995	481865	9	8	3120	2	1000
	35	420	420	0.1	10	10	90	NBR				4269	481000	8	8	3120	2	
	35	420	420	0.1	5	5	90	NBR	7321BBG78NM0	-	1	2995	481865	9	8	3120	2	1000
	35	420	420	0.1	5	5	90	NBR				4269	481000	8	8	3120	2	
1 1/2	40	500	500	0.1	10	10	90	NBR	7321BBG88N00	-		2995	481865	9	8	2870	2	1000
	40	500	500	0.1	10	10	90	NBR				4269	481000	8	8	2870	2	
	40	500	500	0.1	5	5	90	NBR	7321BBG88NM0	-	1	2995	481865	9	8	2870	2	1000
	40	500	500	0.1	5	5	90	NBR				4269	481000	8	8	2870	2	
	40	420	420	0.3	7	16	75	NBR	7321GBG88N00	E321G39	2	2995	481865	9	8	2560	2	11
	40	420	420	0.3	8.5	16	75	NBR				4270	481000	8	8	2680	2	
2	40	420	420	0.3	16	16	75	NBR				4270	486265	14	14	2700	2	
	40	500	500	0.1	5	5	90	NBR	7321BBG99NM0	-	1	2995	481865	9	8	4260	2	1000
	40	500	500	0.1	5	5	90	NBR				4269	481000	8	8	4260	2	
	40	540	540	0.3	7	16	75	NBR	7321GBG99N00	E321G40	2	2995	481865	9	8	2900	2	11
	40	540	540	0.3	8.5	16	75	NBR				4270	481000	8	8	3040	2	
	40	540	540	0.3	16	16	75	NBR				4270	486265	14	14	3050	2	
2 1/2	50	620	620	0.1	10	10	90	NBR	7321BBG99N00	-		2995	481865	9	8	4260	2	1000
	50	620	620	0.1	10	10	90	NBR				4269	481000	8	8	4260	2	
	65	1050	1050	0.1	10	10	90	NBR	7321BBGCBNM1	-	3	2995	481865	9	8	-	2	1000
	65	1050	1050	0.1	10	10	90	NBR				4269	481000	8	8	-	2	
3	75	1385	1385	0.1	10	10	90	NBR	7321BBGDNCM1	-	3	2995	481865	9	8	-	2	1000
	75	1385	1385	0.1	10	10	90	NBR				4269	481000	8	8	-	2	

Normally open



Brass body/Pipe mounting

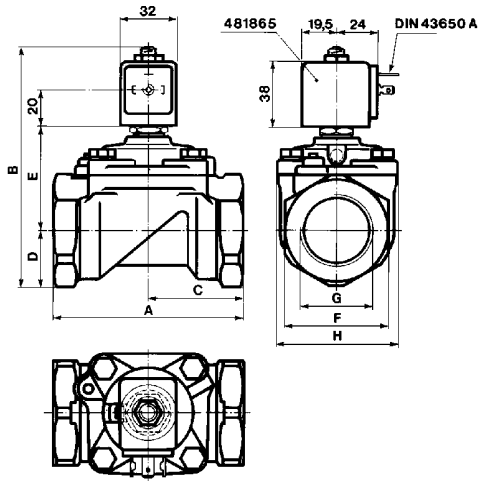
3/8	13	50	50	0.1	20	20	90	NBR	7322BBG3TN00	-		2995	481865	9	8	560	2	2000
	13	50	50	0.1	20	20	90	NBR				4270	481000	8	8	560	2	
1/2	13	140	140	0.1	20	20	90	NBR	7322BBG4TN00	-		2995	481865	9	8	590	2	2000
3/4	20	140	140	0.1	20	20	90	NBR	7322BBG53N00	-		2995	481865	9	8	1050	2	2000
	20	140	140	0.1	20	20	90	NBR				4270	481000	8	8	1050	2	
	20	135	135	0.3	16	16	75	NBR	7322GBG53N00	322G36		2995	481865	9	8	1430		11
	20	135	135	0.3	16	16	75	NBR				4270	481000	8	8	1550		

Table continued on page 60


Notes:

- * See Electrical Parts Group table at end of section
- 1. For manual override and closure speed control change M0 by M1
- 2. Manual override and 4 position selector for controlled closure rate: see "Anti-waterhammer valves" section
- 3. Manual override and closure speed control standard

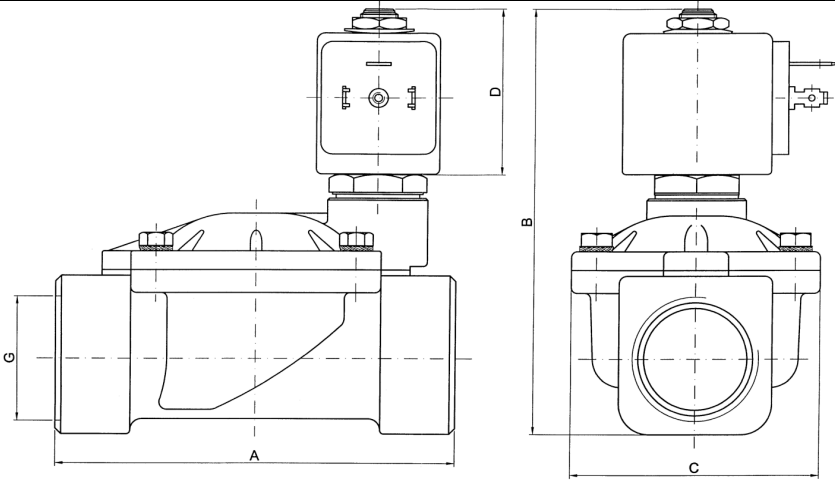
Valves for water and neutral liquids 2/2 - Pilot operated



	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

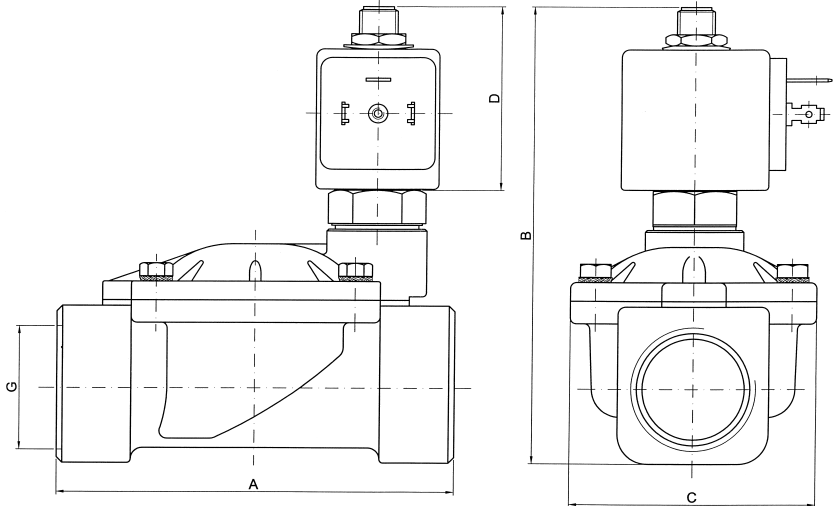


Dimension reference 11



Size				
G	A	B	C	D
mm	mm	mm	mm	mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

Dimension reference 1000



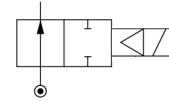
Size				
G	A	B	C	D
mm	mm	mm	mm	mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

Dimension reference 2000

Valves for water and neutral liquids 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G					DC	AC											

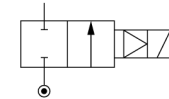
Normally open



Brass body/Pipe mounting

1	25	160	160	0.1	20	20	90	NBR	7322BBG64N00	-	2995	481865	9	8	1110	2	2000
	25	180	180	0.3	16	16	75	NBR	7322GBG64N00	322G37	2995	481865	9	8	1230		11
	25	180	180	0.3	16	16	75	NBR			4270	481000	8	8	1350		
1 1/4	28	270	270	0.3	16	16	75	NBR	7322GBG76N00	322G38	2995	481865	9	8	1860		11
	28	270	270	0.3	16	16	75	NBR			4270	481000	8	8	1980		
	35	420	420	0.1	10	10	90	NBR	7322BBG78N00	-	2995	481865	9	8	3120	2	2000
	35	420	420	0.1	10	10	90	NBR			4270	481000	8	8	3120	2	
1 1/2	40	500	500	0.1	10	10	90	NBR	7322BBG88N00	-	2995	481865	9	8	2870	2	2000
	40	500	500	0.1	10	10	90	NBR			4270	481000	8	8	2870	2	
	40	420	420	0.3	12	12	75	NBR	7322GBG88N00	322G39	2995	481865	9	8	2560		11
	40	420	420	0.3	12	12	75	NBR			4270	481000	8	8	2680		
2	40	540	540	0.3	12	12	75	NBR	7322GBG99N00	322G40	2995	481865	9	8	2900		11
	40	540	540	0.3	12	12	75	NBR			4270	481000	8	8	3040		
	50	620	620	0.1	10	10	90	NBR	7322BBG99N00	-	2995	481865	9	8	4260	2	2000
	50	620	620	0.1	10	10	90	NBR			4270	481000	8	8	4260	2	

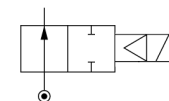
Normally closed



Brass body/Sub-base mounting

SB	14	45	45	0.3	25	40	75	NBR	7321FBF3TN00	E321F32 1	2995	481865	9	8	650	2	13
	14	45	45	0.3	30	40	75	NBR			4270	481000	8	8	770	2	
	14	45	45	0.3	40	40	75	NBR			4270	486265	14	14	780	2	

Normally open



Brass body/Sub-base mounting

SB	14	45	45	0.3 2	40	40	75	NBR	7322FBF3TN00	322F72 1	2995	481865	9	8	650		13
	14	45	45	0.3 2	40	40	75	NBR			4270	481000	8	8	770		

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

Valves for water and neutral liquids 2/2 - Pilot operated

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 13

G	Size			
	A	B	C	D
	mm	mm	mm	mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

Dimension reference 2000

Electrical parts options with 2/2 valves for water and neutral liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65			8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Anti-water hammer valves

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Magnalift	Brass body	Normally closed	3/8	15	16.0	64
			1/2	15	16.0	64
			3/4	15	16.0	64
			1	15 to 25	16.0	64
Pilot operated	Brass body	Normally closed	1/4	12	12.0	66
			3/8	12	12.0	66
			1/2	12	12.0	66
			3/4	18 to 20	16.0	66
			1	18 to 25	16.0	66
			1 1/4	28	16.0	68
			1 1/2	40	16.0	68
			2	40	16.0	68
		Normally open	3/4	20	16.0	68
			1	25	16.0	68
			1 1/4	28	16.0	68
			1 1/2	40	12.0	68
			2	40	12.0	68

Notes:

Magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Anti-water hammer valves

2/2

Applications

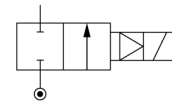
Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.



Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G																

Normally closed



Brass body/Pipe mounting

3/8	15	65	65	0	10	-	75	NBR	7221GBG3VNH0	221G1330	2995	481865	¹	9	-	630	10	
	15	65	65	0	10	10	65	NBR			-	492070	¹	8	8	1000		
	15	65	65	0	10	10	75	NBR			-	492190	¹	9	11	1000		
	15	65	65	0	-	16	75	NBR	7221GBG3VN00	221G13	2995	481865		-	8	630	10	
	15	65	65	0	-	16	75	NBR			4270	481000		-	8	750		
	15	65	65	0	7	-	75	NBR			4270	486265		14	-	760		
1/2	15	65	65	0	10	-	75	NBR	7221GBG4VNH0	221G1530	2995	481865	¹	9	-	640	10	
	15	65	65	0	10	10	65	NBR			-	492070	¹	8	9	1010		
	15	65	65	0	10	10	75	NBR			-	492190	¹	9	11	1010		
	15	65	65	0	-	16	75	NBR	7221GBG4VN00	221G15	2995	481865		-	8	640	10	
	15	65	65	0	-	16	75	NBR			4270	481000		-	8	760		
	15	65	65	0	7	-	75	NBR			4270	486265		14	-	770		
3/4	15	80	80	0	-	10	75	NBR	7221GBG51NC0	221G1610	²	2995	481865		-	8	670	10
	15	80	80	0	-	16	75	NBR			4270	481000		-	8	790		
	15	80	80	0	7	-	75	NBR			4270	486265		14	-	800		
	15	80	80	0	10	-	75	NBR	7221GBG51NCH	221G1631	²	2995	481865	¹	9	-	670	10
	15	80	80	0	10	10	65	NBR			-	492070	¹	8	8	1040		
	15	80	80	0	10	10	75	NBR			-	492190	¹	9	11	1040		
1	15	80	80	0	-	16	75	NBR	7221GBG61NC0	221G1710	²	2995	481865		-	8	810	10
	15	80	80	0	-	16	75	NBR			4270	481000		-	8	930		
	15	80	80	0	7	-	75	NBR			4270	486265		14	-	940		
	15	80	80	0	10	-	75	NBR	7221GBG61NCH	221G1731	²	2995	481865	¹	9	8	810	10
	15	80	80	0	10	10	65	NBR			-	492070	¹	8	8	1180		
	15	80	80	0	10	10	75	NBR			-	492190	¹	9	11	1180		
	25	160	160	0	-	16	75	NBR	7221GBG64NC0	221G2110	²	2995	481865		-	8	1170	10
	25	160	160	0	-	16	75	NBR			4270	481000		-	8	1290		
	25	160	160	0	6	-	75	NBR			4270	486265		14	-	1300		
	25	160	160	0	10	-	75	NBR	7221GBG64NCH	221G2131	²	2995	481865	¹	9	-	1170	10
	25	160	160	0	10	10	65	NBR			-	492070	¹	8	8	1540		
	25	160	160	0	10	10	75	NBR			-	492190	¹	9	11	1540		

Notes:

- Valves with model number ending by 30 or 31 are mainly equipped with electrical parts EEx me II T3/T4 No. 492190 or EEx m II T4/T5 No. 492070 or with standard DC coils.
- 4 position selector for controlled closure rate

Anti-water hammer valves

2/2

Applications

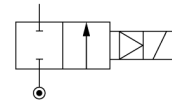
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G						DC	AC										

Normally closed



Brass body/Pipe mounting

1/4	12	30	30	0.3	12	12	100	FKM	7321KBG2SVW0	321K4106	2995	481865	9	8	490		73
	12	30	30	0.3	12	12	100	FKM			4270	481000	8	8	610		
	12	30	30	0.3	12	12	100	FKM	7321KBG2SVMW	321K4156	2995	481865	9	8	490		73
	12	30	30	0.3	12	12	100	FKM			4270	481000	8	8	610		
3/8	12	45	45	0.3	12	12	100	FKM	7321KBG3TVW0	321K4306	2995	481865	9	8	490		73
	12	45	45	0.3	12	12	100	FKM			4270	481000	8	8	610		
	12	45	45	0.3	12	12	100	FKM	7321KBG3TVMW	321K4356	2995	481865	9	8	490		73
	12	45	45	0.3	12	12	100	FKM			4270	481000	8	8	610		
1/2	12	50	50	0.3	12	12	100	FKM	7321KBG4TVW0	321K4506	2995	481865	9	8	490		73
	12	50	50	0.3	12	12	100	FKM			4270	481000	8	8	610		
	12	50	50	0.3	12	12	100	FKM	7321KBG4TVMW	321K4556	2995	481865	9	8	490		73
	12	50	50	0.3	12	12	100	FKM			4270	481000	8	8	610		
3/4	18	100	100	0.3	12	12	100	FKM	7321KBG51VW0	321K4606	2995	481865	9	8	700		73
	18	100	100	0.3	12	12	100	FKM			4270	481000	8	8	820		
	18	100	100	0.3	12	12	100	FKM	7321KBG51VMW	321K4656	2995	481865	9	8	700		73
	18	100	100	0.3	12	12	100	FKM			4270	481000	8	8	820		
	20	135	135	0.3	16	16	75	NBR	7321GBG53NMC	E321G3610	2995	481865	9	8	1430	2	11
	20	135	135	0.3	16	16	75	NBR			4270	481000	8	8	1550	2	
1	18	110	110	0.3	12	12	100	FKM	7321KBG62VW0	321K4706	2995	481865	9	8	845		73
	18	110	110	0.3	12	12	100	FKM			4270	481000	8	8	965		
	18	110	110	0.3	12	12	100	FKM	7321KBG62VMW	321K4756	2995	481865	9	8	845		73
	18	110	110	0.3	12	12	100	FKM			4270	481000	8	8	965		
	25	180	180	0.3	16	16	75	NBR	7321GBG64NMC	E321G3710	2995	481865	9	8	1230	2	11
	25	180	180	0.3	16	16	75	NBR			4270	481000	8	8	1350	2	

Table continued on page 68

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

2. Manual override and 4 position selector for controlled closure rate standard - without manual override and 4 position selector on request: same type without suffix 10, e.g. : E321G36

Anti-water hammer valves 2/2 - Pilot operated

	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99

Dimension reference 11

	A inch	B mm	C mm	D mm	E mm	F mm	G mm	H mm	I mm	J mm	Dia. mm
K41	1/4	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K43	3/8	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K45	1/2	27.5	55	6.2	29	27	5.5	93.5	39	73.5	40
K46	3/4	40	80	9	36.5	32	8	109	46	81	56
K47	1	42.5	85	14.2	36.5	41	8	109	56	81	56

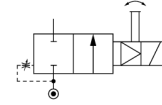
Dimension reference 73

Anti-water hammer valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Brass body/Pipe mounting

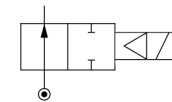
Normally closed



1 1/4	28	280	280	0.3	16	16	75	NBR	7321GBG76NMC	E321G3810 ¹	2995	481865	9	8	1860	2	11
	28	280	280	0.3	16	16	75	NBR			4270	481000	8	8	1980	2	
1 1/2	40	420	420	0.3	10	16	75	NBR	7321GBG88NMC	E321G3910 ¹	2995	481865	9	8	2560	2	11
	40	420	420	0.3	8.5	16	75	NBR			4270	481000	8	8	2680	2	
	40	420	420	0.3	16	16	75	NBR			4270	486265	14	14	2700	2	
2	40	540	540	0.3	10	16	75	NBR	7321GBG99NMC	E321G4010 ¹	2995	481865	9	8	2900	2	11
	40	540	540	0.3	8.5	16	75	NBR			4270	481000	8	8	3040	2	
	40	540	540	0.3	16	16	75	NBR			4270	486265	14	14	3050	2	

Brass body/Pipe mounting

Normally open



3/4	20	135	135	0.3	16	16	75	NBR	7322GBG53NCO	322G3610 ²	2995	481865	9	8	1430		11
	20	135	135	0.3	16	16	75	NBR			4270	481000	8	8	1550		
1	25	185	185	0.3	16	16	75	NBR	7322GBG64NCO	322G3710 ²	2995	481865	9	8	1230		11
	25	185	185	0.3	16	16	75	NBR			4270	481000	8	8	1350		
1 1/4	28	270	270	0.3	16	16	75	NBR	7322GBG76NCO	322G3810 ²	2995	481865	9	8	1860		11
	28	270	270	0.3	16	16	75	NBR			4270	481000	8	8	1980		
1 1/2	40	425	425	0.3	12	12	75	NBR	7322GBG88NCO	322G3910 ²	2995	481865	9	8	2560		11
	40	425	425	0.3	12	12	75	NBR			4270	481000	8	8	2680		
2	40	540	540	0.3	12	12	75	NBR	7322GBG99NCO	322G4010 ²	2995	481865	9	8	2900		11
	40	540	540	0.3	12	12	75	NBR			4270	481000	8	8	3040		

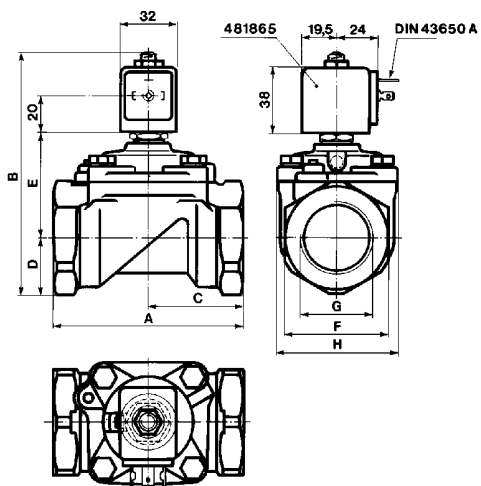
Notes:

* See Electrical Parts Group table at end of section

1. Manual override and 4 position selector for controlled closure rate standard - without manual override and 4 position selector on request: same type without suffix 10, e.g. : E321G36

2. 4 position selector for controlled closure rate standard

Anti-water hammer valves 2/2 - Pilot operated



	A mm	B mm	C mm	D mm	E mm	F mm	G inch	H mm
G37	100	121	50	23	54	41	1	70
G36	100	121	50	23	54	41	3/4	70
G38	110	137.5	55	33	60.5	60	1 1/4	99
G39	140	144	75	33	67	60	1 1/2	99
G40	150	158.5	80	41.5	73	75	2	99



Dimension reference 11

Electrical parts options with 2/2 anti-waterhammer valves for water and neutral liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil		Connection	Housing		Ambient temp.	
				DC	AC	Order No.	Ref. No.		Order No.	Ref. No.	min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50
		IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Hot water - steam valves

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE	
Direct operated	Brass body	Normally closed	1/4	3 to 5	10.0	72	
			3/8	6	5.0	72	
			1/2	8.5 to 11	4.0	72	
	303 Stainless steel body		1/4	1.5 to 5	100.0	74	
Magnalift	Brass body	Normally closed	3/8	15	10.0	76	
			1/2	15	10.0	76	
			3/4	15	10.0	76	
			1	15 to 25	10.0	76	
		Normally open	3/8	15	3.5	78	
			1/2	15	3.5	78	
			3/4	19	3.5	78	
	316 Stainless steel body	Normally closed	3/8	15	7.0	78	
			1/2	15	7.0	78	
			3/4	15 to 19	7.0	78	
Normally open		3/8	16	8.5	78		
		1/2	16	8.5	78		
		3/4	19	8.5	78		
Pilot operated	Brass body	Normally closed	1/4	12	12.0	80	
			3/8	12 to 15	20.0	80	
			1/2	12 to 15	12.0	80	
			3/4	15 to 20	12.0	80	
			1	18 to 27	12.0	80	
			1 1/4	29 to 35	8.5	82	
			1 1/2	32 to 40	8.5	82	
			2	50	4.0	82	
			Normally open	3/8	15	8.5	82
				1/2	16	8.5	82
				3/4	15	8.5	82
				1	27	8.5	82
		1 1/4	28	8.5	82		
		1 1/2	31	8.5	82		

Notes:

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Hot water - steam valves

2/2

Applications

Hot water and steam valves are important elements in many industrial applications. They serve to control the flow of steam in various heating applications: steam cookers, autoclaves, air conditioning systems, car washing equipment and food processing equipment.

Note: The indicated max. pressures for steam are in bar abs.

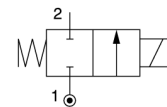


Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max		Water	Steam		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

Brass body/Pipe mounting

Normally closed



1/4	3	4.5	9	0	7	10	100	-	EPDM	7121KBG2NE00	121K0323	2995	481865	9	8	290	3
	3	4.5	9	0	8.5	10	120	-	EPDM	7121KBG2NE00		4270	481000	8	8	410	
	3	4.5	9	0	10	10	120	-	EPDM	7121KBG2NE00		4270	486265	14	14	420	
	3	4.5	9	0	4	4	-	140	EPDM	7121KBG2NES0		4270	486265	14	14	420	
	3	4.5	9	0	4	4	-	140	EPDM	7121KBG2NES0		2995	492425	14	14	300	
	5	11	11.5	0	2	7	100	-	EPDM	7121KBG2SE00	121K0103	2995	481865	9	8	290	3
	5	11	11.5	0	2.8	7	120	-	EPDM	7121KBG2SE00		4270	481000	8	8	410	
	5	11	11.5	0	5	7	120	-	EPDM	7121KBG2SE00		4270	486265	14	14	420	
	5	11	11.5	0	4	4	-	140	EPDM	7121KBG2SES0		4270	486265	14	14	420	
	5	11	11.5	0	3.5	4	-	140	EPDM	7121KBG2SES0		2995	492425	14	14	300	
3/8	6	12	12.5	0	1.1	5	100	-	EPDM	7121KBG3UE00	121K3303	2995	481865	9	8	340	3
	6	12	12.5	0	1.5	5	120	-	EPDM	7121KBG3UE00		4270	481000	8	8	460	
	6	12	12.5	0	3	5	120	-	EPDM	7121KBG3UE00		4270	486265	14	14	470	
	6	12	12.5	0	3	4	-	140	EPDM	7121KBG3UES0		4270	486265	14	14	470	
	6	12	12.5	0	2.5	4	-	140	EPDM	7121KBG3UES0		2995	492425	14	14	350	
1/2	8.5	25	15	0	0.5	2.2	120	-	EPDM	7121KBG42E00	E121K4603	4270	481000	8	8	550	7
	8.5	25	15	0	1.2	4	120	-	EPDM	7121KBG42E00		4270	486265	14	14	560	
	8.5	25	15	0	2.2	4	-	140	EPDM	7121KBG42ES0		4270	486265	14	14	560	
	8.5	25	15	0	2	4	-	140	EPDM	7121KBG42ES0		2995	492425	14	14	440	
	11	36	20	0	0.35	1.2	120	-	EPDM	7121KBG44E00	E121K4503	4270	481000	8	8	550	7
	11	36	20	0	-	2	-	140	EPDM	7121KBG44ES0		4270	486265	14	14	560	
	11	36	20	0	0.7	2.5	120	-	EPDM	7121KBG44E00		4270	486265	14	14	560	
	11	36	20	0	-	2.5	-	140	EPDM	7121KBG44ES0		2995	492425	14	14	440	

Table continued on page 74

Hot water - steam valves 2/2 - Direct operated

DIN 43650A

M5x5 mm

Values in brackets for G 3/8 valves
 Valeurs entre parenthèse pour valves G 3/8
 Angaben in Klammern für G 3/8 Ventile

78
20
32
33
15
11,5
1
2
(50)
40
19,5
24
481865
38
488698
8
488647
(22)
19
16
29
G

Dimension reference 3

M5 x 5 mm

44
37
12
ø Pg 9

22 41

481000
485100
486265

32
76
20
32
15
55

19,5 24

38

481865

DIN 43650A

27
ø34

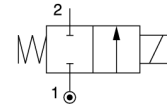
Dimension reference 7

Hot water - steam valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max		Water	Steam		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

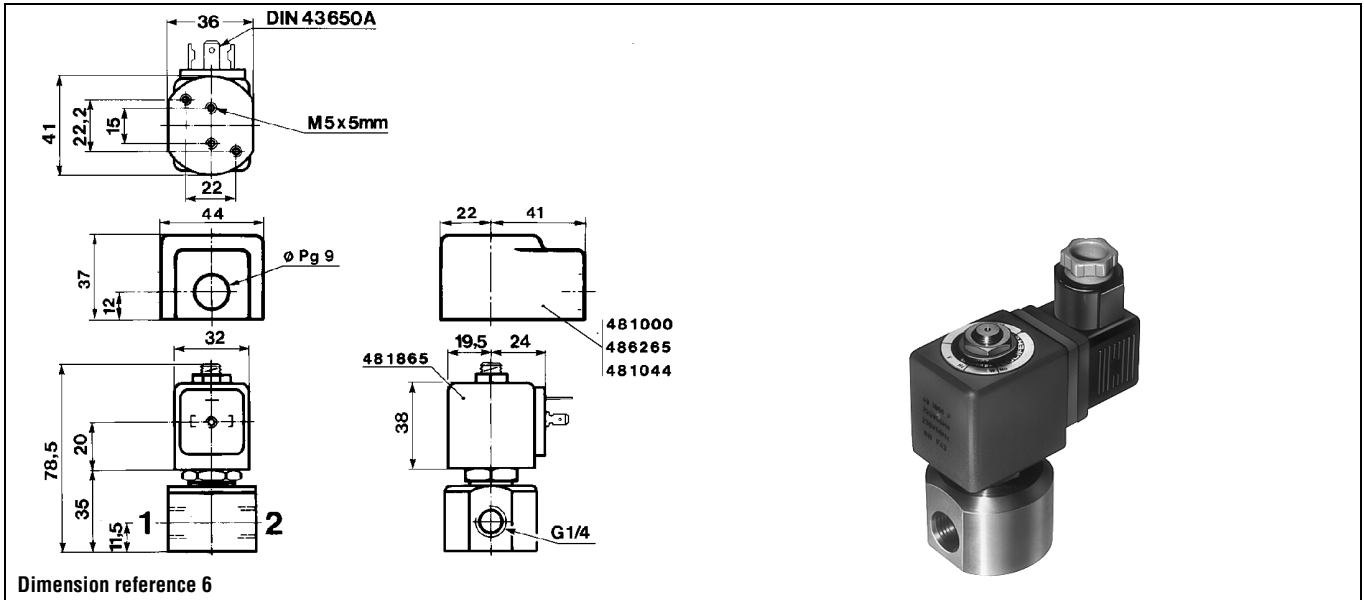
303 Stainless steel body/Pipe mounting

Normally closed



1/4	1.5	1.5	15	0	25	60	100	-	Ruby	7121VVG2GR00	121V5463	2995	481865	9	8	410	6
	1.5	1.5	15	0	30	75	130	-	Ruby	7121VVG2GR00		4270	481000	8	8	530	
	1.5	1.5	15	0	55	100	140	-	Ruby	7121VVG2GR00		4270	486265	14	14	540	
	1.5	1.5	15	0	30	75	-	180	Ruby	7121VVG2GRS0		4270	486265	14	14	540	
	1.5	1.5	15	0	25	60	-	180	Ruby	7121VVG2GRS0		2995	492425	14	14	420	
	2.5	3.5	25	0	10	28	100	-	Ruby	7121VVG2LR00	121V5763	2995	481865	9	8	410	6
	2.5	3.5	25	0	12	34	130	-	Ruby	7121VVG2LR00		4270	481000	8	8	530	
	2.5	3.5	25	0	12	34	-	180	Ruby	7121VVG2LRS0		4270	486265	14	14	540	
	2.5	3.5	25	0	22	50	140	-	Ruby	7121VVG2LR00		4270	486265	14	14	540	
	2.5	3.5	25	0	10	28	-	180	Ruby	7121VVG2LRS0		2995	492425	14	14	420	
	3	4.5	27	0	7	20	100	-	Ruby	7121VVG2NR00	121V5363	2995	481865	9	8	410	6
	3	4.5	27	0	8.5	25	130	-	Ruby	7121VVG2NR00		4270	481000	8	8	530	
	3	4.5	27	0	15	36	140	-	Ruby	7121VVG2NR00		4270	486265	14	14	540	
	3	4.5	27	0	8.5	25	-	180	Ruby	7121VVG2NRS0		4270	486265	14	14	540	
	3	4.5	27	0	7	20	-	180	Ruby	7121VVG2NRS0		2995	492425	14	14	420	
	4	7	35	0	4	12	100	-	Ruby	7121VVG2QR00	121V5263	2995	481865	9	8	410	6
	4	7	35	0	5	15	130	-	Ruby	7121VVG2QR00		4270	481000	8	8	530	
	4	7	35	0	10	22	130	-	Ruby	7121VVG2QR00		4270	486265	14	14	540	
	4	7	35	0	5	15	-	180	Ruby	7121VVG2QRS0		4270	486265	14	14	540	
	4	7	35	0	4	12	-	180	Ruby	7121VVG2QRS0		2995	492425	14	14	420	
5	10	40	0	2	8.5	100	-	Ruby	7121VVG2SR00	121V5163	2995	481865	9	8	410	6	
5	10	40	0	3.5	10	130	-	Ruby	7121VVG2SR00		4270	481000	8	8	530		
5	10	40	0	6.5	14	140	-	Ruby	7121VVG2SR00		4270	486265	14	14	540		
5	10	40	0	3.5	10	-	180	Ruby	7121VVG2SRS0		4270	486265	14	14	540		
5	10	40	0	2	8.5	-	180	Ruby	7121VVG2SRS0		2995	492425	14	14	420		

Hot water - steam valves 2/2 - Direct operated



Hot water - steam valves

2/2

Applications

Magnalift valves are recommended in applications where the minimum pressure cannot be held at a sufficient level, i.e. where the effective supply pressure may be zero. This concerns applications like filling/emptying tanks by gravity and any other applications with a minimum pressure of zero.

Note: The indicated max. pressures for steam are in bar abs.

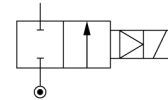


Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max		Water	Steam		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G																	

Brass body/Pipe mounting

Normally closed



3/8	15	65	65	0	-	10	100	-	EPDM	7221GBG3VE00	221G1303	2995	481865	-	8	630	10
	15	65	65	0	-	10	120	-	EPDM	7221GBG3VE00		4270	481000	-	8	750	
	15	65	65	0	7	10	120	-	EPDM	7221GBG3VE00		4270	486265	14	14	760	
	15	65	65	0	4	4	-	140	EPDM	7221GBG3VES0		4270	486265	14	14	760	
	15	65	65	0	4	4	-	140	EPDM	7221GBG3VES0		2995	492425	14	14	640	
1/2	15	65	65	0	-	10	100	-	EPDM	7221GBG4VE00	221G1503	2995	481865	-	8	640	10
	15	65	65	0	-	10	120	-	EPDM	7221GBG4VE00		4270	481000	-	8	760	
	15	65	65	0	7	10	120	-	EPDM	7221GBG4VE00		4270	486265	14	14	770	
	15	65	65	0	4	4	-	140	EPDM	7221GBG4VES0		4270	486265	14	14	770	
	15	65	65	0	4	4	-	140	EPDM	7221GBG4VES0		2995	492425	14	14	650	
3/4	15	80	80	0	-	10	100	-	EPDM	7221GBG51E00	221G1603	2995	481865	-	8	670	10
	15	80	80	0	-	10	120	-	EPDM	7221GBG51E00		4270	481000	-	8	790	
	15	80	80	0	7	10	120	-	EPDM	7221GBG51E00		4270	486265	14	14	800	
	15	80	80	0	4	4	-	140	EPDM	7221GBG51ES0		4270	486265	14	14	800	
	15	80	80	0	4	4	-	140	EPDM	7221GBG51ES0		2995	492425	14	14	680	
1	15	80	80	0	-	10	100	-	EPDM	7221GBG61E00	221G1703	2995	481865	-	8	810	10
	15	80	80	0	-	10	120	-	EPDM	7221GBG61E00		4270	481000	-	8	930	
	15	80	80	0	7	10	120	-	EPDM	7221GBG61E00		4270	486265	14	14	940	
	15	80	80	0	4	4	-	140	EPDM	7221GBG61ES0		4270	486265	14	14	940	
	15	80	80	0	4	4	-	140	EPDM	7221GBG61ES0		2995	492425	14	14	820	
	25	160	160	0	-	10	100	-	EPDM	7221GBG64E00	221G2103	2995	481865	-	8	1170	10
	25	160	160	0	-	10	120	-	EPDM	7221GBG64E00		4270	481000	-	8	1290	
	25	160	160	0	7	10	120	-	EPDM	7221GBG64E00		4270	486265	14	14	1300	
	25	160	160	0	4	4	-	140	EPDM	7221GBG64ES0		4270	486265	14	14	1300	
	25	160	160	0	4	4	-	140	EPDM	7221GBG64ES0		2995	492425	14	14	1180	

Table continued on page 78

Hot water - steam valves 2/2 - Magnalift

	A	B	C	D	E	F	G	H
	mm	mm	mm	mm	mm	mm	inch	mm
G15/25	75	93	37.5	15	34	27	1/2	53
G13/23	75	93	37.5	15	34	27	3/8	53
G16/26	80	95.5	40	17.5	34	32	3/4	53
G17/27	85	102.5	42.5	22.5	36	41	1	53
G21	100	108	50	23	41	41	1	70

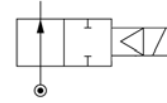
Dimension reference 10

Hot water - steam valves 2/2 - Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max		Water	Steam		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

Brass body/Pipe mounting

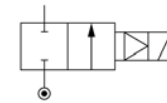
Normally open



3/8	15	43	43	0	-	3.5	-	145	EPDM	72228BG3TES0	222G3303	4270	486265	-	14	940	102
	15	43	43	0	8.5	8.5	100	-	EPDM	72228BG3TE00		4270	486265	14	14	940	
1/2	15	58	58	0	-	3.5	-	145	EPDM	72228BG4UES0	222G3503	4270	486265	-	14	940	102
	15	58	58	0	8.5	8.5	100	-	EPDM	72228BG4UE00		4270	486265	14	14	940	
3/4	19	72	-	0	-	3.5	-	145	EPDM	72228BG5VES0	222G3603	4270	486265	-	14	940	102
	19	72	72	0	8.5	8.5	100	-	EPDM	72228BG5VE00		4270	486265	14	14	940	

Body made of 316 St. Steel/Pipe mounting

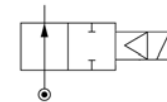
Normally closed



3/8	15	42	-	0	-	7	85	-	EPDM	72218RG3TE00	-	4270	481000	-	8	1050	102
	15	42	-	0	3.8	4	-	145	EPDM	72218RG3TES0	-	4270	486265	14	14	1060	
	15	42	-	0	2.8	7	100	-	EPDM	72218RG3TE00	-	4270	486265	14	14	1060	
	15	42	-	0	-	4	-	145	EPDM	72218RG3TES0	-	2995	492425	-	14	1060	
1/2	15	54	54	0	-	7	85	-	EPDM	72218RG4UE00	-	4270	481000	-	8	1050	102
	15	54	54	0	3.8	4	-	145	EPDM	72218RG4UES0	-	4270	486265	-	14	1060	
	15	54	54	0	2.8	7	100	-	EPDM	72218RG4UE00	-	4270	486265	14	14	1060	
	15	54	54	0	-	4	-	140	EPDM	72218RG4UES0	-	2995	492425	-	14	1060	
3/4	15	71	71	0	2.8	7	100	-	EPDM	72218RG5VE00	-	4270	486265	14	14	1060	102
	19	71	71	0	-	7	85	-	EPDM	72218RG5VE00	-	4270	481000	-	8	1050	
	19	71	71	0	3.8	4	-	145	EPDM	72218RG5VES0	-	4270	486265	14	14	1060	
	19	71	71	0	-	4	-	145	EPDM	72218RG5VES0	-	2995	492425	-	14	1060	

Body made of 316 St. Steel/Pipe mounting

Normally open



3/8	16	43	43	0	8.5	8.5	100	-	EPDM	72228RG3TE00	-	4270	486265	14	14	1060	102
	16	43	43	0	-	3.5	-	145	EPDM	72228RG3TES0	-	4270	486265	-	14	1060	
1/2	16	58	58	0	8.5	8.5	100	-	EPDM	72228RG4UE00	-	4270	486265	14	14	1060	102
	16	58	58	0	-	3.5	-	145	EPDM	72228RG4UES0	-	4270	486265	-	14	1060	
3/4	19	72	72	0	8.5	8.5	100	-	EPDM	72228RG5VE00	-	4270	486265	14	14	1060	102
	19	72	72	0	-	3.5	-	145	EPDM	72228RG5VES0	-	4270	486265	-	14	1060	

Hot water - steam valves 2/2 - Magnalift

	H	P	L
	mm	mm	mm
221G53../222G33..	103	89	67
221G55../222G35..	103	89	67
221G56../222G36..	103	89	69

Dimension reference 102

Hot water - steam valves

2/2

Applications

Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure.

A minimum operating pressure is required: refer to tables.

Note: The indicated max. pressures for steam are in bar abs.

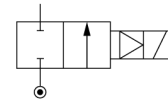


Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max		Water	Steam		Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G					DC	AC											

Brass body/Pipe mounting

Normally closed



1/4	12	30	30	0.3	12	12	120	-	EPDM	7321KBG2SEW0	321K4103 1	4270	481000	8	8	610	73
	12	30	30	0.3	12	12	100	-	EPDM	7321KBG2SEW0		2995	482730	7	6	490	
3/8	12	45	45	0.3	12	12	120	-	EPDM	7321KBG3TEW0	321K4303 1	4270	481000	8	8	610	73
	12	45	45	0.3	12	12	100	-	EPDM	7321KBG3TEW0		2995	482730	7	6	490	
	13	50	50	0.1	20	20	140	140	EPDM	7321BBG3TE00	-	4270	486265	14	14	560	1000
1/2	15	42	42	0.3	-	8.5	-	180	PTFE	73218BG3TTS0	321G8312	4270	486265	-	14	960	97
	12	50	50	0.3	12	12	120	-	EPDM	7321KBG4TEW0	321K4503 1	4270	481000	8	8	610	73
	12	50	50	0.3	12	12	100	-	EPDM	7321KBG4TEW0		2995	482730	7	6	490	
	13	140	140	0.1	4	4	140	140	EPDM	7321BBG4TE00	-	4270	486265	14	14	590	1000
3/4	15	56	56	0.3	-	8.5	-	180	PTFE	73218BG4UTS0	321G8512	4270	486265	-	14	960	97
	15	64	64	0.3	-	8.5	-	180	PTFE	73218BG5VTS0	321G8612	4270	486265	-	14	960	97
	18	100	100	0.3	12	12	120	-	EPDM	7321KBG51EW0	321K4603 1	4270	481000	8	8	820	73
	18	100	100	0.3	12	12	100	-	EPDM	7321KBG51EW0		2995	482730	7	6	700	
1	20	140	140	0.1	4	4	140	140	EPDM	7321BBG53E00	-	4270	486265	14	14	1050	1000
	18	110	110	0.3	12	12	120	-	EPDM	7321KBG62EW0	321K4703 1	4270	481000	8	8	965	73
	18	110	110	0.3	12	12	100	-	EPDM	7321KBG62EW0		2995	482730	7	6	845	
	25	160	160	0.1	4	4	140	140	EPDM	7321BBG64E00	-	4270	486265	14	14	1110	1000

Table continued on page 82

Notes:

1. Anti-waterhammer valve

Hot water - steam valves 2/2 - Pilot operated

	A	B	C	D	E	F	G	H	I	J	Dia.
	inch	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
K41	1/4	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K43	3/8	25	50	6.2	29	27	5.5	93.5	39	73.5	40
K45	1/2	27.5	55	6.2	29	27	5.5	93.5	39	73.5	40
K46	3/4	40	80	9	36.5	32	8	109	46	81	56
K47	1	42.5	85	14.2	36.5	41	8	109	56	81	56

Dimension reference 73

	H	P	L	F
	mm	mm	mm	mm
321G8312	130	117	68	36
321G8512	130	117	68	36
321G8612	135	119	70	37
322G8312	136	123	68	36
322G8512	136	123	68	36
322G8612	142	125	70	37

Dimension reference 97

G	Size			
	A	B	C	D
mm	mm	mm	mm	mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

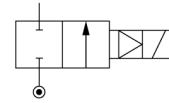
Dimension reference 1000

Hot water - steam valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
										Global valve reference	Valve reference no.	Housing	Coil				
G		kv	Qmax	Min	Max		Water	Steam					DC	AC			

Brass body/Pipe mounting

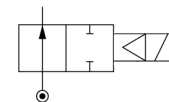
Normally closed



1	27	195	195	0.35	-	8.5	-	180	PTFE	73218BG64TS0	321G8712	4270	486265	-	14	4240	98
1 1/4	29	230	230	0.35	-	8.5	-	180	PTFE	73218BG75TS0	321G8812	4270	486265	-	14	4240	98
	35	420	420	0.1	4	4	140	140	EPDM	7321BBG78E00	-	4270	486265	14	14	3120	1000
1 1/2	32	320	320	0.35	-	8.5	-	180	PTFE	73218BG87TS0	321G8912	4270	486265	-	14	4240	98
	40	500	500	0.1	4	4	140	140	EPDM	7321BBG88E00	-	4270	486265	14	14	2870	1000
2	50	620	620	0.1	4	4	140	140	EPDM	7321BBG99E00	-	4270	486265	14	14	4260	1000

Brass body/Pipe mounting

Normally open



3/8	15	42	42	0.35	-	8.5	-	180	PTFE	73228BG3TTS0	322G8312	4270	486265	-	14	960	97
1/2	16	56	56	0.35	-	8.5	-	180	PTFE	73228BG4UTS0	322G8512	4270	486265	-	14	960	97
3/4	15	64	64	0.35	-	8.5	-	180	PTFE	73228BG52TS0	322G8612	4270	486265	-	14	960	97
1	27	195	195	0.35	-	8.5	-	180	PTFE	73228BG64TS0	322G8712	4270	486265	-	14	4240	98
1 1/4	28	230	230	0.35	-	8.5	-	180	PTFE	73228BG75TS0	322G8812	4270	486265	-	14	4240	98
1 1/2	31	320	320	0.35	-	8.5	-	180	PTFE	73228BG87TS0	322G8912	4270	486265	-	14	4240	98

Hot water - steam valves 2/2 - Pilot operated

	H mm	P mm	L mm	F mm
321G8312	130	117	68	36
321G8512	130	117	68	36
321G8612	135	119	70	37
322G8312	136	123	68	36
322G8512	136	123	68	36
322G8612	142	125	70	37

Dimension reference 97

	W mm	D mm	S mm	P mm	L mm
321G8712	116	94	61	101	98
321G8812	124	98	64	101	98
321G8912	138	109	78	104	114
322G8712	116	94	61	107	98
322G8812	124	98	64	107	98
322G8912	138	109	78	110	114

Dimension reference 98

G	Size			
	A mm	B mm	C mm	D mm
3/8	69	99.5	40	44
1/2	72	101.5	40	44
3/4	100	107	65	44
1	104	112.5	65	44
1 1/4	145	134	102	44
1 1/2	145	134	102	44
2	173	148	118	44
2 1/2	245	195	184	44
3	250	195	184	44

Dimension reference 1000

Valves for oil (hydraulic) and neutral liquids (max. 100 bar)

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	1.5 to 2.5	70.0	86
			1/4	1.2 to 3	100.0	86
			SB	1.5 to 3	100.0	88
		Normally open	1/8	2.5	30.0	88
			1/4	1.5 to 2.5	40.0	88
Pilot operated	Brass body	Normally closed	1/4	8	40.0	90
			3/8	11	40.0	90
			1/2	14.5	40.0	90
			SB	14	40.0	92
		Normally open	1/4	8	40.0	90
			3/8	11	40.0	92
			1/2	14.5	40.0	92
			SB	14	40.0	92

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Valves for oil (hydraulic) and neutral liquids (max. 100 bar)

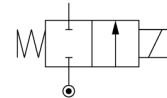
2/2



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

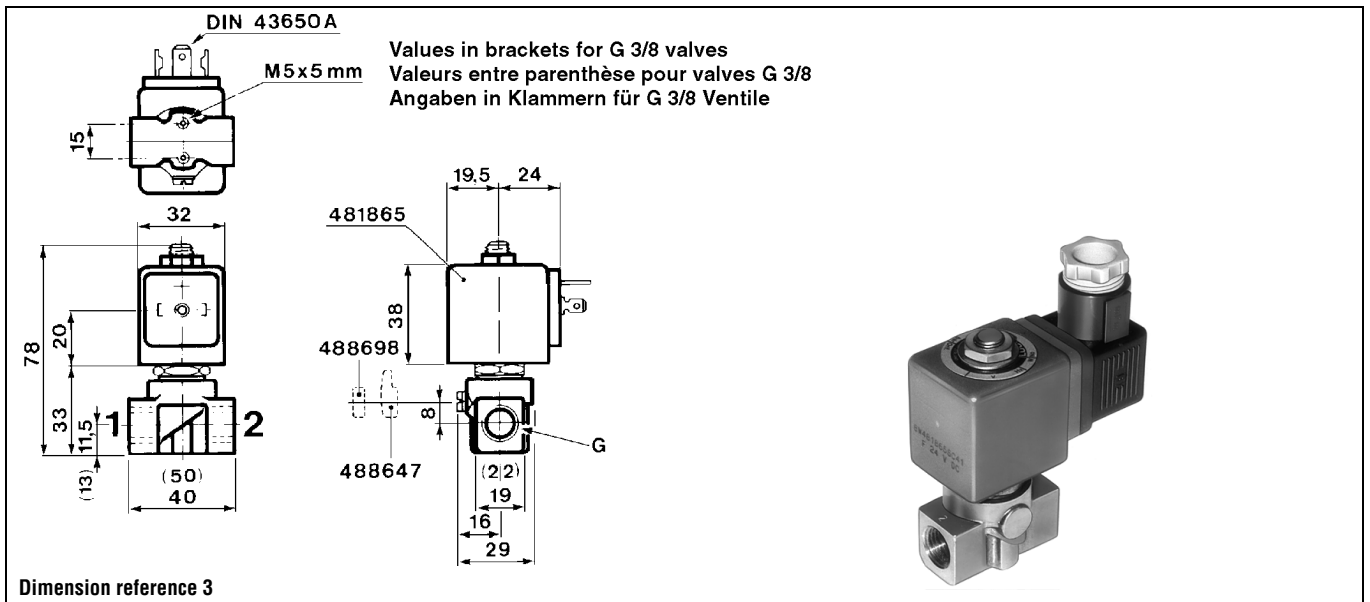
1/8	1.5	1.5	12.5	0	25	60	75	PCTFE	7121KBG1GF00	E121K14	2995	481865	9	8	300	2	3
	1.5	1.5	12.5	0	30	70	75	PCTFE			4270	481000	8	8	420	2	
	1.5	1.5	12.5	0	55	70	75	PCTFE			4270	486265	14	14	430		
	2.5	3.5	25	0	10	28	100	Ruby	7121KBG1LR00	E121K23	2995	481865	9	8	300	2	3
	2.5	3.5	25	0	12	34	130	Ruby			4270	481000	8	8	420	2	
	2.5	3.5	25	0	22	50	120	Ruby			4270	486265	14	14	430		
1/4	1.2	0.85	8.5	0	36	80	100	Ruby	7121KBG2ER00	E121K65	2995	481865	9	8	290		3
	1.2	0.85	8.5	0	43	100	130	Ruby			4270	481000	8	8	410		
	1.2	0.85	8.5	0	75	100	120	Ruby			4270	486265	14	14	420		
	1.5	1.5	12.5	0	25	60	75	PCTFE	7121KBG2GF00	E121K04	2995	481865	9	8	290	2	3
	1.5	1.5	12.5	0	30	70	75	PCTFE			4270	481000	8	8	410	2	
	1.5	1.5	12.5	0	55	70	75	PCTFE			4270	486265	14	14	420		
	1.5	1.5	15	0	25	60	100	Ruby	7121KBG2GR00	E121K67	2995	481865	9	8	290		3
	1.5	1.5	15	0	30	75	130	Ruby			4270	481000	8	8	410		
	1.5	1.5	15	0	55	100	120	Ruby			4270	486265	14	14	420		
	2.5	3.5	25	0	10	28	100	Ruby	7121KBG2LR00	E121K63	2995	481865	9	8	290		3
	2.5	3.5	25	0	12	34	130	Ruby			4270	481000	8	8	410		
	2.5	3.5	25	0	22	50	120	Ruby			4270	486265	14	14	420		
	3	4.5	27	0	7	20	75	PCTFE	7121KBG2NF00	E121K03	2995	481865	9	8	290	2	3
	3	4.5	27	0	8.5	25	75	PCTFE			4270	481000	8	8	410	2	
	3	4.5	27	0	15	36	75	PCTFE			4270	486265	14	14	420		
	3	4.5	27	0	7	20	100	Ruby	7121KBG2NR00	E121K64	2995	481865	9	8	290		3
	3	4.5	27	0	8.5	25	130	Ruby			4270	481000	8	8	410		
	3	4.5	27	0	15	36	120	Ruby			4270	486265	14	14	420		

Table continued on page 88

Notes:

* See Electrical Parts Group table at end of section

Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated

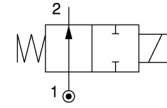


Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

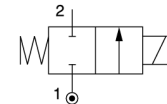
Brass body/Pipe mounting

Normally open



1/8	2.5	3.5	-	0	-	30	140	Ruby	7122KBG1LR00	122K9363	4270	481044	-	14	445		4
	2.5	3.5	-	0	30	30	140	Ruby			4270	486265	14	14	455		
1/4	1.5	1.5	8	0	30	30	100	PCTFE	7122KBG2GF00	122K84	2995	481865	9	8	290	2	3
	1.5	1.5	8	0	30	30	120	PCTFE			4270	481000	8	8	410	2	
	1.5	1.5	9.5	0	40	40	100	Ruby	7122KBG2GR00	122K8408	2995	481865	9	8	290	2	3
	1.5	1.5	9.5	0	40	40	130	Ruby			4270	481000	8	8	410	2	
	2.5	3.5	-	0	-	30	140	Ruby	7122KBG2LR00	122K8363	4270	481044	-	14	425		4
	2.5	3.5	-	0	30	30	140	Ruby			4270	486265	14	14	435		

Normally closed



Brass body/Sub-base mounting

SB	1.5	1.5	12.5	0	25	60	75	PCTFE	7121FBF4GF00	E121F44	2995	481865	9	8	250	2	12
	1.5	1.5	12.5	0	30	70	75	PCTFE			4270	481000	8	8	370	2	
	1.5	1.5	12.5	0	55	70	75	PCTFE			4270	486265	14	14	380	2	
	1.5	1.5	15	0	25	60	100	Ruby	7121FBF4GR00	121F67	2995	481865	9	8	255	2	
	1.5	1.5	15	0	30	75	130	Ruby			4270	481000	8	8	375	2	
	1.5	1.5	15	0	55	100	120	Ruby			4270	486265	14	14	385	2	
	2.5	3.5	25	0	10	28	100	Ruby	7121FBF4LR00	121F63	2995	481865	9	8	255	2	
	2.5	3.5	25	0	12	34	130	Ruby			4270	481000	8	8	375	2	
	2.5	3.5	25	0	22	50	120	Ruby			4270	486265	14	14	385	2	
	3	4.5	27	0	7	20	75	PCTFE	7121FBF4NF00	E121F43	2995	481865	9	8	250	2	
	3	4.5	27	0	8.5	25	75	PCTFE			4270	481000	8	8	370	2	
	3	4.5	27	0	15	36	75	PCTFE			4270	486265	14	14	380	2	
3	4.5	27	0	7	20	100	Ruby	7121FBF4NR00	121F64	2995	481865	9	8	255	2		
3	4.5	27	0	8.5	25	130	Ruby			4270	481000	8	8	375	2		
3	4.5	27	0	15	36	120	Ruby			4270	486265	14	14	385	2		

Notes:

* See Electrical Parts Group table at end of section

Valves for oil (hydraulic) and neutral liquids 2/2 - Direct operated

DIN 43650 A

M5x5 mm

Values in brackets for G 3/8 valves
 Valeurs entre parenthèse pour valves G 3/8
 Angaben in Klammern für G 3/8 Ventile

Dimension reference 3

M5x6mm

ϕ Pg 9

Dimension reference 4

DIN 43650 A

ϕ 9,3

ϕ 4,3

Dimension reference 12

Valves for oil (hydraulic) and neutral liquids

2/2

Applications

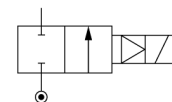
Pilot operated valves are ideally suited to shut-off applications of liquids with high flow and pressure. A minimum operating pressure is required: refer to tables.



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																	

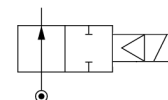
Normally closed



Brass body/Pipe mounting

1/4	8	36	36	0.3	2	25	40	100	FKM	7321HBG2SV00	E321H21	1	2995	481865	9	8	800	2	9
	8	36	36	0.3		30	40	100	FKM				4270	481000	8	8	920	2	
	8	36	36	0.3	2	40	40	100	FKM				4270	486265	14	14	930	2	
8	36	36	36	0.3	2	25	40	100	NBR	7321HBG2SN00	E321H11	1	2995	481865	9	8	800	2	9
	36	36	36	0.3		30	40	100	NBR				4270	481000	8	8	920	2	
	36	36	36	0.3	2	40	40	100	NBR				4270	486265	14	14	910	2	
3/8	11	50	50	0.3	2	25	40	100	FKM	7321HBG3TV00	E321H23	1	2995	481865	9	8	780	2	9
	11	50	50	0.3		30	40	120	FKM				4270	481000	8	8	900	2	
	11	50	50	0.3	2	40	40	140	FKM				4270	486265	14	14	910	2	
11	50	50	50	0.3	2	25	40	100	NBR	7321HBG3TN00	E321H13	1	2995	481865	9	8	780	2	9
	50	50	50	0.3		30	40	100	NBR				4270	481000	8	8	900	2	
	50	50	50	0.3	2	40	40	100	NBR				4270	486265	14	14	910	2	
1/2	14.5	60	60	0.3	2	25	40	100	FKM	7321HBG4UV00	E321H25	1	2995	481865	9	8	740	2	9
	14.5	60	60	0.3		30	40	120	FKM				4270	481000	8	8	860	2	
	14.5	60	60	0.3	2	40	40	140	FKM				4270	486265	14	14	870	2	
14.5	60	60	60	0.3	2	25	40	100	NBR	7321HBG4UN00	E321H15	1	2995	481865	9	8	740	2	9
	60	60	60	0.3		30	40	100	NBR				4270	481000	8	8	860	2	

Normally open



Brass body/Pipe mounting

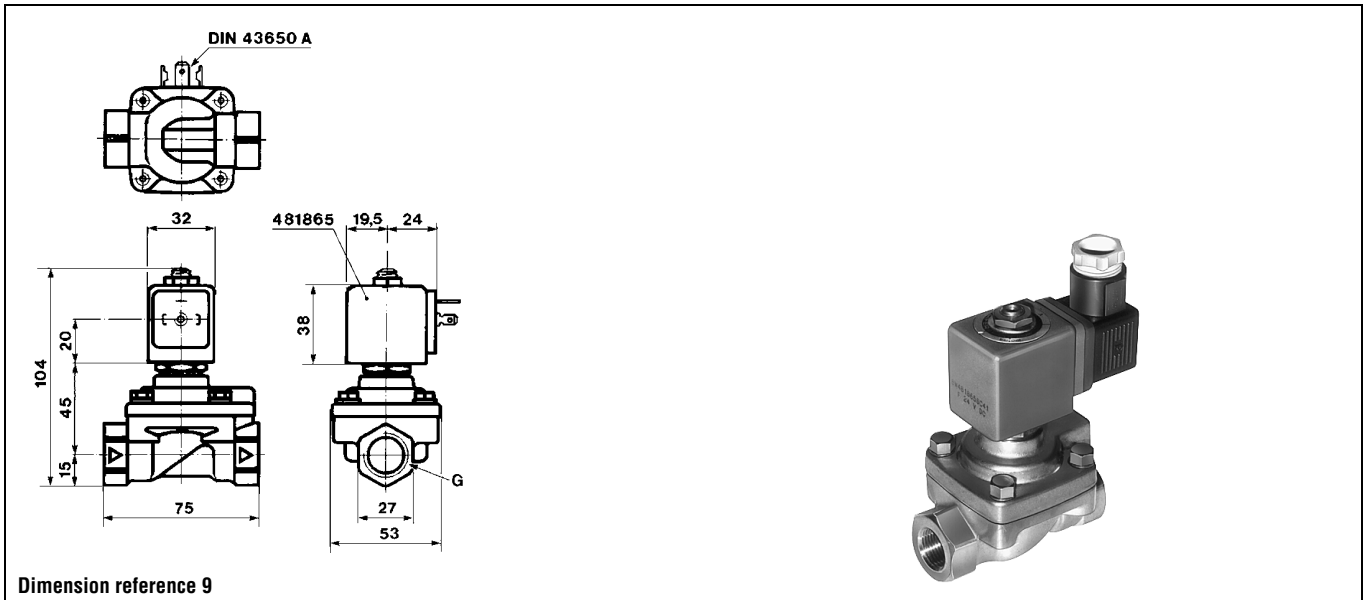
1/4	8	36	36	0.3	2	40	40	100	FKM	7322HBG2SV00	322H7106	1	2995	481865	9	8	820		9
	8	36	36	0.3		40	40	120	FKM				4270	481000	8	8	940		
	8	36	36	0.3	2	40	40	140	FKM				4270	486265	14	14	950		

Table continued on page 92

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from ruby (synthetic)
- 2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated

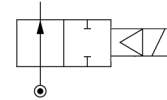


Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

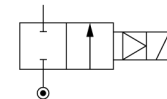
Brass body/Pipe mounting

Normally open



1/4	8	36	36	0.3	2	25	40	100	NBR	7322HBG2SN00	322H71	1	2995	481865	9	8	840		9	
	8	36	36	0.3	2	30	40	100	NBR					4270	481000	8	8	960		
3/8	11	50	50	0.3	2	40	40	100	FKM	7322HBG3TV00	322H7306	1	2995	481865	9	8	800		9	
	11	50	50	0.3	2	40	40	100	FKM					4270	481000	8	8	920		
	11	50	50	0.3	2	40	40	140	FKM					4270	486265	14	14	930		
	11	50	50	0.3	2	40	40	100	NBR	7322HBG3TN00	322H73	1	2995	481865	9	8	800		9	
	11	50	50	0.3	2	40	40	100	NBR				4270	481000	8	8	920			
1/2	14.5	60	60	0.3	2	40	40	100	FKM	7322HBG4UV00	322H7506	1	2995	481865	9	8	760		9	
	14.5	60	60	0.3	2	40	40	120	FKM					4270	481000	8	8	880		
	14.5	60	60	0.3	2	40	40	140	FKM					4270	486265	14	14	890		
	14.5	60	60	0.3	2	40	40	100	NBR	7322HBG4UN00	322H75	1	2995	481865	9	8	760		9	
	14.5	60	60	0.3	2	40	40	100	NBR				4270	481000	8	8	880			

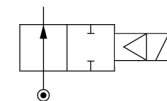
Normally closed



Brass body/Sub-base mounting

SB	14	45	45	0.3	2	25	40	100	FKM	7321FBF3TV00	E321F3202	1	2995	481865	9	8	650	2	13	
	14	45	45	0.3	2	30	40	120	FKM					4270	481000	8	8	770	2	
	14	45	45	0.3	2	40	40	120	FKM					4270	486265	14	14	780	2	
	14	45	45	0.3	2	25	40	100	NBR	7321FBF3TN00	E321F32	1	2995	481865	9	8	650	2	13	
	14	45	45	0.3	2	30	40	100	NBR				4270	481000	8	8	770	2		
	14	45	45	0.3	2	40	40	100	NBR				4270	486265	14	14	780	2		

Normally open



Brass body/Sub-base mounting

SB	14	45	45	0.3	2	40	40	100	FKM	7322FBF3TV00	322F7206	1	2995	481865	9	8	650		13	
	14	45	45	0.3	2	40	40	120	FKM					4270	481000	8	8	770		
	14	45	45	0.3	2	40	40	140	FKM					4270	486265	14	14	780		
	14	45	45	0.3	2	40	40	75	NBR	7322FBF3TN00	322F72	1	2995	481865	9	8	650		13	
	14	45	45	0.3	2	40	40	75	NBR				4270	481000	8	8	770			

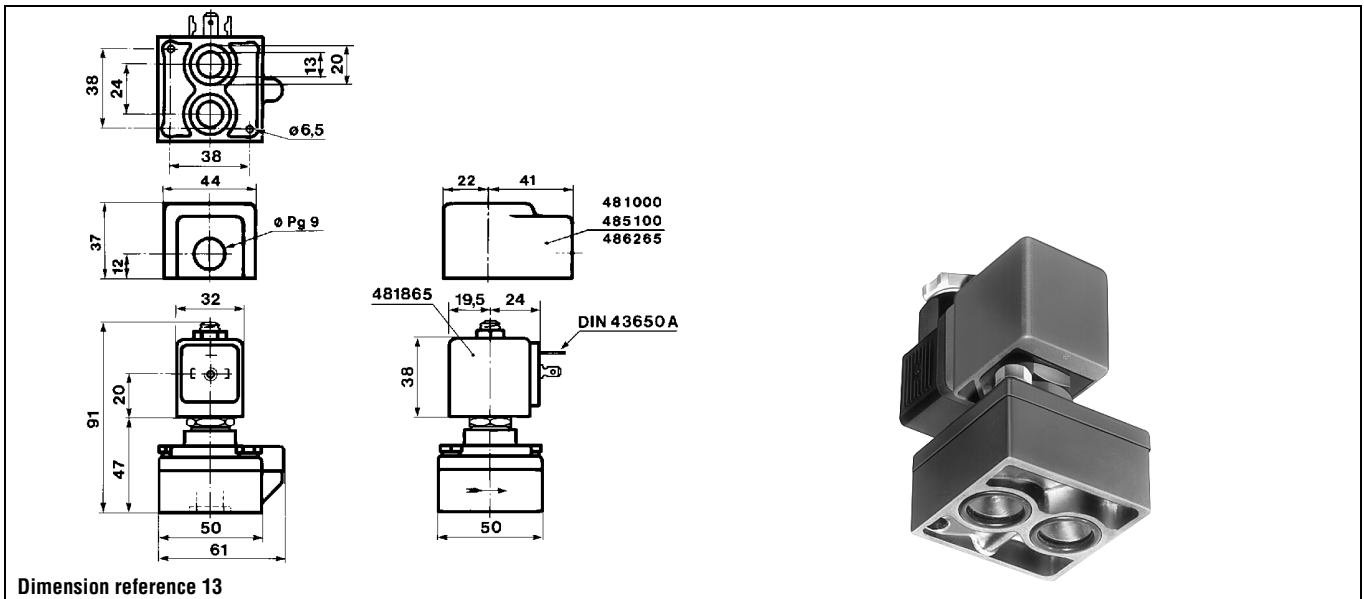
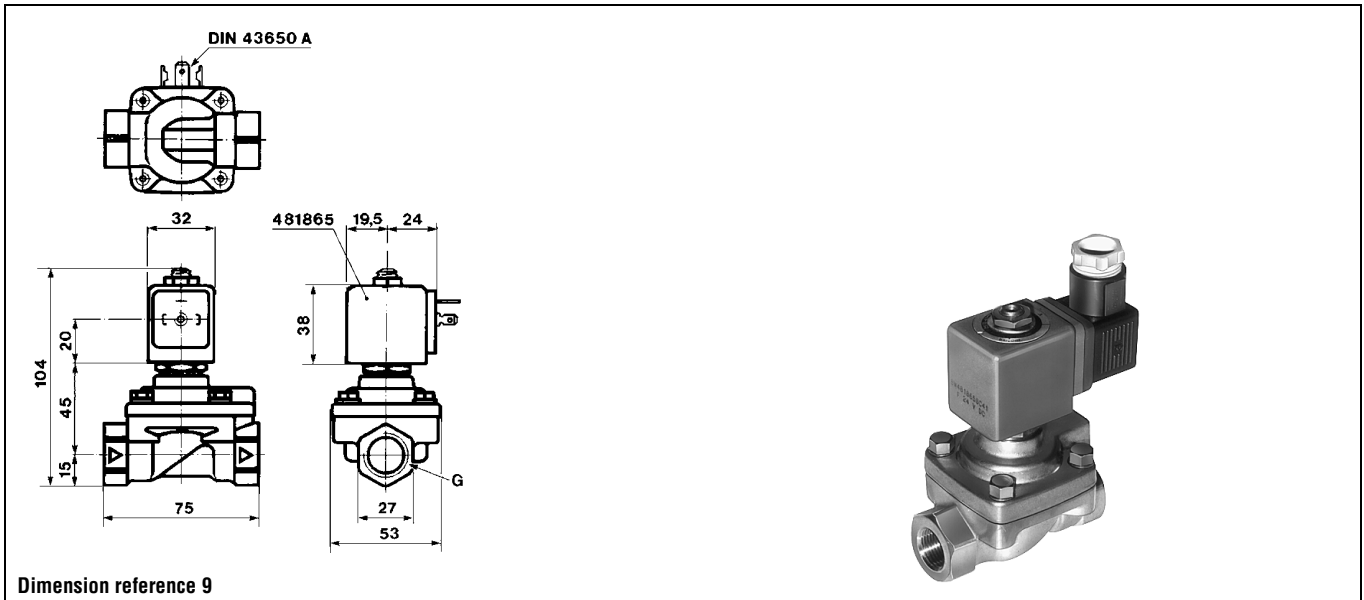
Notes:

* See Electrical Parts Group table at end of section

1. Pilot seat discs from ruby (synthetic)

2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing

Valves for oil (hydraulic) and neutral liquids 2/2 - Pilot operated



Electrical parts options with 2/2 valves for oil (hydraulic) and neutral liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

High corrosion-resistant valves (Stainless Steel)

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	303 Stainless steel body	Normally closed	1/4	1.5 to 5	100.0	96

Notes:

Direct operated valves: pressure range from 0 to max pressure.

High corrosion-resistant valves (Stainless Steel)

2/2

Applications

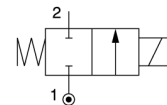
The valves in this section are made of corrosion-resistant material internally and externally. Please refer to the fluid compatibility chart in this catalogue for detailed fluid compatibility.



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



303 Stainless steel body/Pipe mounting

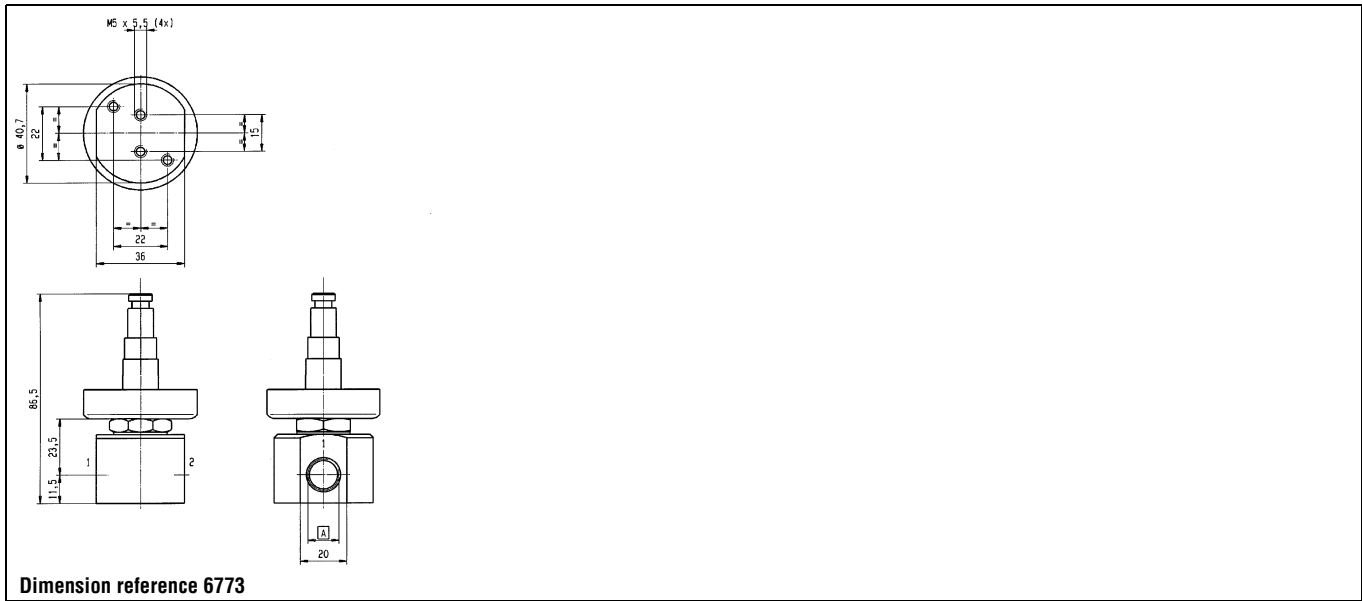
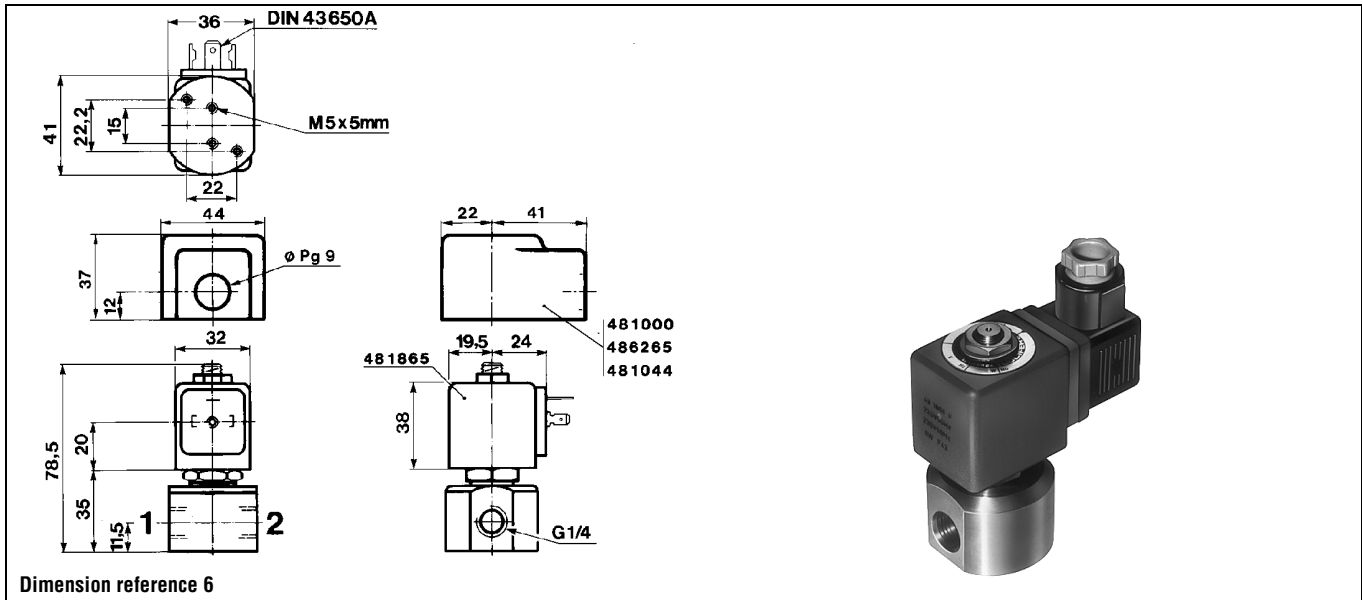
1/4	1.5	1.5	12.5	80	0	20	20	100	100	100	FKM	7121VVG2GV00	121V5406	2995	481865	9	8	410	2	6
	1.5	1.5	12.5	80	0	20	20	120	120	120	FKM			4270	481000	8	8	530	2	
1/4	1.5	1.5	15	80	0	25	60	-	100	-	Ruby	7121VVG2GR00	121V5463	2995	481865	9	8	410	2	6
	1.5	1.5	15	80	0	30	75	-	130	-	Ruby			4270	481000	8	8	530	2	
	1.5	1.5	15	80	0	55	100	-	140	-	Ruby			4270	486265	14	14	540		
1/4	2.5	3.5	8.5	220	0	7	14	100	100	100	FKM	7121VVG2LV00	121V5706	2995	481865	9	8	410	2	6
	2.5	3.5	8.5	220	0	9	14	120	120	120	FKM			4270	481000	8	8	530	2	
	2.5	3.5	8.5	220	0	14	14	120	120	120	FKM			4270	486265	14	14	540		
1/4	2.5	3.5	25	220	0	10	28	-	100	-	Ruby	7121VVG2LR00	121V5763	2995	481865	9	8	410	2	6
	2.5	3.5	25	220	0	12	34	-	130	-	Ruby			4270	481000	8	8	530	2	
	2.5	3.5	25	220	0	22	50	-	140	-	Ruby			4270	486265	14	14	540		
1/4	3	4.5	9	315	0	8.5	10	75	75	75	FKM	7121VVG2NV1D	121V53061D	-	483250	8	8	1375	5	6773
	3	4.5	27	315	0	7	10	100	100	100	FKM	7121VVG2NV00	121V5306	2995	481865	9	8	410	2	6
	3	4.5	27	315	0	8.5	10	120	120	120	FKM			4270	481000	8	8	530	2	
3	4.5	27	315	0	10	10	120	120	120	FKM	4270			486265	14	14	530			
1/4	3	4.5	27	315	0	7	20	-	100	-	Ruby	7121VVG2NR00	121V5363	2995	481865	9	8	410	2	6
	3	4.5	27	315	0	8.5	25	-	130	-	Ruby			4270	481000	8	8	530	2	
	3	4.5	27	315	0	15	36	-	140	-	Ruby			4270	486265	14	14	540		
1/4	4	7	10.5	450	0	4	10	100	100	100	FKM	7121VVG2QV00	121V5206	2995	481865	9	8	410	2	6
	4	7	10.5	450	0	5	10	120	120	120	FKM			4270	481000	8	8	530	2	
	4	7	10.5	450	0	10	-	120	120	120	FKM			4270	486265	14	-	540		
1/4	4	7	35	450	0	4	12	-	100	-	Ruby	7121VVG2QR00	121V5263	2995	481865	9	8	410	2	6
	4	7	35	450	0	5	15	-	130	-	Ruby			4270	481000	8	8	530	2	
	4	7	35	450	0	10	22	-	130	-	Ruby			4270	486265	14	14	540		
1/4	4	7	35	450	0	3.5	3.5	-	-	100	PTFE	7121VVG2QT00	121V5212	2995	481865	9	8	410	2	6
	4	7	35	450	0	3.5	3.5	-	-	130	PTFE			4270	481000	8	8	530	2	

Table continued on page 98

Notes:

* See Electrical Parts Group table at end of section

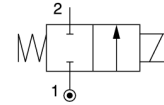
High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated



High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



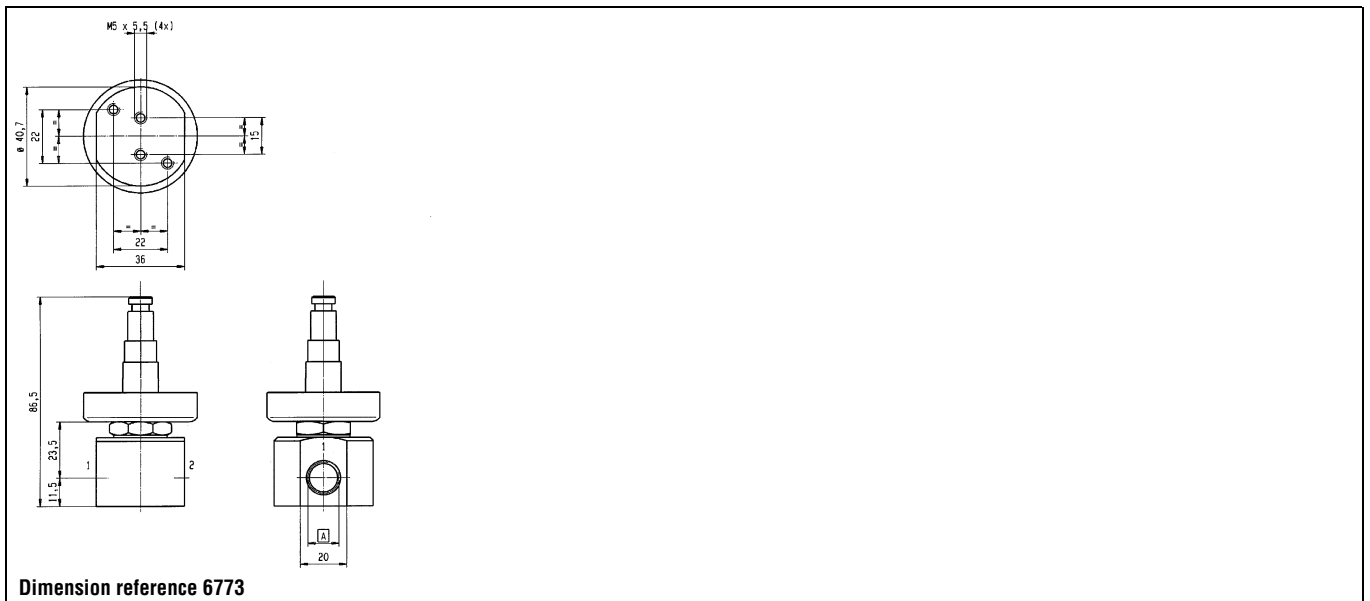
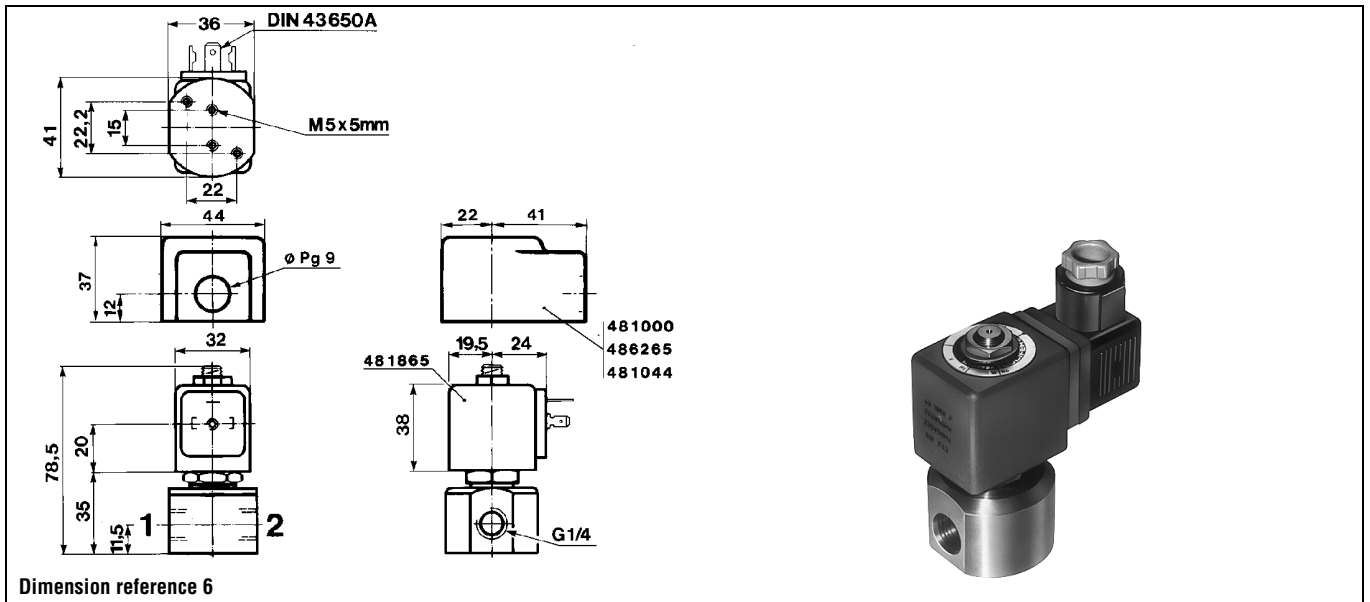
303 Stainless steel body/Pipe mounting

1/4	5	10	11.5	750	0	2.8	7	75	75	75	FKM	7121VVG2SV1D	121V51061D	-	483250	8	8	1375	5	6773
	5	10	11.5	750	0	2	7	100	100	100	FKM	7121VVG2SV00	121V5106	2995	481865	9	8	410	2	6
	5	10	11.5	750	0	2.8	7	120	100	120	FKM			4270	481000	8	8	530	2	
	5	10	11.5	750	0	5	7	120	120	120	FKM			4270	486265	14	14	540		
	5	10	40	750	0	2	8.5	-	100	-	Ruby	7121VVG2SR00	121V5163	2995	481865	9	8	410	2	6
	5	10	40	750	0	3.5	10	-	130	-	Ruby			4270	481000	8	8	530	2	
	5	10	40	750	0	6.5	14	-	140	-	Ruby			4270	486265	14	14	540		
	5	10	35	750	0	2	2.8	100	100	100	PTFE	7121VVG2ST00	121V5112	2995	481865	9	8	410	2	6
	5	10	35	750	0	2.8	2.8	130	130	130	PTFE			4270	481000	8	8	530	2	

Notes:

* See Electrical Parts Group table at end of section

High corrosion-resistant valves (Stainless Steel) 2/2 - Direct operated



Electrical parts options with 2/2 high corrosion resistant stainless steel valves

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50
		IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Oil burner valves (incl. TÜV approved types)

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	2.2 to 3	50.0	102
			1/4	1.2 to 3	100.0	104
			3/8	4 to 11	30.0	104
			1/2	14	30.0	104
		Normally open	1/8	2.5	30.0	106
			1/4	2.5 to 4	30.0	106
Pilot operated	Brass body	Normally closed	1/4	8	40.0	108
			3/8	11	40.0	108
			1/2	14.5 to 15	40.0	108
			SB	14	40.0	110
		Normally open	1/4	8	40.0	108
			3/8	11	40.0	108
			1/2	14.5	40.0	110
			SB	14	40.0	110

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Oil burner valves (incl. TÜV approved types)

2/2

Applications

TÜV approved types are described in more detail in Data Sheet 8634/GB.
TÜV approved models are safety shut-off solenoid valves for oil burner systems according to DIN EN 264 and fuel oils EL, L, M and S according to DIN 51603.



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G						DC	AC									



Brass body/Pipe mounting

1/8	2.2	2.8	11	0	-	25	120	Ruby	7121ZBG1KRT0	-	¹ 2995.20	483764	-	9	270	7893
	2.2	2.8	11	0	-	33	120	Ruby			2995.20	492425	-	14	270	
	2.5	2.8	16	0	10	24	75	Ruby	7121ZBG1LR00	-	2995	481865	9	8	270	7893
	2.5	2.8	16	0	10	33	75	Ruby			4270	481000	8	8	390	
	2.5	2.8	16	0	5	13	75	Ruby			2995	482730	7	6	270	
	2.5	3.5	25	0	10	28	100	Ruby	7121KBG1LR00	E121K23	2995	481865	9	8	300	3
	2.5	3.5	25	0	12	34	130	Ruby			4270	481000	8	8	420	
	2.5	3.5	25	0	22	50	120	Ruby			4270	486265	14	14	430	
	3	4	-	0	-	30	160	Ruby	7121KBG1NRT0	121K2423	¹ 8760.23	483824	-	19	420	107
	3	4	-	0	-	30	160	Ruby			8520.23	483824	-	19	480	
1/4	1.2	0.85	8.5	0	36	80	100	Ruby	7121KBG2ER00	E121K65	2995	481865	9	8	290	3
	1.2	0.85	8.5	0	43	100	130	Ruby			4270	481000	8	8	410	
	1.2	0.85	8.5	0	75	100	120	Ruby			4270	486265	14	14	420	
	1.5	1.5	15	0	25	60	100	Ruby	7121KBG2GR00	E121K67	2995	481865	9	8	290	3
	1.5	1.5	15	0	30	75	130	Ruby			4270	481000	8	8	410	
	1.5	1.5	15	0	55	100	120	Ruby			4270	486265	14	14	420	
	2.5	3.5	25	0	10	28	100	Ruby	7121KBG2LR00	E121K63	2995	481865	9	8	290	3
	2.5	3.5	25	0	12	34	130	Ruby			4270	481000	8	8	410	
	2.5	3.5	25	0	22	50	120	Ruby			4270	486265	14	14	420	
	3	4.5	-	0	-	30	160	Ruby	-	121K6423	¹ 8520.23	483824	-	19	470	107
	3	4.5	-	0	-	30	160	Ruby	7121KBG2NRT0	121K6423	8760.23	483824	-	19	410	107
	3	4.5	27	0	7	20	100	Ruby	7121KBG2NR00	E121K64	2995	481865	9	8	290	3
	3	4.5	27	0	8.5	25	130	Ruby			4270	481000	8	8	410	
3	4.5	27	0	15	36	120	Ruby			4270	486265	14	14	420		

Table continued on page 104

Notes:

1. TÜV approved for oil burners

Oil burner valves 2/2 - Direct operated

DIN 43650A
M5x5 mm
Values in brackets for G 3/8 valves
Valeurs entre parenthèse pour valves G 3/8
Angaben in Klammern für G 3/8 Ventile

Dimensions: 15, 32, 78, 20, 33, 11.5, (13), (50), 40, 19.5, 24, 481865, 38, 488698, 8, 488647, (2), 19, 16, 29, G.

Dimension reference 3

Dimensions: 44, 22, 57, 121 K: 78, 122 K: 85.5, 37, 11, 11.5, 22, 40, 19, 27, 15, M5 x 6mm, 8760.23, G.

Dimension reference 107

Dimensions: M4x7 (4x), 17, 32, 9.5, 22, 71212861..., 24, 19.5, 71312861..., Torque 4...5 Nm, 481865, 79, 28.5, 7.5, 72.5, 7.5 (2x), G 1/8" (2x), 16.5, 13.5, 30, 26.

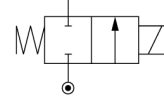
DIN 43650-A

Dimension reference 7893

Oil burner valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

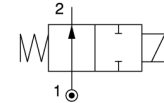
Normally closed



Brass body/Pipe mounting

1/4	4	6.5	-	0	-	30	160	Ruby	7121KBG2QRT0	121K6220 ¹	8520.23	483541	-	20	-	105	
	4	6.5	-	0	-	30	160	Ruby			8760.23	483541	-	20	-		
3/8	4	7.5	10.5	0	4	10	100	FKM	7121KBG3QV00	121K3206	2995	481865	9	8	340	3	
	4	7.5	10.5	0	5	10	120	FKM			4270	481000	8	8	460		
	4	7.5	10.5	0	10	10	120	FKM			4270	486265	14	14	470		
	5	11	11.5	0	2	7	100	FKM	7121KBG3SV00	121K3106	2995	481865	9	8	340	3	
		5	11	11.5	0	2.8	7	120	FKM			4270	481000	8	8	460	
		5	11	11.5	0	5	7	120	FKM			4270	486265	14	14	470	
	6	12	12.5	0	1.1	5	100	FKM	7121KBG3UV00	121K3306	2995	481865	9	8	340	3	
		6	12	12.5	0	1.5	5	120	FKM			4270	481000	8	8	460	
		6	12	12.5	0	3	5	120	FKM			4270	486265	14	14	470	
		11	22	13.5	0	-	30 ²	160	FKM	7121GBG34VT0	121G2320 ¹	8760.23	483541	-	20	-	108
11			22	13.5	0	-	30 ²	160	FKM			8520.23	483541	-	20	-	
1/2		14	25	15	0	-	30 ²	160	FKM	7121GBG45VT0	121G2520 ¹	8760.23	483541	-	20	-	108
	14	25	15	0	-	30 ²	160	FKM		8520.23		483541	-	20	-		
	14	25	15	0	-	30 ²	160	FKM	7121GBG45VT1	121G2523 ¹	8520.23	483824	-	19	480	108	

Normally open



Brass body/Pipe mounting

1/8	2.5	3.5	-	0	-	30	160	Ruby	7122KBG1LRT0	122K9321 ¹	8760.23	483824	-	19	455	105
	2.5	3.5	-	0	-	30	160	Ruby			8520.23	483824	-	19	515	

Table continued on page 106

Notes:

1. TUV approved for oil burners
2. Max. static pressure = 30 bar; max pressure differential = 0.2 bar

Oil burner valves 2/2 - Direct operated

DIN 43650A
M5x5 mm
 Values in brackets for G 3/8 valves
 Valeurs entre parenthèse pour valves G 3/8
 Angaben in Klammern für G 3/8 Ventile

Technical drawing showing front, side, and detail views of a 2/2 direct operated oil burner valve. Dimensions include: 15, 32, 78, 20, 33, 11.5, (13), (50), 40, 19.5, 24, 481865, 38, 488698, 8, 488647, (2/2), 19, 16, 29, and G.

3D perspective view of the valve.

Dimension reference 3

Technical drawing showing front, side, and detail views of a 2/2 direct operated oil burner valve. Dimensions include: 44, 22, 57, 121 K: 78, 122 K: 85.5, 37, 11, 11.5, 22, 40, 19, 27, 15, 8760.23, M5 x 6mm, and G.

3D perspective view of the valve.

Dimension reference 105

Technical drawing showing front and side views of a 2/2 direct operated oil burner valve. Dimensions include: 50, 87, 40, 14, 43, 15, 75, Pg11, 25, 62, 8520.23, 102, G, and 53.

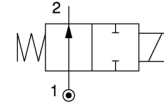
3D perspective view of the valve.

Dimension reference 108

Oil burner valves 2/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		

Normally open



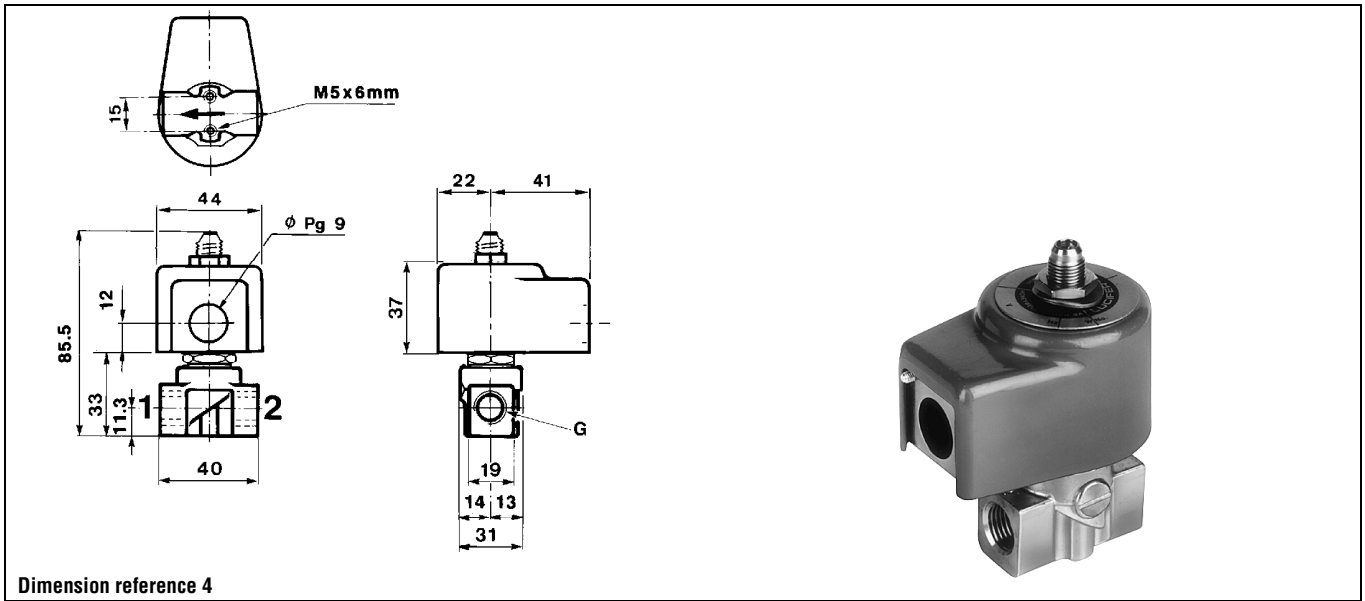
Brass body/Pipe mounting

1/8	2.5	3.5	-	0	-	30	140	Ruby	7122KBG1LR00	122K9363	4270	481044	-	14	445	4
	2.5	3.5	-	0	30	30	140	Ruby			4270	486265	14	14	455	
1/4	2.5	3.5	-	0	-	30	160	Ruby	7122KBG2LRT0	122K8321 1	8760.23	483824	-	19	435	105
	2.5	3.5	-	0	-	30	160	Ruby			8520.23	483824	-	19	495	
	2.5	3.5	-	0	-	30	140	Ruby	7122KBG2LR00	122K8363	4270	481044	-	14	425	4
	2.5	3.5	-	0	30	30	140	Ruby			4270	486265	14	14	435	

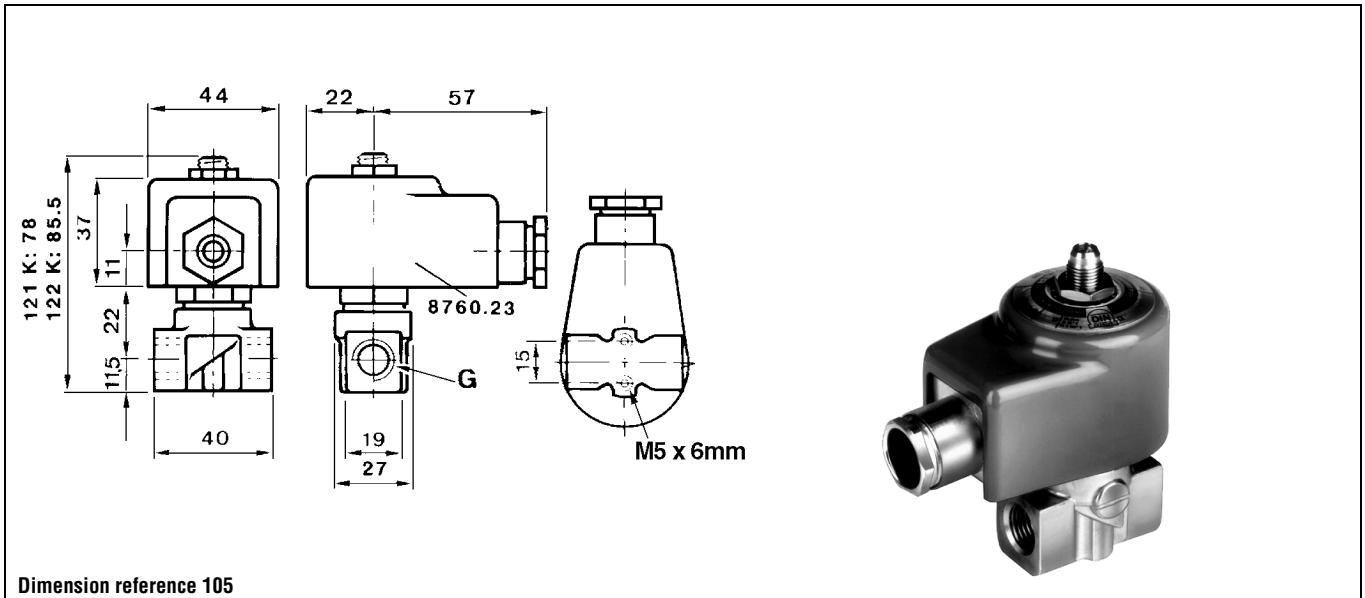
Notes:

1. TUV approved for oil burners

Oil burner valves 2/2 - Direct operated



Dimension reference 4



Dimension reference 105

Oil burner valves 2/2 - Pilot operated

2/2



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G						DC	AC									



Brass body/Pipe mounting

1/4	8	36	36	0.3	2	25	40	100	FKM	7321HBG2SV00	E321H21	¹ 2995	481865	9	8	800	9
	8	36	36	0.3		30	40	100	FKM			4270	481000	8	8	920	
	8	36	36	0.3	2	40	40	100	FKM			4270	486265	14	14	930	
3/8	11	40	40	0.3	2	-	30	160	FKM	7321HBG3TV00	321H2322	³ 8760.23	483541	-	20	1070	104
	11	40	40	0.3	2	-	30	160	FKM			8520.23	483541	-	20	1010	
	11	50	50	0.3	2	25	40	100	FKM	7321HBG3TV00	E321H23	¹ 2995	481865	9	8	780	9
	11	50	50	0.3	2	30	40	120	FKM			4270	481000	8	8	900	
	11	50	50	0.3	2	40	40	140	FKM			4270	486265	14	14	910	
1/2	14.5	60	60	0.3	2	25	40	100	FKM	7321HBG4UV00	E321H25	¹ 2995	481865	9	8	740	9
	14.5	60	60	0.3	2	30	40	120	FKM			4270	481000	8	8	860	
	14.5	60	60	0.3	2	40	40	140	FKM			4270	486265	14	14	870	
	14.5	60	60	0		-	30	160	Ruby	7321HBG4UVT1	321H2523	⁴ 8760.23	483824	³ -	19	-	104
	15	60	60	0.3		-	30	160	FKM	7321HBG4UVT0	321H2522	³ 8760.23	483541	-	20	870	104
15	60	60	0.3	2	-	30	160	FKM			8520.23	483541	-	20	870		



Brass body/Pipe mounting

1/4	8	36	36	0.3	2	40	40	100	FKM	7322HBG2SV00	322H7106	¹ 2995	481865	9	8	820	9
	8	36	36	0.3	2	40	40	120	FKM			4270	481000	8	8	940	
	8	36	36	0.3	2	40	40	140	FKM			4270	486265	14	14	950	
3/8	11	50	50	0.3	2	40	40	100	FKM	7322HBG3TV00	322H7306	¹ 2995	481865	9	8	800	9
	11	50	50	0.3	2	40	40	100	FKM			4270	481000	8	8	920	
	11	50	50	0.3	2	40	40	140	FKM			4270	486265	14	14	930	

Table continued on page 110

Notes:

1. Pilot seat discs from ruby (synthetic)
2. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
3. TUV approved for oil burners
4. Also for fuel oil

Oil burner valves 2/2 - Pilot operated

Dimension reference 9

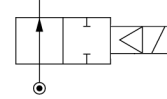
Dimension reference 104

Oil burner valves 2/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
				Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC		
G		kv	Qmax		DC	AC										

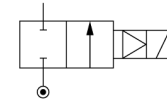
Brass body/Pipe mounting

Normally open



1/2	14.5	60	60	0.3	¹	20	20	100	FKM	7322GBG4UV00	322G7506	2995	481865	9	8	760	9
	14.5	60	60	0.3	¹	20	20	100	FKM			4270	481000	8	8	880	
1/2	14.5	60	60	0.3	¹	40	40	100	FKM	7322HBG4UV00	322H7506	2995	481865	9	8	760	9
	14.5	60	60	0.3	¹	40	40	120	FKM			4270	481000	8	8	880	
	14.5	60	60	0.3	¹	40	40	140	FKM			4270	486265	14	14	890	

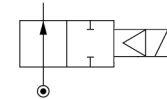
Normally closed



Brass body/Sub-base mounting

SB	14	45	45	0.3	¹	25	40	100	FKM	7321FBF3TV00	E321F3202	2995	481865	9	8	650	13
	14	45	45	0.3	¹	30	40	120	FKM			4270	481000	8	8	770	
	14	45	45	0.3	¹	40	40	120	FKM			4270	486265	14	14	780	

Normally open



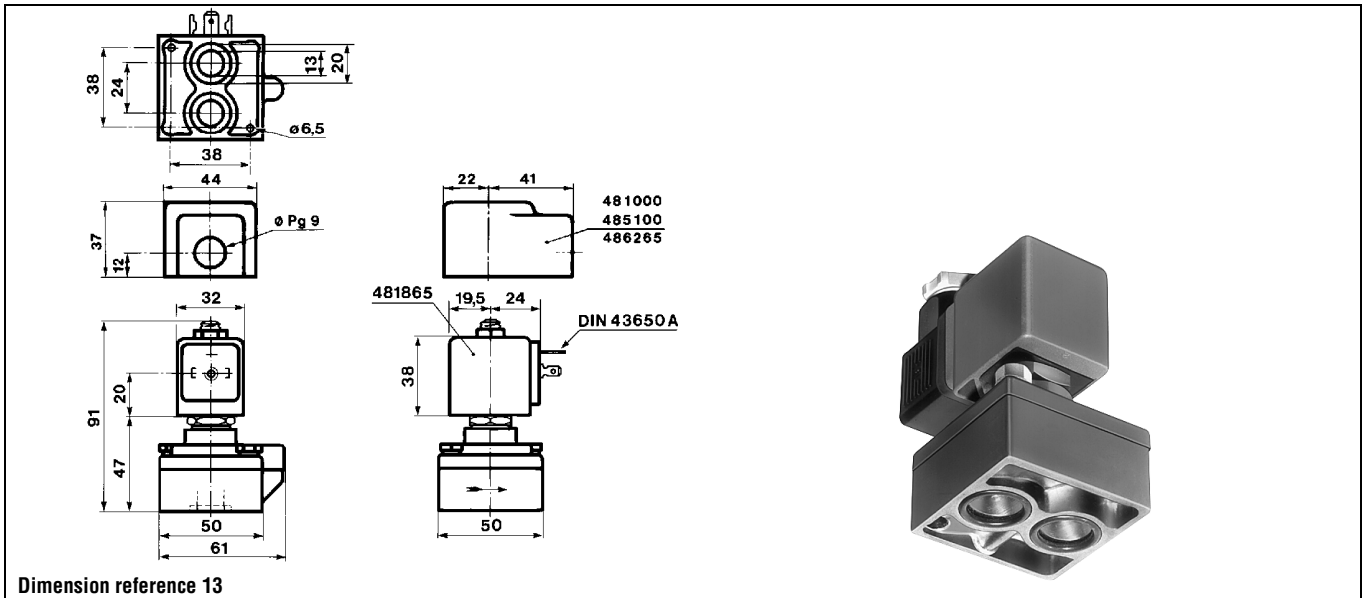
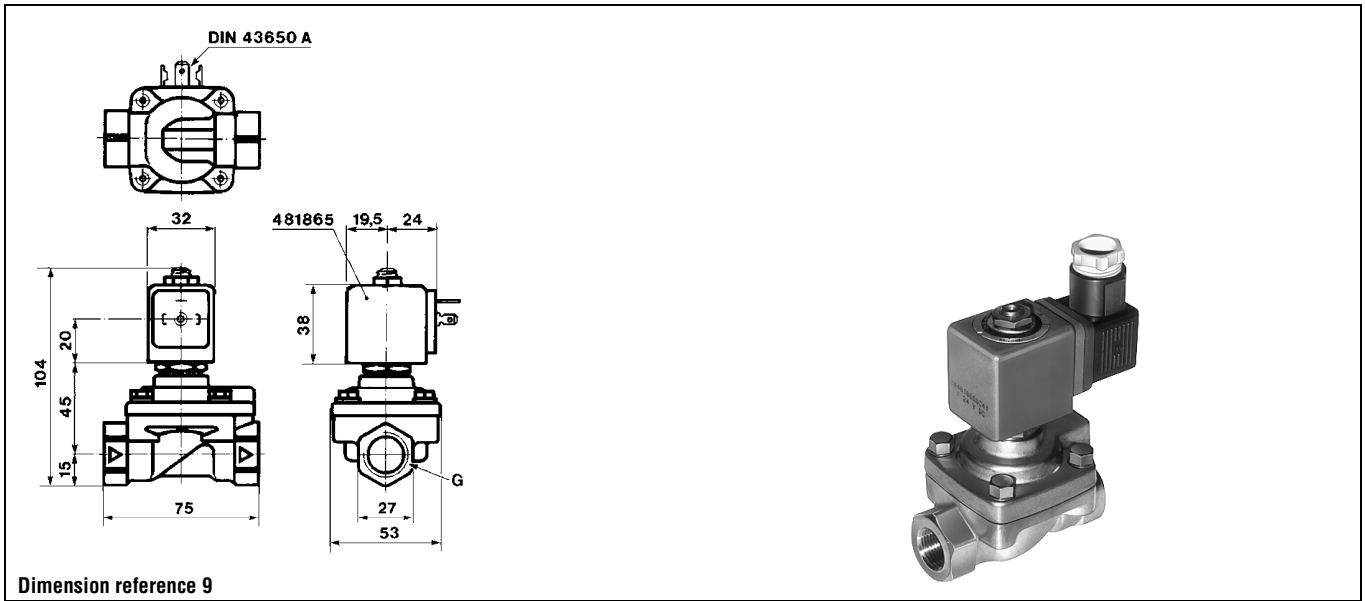
Brass body/Sub-base mounting

SB	14	45	45	0.3	¹	40	40	100	FKM	7322FBF3TV00	322F7206	2995	481865	9	8	650	13
	14	45	45	0.3	¹	40	40	100	FKM			4270	481000	8	8	770	
	14	45	45	0.3	¹	40	40	140	FKM			4270	486265	14	14	780	

Notes:

1. Minimum pressure differential = 0.3 bar for opening and 0 bar for closing
2. Pilot seat discs from ruby (synthetic)

Oil burner valves 2/2 - Pilot operated



Dry operator valves for corrosive fluids

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	303 Stainless steel body	Normally closed	1/4 NPT	2 to 4.5	5.0	114
	Teflon body		1/4 NPT	2 to 4.5	5.0	114

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Dry operator valves for corrosive fluids

2/2

Applications

The plunger is physically separated from the fluid by a soft diaphragm, isolating the plunger and the pilot tube from the main corrosive fluid. The fluid is only in contact with the body and the diaphragm.

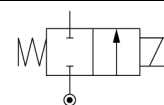


Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC		

303 Stainless steel body/Pipe mounting

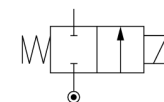
Normally closed



1/4 NPT	2	2.3	-	0	5	5	60	BunaN	71214VN2KN00	-	2995	481865	9	8	480	113
	2	2.3	-	0	5	5	60	PTFE	71214VN2KT00	-	2995	481865	9	8	480	113
	3	3.3	-	0	3.5	3.5	60	BunaN	71214VN2MN00	-	2995	481865	9	8	480	113
	3	3.3	-	0	3.5	3.5	60	PTFE	71214VN2MT00	-	2995	481865	9	8	480	113
	4	5	-	0	2.5	2.5	60	BunaN	71214VN2QN00	-	2995	481865	9	8	480	113
	4	5	-	0	2.5	2.5	60	PTFE	71214VN2QT00	-	2995	481865	9	8	480	113
	4.5	6.7	-	0	1.4	1.4	60	BunaN	71214VN2SN00	-	2995	481865	9	8	480	113
	4.5	6.7	-	0	1.4	1.4	60	PTFE	71214VN2ST00	-	2995	481865	9	8	480	113

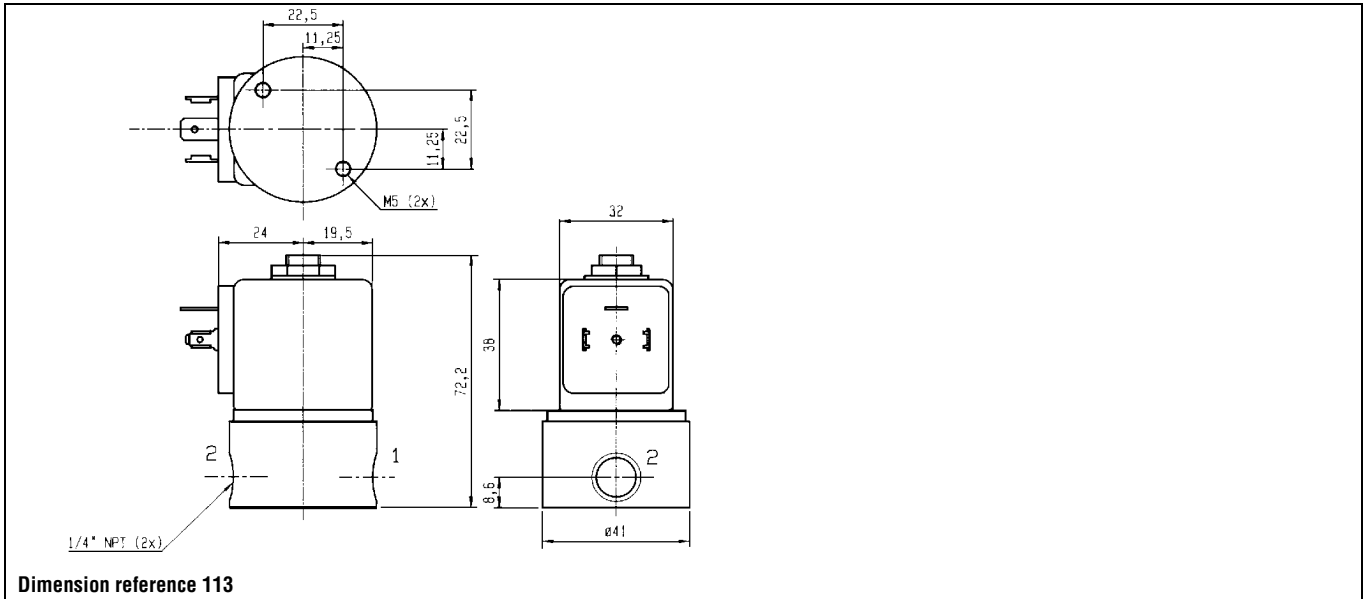
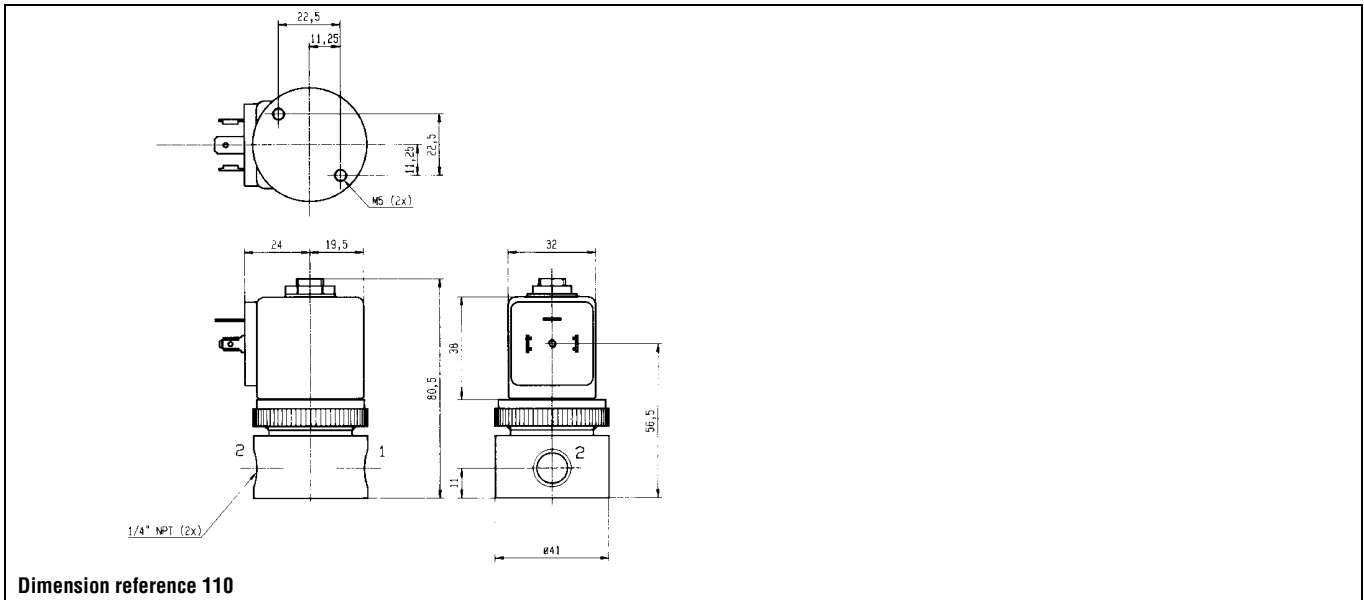
Teflon body/Pipe mounting

Normally closed



1/4 NPT	2	2.3	-	0	5	5	60	PTFE	71214TN2KT00	-	2995	481865	9	8	365	110
	3	3.3	-	0	3.5	3.5	60	PTFE	71214TN2MT00	-	2995	481865	9	8	365	110
	4	5	-	0	2.5	2.5	60	PTFE	71214TN2QT00	-	2995	481865	9	8	365	110
	4.5	6.7	-	0	1.4	1.4	60	PTFE	71214TN2ST00	-	2995	481865	9	8	365	110

Dry operator valves for corrosive fluids 2/2 - Direct operated



Dry operator valves for corrosive fluids

Fluid compatibility chart

	Stainless Steel 18-8, 302, 303, 304, 305	BUNA N (Nitrile)	Teflon*	Noryl		Stainless Steel 18-8, 302, 303, 304, 305	BUNA N (Nitrile)	Teflon*	Noryl
Acetic Acid 8%	S	NR	S	S	Nickle Nitrate	T	T	S	S
Acetone	S	NR	S	NR	Nitrobenzene	NR	NR	S	NR
Acetylene Dry	S	S	S	U	Nitrogen	S	S	S	S
Air Lubricated 120°C (248°F)	S	NR	S	S	Nitrous Oxide	T	S	S	U
Air Lubricated 82°C (180°F)	S	S	S	S	n-Octyl Alcohol	U	T	S	U
Air Unlubricated 120°C (248°F)	S	NR	S	S	Olive Oil	S	S	S	S
Air Unlubricated 82°C (180°F)	S	S	S	S	Oxygen	S	NR	S	S
Alcohol Ethyl (Ethanol)	S	NR	S	F	Ozone	T	NR	S	U
Alcohol Methyl (Methanol)	S	S	S	F	Perchloroethylene	F	NR	S	NR
Ammonia Gas Anhydrous 20	S	S	S	S	n-Propyl Acetobne	U	NR	S	U
Argon	S	S	S	U	Propyl Alcohol	S	T	S	U
Beer	S	S	S	S	Pyridine	S	NR	S	T
Benzene	S	NR	S	NR	Pyrolube	U	NR	U	U
Boric Acid	S	NR	S	S	Quick Silver	U	S	S	U
Citric Acid 10%	S	S	S	S	Red Oil	U	S	S	U
Cod Liver Oil	S	S	S	U	Rust Inhibitors	U	S	U	U
Coffee	S	S	S	U	Shellac	S	S	S	U
Diesel Fuel	S	T	S	NR	Silicone Oil	S	S	S	S
Ethylene Glycol (Antifreeze)	S	S	S	S	Sodium Phosphates	T	S	S	S
Freon 12	S	S	S	NR	Steam 140°C (298°F)	S	NR	S	S
Freon 22	S	NR	S	NR	Steam 180°C (356°F)	S	NR	S	T
Fuel Oil	S	T	S	S	Stoddard Solvent	S	S	S	NR
Gasoline Leaded	S	S	S	NR	Sucrose Solution	S	S	S	S
Gasoline Unleaded	S	NR	S	NR	Sulfur	T	NR	S	S
Helium	S	S	S	S	Sulfur Hexafluoride	S	NR	S	U
Hydraulic Fluids - Fire Resistant Cellulube Phosphate Ester	S	NR	S	U	Toluene	S	NR	S	NR
Pydraul	S	NR	S	U	Trichloroethylene	T	NR	S	NR
Skydrol	S	NR	S	NR	Trimethylpentane	U	S	S	U
Petroleum	S	S	S	NR	Trisodium Phosphate	T	F	S	S
Jet Fuel	S	T	-	NR	Turpentine	S	S	S	S
Kerosene	S	S	S	NR	Urea	S	T	S	S
Ketones	T	NR	S	NR	Varnish	S	T	S	U
Lard (Animal Fat)	S	S	S	U	Vegetable Oil	S	S	S	U
Lead Acetate	NR	NR	S	F	Vinegar	T	T	S	S
Linseed Oil	S	S	S	S	Water Boiler Feed	S	S	S	U
Lime & Water	NR	S	S	U	Water Deionized Distilled	S	T	S	S
Lubricating Oil	S	S	S	T	Water Fresh <82°C (180°F)	S	S	S	S
Methane	S	S	S	U	Water Fresh <100°C (212°F)	S	NR	S	S
Methanol Alcohol-Methyl	S	S	S	T	Water Return Condensate	S	S	S	U
Methyl Ethyl Ketone (MEK)	F	NR	S	NR	Water Sea/Salt	T	S	S	S
Mineral Spirits	S	S	S	T	Whiskey	S	S	S	S
Motor Oil	S	S	S	S	Wine	S	S	S	S
Naptha	S	S	S	NR	Xylene	S	NR	S	NR
Natural Gas	S	S	S	U	Zinc Chloride	NR	S	S	S
					Zinc Sulfate	T	T	S	S

Notes

The data should be used as a guide, and not as a final recommendation.

S = Satisfactory; T = Test to Verify, F = fair; U = No Data Available, NR = Not Recommended Unless Otherwise Stated, Media are at 100% Concentration and at Room Temperature.

Fast switching valves

2/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Magnalift	Brass body	Normally closed	3/8	8	7.0	118

Notes:

Magnalift valves: pressure range from 0 to max pressure.

Fast switching valves

2/2

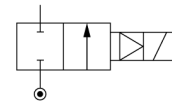
Applications

- Where extremely short response times and/or dry air service are required
- Textile weaving machines
- Printing machines
- Sorting machines
- Banknote counting machines.

Magnalift

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC		
G						DC	AC									

Normally closed



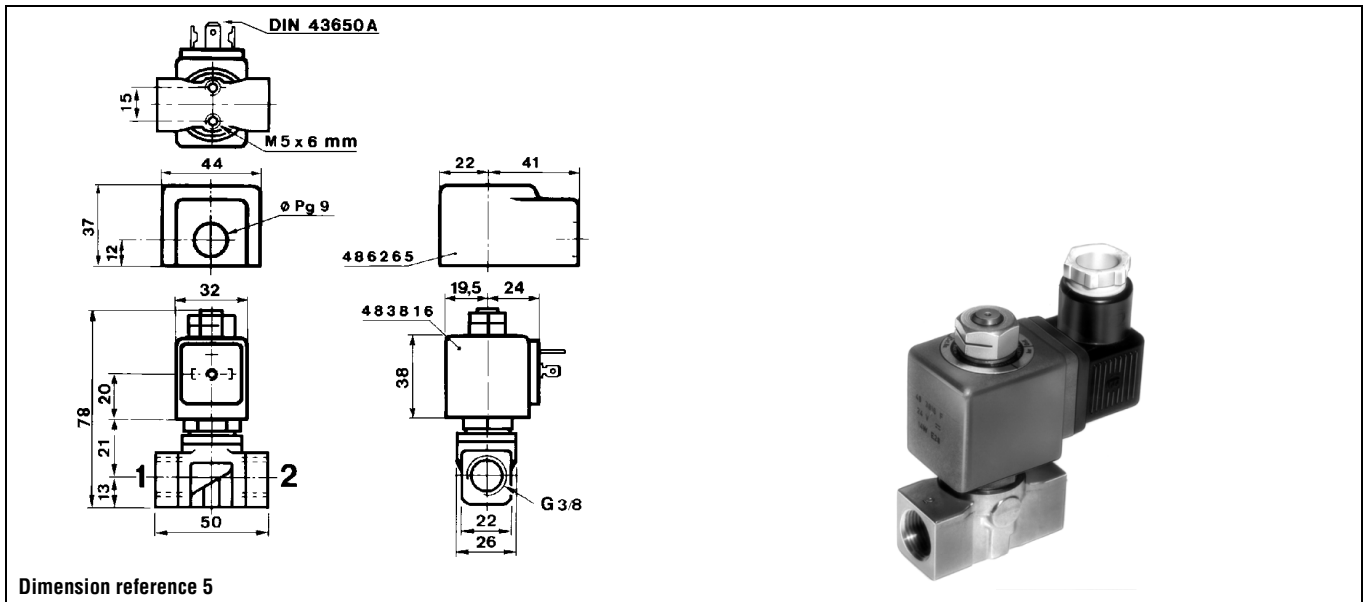
Brass body/Pipe mounting

3/8	8	-	40	0	7	-	-	PUR	-	221J3301E 1	2995.60	483816	14	-	360	5
	8	-	40	0	7	-	-	PUR			4270.60	486265	14	-	490	

Notes:

1. Fast response and long life

Fast switching valves 2/2 - Magnalift



3-way valves

	Page
General application valves for dry or lubricated air neutral gases and liquids	123
Miniature valves (3-way direct operated)	161
Valves for hydraulic oil and neutral liquids (max. 75 bar)	175
High corrosion resistant valves (Stainless Steel)	181

Applications



AIR



WATER



OIL



**CORROSION
RESISTANT**

General application valves for dry or lubricated air, neutral gases and liquids

3/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	1.2 to 2.5	15.0	124
			1/4	1 to 4.5	30.0	126
			SB	1 to 2.5	15.0	136
		Normally open	1/4	1.5 to 3	16.0	132
			SB	1.5 to 2.5	16.0	144
		Universal	1/8	1.5 to 2.5	10.0	134
			1/4	1.5 to 3	10.0	134
			SB	1.5 to 2.5	10.0	144
		Magnetic latch control	1/4	1.5 to 2.5	16.0	136
		Delrin body	Normally closed	SB	2	10.0
Pilot operated	Anod. aluminium body	Normally closed	1/4	6.5 to 8	40.0	150
			1/2	14 to 15	15.0	152
		Normally open	1/4	8	40.0	152
			1/2	14	15.0	154

Notes:

Direct operated and magnalift valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

General application valves for dry or lubricated air, neutral gases and liquids

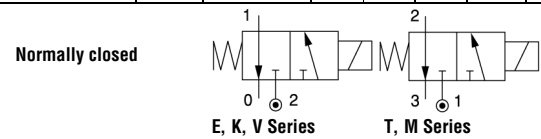
3/2



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Liquids Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				

Brass body/Pipe mounting



1/8	1.2	0.7	2.2	50	0	10	10	75	75	75	FKM	-	131M15	8993	488980	2.5	2	150	1	14
	(1.5)	(0.9)	(2.2)	(70)	0	10	10	75	75	75	FKM	-	131M15	8993	488980	2.5	2	150	1	14
	1.5	1.1	2.4	70	0	7	7	75	75	75	FKM	-	131M14	8993	488980	2.5	2	150	1	14
	1.5	1.5	5.8	80	0	15	15	100	100	100	FKM	7131KBG1GV00	E131K14	2995	481865	9	8	325	2	17
	1.5	1.5	5.8	80	0	15	15	120	120	120	FKM	7131ZBG1JV00	-	2995	481865	9	8	270	2	7894
	2	2	6.5	140	0	-	10	75	75	75	FKM	7131ZBG1JV00	-	2995	481865	9	8	270	2	7894
	2	2	6.5	140	0	10	10	75	75	75	FKM	7131ZBG1JV00	-	4270	481000	8	8	390	2	7894
	2	2	6.5	140	0	10	10	75	75	75	FKM	7131ZBG1JV00	-	2995	482730	7	6	270	2	7894
	2	2.5	8	140	0	10	10	100	100	100	FKM	7131KBG1JVM0	131K1650	1 2995	481865	9	8	310	2	17
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM	7131KBG1JVM0	131K1650	2995	481865	9	8	310	2	17
	2	2.5	8	140	0	10	10	120	120	120	FKM	7131KBG1JVM0	131K1650	4270	481000	8	8	430	2	17
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM	7131KBG1JVM0	131K1650	4270	481000	8	8	430	2	17
	2	2.5	8	140	0	10	10	100	100	100	FKM	7131KBG1JV00	131K16	2995	481865	9	8	310	2	17
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM	7131KBG1JV00	131K16	2995	481865	9	8	310	2	17
	2	2.5	8	140	0	10	10	120	120	120	FKM	7131KBG1JV00	131K16	4270	481000	8	8	430	2	17
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM	7131KBG1JV00	131K16	4270	481000	8	8	430	2	17
2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131KBG1LV00	E131K13	2995	481865	9	8	325	2	17	
2.5	3.5	8.5	220	0	7	7	120	120	120	FKM	7131KBG1LV00	E131K13	4270	481000	8	8	445	2	17	

Table continued on page 126

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

Dimension reference 14

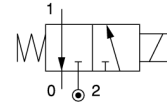
Dimension reference 17

Dimension reference 7894

General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				

Normally closed



Brass body/Pipe mounting

1/4	1	0.6	-	38	0	10	-	75	75	75	FKM	7131KBG2CV90	131K0490	-	483580.01 ¹	0.4	-	285	7	77
	1.2	0.8	4.5	50	0	-	30	130	130	130	Ruby	7131KBG2ERM0	E131K6450 ²	4270	481000	-	8	430	2	17
	(1.5)	(1.5)	(9)	(80)	0	-	30	130	130	130	Ruby			4270	481000	-	8	430	2	
	1.2	0.8	4.5	50	0	30	-	140	140	140	Ruby			4270	486265	14	-	430	2	
	(1.5)	(1.5)	(9)	(80)	0	30	-	140	140	140	Ruby			4270	486265	14	-	430	2	
	1.2	0.8	4.5	50	0	-	30	130	130	130	Ruby	7131KBG2ER00	E131K64	4270	481000	-	8	430	2	17
	(1.5)	(1.5)	(9)	(80)	0	-	30	130	130	130	Ruby			4270	481000	-	8	430	2	
	1.2	0.8	4.5	50	0	30	-	140	140	140	Ruby			4270	486265	14	-	440	2	
	(1.5)	(1.5)	(9)	(80)	0	30	-	140	140	140	Ruby			4270	486265	14	-	440	2	
	1.5	1.5	4	80	0	7	-	75	75	75	FKM	7131KBG2GVL5	131K0480	2995	482740	1.6	-	310	6	17
	1.5	1.5	6	80	0	15	15	100	100	100	FKM	7131KBG2GVM0	E131K0450 ²	2995	481865	9	8	310	2	17
	1.5	1.5	6	80	0	15	15	120	120	120	FKM			4270	481000	8	8	430	2	
	1.5	1.5	6	80	0	15	15	100	100	100	FKM	7131KBG2GV00	E131K04	2995	481865	9	8	310	2	17
	1.5	1.5	6	80	0	15	15	120	120	120	FKM			4270	481000	8	8	430	2	
	2	2.5	8	140	0	10	10	75	75	75	FKM	7131TBG2JVM0	131T2301 ²	2995	481865	9	8	400	2	18
	(3)	(4.5)	(9)	(355)	0	10	10	75	75	75	FKM			2995	481865	9	8	400	2	
	2	2.5	8	140	0	10	10	75	75	75	FKM			4270	481000	8	8	520	2	
	(3)	(4.5)	(9)	(355)	0	10	10	75	75	75	FKM			4270	481000	8	8	520	2	
	2	2.5	8	140	0	10	10	75	75	75	FKM	7131TBG2JV00	131T23	2995	481865	9	8	400	2	18
	(3)	(4.5)	(9)	(355)	0	10	10	75	75	75	FKM			2995	481865	9	8	400	2	
2	2.5	8	140	0	10	10	75	75	75	FKM			4270	481000	8	8	520	2		
(3)	(4.5)	(9)	(355)	0	10	10	75	75	75	FKM			4270	481000	8	8	520	2		
2	2.5	8	140	0	10	10	100	100	100	FKM	7131KBG2JVM0	E131K0650 ²	2995	481865	9	8	310	2	17	
(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM			2995	481865	9	8	310	2		
2	2.5	8	140	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2		
(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2		
2	2.5	8	140	0	10	10	100	100	100	FKM	7131KBG2JV00	E131K06	2995	481865	9	8	310	2	17	
(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM			2995	481865	9	8	310	2		
2	2.5	8	140	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2		
(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2		

Table continued on page 128

Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

Dimension reference 17

Dimension reference 18

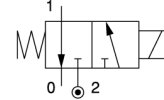
Dimension reference 77

General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Brass body/Pipe mounting

Normally closed



1/4	2	2.5	8	140	0	10	10	80	80	80	PUR	7131KBG2JP1D	E131K06081D ¹	-	483250	8	8	1255	5	3845
	2.5	3.5	8.5	220	0	7	7	75	75	75	FKM	7131TBG2LVM0	131T2901 ²	2995	481865	9	8	400	2	18
	(3.5)	(5.5)	(9.5)	(400)	0	7	7	75	75	75	FKM			2995	481865	9	8	400	2	
	2.5	5.5	9.5	400	0	7	7	75	75	75	FKM			4270	481000	8	8	520	2	
	(3.5)	(3.5)	(8.5)	(220)	0	7	7	75	75	75	FKM			4270	481000	8	8	520	2	
	2.5	3.5	8.5	220	0	7	7	75	75	75	FKM	7131TBG2LV00	131T29	2995	481865	9	8	400	2	18
	(3.5)	(5.5)	(9.5)	(400)	0	7	7	75	75	75	FKM			2995	481865	9	8	400	2	
	2.5	3.5	8.5	220	0	7	7	75	75	75	FKM			4270	481000	8	8	520	2	
	(3.5)	(5.5)	(9.5)	(400)	0	7	7	75	75	75	FKM			4270	481000	8	8	520	2	
	2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131KBG2LVM0	E131K0350 ²	2995	481865	9	8	310	2	17
	2.5	3.5	8.5	220	0	7	7	120	120	120	FKM			4270	481000	8	8	430	2	
	2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131KBG2LV00	E131K03	2995	481865	9	8	310	2	17
2.5	3.5	8.5	220	0	7	7	120	120	120	FKM			4270	481000	8	8	430	2		

Table continued on page 130

Notes:

- * See Electrical Parts Group table at end of section
 - 1. Operates with low temperatures down to -40 deg. C
 - 2. Manual override standard
- Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

Dimension reference 17

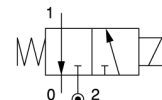
Dimension reference 18

Dimension reference 3845

General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Normally closed



Brass body/Pipe mounting

1/4	2.5	2.7	7.1	220	0.1	7	7	75	75	75	NBR	7131EBG2LN00	E131E03	2995	481865	9	8	650	2	19
	(6)	(15)	(12.5)	1100	0.1	7	7	75	75	75	NBR			2995	481865	9	8	650	2	
	2.5	2.7	7.1	220	0.1	7	7	75	75	75	NBR		4270	481000	8	8	770	2		
	(6)	(15)	(12.5)	1100	0.1	7	7	75	75	75	NBR		4270	481000	8	8	770	2		
	2.5	3.5	9.5	220	0	7	7	100	100	100	Ruby	7131KBG2LRM0	E131K6350	2995	481865	9	8	310	2	17
	2.5	3.5	9.5	220	0	7	7	130	130	130	Ruby			4270	481000	8	8	430	2	
	2.5	3.5	9.5	220	0	7	7	100	100	100	Ruby	7131KBG2LR00	E131K63	2995	481865	9	8	310	2	17
	2.5	3.5	9.5	220	0	7	7	130	130	130	Ruby			4270	481000	8	8	430	2	
	2.5	3.5	8.5	220	0	7	7	75	75	75	PUR	7131KBG2LP1D	E131K03081D	-	483250	8	8	1255	5	3845
	2.5	3.5	8.5	220	0	7	7	75	75	75	PUR	7131KBG2LP00		2995	481865	9	8	180	2	17
	2.5	3.5	8.5	220	0	7	7	75	75	75	PUR		4270	481000	8	8	180	2		
	2.5	3.5	8.5	220	0	7	7	75	75	75	PUR	7131KBG2LPM0	E131K0358	2995	481865	9	8	180	2	17
	2.5	3.5	8.5	220	0	7	7	75	75	75	PUR			4270	481000	8	8	180	2	

Table continued on page 132

Notes:

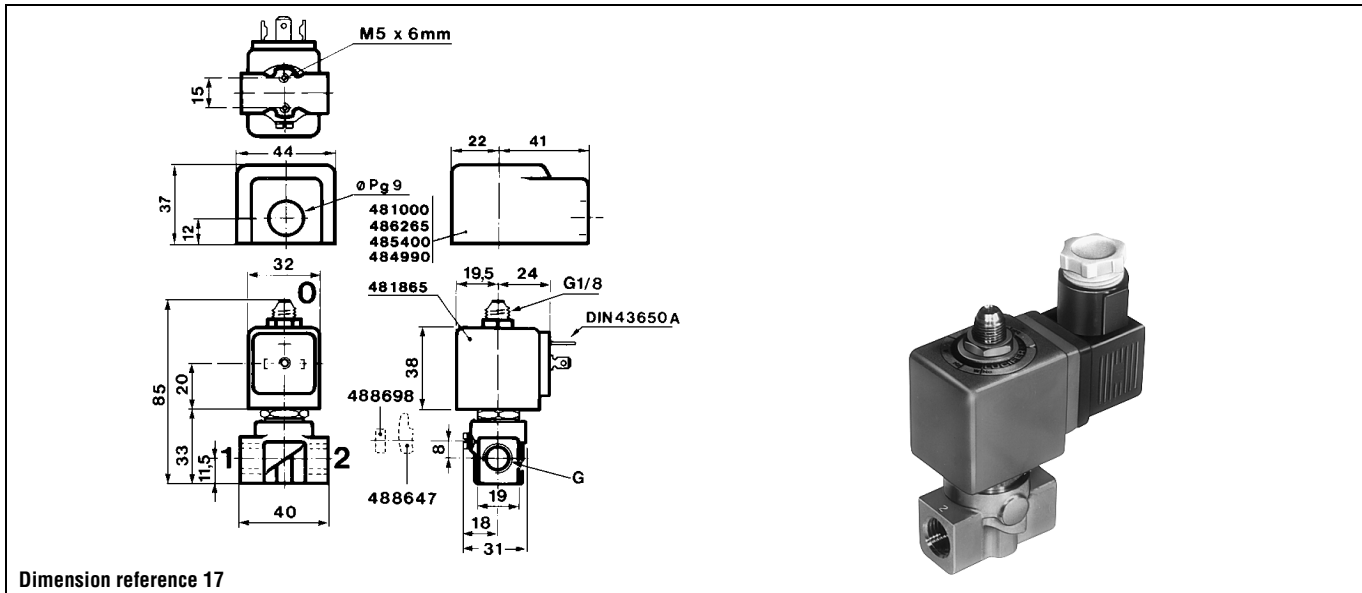
* See Electrical Parts Group table at end of section

1. Manual override standard

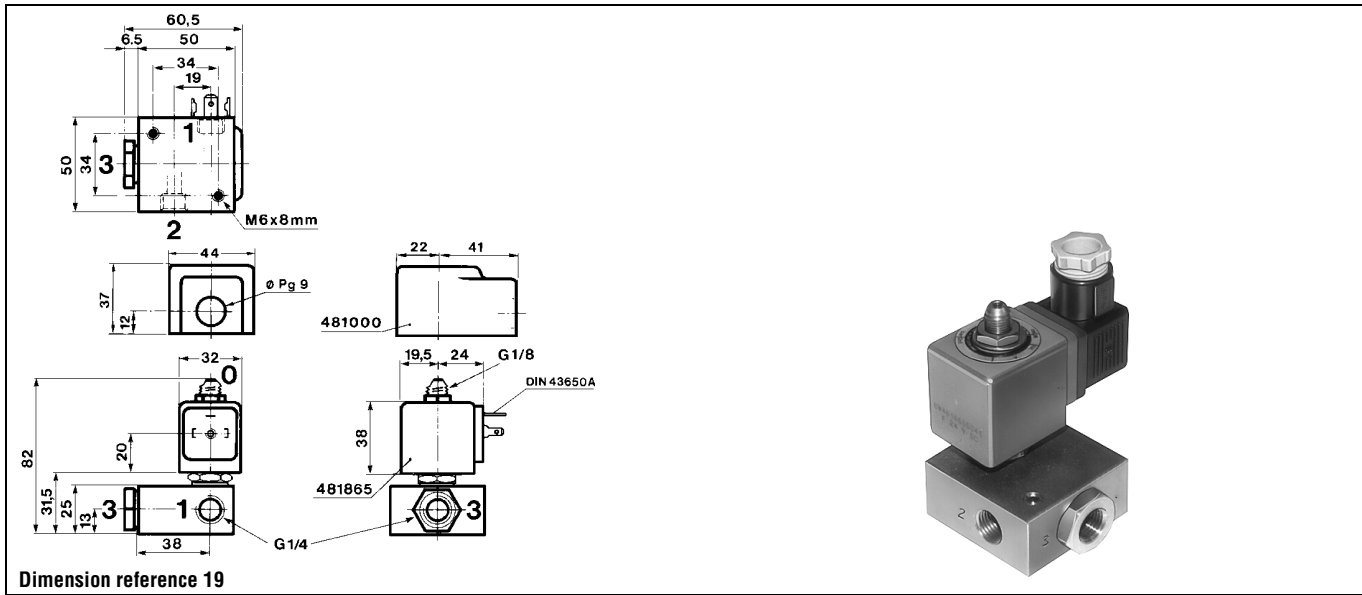
2. Operates with low temperatures down to -40 deg. C

Values shown within brackets are valid for exhaust port only.

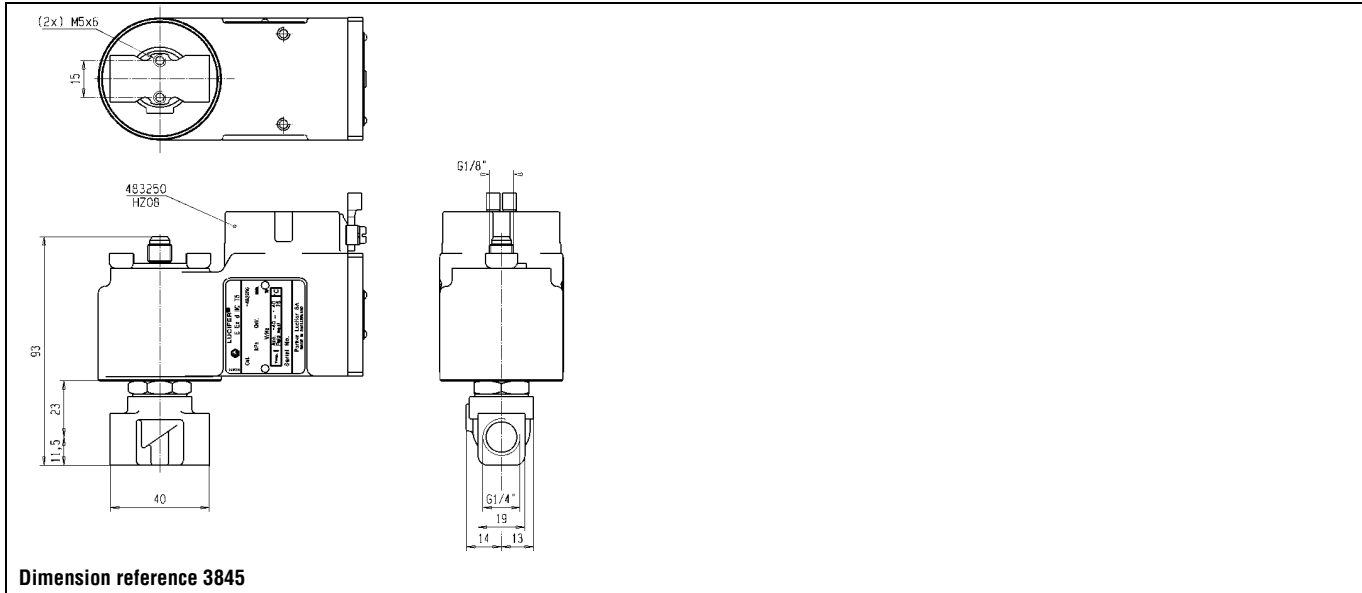
General application valves 3/2 - Direct operated



Dimension reference 17



Dimension reference 19

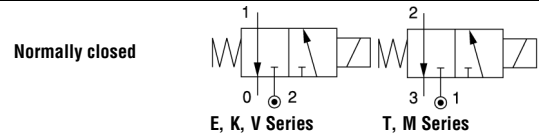


Dimension reference 3845

General application valves 3/2 - Direct operated

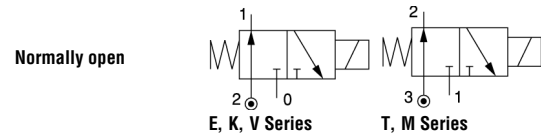
Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Gases Qmax	Qn	Min	Max DC	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																				

Brass body/Pipe mounting



1/4	3	4.5	9	355	0	-	10	75	75	75	FKM	7131TBG2NVA0	131T22	4270	481044	-	14	520		18	
	(4)	(6)	(10.5)	(450)	0	-	10	75	75	75	FKM			4270	481044	-	14	520			
	3	6	10.5	450	0	-	10	75	75	75	FKM			2995	492425	-	14	400			
	(4)	(4.5)	(9)	(355)	0	-	10	75	75	75	FKM			2995	492425	-	14	400			
		4.5	7	10.5	500	0	2	2	75	75	75	FKM	7131TBG2RVM0	131T2101	2995	481865	9	8	400	2	18
		(6)	(9)	(12.5)	(710)	0	2	2	75	75	75	FKM			2995	481865	9	8	400	2	
		4.5	7	10.5	500	0	2	2	75	75	75	FKM			4270	481000	8	8	520	2	
		(6)	(9)	(12.5)	(710)	0	2	2	75	75	75	FKM			4270	481000	8	8	520	2	
		4.5	7	10.5	500	0	2	2	75	75	75	FKM	7131TBG2RV00	131T21	2995	481865	9	8	400	2	18
		(6)	(9)	(12.5)	(710)	0	2	2	75	75	75	FKM			2995	481865	9	8	400	2	
		4.5	7	10.5	500	0	2	2	75	75	75	FKM			4270	481000	8	8	520	2	
		(6)	(9)	(12.5)	(710)	0	2	2	75	75	75	FKM			4270	481000	8	8	520	2	

Brass body/Pipe mounting



1/4	1.5	1.4	6	80	0	16	16	100	100	100	FKM	7132KBG2GV00	132K04	2995	481865	9	8	310	2	17		
	1.5	1.4	6	80	0	16	16	120	120	120	FKM			4270	481000	8	8	430	2			
		2	1.8	6	125	0	10	10	100	100	100	FKM	7132KBG2JV00	132K06	2995	481865	9	8	310	2	17	
		2	1.8	6	125	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2		
		2	2.5	8	140	0	5	10	75	75	75	FKM	7132TBG2JVM0	132T2301	2995	481865	9	8	300		18	
		(3)	(4.5)	(9)	(355)	0	5	10	75	75	75	FKM			2995	481865	9	8	300			
		2	2.5	8	140	0	5	10	75	75	75	FKM			4270	481000	8	8	420			
		(3)	(4.5)	(9)	(355)	0	5	10	75	75	75	FKM			4270	481000	8	8	420			
		2	2.5	8	140	0	10	-	75	75	75	FKM			4270	486265	14	14	430			
		(3)	(4.5)	(9)	(355)	0	10	-	75	75	75	FKM			4270	486265	14	14	430			
		2	2.5	8	140	0	5	10	75	75	75	FKM	7132TBG2JV00		132T23	2995	481865	9	8	300		18
		(3)	(4.5)	(9)	(355)	0	5	10	75	75	75	FKM				2995	481865	9	8	300		
		2	2.5	8	140	0	5	10	75	75	75	FKM		4270		481000	8	8	420			
		(3)	(4.5)	(9)	(355)	0	5	10	75	75	75	FKM		4270		481000	8	8	420			
		2	2.5	8	140	0	10	-	75	75	75	FKM		4270		486265	14	-	430			
		(3)	(4.5)	(9)	(355)	0	10	-	75	75	75	FKM		4270		486265	14	-	430			
		2.5	2.2	8.5	160	0	7	7	100	100	100	FKM	7132KBG2LV00	132K03	2995	481865	9	8	310	2	17	
		2.5	2.2	8.5	160	0	7	7	120	120	120	FKM			4270	481000	8	8	430	2		
		2.5	3.5	8.5	220	0	3.5	7	75	75	75	FKM	7132TBG2LV00	132T29	2995	481865	9	8	300		18	
		(3.5)	(5.5)	(9.5)	(400)	0	3.5	7	75	75	75	FKM			2995	481865	9	8	300			
		2.5	3.5	8.5	220	0	3.5	7	75	75	75	FKM			4270	481000	8	8	420			
		(3.5)	(5.5)	(9.5)	(400)	0	3.5	7	75	75	75	FKM			4270	481000	8	8	420			
		2.5	3.5	8.5	220	0	7	-	75	75	75	FKM			4270	486265	14	14	430			
		(3.5)	(5.5)	(9.5)	(400)	0	7	-	75	75	75	FKM			4270	486265	14	14	430			

Table continued on page 134

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

Dimension reference 17

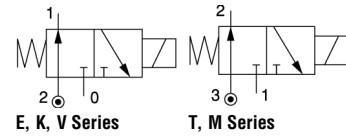
Dimension reference 18

General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Brass body/Pipe mounting

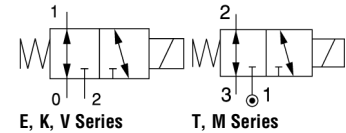
Normally open



1/4	3	6	10.5	450	0	-	10	75	75	75	FKM	7132TBG2NVA0	132T22	4270	481044	-	14	420		18
	(4)	(4.5)	(9)	(355)	0	-	10	75	75	75	FKM			4270	481044	-	14	420		
	3	4.5	9	355	0	-	7	75	75	75	FKM			2995	492425	-	14	325		
	(4)	(6)	(10.5)	(450)	0	-	7	75	75	75	FKM			2995	492425	-	14	325		

Brass body/Pipe mounting

Universal



1/8	1.5	1.5	4.7	80	0	10	10	100	100	100	FKM	7133KBG1GV00	E133K14	2995	481865	9	8	325	2	17
	1.5	1.5	4.7	80	0	10	10	120	120	120	FKM			4270	481000	8	8	445	2	
	2	2.5	6.6	145	0	7	7	100	100	100	FKM	7133KBG1JV00	E133K16	2995	481865	9	8	325	2	17
	2	2.5	6.6	145	0	7	7	120	120	120	FKM			4270	481000	8	8	445	2	
	2.5	3.5	7	220	0	4	4	100	100	100	FKM	7133KBG1LV00	E133K13	2995	481865	9	8	325	2	17
2.5	3.5	7	220	0	4	4	120	120	120	FKM		4270		481000	8	8	445	2		
1/4	1.5	1.5	4.5	80	0	10	10	100	100	100	FKM	7133KBG2GVM0	E133K0450	2995	481865	9	8	310	2	17
	1.5	1.5	4.5	80	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2	
	1.5	1.5	4.5	80	0	10	10	100	100	100	FKM	7133KBG2GV00	E133K04	2995	481865	9	8	310	2	17
	1.5	1.5	4.5	80	0	10	10	120	120	120	FKM			4270	481000	8	8	430	2	
	1.5	1.5	4.5	80	0	10	10	75	75	75	NBR	7133KBG2GV1D	E133K04001D	-	483250	8	8	1255	5	3845
	2	2.5	7	140	0	7	7	75	75	75	FKM	7133TBG2JVM0	133T2301	2995	481865	9	8	400		18
	2	2.5	7	140	0	7	7	75	75	75	FKM			4270	481000	8	8	520		
	2	2.5	7	140	0	7	7	75	75	75	FKM	7133TBG2JV00	133T23	2995	481865	9	8	400		18
	2	2.5	7	140	0	7	7	75	75	75	FKM			4270	481000	8	8	520		
	2	2.5	6.6	145	0	7	7	100	100	100	FKM	7133KBG2JVM0	E133K0650	2995	481865	9	8	310	2	17
	2	2.5	6.6	140	0	7	7	120	120	120	FKM			4270	481000	8	8	430	2	
	2	2.5	6.6	145	0	7	7	100	100	100	FKM	7133KBG2JV00	E133K06	2995	481865	9	8	310	2	17
	2	2.5	6.6	140	0	7	7	120	120	120	FKM			4270	481000	8	8	430	2	
	2.5	3.5	7	220	0	4	4	100	100	100	FKM	7133KBG2LVM0	E133K0350	2995	481865	9	8	310	2	17
	2.5	3.5	7	220	0	4	4	120	120	120	FKM			4270	481000	8	8	430	2	
	2.5	3.5	7	220	0	4	4	100	100	100	FKM	7133KBG2LV00	E133K03	2995	481865	9	8	310	2	17
	2.5	3.5	7	220	0	4	4	120	120	120	FKM			4270	481000	8	8	430	2	
	3	4.5	6	355	0	2	2	75	75	75	FKM	7133TBG2NVM0	133T2101	2995	481865	9	8	300	2	18
3	4.5	6	355	0	2	2	75	75	75	FKM		4270		481000	8	8	420	2		
3	4.5	6	355	0	2	2	75	75	75	FKM	7133TBG2NV00	133T21	2995	481865	9	8	400	2	18	
3	4.5	6	355	0	2	2	75	75	75	FKM			4270	481000	8	8	520	2		

Table continued on page 136

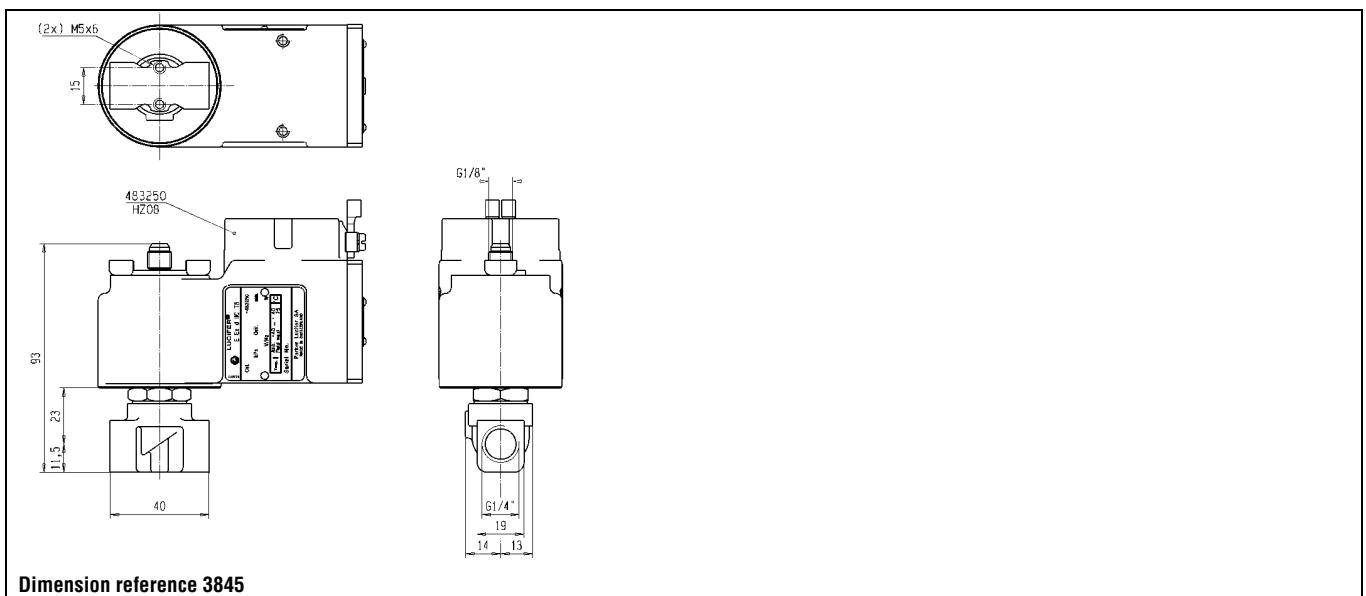
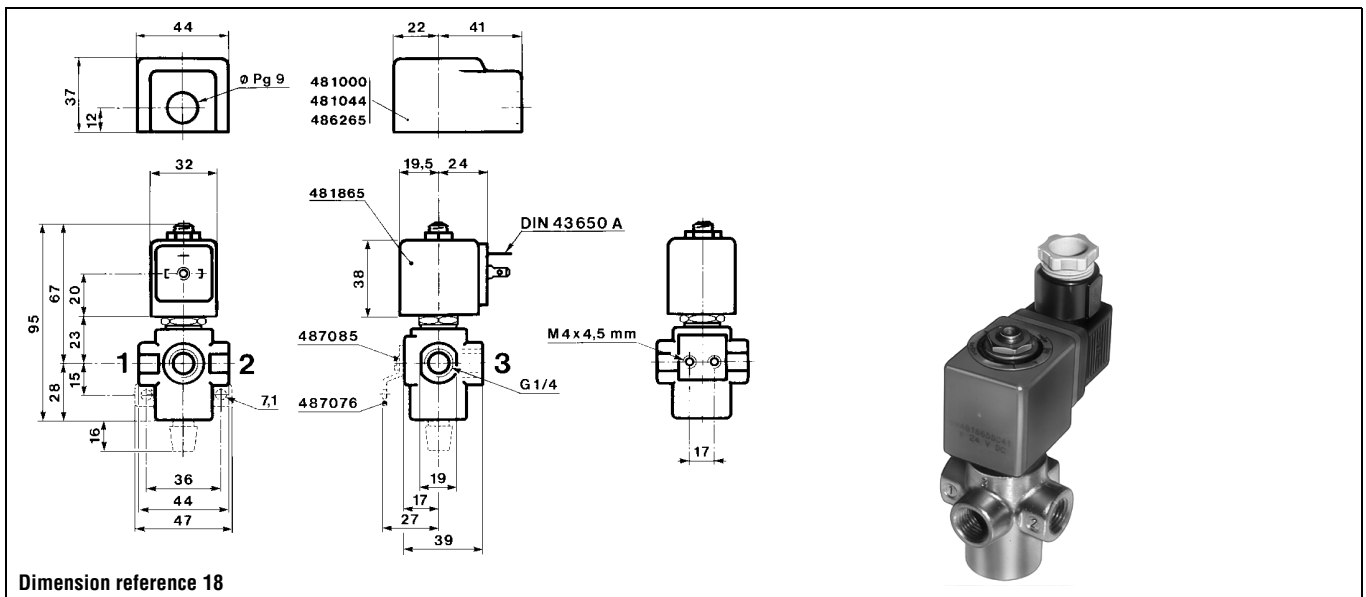
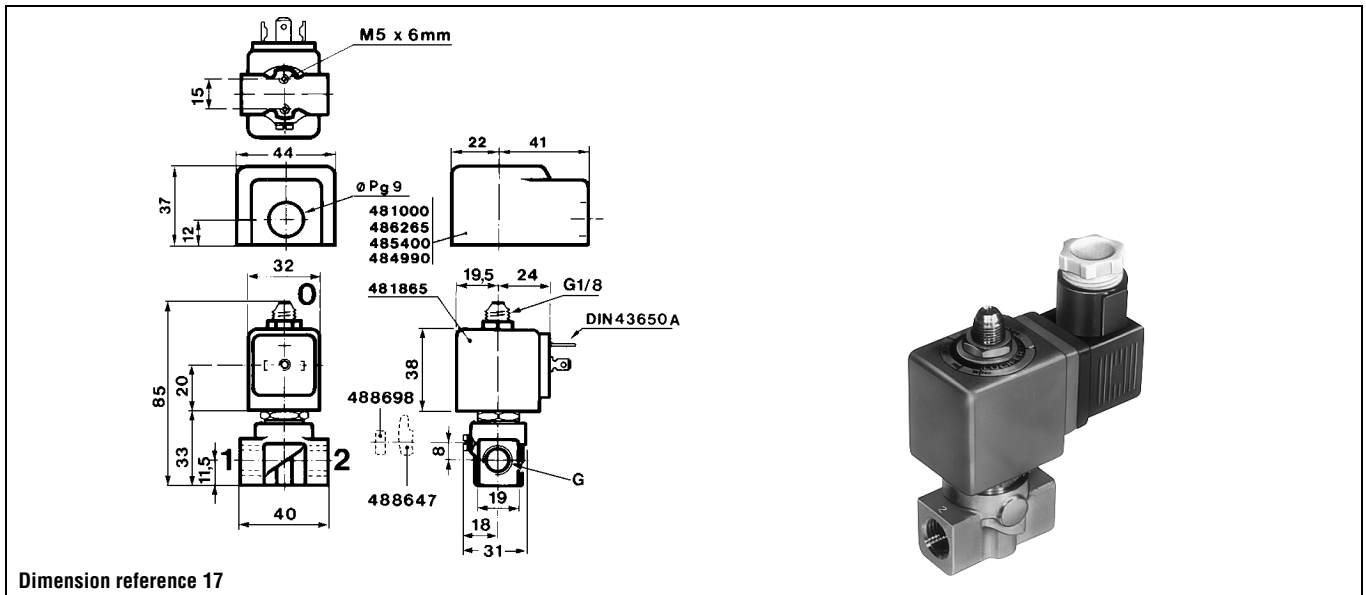
Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

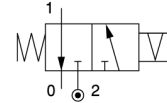


General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

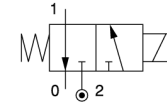
Brass body/Pipe mounting

Magnetic latch control



1/4	1.5	1.5	6	80	0	-	16	100	100	100	FKM	7135KBG2GV00	135K04	4269	484990	-	11	450	4	17
	1.5	1.5	6	80	0	16	-	100	100	100	FKM		4269	485400	13	-	450	4		
	2.5	3.5	8.5	220	0	-	7	100	100	100	FKM	7135KBG2LV00	135K03	4269	484990	-	11	450	4	17
	2.5	3.5	8.5	220	0	7	-	100	100	100	FKM		4269	485400	13	-	450	4		

Normally closed



Brass body/Sub-base mounting

SB	1	0.6	-	-	0	10	-	75	75	-	FKM	-	131F4490	1	-	483580.01	2	0.4	-	235	7	79
----	---	-----	---	---	---	----	---	----	----	---	-----	---	-----------------	---	---	------------------	---	-----	---	-----	---	----

Table continued on page 138

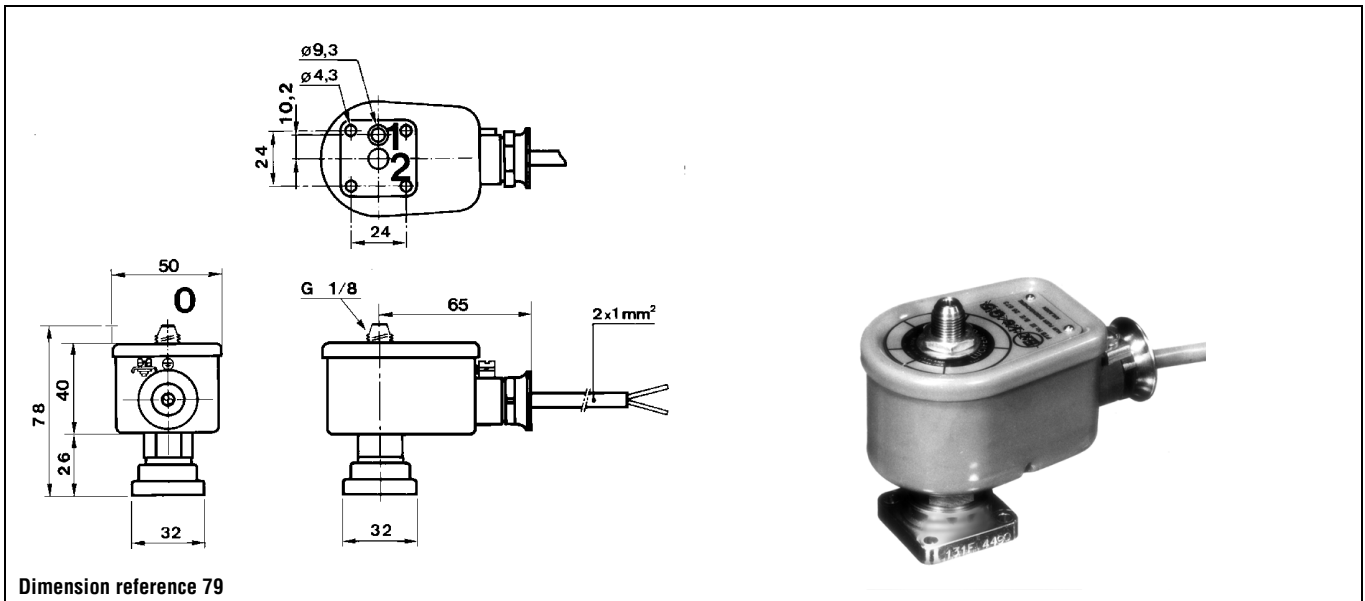
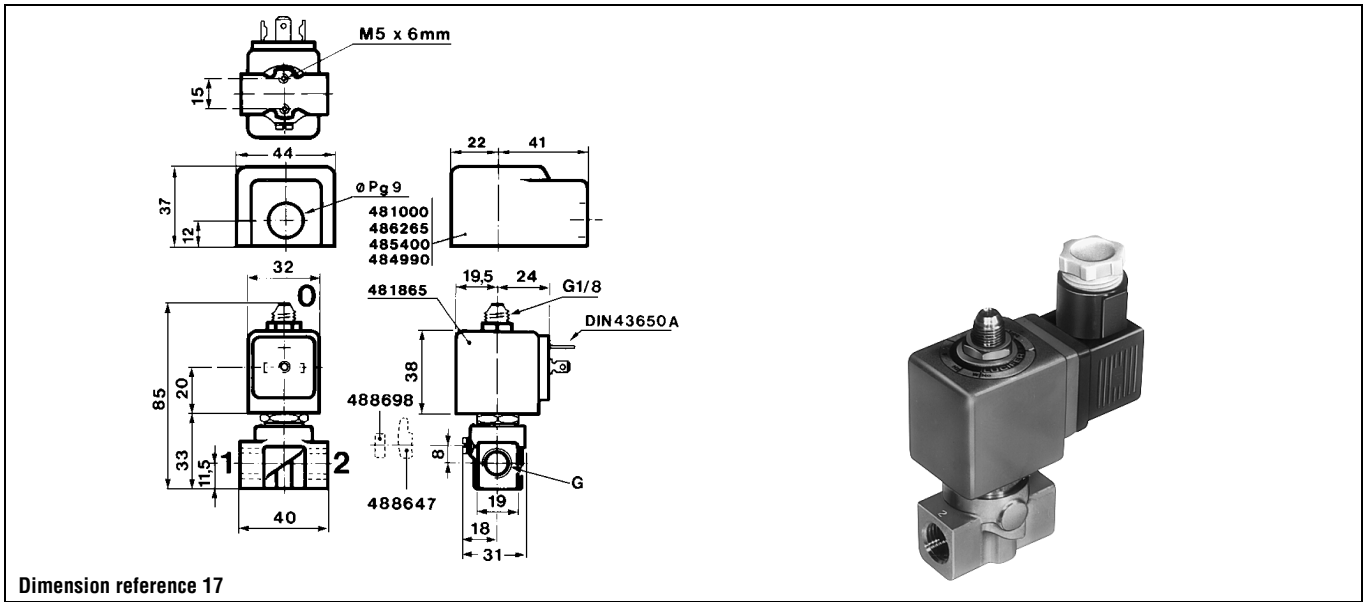
Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. This reference no. is for the complete electrical part (coil + housing)

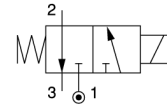
General application valves 3/2 - Direct operated



General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Normally closed



Brass body/Sub-base mounting

SB	1.2	0.7	2.2	50	0	10	10	75	75	75	FKM	-	131M75	8993	488980	2.5	2	125	1	26
	(1.5)	(0.9)	(2.2)	(70)	0	10	10	75	75	75	FKM			8993	488980	2.5	2	125	1	
	1.2	0.7	2.2	50	0	10	10	75	75	75	FKM	-	131M7550	8993	488980	2.5	2	125	1	26
	(1.5)	(1)	(2.2)	(70)	0	10	10	75	75	75	FKM			8993	488980	2.5	2	125	1	

Table continued on page 140

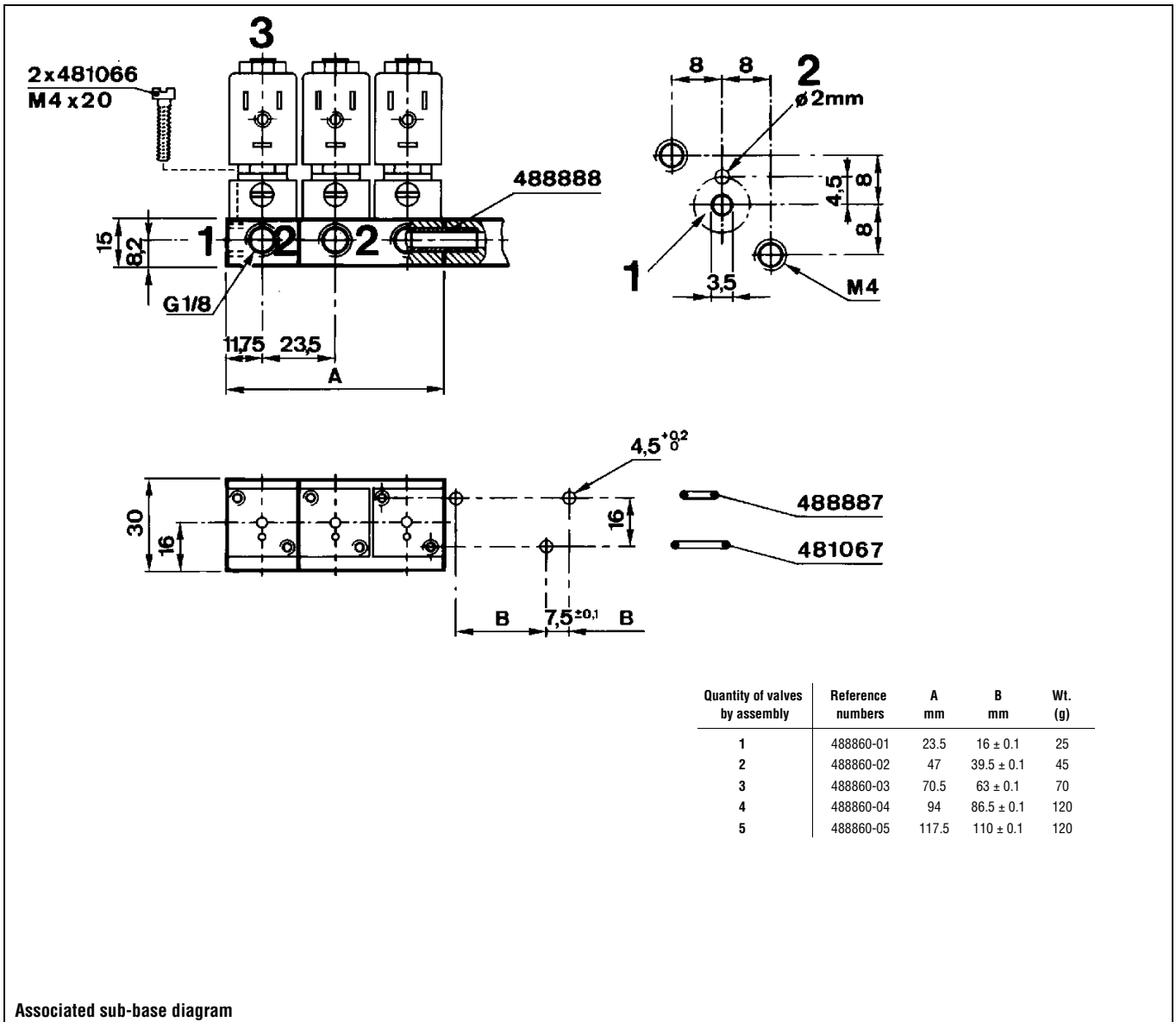
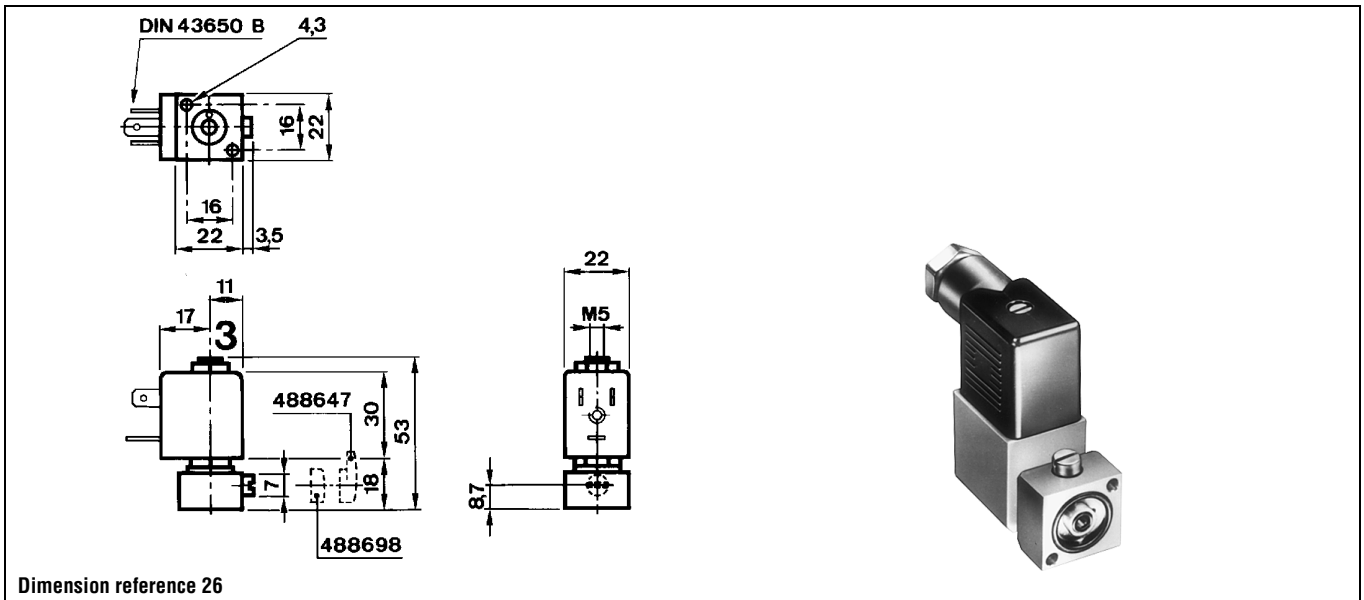
Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated

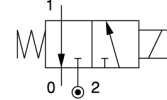


General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Brass body/Sub-base mounting

Normally closed



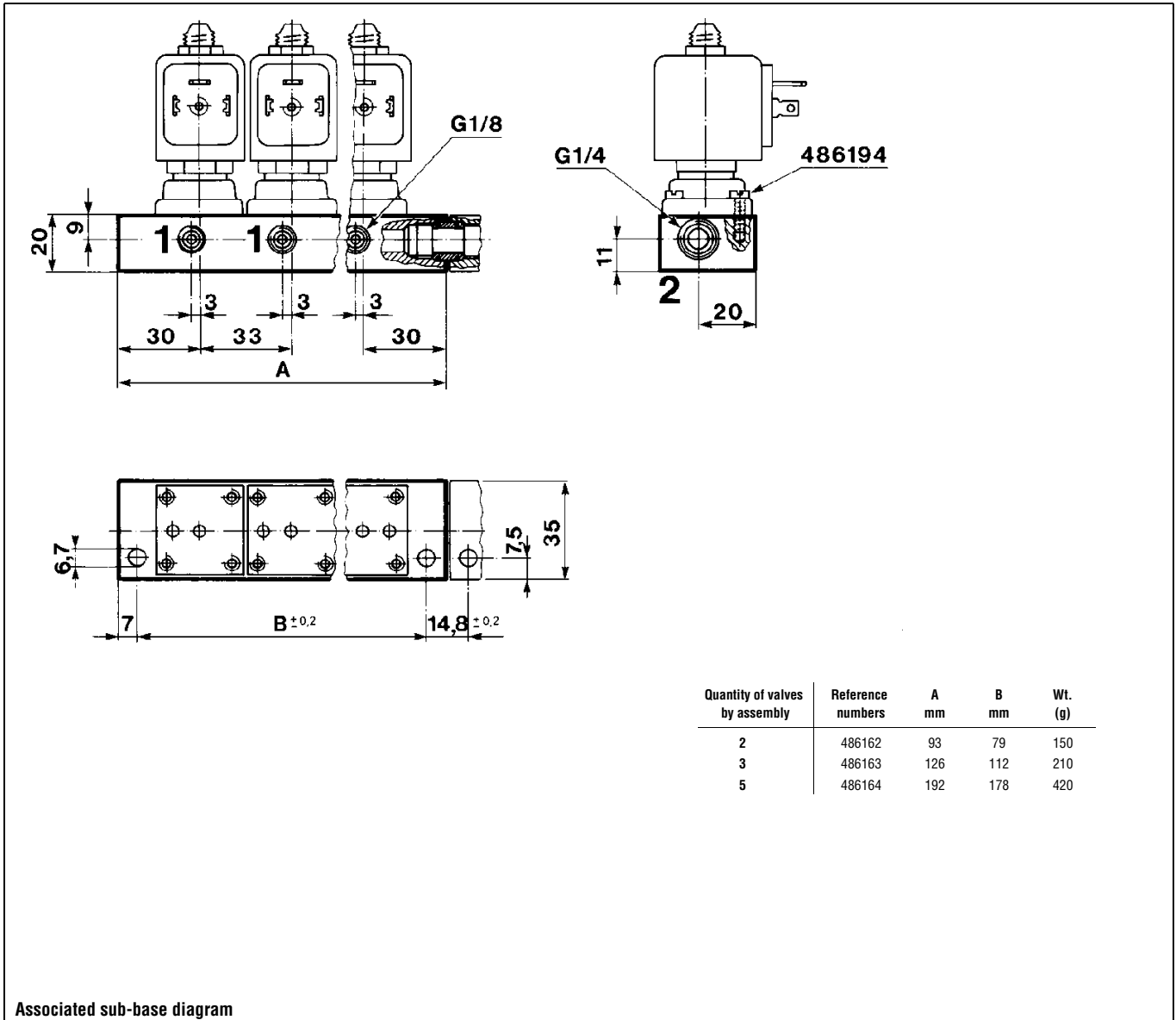
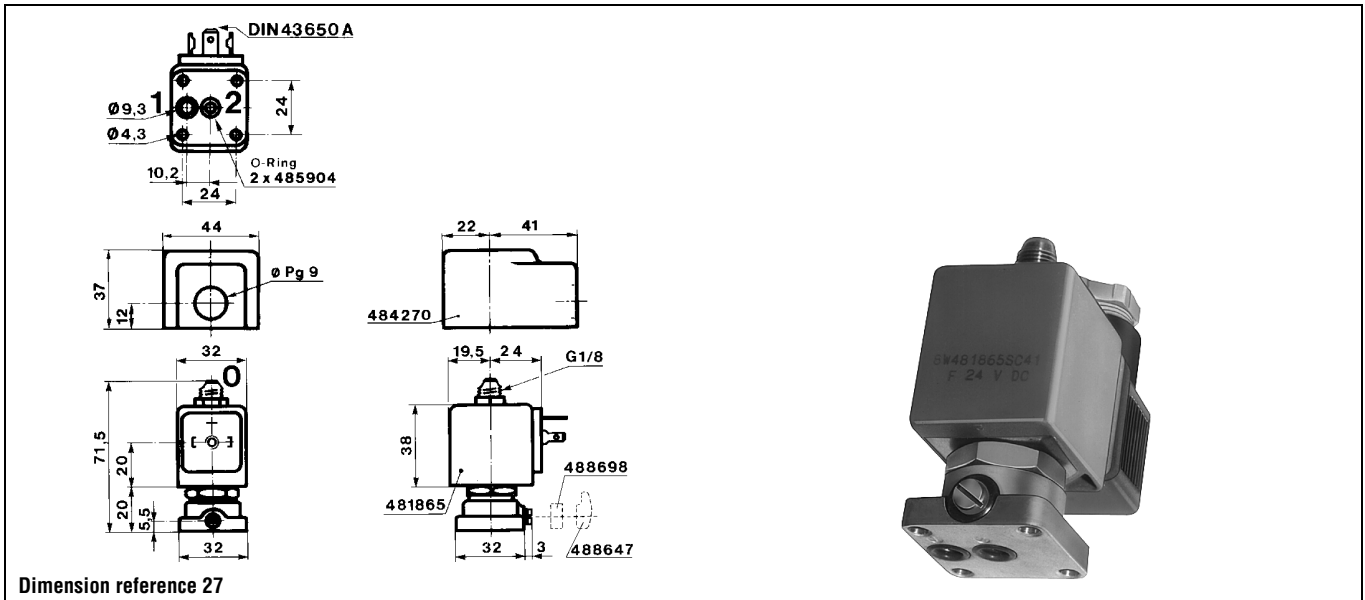
SB	1.5	1.5	4	80	0	7	-	75	75	75	FKM	7131FBF4GLV5	131F4480	2995	482740	1.6	-	255	6	27
----	-----	-----	---	----	---	---	---	----	----	----	-----	--------------	-----------------	-------------	---------------	-----	---	-----	---	----

Table continued on page 142

Notes:

* See Electrical Parts Group table at end of section

General application valves 3/2 - Direct operated

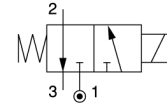


General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Brass body/Sub-base mounting

Normally closed



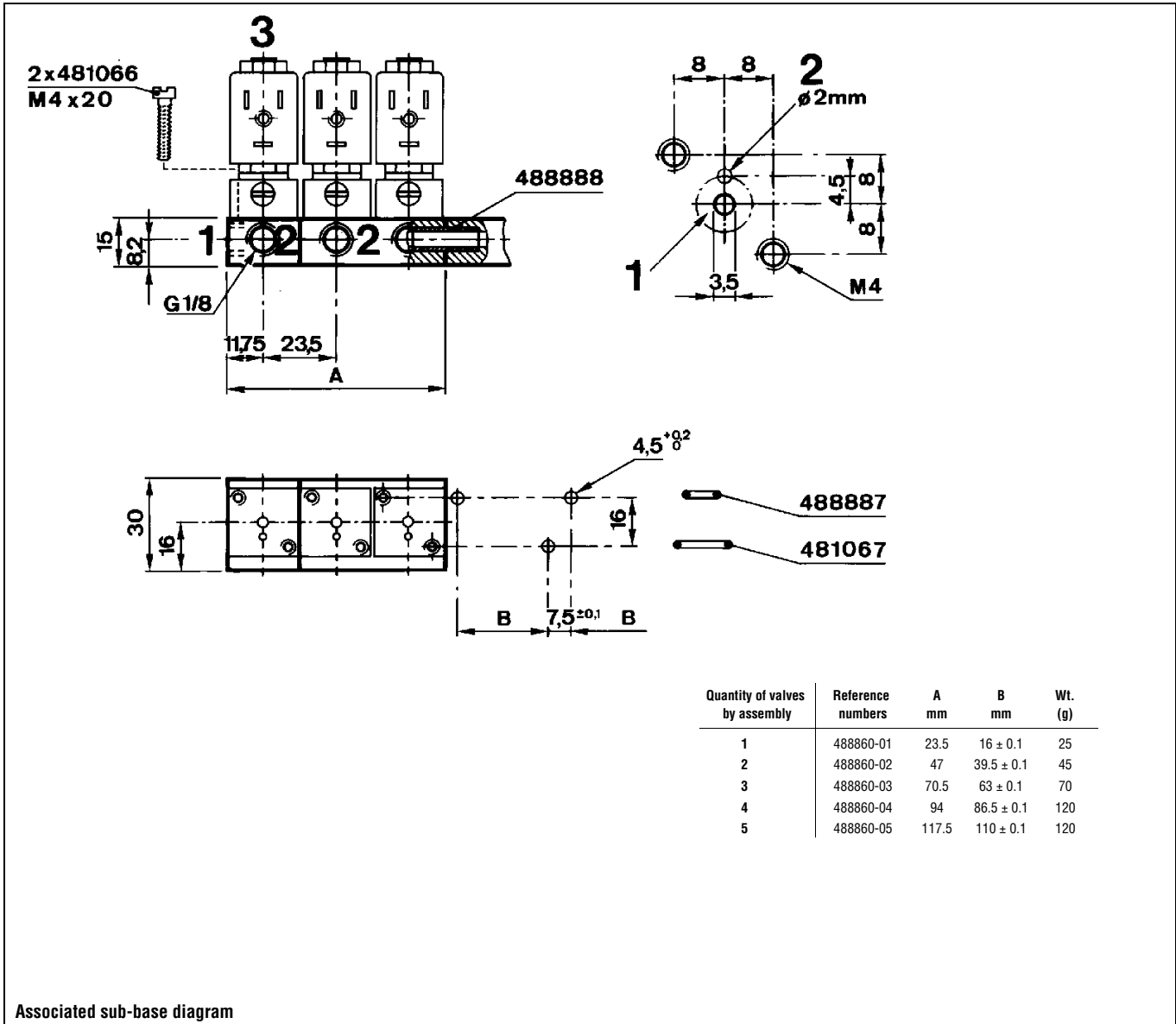
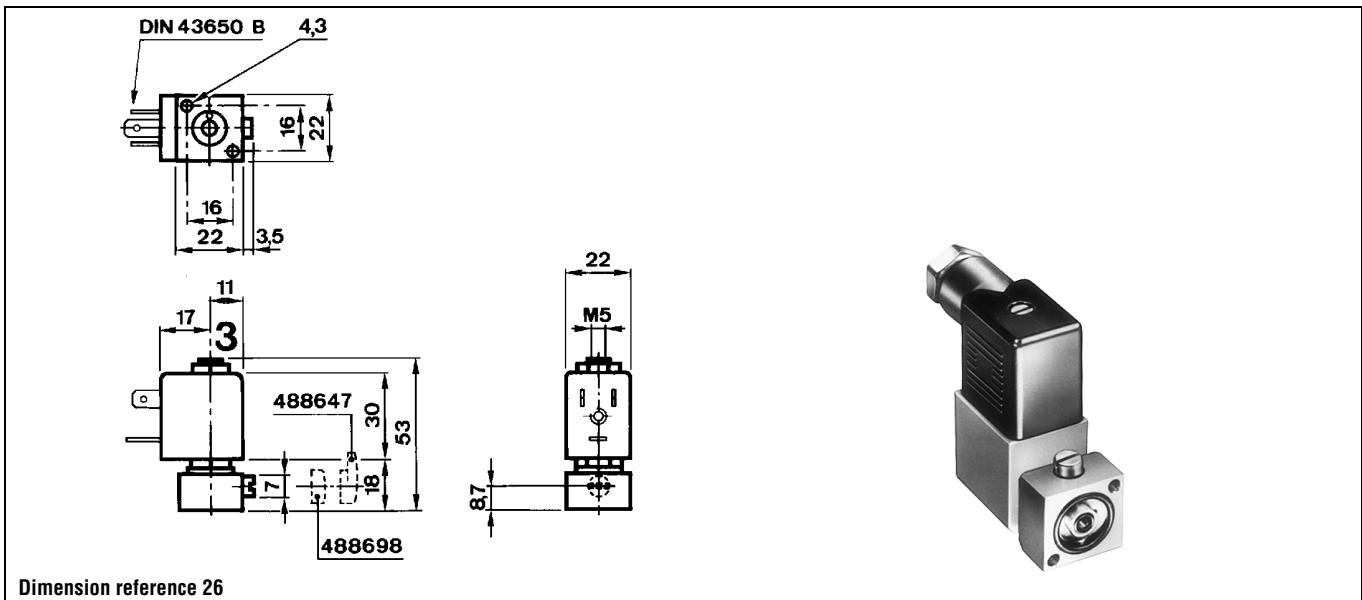
SB	1.5	0.9	2.4	70	0	7	7	75	75	75	FKM	-	131M74	8993	488980	2.5	2	125	1	26
	1.5	0.9	2.4	70	0	7	7	75	75	75	FKM	-	131M7450 1	8993	488980	2.5	2	125	1	26

Table continued on page 144

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard

General application valves 3/2 - Direct operated

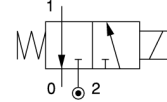


General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																				

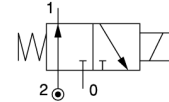
Brass body/Sub-base mounting

Normally closed



SB	1.5	1.5	5.8	80	0	15	15	100	100	100	FKM	7131FBF4GVM0	E131F4450	¹ 2995	481865	9	8	255	2	27
	1.5	1.5	5.8	80	0	15	15	120	120	120	FKM			4270	481000	8	8	375	2	
	1.5	1.5	5.8	80	0	15	15	100	100	100	FKM	7131FBF4GV00	E131F44	¹ 2995	481865	9	8	255	2	27
	1.5	1.5	5.8	80	0	15	15	120	120	120	FKM			4270	481000	8	8	375	2	
	2	2.5	8	140	0	10	10	100	100	100	FKM	7131FBF4JVM0	131F4650	¹ 2995	481865	9	8	255	2	27
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM			2995	481865	9	8	255	2	
	2	2.5	8	140	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	2	2.5	8	140	0	10	10	100	100	100	FKM	7131FBF4JV00	131F46	¹ 2995	481865	9	8	255	2	27
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	100	100	100	FKM			2995	481865	9	8	255	2	
	2	2.5	8	140	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	(2.5)	(3.5)	(8.5)	(220)	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131FBF4LVM0	E131F4350	¹ 2995	481865	9	8	255	2	27
	2.5	3.5	8.5	220	0	7	7	120	120	120	FKM			4270	481000	8	8	375	2	
	2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131FBF4LV00	E131F43	¹ 2995	481865	9	8	255	2	27
	2.5	3.5	8.5	220	0	7	7	120	120	120	FKM			4270	481000	8	8	375	2	

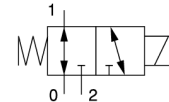
Normally open



Brass body/Sub-base mounting

SB	1.5	1.4	6	80	0	16	16	100	100	100	FKM	7132FBF4GV00	132F44	¹ 2995	481865	9	8	255	2	27
	1.5	1.4	6	80	0	16	16	120	120	120	FKM			4270	481000	8	8	375	2	
	2	1.8	6	125	0	10	10	100	100	100	FKM	7132FBF4JV00	132F46	¹ 2995	481865	9	8	255	2	27
	2	1.8	6	125	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	2.5	2.2	8.5	160	0	7	7	100	100	100	FKM	7132FBF4LV00	132F43	¹ 2995	481865	9	8	255	2	27
	2.5	2.2	8.5	160	0	7	7	120	120	120	FKM			4270	481000	8	8	375	2	

Universal



Brass body/Sub-base mounting

SB	1.5	1.5	4.5	80	0	10	10	100	100	100	FKM	7133FBF4GVM0	E133F4450	¹ 2995	481865	9	8	255	2	27
	1.5	1.5	4.5	80	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	1.5	1.5	4.5	80	0	10	10	100	100	100	FKM	7133FBF4GV00	E133F44	¹ 2995	481865	9	8	255	2	27
	1.5	1.5	4.5	80	0	10	10	120	120	120	FKM			4270	481000	8	8	375	2	
	2	2.5	6	140	0	7	7	100	100	100	FKM	7133FBF4JVM0	133F4650	¹ 2995	481865	9	8	255	2	27
	2	2.5	6	140	0	7	7	120	120	120	FKM			4270	481000	8	8	375	2	
	2	2.5	6	140	0	7	7	100	100	100	FKM	7133FBF4JV00	133F46	¹ 2995	481865	9	8	255	2	27
	2	2.5	6	140	0	7	7	120	120	120	FKM			4270	481000	8	8	375	2	
	2.5	3.5	7	220	0	4	4	100	100	100	FKM	7133FBF4LVM0	E133F4350	¹ 2995	481865	9	8	255	2	27
	2.5	3.5	7	220	0	4	4	120	120	120	FKM			4270	481000	8	8	375	2	

Table continued on page 146

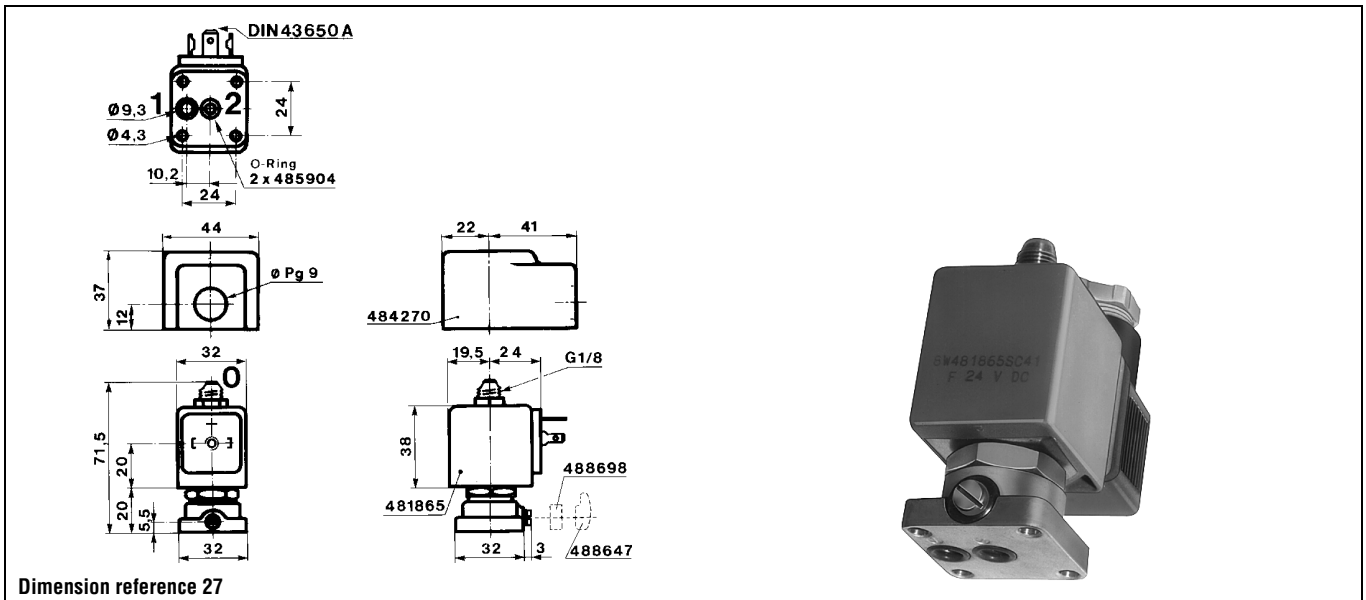
Notes:

* See Electrical Parts Group table at end of section

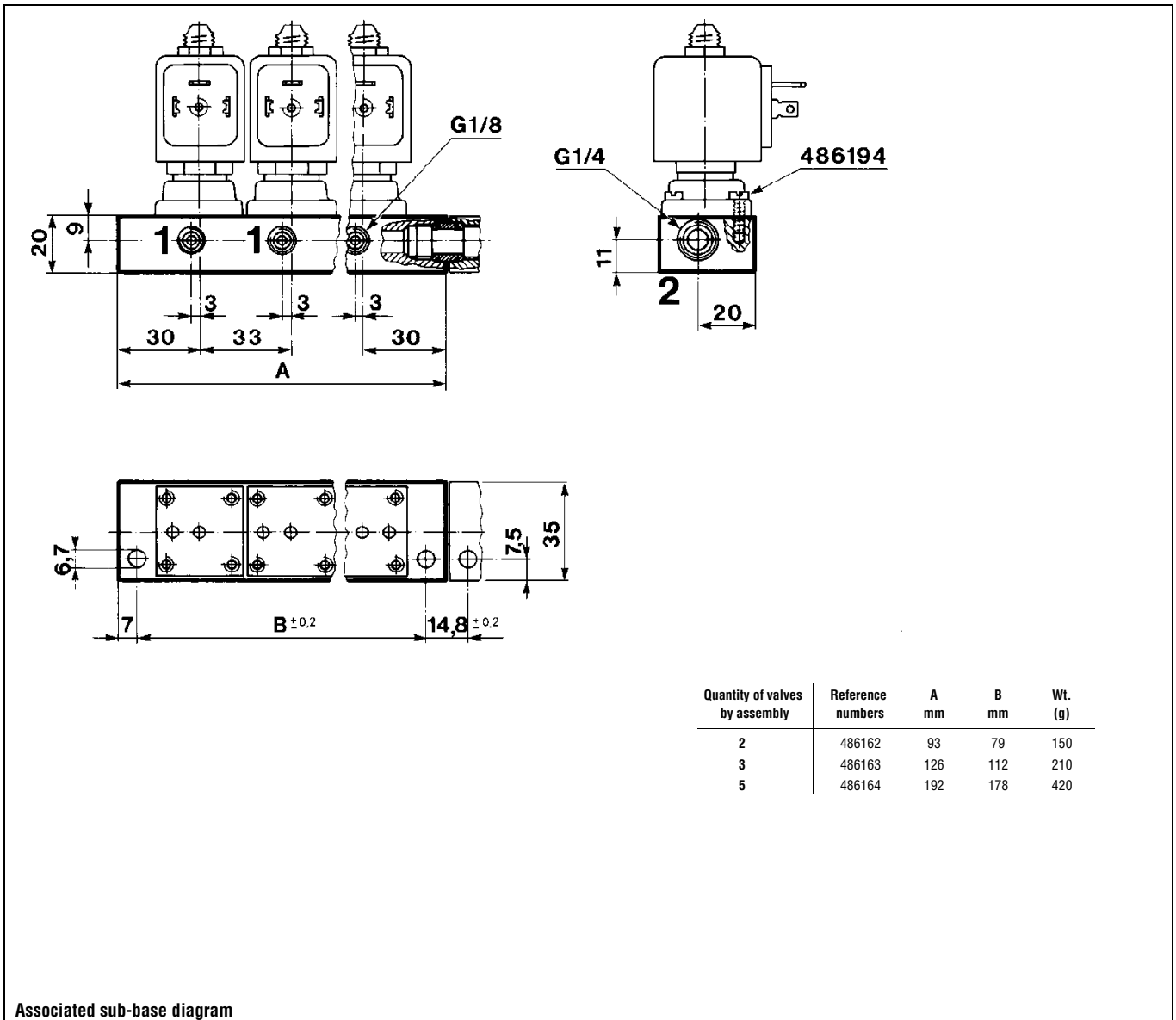
1. Manual override standard

Values shown within brackets are valid for exhaust port only.

General application valves 3/2 - Direct operated



Dimension reference 27



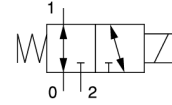
Associated sub-base diagram

General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	Max AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G																				

Brass body/Sub-base mounting

Universal



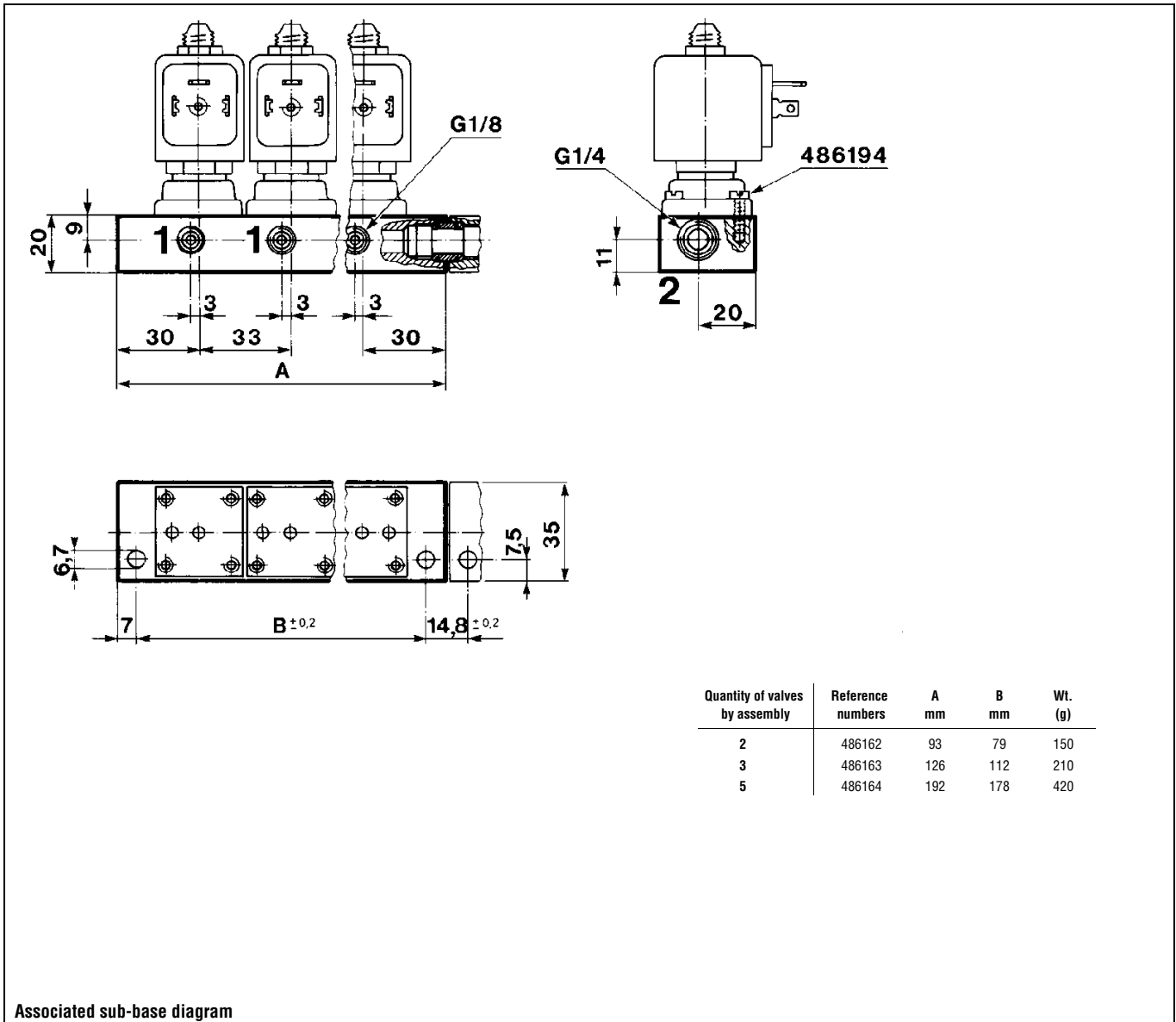
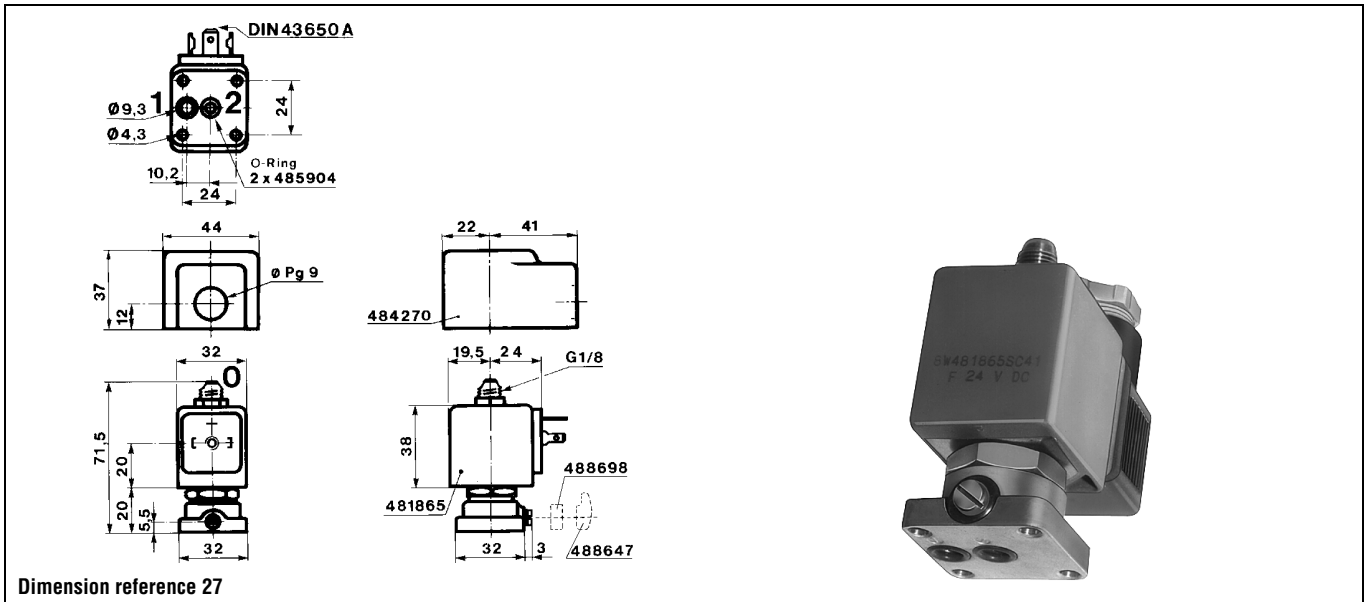
SB	2.5	3.5	7	220	0	4	4	100	100	100	FKM	7133FBF4LV00	E133F43	2995	481865	9	8	255	2	27
	2.5	3.5	7	220	0	4	4	120	120	120	FKM			4270	481000	8	8	375	2	

Table continued on page 148

Notes:

* See Electrical Parts Group table at end of section

General application valves 3/2 - Direct operated

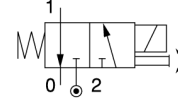


General application valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Delrin body/Sub-base mounting

Normally closed



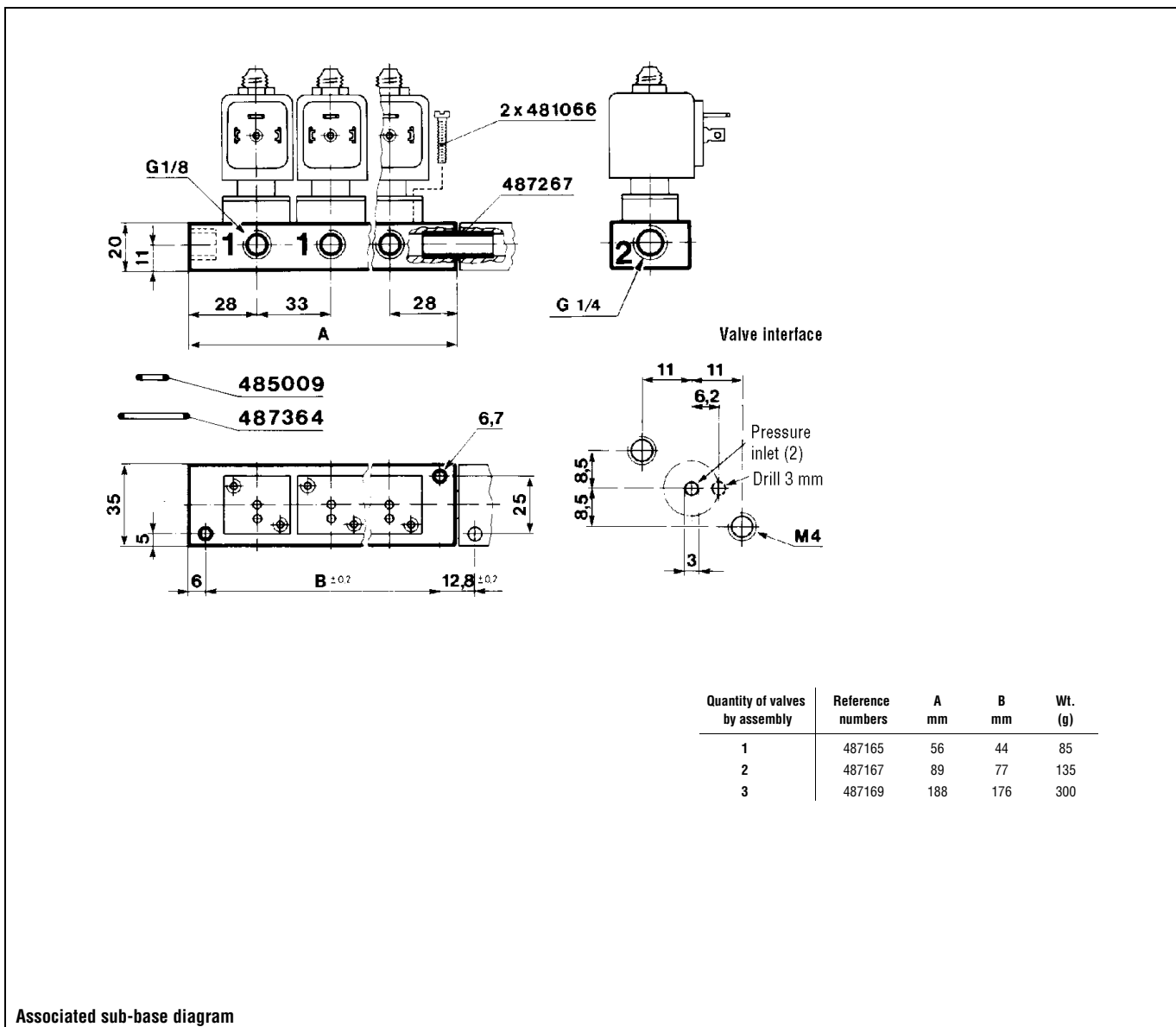
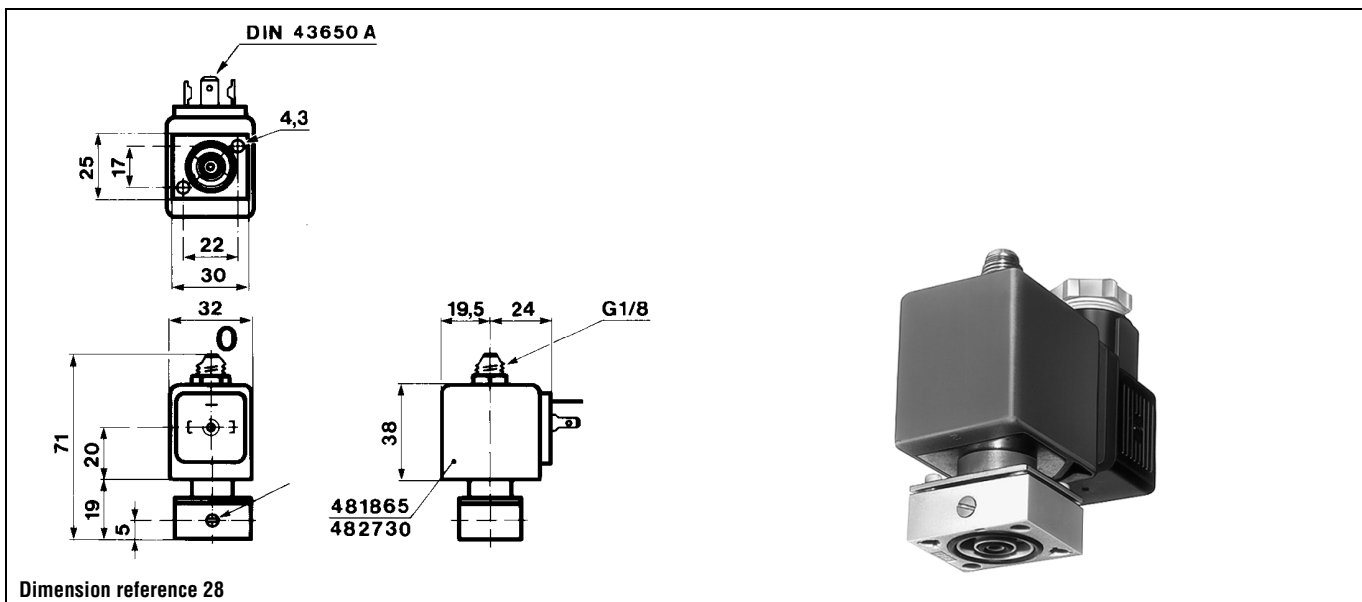
SB	2	2	6.5	140	0	10	10	50	-	-	FKM	7131FDF2JV00	E131F26	1	2995	481865	2	-	8	200	2	28
	2	2	6.5	140	0	10	10	50	-	-	FKM			2995	482730	7	6	200	2			

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard
2. 20% Switch-on - max. 2 min.

General application valves 3/2 - Direct operated



General application valves for dry or lubricated air, neutral gases and liquids

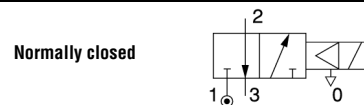
3/2



Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				

Anod. aluminium body/Pipe mounting



1/4	6.5	-	-	750	1	10	-	75	-	-	NBR	7331BAG2KNL2	331B7480	2995	482740	1.6	-	510	6	20
	6.5	10	-	645	1	10	-	75	-	-	NBR	-	331B7490	¹ -	483580.01	² 0.4	-	485	7	80
	6.5	-	-	750	1	10	10	75	-	-	NBR	7331BAG2KNMO	E331B74	³ 2995	481865	9	8	510	2	20
	8	10	10	750	1	40	40	75	-	75	NBR	7331BAG2KN00	331B02	⁴ 2995	481865	9	8	880	2	23
	8	10	10	750	1	40	40	75	-	75	NBR	-	-	4270	481000	8	8	1000	2	

Table continued on page 152

Notes:

- * See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)
- 3. Manual override standard
- 4. Pilot seat discs from Kel-F (PTFE); valve with pilot return pipe

General application valves 3/2 - Pilot operated

Technical drawings for Dimension reference 20. The drawings show three views: a front view, a side view, and a rear view. Dimensions include a total height of 122, a pilot port diameter of G1/8, and a main body diameter of 50. The side view shows a manual operator with a diameter of 12 and a length of 35. The rear view shows a diameter of 27 and a height of 34.5. A part number 481865 and standard DIN 43650 A are also indicated.

Dimension reference 20

Technical drawings for Dimension reference 23. The drawings show three views: a front view, a side view, and a rear view. Dimensions include a total height of 150, a pilot port diameter of G, and a main body diameter of 50. The side view shows a manual operator with a diameter of 12 and a length of 30.5. The rear view shows a diameter of 50 and a height of 6.7. A part number 481865 and standard DIN 43650 A are also indicated.

Dimension reference 23

Technical drawings for Dimension reference 80. The drawings show three views: a front view, a side view, and a rear view. Dimensions include a total height of 129, a pilot port diameter of G1/8, and a main body diameter of 50. The side view shows a manual operator with a diameter of 12 and a length of 35. The rear view shows a diameter of 27 and a height of 34.5. A part number 481865 and standard DIN 43650 A are also indicated.

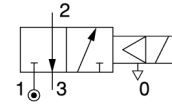
Dimension reference 80

General application valves 3/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

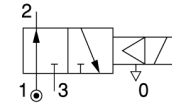
Anod. aluminium body/Pipe mounting

Normally closed



1/4	8	20	20	1100	1	15	15	75	-	75	NBR	7331BAG2QN00	E331B01	2995	481865	9	8	880	2	21
	8	20	20	1100	1	15	15	75	-	75	NBR			4270	481000	8	8	1000	2	
1/2	14	-	-	2500	1	15	15	75	-	-	NBR	7331BAG4QN00	E331B21	2995	481865	9	8	980	2	24
	14	-	-	2500	1	15	15	75	-	-	NBR			4270	481000	8	8	1100	2	

Normally open



Anod. aluminium body/Pipe mounting

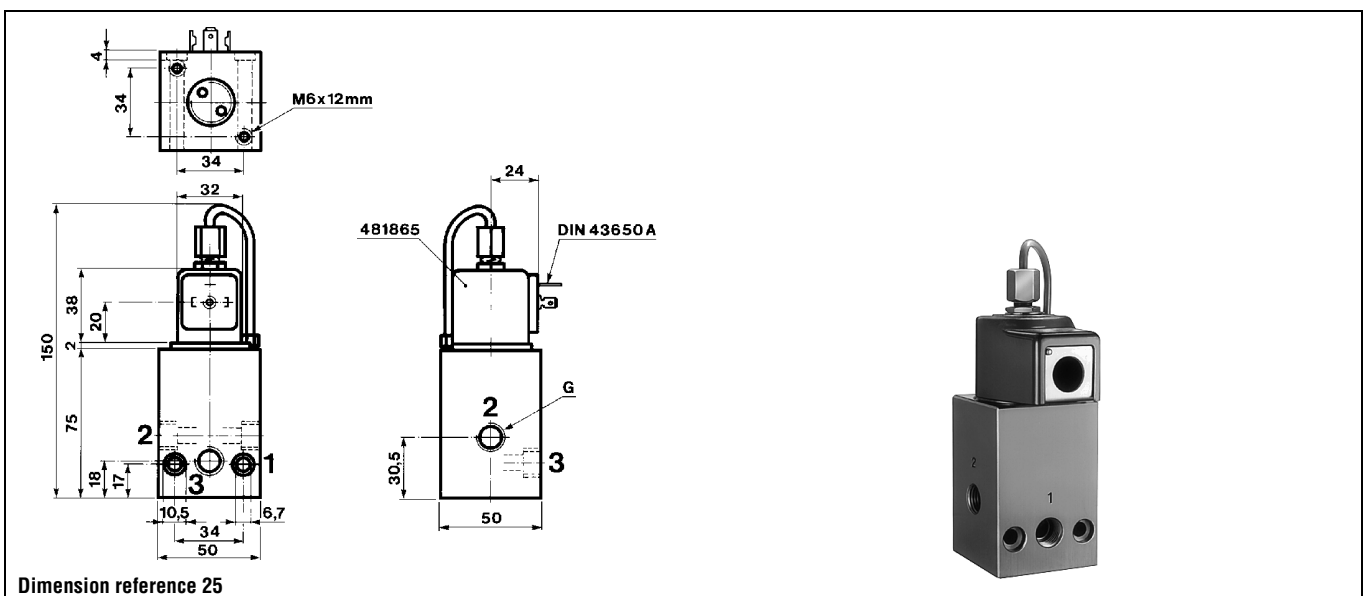
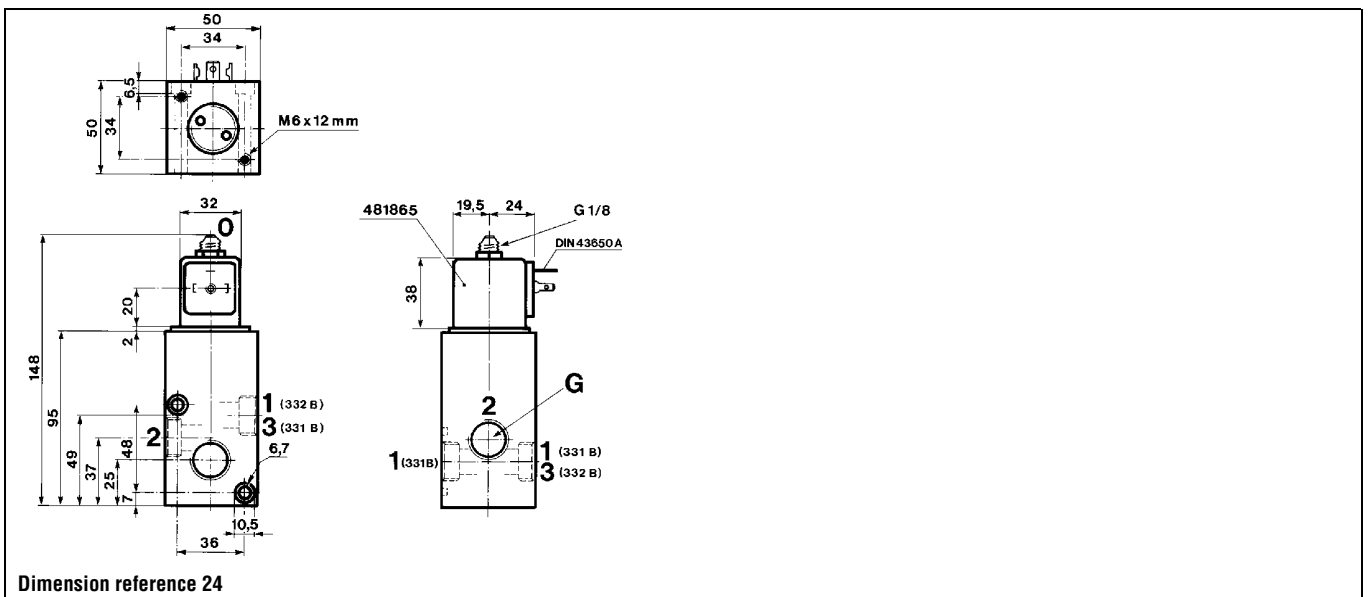
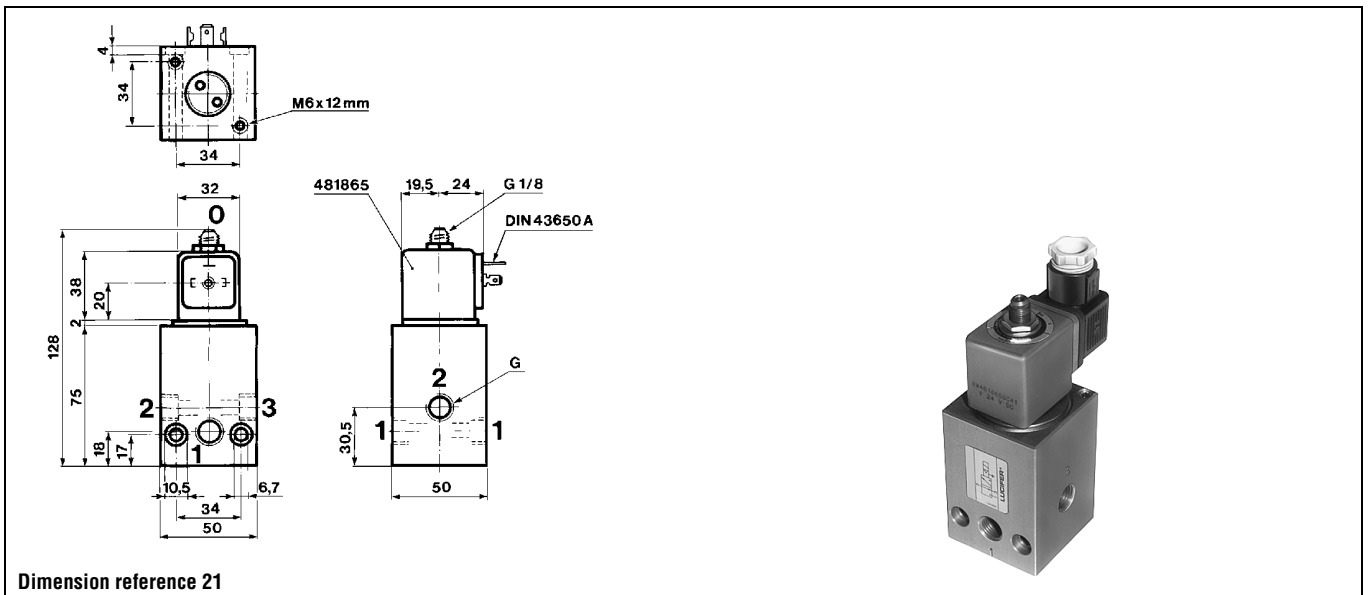
1/4	8	10	10	750	1	40	40	75	-	75	NBR	7332BAG2KN00	332B02	2995	481865	9	8	880	2	25
	8	10	10	750	1	40	40	75	-	75	NBR			4270	481000	8	8	1000	2	

Table continued on page 154

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from Kel-F (PCTFE); valve with pilot return pipe

General application valves 3/2 - Pilot operated

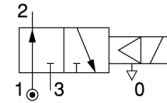


General application valves 3/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	OR	DC	AC			

Anod. aluminium body/Pipe mounting

Normally open



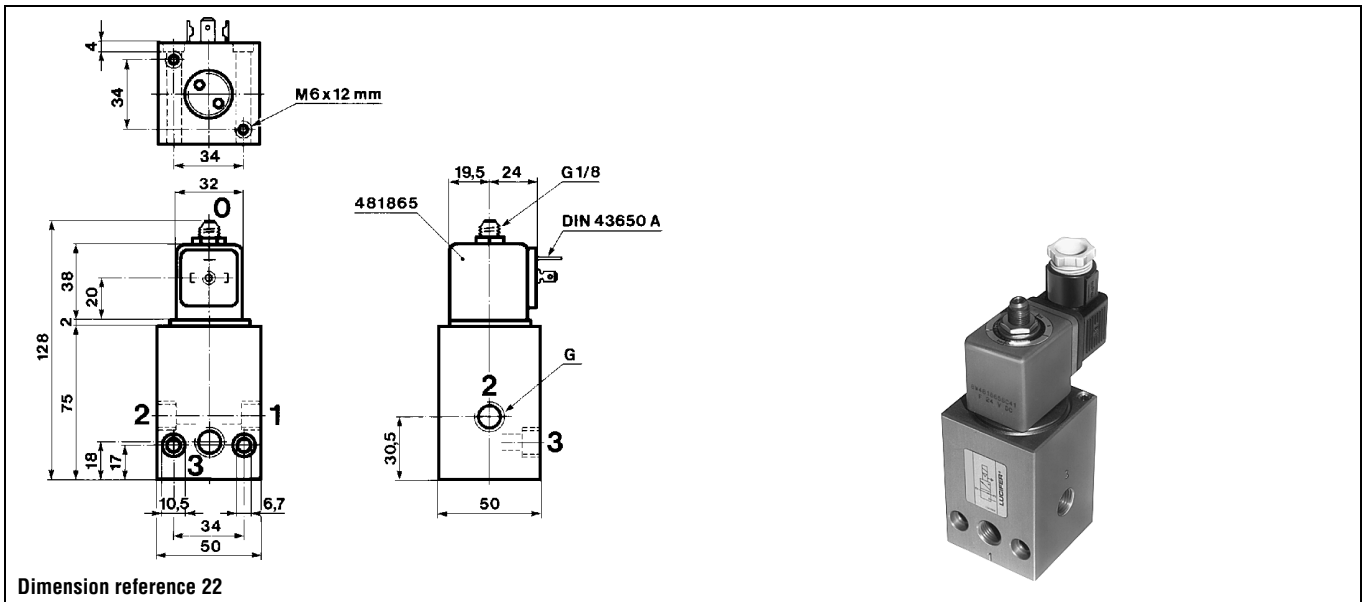
1/4	8	20	20	1100	1	15	15	75	-	75	NBR	7332BAG2QN00	E332B01	2995	481865	9	8	880	2	22
	8	20	20	1100	1	15	15	75	-	75	NBR			4270	481000	8	8	1000	2	
1/2	14	-	-	2500	1	15	15	75	-	-	NBR	7332BAG4QN00	E332B21	2995	481865	9	8	980	2	24
	14	-	-	2500	1	15	15	75	-	-	NBR			4270	481000	8	8	1100	2	

Table continued on page 156

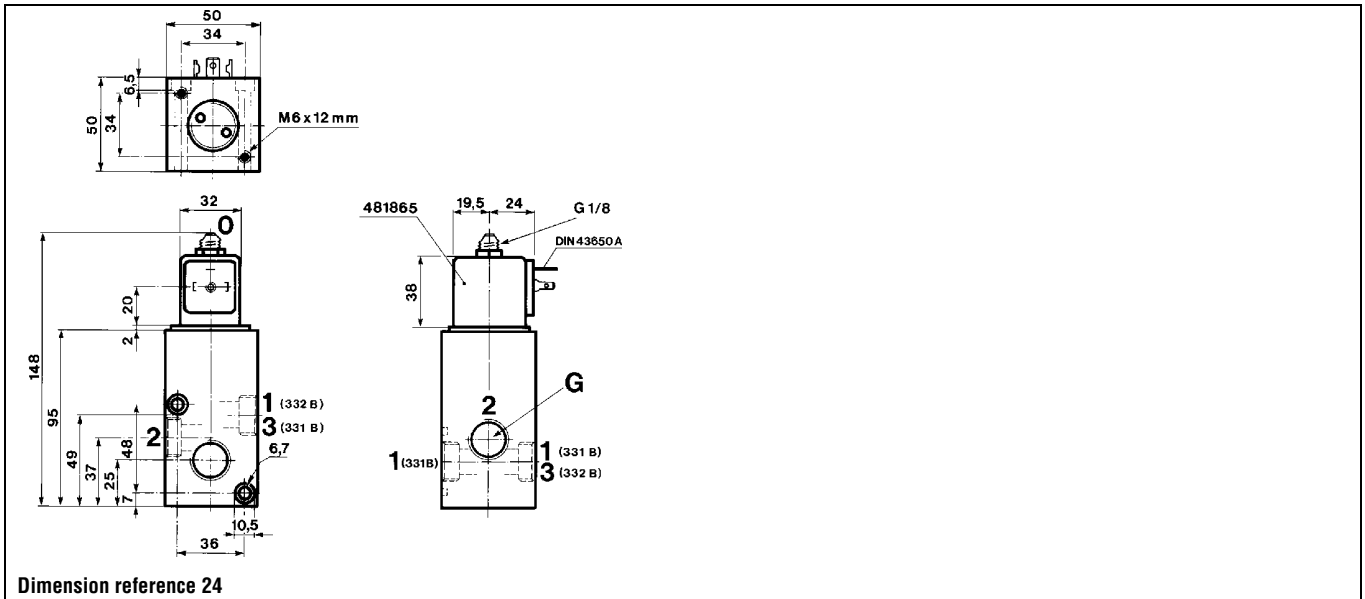
Notes:

* See Electrical Parts Group table at end of section

General application valves 3/2 - Pilot operated



Dimension reference 22



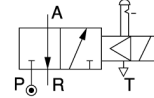
Dimension reference 24

General application valves 3/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G					DC	AC														

Anod. aluminium body/Sub-base mounting

Normally closed



1/2	15	56	-	5000	0.5	10	10	75	-	-	NBR	7331LAV4TN1D	E331L21001D	-	483250	8	8	1715	5	3854
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Table continued on page 158

Notes:

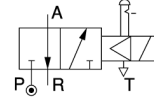
* See Electrical Parts Group table at end of section

General application valves 3/2 - Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	Gas	Liquid	Oil	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G																				

Anod. aluminium body/Sub-base mounting

Normally closed



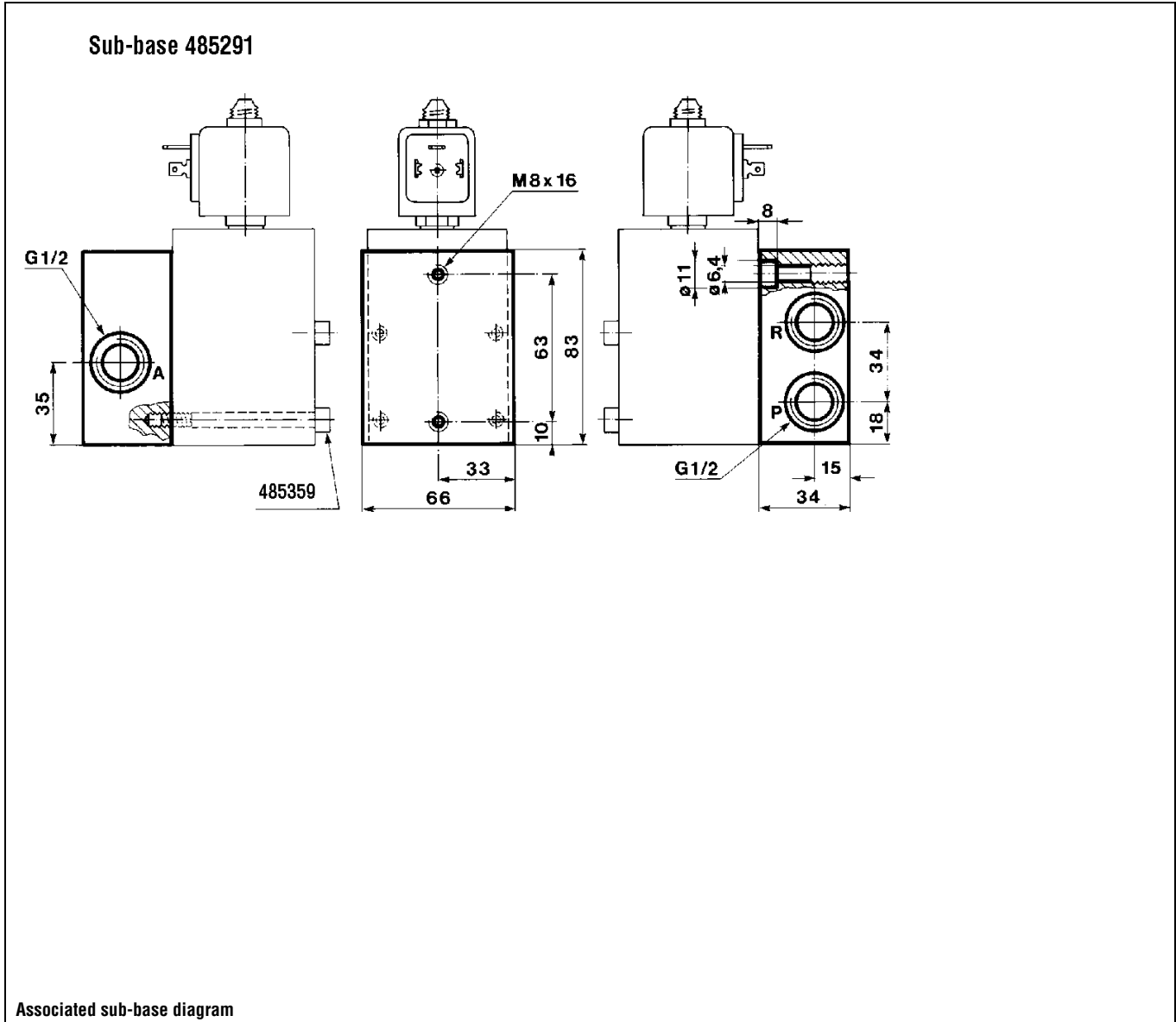
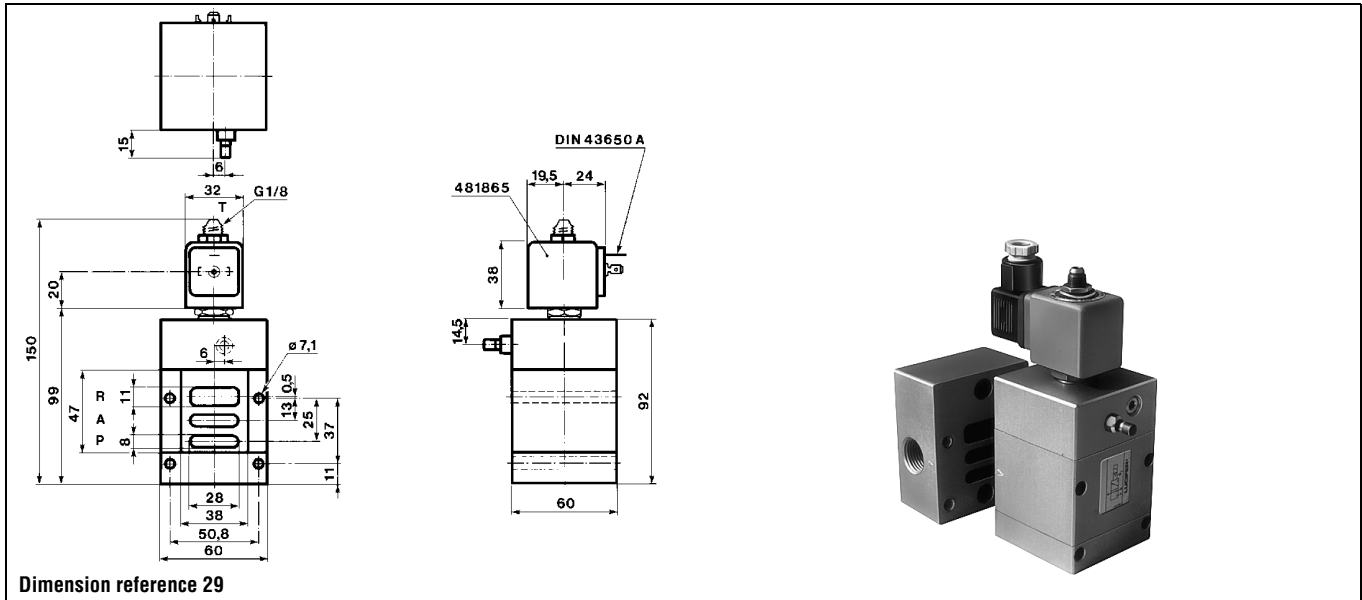
1/2	15	-	-	5000	0.5	10	10	75	-	-	NBR	7331LAV4TNM0	E331L21	¹ 2995	481865	9	8	880	2	29
	15	-	-	5000	0.5	10	10	75	-	-	NBR			4270	481000	8	8	1100	2	

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

General application valves 3/2 - Pilot operated



Electrical parts options with 3/2 general application valves for dry or lubricated air, neutral gases and liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Miniature valves (3-way direct operated)

3/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/8	.3 to 4	14.0	162
		Normally open	1/8	.8 to 4	11.2	162
		Universal	1/8	.8 to 4	10.5	164
		Diverting	1/8	.8 to 4	16.0	166
	303 Stainless steel body	Normally closed	1/8	.3 to 4	14.0	166
		Normally open	1/8	.8 to 4	11.2	168
		Universal	1/8	.8 to 4	10.5	168
		Diverting	1/8	.8 to 4	16.0	170
	Aluminium alloy body	Normally closed	SB	1.2 to 1.6	10.5	170
		Normally open	SB	1.2 to 1.6	8.75	170
		Universal	SB	1.2 to 1.6	7.0	170
		Diverting	SB	1.2 to 1.6	11.2	172

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Miniature valves (3-way direct operated)

3/2

Applications

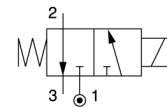
The Miniature Series is a small size and low power consumption valve line. It is available in 2-way (normally closed and normally open) and 3-way (normally closed and normally open) versions. These valves are equipped with integrated molded coils with tab or lead termination.

Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		

Brass body/Pipe mounting

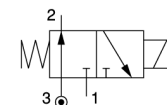
Normally closed



1/8	0.3	0.43	-	-	0	14	14	50	50	50	FKM	3131BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.3	0.43	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM	3131BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3131BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3131BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	3.5	3.5	50	50	50	FKM	3931BBN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	3.5	3.5	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3131BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM	3931BBN1LV00	-	NO	M4S1	2.5	2.5	-	100
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM	3131BBN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM	3931BBN1NV00	-	NO	M4S1	2.5	2.5	-	100
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3131BBN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3931BBN1QV00	-	NO	M4S1	2.5	2.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M6J5	2.5	2.5	-	

Brass body/Pipe mounting

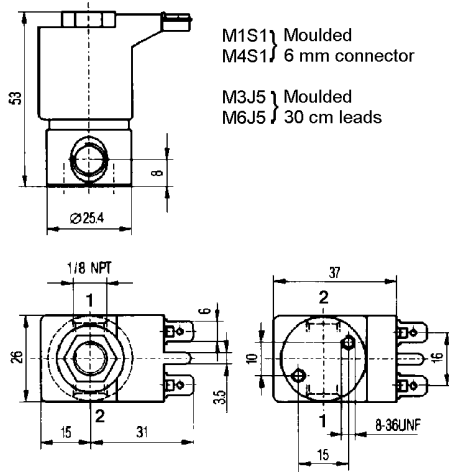
Normally open



1/8	0.8	0.43	-	-	0	11.2	11.2	50	50	50	FKM	3139BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	11.2	11.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Table continued on page 164

Miniature valves 3/2 - Direct operated



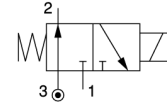
Dimension reference 100

Miniature valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids		Gases	Min	Max		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		
G		kv	Qmax	Qn		DC	AC												

Brass body/Pipe mounting

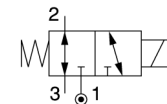
Normally open



1/8	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM	3139BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3139BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3139BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3139BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM	3139BBN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3139BBN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Brass body/Pipe mounting

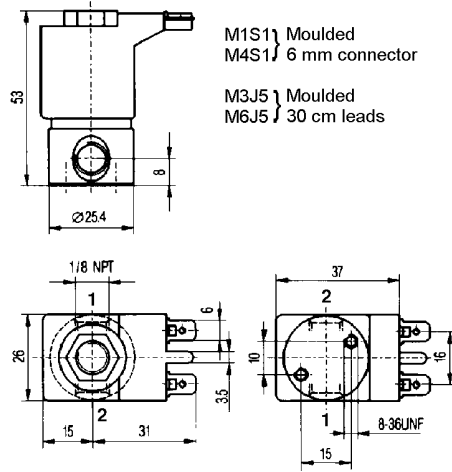
Universal



1/8	0.8	0.43	-	-	0	10.5	10.5	50	50	50	FKM	3133BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	0.8	0.43	-	-	0	6.6	6.6	50	50	50	FKM	3933BBN1AV00	-	NO	M4S1	2.5	2.5	-	100
	0.8	0.43	-	-	0	6.6	6.6	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.2	0.72	-	-	0	7	7	50	50	50	FKM	3133BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM	3933BBN1EV00	-	NO	M4S1	2.5	2.5	-	100
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM	3133BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM	3933BBN1GV00	-	NO	M4S1	2.5	2.5	-	100
	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2	1.86	-	-	0	4.2	4.2	50	50	50	FKM	3133BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	0.56	0.56	50	50	50	FKM	3933BBN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	0.56	0.56	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM	3133BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM	3133BBN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3133BBN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Table continued on page 166

Miniature valves 3/2 - Direct operated



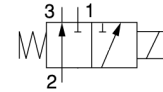
Dimension reference 100

Miniature valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids		Gases	Min	Max		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		
		kv	Qmax	Qn		DC	AC												

Brass body/Pipe mounting

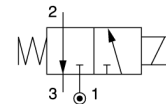
Diverting



1/8	0.8	0.43	-	-	0	16	16	50	50	50	FKM	3138BBN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	16	16	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM	3138BBN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM	3138BBN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3138BBN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3138BBN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	2.45	2.45	50	50	50	FKM	3138BBN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.45	2.45	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	1.4	1.4	50	50	50	FKM	3138BBN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	1.4	1.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

303 Stainless steel body/Pipe mounting

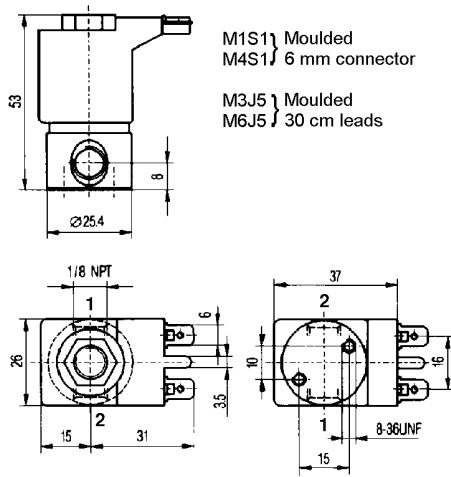
Normally closed



1/8	0.3	0.43	-	-	0	14	14	50	50	50	FKM	3131BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.3	0.43	-	-	0	14	14	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM	3131BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3131BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3131BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	3.5	3.5	50	50	50	FKM	3931BSN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	3.5	3.5	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3131BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM	3931BSN1LV00	-	NO	M4S1	2.5	2.5	-	100
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM	3131BSN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM	3931BSN1NV00	-	NO	M4S1	2.5	2.5	-	100
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3131BSN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3931BSN1QV00	-	NO	M4S1	2.5	2.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M6J5	2.5	2.5	-	

Table continued on page 168

Miniature valves 3/2 - Direct operated



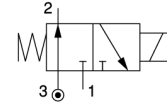
Dimension reference 100

Miniature valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids		Gases	Min	Max		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		
		kv	Qmax	Qn		DC	AC												

303 Stainless steel body/Pipe mounting

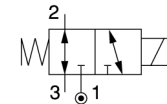
Normally open



1/8	0.8	0.43	-	-	0	11.2	11.2	50	50	50	FKM	3139BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	11.2	11.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM	3139BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3139BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3139BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3139BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM	3139BSN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.8	2.8	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3139BSN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

303 Stainless steel body/Pipe mounting

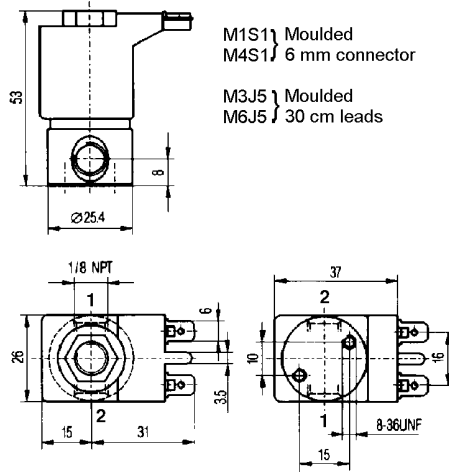
Universal



1/8	0.8	0.43	-	-	0	10.5	10.5	50	50	50	FKM	3133BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	10.5	10.5	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	0.8	0.43	-	-	0	6.6	6.6	50	50	50	FKM	3933BSN1AV00	-	NO	M4S1	2.5	2.5	-	100
	0.8	0.43	-	-	0	6.6	6.6	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.2	0.72	-	-	0	7	7	50	50	50	FKM	3133BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	7	7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM	3933BSN1EV00	-	NO	M4S1	2.5	2.5	-	100
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM	3133BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM	3933BSN1GV00	-	NO	M4S1	2.5	2.5	-	100
	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2	1.86	-	-	0	4.2	4.2	50	50	50	FKM	3133BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	0.56	0.56	50	50	50	FKM	3933BSN1JV00	-	NO	M4S1	2.5	2.5	-	100
	2	1.86	-	-	0	0.56	0.56	50	50	50	FKM			NO	M6J5	2.5	2.5	-	
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM	3133BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	2.45	2.45	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM	3133BSN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	1.4	1.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM	3133BSN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	0.7	0.7	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Table continued on page 170

Miniature valves 3/2 - Direct operated



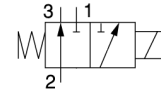
Dimension reference 100

Miniature valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		

303 Stainless steel body/Pipe mounting

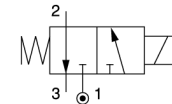
Diverting



1/8	0.8	0.43	-	-	0	16	16	50	50	50	FKM	3138BSN1AV00	-	NO	M1S1	4.5	4.5	-	100
	0.8	0.43	-	-	0	16	16	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM	3138BSN1EV00	-	NO	M1S1	4.5	4.5	-	100
	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM	3138BSN1GV00	-	NO	M1S1	4.5	4.5	-	100
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM	3138BSN1JV00	-	NO	M1S1	4.5	4.5	-	100
	2	1.86	-	-	0	5.6	5.6	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM	3138BSN1LV00	-	NO	M1S1	4.5	4.5	-	100
	2.4	2.57	-	-	0	4.2	4.2	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	3.2	3.43	-	-	0	2.45	2.45	50	50	50	FKM	3138BSN1NV00	-	NO	M1S1	4.5	4.5	-	100
	3.2	3.43	-	-	0	2.45	2.45	50	50	50	FKM			NO	M3J5	4.5	4.5	-	
	4	4.3	-	-	0	1.4	1.4	50	50	50	FKM	3138BSN1QV00	-	NO	M1S1	4.5	4.5	-	100
	4	4.3	-	-	0	1.4	1.4	50	50	50	FKM			NO	M3J5	4.5	4.5	-	

Aluminium alloy body/Sub-base mounting

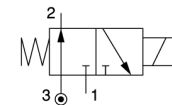
Normally closed



SB	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM	3131BJA7EVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	10.5	10.5	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3131BJA7GVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	

Aluminium alloy body/Sub-base mounting

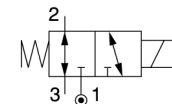
Normally open



SB	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM	3139BJA7EVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	8.75	8.75	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	7	7	50	50	50	FKM	3139BJA7GVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	7	7	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	

Aluminium alloy body/Sub-base mounting

Universal



SB	1.2	0.72	-	-	0	7	7	50	50	50	FKM	3133BJA7EVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	7	7	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM	3933BJA7EVC#	-	1	NO	M4S1	2.5	2.5	-	101
	1.2	0.72	-	-	0	4.2	4.2	50	50	50	FKM			1	NO	M6J5	2.5	2.5	-	
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM	3133BJA7GVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	5.6	5.6	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	

Table continued on page 172

Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

Miniature valves 3/2 - Direct operated

M1S1 } Moulded
 M4S1 } 6 mm connector

 M3J5 } Moulded
 M6J5 } 30 cm leads

Dimension reference 100

M1S1 } Moulded
 M4S1 } 6 mm connector

 M3J5 } Moulded
 M6J5 } 30 cm leads

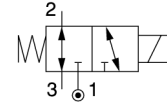
Dimension reference 101

Miniature valves 3/2 - Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max DC AC		Gas	Liquid	Oil		Global valve reference	Valve reference	Housing	Coil	DC	AC		

Aluminium alloy body/Sub-base mounting

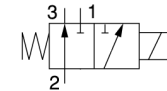
Universal



SB	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM	3933BJA7GVC#	-	1	NO	M4S1	2.5	2.5	-	101
	1.6	1.29	-	-	0	1.4	1.4	50	50	50	FKM			1	NO	M6J5	2.5	2.5	-	

Aluminium alloy body/Sub-base mounting

Diverting

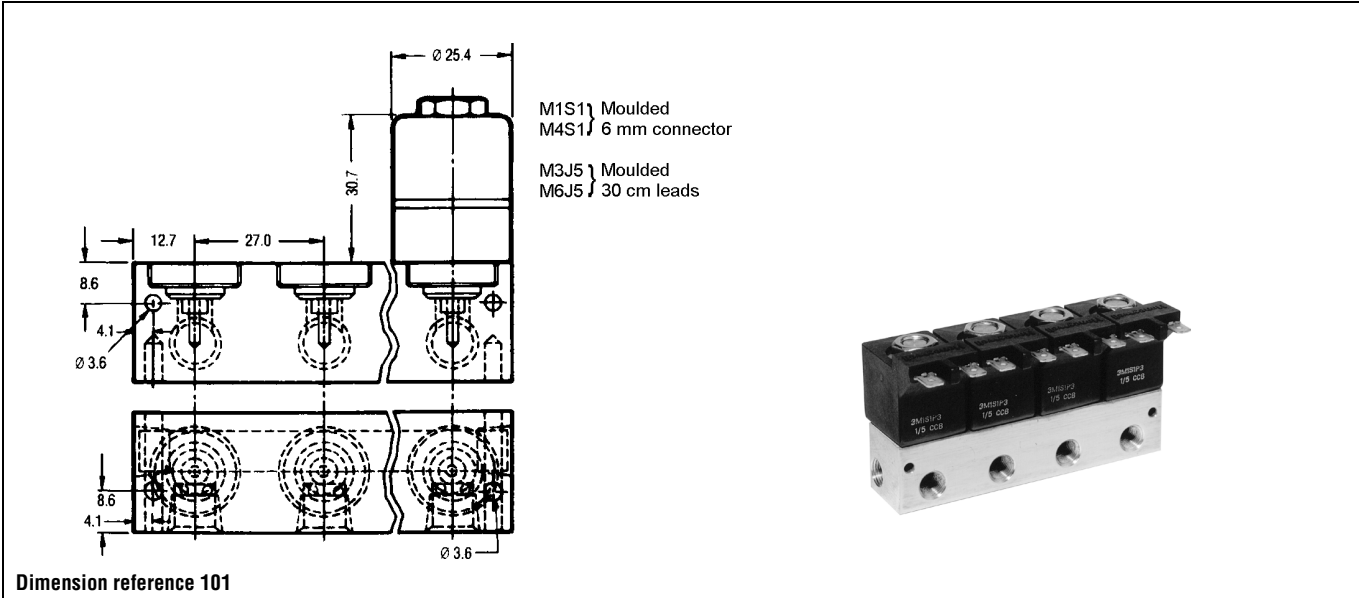


SB	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM	3138BJA7EVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.2	0.72	-	-	0	11.2	11.2	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM	3138BJA7GVC#	-	1	NO	M1S1	4.5	4.5	-	101
	1.6	1.29	-	-	0	8.4	8.4	50	50	50	FKM			1	NO	M3J5	4.5	4.5	-	

Notes:

1. # Denotes the number of valves in the manifold, from 2 to 4

Miniature valves 3/2 - Direct operated



Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

3/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	Brass body	Normally closed	1/4	0.8	75.0	176
		Universal	1/4	0.8	30.0	176
	303 Stainless steel body	Normally closed	1/4	0.8	40.0	176
Pilot operated	Anod. aluminium body	Normally closed	1/4	8	40.0	178
		Normally open	1/4	8	40.0	178

Notes:

Direct operated valves: pressure range from 0 to max pressure.

Pilot operated valves: pressure range from 0.3 to 0.5 bar to max. pressure (refer to tables).

Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

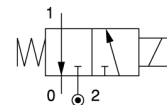
3/2



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G					DC	AC											

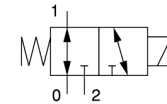
Normally closed



Brass body/Pipe mounting

1/4	0.8	0.3	2	0	40	40	75	PCTFE	7131KBG2BF00	131K05	4270	481000	8	8	430	2	17
	0.8	0.3	2.5	0	-	75	130	Ruby	7131KBG2BR00	131K65	4270	481000	-	8	430	2	17
	0.8	0.3	2.5	0	75	-	140	Ruby			4270	486265	14	-	440	2	

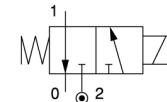
Universal



Brass body/Pipe mounting

1/4	0.8	0.3	1.6	0	30	30	100	FKM	7133KBG2BV00	E133K05	2995	481865	9	8	310	2	17
	0.8	0.3	1.6	0	30	30	120	FKM			4270	481000	8	8	430	2	

Normally closed



303 Stainless steel body/Pipe mounting

1/4	0.8	0.3	2	0	40	40	100	Ruby	7131WVG2BR00	131V65	2995	481865	9	8	410	2	16
-----	-----	-----	---	---	----	----	-----	------	--------------	---------------	-------------	---------------	---	---	-----	---	----

Notes:

* See Electrical Parts Group table at end of section

Valves for oil (hydraulic) and neutral liquids 3/2 - Direct operated

Dimension reference 16

Dimension reference 17

Valves for oil (hydraulic) and neutral liquids applications (max. 75 bar)

3/2

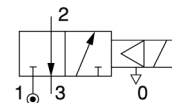


Pilot operated

Port size	Orifice (mm)	Flow factors (L/min)		Admissible differential pressure bar			Fluid temp. °C	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		kv	Qmax	Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G					DC	AC											

Anod. aluminium body/Pipe mounting

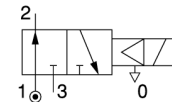
Normally closed



1/4	8	10	10	1	40	40	75	NBR	7331BAG2KN00	331B02	1	2995	481865	9	8	880	2	23
	8	10	10	1	40	40	75	NBR				4270	481000	8	8	1000	2	

Anod. aluminium body/Pipe mounting

Normally open

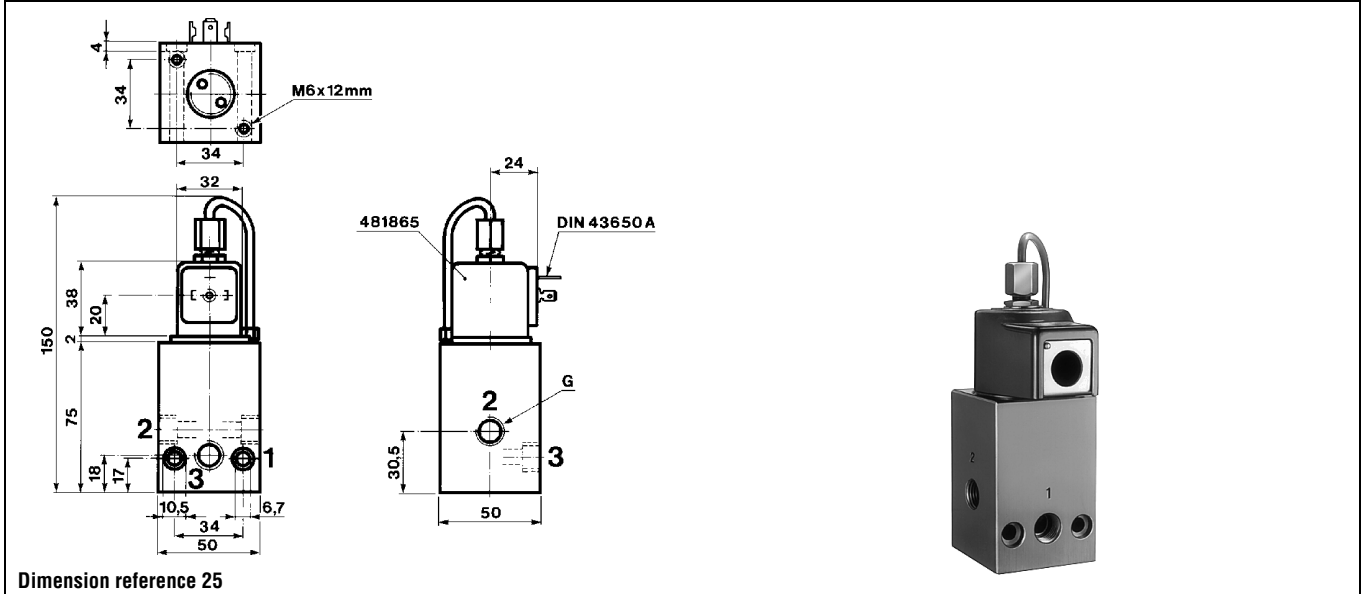
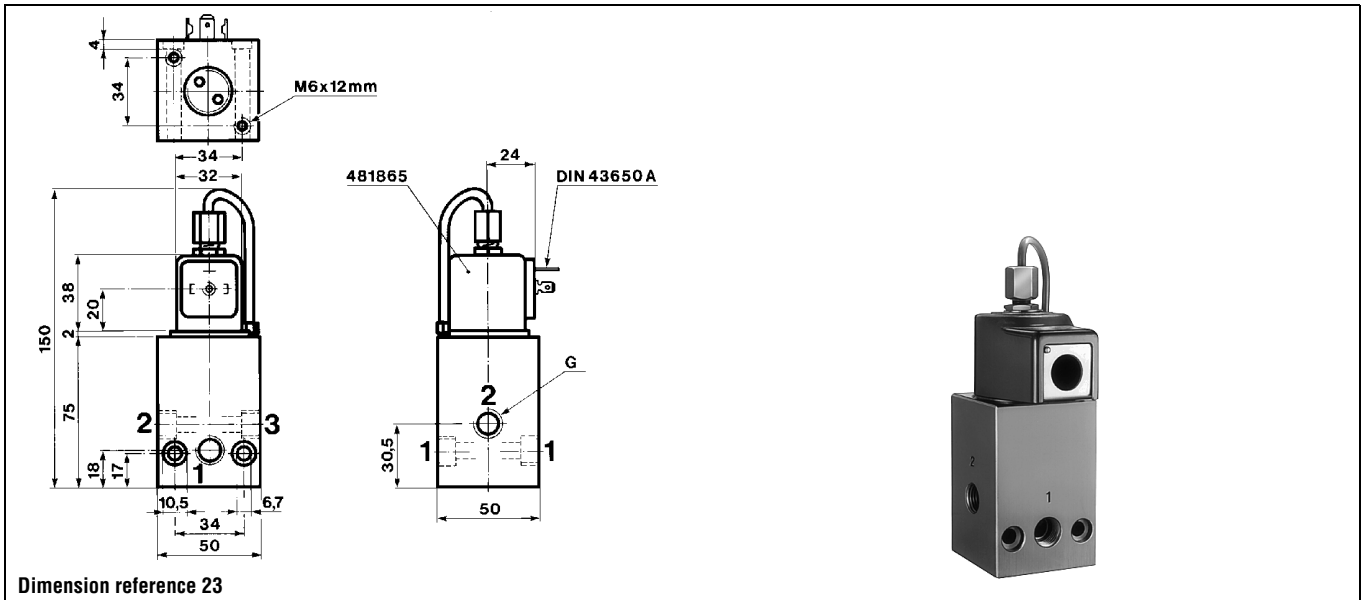


1/4	8	10	10	1	40	40	75	NBR	7332BAG2KN00	332B02	1	2995	481865	9	8	880	2	25
	8	10	10	1	40	40	75	NBR				4270	481000	8	8	1000	2	

Notes:

- * See Electrical Parts Group table at end of section
- 1. Pilot seat discs from Kel-F (PCTFE); valve with pilot return pipe

Valves for oil (hydraulic) and neutral liquids 3/2 - Pilot operated



Electrical parts options with 3/2 valves for oil (hydraulic) and neutral liquids

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.			
				DC	AC						min.	max.		
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50		
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50		
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50		
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50		
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50		
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50		
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50		
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50		
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50		
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50		
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50		
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50		
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40		
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50		
		IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50		
	50 mm (Std)	IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50		
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50		
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50		
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50		
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65		
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65		
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40		
		3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
		4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
IP10 / IP 44	Class F			13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50		
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60		
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50		
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50		
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65		
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65		
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75		
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55		
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55		
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65		
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65		
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65		

Note: This table is indicative only. Please contact your distributor to confirm your selection.

High corrosion-resistant valves (Stainless Steel)

3/2

ACTUATION	BODY MATERIAL	FUNCTION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	303 Stainless steel body	Normally closed	1/4	1 to 2.5	15.0	182
		Universal	1/4	1.5 to 2.5	10.0	182

Notes:

Direct operated valves: pressure range from 0 to max pressure.

High corrosion-resistant valves (Stainless Steel)

3/2

Applications

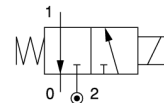
The valves in this section are made of corrosion-resistant material internally and externally. Please refer to the fluid compatibility chart in this catalogue for detailed fluid compatibility.



Direct operated

Port size	Orifice (mm)	Flow factors (L/min)			Admissible differential pressure bar			Fluid temp. °C			Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
		Liquids kv	Qmax	Gases Qn	Min	Max	AC	Gas	Liquid	Oil		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

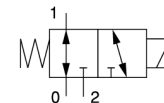
Normally closed



303 Stainless steel body/Pipe mounting

1/4	1	0.6	2	32	0	10	-	75	75	-	FKM	-	131V5490 ¹	-	483580.01 ²	0.4	-	325	7	78
	1.5	1.5	6	80	0	15	15	100	100	100	FKM	7131VVG2GV00	131V5406	2995	481865	9	8	410	2	16
	1.5	1.5	6	80	0	15	15	120	120	120	FKM			4270	481000	8	8	530	2	
	1.5	1.5	6	80	0	15	15	100	100	100	Ruby	7131VVG2GR00	131V5463	2995	481865	9	8	410	2	16
	1.5	1.5	6	80	0	15	15	130	130	130	Ruby			4270	481000	8	8	530	2	
	1.5	1.5	6	80	0	15	15	180	180	180	Ruby			4270	486265	14	14	540	2	
	2.5	3.5	8.5	220	0	7	7	100	100	100	FKM	7131VVG2LV00	131V5306	2995	481865	9	8	410	2	16
	2.5	3.5	8.5	220	0	7	7	120	120	120	FKM			4270	481000	8	8	530	2	
	2.5	3.5	9.5	220	0	7	7	100	100	100	Ruby	7131VVG2LR00	131V5363	2995	481865	9	8	410	2	16
	2.5	3.5	9.5	220	0	7	7	130	130	130	Ruby			4270	481000	8	8	530	2	
	2.5	3.5	9.5	220	0	7	7	180	180	180	Ruby			4270	486265	14	14	540	2	

Universal



303 Stainless steel body/Pipe mounting

1/4	1.5	1.6	4.5	80	0	10	10	100	100	100	FKM	7133VVG2GV00	133V5406	2995	481865	9	8	410	2	16
	1.5	1.6	4.5	80	0	10	10	120	120	120	FKM			4270	481000	8	8	530	2	
	1.5	1.6	4.5	80	0	10	10	100	100	100	Ruby	7133VVG2GR00	133V5463	2995	481865	9	8	410	2	16
	1.5	1.6	4.5	80	0	10	10	130	130	130	Ruby			4270	481000	8	8	530	2	
	1.5	1.6	4.5	80	0	10	10	180	180	180	Ruby			4270	486265	14	14	540	2	
	2.5	3.5	8.5	220	0	4	4	100	100	100	FKM	7133VVG2LV00	133V5306	2995	481865	9	8	410	2	16
	2.5	3.5	8.5	220	0	4	4	120	120	120	FKM			4270	481000	8	8	530	2	
	2.5	3.5	8.5	220	0	4	4	100	100	100	Ruby	7133VVG2LR00	133V5363	2995	481865	9	8	410	2	16
	2.5	3.5	8.5	220	0	4	4	130	130	130	Ruby			4270	481000	8	8	530	2	
	2.5	3.5	8.5	220	0	4	4	180	180	180	Ruby			4270	486265	14	14	540	2	

Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
2. This reference no. is for the complete electrical part (coil + housing)

High corrosion-resistant valves (Stainless Steel) 3/2 - Direct operated

Dimension reference 16

Dimension reference 78

Electrical parts options with 3/2 high corrosion resistant stainless steel valves

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

3- & 4-way valves for pneumatic applications

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Applications



AIR

4-way pneumatic valves for pipe connection/sub-base mounting

ACTUATION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Pilot operated	1/8	4	10.0	196
	1/4	6 to 8	40.0	188/198/202/204
	3/8	8	15.0	200
	1/2	14	15.0	212
	SB	4 to 15	10.0	190/214/216
	CETOP	6	10.0	216
Impulse coil	1/4	8	15.0	192/200
	1/2	14	15.0	212
	SB	15	10.0	194/216
	CETOP	6	10.0	220
Two solenoids and main pressure supply	1/8	4	10.0	198
	1/4	8	10.0	206/208
	SB	4	10.0	214
External pressure supply	CETOP	6	10.0	218
Double external pressure supply	1/4	8	10.0	210

Notes:

Pilot operated valves: pressure range from 1 or 2 bar to max. pressure (refer to tables).

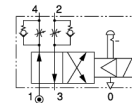
4-way pneumatic valves for pipe connection/sub-base mounting

4/2



Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

4/2 - Pilot operated -



Anod. aluminium body/Pipe mounting

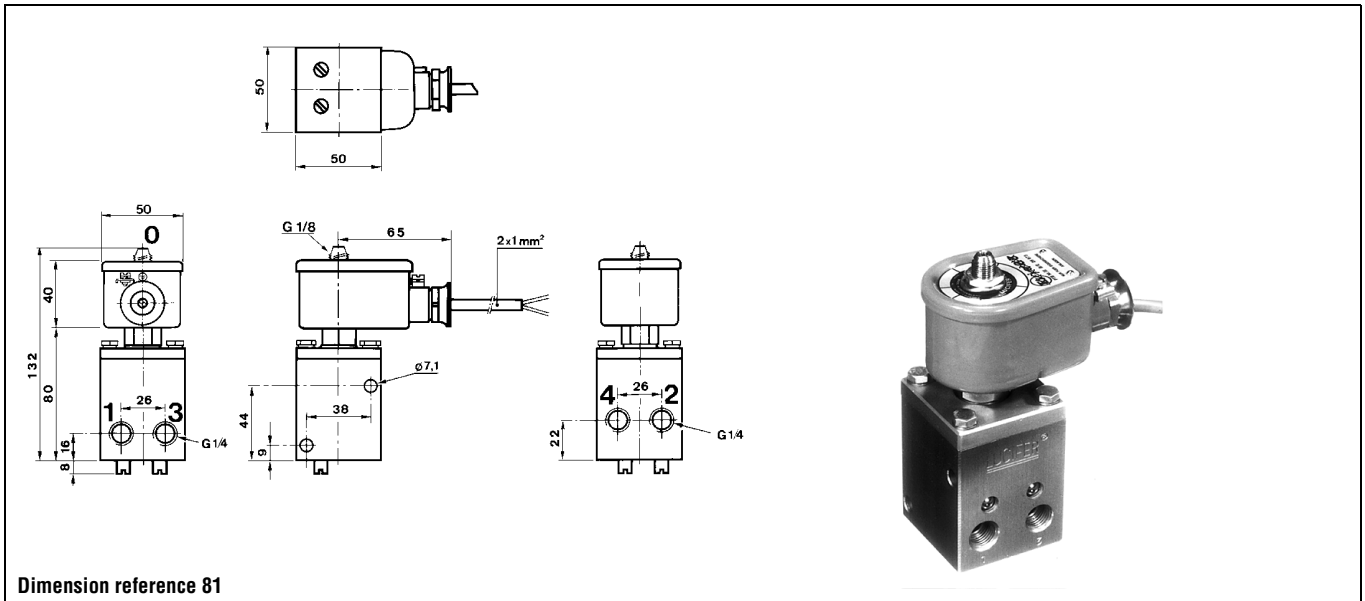
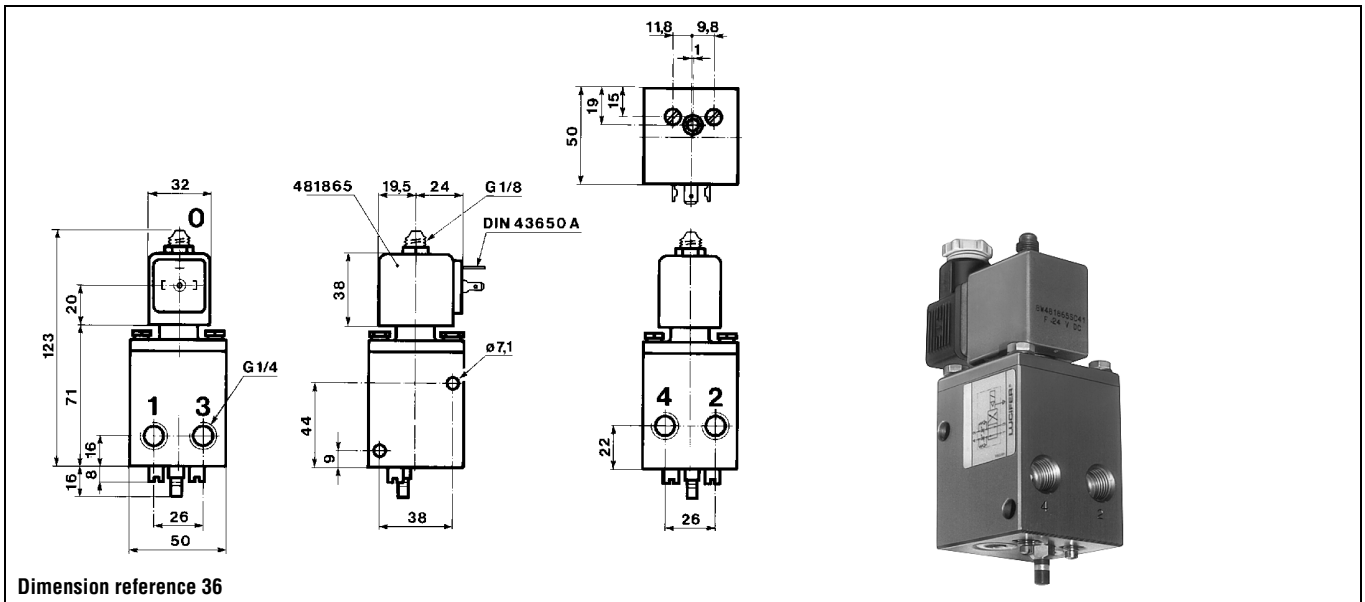
1/4	6	630	1	10	10	75	NBR	7341BAG2JNMO	341B3403 1	2995	481865	9	8	700	2	36
	6	630	1	10	10	75	NBR			4270	481000	8	8	820	2	
	6	630	1	10	10	75	NBR	7341BAG2JNMR	341B34 2	2995	481865	9	8	700	2	36
	6	630	1	10	10	75	NBR			4270	481000	8	8	820	2	
	6	630	1	10	-	75	NBR	7341BAG2JNL8	341B3480 2	2995	482740	1.6	-	700	6	36
	6	560	1	10	-	75	NBR	-	341B3490 3	-	483580.01 4	0.4	-	665	7	81

Table continued on page 190

Notes:

- * See Electrical Parts Group table at end of section
- 1. Without flow regulators
- 2. Flow regulating screws standard
- 3. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)
- 4. This reference no. is for the complete electrical part (coil + housing)

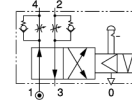
4-way pneumatic valves for pipe connection/sub-base mounting



4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC				
G		Qn		DC	AC												

4/2 - Pilot operated -



Anod. aluminium body/Sub-base mounting

SB	6	630	1	10	10	75	NBR	7341FAS3JNM0	341F3403	¹	2995	481865	9	8	700	2	37
	6	630	1	10	10	75	NBR				4270	481000	8	8	820	2	
	6	630	1	10	10	75	NBR	7341FAS3JNMR	341F34	²	2995	481865	9	8	700	2	37
	6	630	1	10	10	75	NBR				4270	481000	8	8	820	2	

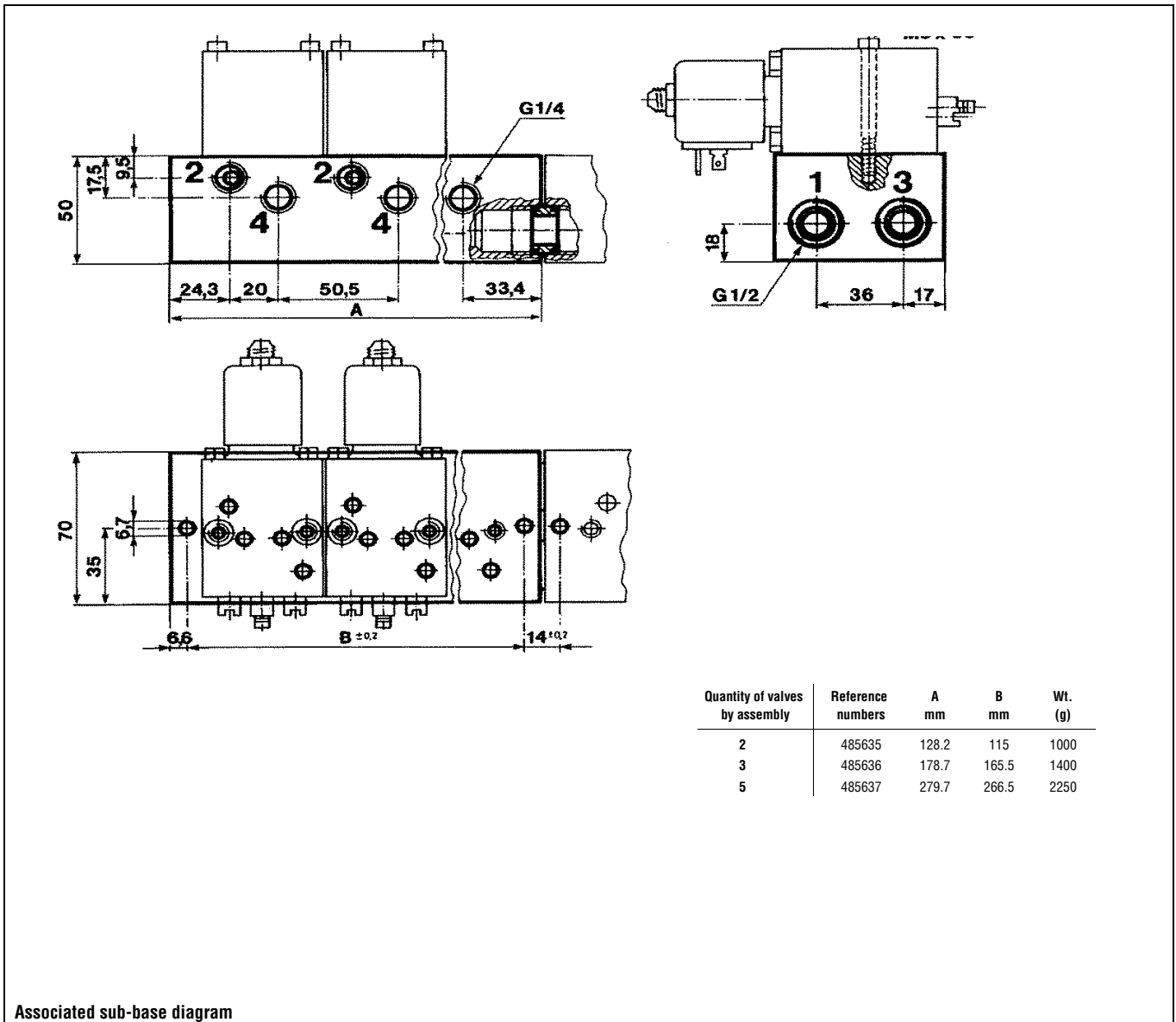
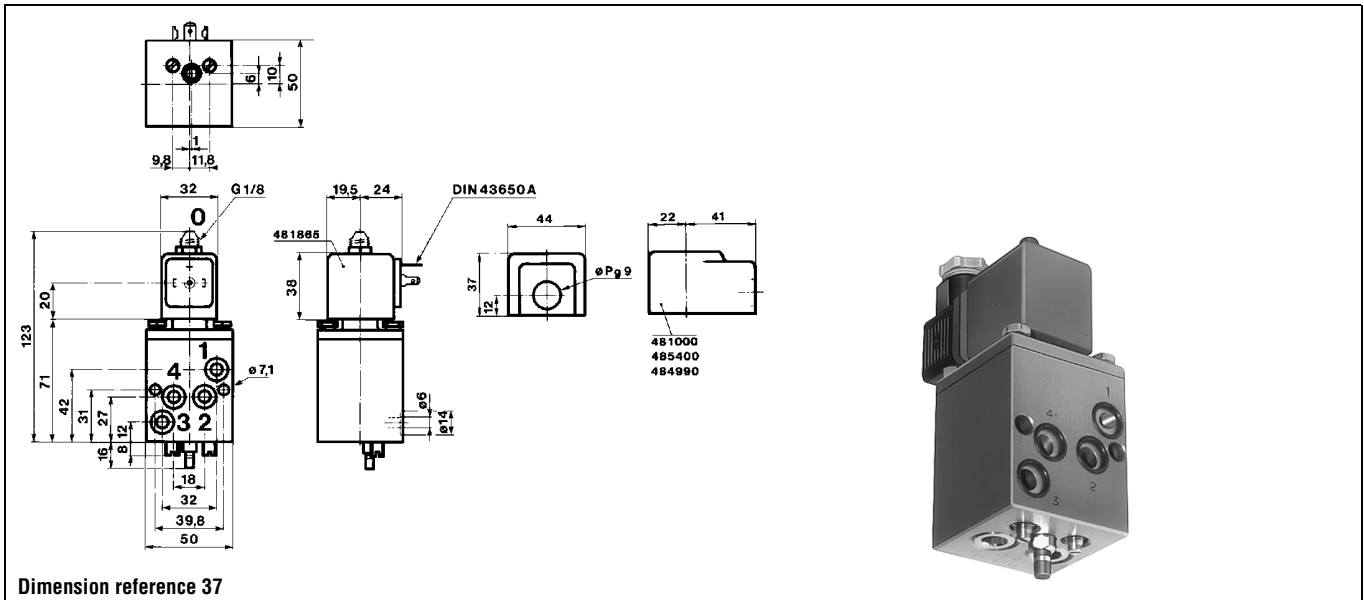
Table continued on page 192

Notes:

* See Electrical Parts Group table at end of section

1. Without flow regulators
2. Flow regulating screws standard

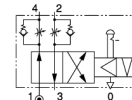
4-way pneumatic valves for pipe connection/sub-base mounting



4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

4/2 - Impulse coil -



Anod. aluminium body/Pipe mounting

1/4	6	630	1	-	10	75	NBR	7345BAG2JNMR	345B34	1	4269	484990	-	11	840	4	36
	6	630	1	10	-	75	NBR				4269	485400	13	-	840	4	

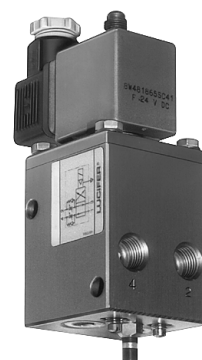
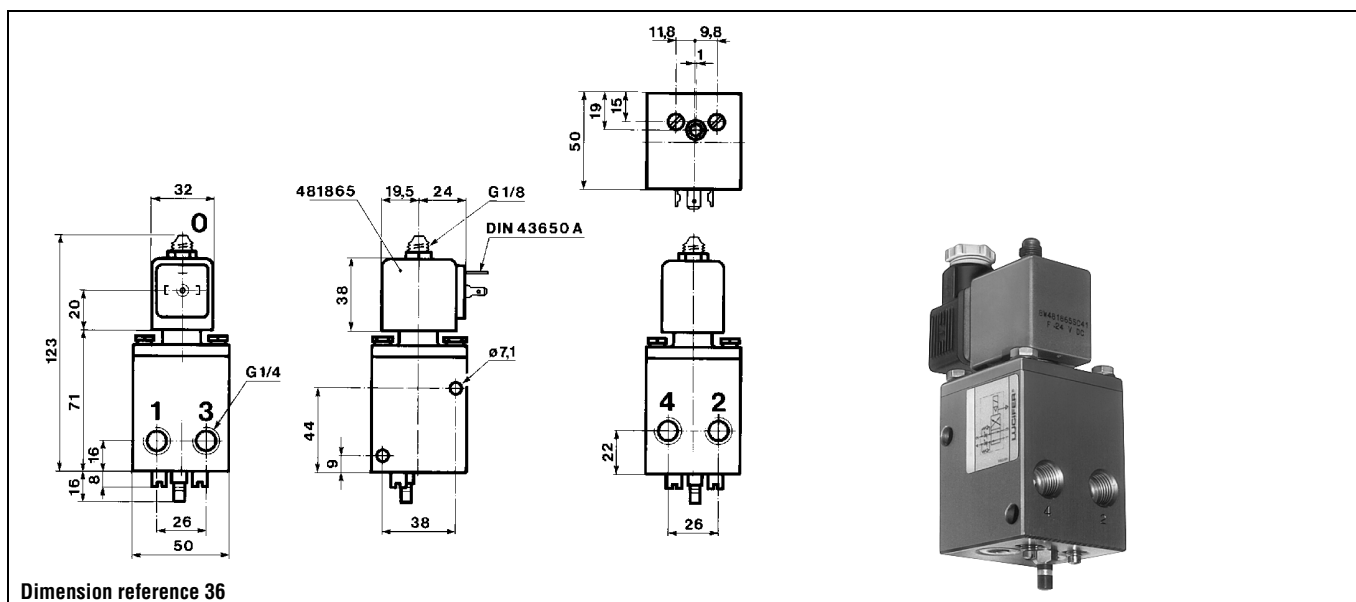
Table continued on page 194

Notes:

* See Electrical Parts Group table at end of section

1. Flow regulating screws standard

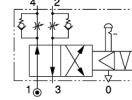
4-way pneumatic valves for pipe connection/sub-base mounting



4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

4/2 - Impulse coil -



Anod. aluminium body/Sub-base mounting

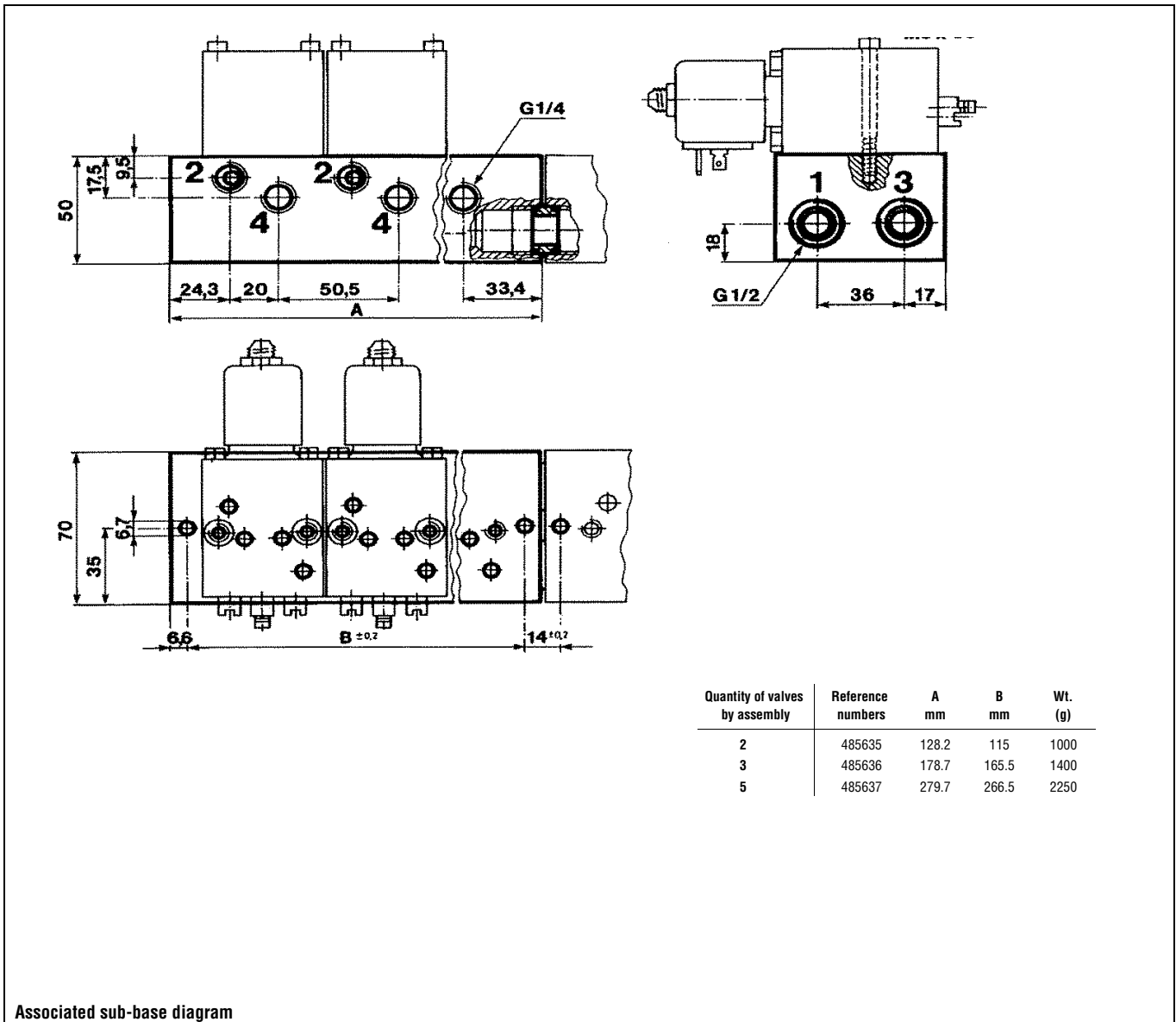
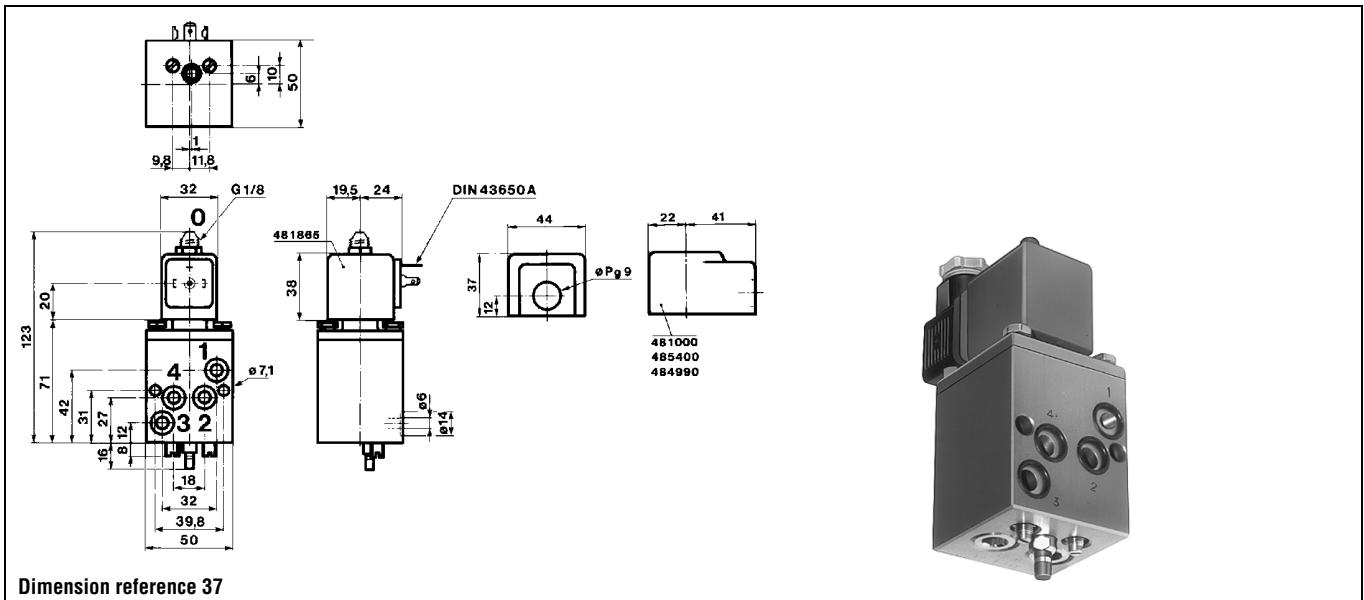
SB	6	630	1	-	10	75	NBR	7345FAS3JNMR	345F34	1	4269	484990	-	11	840	4	37
	6	630	1	10	-	75	NBR						4269	485400	13	-	840

Notes:

* See Electrical Parts Group table at end of section

1. Flow regulating screws standard

4-way pneumatic valves for pipe connection/sub-base mounting



4-way pneumatic valves for pipe connection/sub-base mounting

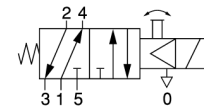
5/2



Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC				AC
G				DC	AC												

Aluminium alloy and brass body/Pipe mounting

5/2 - Pilot operated -



1/8	4	400	1	10	10	75	NBR	-	341L9101	8993	488980	2.5	2	270	1	42
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Table continued on page 198

Notes:

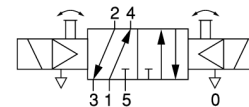
* See Electrical Parts Group table at end of section

4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC			

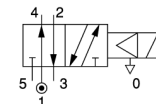
Aluminium alloy and brass body/Pipe mounting

5/2 - Two solenoids and main pressure supply -



1/8	4	315	2	10	10	75	NBR	-	347L9101	8993	488980 1	2.5	2	430	1	117
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5/2 - Pilot operated -



Anod. aluminium body/Pipe mounting

1/4	8	640	1	40	40	75	NBR	7341BAG2KN00	341B02 2	2995	481865	9	8	1700	2	39
	8	640	1	40	40	75	NBR			4270	481000	8	8	1800	2	
	8	1000	1	15	15	75	NBR	7341BAG2PN00	E341B01	2995	481865	9	8	1700	2	38
	8	1000	1	15	15	75	NBR			4270	481000	8	8	1800	2	

Table continued on page 200

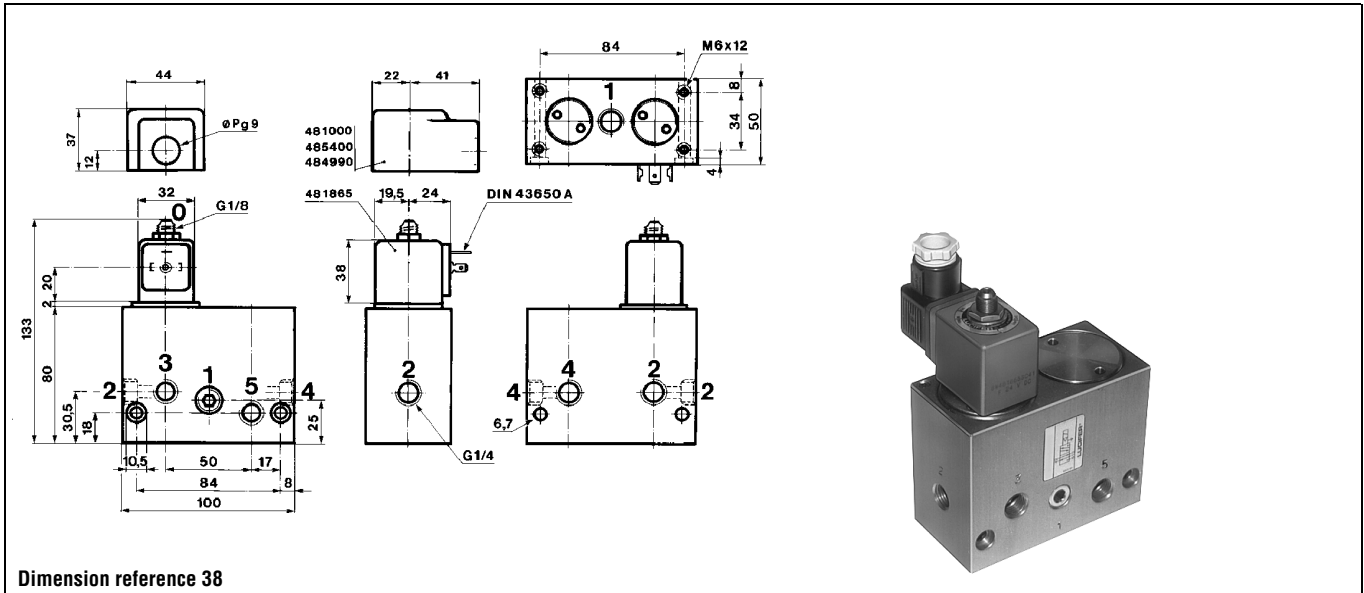
Notes:

* See Electrical Parts Group table at end of section

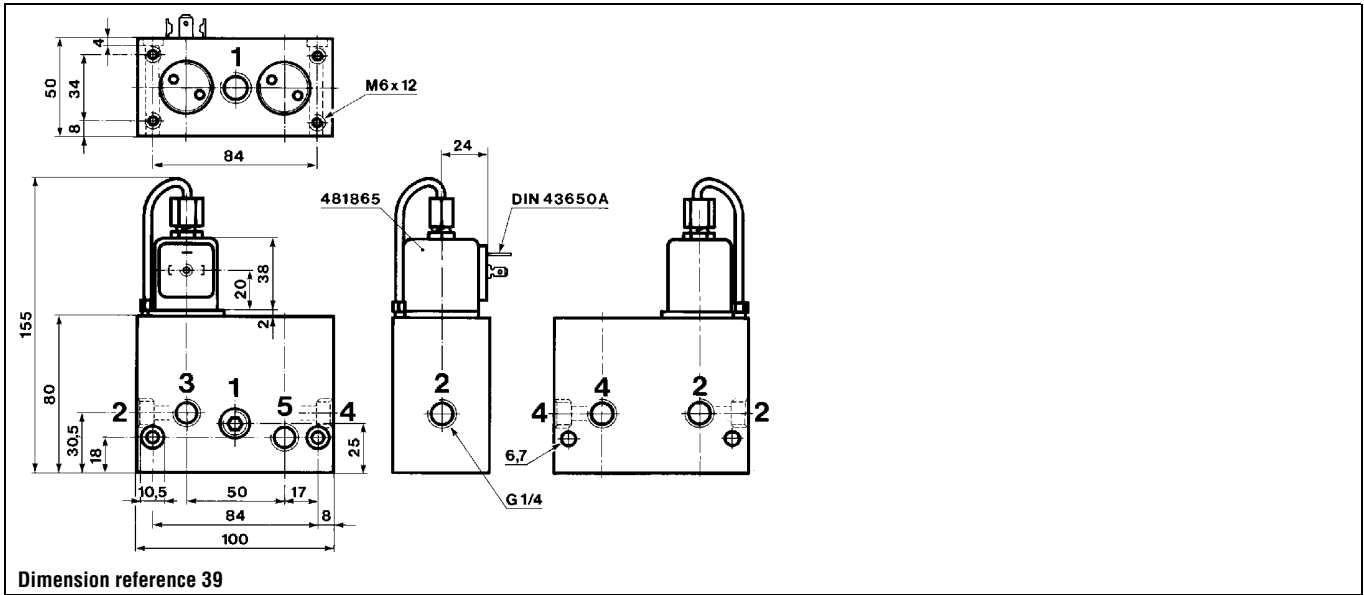
1. Please order two of these items per valve

2. Valve with pilot return pipe on exhaust port

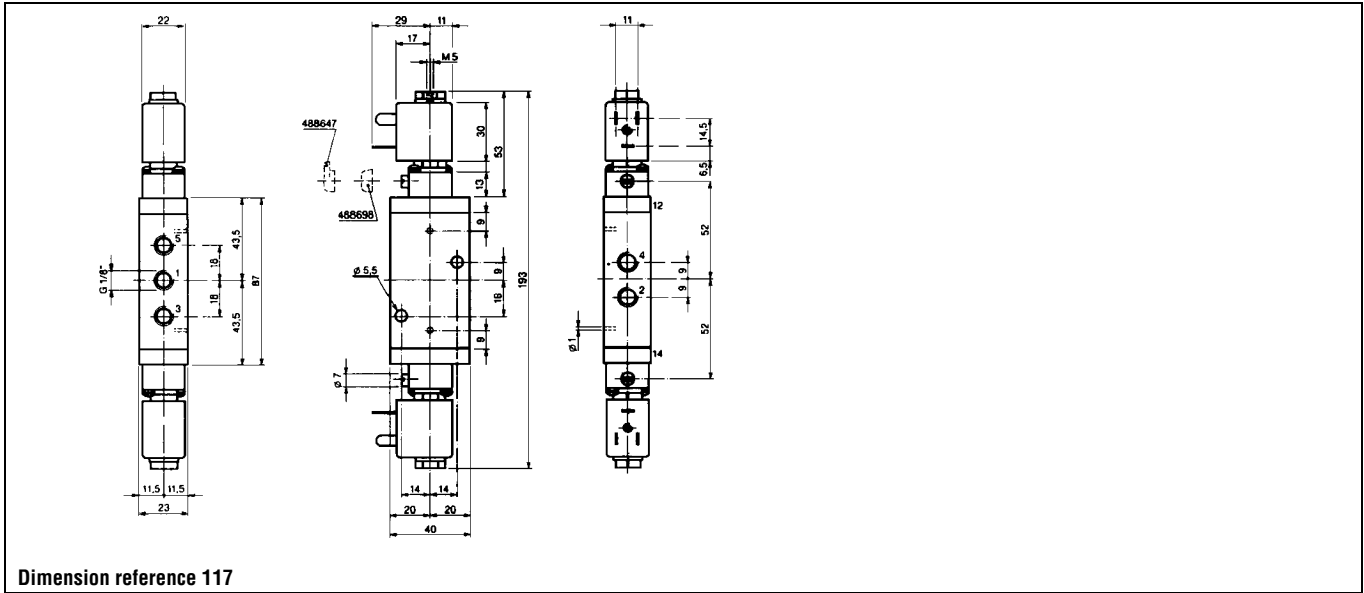
4-way pneumatic valves for pipe connection/sub-base mounting



Dimension reference 38



Dimension reference 39



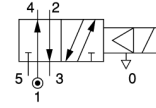
Dimension reference 117

4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Anod. aluminium body/Pipe mounting

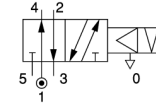
5/2 - Pilot operated -



3/8	8	1000	1	15	15	75	NBR	7341BAG3PN00	E341B11	2995	481865	9	8	1700	2	40
	8	1000	1	15	15	75	NBR			4270	481000	8	8	1800	2	

Anod. aluminium body/Pipe mounting

5/2 - Impulse coil -



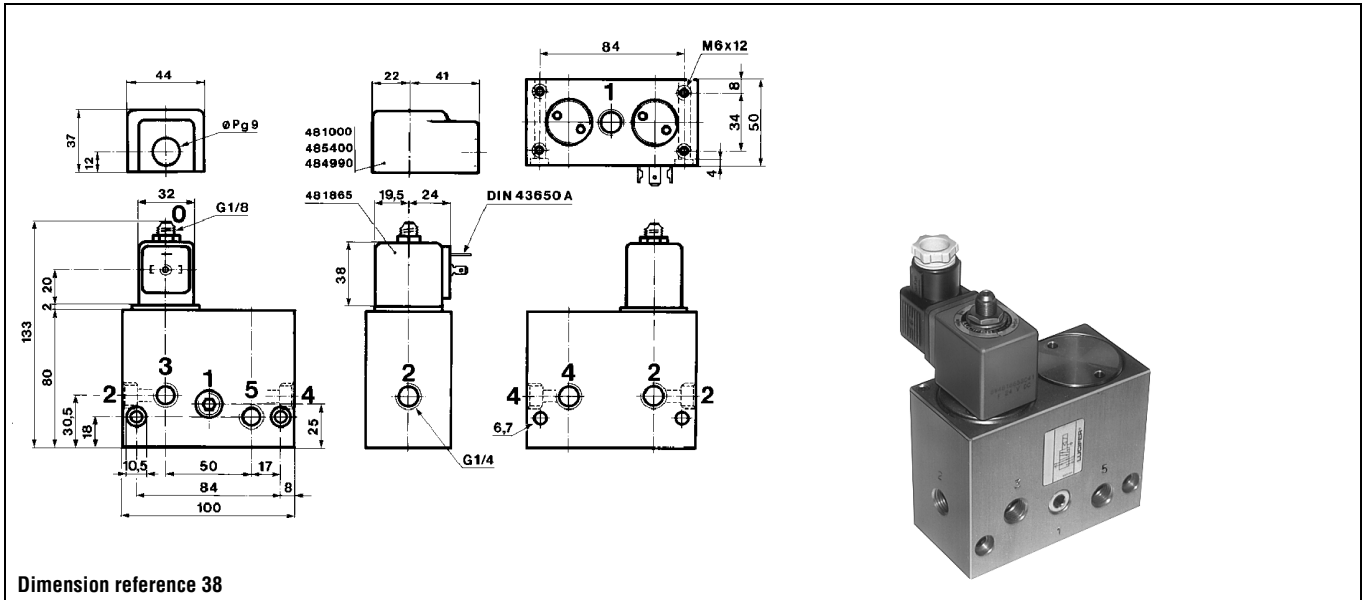
1/4	8	1000	1	-	15	75	NBR	7345BAG2PN00	345B04	4269	484990	-	11	1800	4	38
	8	1000	1	15	-	75	NBR			4269	485400	13	-	1800	4	

Table continued on page 202

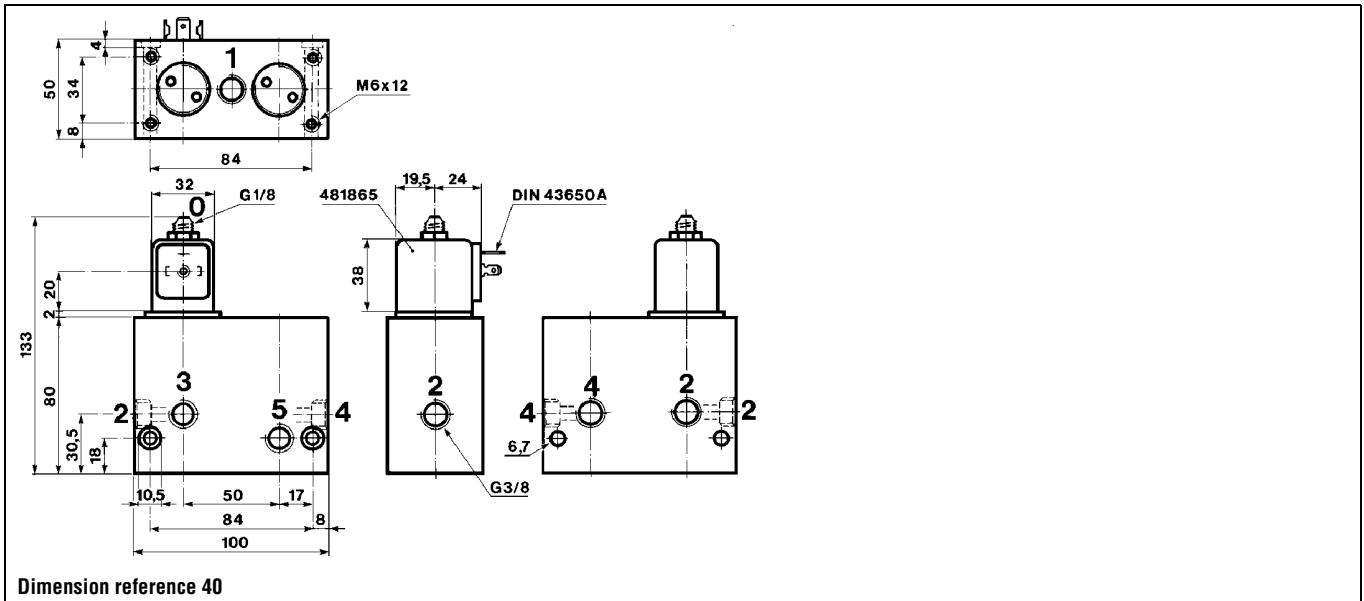
Notes:

* See Electrical Parts Group table at end of section

4-way pneumatic valves for pipe connection/sub-base mounting



Dimension reference 38



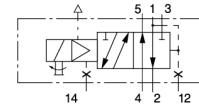
Dimension reference 40

4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC				
G				DC	AC												

Die-cast zinc body/Pipe mounting

5/2 - Pilot operated -



1/4	8	1400	1	10	10	75	NBR	-	341L11	8993	488980	2.5	2	690	1	118
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Table continued on page 204

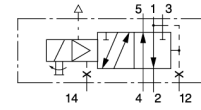
Notes:

* See Electrical Parts Group table at end of section

4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC			

5/2 - Pilot operated -



Die-cast zinc body/Pipe mounting

1/4	8	1400	1	10	10	75	NBR	-	341L1190	-	483580.01 1	0.4	-	690	7	7478
	8	1400	1	10	10	75	NBR	7341LMG2NNM0	E341L1130	2995	481865	9	8	-	2	3539
	8	1400	1	10	10	75	NBR			4270	481000	8	8	-	2	

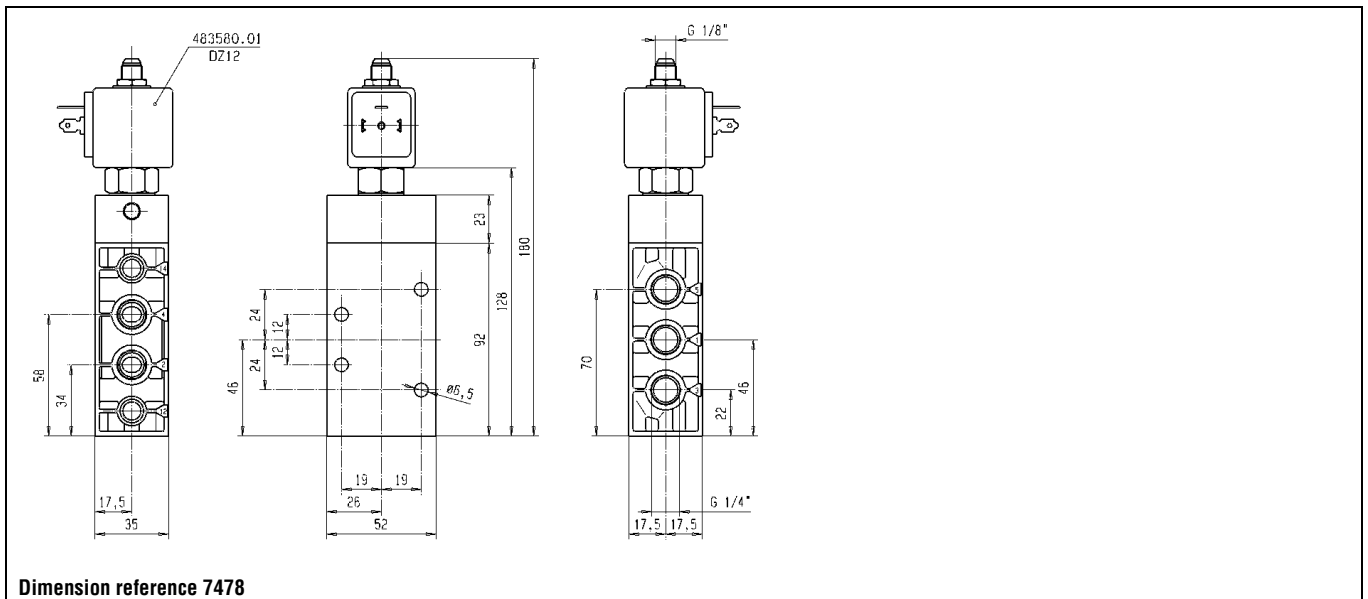
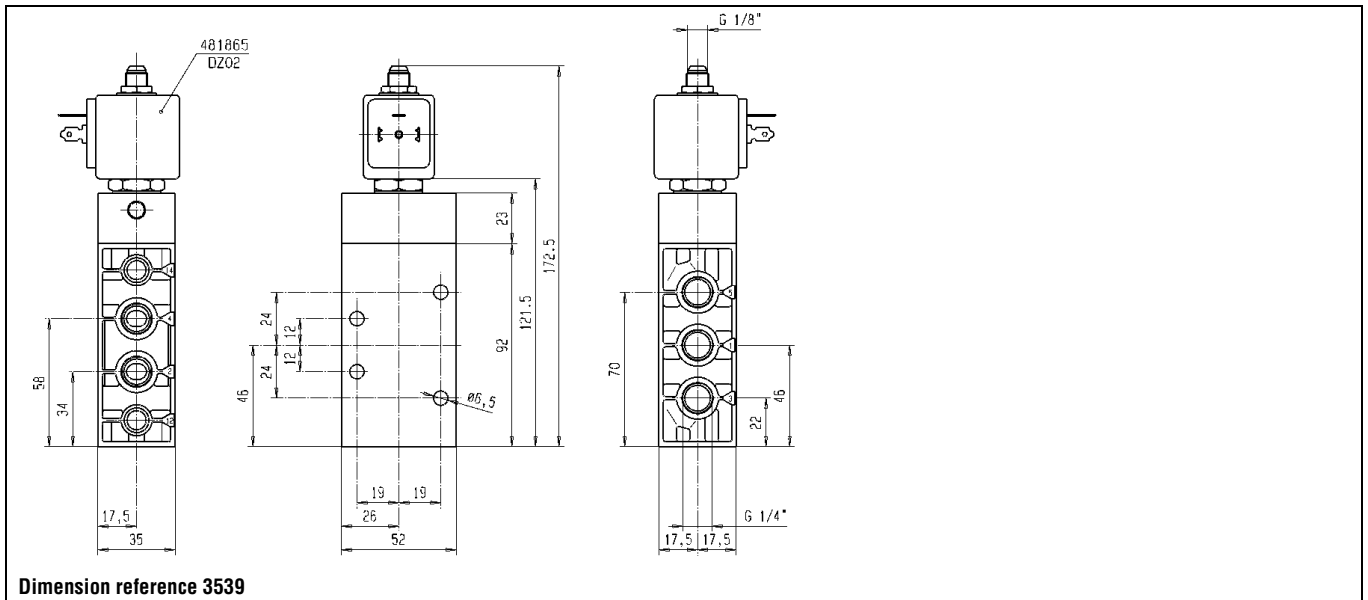
Table continued on page 206

Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

4-way pneumatic valves for pipe connection/sub-base mounting

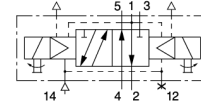


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC				
G				DC	AC												

Die-cast zinc body/Pipe mounting

5/2 - Two solenoids and main pressure supply -



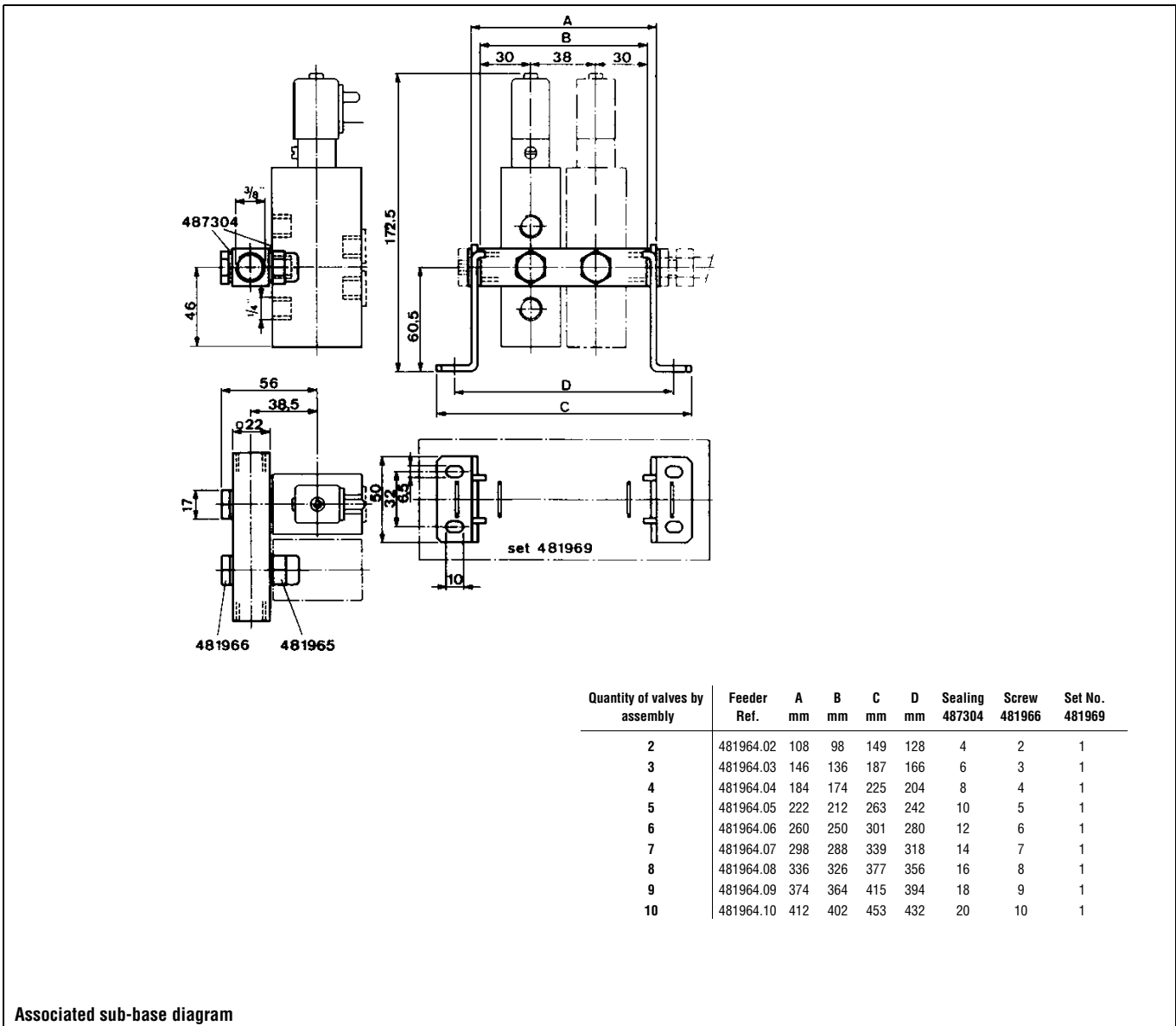
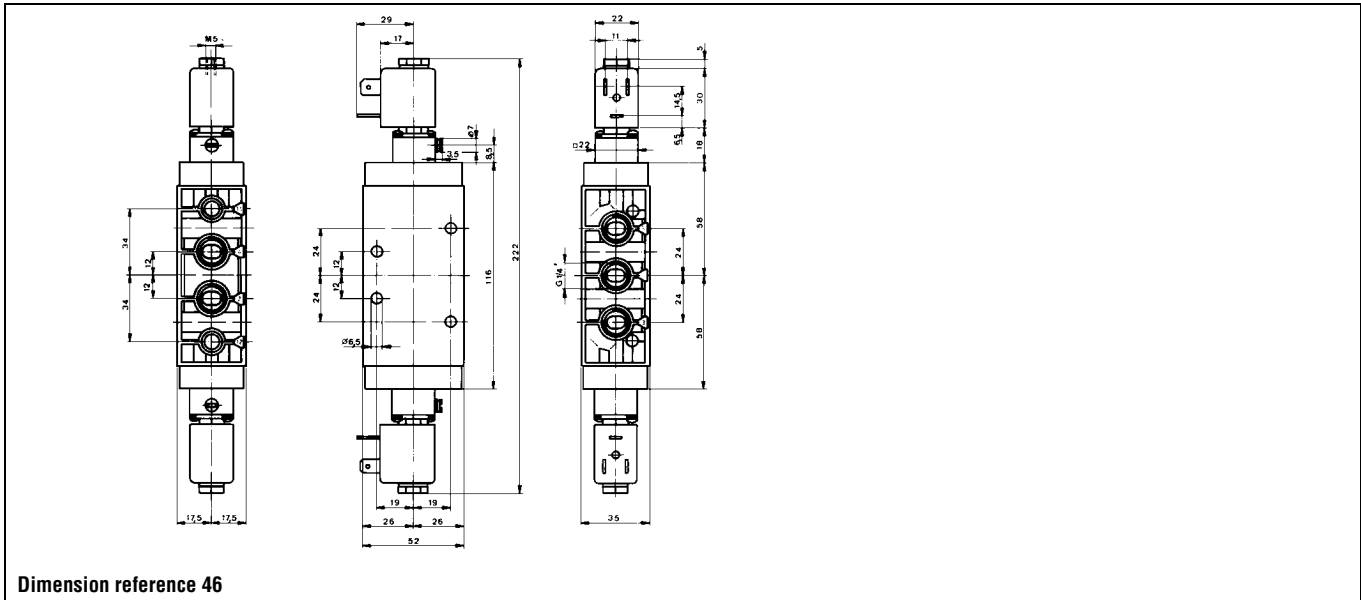
1/4	8	1400	1	10	10	75	NBR	-	347L11	8993	488980	1	2.5	2	750	1	46
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Table continued on page 208

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

4-way pneumatic valves for pipe connection/sub-base mounting

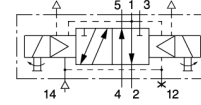


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Die-cast zinc body/Pipe mounting

5/2 - Two solenoids and main pressure supply -



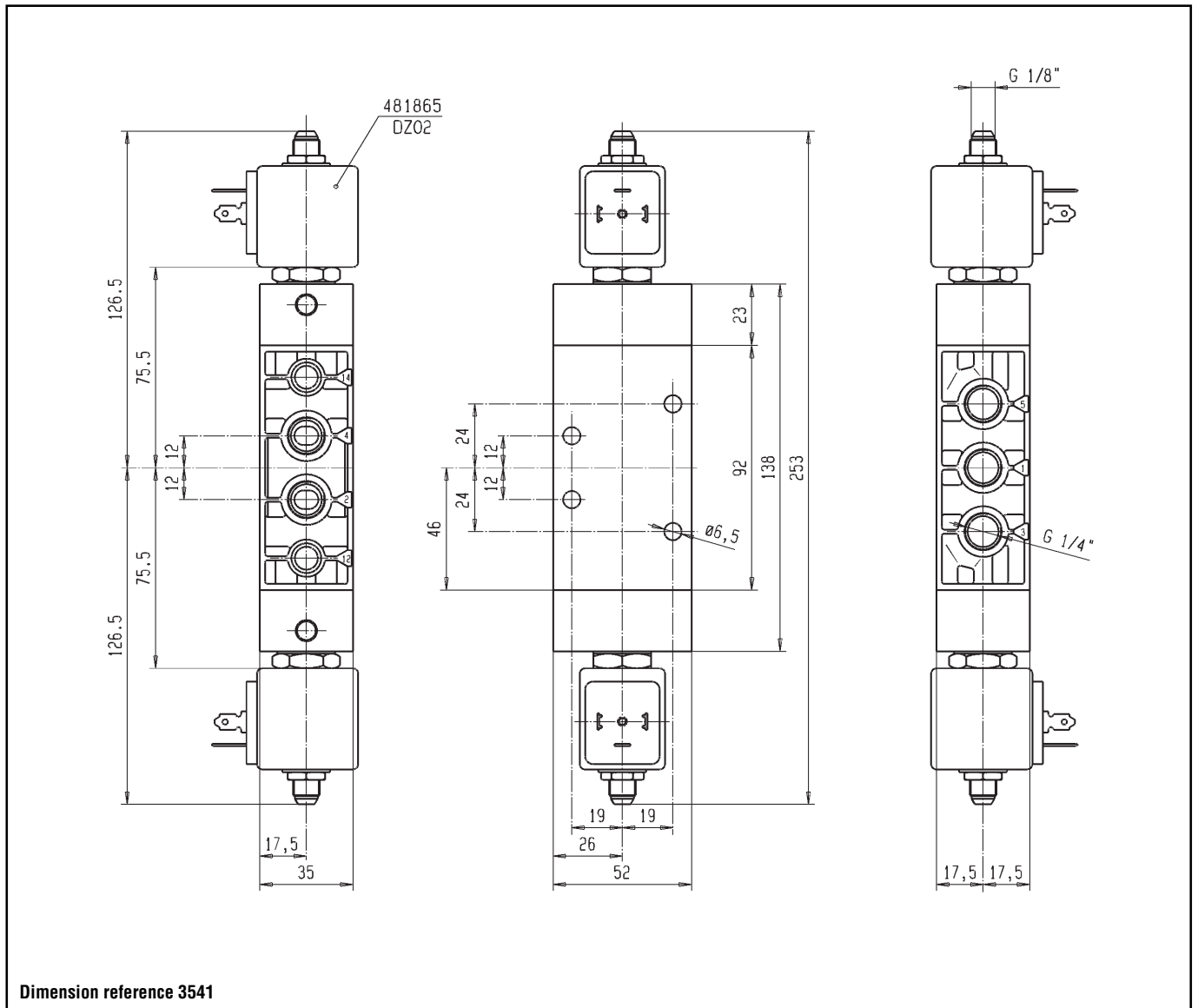
1/4	8	1400	1	10	10	75	NBR	7347LMG2NNM0	E347L1130	2995	1	481865	1	9	8	-	2	3541
	8	1400	1	10	10	75	NBR			4270	1	481000	1	8	8	-	2	

Table continued on page 210

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two of these items per valve

4-way pneumatic valves for pipe connection/sub-base mounting

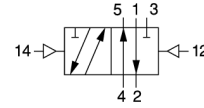


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC				
G				DC	AC												

Die-cast zinc body/Pipe mounting

5/2 - Double external pressure supply -



1/4	8	1400	0	10	10	75	NBR	7547LMG2NN00	547L11	-	-	-	-	-	-	118
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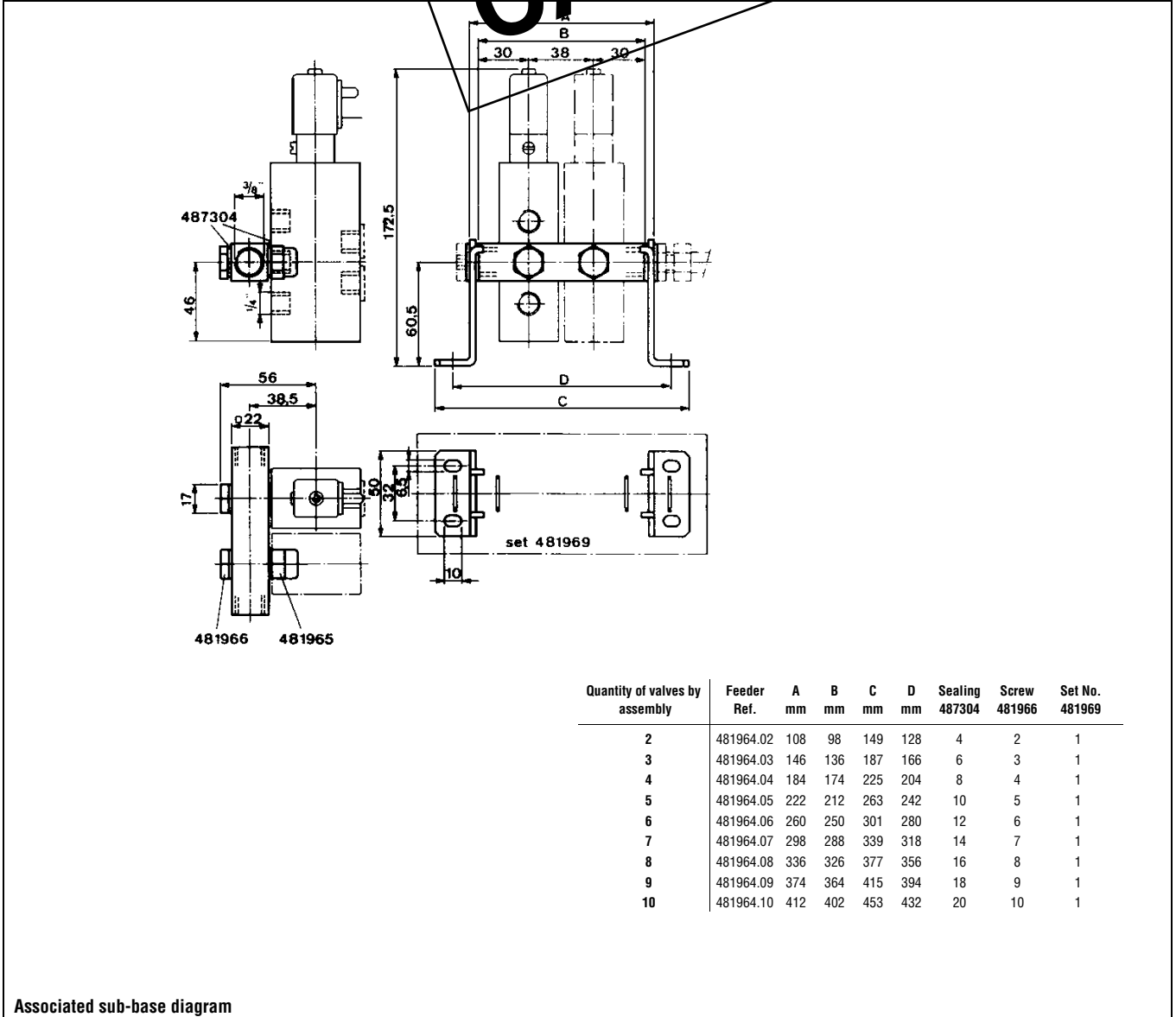
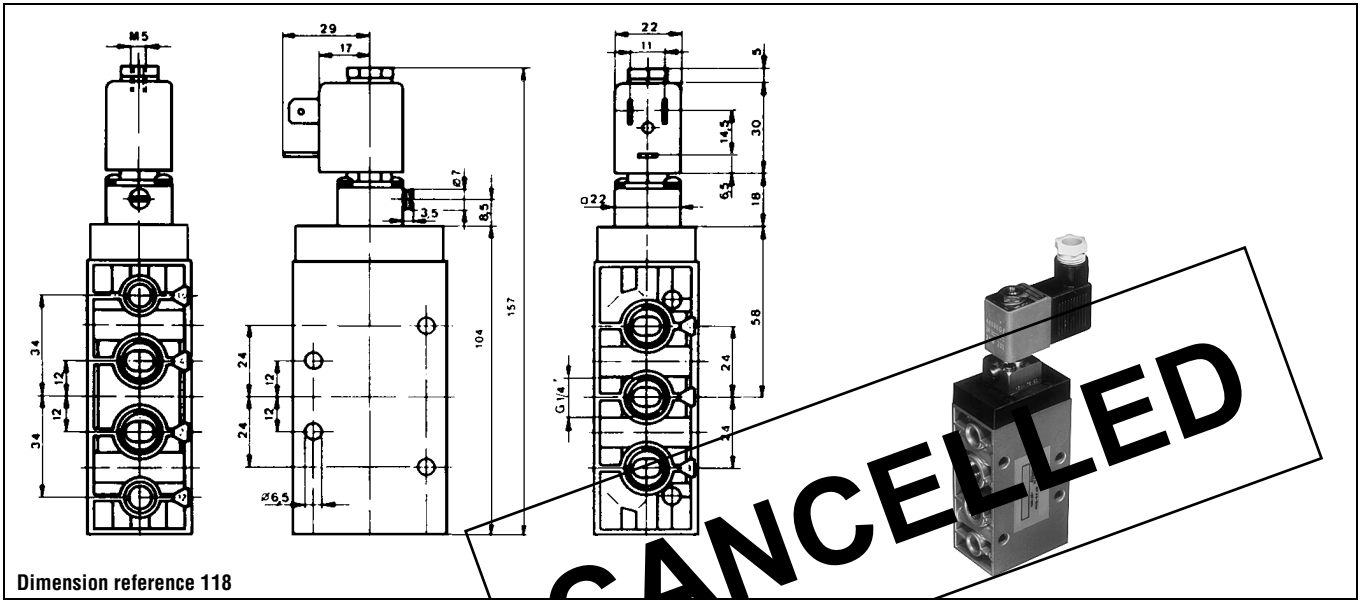
Table continued on page 212

Notes:

* See Electrical Parts Group table at end of section

CANCELLED

4-way pneumatic valves for pipe connection/sub-base mounting

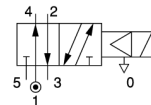


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Anod. aluminium body/Pipe mounting

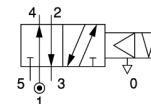
5/2 - Pilot operated -



1/2	14	2500	1	15	15	75	NBR	7341BAG4TN00	E341B21	2995	481865	9	8	1900	2	41
	14	2500	1	15	15	75	NBR			4270	481000	8	8	2000	2	

Anod. aluminium body/Pipe mounting

5/2 - Impulse coil -



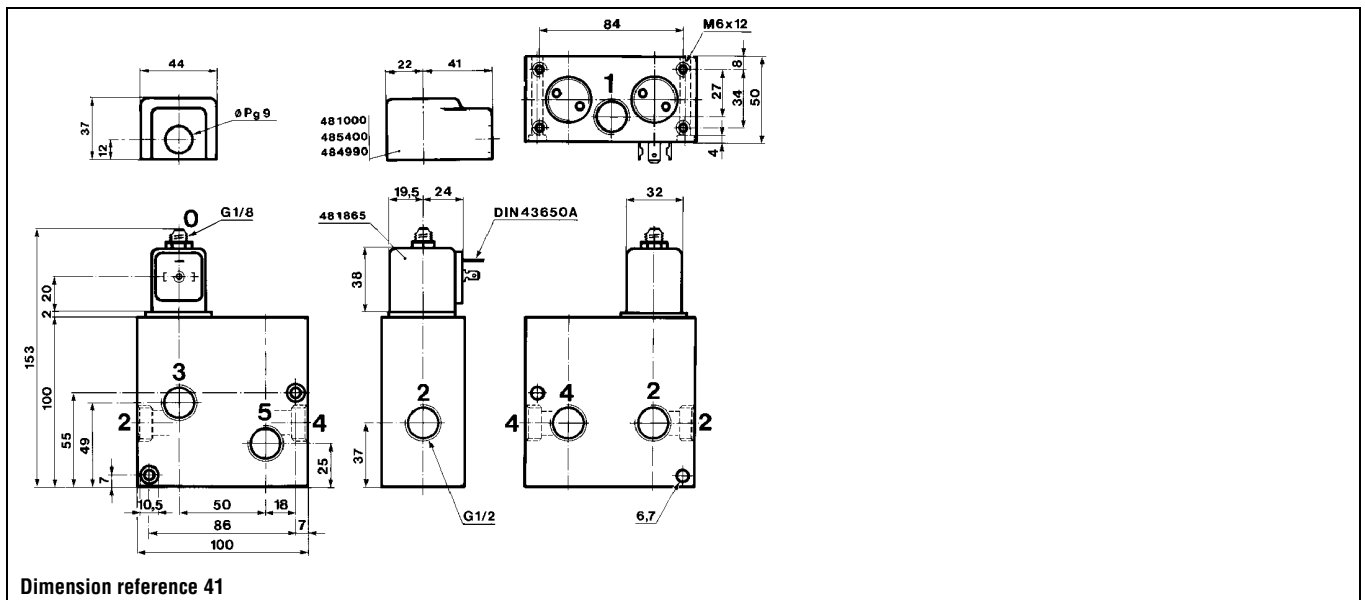
1/2	14	2500	1	-	15	75	NBR	7345BAG4TN00	345B24	4269	484990	-	11	2000	4	41
	14	2500	1	15	-	75	NBR			4269	485400	13	-	2000	4	

Table continued on page 214

Notes:

* See Electrical Parts Group table at end of section

4-way pneumatic valves for pipe connection/sub-base mounting

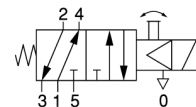


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Aluminium alloy and brass body/Sub-base mounting

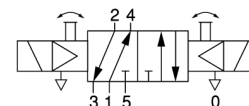
5/2 - Pilot operated -



SB	4	400	1	10	10	75	NBR	-	341L9201	8993	488980	2.5	2	230	1	119
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Aluminium alloy and brass body/Sub-base mounting

5/2 - Two solenoids and main pressure supply -



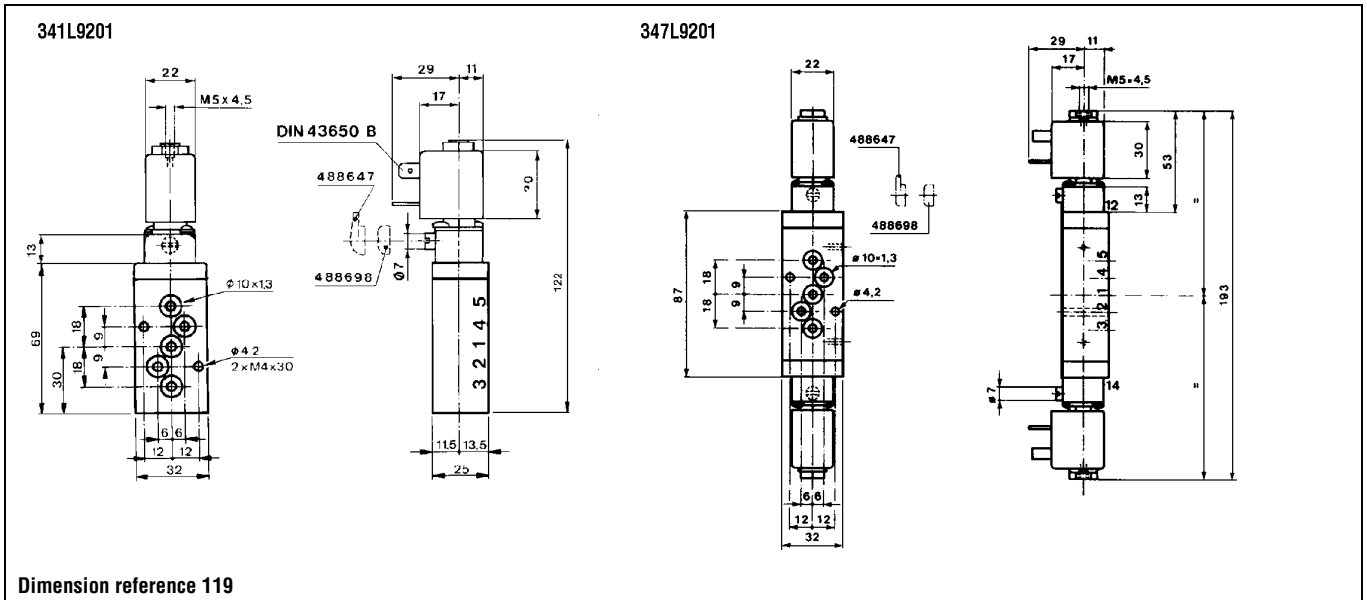
SB	4	400	1	10	10	75	NBR	-	347L9201	8993	488980	1	2.5	2	350	1	119
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Table continued on page 216

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two of these items per valve

4-way pneumatic valves for pipe connection/sub-base mounting



4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	OR	DC				AC
G		Qn		DC	AC												

5/2 - Pilot operated -

Anod. aluminium body/Sub-base mounting

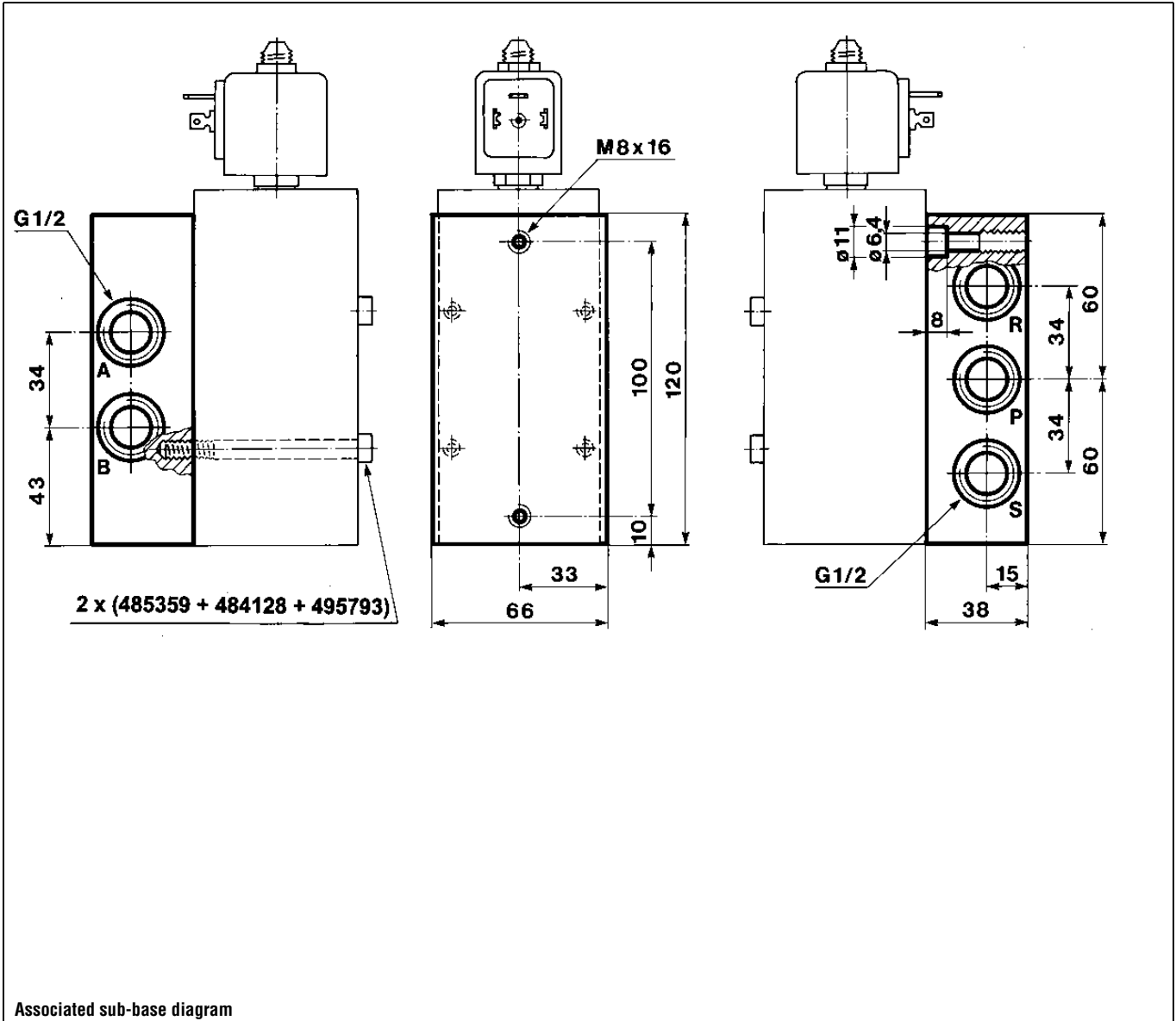
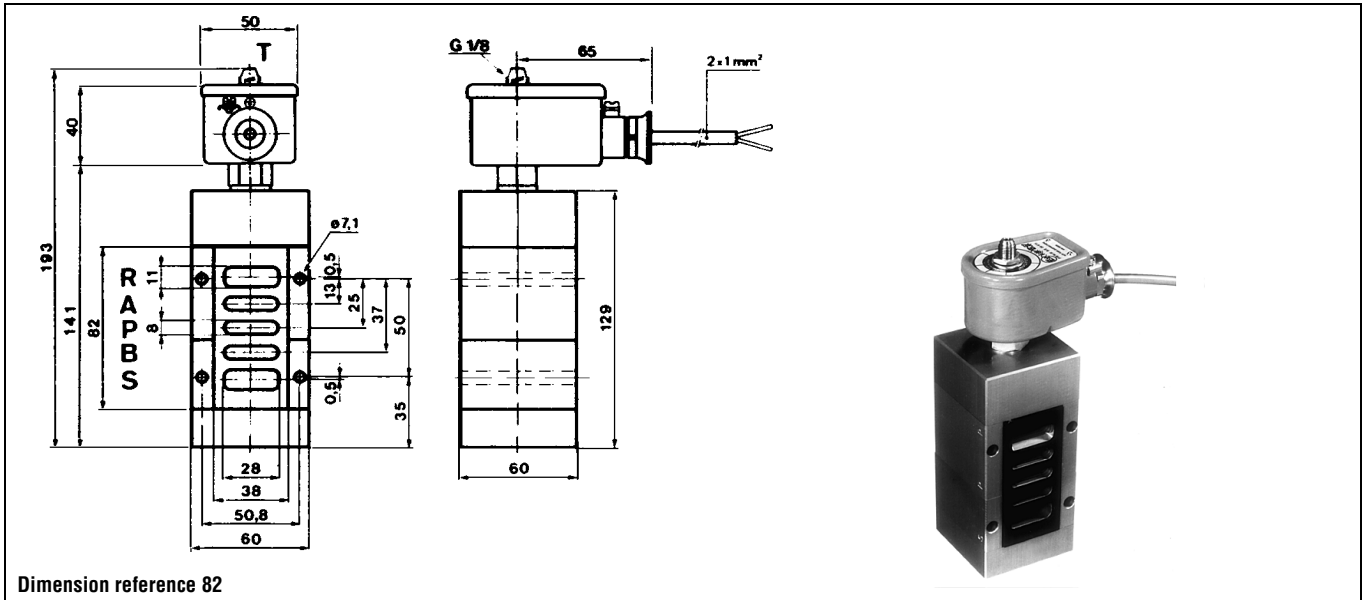
SB	15	3550	0.5	10	-	75	NBR	7341LAV4TN90	341L2190	¹	-	483580.01	²	0.4	-	1205	7	82
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Table continued on page 218

Notes:

- * See Electrical Parts Group table at end of section
- 1. Other coil-housing available: 488650.01, 488660.01, 488670.01 (refer to electrical parts at end of this section)
- 2. This reference no. is for the complete electrical part (coil + housing)

4-way pneumatic valves for pipe connection/sub-base mounting

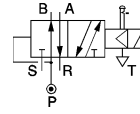


4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max				Global valve reference	Valve reference no.	Housing	Coil	DC	AC			

Anod. aluminium body/Sub-base mounting

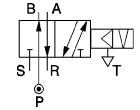
5/2 - Pilot operated -



SB	15	5000	0.5	10	10	75	NBR	7341LAV4TNM0	E341L21	2995	481865	9	8	1240	2	91
	15	5000	0.5	10	10	75	NBR			4270	481000	8	8	1360	2	

Anod. aluminium body/Sub-base mounting

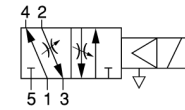
5/2 - Impulse coil -



SB	15	5000	0.5	-	10	75	NBR	7345LAV4TNM0	345L21	4269	484990	-	11	1360	4	91
	15	5000	0.5	10	-	75	NBR			4269	485400	13	-	1360	4	

Delrin body/Sub-base mounting CETOP 1/8

5/2 - Pilot operated -



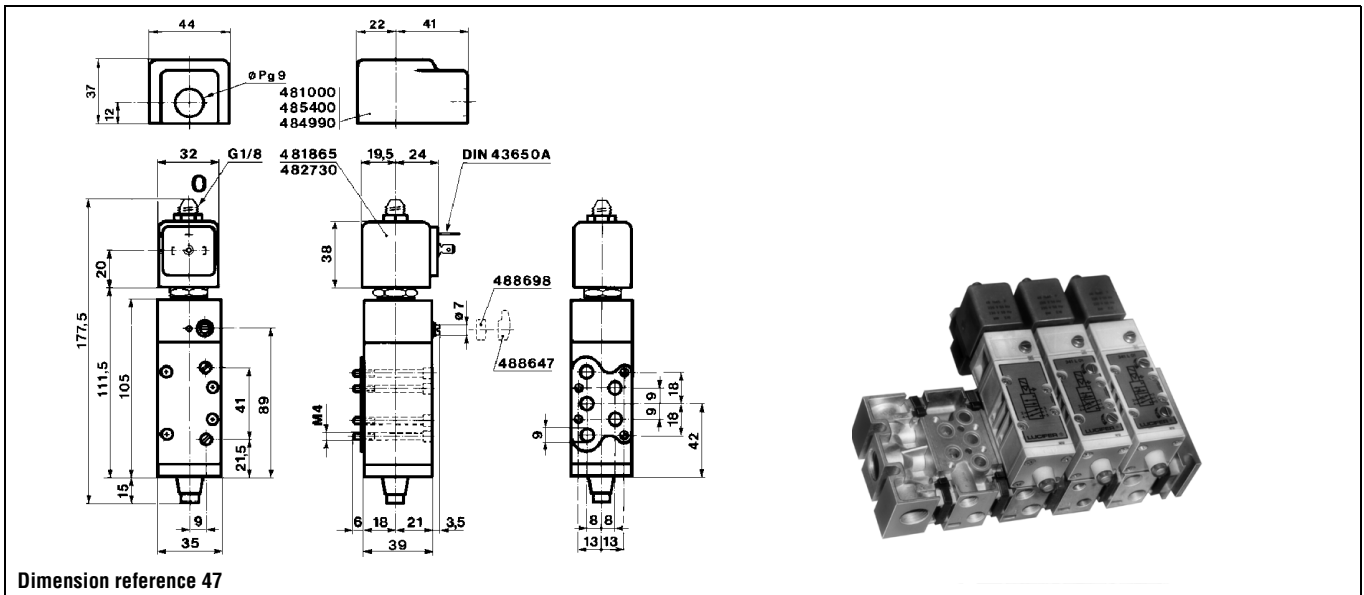
CETOP	6	800	1	10	-	75	NBR	7341LDC1LNL8	341L0180	2995	482740	1.6	-	430	6	47
	6	800	1	10	10	75	NBR	-	341L04 ¹	8993	488980	2.5	2	-	1	48
	6	800	1	10	10	75	NBR	-	341L05 ²	8993	488980	2.5	2	-	1	48
	6	800	1	10	10	75	NBR	7341LDC1LNM8	E341L01 ¹	2995	481865 ³	9	8	430	2	47
	6	800	1	10	10	75	NBR			4270	481000 ³	8	8	560	2	
	6	800	1	10	10	75	NBR			2995	482730	7	6	430	2	
	6	800	1	10	10	75	NBR	7341LDC1LNMI	E341L02 ²	2995	481865	9	8	420	2	47
	6	800	1	10	10	75	NBR			4270	481000	8	8	550	2	
6	800	1	10	10	75	NBR	2995			482730	7	6	420	2		

Table continued on page 220

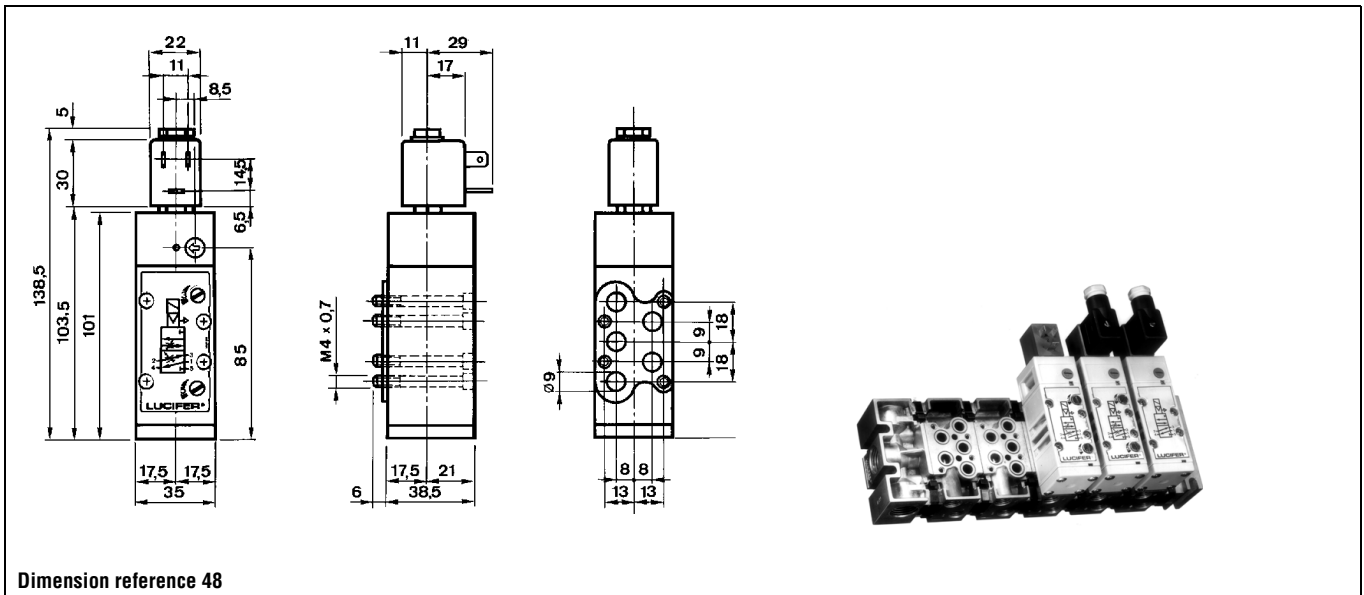
Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override and flow regulating screws standard
- 2. Manual override standard
- 3. Switch-on time limited to 50% ED. For 100% ED please use coil ref. 482730

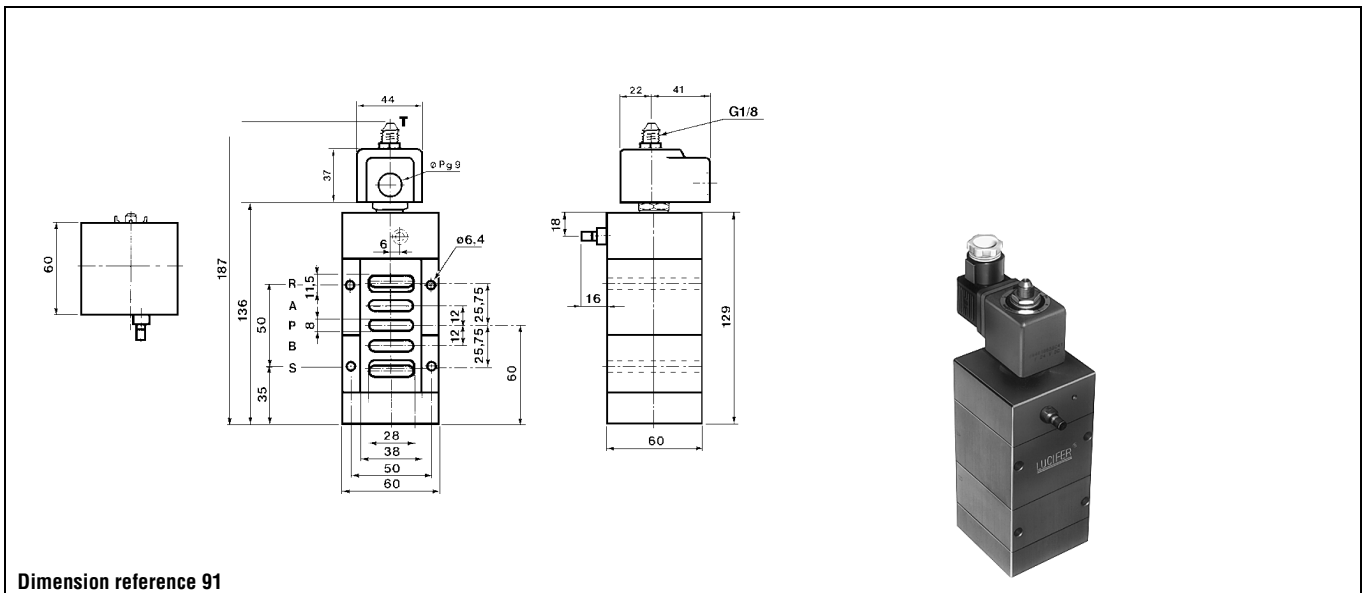
4-way pneumatic valves for pipe connection/sub-base mounting



Dimension reference 47



Dimension reference 48



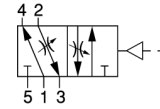
Dimension reference 91

4-way pneumatic valves for pipe connection/sub-base mounting

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C Gas	Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	DC	Max			AC	Global valve reference	Valve reference no.	Housing	Coil	DC			

Delrin body/Sub-base mounting CETOP 1/8

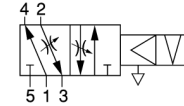
5/2 - External pressure supply -



CETOP	6	800	0	10	10	75	NBR	7541LDC1LNR0	541L01	1	-	-	-	-	360	-	90
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Delrin body/Sub-base mounting CETOP 1/8

5/2 - Impulse coil -



CETOP	6	800	1	-	10	75	NBR	7345LDC1LNM8	345L01	2	4269	484990	-	11	580	4	89
	6	800	1	10	-	75	NBR				4269	485400	13	-	580	4	

Notes:

- * See Electrical Parts Group table at end of section
- 1. Flow regulating screws standard
- 2. Manual override and flow regulating screws standard

4-way pneumatic valves for pipe connection/sub-base mounting

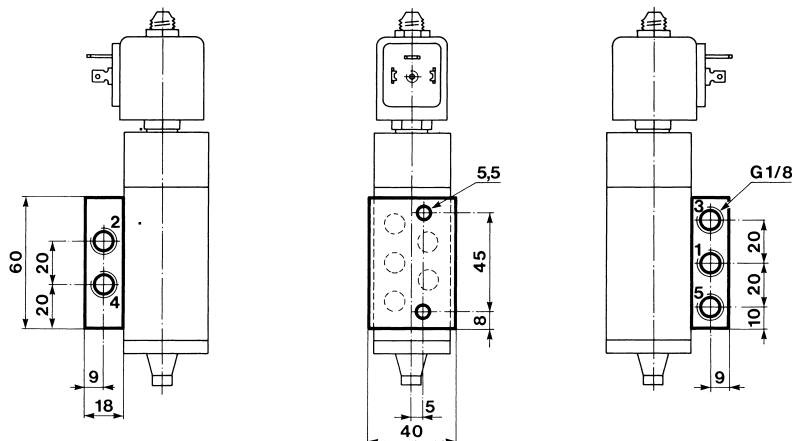
Dimension reference 89

Dimension reference 90

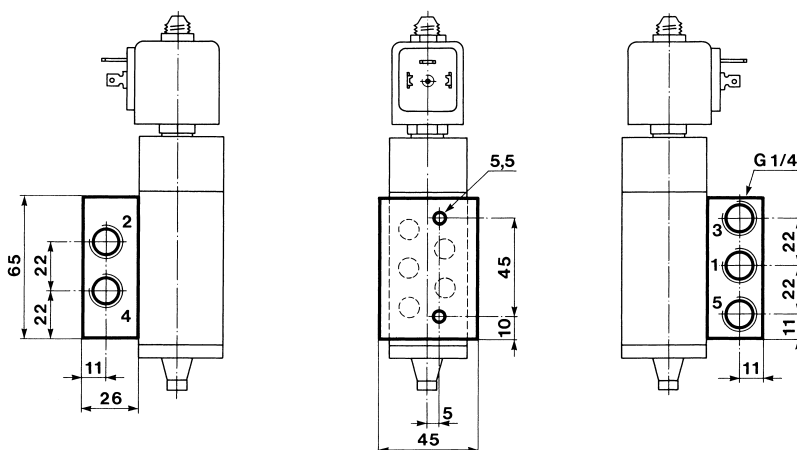
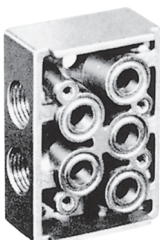
4-way pneumatic valves for pipe connection/sub-base mounting

Manifold blocks for

- E 341 L 01
- E 341 L 02
- 345 L 01
- 541 L 01



No. 486867, G 1/8



No. 486866, G 1/4

Installation information:

Each valve is supplied with four mounting screws and a preformed seal in the valve body.

For modular assembly:

Uniform alloy modular elements
 No. 486870, G 1/8
 No. 486869, G 1/4

For single valves:

Uniform alloy sub-bases
 No. 486867, G 1/8
 No. 486866, G 1/4

Plugs:

No. 484285, G 1/8
 No. 484083, G 1/4
 No. 484174, G 1/2

Separating gasket:

No. 488252
 A complete sealing gasket, made from synthetic rubber, can be inserted between two modular elements to separate a modular valve assembly into two independent control systems.

End plates:

Made from alloy these close off the modular elements.
 No. 487816, G 1/4
 No. 487734, G 1/2

Assembly kit:

No. 487744 containing
 2 mounting clamps
 1 preformed seal

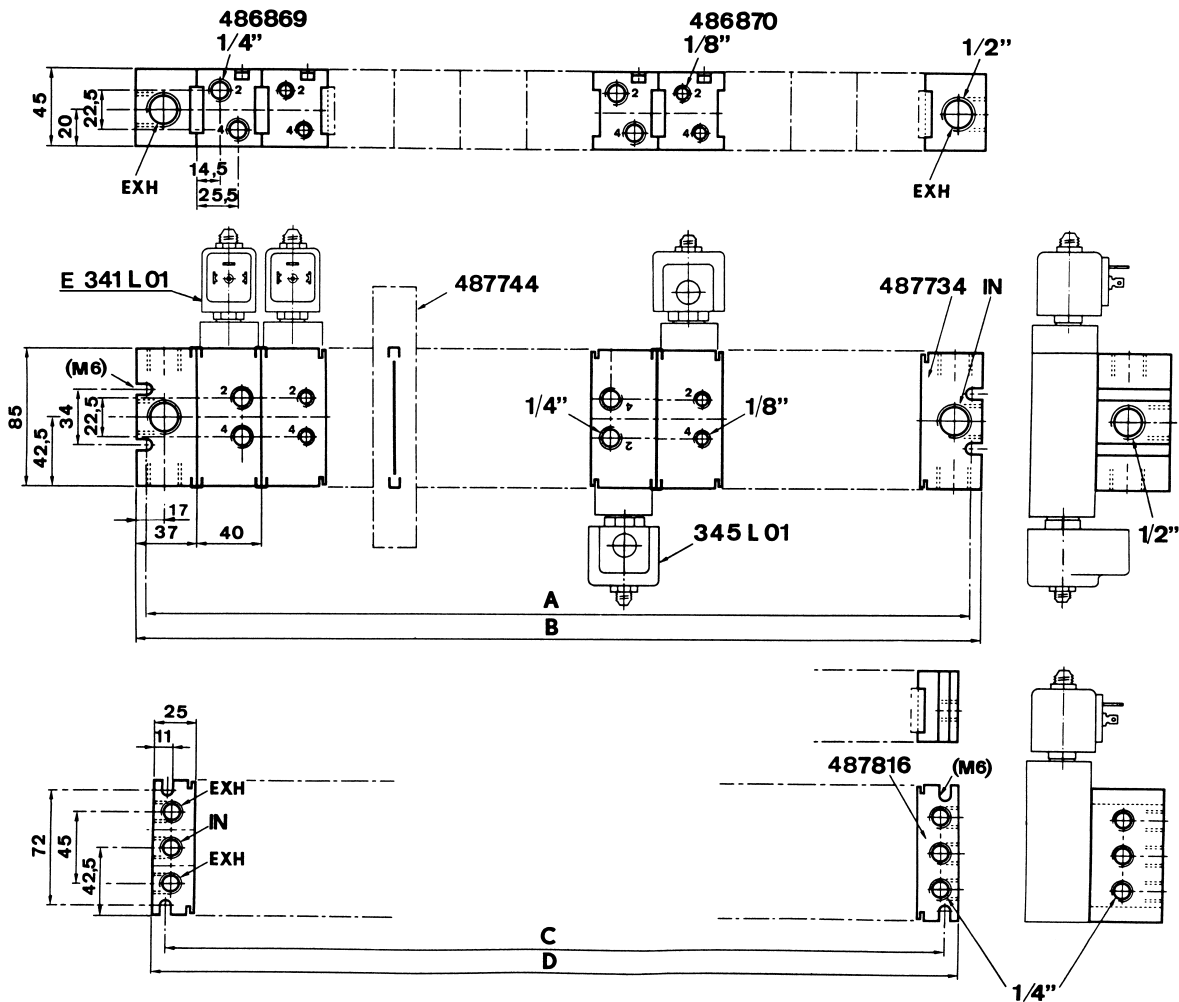
Ordering example:

4 solenoid valves E 341 L 01
 482995, 481865, 220/50
 4 modular elements
 No. 486870, G 1/8
 2 end plates No. 487816, G 1/4
 5 assembly kits (4 + 1)
 No. 487744.

4-way pneumatic valves for pipe connection/sub-base mounting

Modular Assembly

Accessories		Ref. No.	Weight		
Modular elements		486870	205 g		
End plates		487816	160 g		
Assembly kit		487744	155 g		
Separating gasket		488252	16 g		
Plugs		484285	4 g		
		484083	6 g		
		484174	15 g		
Quantity of valves by assembly	Dimensions				Quantity assembly kits
	A	B	C	D	
1	102	114	74	90	2
2	142	154	114	130	3
3	182	194	154	170	4
4	222	234	194	210	5
...n	62+40n	74+40n	34+40n	50+40n	n + 1



All valves models E 341 L 01, E 341 L 02, 345 L 01 and 541 L 01 can be manifold mounted on the same base.

Electrical parts options with 4/2, 5/2 pneumatic valves

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	492453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
	50 mm (Std)	IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50
		IP10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP10 / IP 44	Class H	14 W	14 W	EZ92	486265	screw-terminals	E0	4270	-40	50
		IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65
		IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40
3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-40	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-40	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-40	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-40	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-40	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

Solenoid valves for actuator control

ACTUATION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	1/8	1.2 to 1.5	10.0	226
	1/4	1.5 to 5.0	16.0	226
Pilot operated	1/8	4.0	10.0	238/248
	1/4	8.0	10.0	244/250/254
Pilot operated - Integrated pilot	1/8	4.0	10.0	238
	1/4	8.0	10.0	242
Impulse coil	1/8	4.0	10.0	242
Two solenoids and main pressure supply	1/8	4.0	10.0	240/254
	1/4	8.0	10.0	246/252
Two solenoids and main pressure supply - Integrated pilot	1/8	4.0	10.0	240
	1/4	8.0	10.0	246
Pilot operated with external pressure supply	1/8	4.0	10.0	242
External pressure supply	1/8	4.0	10.0	244

Notes:

Solenoid valves for actuator control

3/2

Applications

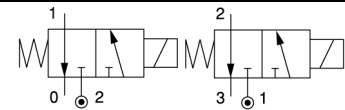
3-way directional valves for control of single acting pneumatic actuators.



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max		Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn		DC	AC	Min	Max										

Brass body/Pipe mounting

Direct operated



E, K, V Series T, M Series

1/8	1.2	50	0	10	10	-10	75	FKM	-	131M15	8993	488980	2.5	2	150	1	14
	(1.5)	(70)	0	10	10	-10	75	FKM		8993	488980	2.5	2	150	1	14	
	1.5	70	0	7	7	-10	75	FKM	-	131M14	8993	488980	2.5	2	150	1	14
1/4	1	38	0	10	-	-10	75	FKM	7131KBG2CV90	131K0490	-	483580.01 ¹	0.4	-	285	7	77
	1.5	80	0	7	-	-10	75	FKM	7131KBG2GVL5	131K0480	2995	482740	1.6	-	310	6	17
	1.5	80	0	15	15	-10	100	FKM	7131KBG2GVM0	E131K0450 ²	2995	481865	9	8	310	2	17
	1.5	80	0	15	15	-10	120	FKM			4270	481000	8	8	430	2	
	1.5	80	0	15	15	-10	100	FKM	7131KBG2GV00	E131K04	2995	481865	9	8	310	2	17
	1.5	80	0	15	15	-10	120	FKM			4270	481000	8	8	430	2	
	2	140	0	10	10	-10	100	FKM	7131KBG2JVM0	E131K0650 ²	2995	481865	9	8	310	2	17
	(2.5)	(220)	0	10	10	-10	100	FKM			2995	481865	9	8	310	2	
	2	140	0	10	10	-10	120	FKM			4270	481000	8	8	430	2	
	(2.5)	(220)	0	10	10	-10	120	FKM			4270	481000	8	8	430	2	
	2	140	0	10	10	-10	100	FKM	7131KBG2JV00	E131K06	2995	481865	9	8	310	2	17
	(2.5)	(220)	0	10	10	-10	100	FKM			2995	481865	9	8	310	2	
2	140	0	10	10	-10	120	FKM			4270	481000	8	8	430	2		
(2.5)	(220)	0	10	10	-10	120	FKM			4270	481000	8	8	430	2		

Table continued on page 228

Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

2. Manual override standard

Values shown within brackets are valid for exhaust port only.

Solenoid valves for actuator control - 3/2 valves - Pipe connection

M5x5mm

58

30

14

8.5

2

1

22

M5

3

11

17

DIN 43650 B

20

G 1/8

20

Dimension reference 14

M5 x 6mm

15

44

37

12

22

41

32

19.5

24

G1/8

38

8

19

18

31

40

11.5

33

20

85

1

2

481865

488698

488647

481000

486265

485400

484990

DIN 43650A

G

Dimension reference 17

M5 x 5mm

15

50

93

40

29.5

11.5

1

2

40

G 1/8

65

2x1mm²

19

G 1/4

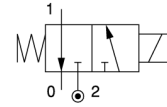
Dimension reference 77

Solenoid valves for actuator control - 3/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.	
			Min	Max		Min	Max		Global valve reference	Valve reference no.		Housing	Coil	DC				AC
				DC	AC													

Brass body/Pipe mounting

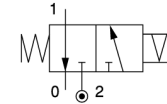
Direct operated



1/4	2	140	0	10	10	-40	80	PUR	7131KBG2JP1D	E131K06081D	1	-	483250	8	8	1255	5	3845	
	2.5	220	0	7	7	-10	100	FKM	7131KBG2LVM0	E131K0350	2	2995	481865	9	8	310	2	17	
	2.5	220	0	7	7	-10	120	FKM				4270	481000	8	8	430	2		
	2.5	220	0.1	7	7	-10	75	NBR	7131EBG2LN00	E131E03		2995	481865	9	8	650	2	19	
	(6)	(1100)	0.1	7	7	-10	75	NBR				2995	481865	9	8	650	2		
	2.5	220	0.1	7	7	-10	75	NBR				4270	481000	8	8	770	2		
	(6)	(1100)	0.1	7	7	-10	75	NBR				4270	481000	8	8	770	2		
	2.5	220	0	7	7	-10	80	NBR	7131KBG2LV1D	E131K03001D		-	483250	8	8	1255	5	3845	
	2.5	220	0	7	7	-40	75	PUR	7131KBG2LP1D	E131K03081D	1	-	483250	8	8	1255	5	3845	
	2.5	220	0	7	7	-40	75	PUR	7131KBG2LP00	E131K0308	1	2995	481865	9	8	180	2	17	
	2.5	220	0	7	7	-40	75	PUR				4270	481000	8	8	180	2		
	2.5	220	0	7	7	-40	75	PUR	7131KBG2LPM0	E131K0358	2	2995	481865	1	9	8	180	2	17
	2.5	220	0	7	7	-40	75	PUR				4270	481000	1	8	8	180	2	

Brass body/Pipe mounting

Direct operated



1/4	1.5	80	0	-	16	-10	100	FKM	7135KBG2GV00	135K04		4269	484990	-	11	450	4	17
	1.5	80	0	16	-	-10	100	FKM				4269	485400	13	-	450	4	
	2.5	220	0	-	7	-10	100	FKM	7135KBG2LV00	135K03		4269	484990	-	11	450	4	17
	2.5	220	0	7	-	-10	100	FKM				4269	485400	13	-	450	4	

Table continued on page 230

Notes:

- * See Electrical Parts Group table at end of section
 - 1. Operates with low temperatures down to -40 deg. C
 - 2. Manual override standard
- Values shown within brackets are valid for exhaust port only.

Solenoid valves for actuator control - 3/2 valves - Pipe connection

Technical drawing showing dimensions and part numbers for a 3/2 solenoid valve with pipe connection (Dimension reference 17). The drawing includes a top view, a side view, and a front view. Key dimensions include: M5 x 6mm screw, 15mm height, 44mm width, 37mm height, 12mm offset, 32mm width, 85mm total height, 20mm offset, 33mm offset, 11.5mm offset, 40mm width, 19.5mm offset, 24mm offset, G1/8 connection, DIN 43650A standard, 481000, 486265, 485400, 484990, 481865, 488698, 488647, 19mm offset, 18mm offset, 31mm width, and 8mm offset. A 3D model of the valve is shown to the right.

Dimension reference 17

Technical drawing showing dimensions and part numbers for a 3/2 solenoid valve with pipe connection (Dimension reference 19). The drawing includes a top view, a side view, and a front view. Key dimensions include: 60.5mm width, 6.5mm offset, 50mm width, 34mm offset, 19mm offset, 50mm height, 34mm offset, M6x8mm screw, 2mm offset, 44mm width, 37mm height, 12mm offset, 32mm width, 82mm total height, 31.5mm offset, 25mm offset, 13mm offset, 38mm width, G1/4 connection, 22mm offset, 41mm offset, 19.5mm offset, 24mm offset, G1/8 connection, DIN 43650A standard, 481000, 481865, 38mm offset, 3mm offset, 38mm width, 19mm offset, 13mm offset, and 2mm offset. A 3D model of the valve is shown to the right.

Dimension reference 19

Technical drawing showing dimensions and part numbers for a 3/2 solenoid valve with pipe connection (Dimension reference 3845). The drawing includes a top view, a side view, and a front view. Key dimensions include: (2x) M5x6 screws, 15mm height, 40mm width, 59mm height, 11.5mm offset, 23mm offset, 483250 H208 part number, G1/8" connection, G1/4" connection, 19mm offset, 14mm offset, and 13mm offset. A 3D model of the valve is shown to the right.

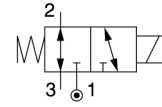
Dimension reference 3845

Solenoid valves for actuator control - 3/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	DC	Max	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn															

Anod. aluminium body/Pipe mounting

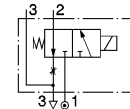
Direct operated



1/4	5	680	0	10	-	-25	65	NBR	-	133X01	1	-	492965.01	2	0.8	-	860	9	83
	5	680	0	10	10	-25	65	NBR	-		-	-	492300	2	6	6	860	9	

Anod. aluminium body/NAMUR interface

Direct operated

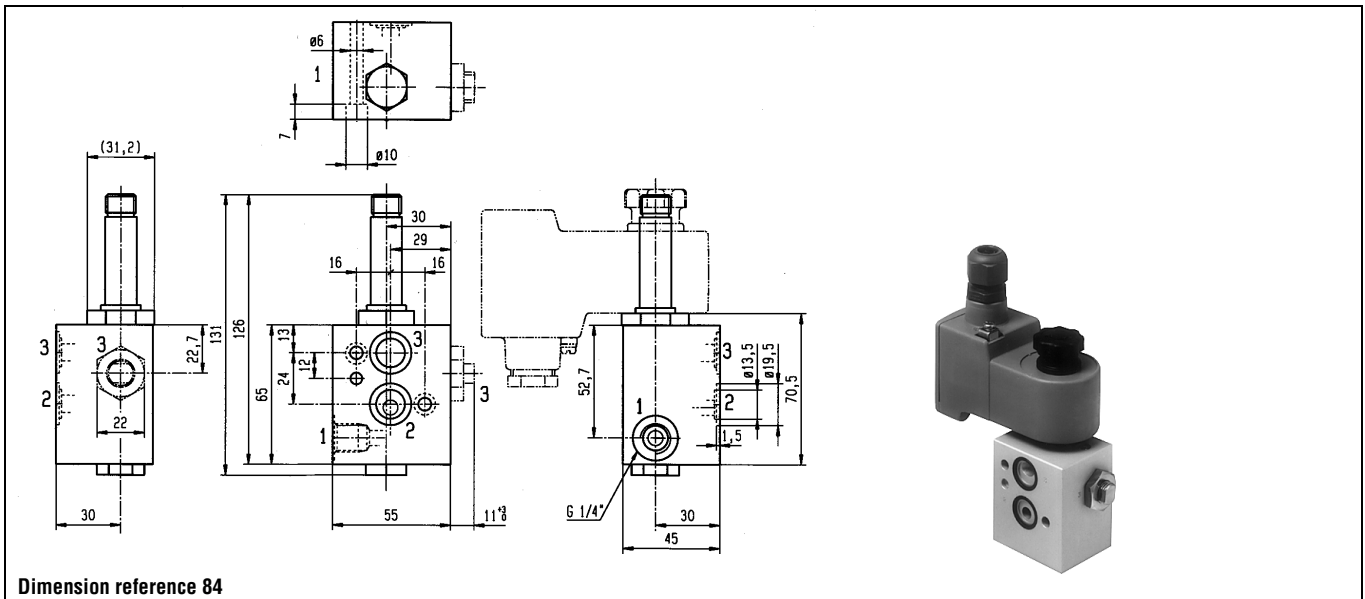
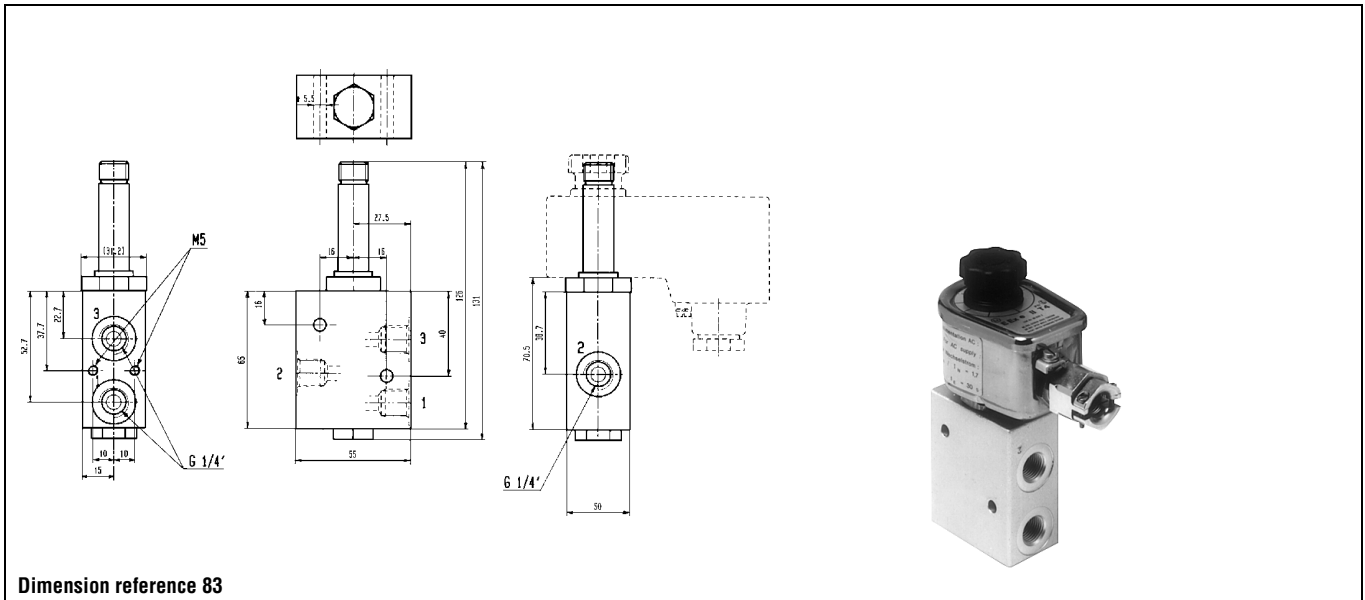


1/4	5	680	0	10	10	-25	75	NBR	7131XAKLVN00	131X1101	-	492300	2	6	6	1000	9	84
	5	680	0	10	-	-25	75	NBR	-		-	483330.01	2	0.85	-	1000	9	

Notes:

- * See Electrical Parts Group table at end of section
- 1. Optional manual override available on request - add suffix 50 to the basic reference number
- 2. This reference no. is for the complete electrical part (coil + housing)

Solenoid valves for actuator control - 3/2 valves - Pipe connection



NOTES

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Solenoid valves for actuator control

5/2

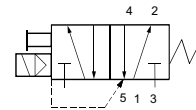
Applications

3- or 4-way directional valves for control of single or double acting pneumatic actuators.



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar		Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	OR	DC			
G		Qn														

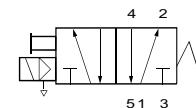
Pilot operated - Integrated pilot



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	600	2	10	10	-25	80	NBR	2341PAG1JNM0	341P01	1	8993	488980	2.5	2	310	1	201
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Pilot operated



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	600	2	10	10	-25	80	NBR	7341PAG1JNM0	341P21		2995	481865	9	8	360	2	202
	4	600	2	10	10	-25	80	NBR				4270	481000	8	8	470	2	
	4	600	2	10	10	-40	65	NBR	7341PAG1JPM0	341P2108	2	2995	481865	9	8	360	2	202
	4	600	2	10	10	-40	65	NBR				4270	481000	8	8	470	2	
	4	600	2	10	-	-25	80	NBR	7341PAG1JNL2	341P2180		2995	482740	1.6	-	470	6	202
	4	600	2	10	-	-25	80	NBR	7341PAG1JN90	341P2190		-	483580.01	3	0.4	-	470	7

Table continued on page 240

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Operates with low temperatures down to -40 deg. C
- 3. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Dimension reference 201

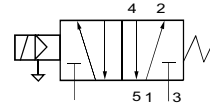
Dimension reference 202

Dimension reference 7351

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

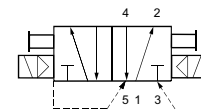
Pilot operated



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	600	2	10	10	-25	65	NBR	7341PAG1JN1D	341P21001D	-	483250	8	8	1450	5	7636
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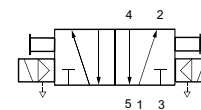
Two solenoids and main pressure supply - Integrated pilot



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	400	2	10	10	-25	80	NBR	2347PAG1HNM0	347P01	8993	488980	1	2.5	2	460	1	207
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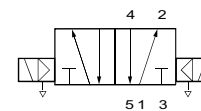
Two solenoids and main pressure supply



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	400	2	10	10	-25	80	NBR	7347PAG1HNM0	347P21	2995	481865	1	9	8	500	2	206
	4	400	2	10	10	-25	80	NBR			4270	481000	1	8	8	720	2	206

Two solenoids and main pressure supply



Anod. aluminium body/Pipe mounting - Spool design

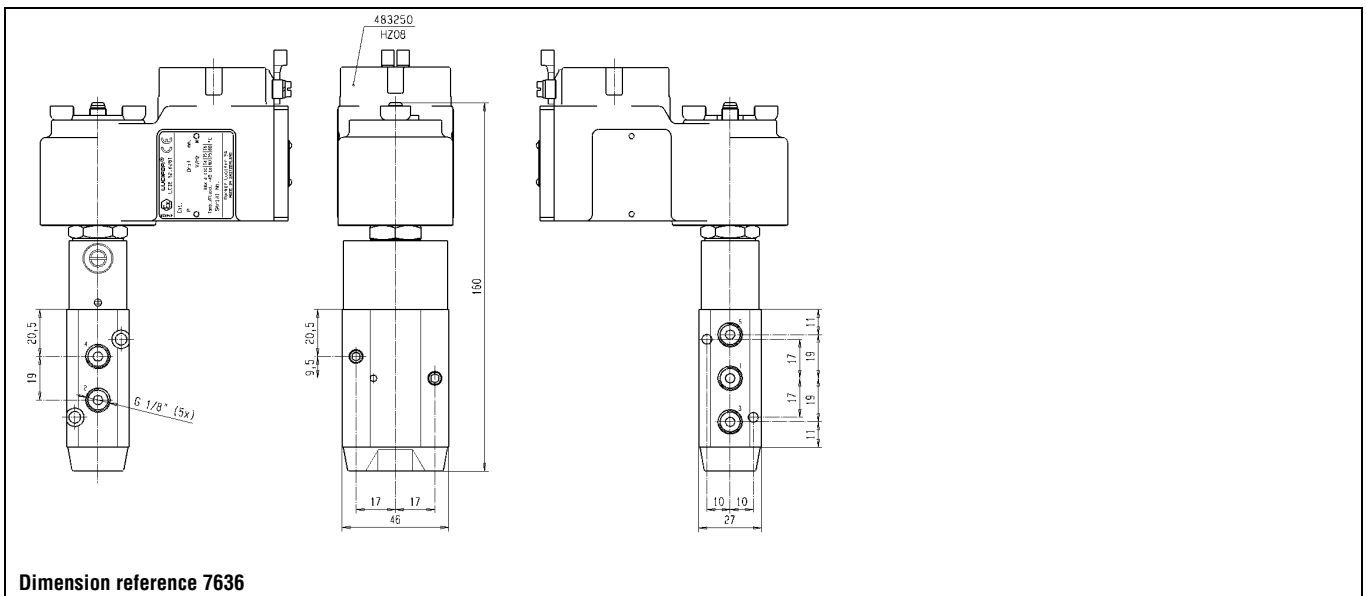
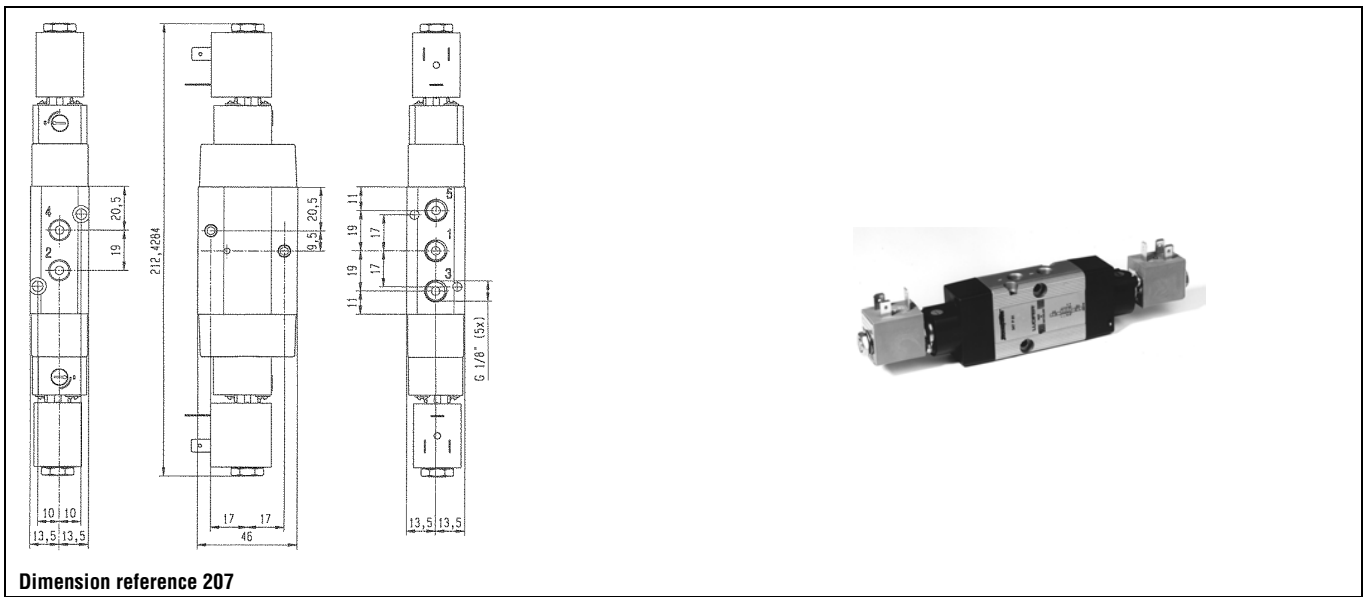
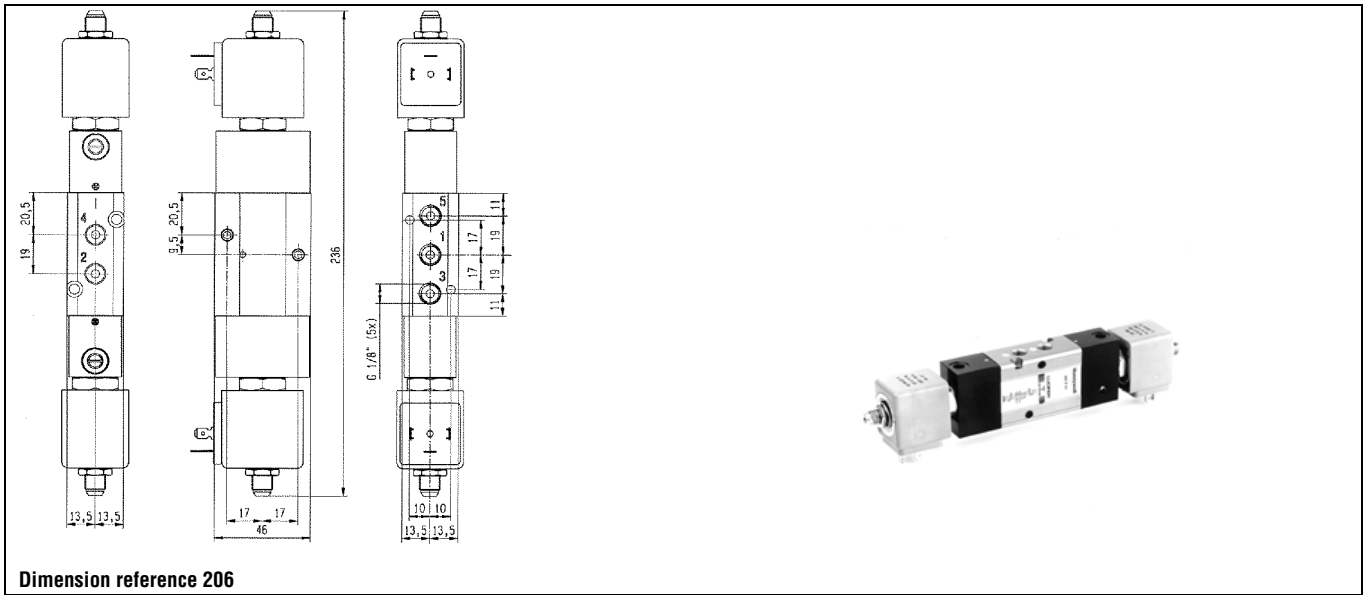
1/8	4	400	2	10	-	-25	80	NBR	7347PAG1HN90	347P2190	-	483580.01	2	0.4	-	720	7	206
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Table continued on page 242

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve
- 2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

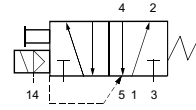
Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

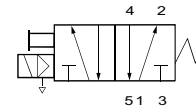
Pilot operated with external pressure supply



Anod. aluminium body/Pipe mounting - Spool design

1/8	4	600	2	10	10	-40	65	NBR	7441PAG1JPM0	441P2108	1	2995	481865	9	8	360	2	204
	4	600	2	10	10	-40	65	NBR				4270	481000	8	8	470	2	

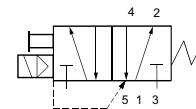
Impulse coil



Anod. aluminium body/NAMUR interface - Spool design

1/8	4	600	2	-	10	-25	80	NBR	7345PAG1JNM0	345P21	-	-	484990	-	11	330	4	202
	4	600	2	10	-	-25	80	NBR			-	485400	13	-	330	4	4	

Pilot operated - Integrated pilot



Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	2341PAG2HNM0	341P02		8993	488980	2.5	2	380	1	224
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Table continued on page 244

Notes:

- * See Electrical Parts Group table at end of section
- 1. Operates with low temperatures down to -40 deg. C

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Technical drawings for dimension reference 202. The drawings show front, side, and top views of the valve. Dimensions include: front view (width 13,5, 13,5; height 19, 20,5; port diameters 4, 2); side view (total height 158,5; width 17, 17; base width 46; mounting hole offset 9,5, 20,5); top view (port diameters 5, 1, 3; center-to-center distances 10, 10; mounting hole offset 13,5, 13,5; base width 27; G 1/8" (5x) connection). A photograph of the valve is shown to the right.

Dimension reference 202

Technical drawings for dimension reference 204. The drawings show front, side, and top views of the valve. Dimensions include: front view (width 13,5, 13,5; height 19, 20,5; port diameters 4, 2; M5x1 mounting hole); side view (total height 146,7; width 17, 17; base width 46; mounting hole offset 9,5, 20,5); top view (port diameters 5, 1, 3; center-to-center distances 10, 10; mounting hole offset 13,5, 13,5; base width 27; G 1/8" (5x) connection). A photograph of the valve is shown to the right.

Dimension reference 204

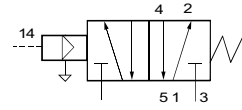
Technical drawings for dimension reference 224. The drawings show front, side, and top views of the valve. Dimensions include: front view (width 17,5, 17,5; height 47, 23, 35; port diameters 4, 2); side view (total height 160,6; width 42, 55; mounting hole offset 23, 33,9); top view (port diameters 5, 1, 3; center-to-center distances 11,2, 23,8, 23,8; mounting hole offset 17,5, 17,5; base width 11,2; G 1/8" (5x) connection). A photograph of the valve is shown to the right.

Dimension reference 224

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

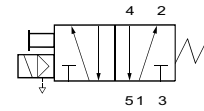
External pressure supply



Anod. aluminium body/NAMUR interface - Spool design

1/8	4	600	2	10	10	-40	65	PUR	7541PAG1JP00	541P0108	1	-	-	-	-	270	-	205
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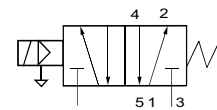
Pilot operated



Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	7341PAG2PNM0	341P22	2995	481865	9	8	450	2	218
	8	1400	2	10	10	-25	80	NBR			4270	481000	8	8	560	2	
	8	1400	2	10	-	-25	80	NBR	7341PAG2PNL2	341P2280	2995	482740	1.6	-	450	6	218
	8	1400	2	10	-	-25	80	NBR			-	491117	2.5	-	810	6	

Pilot operated



Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	-	-25	80	NBR	7341PAG2PN90	341P2290	-	483580.01	2	0.4	-	560	7	218
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Table continued on page 246

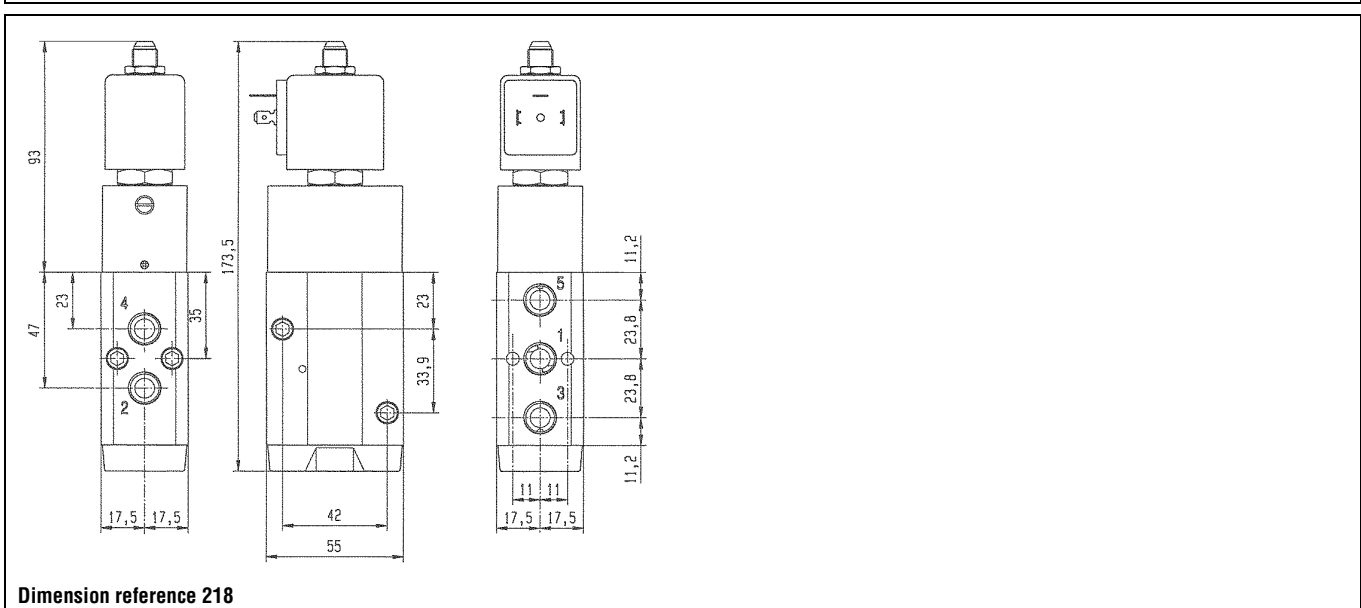
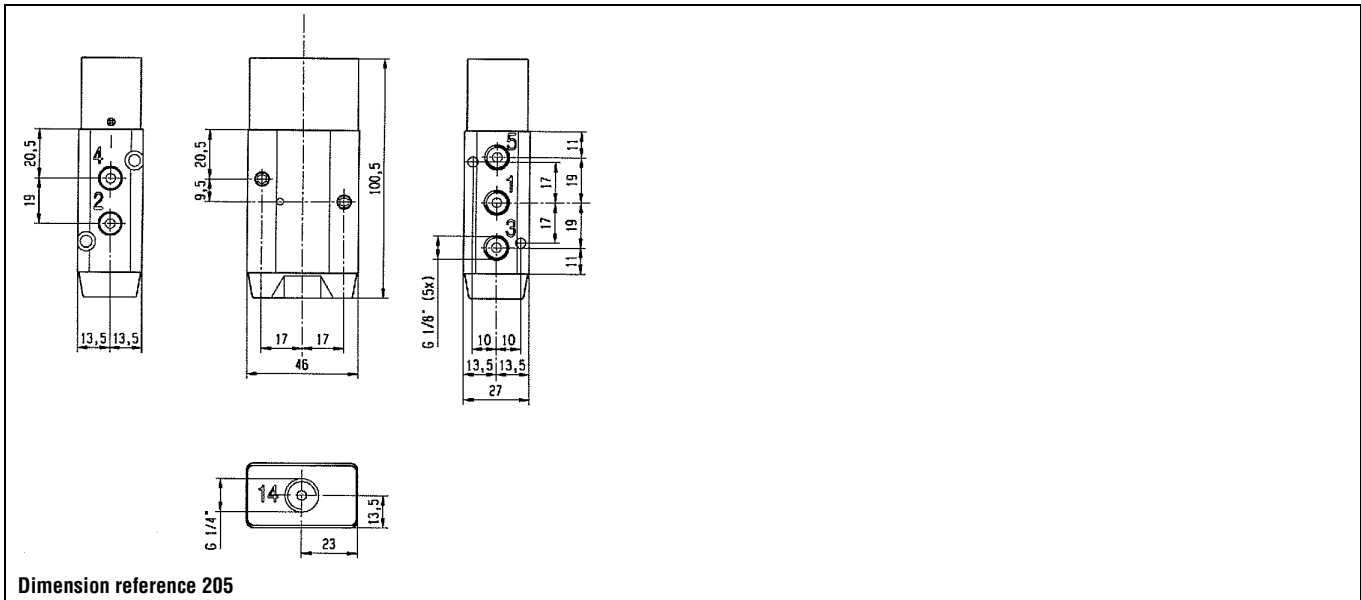
Notes:

* See Electrical Parts Group table at end of section

1. Operates with low temperatures down to -40 deg. C

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

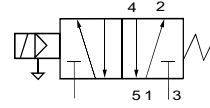
Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

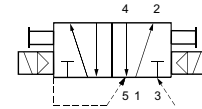
Pilot operated



Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	7341PAG2PN1D	341P22001D	-	483250	8	8	1450	5	7755
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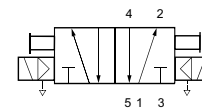
Two solenoids and main pressure supply - Integrated pilot



Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	2347PAG2PNM0	347P02	8993	488980	1	2.5	2	450	1	225
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Two solenoids and main pressure supply



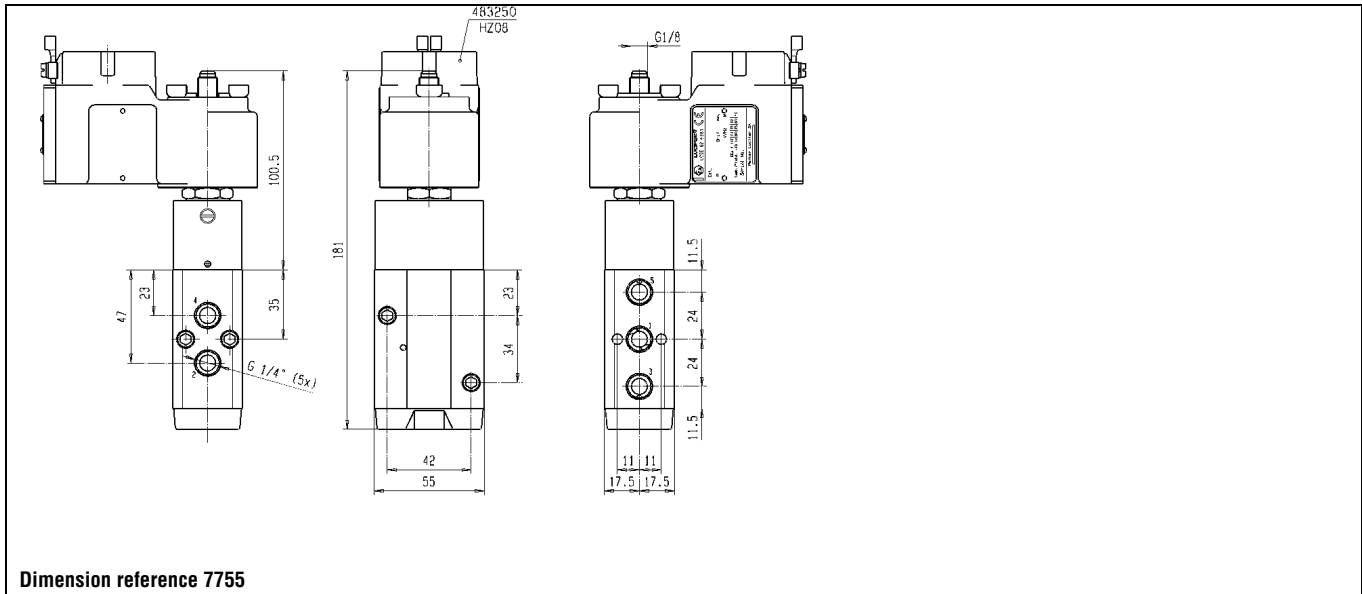
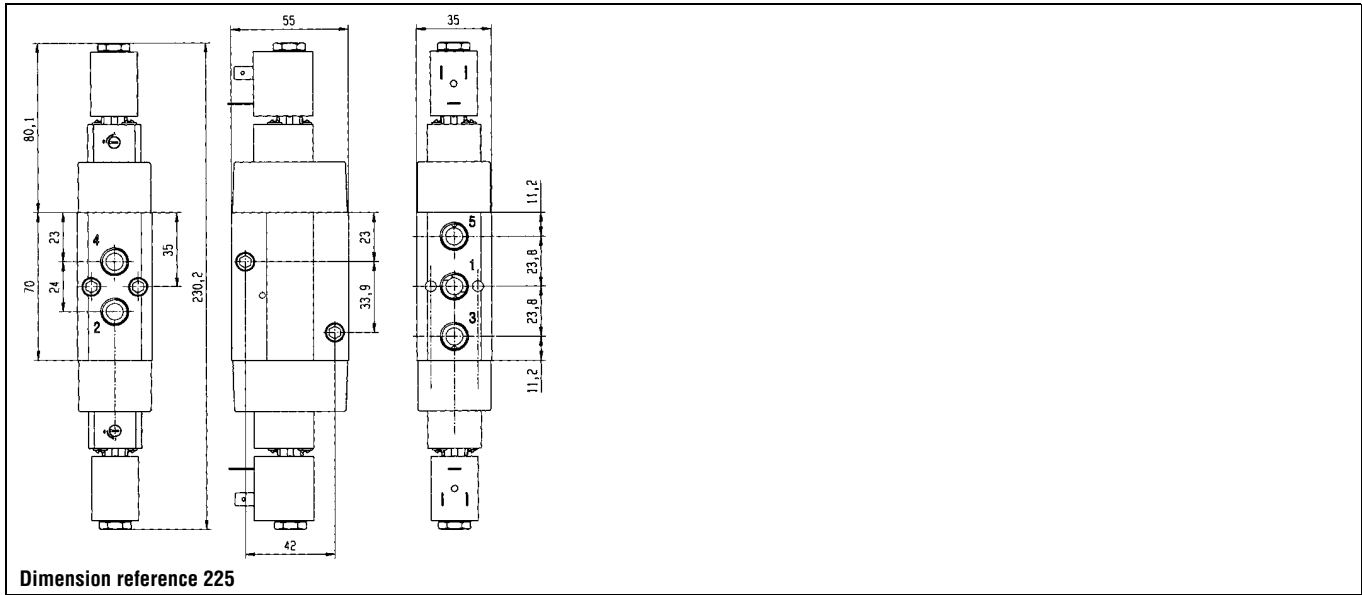
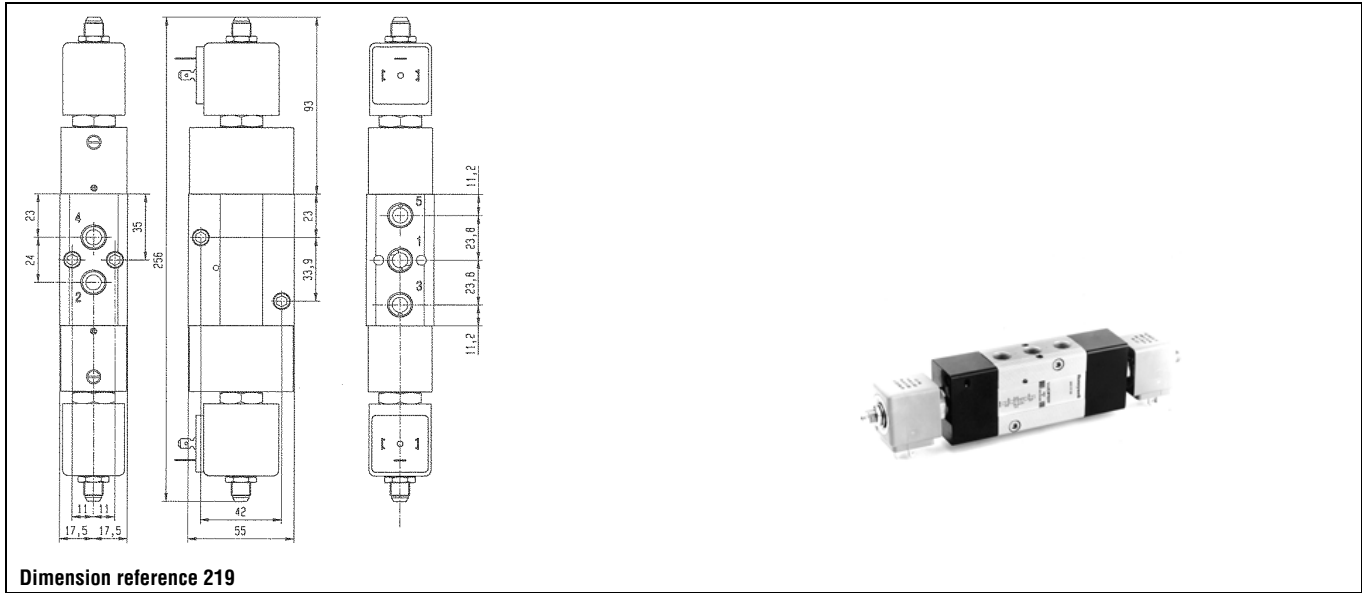
Anod. aluminium body/Pipe mounting - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	7347PAG2PNM0	347P22	2995	481865	1	9	8	590	2	219
	8	1400	2	10	10	-25	80	NBR			4270	481000	1	8	8	810	2	219

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Spool design



Solenoid valves for actuator control

5/2

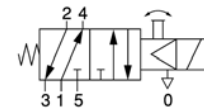
Applications

3- or 4-way directional valves for control of single - or double acting pneumatic actuators.



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max		Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn		DC	AC												

Pilot operated



Aluminium alloy and brass body/Pipe mounting - Poppet design

1/8	4	400	1	10	10	-10	75	NBR	-	341L9101	8993	488980	2.5	2	270	1	42
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Table continued on page 250

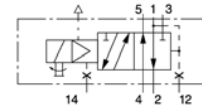
Notes:

* See Electrical Parts Group table at end of section

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max		Min	Max		Global valve reference	Valve reference no.		Housing	Coil	DC			
G		Qn		DC	AC	Min	Max										

Pilot operated



Die-cast zinc body/Pipe mounting - Poppet design

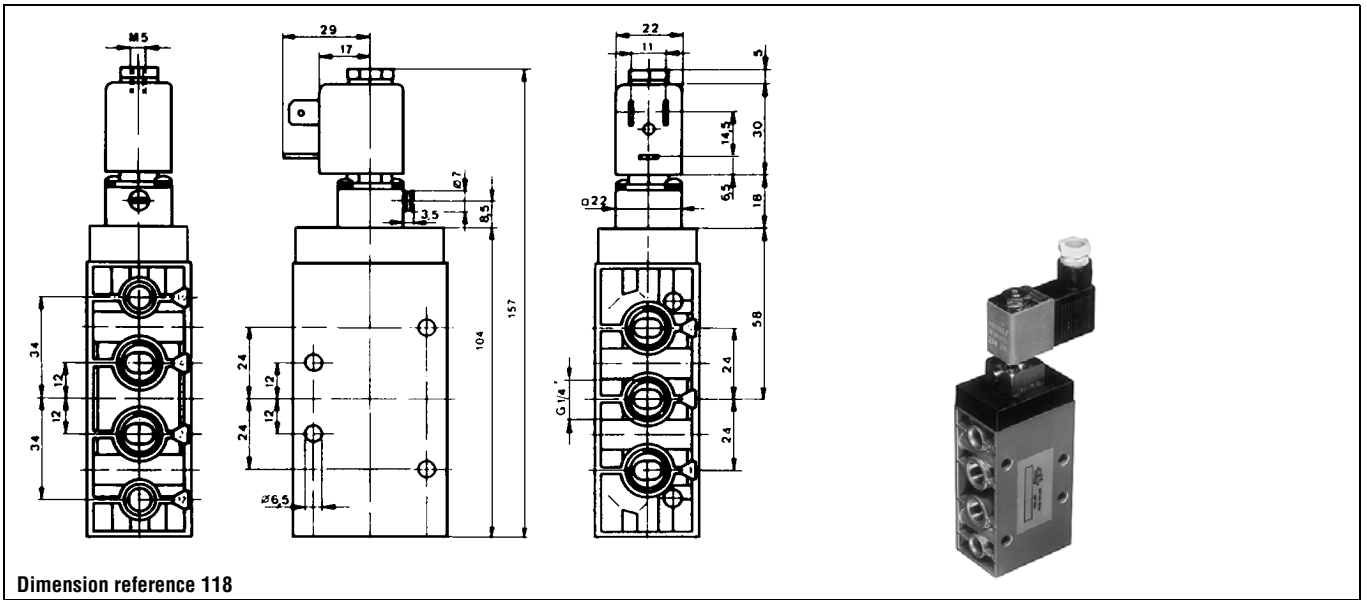
1/4	8	1400	1	10	10	-10	75	NBR	-	341L11	8993	488980	2.5	2	690	1	118
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Table continued on page 252

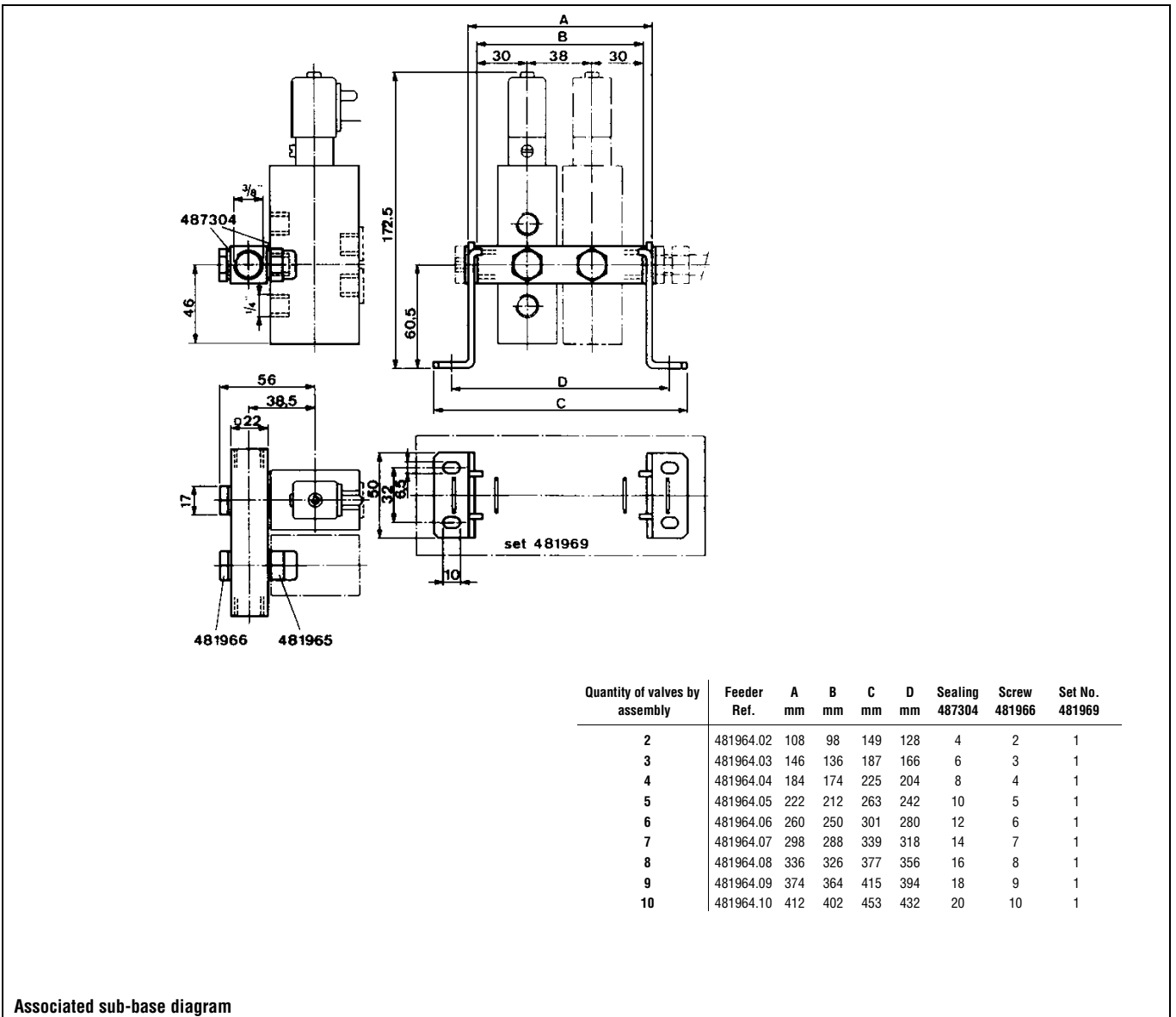
Notes:

* See Electrical Parts Group table at end of section

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design



Dimension reference 118

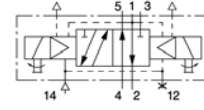


Associated sub-base diagram

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)	Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	AC	Global valve reference	Valve reference no.		Housing	Coil						
G		Qn		DC	AC	Min	Max					DC	AC			

Two solenoids and main pressure supply



Die-cast zinc body/Pipe mounting - Poppet design

1/4	8	1400	1	10	10	-10	75	NBR	-	347L11	8993	488980	1	2.5	2	750	1	46
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Table continued on page 254

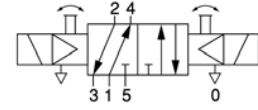
Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	AC	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn															

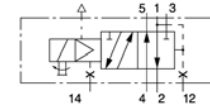
Two solenoids and main pressure supply



Aluminium alloy and brass body/Pipe mounting - Poppet design

1/8	4	315	2	10	10	-10	75	NBR	-	347L9101	8993	488980	1	2.5	2	430	1	117
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Pilot operated



Die-cast zinc body/Pipe mounting - Poppet design

1/4	8	1400	1	10	10	-10	75	NBR	7341LMG2NNM0	E341L1130	2995	481865	9	8	-	2	3539
	8	1400	1	10	10	-10	75	NBR	7341LMG2NNM0		4270	481000	8	8	-	2	3539
	8	1400	1	10	10	-10	75	NBR	-	341L1190	-	483580.01	2	0.4	-	7	7478

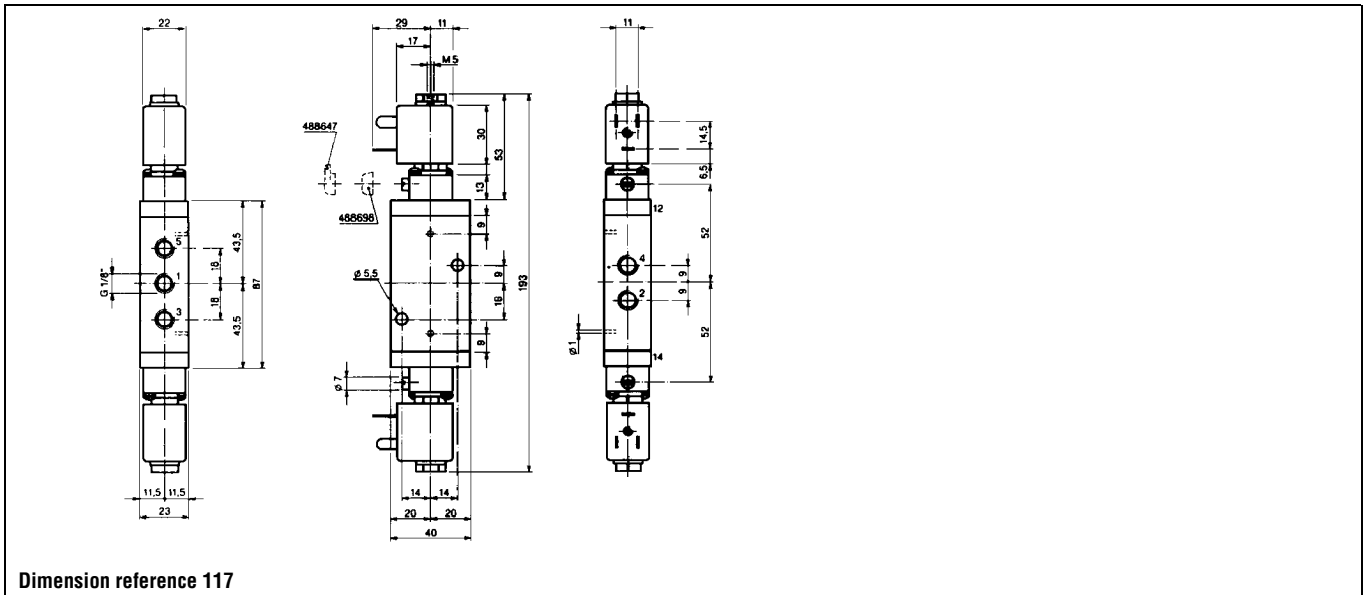
Notes:

* See Electrical Parts Group table at end of section

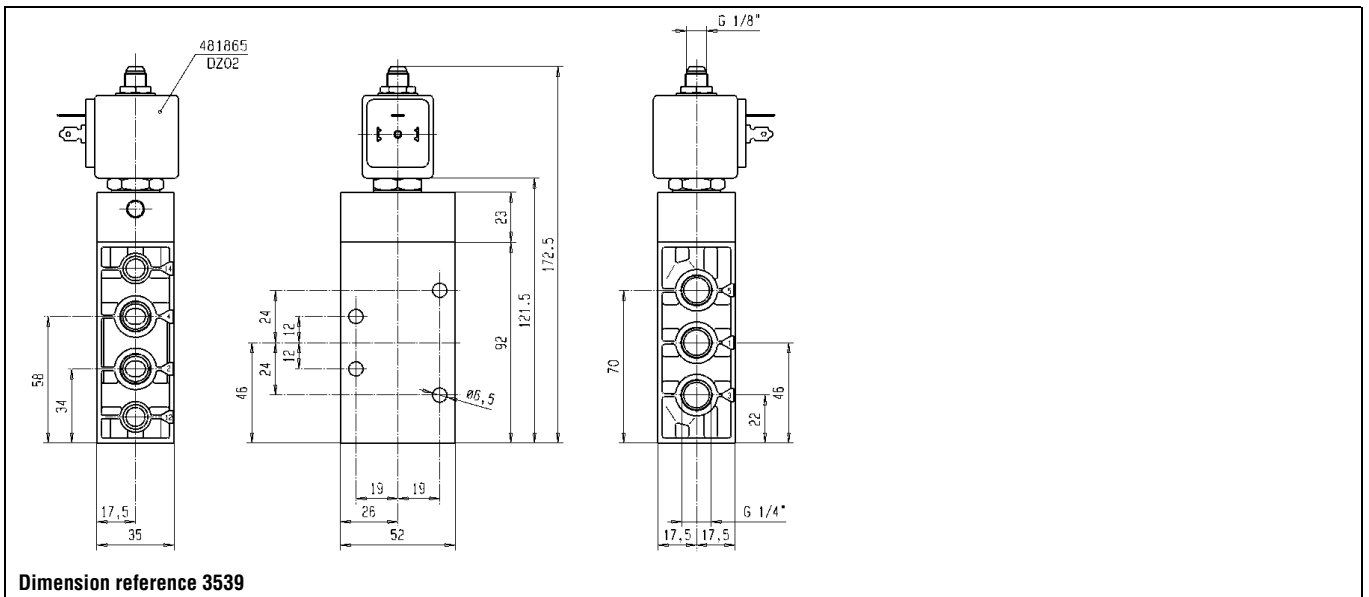
1. Please order two of these items per valve

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

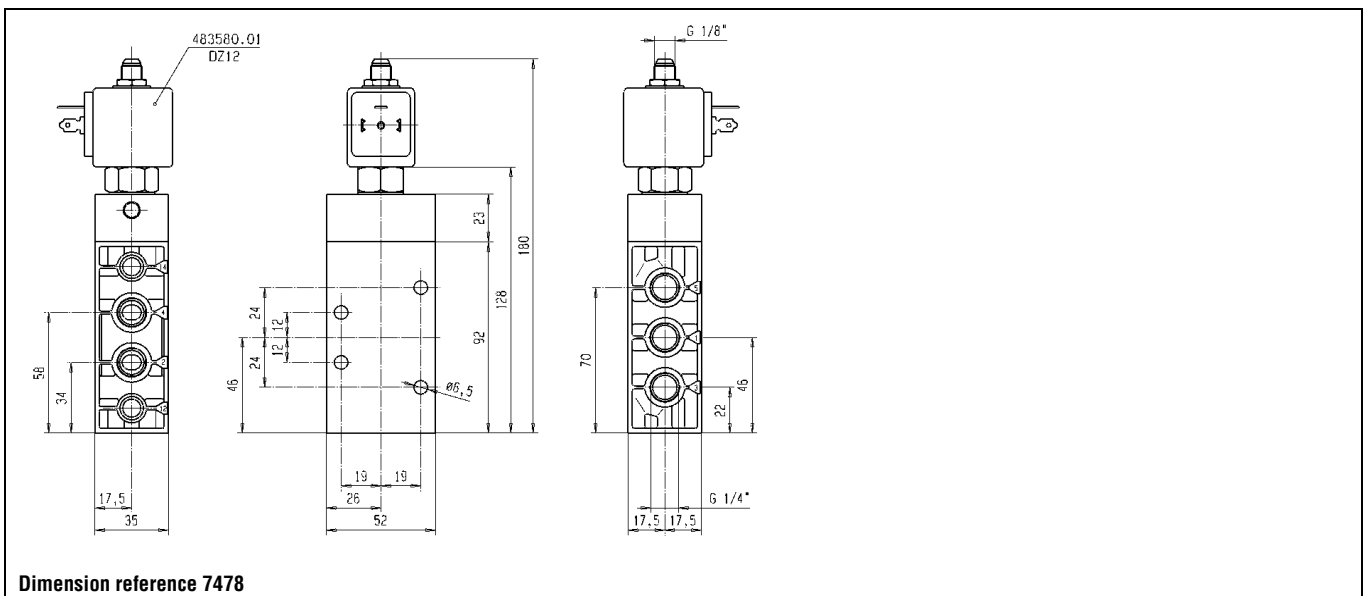
Solenoid valves for actuator control - 5/2 valves - Pipe connection-Poppet design



Dimension reference 117



Dimension reference 3539



Dimension reference 7478

Solenoid valves for actuator control – NAMUR interface

ACTUATION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR) <KPA>	PAGE
Pilot operated	1/4	8	10.0	264/266
	1/4 - 1/8	4	10.0	258/260/270
Pilot operated - Integrated pilot	1/4	8	10.0	264
	1/4 - 1/8	4	10.0	258
Two solenoids and main pressure supply	1/4	8	10.0	268
	1/4 - 1/8	4	10.0	262
Two solenoids and main pressure supply - Integrated pilot	1/4	8	10.0	268
	1/4 - 1/8	4	10.0	262
Solenoid and external pressure supply	1/4 - 1/8	4	10.0	260
External pressure supply	1/4 - 1/8	4	10.0	262

Notes:

Solenoid valves for actuator control

3/2 5/2

Applications

3- or 4-way directional valves for control of single - or double acting pneumatic actuators.

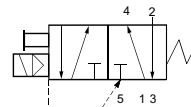
A patented sealing plate is incorporated to the body - providing on-site conversion of the valve from 5/2 to the 3/2 function (or vice versa) by simply rotating the plate through 180°. In the 3/2 function it provides venting of spring chambers to prevent corrosion which normally occurs when environmental air penetrates into the actuator.

The interface design corresponds to the German NAMUR standard and the VDI/VDE 3845 recommendations of the actuator industry and permits a compact design of the actuator/valve unit.



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar		Fluid temp. °C		Seat disc	Reference numbers			Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn													

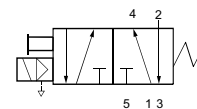
Pilot operated - Integrated pilot



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	2341NAKBJNM1	341N01	1	8993	488980	2.5	2	320	1	209
	4	600	2	10	10	-25	80	NBR	2341NAKBJNMO	341N11		8993	488980	2.5	2	320	1	208

Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7341NAKBJNM1	341N21		2995	481865	9	8	390	2	210
	4	600	2	10	10	-25	80	NBR				4270	481000	8	8	500	2	

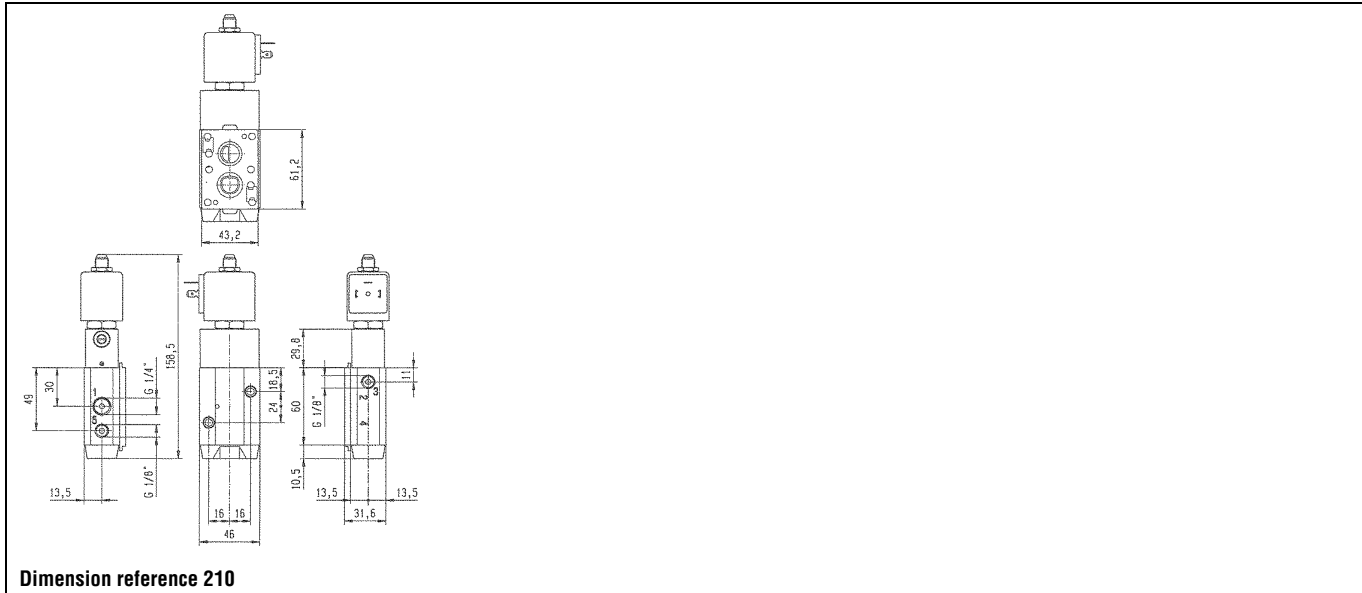
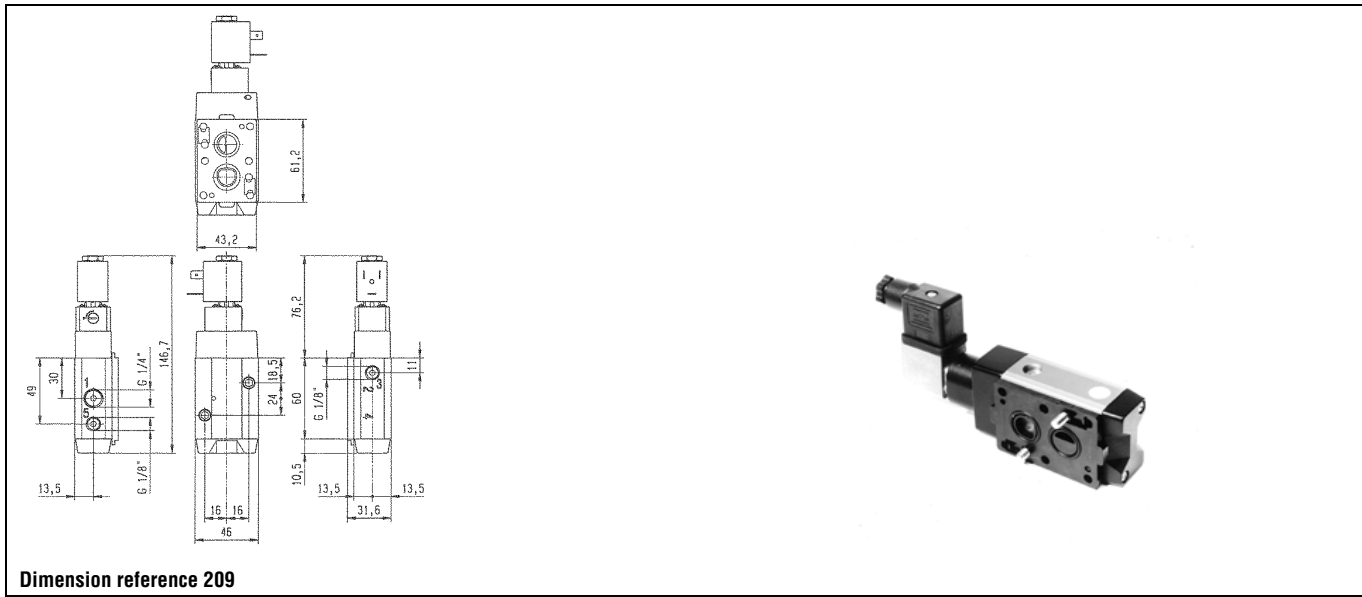
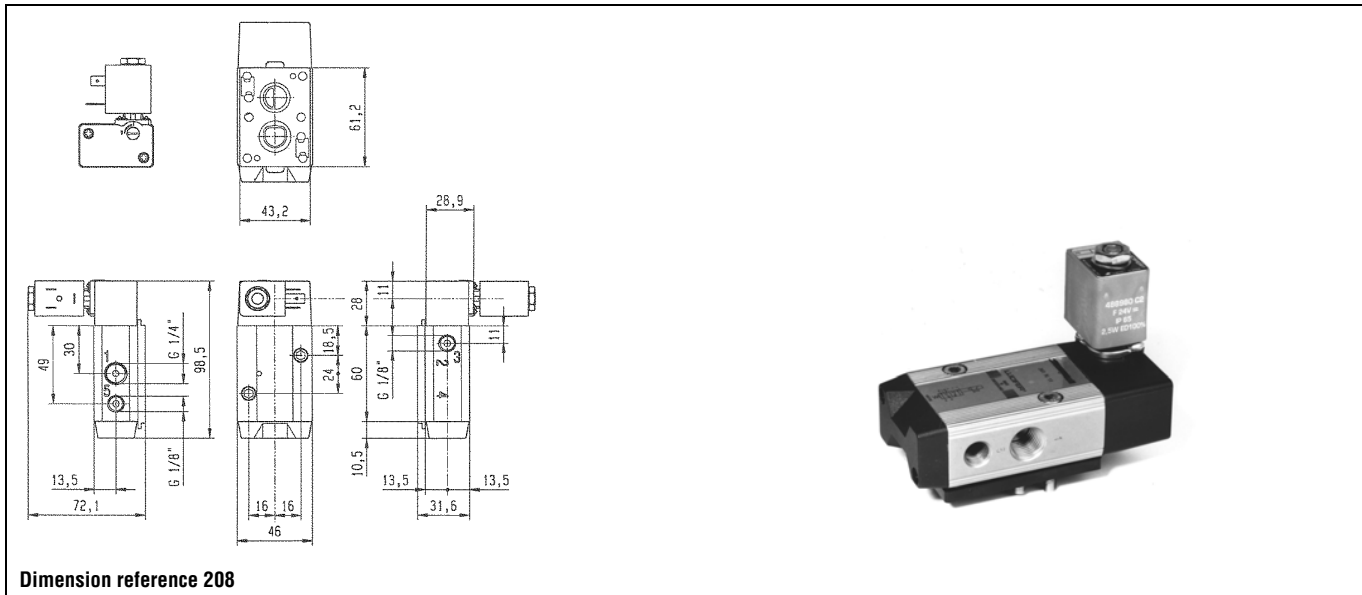
Table continued on page 260

Notes:

* See Electrical Parts Group table at end of section

1. Manual override standard

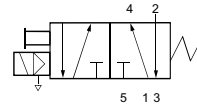
Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	AC	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn															

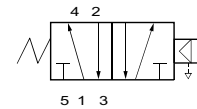
Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7341NAKBJNMO	341N31	2995	481865	9	8	510	2	211
	4	600	2	10	10	-25	80	NBR			4270	481000	8	8	620	2	
	4	600	2	10	10	-40	65	NBR	7341NAKBJPMO	341N3108	2995	481865	9	8	510	2	211
	4	600	2	10	10	-40	65	NBR			4270	481000	8	8	620	2	
	4	600	2	10	-	-25	80	NBR	7341NAKBJNL2	341N3180	2995	482740	1.6	-	510	6	211

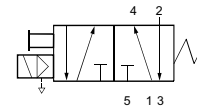
Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	400	2	10	10	-25	80	NBR	7341NAKBHN90	341N3190	-	483580.01	² 0.4	-	640	7	211
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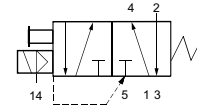
Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7341NAKBJN1D	341N31001D	-	483250	8	8	1520	5	7753
	4	600	2	10	10	-40	65	NBR	7341NAKBJP1D	341N31081D	-	483250	8	8	1520	5	7753

Solenoid and external pressure supply



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-40	65	NBR	7441NAKBJPMO	441N3108	¹ 2995	481865	9	8	510	2	211
	4	600	2	10	10	-40	65	NBR			4270	481000	8	8	620	2	

Table continued on page 262

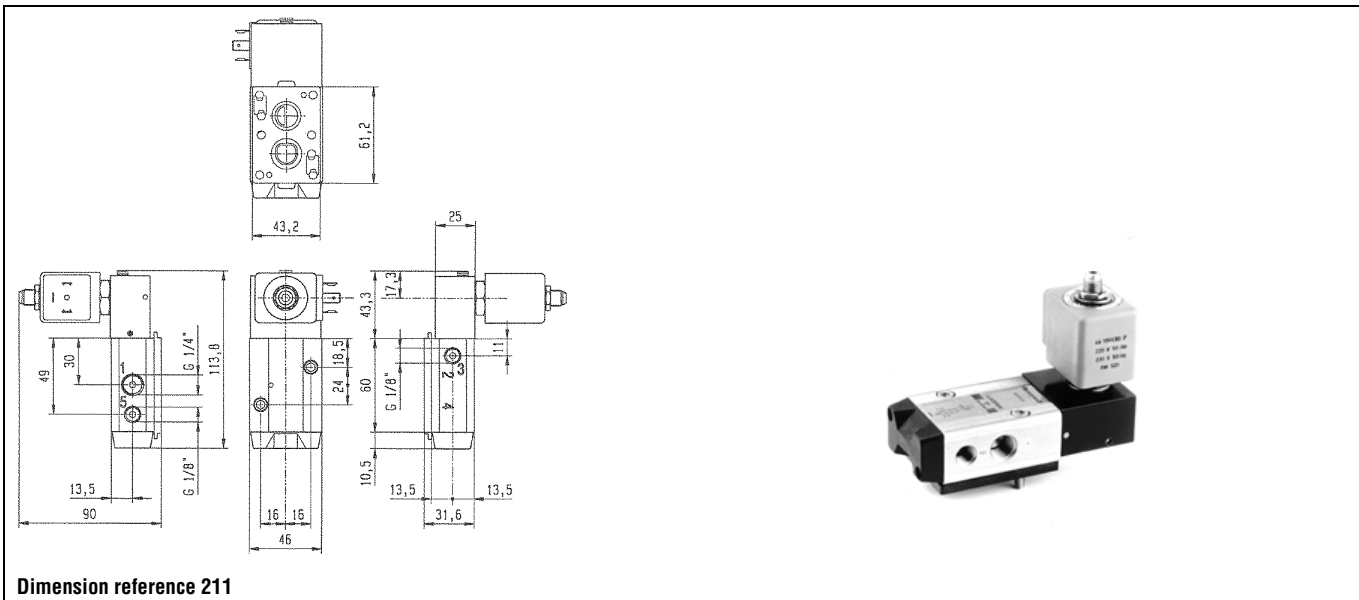
Notes:

* See Electrical Parts Group table at end of section

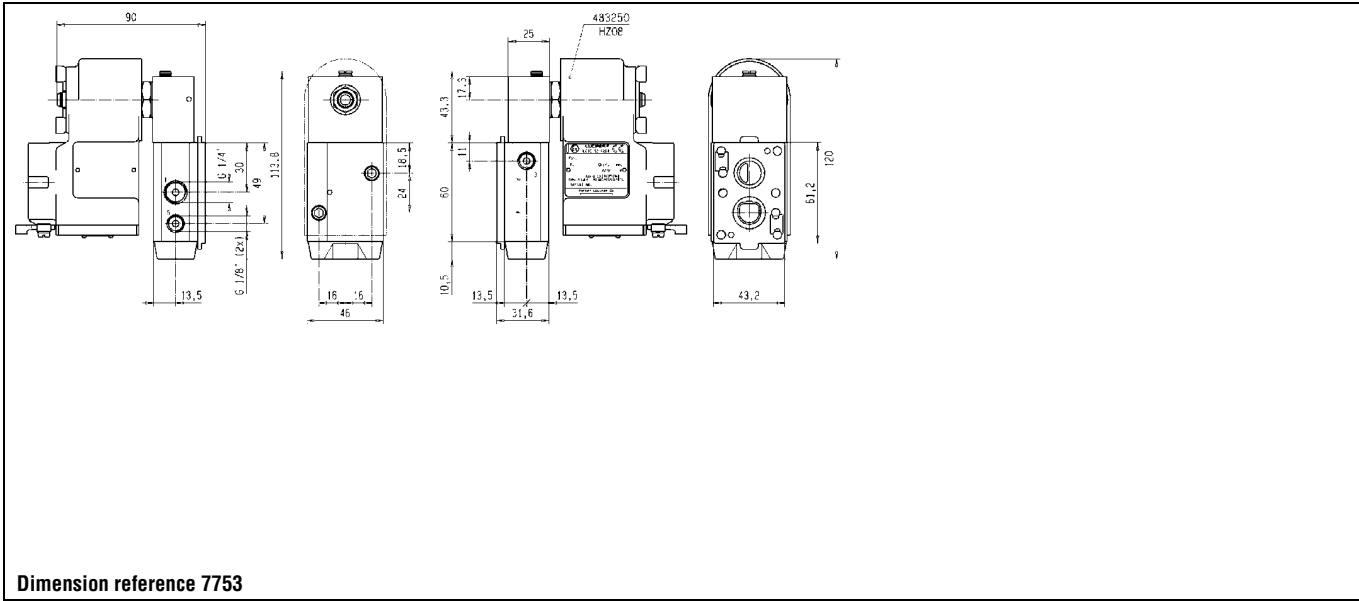
1. Operates with low temperatures down to -40 deg. C

2. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Dimension reference 211

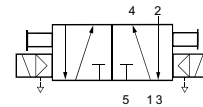


Dimension reference 7753

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Global valve reference		Valve reference no.	Housing	Coil	DC	AC				
G		Qn				Min	Max										

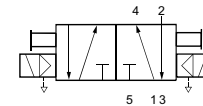
Two solenoids and main pressure supply - Integrated pilot



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	400	2	10	10	-25	80	NBR	2347NAKBHNM0	347N11	8993	488980	1	2.5	2	530	1	213
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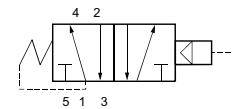
Two solenoids and main pressure supply



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	400	2	10	10	-25	80	NBR	7347NAKBHNM0	347N31	2995	481865	1	9	8	670	2	216
	4	400	2	10	10	-25	80	NBR			4270	481000	1	8	8	890	2	216

External pressure supply



Anod. aluminium body/NAMUR interface - Spool design

1/4 - 1/8	4	600	2	10	10	-25	80	FKM	7541NAKBJN00	541N01	-	-	-	-	-	300	-	214
	4	600	2	10	10	-40	65	NBR	7541NAKBJN00	541N0108	2	-	-	-	-	300	-	214

Table continued on page 264

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve
- 2. Operates with low temperatures down to -40 deg. C

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Dimension reference 213

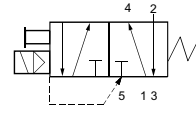
Dimension reference 214

Dimension reference 216

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

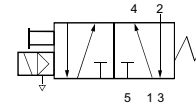
Pilot operated - Integrated pilot



Anod. aluminium body/NAMUR interface - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	2341NAKBPNM1	341N02	8993	488980	2.5	2	470	1	220
	8	1400	2	10	10	-25	80	NBR	2341NAKBNNM0	341N12	8993	488980	2.5	2	470	1	221

Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

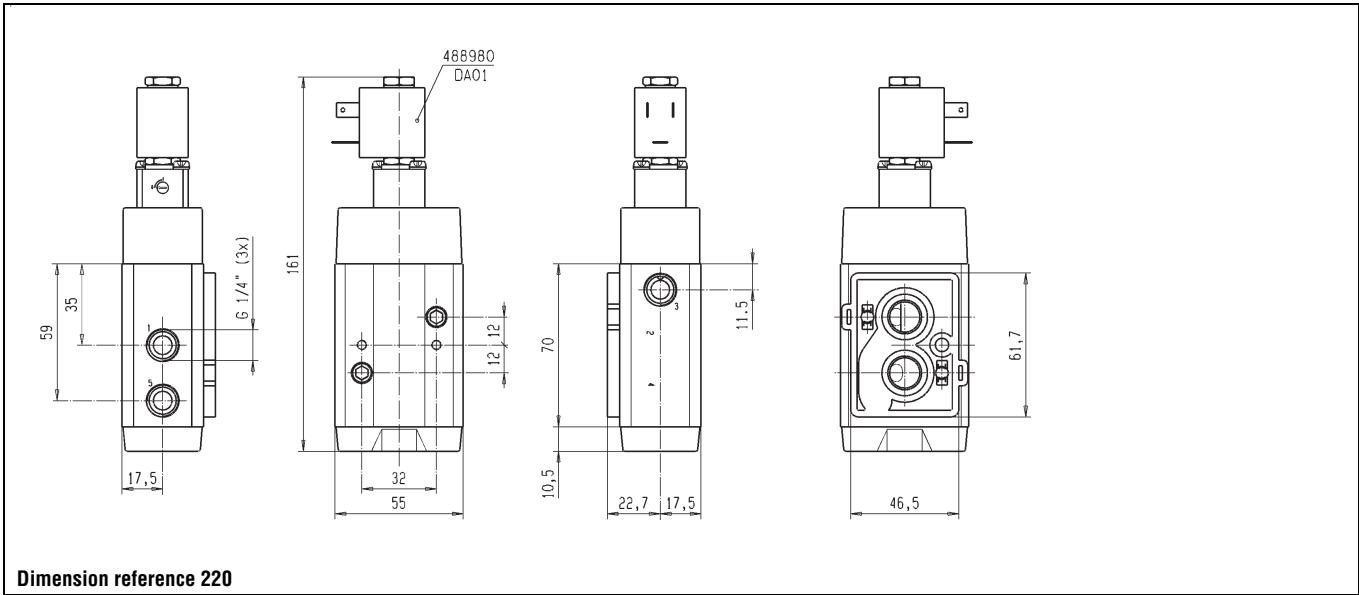
1/4	8	1400	2	10	10	-25	80	NBR	7341NAKBPNM1	341N22	2995	481865	9	8	690	2	222
	8	1400	2	10	10	-25	80	NBR			4270	481000	8	8	800	2	

Table continued on page 266

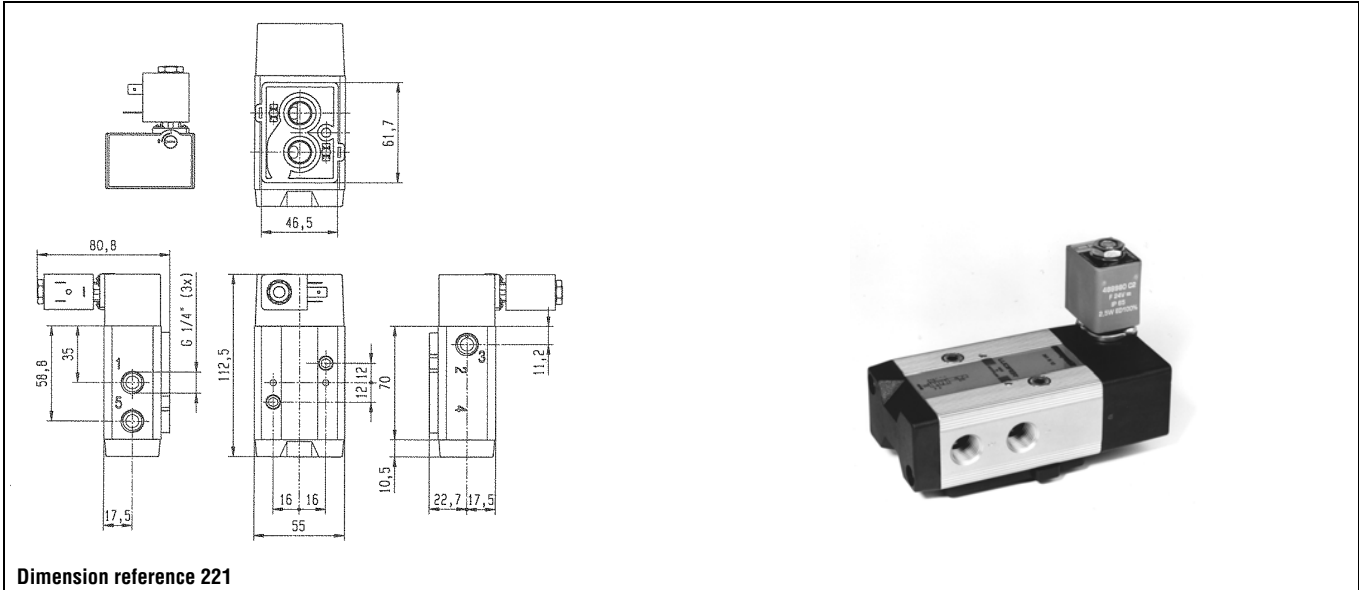
Notes:

* See Electrical Parts Group table at end of section

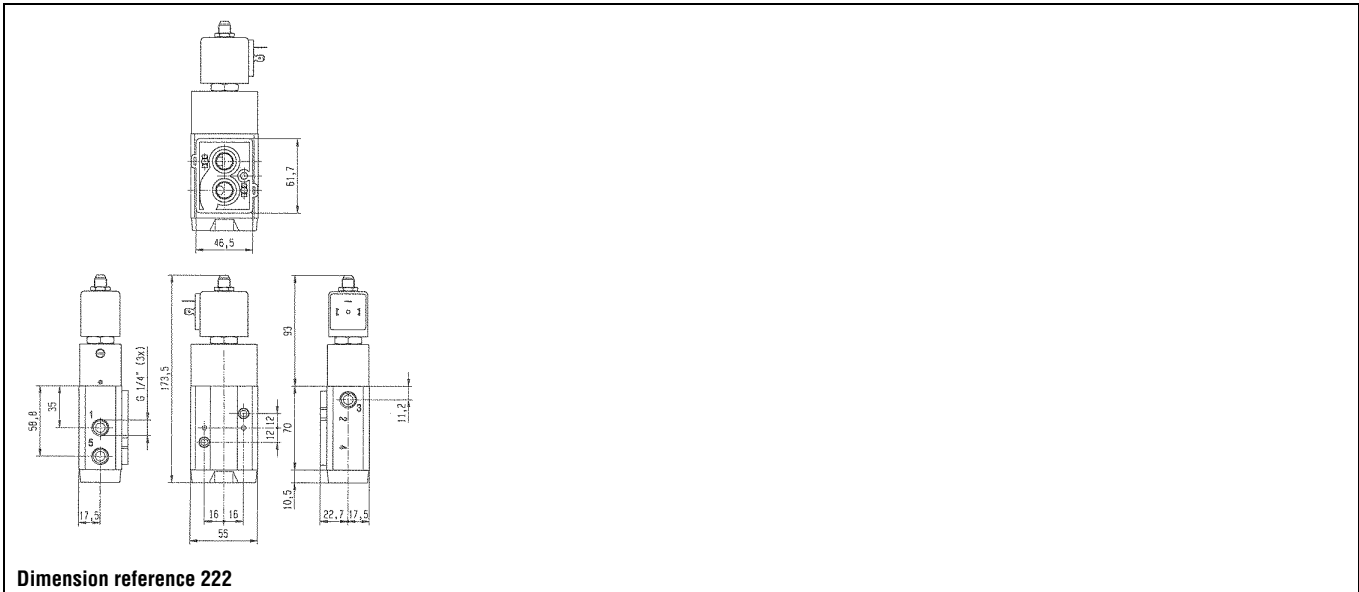
Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Dimension reference 220



Dimension reference 221

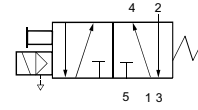


Dimension reference 222

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
G		Qn															

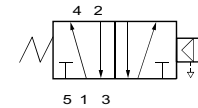
Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	7341NAKBPNM0	341N32	2995	481865	9	8	740	2	223
	8	1400	2	10	10	-25	80	NBR			4270	481000	8	8	850	2	
	8	1400	2	10	-	-25	80	FKM	7341NAKBPNL2	341N3280	2995	482740	1.6	-	740	6	223
	8	1400	2	10	-	-25	80	FKM			-	491117	2.5	-	740	6	

Pilot operated



Anod. aluminium body/NAMUR interface - Spool design

1/4	8	1400	2	10	-	-25	80	NBR	7341NAKBPN90	341N3290	-	483580.01 ¹	0.4	-	850	7	223
	8	1400	2	10	10	-25	80	NBR	7341NAKBPN1D	341N32001D	-	483250	8	8	1730	5	7754

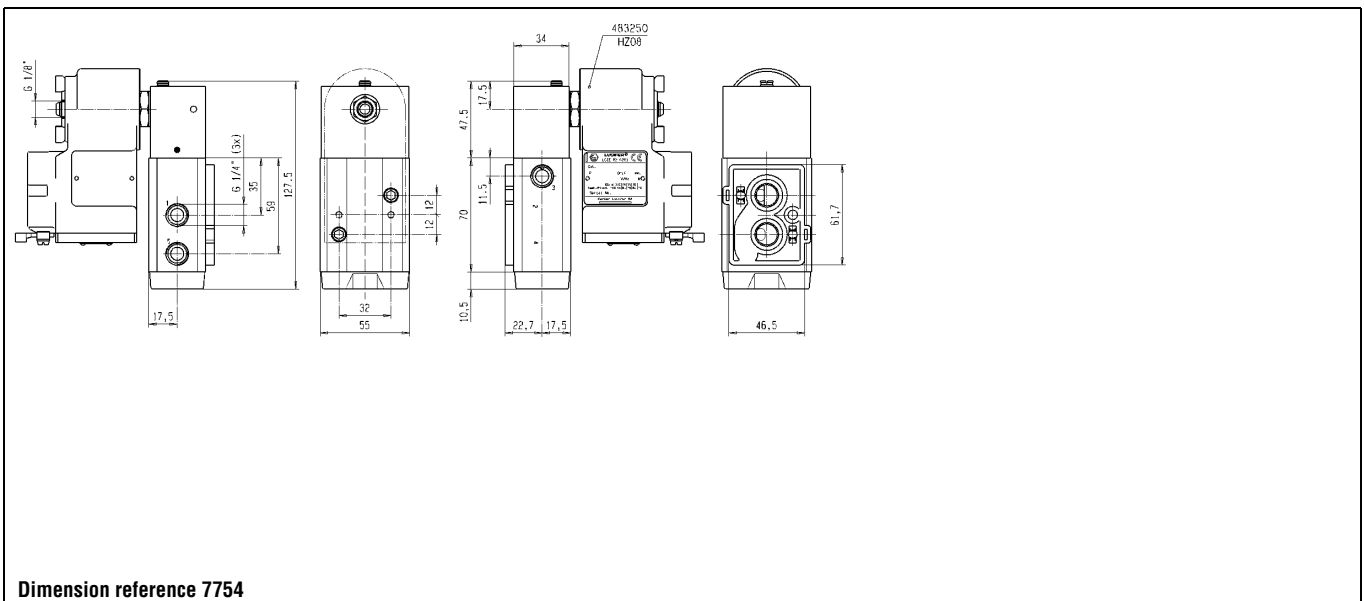
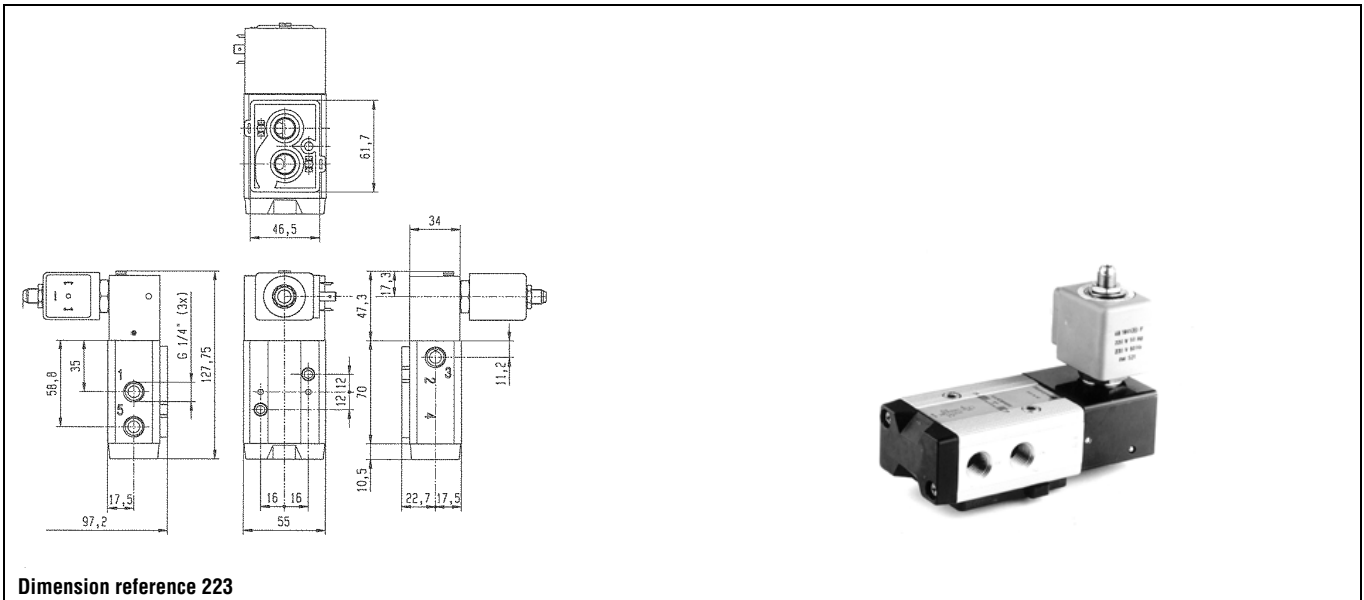
Table continued on page 268

Notes:

* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

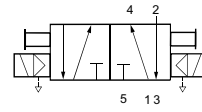
Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	AC	Global valve reference	Valve reference no.		Housing	Coil	DC	AC					
G		Qn				Min	Max										

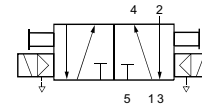
Two solenoids and main pressure supply - Integrated pilot



Anod. aluminium body/NAMUR interface - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	2347NAKBPNM0	347N12	8993	488980	1	2.5	2	640	1	7315
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Two solenoids and main pressure supply



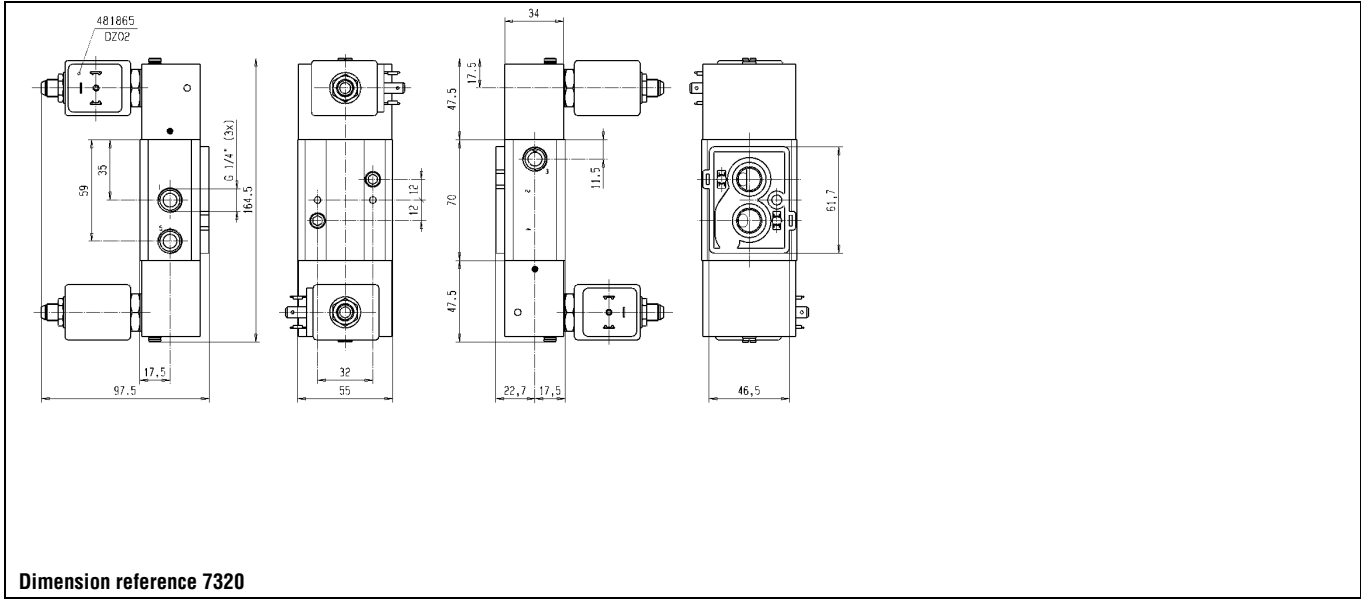
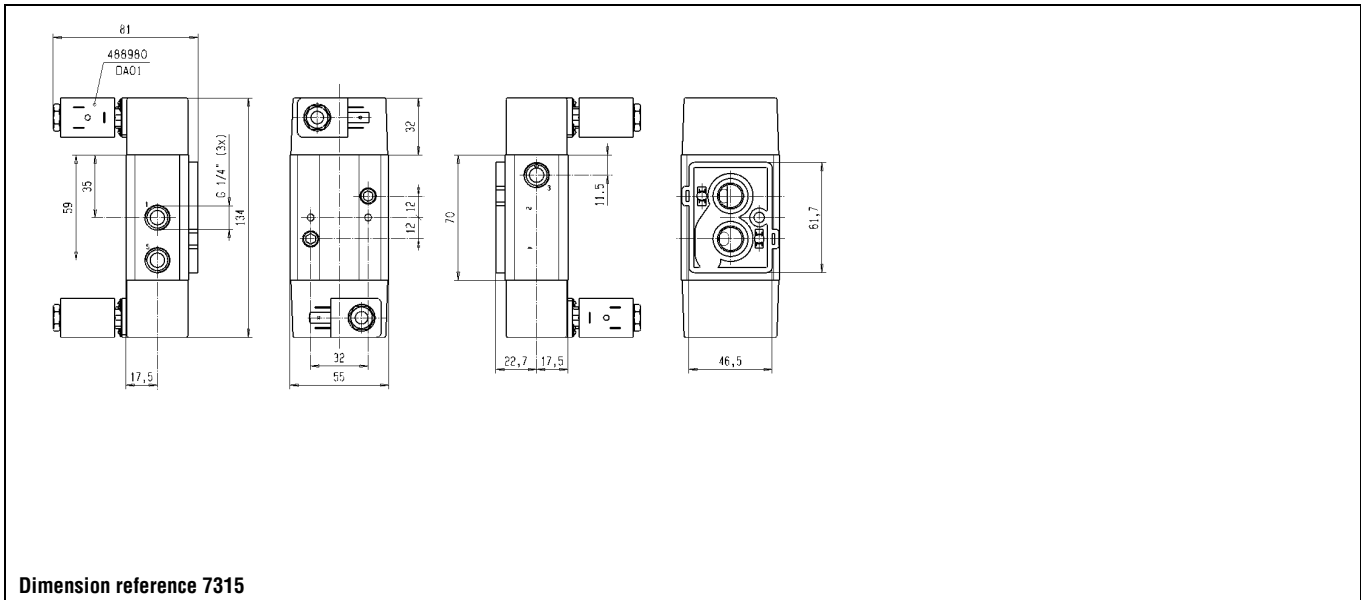
Anod. aluminium body/NAMUR interface - Spool design

1/4	8	1400	2	10	10	-25	80	NBR	7347NAKBPNM0	347N32	2995	481865	1	9	8	770	2	7320
	8	1400	2	10	10	-25	80	NBR		4270	481000	1	8	8	980	2		

Notes:

- * See Electrical Parts Group table at end of section
- 1. Please order two housings and coils for each valve

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Spool design



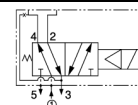
Solenoid valves for actuator control

3/2 5/2



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar		Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	Min	Max		Global valve reference	Valve reference no.	Housing	Coil	DC	AC			
G		Qn														

Pilot operated



Anod. aluminium body/NAMUR interface - Poppet design

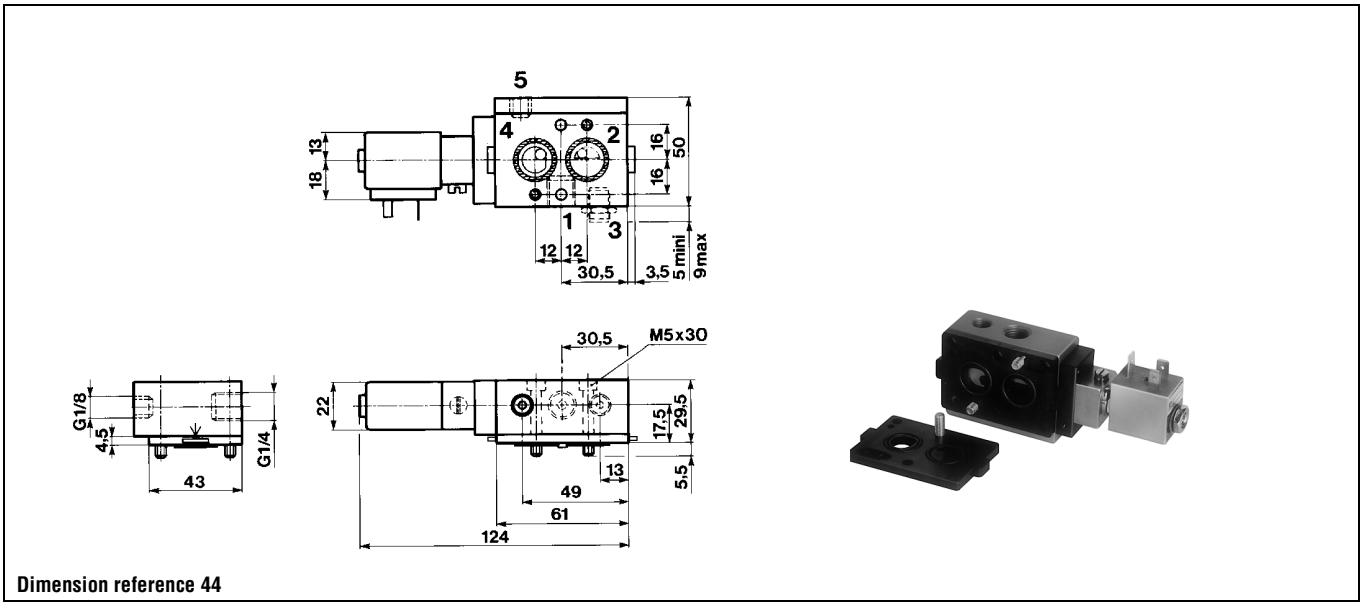
1/4 - 1/8	4	355	1	10	10	-10	75	NBR	-	341L9504	8993	488980	2.5	2	360	1	44
	4	355	1	10	10	-10	75	NBR	7341LAKBGN1D	341L95341D	-	483250	8	8	1470	5	45
	4	355	1	10	10	-10	75	NBR	7341LAKBGNM0	341L9534	2995	481865	9	8	470	2	45
	4	355	1	10	-	-10	75	NBR	7341LAKBGNL2	341L9584	-	482740	1.6	-	470	6	45
	4	355	1	10	-	-10	75	NBR	7341LAKBGN90	341L9594	-	483580.01 ¹	0.4	-	470	7	45
	4	355	2	10	-	-25	65	PUR	7341LAPBGPL2	341L9588	-	482740	1.6	-	470	6	45
	4	355	2	10	-	-25	75	PUR	-	341L9598	-	483580.01 ¹	0.4	-	470	7	45

Notes:

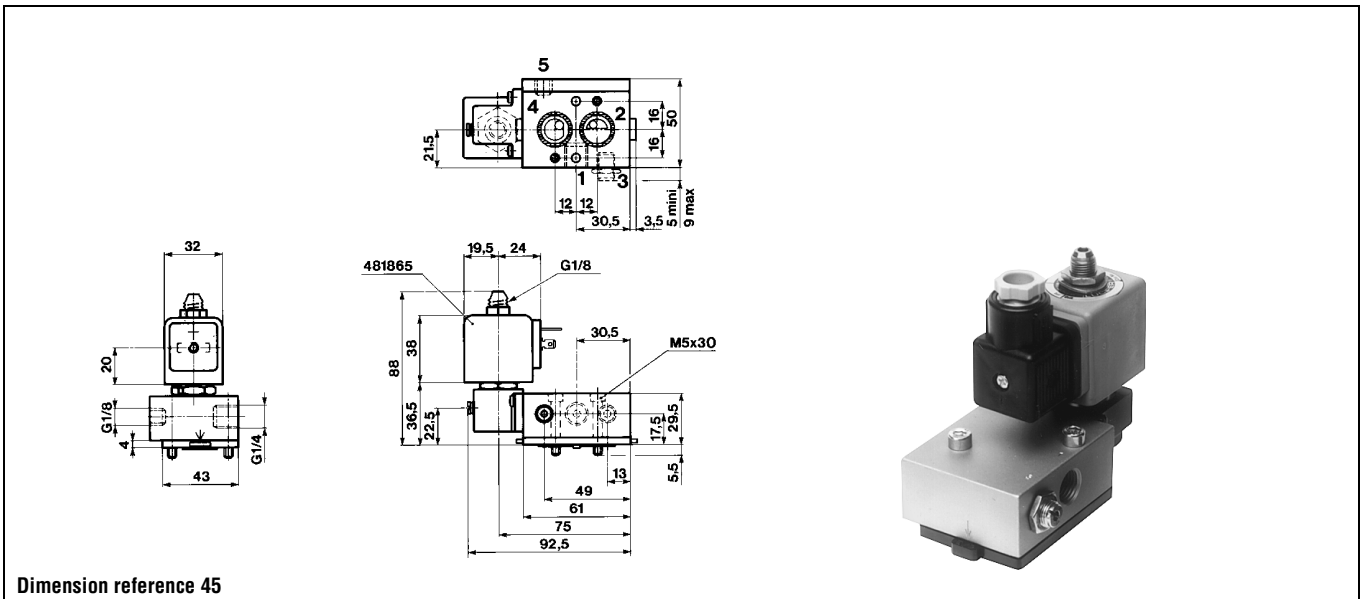
* See Electrical Parts Group table at end of section

1. Other coil-housing available: 488650.01, 488660.01, 4888670.01 (refer to electrical parts at end of this section)

Solenoid valves for actuator control - 3/2 or 5/2 valves - NAMUR interface-Poppet design



Dimension reference 44



Dimension reference 45

Electrical parts options with 3/2, 5/2 valves for pneumatic actuator control

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP 65	Class F	2.5 W	2 W	DA01	488980	for DIN plug	A0	8993	-40	50
		IP 65	Class F	2.5 W	2 W	DA02	481045	with DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA03	481180	for DIN plug	A0	8993	-40	50
		IP 65	Class F	5 W	4 W	DA04	481530	with DIN plug	A0	8993	-40	50
		IP 65	EEx m II T4	5 W	4 W	VA01	482605	with 1500mm cable	00	-	-40	50
		IP 65	EEx m II T5	2.5 W	2 W	VA02	482606	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP 65	Class F	9 W	8 W	DZ02	481865	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ03	482725	with DIN plug	N1	2995	-40	50
		IP 65	Class H	9 W	8 W	DZ04	482453	for DIN plug	N1	2995	-40	50
		IP 65		9 W	8 W	DZ05	492726	with DIN plug	N1	2995	-40	50
		IP 65	Class F, 50/60 Hz	-	9 W	DZ06	483510	for DIN plug	N1	2995	-40	50
		IP 65		-	9 W	DZ07	482635	with DIN plug	N1	2995	-40	50
		IP 65	EEx m II T4	9 W	8 W	HZ05	492670	with 3000mm cable	00	-	-40	40
		IP 65	Class H	14 W	14 W	DZ08	492425	for DIN plug	N1	2995	-40	50
		IP 65		14 W	14 W	DZ09	492727	with DIN plug	N1	2995	-40	50
		IP 10 / IP 44	Class F	8 W	8 W	EZ01	481000	screw-terminals	E0	4270	-40	50
	IP 10 / IP 44	Class H	8 W	8 W	EZ02	485100	screw-terminals	E0	4270	-40	50	
	IP 67	Class F, M20x1.5	8 W	8 W	EZ01	481000	screw-terminals	G1	4538	-40	50	
	IP 65	EEx m II T5/T4	9 W	8 W	VZ01	492070	with 1500mm cable	00	-	-40	40/65	
	IP 67	EEx me II T4	8 W	8 W	HZ06	483371	for cable connection	00	-	-40	65	
	IP 66	EEx me II T3/T4	11 W	9 W	VZ03	492190	for cable connection	00	-	-40	75/40	
	3	32 mm	IP 65	Class H	-	14 W	DZ08	492425	for DIN plug	N1	2995	-40
4	50 mm (impulse)	IP10 / IP 44	Class F	-	11 W	MZ01	484990	screw-terminals	E1	4269	-25	50
		IP10 / IP 44	Class F	13 W	-	MZ02	485400	screw-terminals	E1	4269	-25	50
5	50 mm	IP 54	EEx d IIC T4/T5/T6	8 W	8 W	HZ08	483250	for cable connection, 1/2 NPT	00	-	-40	80/75/60
6	32 mm (Miniwatt)	IP 65	Class F	1.6 W	-	DZ10	482740	for DIN plug	N1	2995	-40	50
		IP 65	Class F	1.6W	-	DZ11	482745	with DIN plug	N1	2995	-40	50
	50 mm (Miniwatt)	IP 67	EEx me II T5	2.5 W	-	VZ04	491117	for cable connection	00	-	-40	65
		IP 67	EEx m II T5/T4	2.5 W	2.5 W	VZ05	492370	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx me II T6/T5	2.5 W	2.5 W	VZ06	492390	for cable connection	00	-	-40	40/75
7	32 mm	IP 65	EEx ia II C T6	0.4 W	-	DZ12	483580.01	for DIN plug	N1	2995	-25	55
		IP 65		0.4 W	-	DZ13	483960.01	with DIN plug	N1	2995	-25	55
	50 mm	IP 66	EEx ia II C T6	0.4 W	-	VZ07	488650.01	for cable connection	00	-	-25	65
		IP 67		0.4 W	-	VZ08	488660.01	with 2000mm cable	00	-	-25	65
		IP 65		0.4 W	-	VZ09	488670.01	with DIN plug	00	-	-25	65
9	32 mm	IP 65	Class F	9 W	9 W	DZ93	492387	with DIN plug	N9	8886	-40	50
		IP 67	EEx me II T4	8 W	-	HZ14	483371.01	for cable connection	00	-	-40	65
	50 mm	IP 66	EEx me II T6/T5	1.5 W	-	VZ13	492200	for cable connection	00	-	-40	40/75
		IP 66	EEx me II T5/T4	6 W	6 W	VZ14	492300	for cable connection	00	-	-40	40/75
		IP 67	EEx m II T5/T4	5 W	5 W	VZ02	492270	with 1500mm cable	00	-	-40	40/65
		IP 66	EEx ib IIB T6	0.8 W	-	VZ11	482660	for cable connection	00	-	-40	75
		IP 66	EEx ib IIC T6	0.8 W	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP 66	EEx ia IIC T6	0.8W	-	VZ92	492965.02	for cable connection	00	-	-40	65
10	50 mm	IP 66	EEx me II T6/T5	1.5 W	-	VZ26	492210	for cable connection	00	-	-40	40/75
		IP 66	EEx me II T5/T4	6 W	6 W	VZ27	492310	for cable connection	00	-	-40	40/75
		IP 66	EEx ib IIB T6	0.8 W	-	VZ11	482660	for cable connection	00	-	-40	75
		IP 66	EEx ib IIC T6	0.8 W	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP 66	EEx ia IIC T6	0.8W	-	VZ91	492965.01	for cable connection	00	-	-40	65
11	50 mm	IP 65	EEx d II C T4/T5/T6	8 W	8 W	HZ19	483270	for cable , M20x1.5	00	-	-40	80/75/60
		IP 65	EEx d II C T4/T5/T6	8 W	8 W	HZ21	483270.02	for cable , 1/2 NPT	00	-	-40	80/75/60
12	50 mm	IP 66	EEx me II T5/T4	6 W	6 W	VZ27	492310	for cable connection	00	-	-40	40/75
		IP 66	EEx ib IIB T6	0.8 W	-	VZ22	482160.01	for cable connection	00	-	-40	65
		IP 66	EEx ib IIC T6	0.8 W	-	VZ23	482870.01	for cable connection	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

316 St. Steel valves for chemical, petrochemical and offshore applications

ACTUATION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR)	PAGE
Direct operated	1/4	2.5 to 5.0	1000.0	274/278
	3/8	5.0	1000.0	282
	SB	2.5	1400.0	276/278
Direct operated with manual reset	1/4	5.0	1000.0	274/280
	3/8	5.0	1000.0	274/276

Notes:

316 St. Steel valves for chemical, petrochemical and offshore applications

3/2

Applications

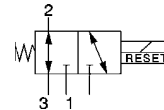
Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.



Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa		Fluid temp. °C	Admissible ambient temp. °C	Seat disc	Reference numbers		Power consumption (W)		Degree of protection Ex	El. Part Group *	Dim ref.
			Min	Max				Valve reference no.	Coil	DC	AC			
NPT		Qn												

Direct operated with manual reset



316L Stainless Steel body/Pipe mounting

1/4	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U033X51561D ¹	483270 ²	8	8	EEx d IIC T4/T5/T6	11	7030
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR		483270.02 ²	8	8	EEx d IIC T5	11	
	5	680	0	1000	-	-25 to +65	-25 to +65	NBR	U033X5156 ¹	482870.01 ²	0.8	-	EEx ia IIC T6	12	7771
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR		492310 ²	6	6	EEx me II T4(T5)	12	
3/8	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U033X52561D ¹	483270 ²	8	8	EEx d II C T4(T6)	11	7672
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR		483270.02 ²	8	8	EEx d II C T4(T6)	11	

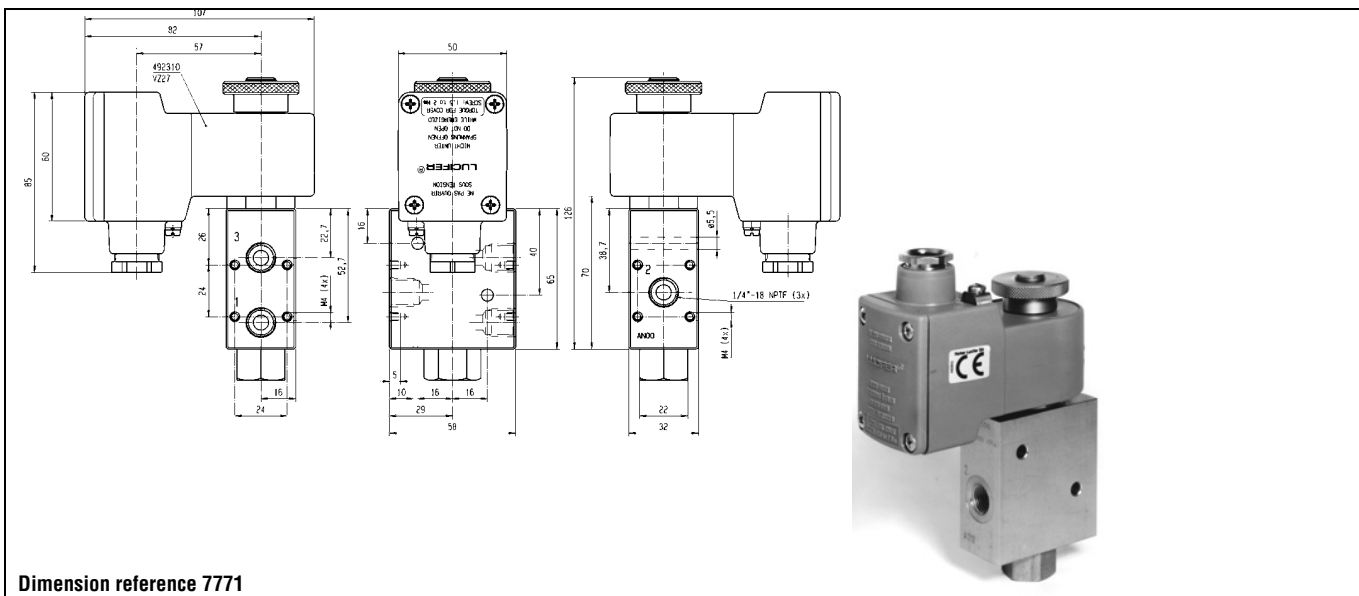
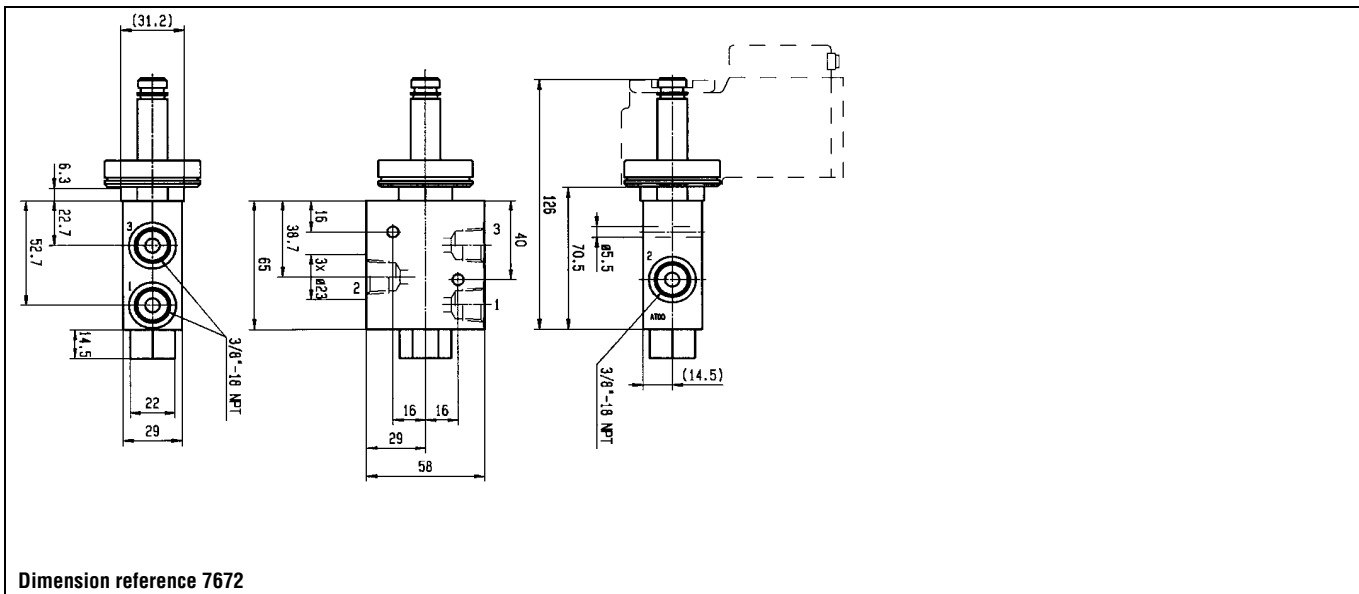
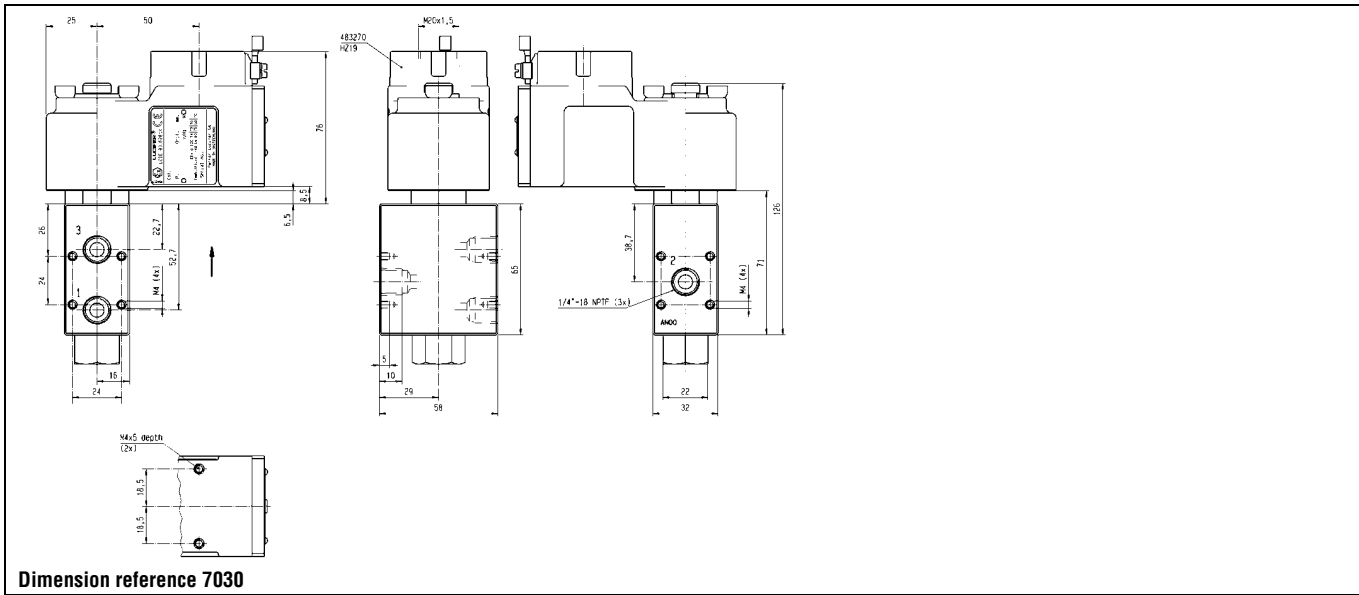
Table continued on page 276

Notes:

* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

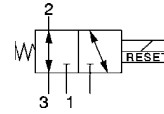
316 St. Steel valves for chemical, petrochemical and offshore applications



316 St. Steel valves for chemical, petrochemical and offshore applications

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C	Admissible ambient temp. °C	Seat disc	Reference numbers		Power consumption (W)		Degree of protection Ex	El. Part Group *	Dim ref.
			Min	Max	DC				AC	Valve reference no.	Coil	DC			
NPT		Qn													

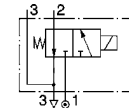
Direct operated with manual reset



316L Stainless Steel body/Pipe mounting

3/8	5	680	0	1000	-	-25 to +65	-25 to +65	NBR	U033X5256	1	482870.01	2	0.8	-	EEx ia IIC T6	12	7671
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR		2	492310	2	6	6	EEx me II T4(T5)	12	

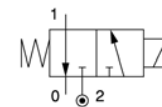
Direct operated



316L Stainless Steel body/NAMUR interface

3/8	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U131X1201	2	492965.01	0.8	-	EEx ia IIC T6	9,10	7668
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR		2	492310	6	6	EEx me II T4(T5)	9,10	

Direct operated



316L Stainless Steel body/Sub-base mounting

SB	2.5	220	0	1000	-	-25 to +65	-25 to +50	FKM	U131F5695	2	492965.01	0.8	-	EEx ia IIC T6	10	85
	2.5	220	0	1000	1000	-25 to +75	-25 to +50	FKM		2	492310	6	6	EEx me II T4(T5)	10	

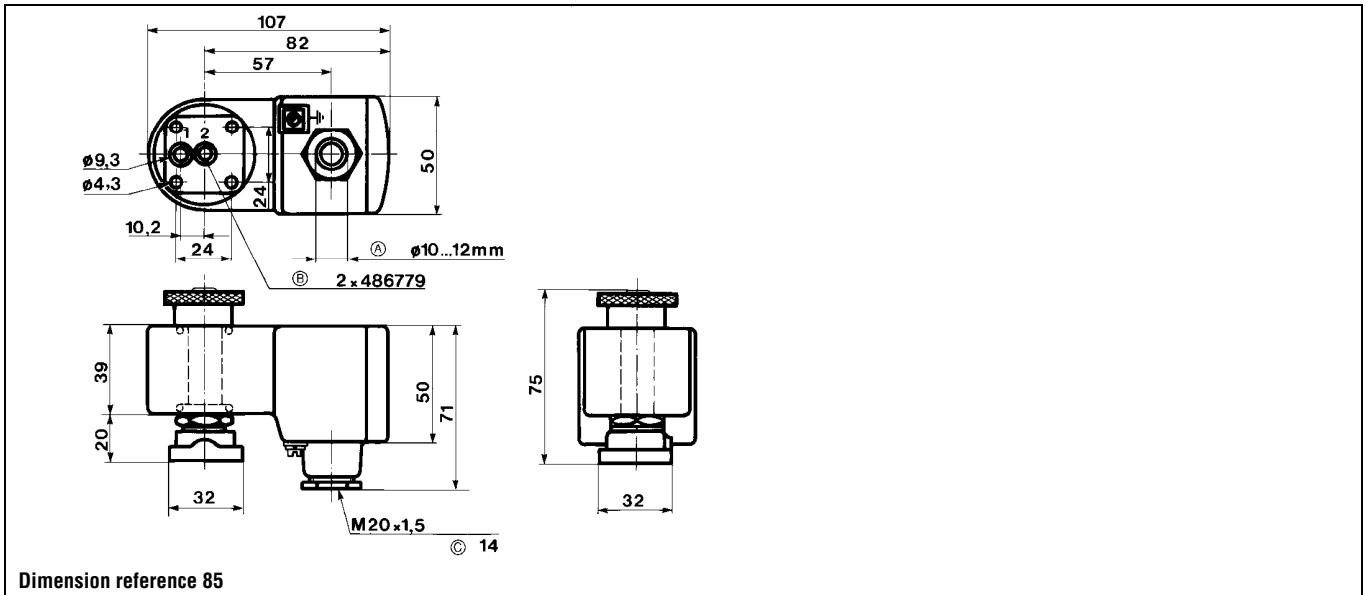
Table continued on page 278

Notes:

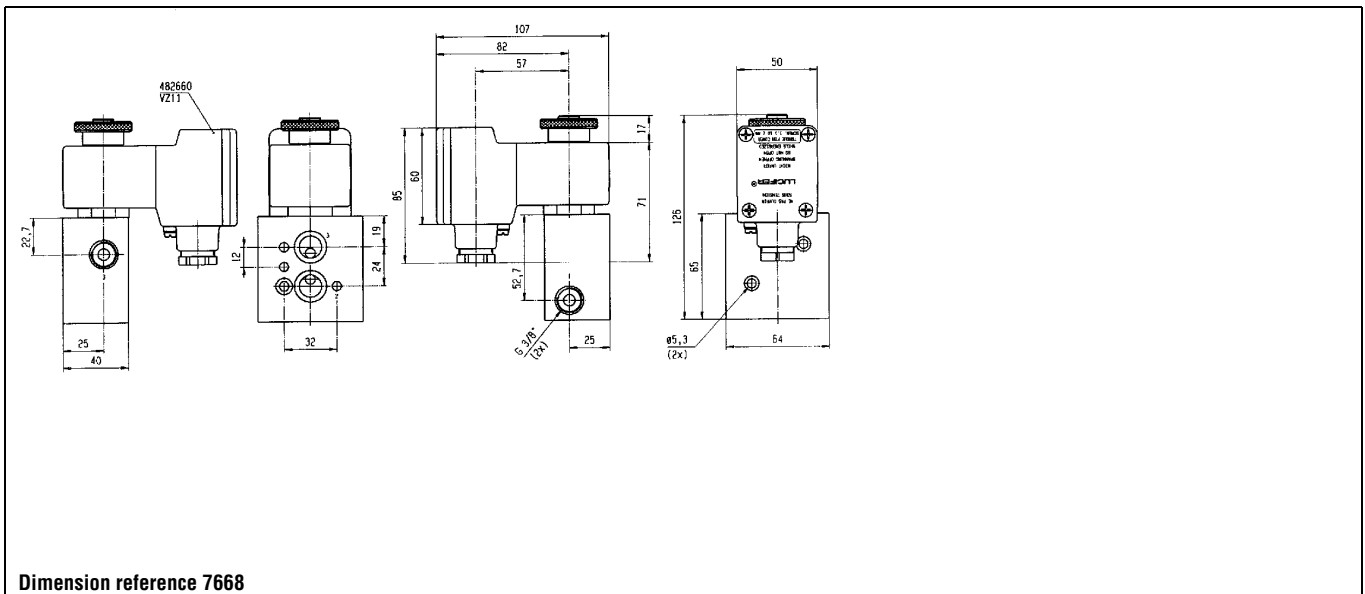
* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

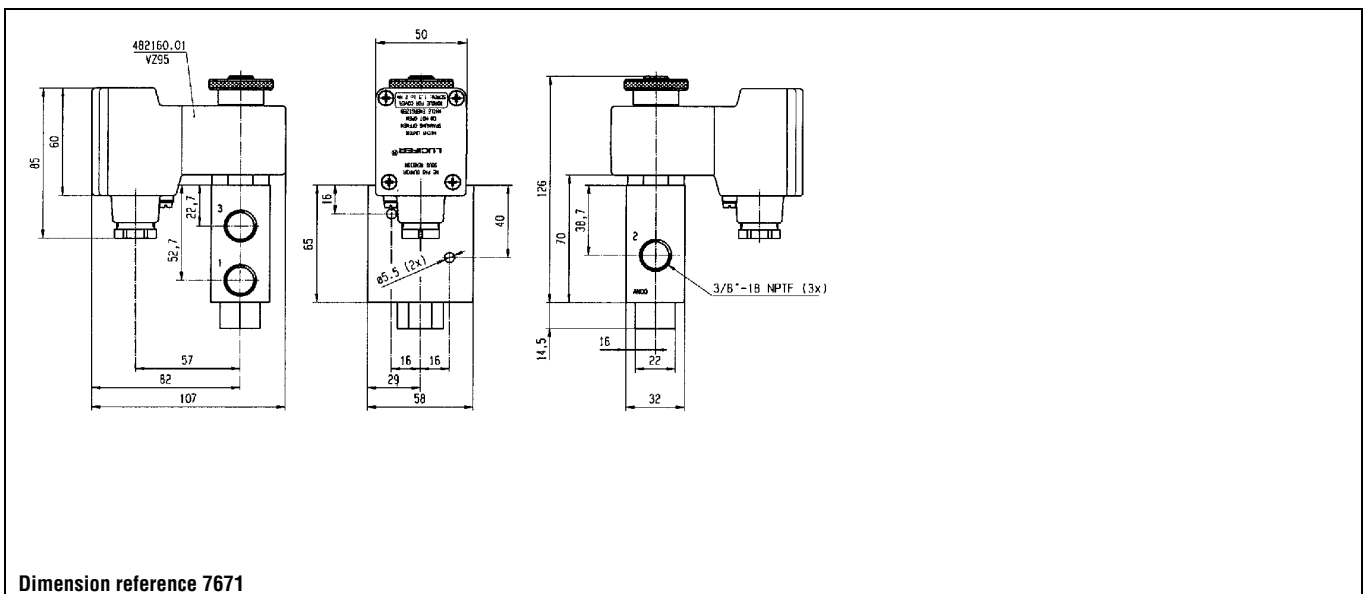
316 St. Steel valves for chemical, petrochemical and offshore applications



Dimension reference 85



Dimension reference 7668

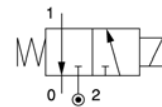


Dimension reference 7671

316 St. Steel valves for chemical, petrochemical and offshore applications

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa		Fluid temp. °C	Admissible ambient temp. °C	Seat disc	Reference numbers		Power consumption (W)		Degree of protection Ex	El. Part Group *	Dim ref.
			Min	Max				Valve reference no.	Coil	DC	AC			
NPT		Qn												

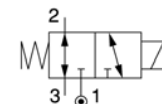
Direct operated



316L Stainless Steel body/Sub-base mounting

SB	2.5	220	0	1400	1400	-25 to +80	-25 to +50	FKM	U131F56951D ¹	483270	8	8	EEx d IIC T5	11	3783
	2.5	220	0	1400	1400	-25 to +80	-25 to +50	FKM		483270.02	8	8	EEx d IIC T5	11	

Direct operated



316L Stainless Steel body/Pipe mounting

1/4	2.5	220	0	850	-	-25 to +75	-25 to +50	FKM	U133V5695 ¹	492965.01 ²	0.8	-	EEx ia IIC T6	10	86
	2.5	220	0	850	850	-25 to +75	-25 to +50	FKM		492310 ³	6	6	EEx me II T4(T5)	10	
	2.5	220	0	850	850	-25 to +75	-25 to +50	FKM	U133V56951D ¹	483270	8	8	EEx d IIC T5	11	6714
	2.5	220	0	850	850	-25 to +75	-25 to +50	FKM		483270.02	8	8	EEx d IIC T5	11	

Table continued on page 280

Notes:

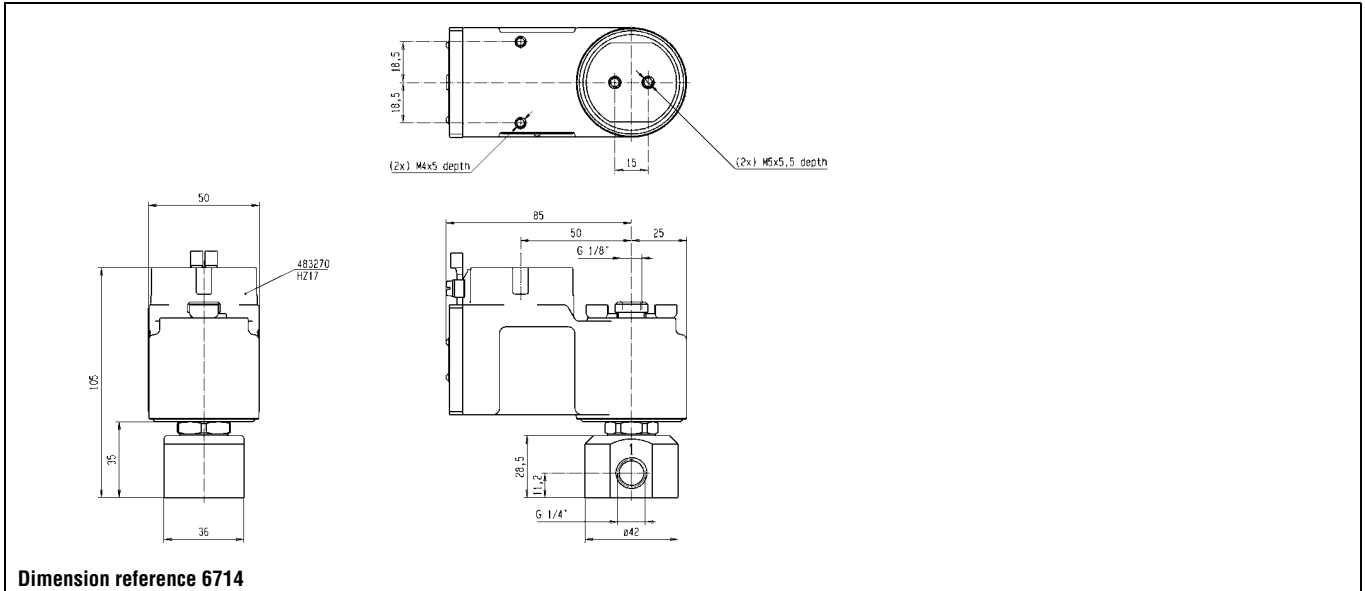
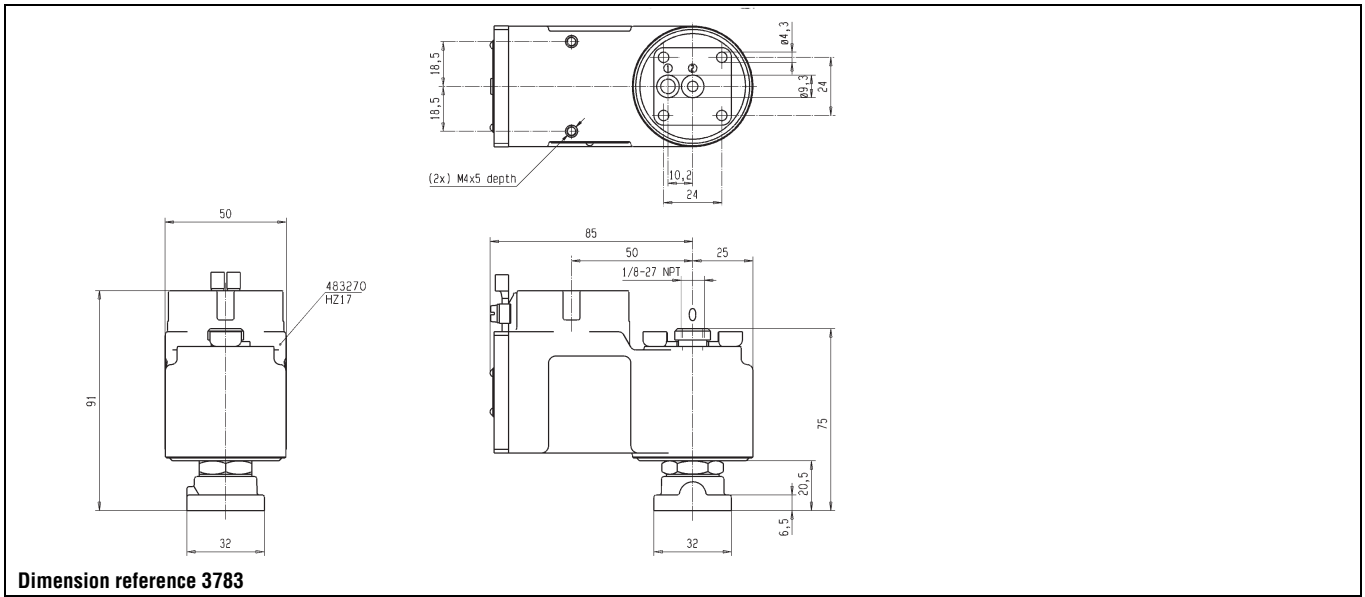
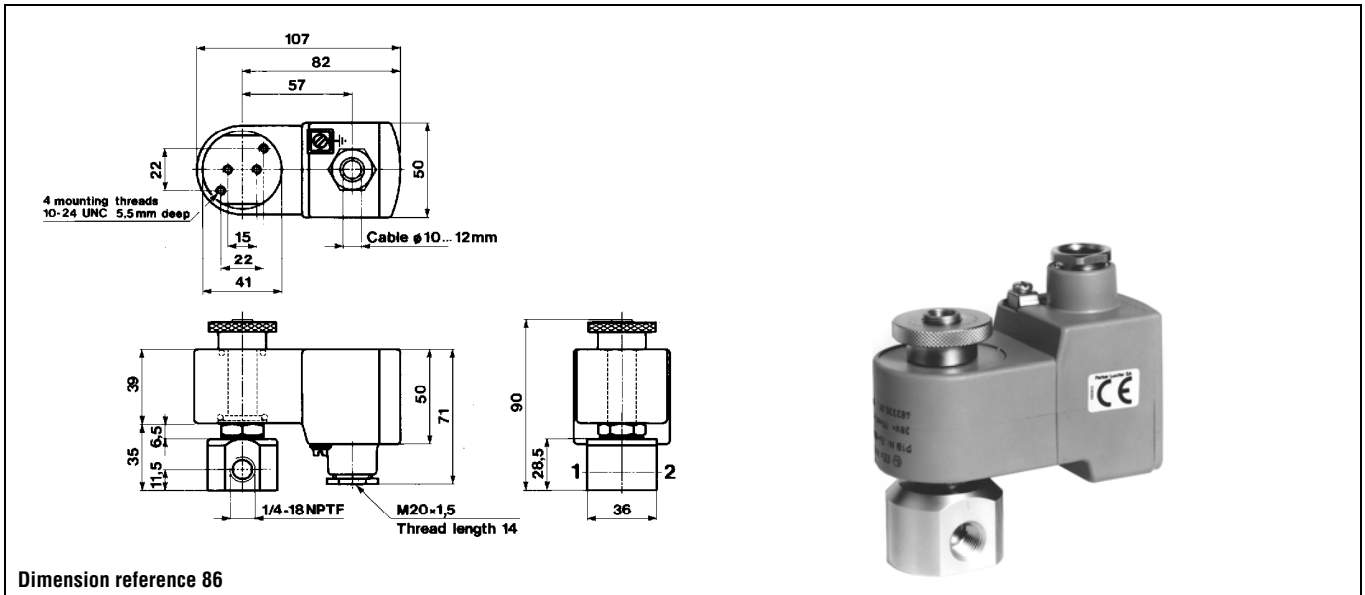
* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Max. power consumption DC = 1 W with connected cable length max. 4 km (2 km back and forth), section 1 mm²

3. Other coil-housing available

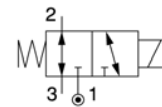
316 St. Steel valves for chemical, petrochemical and offshore applications



316 St. Steel valves for chemical, petrochemical and offshore applications

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C	Admissible ambient temp. °C	Seat disc	Reference numbers		Power consumption (W)		Degree of protection Ex	El. Part Group *	Dim ref.
			Min	DC	Max				AC	Valve reference no.	Coil	DC			
NPT		Qn													

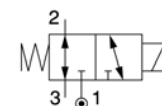
Direct operated



316L Stainless Steel body/Pipe mounting

1/4	5	680	0	1000	-	-25 to +65	-25 to +65	NBR	U133X5156	1	492965.01	0.8	-	EEx ia IIC T6	10	7770
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR				492310	6	6	EEx me II T4(T5)	

Direct operated



316L Stainless Steel body/Pipe mounting

1/4	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U133X51561D	1	483270	8	8	EEx d IIC T4/T5/T6	11	7011
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR				483270.02	8	8	EEx d IIC T4/T5/T6	
	5	680	0	1000	-	-25 to +65	-25 to +65	NBR	U133X5196	2	492965.01	0.8	-	EEx ia IIC T6	10	7770
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR				492310	6	6	EEx me II T4(T5)	
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U133X51961D	1	483270	8	8	EEx d IIC T5	11	7038
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR				483270.02	8	8	EEx d IIC T5	

Table continued on page 282

Notes:

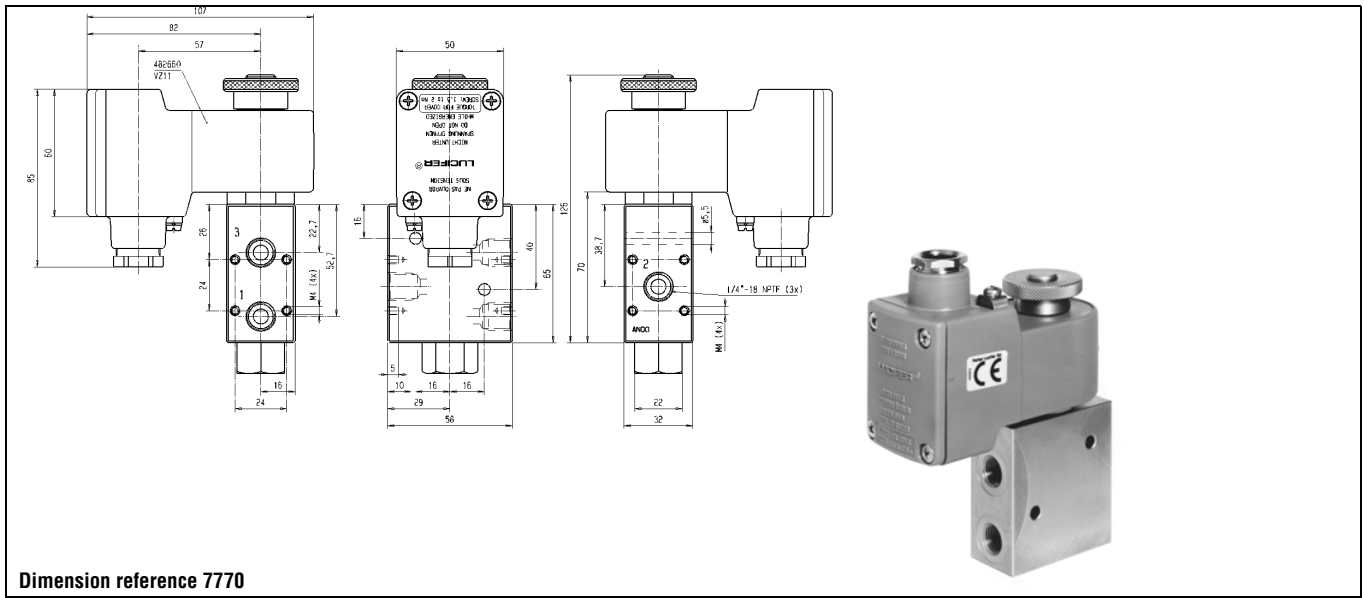
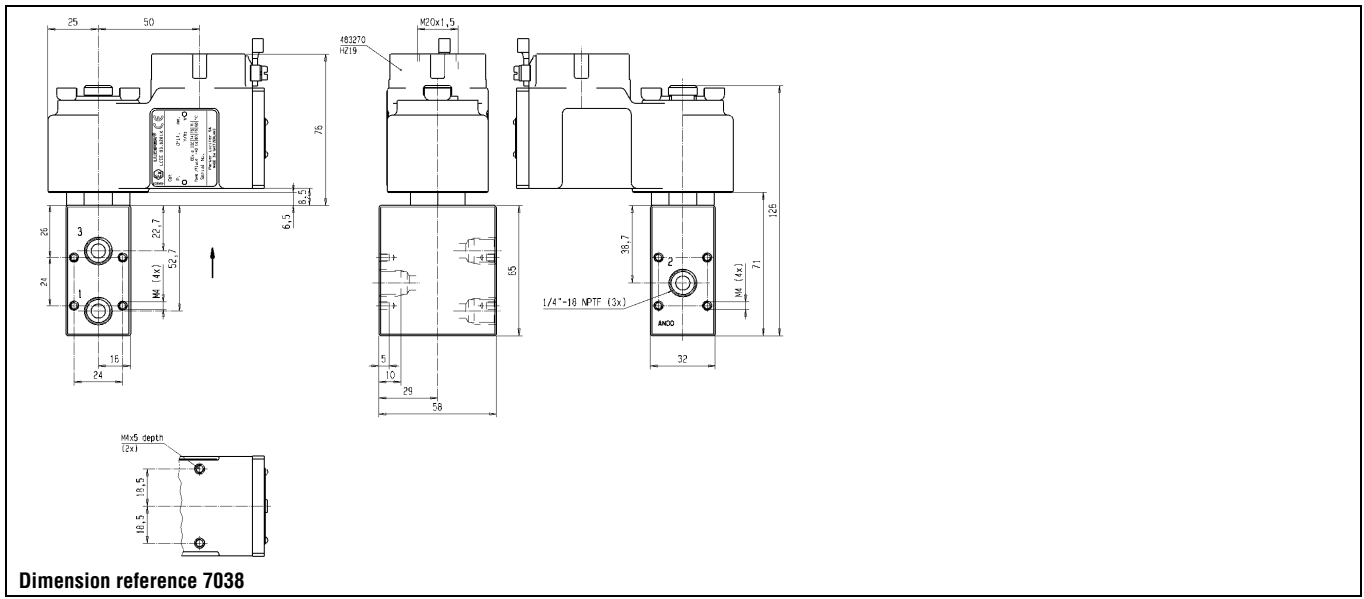
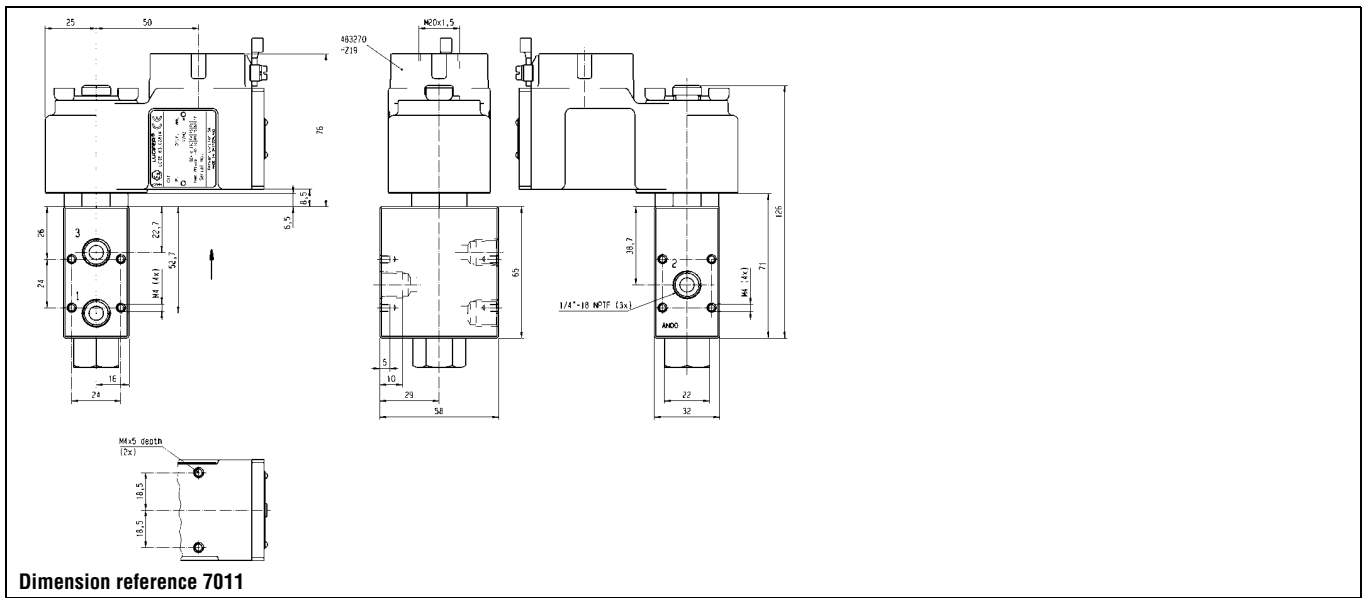
* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Optional manual override available on request - change suffix 96 to 56

Valve with NPT ports

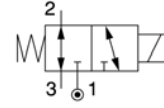
316 St. Steel valves for chemical, petrochemical and offshore applications



316 St. Steel valves for chemical, petrochemical and offshore applications

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa		Fluid temp. °C	Admissible ambient temp. °C	Seat disc	Reference numbers		Power consumption (W)		Degree of protection Ex	El. Part Group *	Dim ref.
			Min	Max				Valve reference no.	Coil	DC	AC			
NPT		Qn												

Direct operated



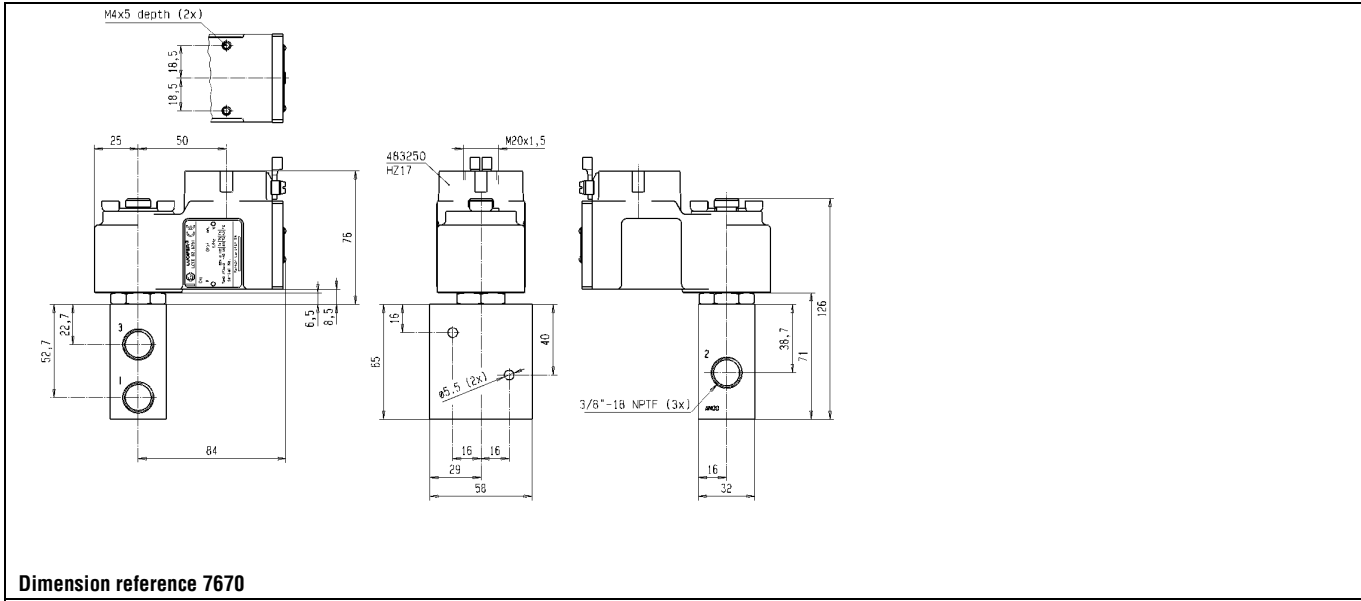
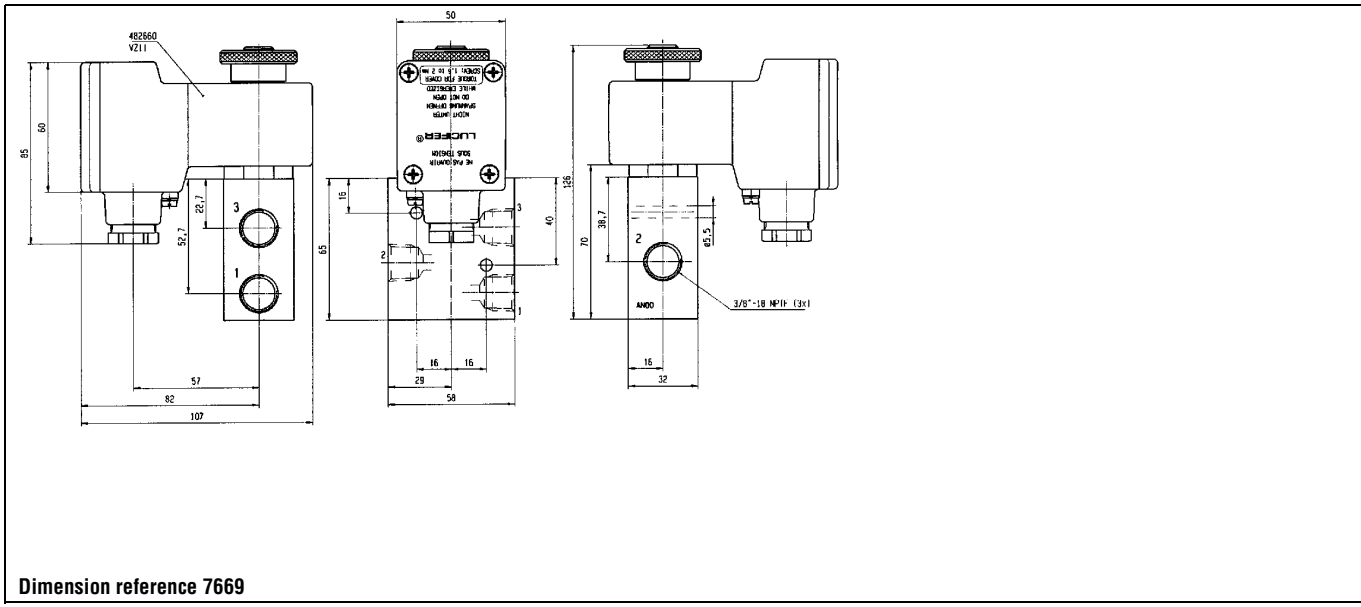
316L Stainless Steel body/Pipe mounting

3/8	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U133X5296	1	492965.01	0.8	-	EEx ia IIC T6	10	7669
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR			492310	6	6	EEx me II T4(T5)	10	
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR	U133X52961D	1	483270	8	8	EEx d IIC T4/T5/T6	10	7670
	5	680	0	1000	1000	-25 to +65	-25 to +65	NBR			483270.02	8	8	EEx d IIC T4/T5/T6	10	

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

316 St. Steel valves for chemical, petrochemical and offshore applications



NOTES

NOTES

Electrical parts options with 3/2 - 316L Stainless steel valves for chemical, petrochemical & Offshore applications

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP65	Class F	2.5	2	DA01	488980	for DIN B plug	A2	8993	-40	50
		IP65	Class F	2.5	2	DA02	481045	with DIN B plug	A2	8993	-40	50
		IP65	EEx m II T5	2.5	2	VA12	482606.10	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP65	Class F	9	8	DZ02	481865	for DIN A plug	NL	8132	-40	50
		IP65	Class F	9	8	DZ03	482725	with DIN A plug	NL	8132	-40	50
		IP65	Class H	9	8	DZ04	492453	for DIN A plug	NL	8132	-40	50
		IP65	Class H	9	8	DZ05	492726	with DIN A plug	NL	8132	-40	50
	50 mm (Std)	IP65	Class F, 50/60 Hz	-	9	DZ06	483510	for DIN A plug	NL	8132	-40	50
		IP65	Class F, 50/60 Hz	-	9	DZ07	482635	with DIN A plug	NL	8132	-40	50
		IP65	EEx m II T4	9	8	HZ90	492670.10	with 3000mm cable	00	-	-25	40
		IP10/IP44	Class F	8	8	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10/IP44	Class H	8	8	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP67	Class F, IP 67, M20x1.5	8	8	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP65	EEx m II T4/T5	9	8	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP67	EEx me II T4	8	8	HZ06	483371	for cable connection	00	-	-40	65
		IP66	EEx me II T3/T4	11	9	VZ90	492190.10	for cable connection	00	-	-40	75/40
		IP67	EEx me II T3/T4	8	8	HZ23	494040	for cable connection	00	-	-40	90/65
IP65	EEx md IIC T4/T5	8	8	HZ09	493640	with 1500mm cable	00	-	-40	75/40		
5	50 mm	IP54	EEx d IIC T4/T5/T6	8	8	HZ08	483250	for cable, 1/2 NPT	00	-	-40	80/75/60
7	32 mm I.S.	IP65	EEx ia II C T6	0.4	-	DZ12	483580.01	for DIN A plug	NL	8132	-40	55
		IP65	EEx ia II C T6	0.4	-	DZ13	483960.01	with DIN A plug	NL	8132	-40	55
	50 mm I.S.	IP66	EEx ia II C T6	0.4	-	VZ93	494035.10	for cable connection	00	-	-40	65
		IP67	EEx ia II C T6	0.4	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP65	EEx ia II C T6	0.4	-	VZ09	488670.01	with DIN A plug	00	-	-40	65
9	32 mm	IP65	Class F	9	9	DZ93	492387	with DIN A plug	N9	8886	-40	50
		IP66	EEx me II T5/T6	1.5	-	VZ13	492200	for cable connection	00	-	-40	75/40
	50 mm	IP67	EEx me II T4	8	-	VZ14	483371.01	for cable connection	00	-	-40	65
		IP66	EEx me II T4/T5	6	6	VZ15	492300	for cable connection	00	-	-40	75/40
		IP67	EEx m II T4/T5	5	5	VZ02	492270	with 1500mm cable	00	-	-40	65/40
		IP65	EEx ib IIB T6	0.8	-	VZ11	482660	for cable connection	00	-	-40	75
		IP66	EEx ib IIC T6	0.8	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP66	EEx ia IIC T6	0.8	-	VZ92	492965.02	for cable connection	00	-	-40	65
10	50 mm	IP66	EEx me II T5/T6	1.5	-	VZ26	492210	for cable connection	00	-	-40	75/40
		IP66	EEx me II T4/T5	6	6	VZ27	492310	for cable connection	00	-	-40	75/40
		IP65	EEx ib IIB T6	0.8	-	VZ11	482660	for cable connection	00	-	-40	75
		IP66	EEx ib IIC T6	0.8	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP66	EEx ia IIC T6	0.8	-	VZ91	492965.01	for cable connection	00	-	-40	65
11	50 mm EEx d	IP65	EEx d II C T4/T5/T6	8	8	HZ19	483270	for cable , M20x1.5	00	-	-40	80/75/60
		IP65	EEx d II C T4/T5/T6	8	8	HZ21	483270.02	for cable , 1/2 NPT	00	-	-40	80/75/60
12	50 mm	IP66	EEx me II T4/T5	6	6	VZ27	492310	for cable connection	00	-	-40	75/40
		IP66	EEx ia IIB T6	0.8	-	VZ22	482160.01	for cable connection	00	-	-40	65
		IP66	EEx ia IIC T6	0.8	-	VZ23	482870.01	for cable connection	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

316L St. Steel valves for actuator control

ACTUATION	CONNECTION	ORIFICE (MM)	MAX. PRESSURE (BAR) <KPA>	PAGE
Direct operated	1/4	2.5 to 5	<1000.0>	288
	3/8	5	<1000.0>	290/292
	SB	2.5	<1000.0>	292
Pilot operated	1/4 - 1/8	4	10.0	296/298/308/310
	3/8 - 1/4	8	10.0	300/302/312
Pilot operated - Integrated pilot	1/4 - 1/8	4	10.0	296/308
	3/8 - 1/4	8	10.0	298/310
Two solenoids and main pressure supply	1/4 - 1/8	4	10.0	304/314
	3/8 - 1/4	8	10.0	304/306/314
Pilot operated with external pressure supply	3/8 - 1/4	8	10.0	302
External pressure supply	3/8 - 1/4	8	10.0	302
Direct operated with manual reset	1/4	5	<1000.0>	292/294
	3/8	5	<1000.0>	294

Notes:

316 St. Steel valves for actuator control

3/2

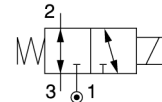
Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Direct operated



316L Stainless Steel body/Pipe mounting

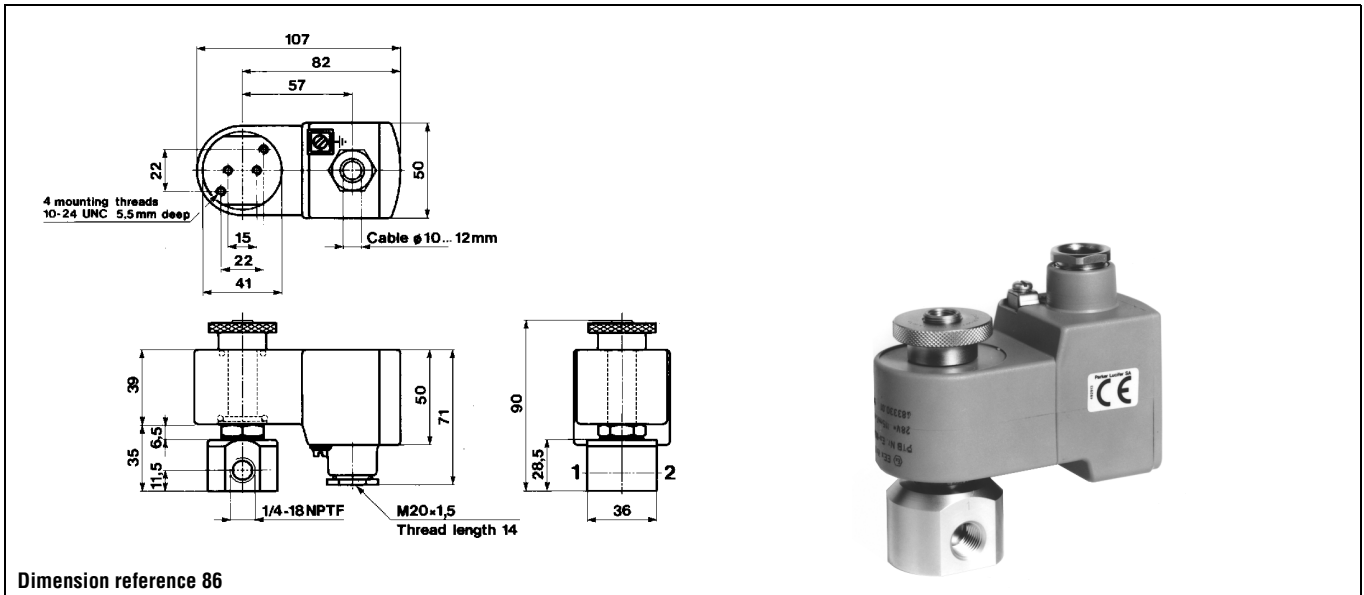
1/4	2.5	220	0	850	850	-25	75	FKM	7133VRN2LV9D	U133V56951D	1	-	483270	8	8	-	11	6714
	2.5	220	0	850	850	-25	75	FKM				-	483270.02	8	8	-	11	
	2.5	220	0	850	-	-25	75	FKM	7133VRN2LV95	U133V5695	1	-	492965.01	0.8	-	-	10	86
	2.5	220	0	850	850	-25	75	FKM				-	492310	6	6	-	10	
	5	680	0	1000	1000	-25	65	NBR	7133XRN2SV1D	U133X51561D	1	-	483270	8	8	1960	11	7011
	5	680	0	1000	1000	-25	65	NBR				-	483270.02	8	8	1960	11	

Table continued on page 290

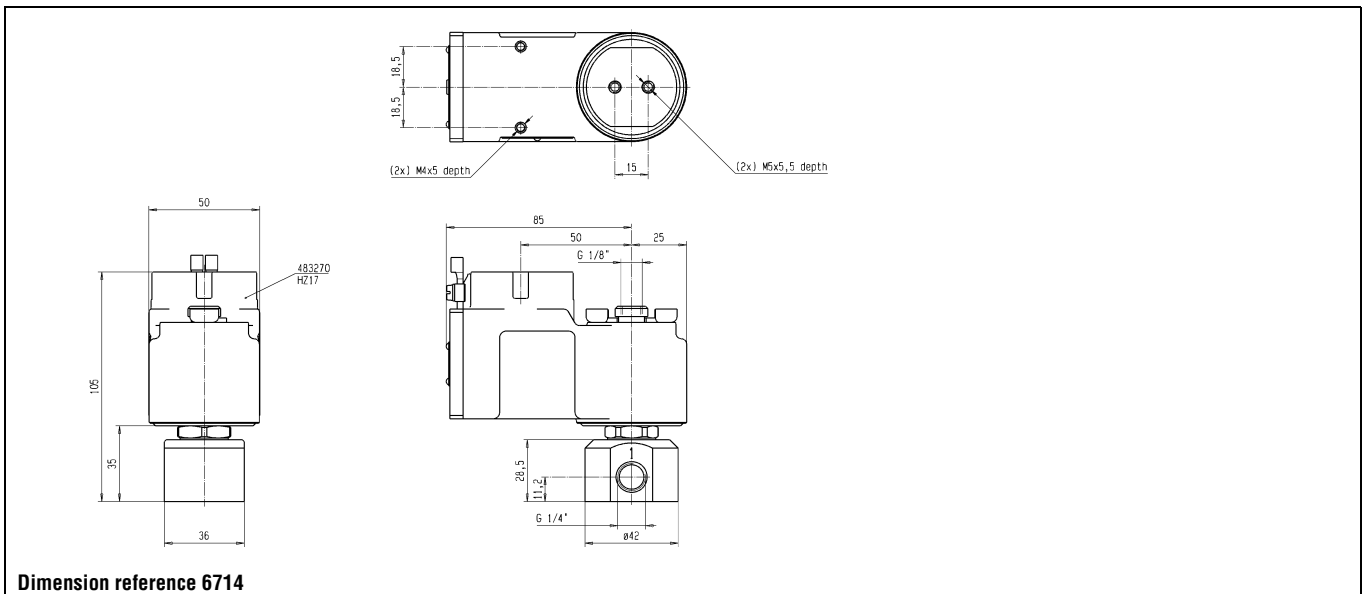
Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports
- 2. Max. power consumption DC = 1 W with connected cable length max. 4 km (2 km back and forth), section 1 mm²
- 3. Other coil-housing available

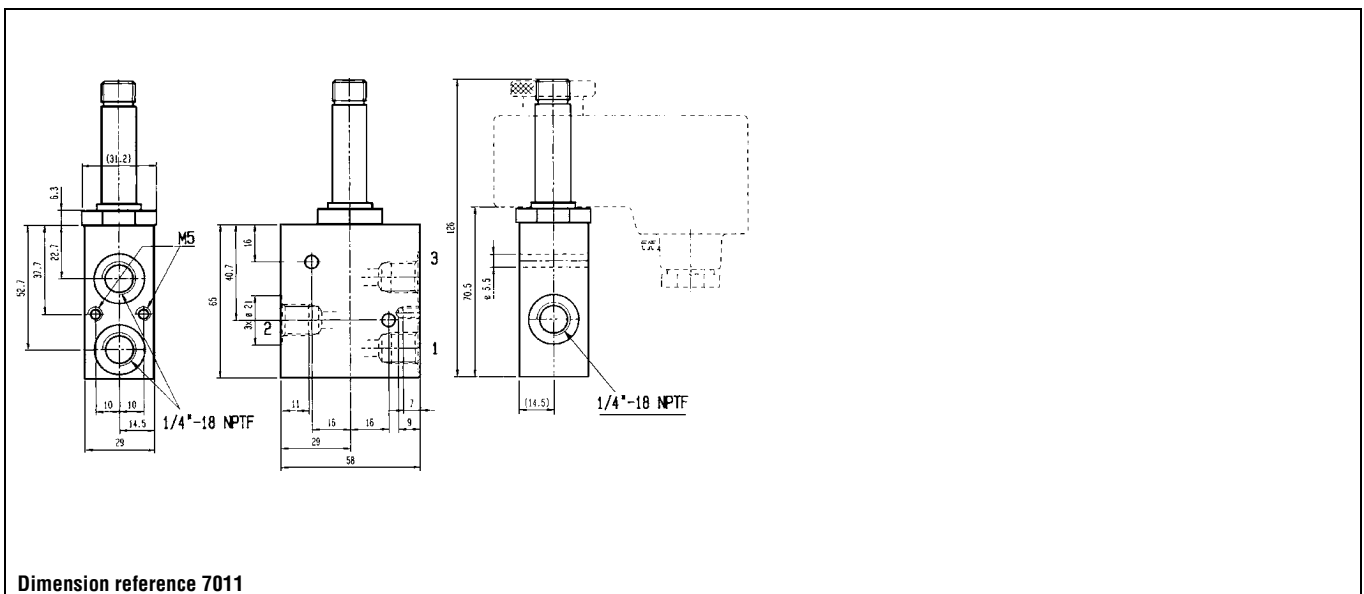
316 St. Steel valves for actuator control



Dimension reference 86



Dimension reference 6714

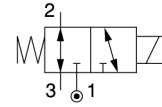


Dimension reference 7011

316 St. Steel valves for actuator control

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Direct operated



316L Stainless Steel body/Pipe mounting

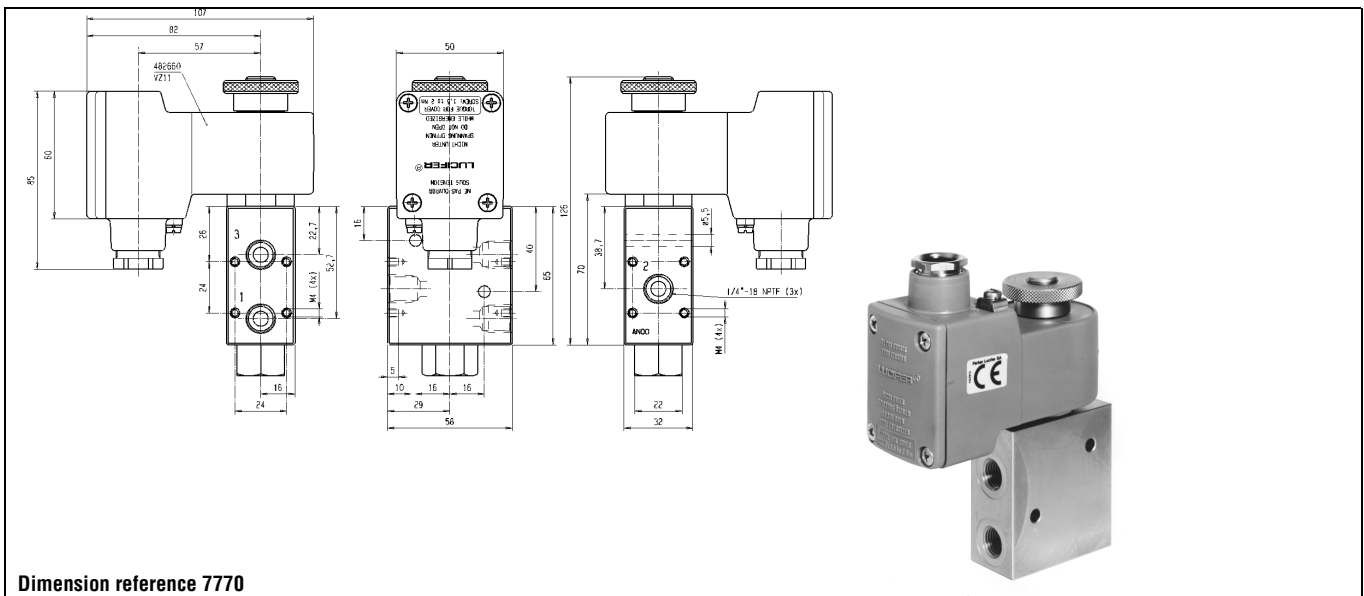
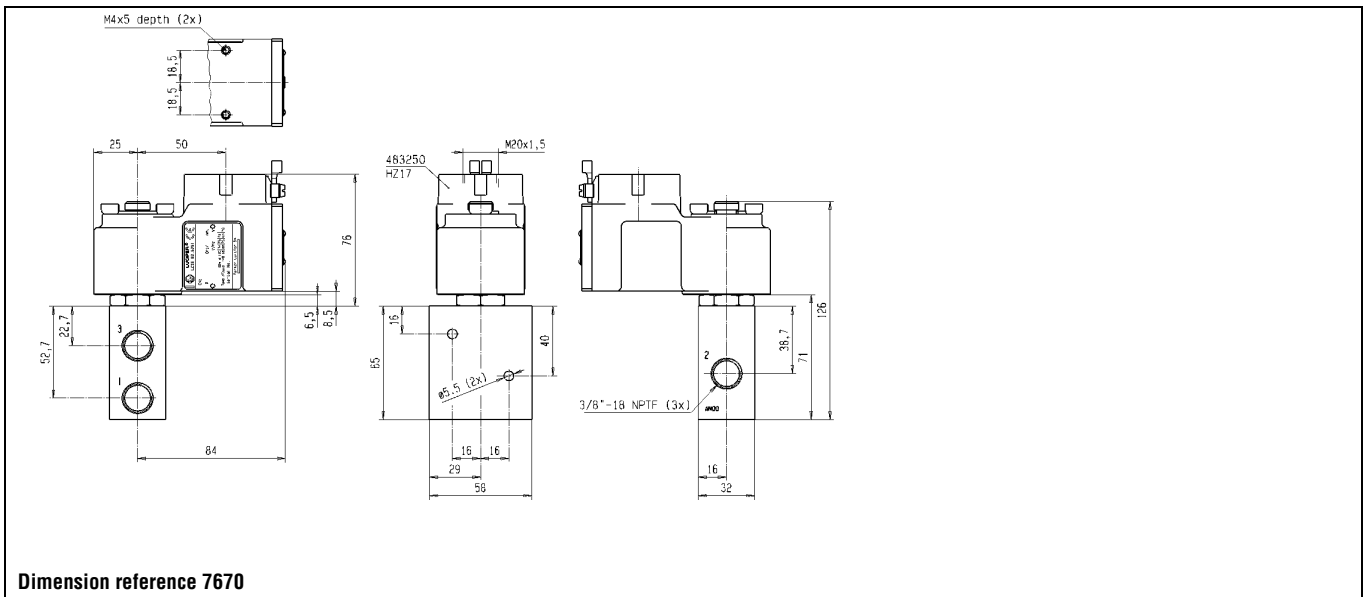
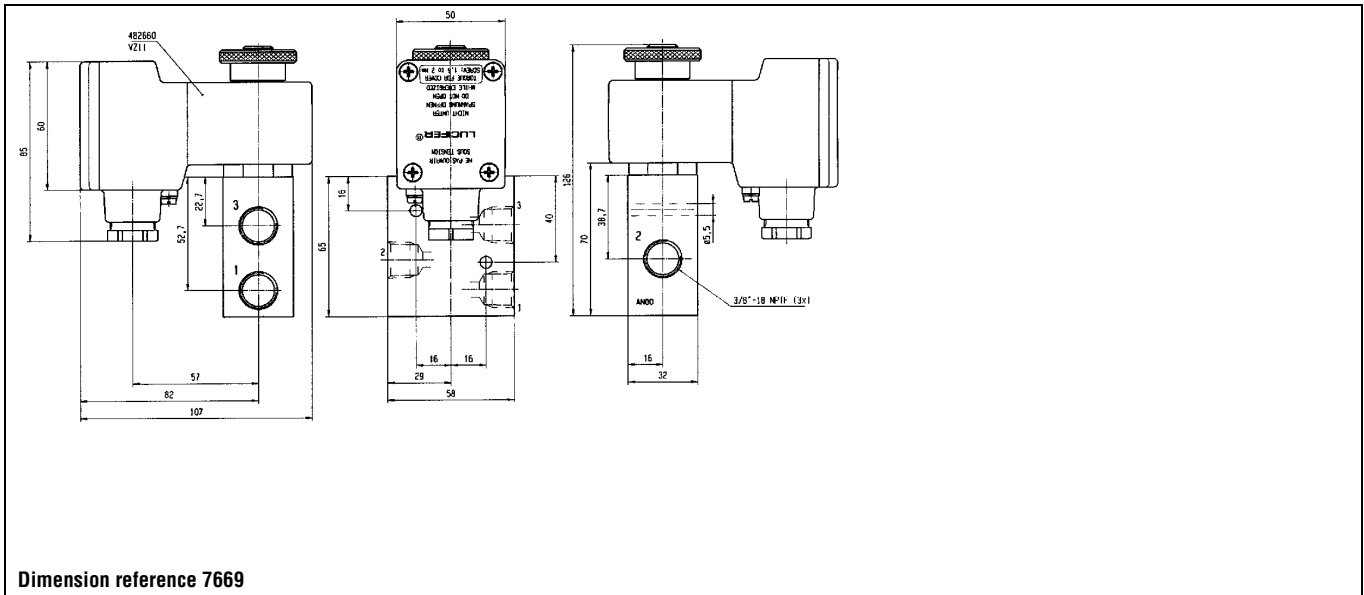
1/4	5	680	0	1000	-	-25	65	NBR	7133XRN2SV00	U133X5156	1	-	492965.01	0.8	-	1340	10	7770
	5	680	0	1000	1000	-25	65	NBR				-	492310	6	6	1340	10	
3/8	5	680	0	1000	1000	-25	65	NBR	7133XRN3SN9H	U133X52961D	1	-	483270	8	8	1940	10	7670
	5	680	0	1000	1000	-25	65	NBR				-	483270.02	8	8	1940	10	
	5	680	0	1000	1000	-25	65	NBR	7133XRN3SN96	U133X5296	1	-	492965.01	0.8	-	-	10	7669
	5	680	0	1000	1000	-25	65	NBR				-	492310	6	6	-	10	

Table continued on page 292

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

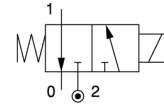
316 St. Steel valves for actuator control



316 St. Steel valves for actuator control

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

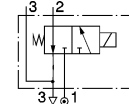
Direct operated



316L Stainless Steel body/Sub-base mounting

SB	2.5	220	0	1000	-	-25	65	FKM	7131FRF2LV95	U131F5695	1	-	492965.01	0.8	-	700	10	85
	2.5	220	0	1000	1000	-25	75	FKM				-	492310	6	6	700	10	

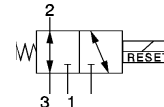
Direct operated



316L Stainless Steel body/NAMUR interface

3/8	5	680	0	1000	1000	-25	65	NBR	7131XRKMVN00	U131X1201	1	-	492965.01	0.8	-	-	9,10	7668
	5	680	0	1000	1000	-25	65	NBR				-	492310	6	6	-	9,10	

Direct operated with manual reset



316L Stainless Steel body/Pipe mounting

1/4	5	680	0	1000	1000	-25	65	NBR	7033XRN2SN1D	U033X51561D	2	-	483270	1	8	8	2150	11	7030
	5	680	0	1000	1000	-25	65	NBR				-	483270.02	1	8	8	2150	11	

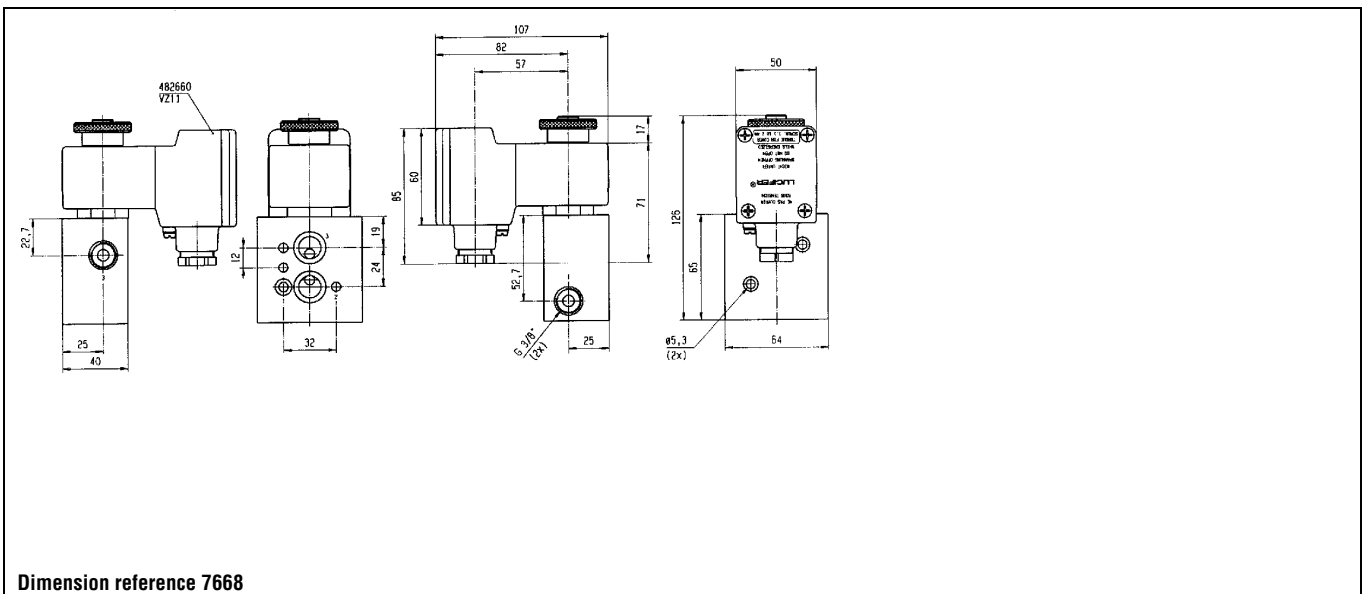
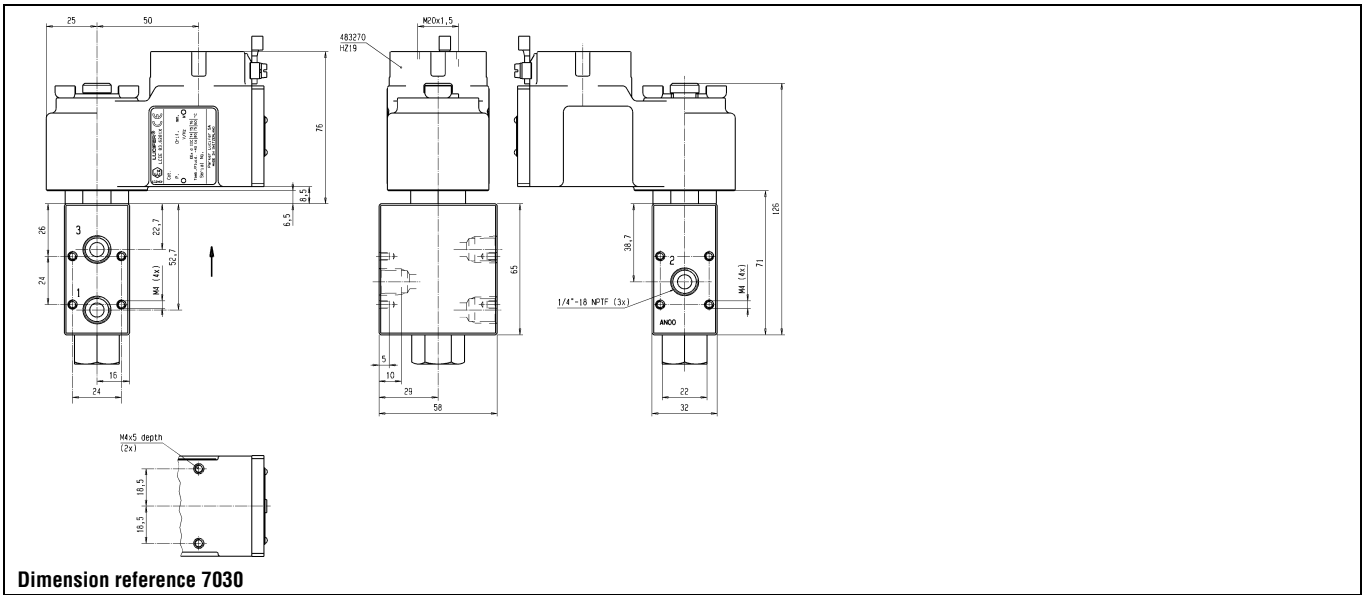
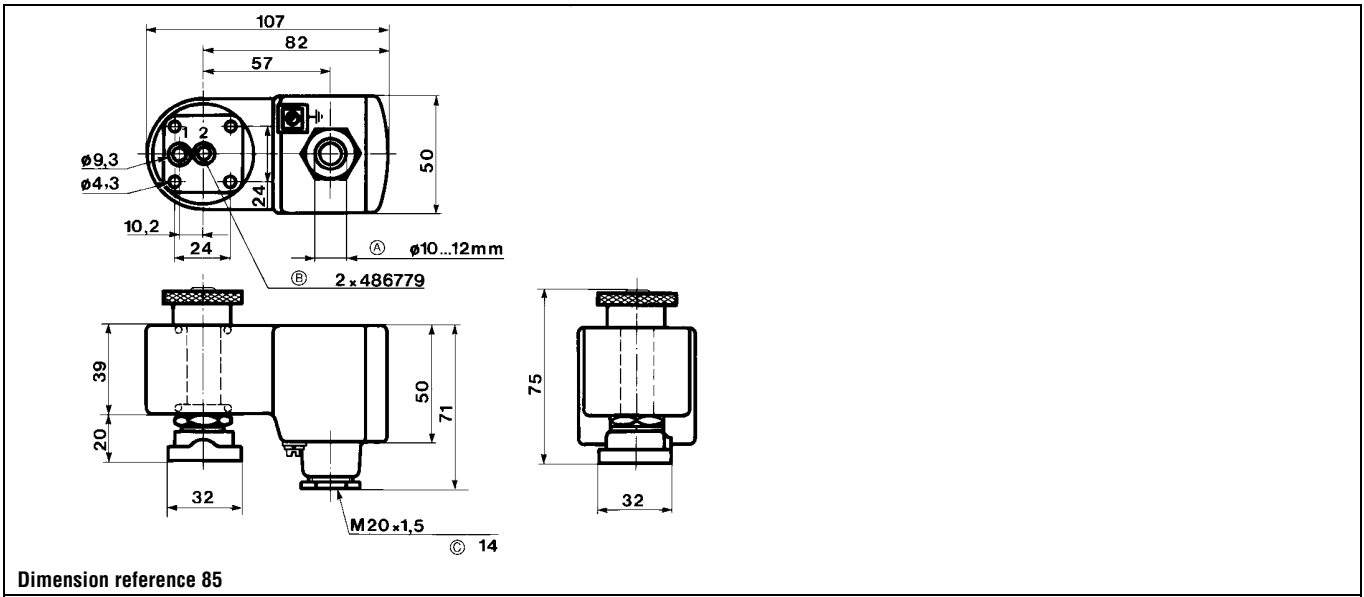
Table continued on page 294

Notes:

* See Electrical Parts Group table at end of section

1. Valve with NPT ports
2. With manual reset

316 St. Steel valves for actuator control

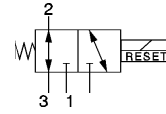


316 St. Steel valves for actuator control

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure kPa			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

316L Stainless Steel body/Pipe mounting

Direct operated with manual reset



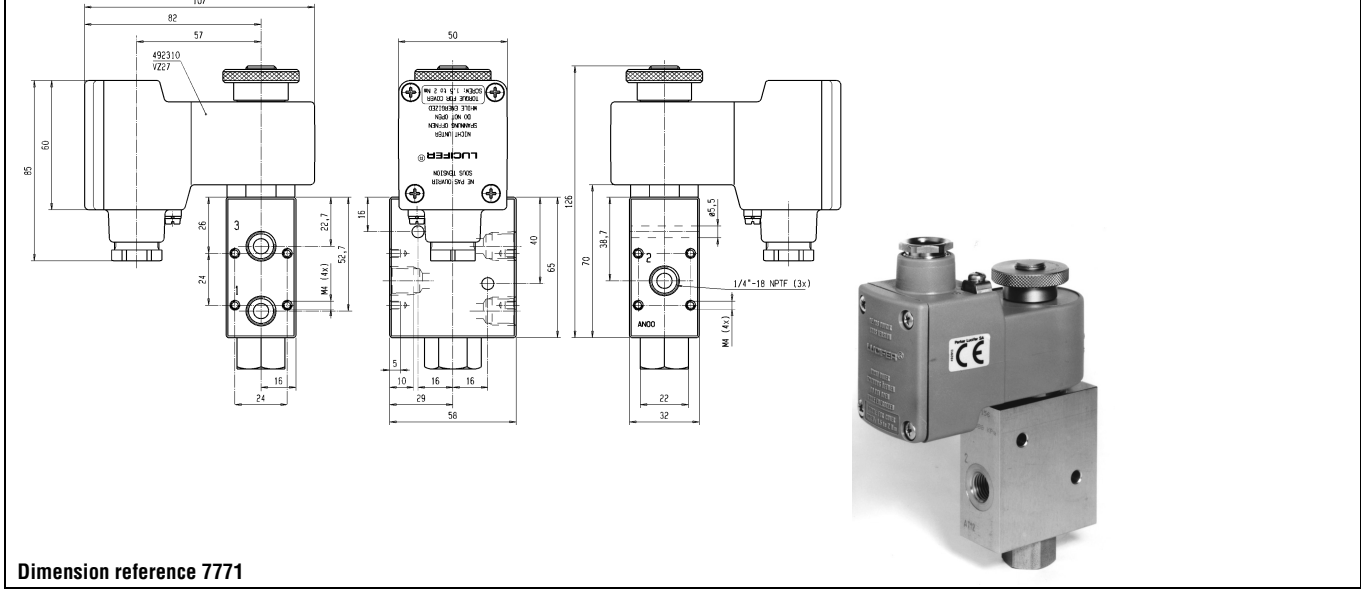
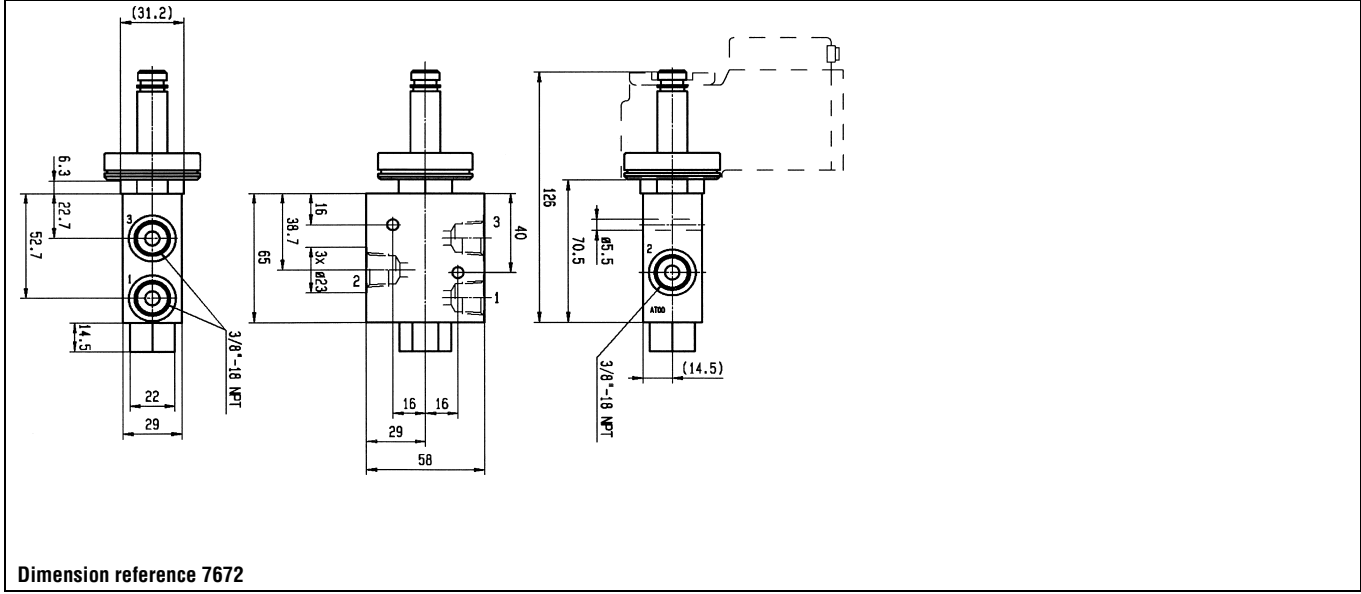
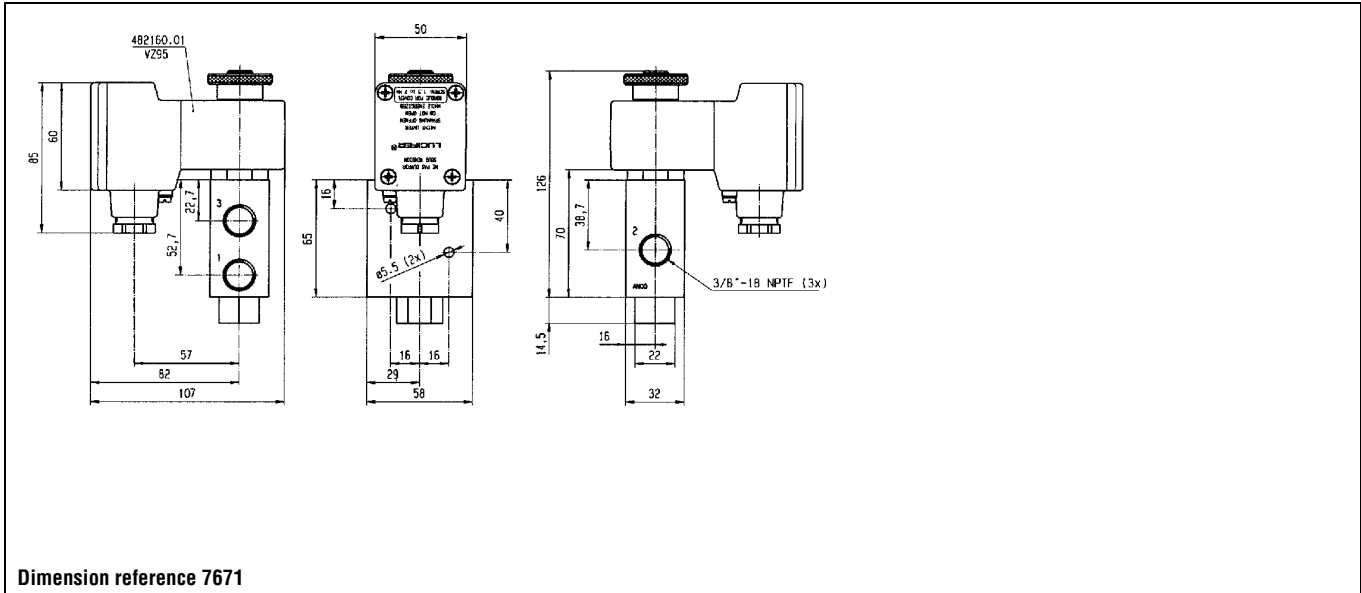
1/4	5	680	0	1000	-	-25	65	NBR	7033XRN2SN00	U033X5156	1	-	482870.01	2	0.8	-	1300	12	7771
	5	680	0	1000	1000	-25	65	NBR				-	492310	2	6	6	1300	12	
3/8	5	680	0	1000	1000	-25	65	NBR	7033XRN3SN1D	U033X52561D	1	-	483270	2	8	8	1980	11	7672
	5	680	0	1000	1000	-25	65	NBR				-	483270.02	2	8	8	1980	11	
	5	680	0	1000	-	-25	65	NBR	7033XRN3SN00	U033X5256	1	-	482870.01	2	0.8	-	1300	12	7671
	5	680	0	1000	1000	-25	65	NBR				-	492310	2	6	6	1300	12	

Notes:

* See Electrical Parts Group table at end of section

1. With manual reset
2. Valve with NPT ports

316 St. Steel valves for actuator control



316L St. Steel valves for actuator control

5/2

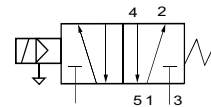
Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max		Min	Max		Global valve reference	Valve reference no.		Coil	DC	AC			
NPT				DC	AC										Housing		

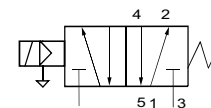
Pilot operated - Integrated pilot



316L Stainless Steel body/Pipe mounting

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	2341PRN2JNM1	U341P0150	1	A2	488980	2	2.5	2	220	1	7576
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Pilot operated



316L Stainless Steel body/Pipe mounting

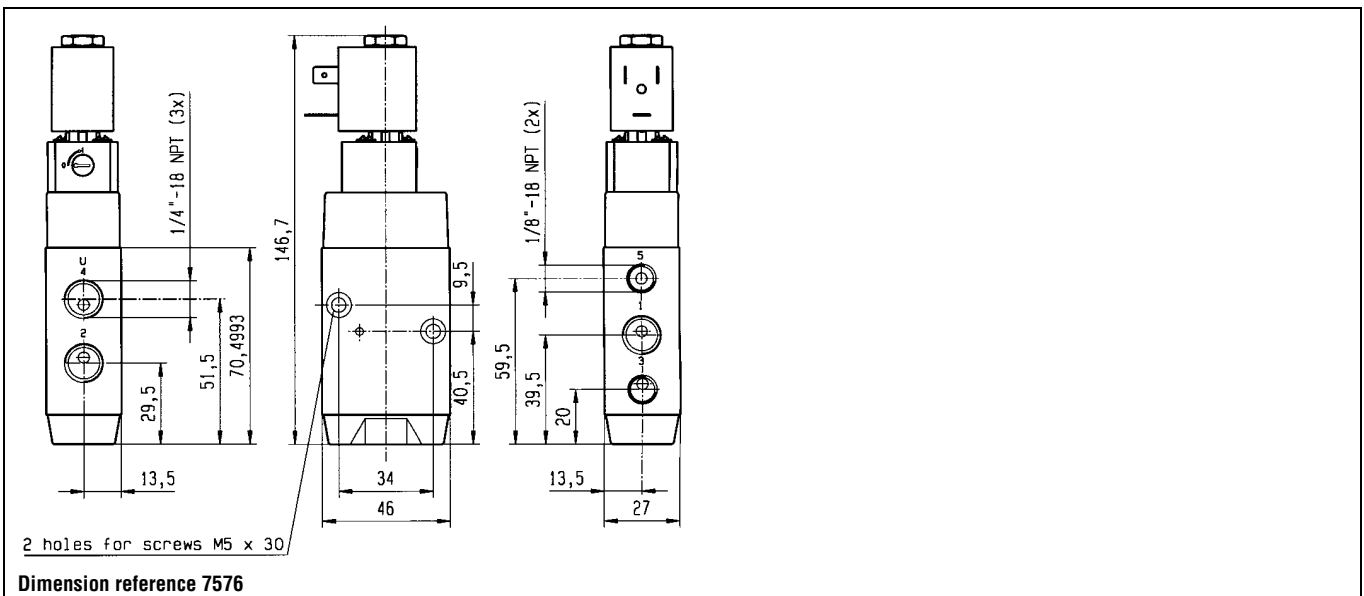
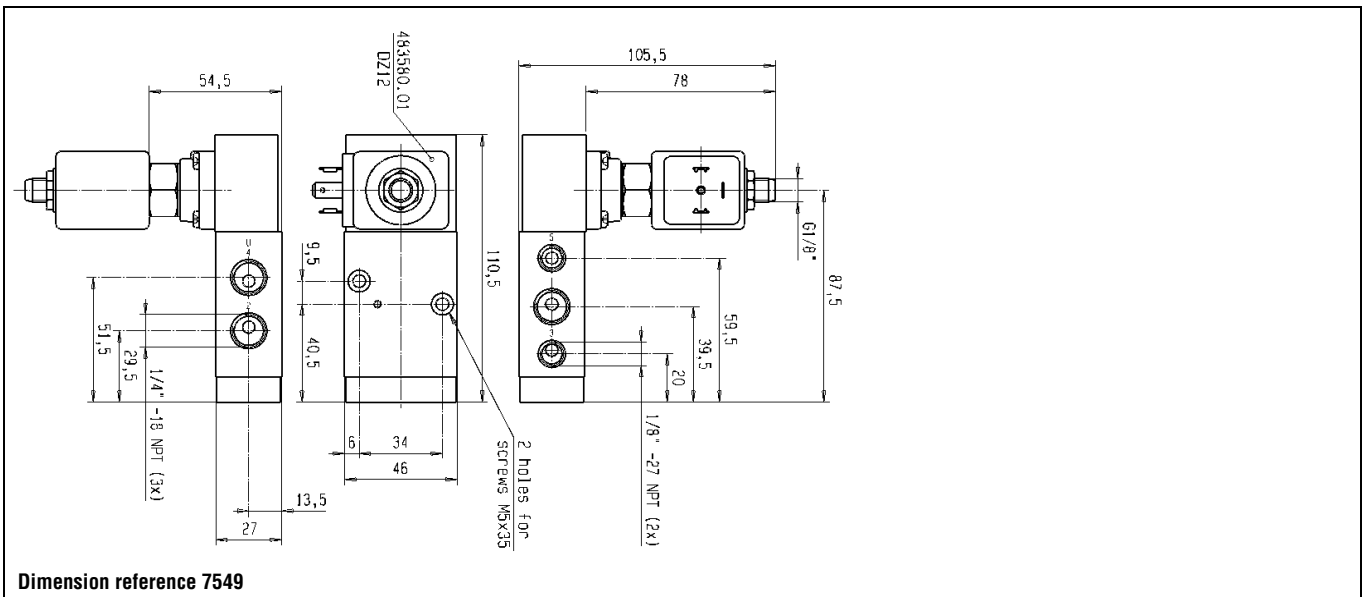
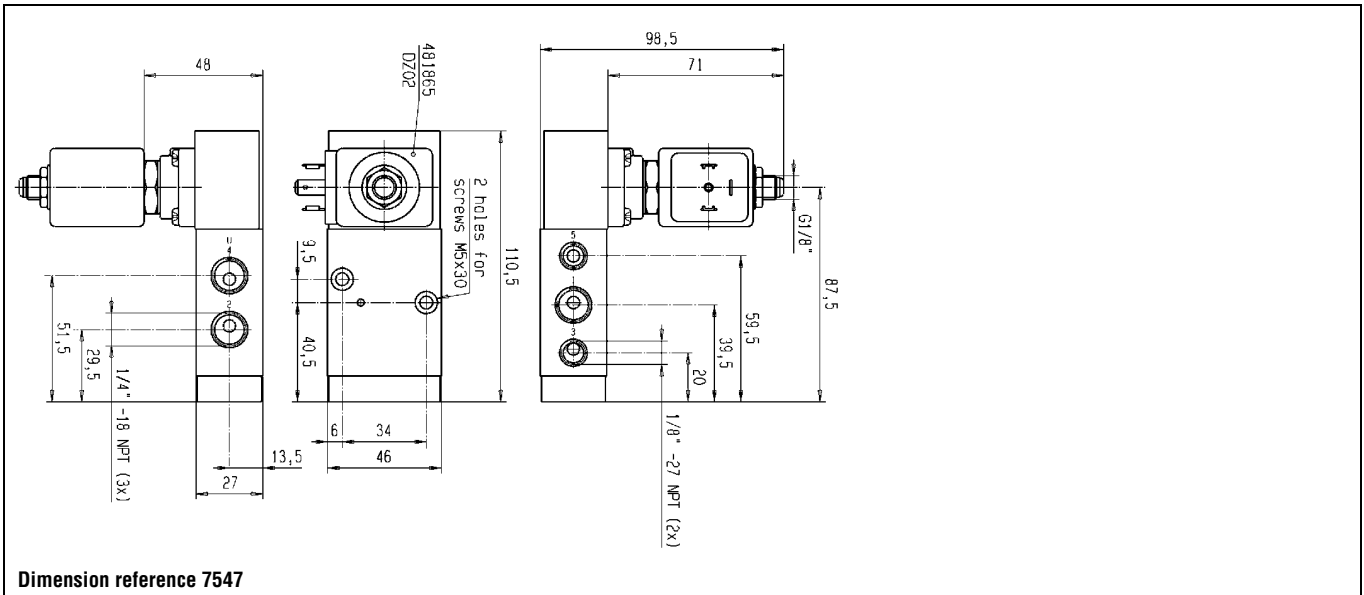
1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7341PRN2JN00	U341P3150	2	NL	481865	9	8	420	2	7547
	4	600	2	10	10	-25	80	NBR		E0		481000	8	8	420	2		
	4	600	2	10	10	-25	55	NBR	7341PRN2JN92	U341P3192	2	NL	483580.01	0.4	-	420	7	7549

Table continued on page 298

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Valve with NPT ports

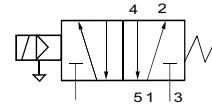
316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

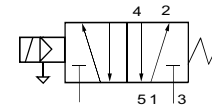
Pilot operated



316L Stainless Steel body/Pipe mounting

1/4 - 1/8	4	600	2	10	10	-25	75	NBR	7341PRN2JN95	U341P3195	1	-	492965.01	0.8	-	-	10	7550
	4	600	2	10	10	-25	75	NBR				-	492310	6	6	-	10	
	4	600	2	10	10	-10	75	NBR	7341PRN2JN9D	U341P31951D	1	-	483270	8	8	-	11	7551
	4	600	2	10	10	-10	75	NBR				-	483270.02	8	8	-	11	

Pilot operated - Integrated pilot



316L Stainless Steel body/Pipe mounting

3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	2341PRN3NNM1	U341P0250	2	A2	488980	1	2.5	2	-	1	7578
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Table continued on page 300

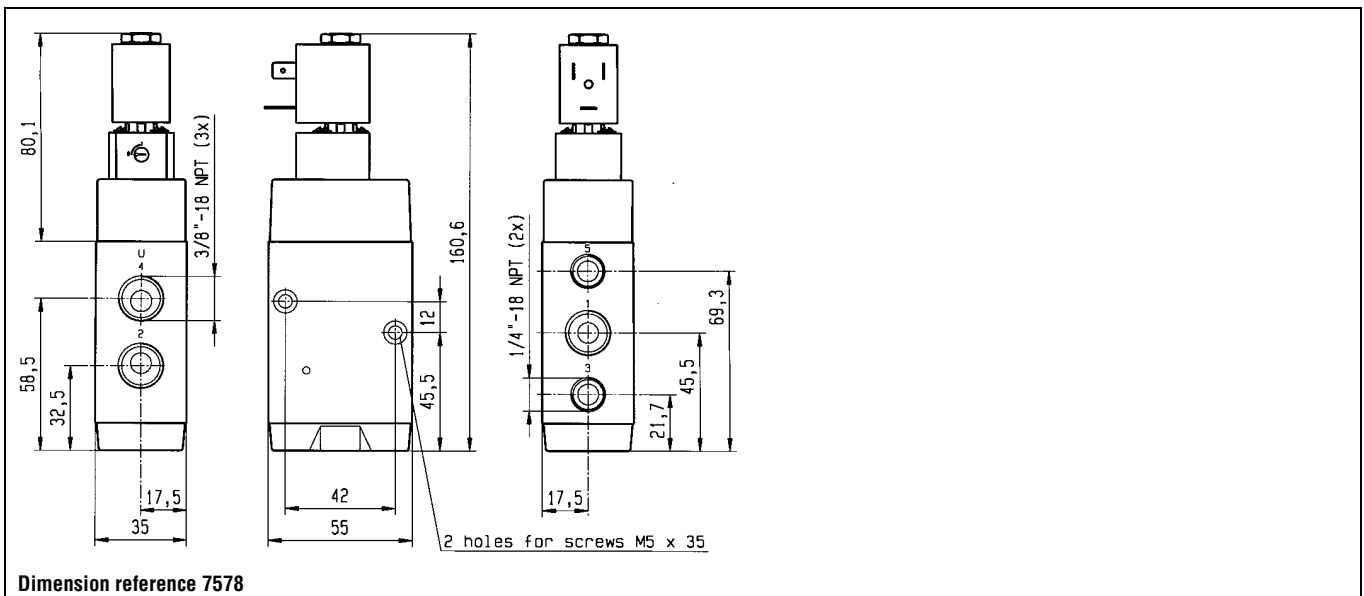
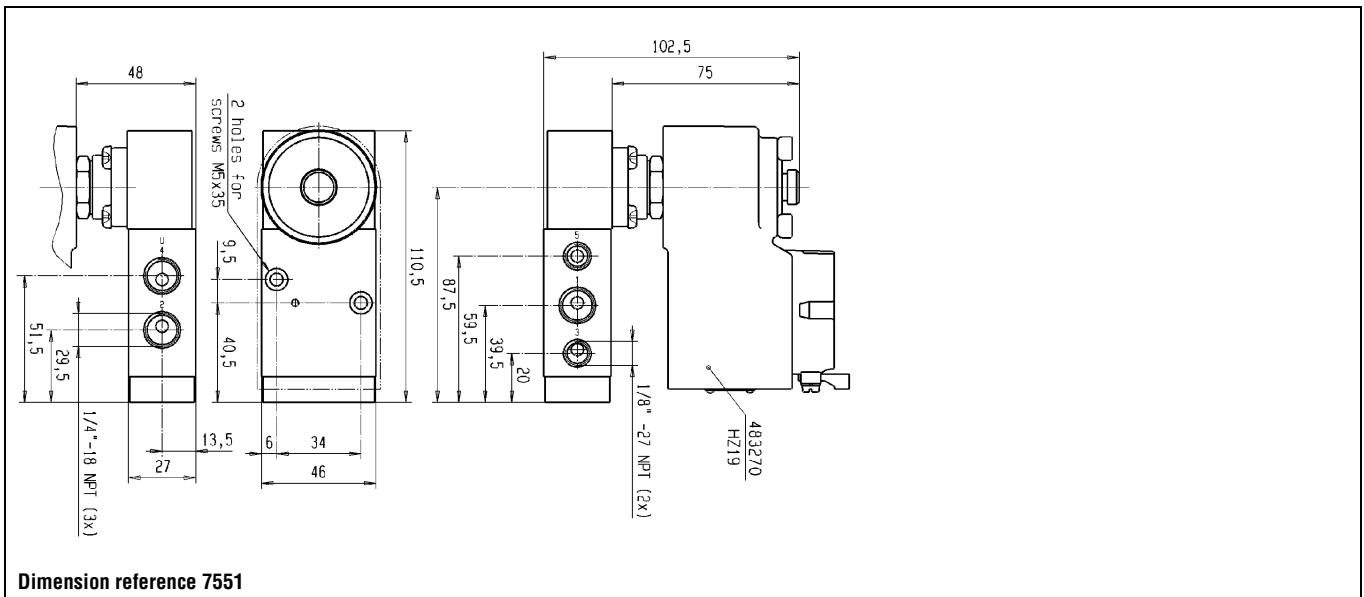
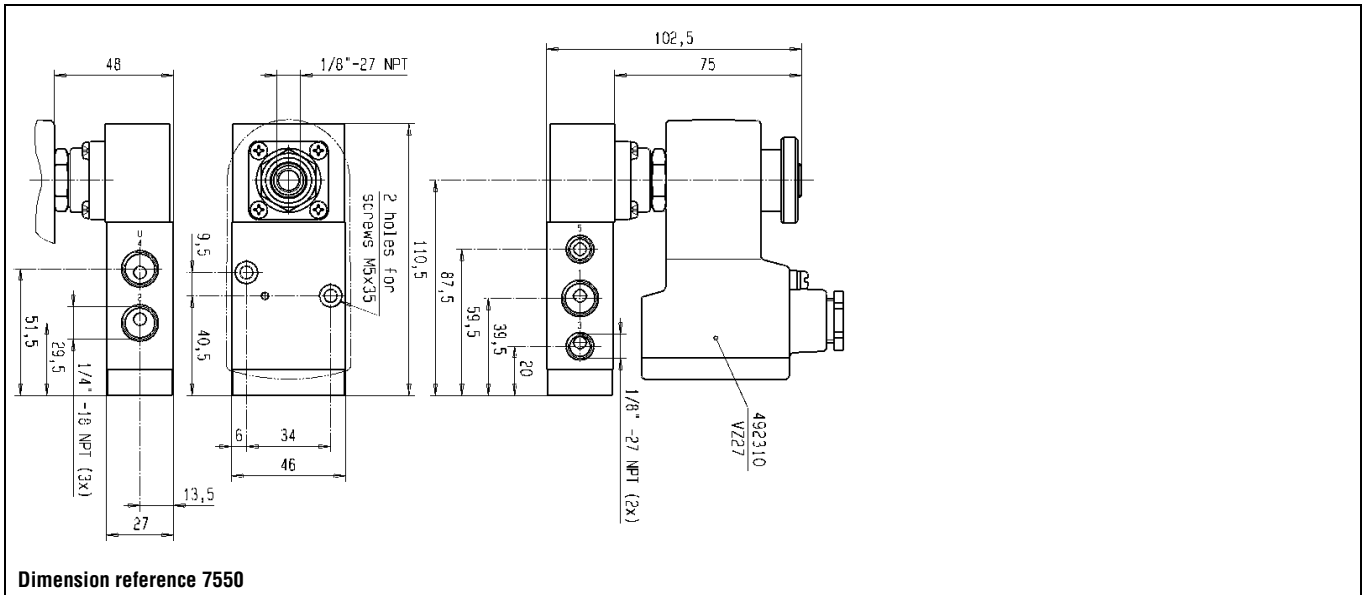
Notes:

* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Manual override standard

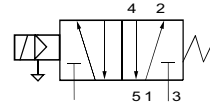
316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Pilot operated



316L Stainless Steel body/Pipe mounting

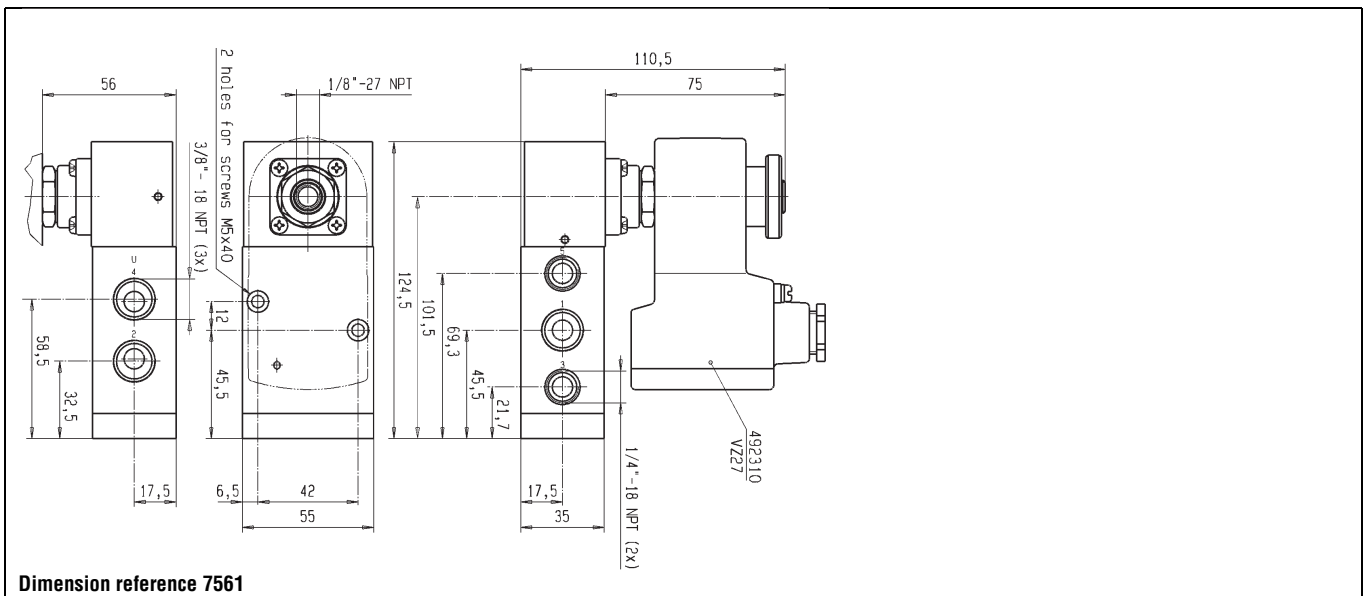
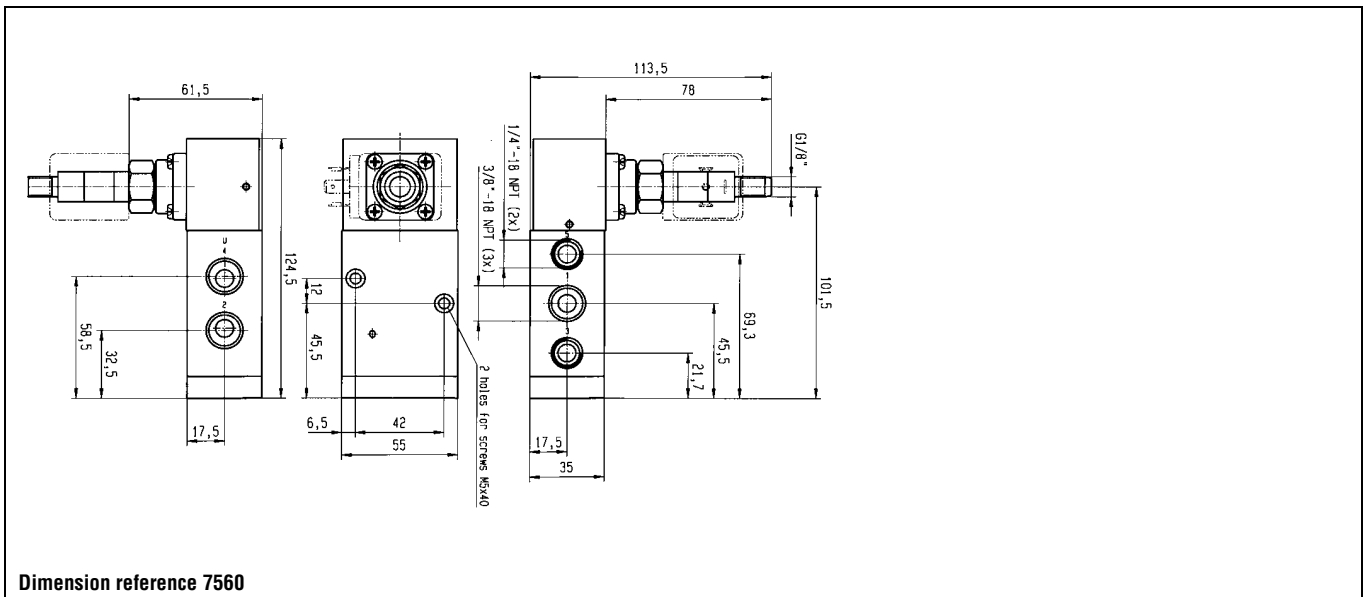
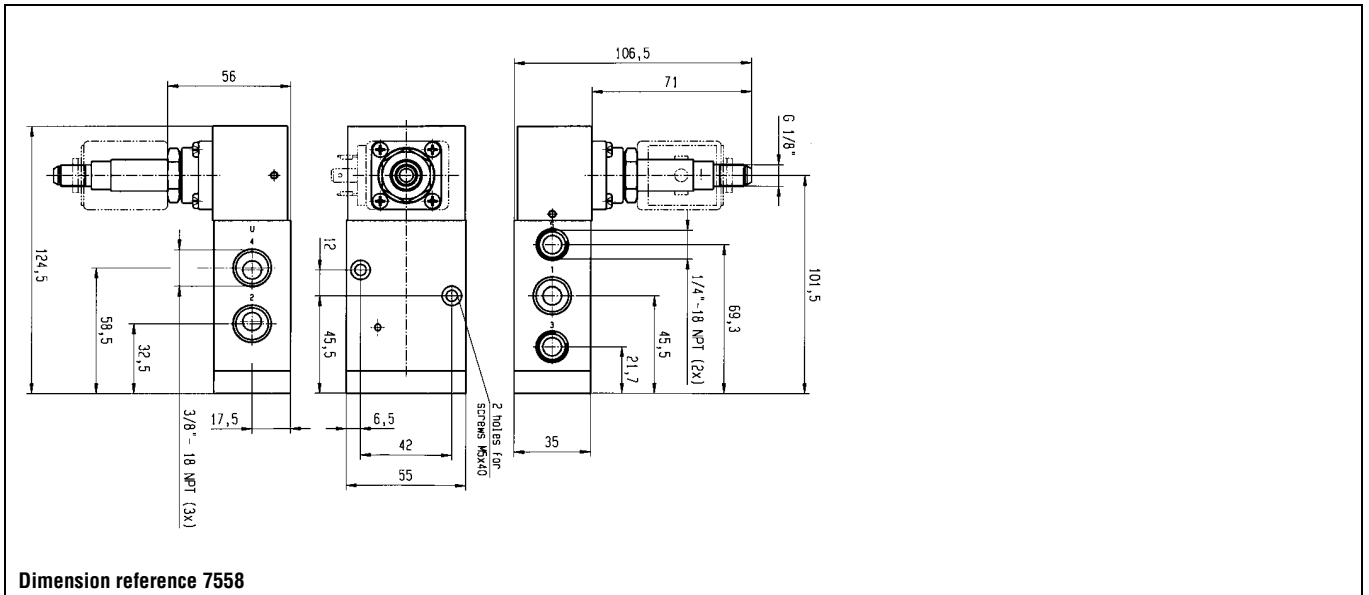
3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	7341PRN3NN00	U341P3250	1	NL	481865	9	8	-	2	7558
	8	1400	2	10	10	-25	80	NBR				E0	481000	8	8	-	2	
	8	1400	2	10	10	-25	80	NBR	7341PRN3NN92	U341P3292	1	NL	483580.01	0.4	-	-	7	7560
	8	1400	2	10	10	-25	75	NBR	7341PRN3NN95	U341P3295	1	-	492965.01	0.8	-	-	10	7561
	8	1400	2	10	10	-25	75	NBR				-	492310	6	6	-	10	

Table continued on page 302

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

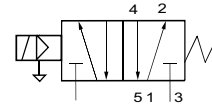
316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

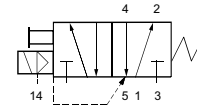
Pilot operated



316L Stainless Steel body/Pipe mounting

3/8 - 1/4	8	1400	2	10	10	-10	80	NBR	7341PRN3NN9D	U341P32951D	-	483270	8	8	-	11	7562
	8	1400	2	10	10	-10	80	NBR			-	483270.02	8	8	-	11	

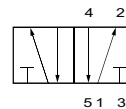
Pilot operated with external pressure supply



316L Stainless Steel body/Pipe mounting

3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	7441PRN3NN00	U441P3250 1	NL	481865	9	8	-	2	7565
	8	1400	2	10	10	-25	80	NBR			E0	481000	8	8	-	2	

External pressure supply



316L Stainless Steel body/Pipe mounting

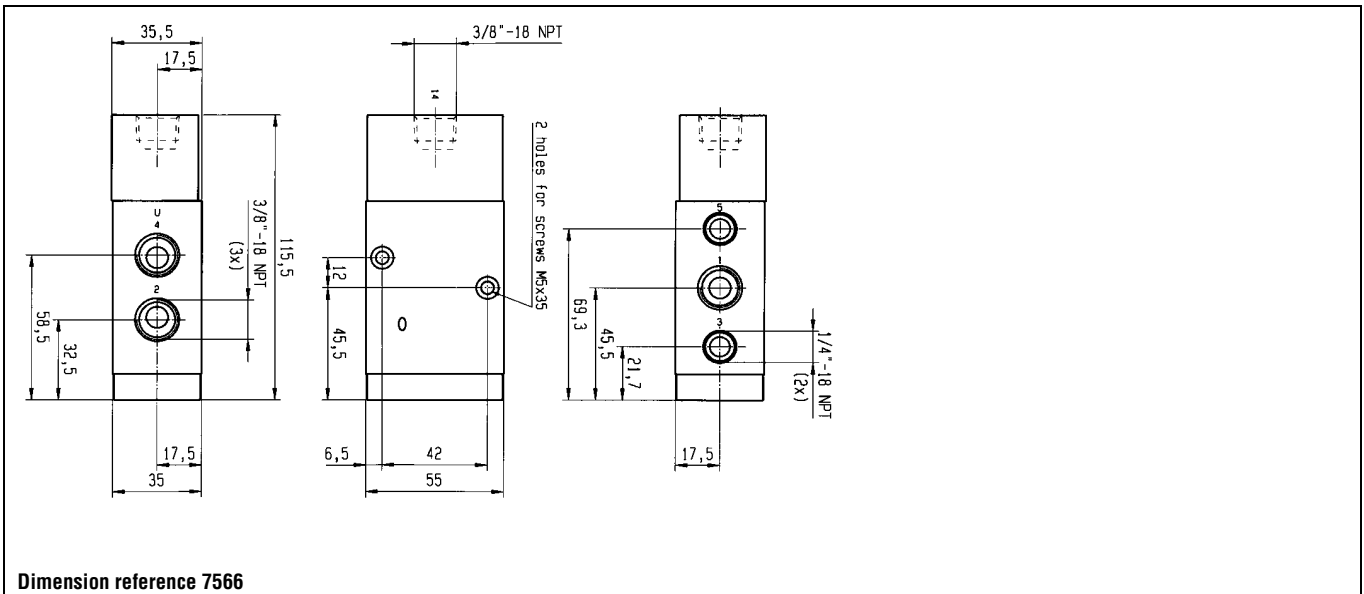
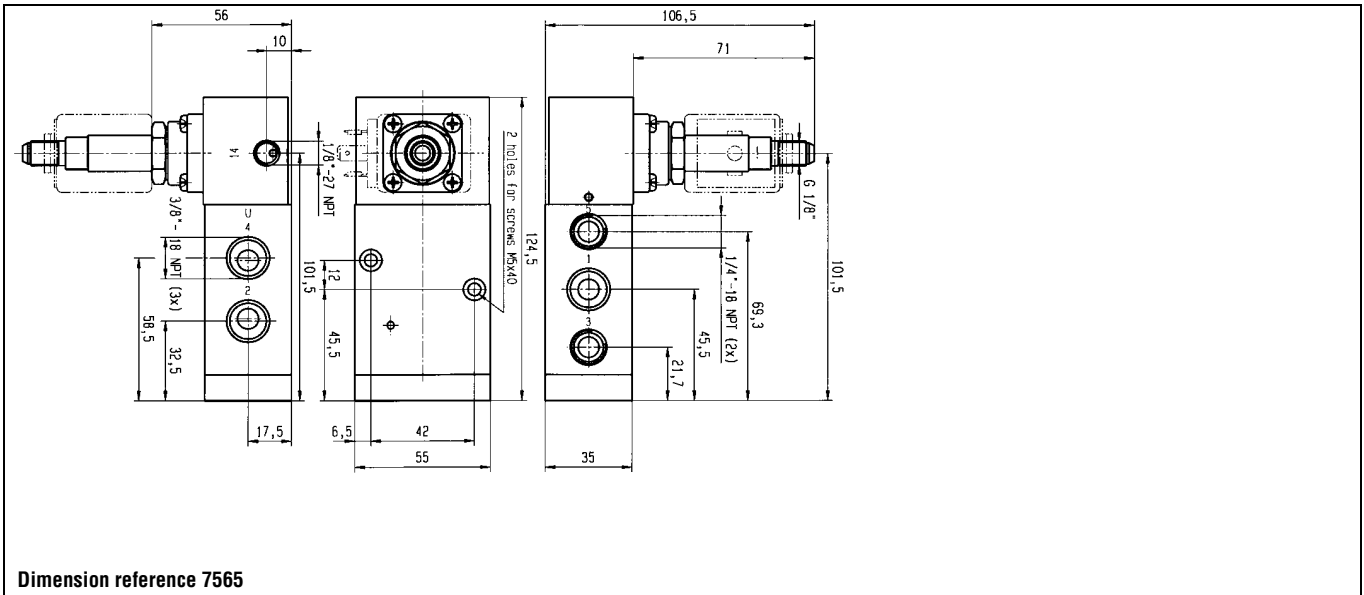
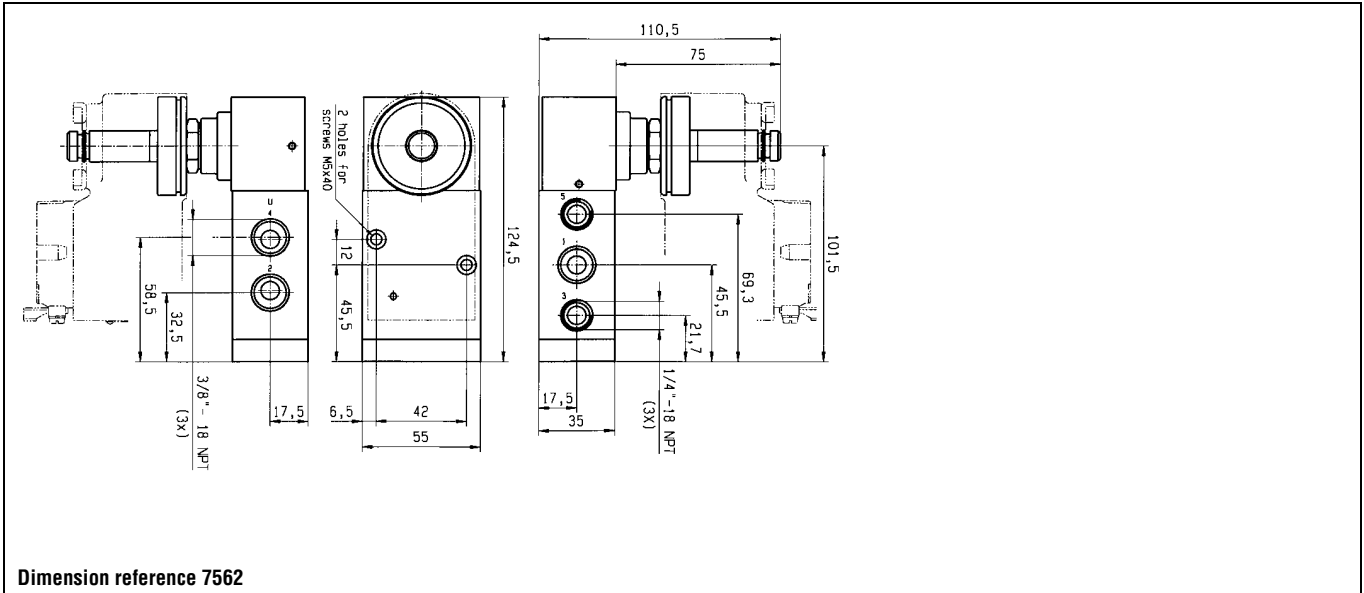
3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	7541PRN3NNM1	U541P0250 1	-	-	-	-	-	-	7566
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Table continued on page 304

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

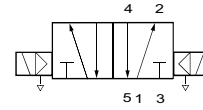
316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Two solenoids and main pressure supply



316L Stainless Steel body/Pipe mounting

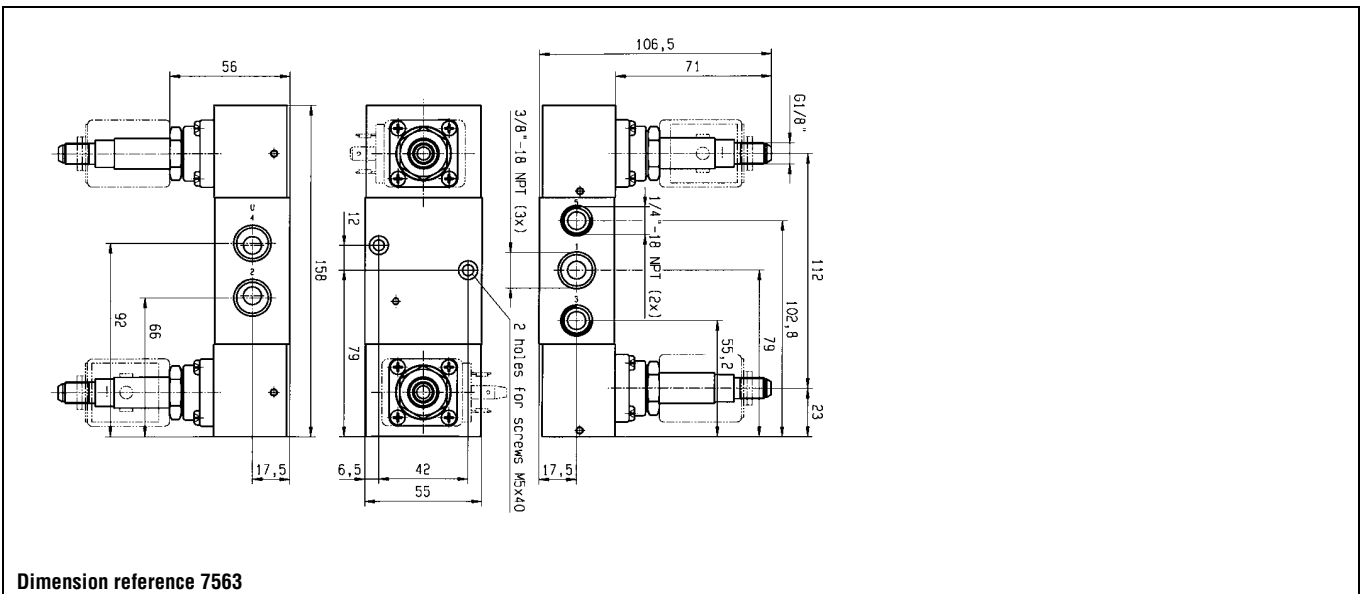
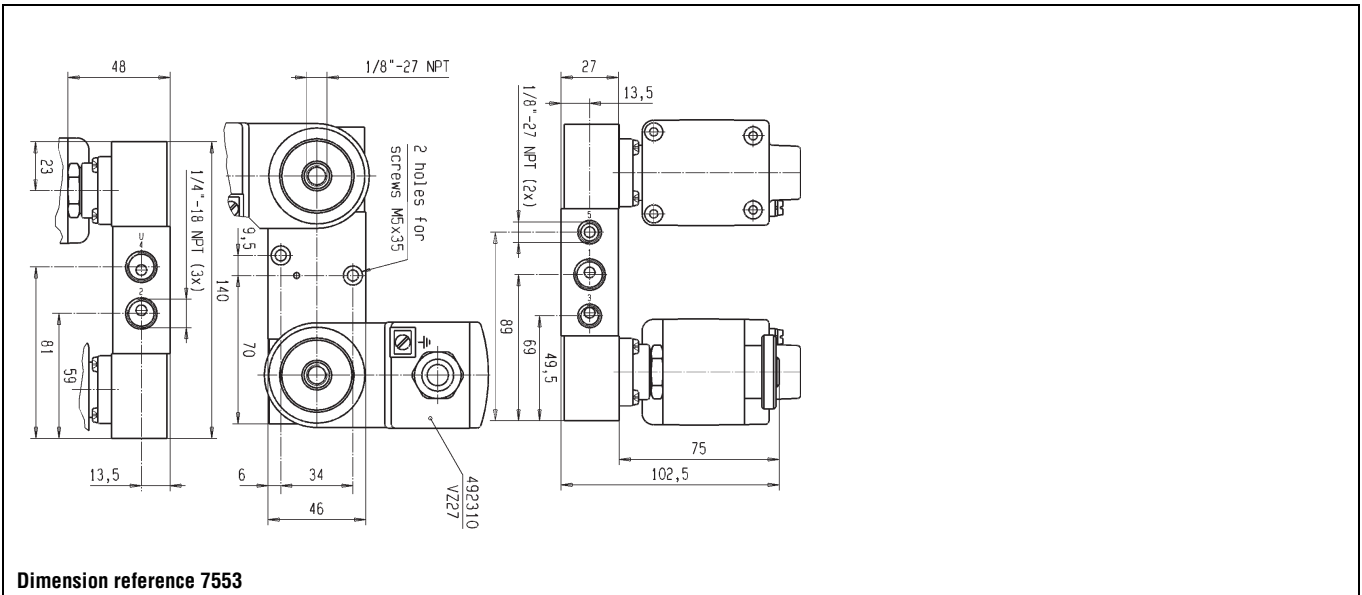
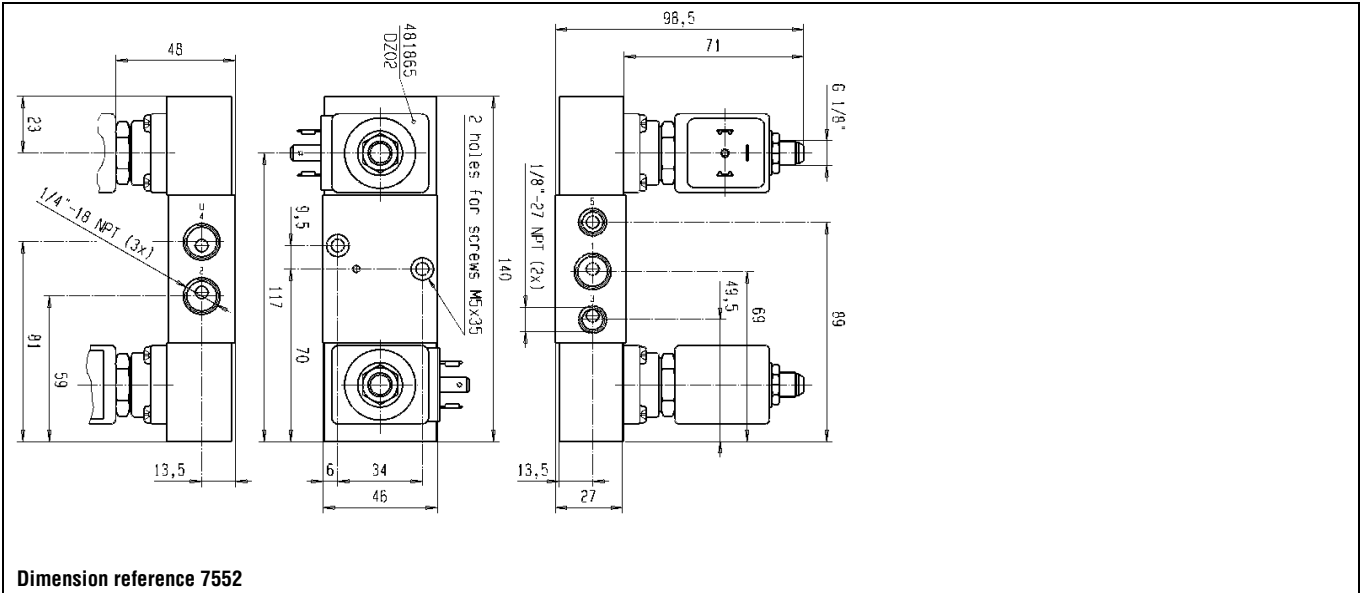
1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7347PRN2JN00	U347P3150	1	NL	481865	9	8	-	2	7552
	4	600	2	10	10	-25	80	NBR				E0	481000	8	8	-	2	
	4	600	2	10	10	-25	65	NBR	7347PRN2JN95	U347P3195	1	-	492965.01	0.8	-	-	10	7553
	4	600	2	10	10	-25	75	NBR				-	492310	6	6	-	10	
3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	7347PRN3NN00	U347P3250	1	NL	481865	9	8	-	2	7563
	8	1400	2	10	10	-25	80	NBR				E0	481000	8	8	-	2	

Table continued on page 306

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

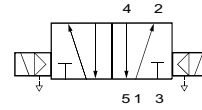
316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Two solenoids and main pressure supply



316L Stainless Steel body/Pipe mounting

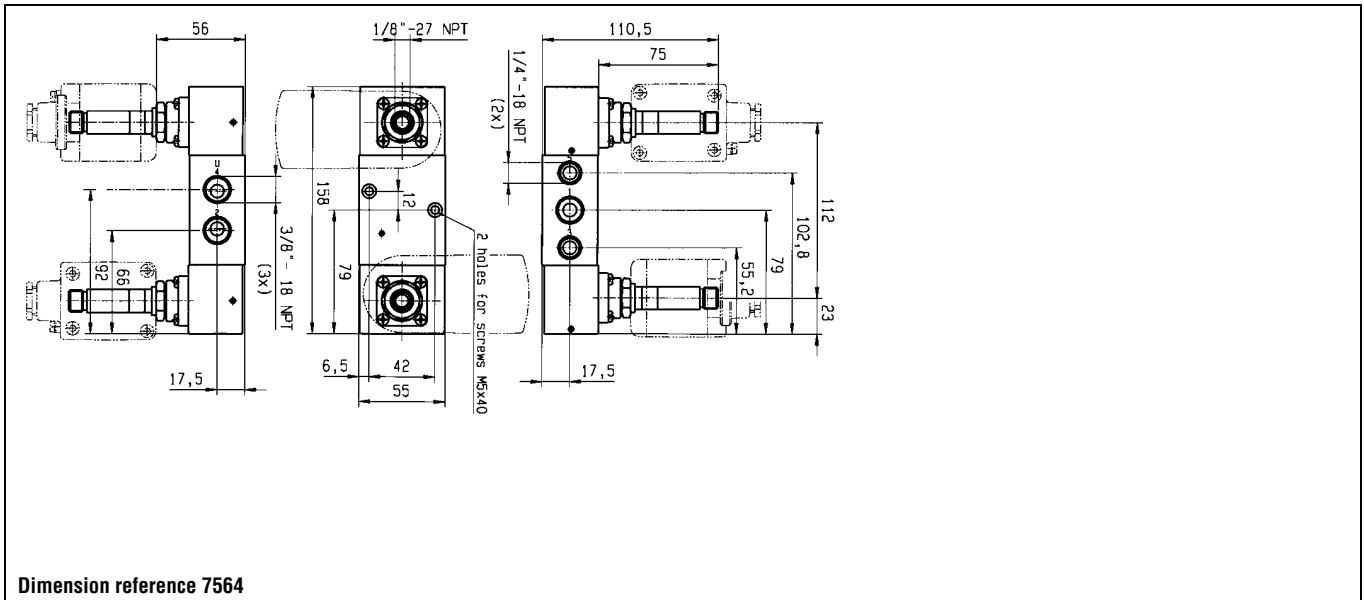
3/8 - 1/4	8	1400	2	10	10	-25	75	NBR	7347PRN3NN95	U347P3295	1	-	492965.01	0.8	-	-	10	7564
	8	1400	2	10	10	-25	75	NBR				-	492310	6	6	-	10	

Notes:

* See Electrical Parts Group table at end of section

1. Valve with NPT ports

316L Stainless Steel valves for actuator control - 5/2 valves - Pipe connection



316L St. Steel valves for actuator control

3/2 5/2

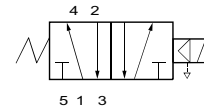
Applications

Directional control and fail/safe function in valve actuator circuits in corrosive and hazardous environment.

Solenoid pilots for main stage valves in corrosive and hazardous locations.

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	AC	Global valve reference	Valve reference no.		Housing	Coil	DC	AC					
NPT		Qn				Min	Max										

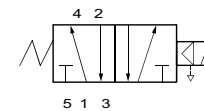
Pilot operated - Integrated pilot



316L Stainless Steel body/NAMUR interface

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	2341NRKDJNM1	U341N0150	1	A2	488980	2	2.5	2	-	1	7575
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Pilot operated



316L Stainless Steel body/NAMUR interface

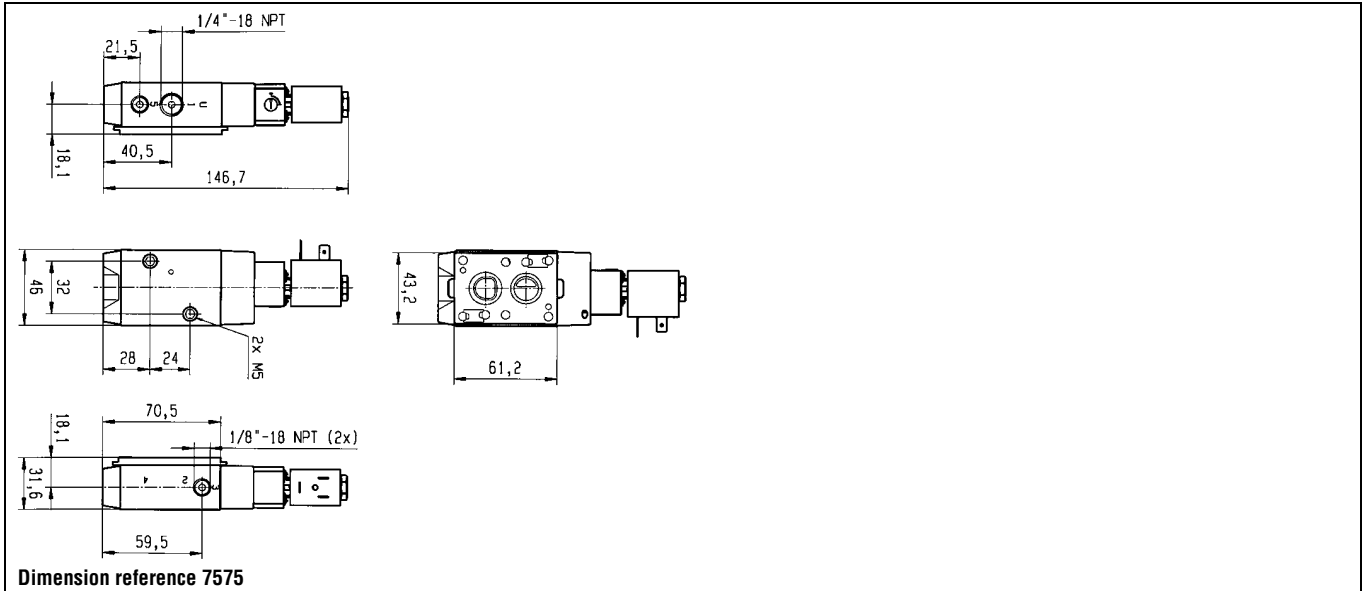
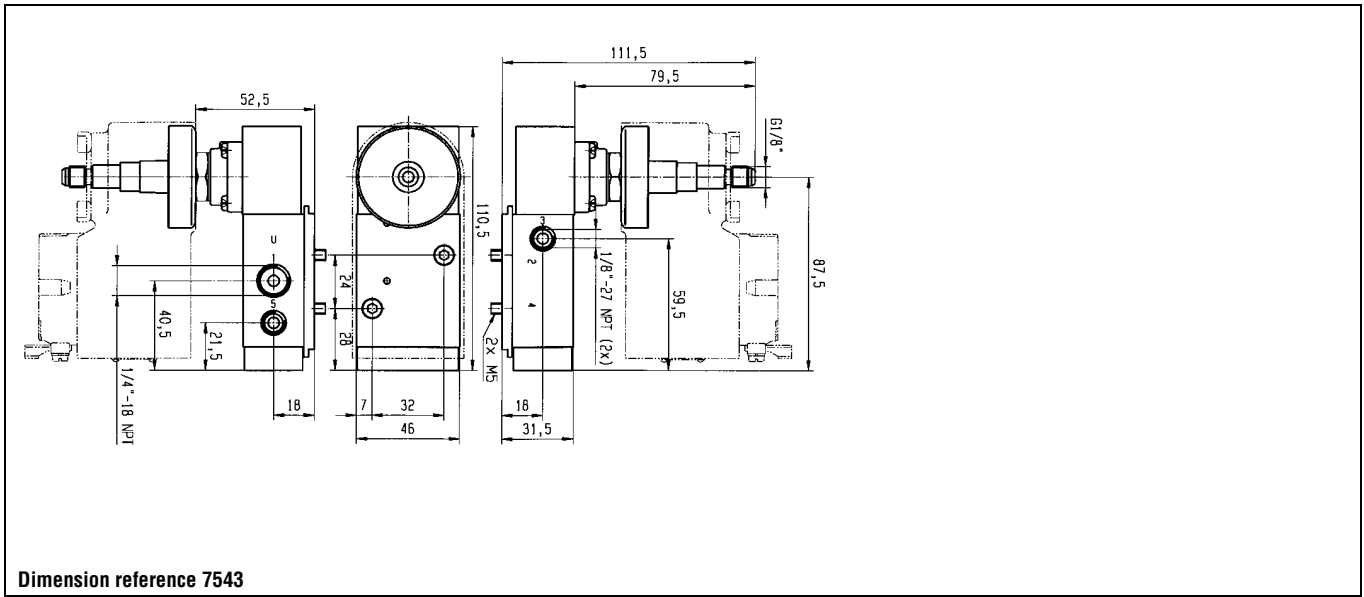
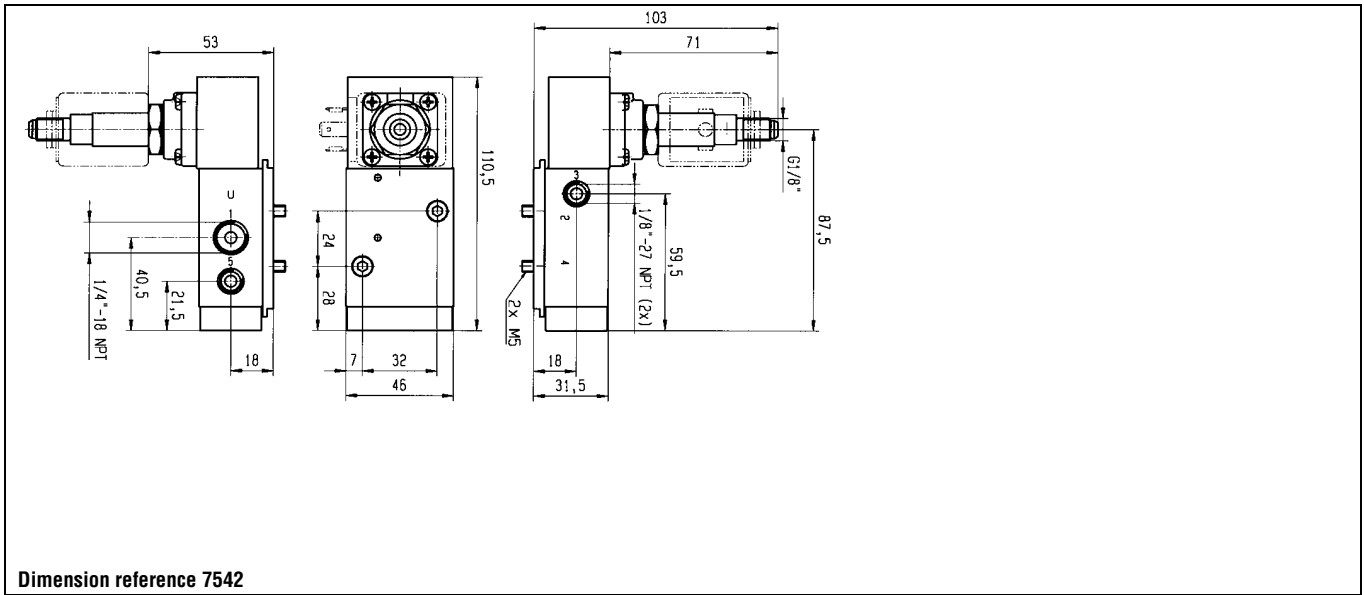
1/4 - 1/8	4	600	2	10	10	-25	75	NBR	7341NRKDJN00	U341N3150	2	NL	481865	9	8	-	2	7542
	4	600	2	10	10	-25	75	NBR		E0			481000	8	8	-	2	
	4	600	2	10	10	-25	80	NBR	7341NRKDJN1D	U341N31501D	2	-	483250	8	8	-	5	7543

Table continued on page 310

Notes:

- * See Electrical Parts Group table at end of section
- 1. Manual override standard
- 2. Valve with NPT ports

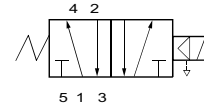
316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT																	

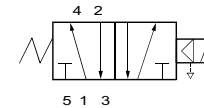
Pilot operated



316L Stainless Steel body/NAMUR interface

1/4 - 1/8	4	600	2	10	10	-25	80	NBR	7341NRKDJN92	U341N3192	1	NL	483580.01	0.4	-	-	7	7544
	4	600	2	10	10	-25	75	NBR	7341NRKDJN95	U341N3195	1	-	492965.01	0.8	-	-	10	7696
	4	600	2	10	10	-25	75	NBR				-	492310	6	6	-	10	

Pilot operated - Integrated pilot



316L Stainless Steel body/NAMUR interface

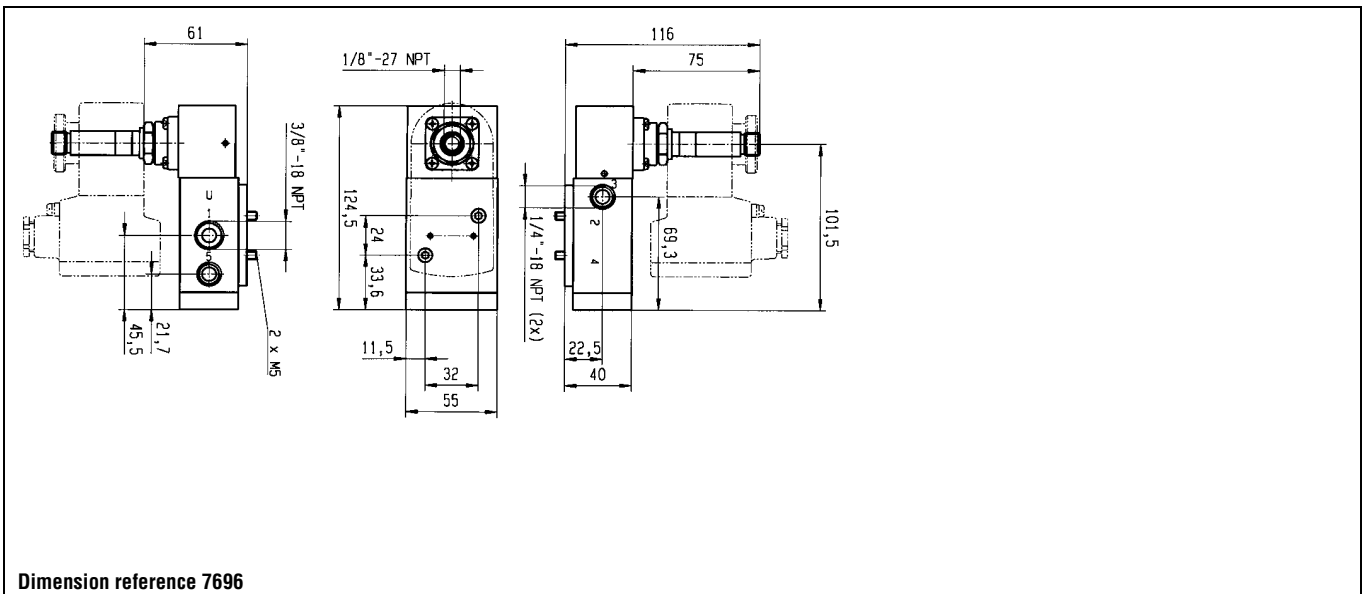
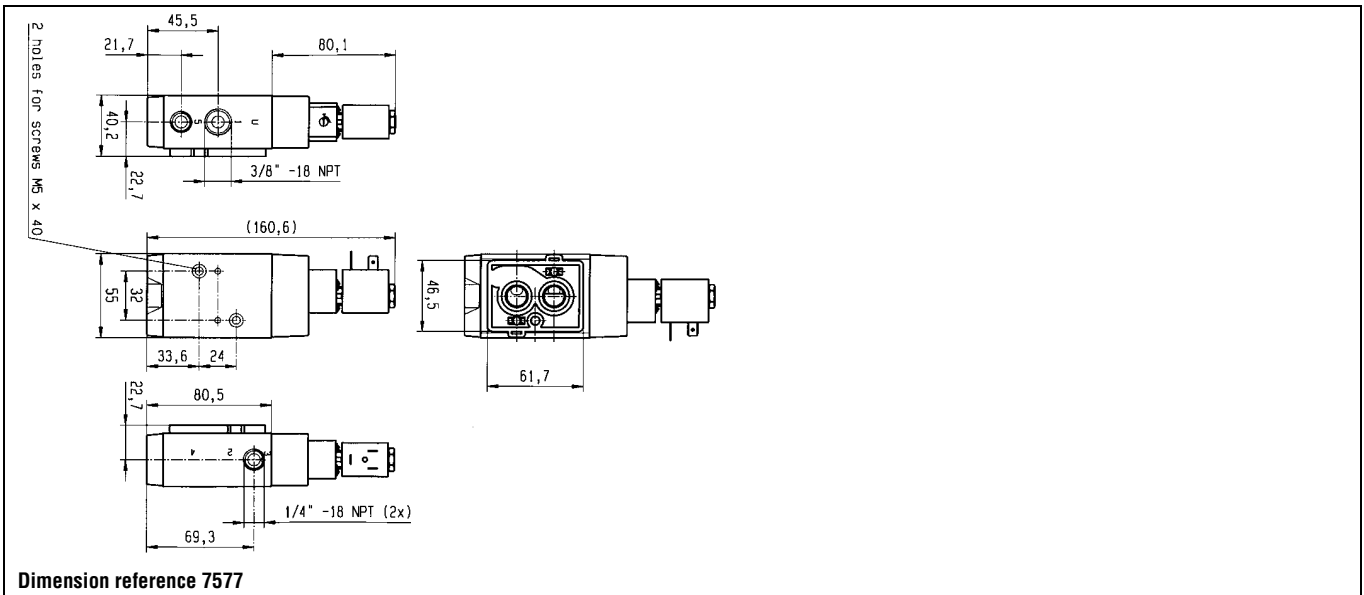
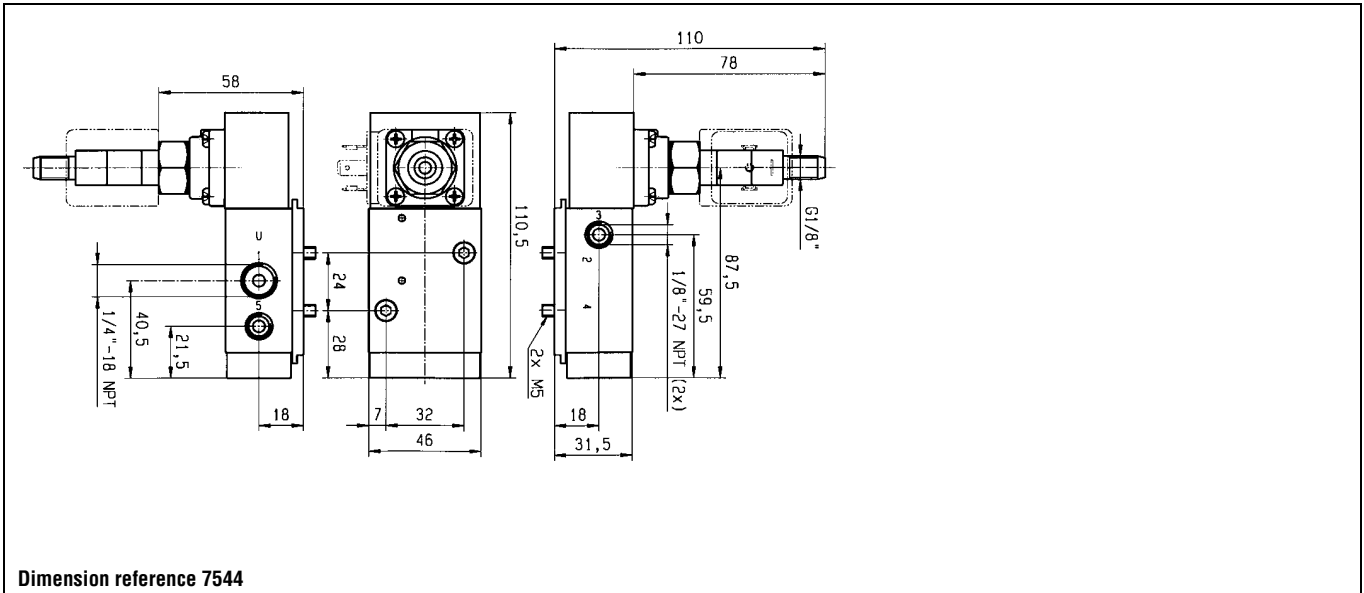
3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	2341NRKNNM1	U341N0250		A2	488980	2.5	2	-	1	7577
-----------	---	------	---	----	----	-----	----	-----	-------------	------------------	--	----	---------------	-----	---	---	---	------

Table continued on page 312

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

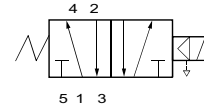
316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

Port size	Orifice (mm)	Flow factors (L/min)	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT		Qn															

Pilot operated



316L Stainless Steel body/NAMUR interface

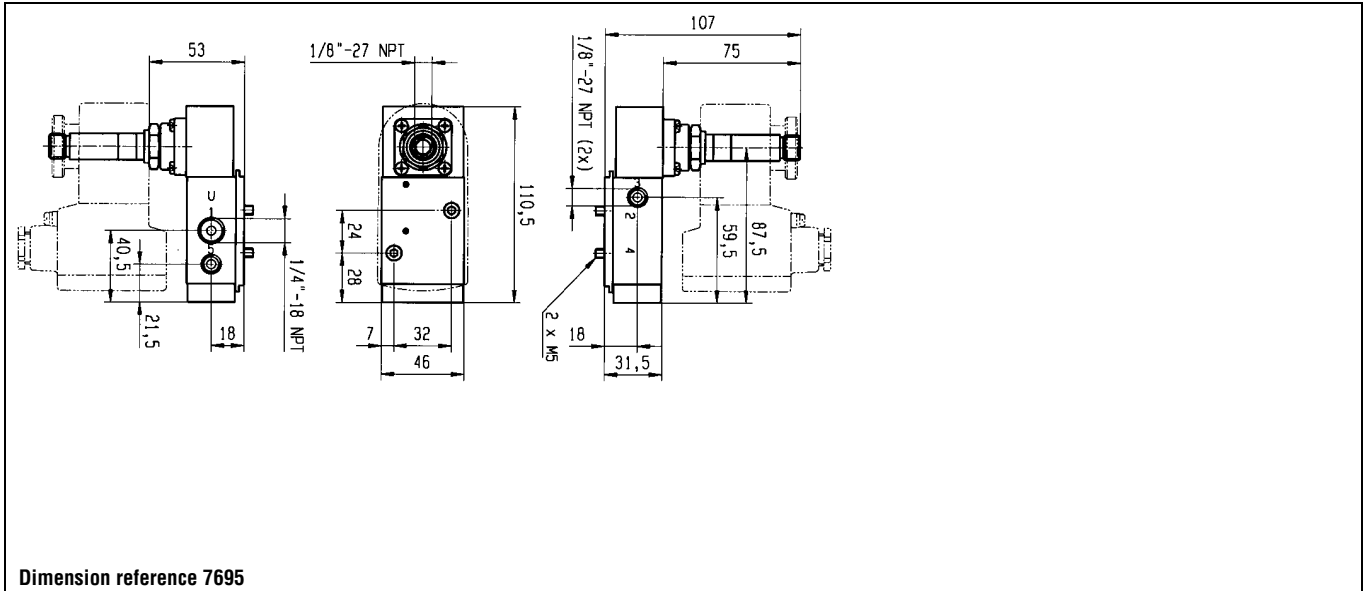
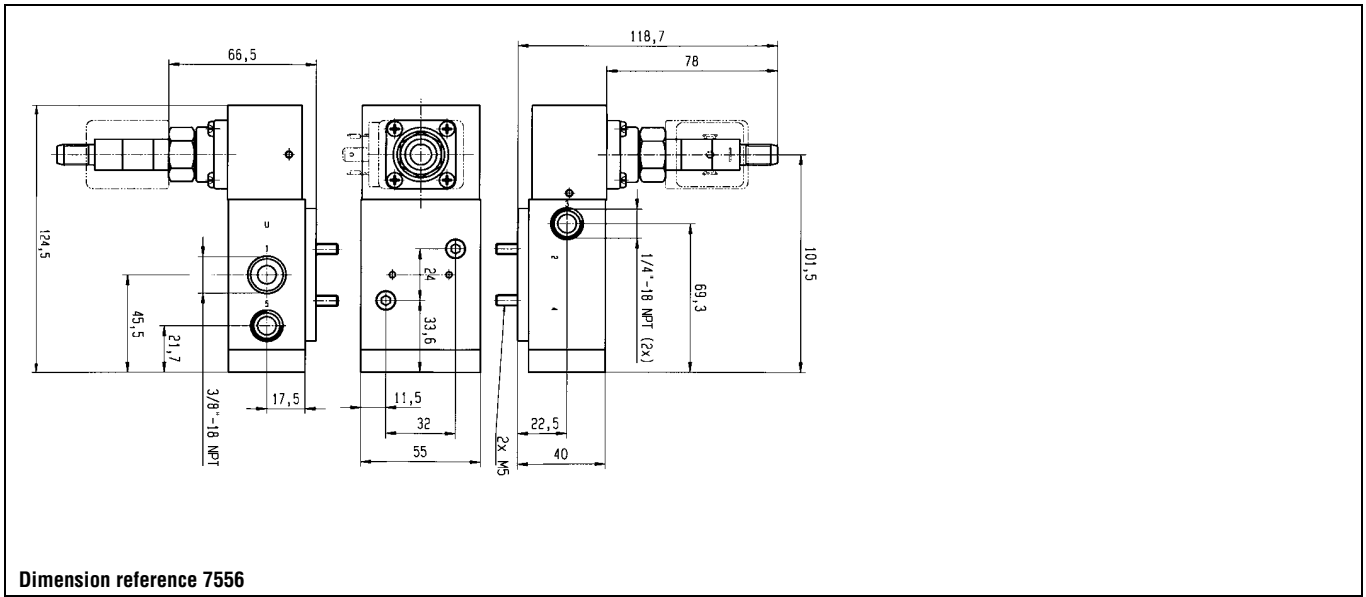
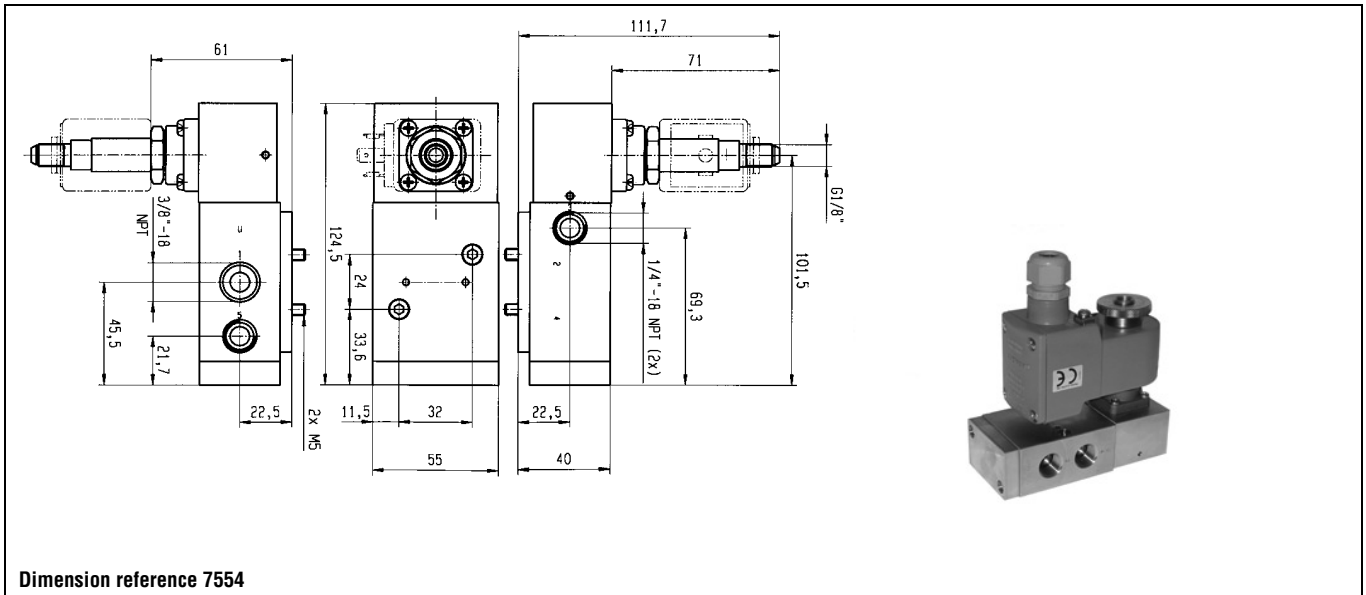
3/8 - 1/4	8	1400	2	10	10	-25	80	NBR	7341NRKNNN00	U341N3250	1	NL	481865	9	8	-	2	7554
	8	1400	2	10	10	-25	80	NBR		E0		481000	8	8	-	2		
	8	1400	2	10	10	-25	55	NBR	7341NRKNNN92	U341N3292	1	NL	483580.01	0.4	-	-	7	7556
	8	1400	2	10	10	-25	75	NBR	7341NRKNNN95	U341N3295	1	-	492965.01	0.8	-	-	10	7695
	8	1400	2	10	10	-25	75	NBR				492310	6	6	-	10		

Table continued on page 314

Notes:

- * See Electrical Parts Group table at end of section
- 1. Valve with NPT ports

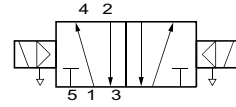
316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface

Port size	Orifice (mm)	Flow factors (L/min) Qn	Admissible differential pressure bar			Fluid temp. °C		Seat disc	Reference numbers				Power consumption (W)		Wt. (g)	El. Part Group *	Dim ref.
			Min	Max	DC	AC	Min		Max	Global valve reference	Valve reference no.	Housing	Coil	DC			
NPT																	

Two solenoids and main pressure supply



316L Stainless Steel body/NAMUR interface

1/4 - 1/8	4	400	2	10	10	-25	80	NBR	7347NRKDHNMO	U347N3150	1	NL	481865	2	9	8	-	2	7545
	4	400	2	10	10	-25	80	NBR		E0			481000	2	8	8	-	2	
3/8 - 1/4	4	400	2	10	10	-25	55	NBR	7347NRKDHN92	U347N3192	1	NL	483580.01	2	0.4	-	-	7	7546
	8	1400	2	10	10	-25	80	NBR	7347NRKNNN00	U347N3250	1	NL	481865		9	8	-	2	7557
	8	1400	2	10	10	-25	80	NBR		E0			481000		8	8	-	2	

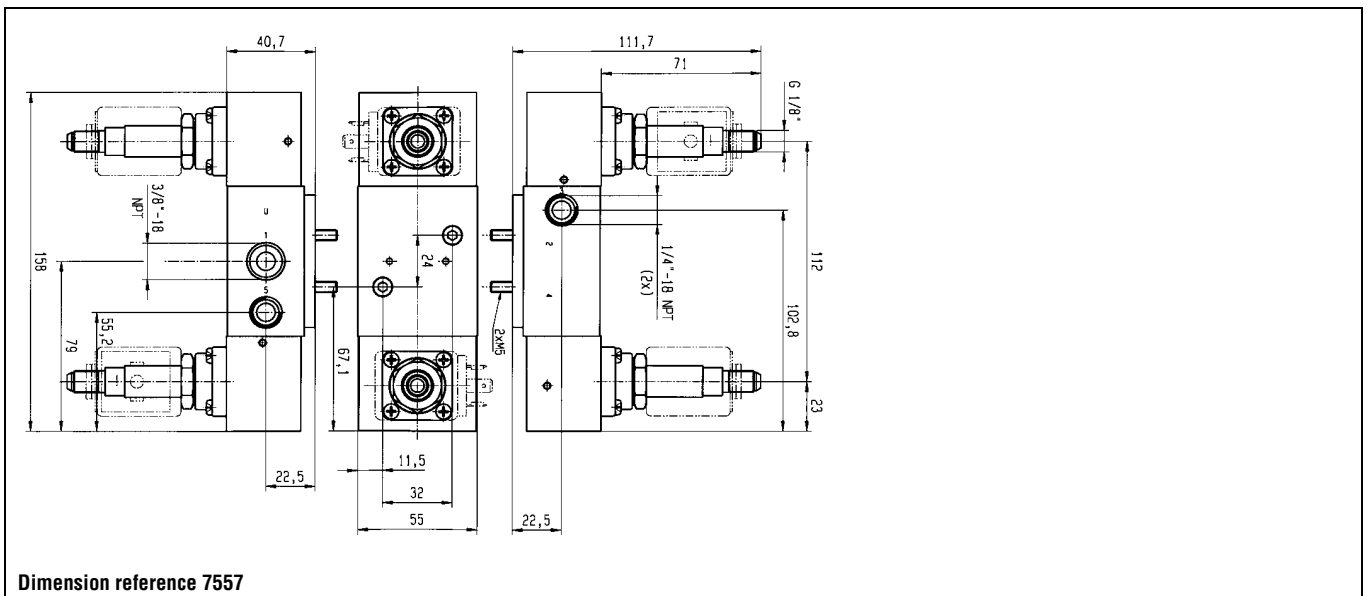
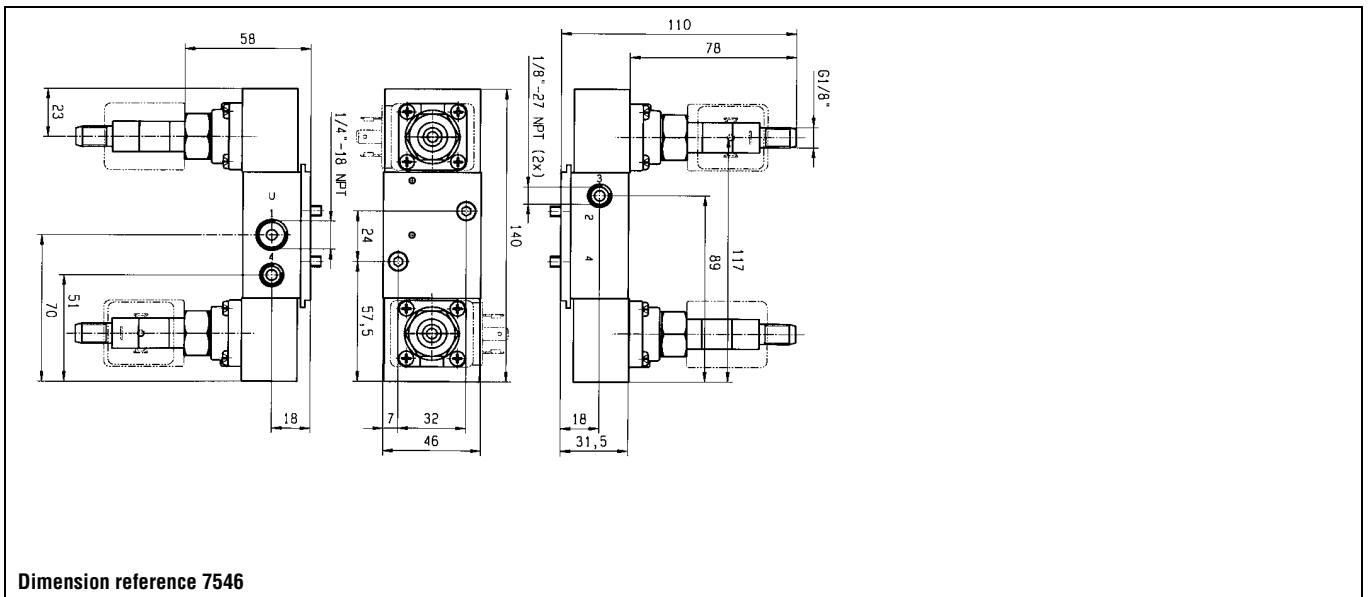
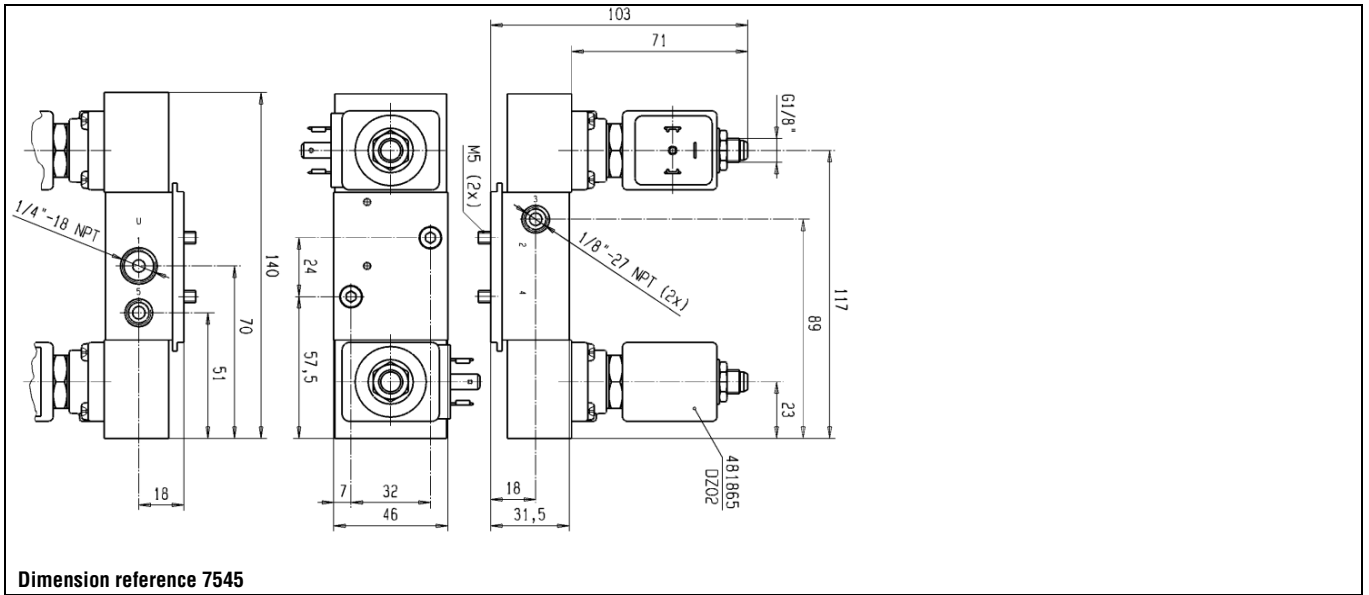
Notes:

* See Electrical Parts Group table at end of section

1. Valve with NPT ports

2. Please order two housings and coils for each valve

316L Stainless Steel valves for actuator control - 3/2 or 5/2 valves - NAMUR interface



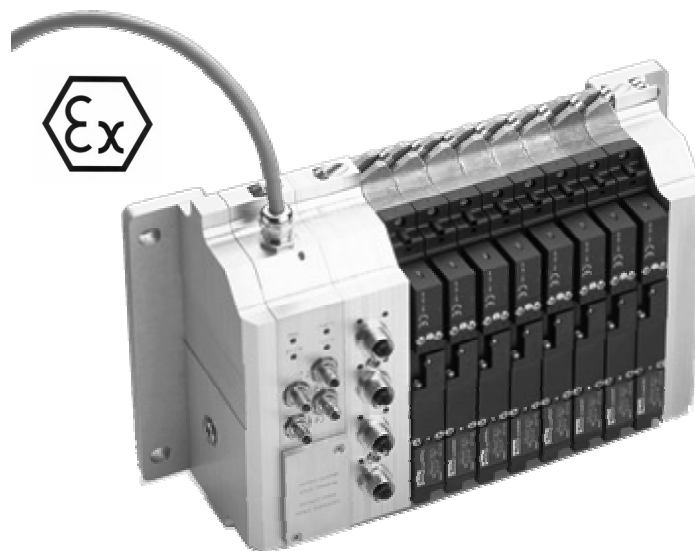
Electrical parts options with 3/2-5/2 - 316L Stainless steel valves for pneumatic actuator control

El. part Group	Coil	Protection class	Protection class / Temperature class	Power		Coil Order No.	Coil Ref. No.	Connection	Housing Order No.	Housing Ref. No.	Ambient temp.	
				DC	AC						min.	max.
1	22 mm	IP65	Class F	2.5	2	DA01	488980	for DIN B plug	A2	8993	-40	50
		IP65	Class F	2.5	2	DA02	481045	with DIN B plug	A2	8993	-40	50
		IP65	EEx m II T5	2.5	2	VA12	482606.10	with 1500mm cable	00	-	-40	50
2	32 mm (Std)	IP65	Class F	9	8	DZ02	481865	for DIN A plug	NL	8132	-40	50
		IP65	Class F	9	8	DZ03	482725	with DIN A plug	NL	8132	-40	50
		IP65	Class H	9	8	DZ04	492453	for DIN A plug	NL	8132	-40	50
		IP65	Class H	9	8	DZ05	492726	with DIN A plug	NL	8132	-40	50
		IP65	Class F, 50/60 Hz	-	9	DZ06	483510	for DIN A plug	NL	8132	-40	50
		IP65	Class F, 50/60 Hz	-	9	DZ07	482635	with DIN A plug	NL	8132	-40	50
	50 mm (Std)	IP65	EEx m II T4	9	8	HZ09	492670.10	with 3000mm cable	00	-	-25	40
		IP10/IP44	Class F	8	8	EZ01	481000	screw-terminals	E0	4270	-40	50
		IP10/IP44	Class H	8	8	EZ02	485100	screw-terminals	E0	4270	-40	50
		IP67	Class F, IP 67, M20x1.5	8	8	EZ01	481000	screw-terminals	G1	4538	-40	50
		IP65	EEx m II T4/T5	9	8	VZ01	492070	with 1500mm cable	00	-	-40	40/65
		IP67	EEx me II T4	8	8	HZ06	483371	for cable connection	00	-	-40	65
		IP66	EEx me II T3/T4	11	9	VZ90	492190.10	for cable connection	00	-	-40	75/40
		IP67	EEx me II T3/T4	8	8	HZ23	494040	for cable connection	00	-	-40	90/65
IP65	EEx md IIC T4/T5	8	8	HZ09	493640	with 1500mm cable	00	-	-40	75/40		
5	50 mm	IP54	EEx d IIC T4/T5/T6	8	8	HZ08	483250	for cable, 1/2 NPT	00	-	-40	80/75/60
7	32 mm I.S.	IP65	EEx ia II C T6	0.4	-	DZ12	483580.01	for DIN A plug	NL	8132	-40	55
		IP65	EEx ia II C T6	0.4	-	DZ13	483960.01	with DIN A plug	NL	8132	-40	55
	50 mm I.S.	IP66	EEx ia II C T6	0.4	-	VZ93	494035.10	for cable connection	00	-	-40	65
		IP67	EEx ia II C T6	0.4	-	VZ08	488660.01	with 2000mm cable	00	-	-40	65
		IP65	EEx ia II C T6	0.4	-	VZ09	488670.01	with DIN A plug	00	-	-40	65
9	32 mm	IP65	Class F	9	9	DZ93	492387	with DIN A plug	N9	8886	-40	50
		IP66	EEx me II T5/T6	1.5	-	VZ13	492200	for cable connection	00	-	-40	75/40
	50 mm	IP67	EEx me II T4	8	-	VZ14	483371.01	for cable connection	00	-	-40	65
		IP66	EEx me II T4/T5	6	6	VZ15	492300	for cable connection	00	-	-40	75/40
		IP67	EEx m II T4/T5	5	5	VZ02	492270	with 1500mm cable	00	-	-40	65/40
		IP65	EEx ib IIB T6	0.8	-	VZ11	482660	for cable connection	00	-	-40	75
		IP66	EEx ib IIC T6	0.8	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP66	EEx ia IIC T6	0.8	-	VZ92	492965.02	for cable connection	00	-	-40	65
10	50 mm	IP66	EEx me II T5/T6	1.5	-	VZ26	492210	for cable connection	00	-	-40	75/40
		IP66	EEx me II T4/T5	6	6	VZ27	492310	for cable connection	00	-	-40	75/40
		IP65	EEx ib IIB T6	0.8	-	VZ11	482660	for cable connection	00	-	-40	75
		IP66	EEx ib IIC T6	0.8	-	VZ12	483330.01	for cable connection	00	-	-40	75
		IP66	EEx ia IIC T6	0.8	-	VZ91	492965.01	for cable connection	00	-	-40	65
11	50 mm EEx d	IP65	EEx d II C T4/T5/T6	8	8	HZ19	483270	for cable , M20x1.5	00	-	-40	80/75/60
		IP65	EEx d II C T4/T5/T6	8	8	HZ21	483270.02	for cable , 1/2 NPT	00	-	-40	80/75/60
12	50 mm	IP66	EEx me II T4/T5	6	6	VZ27	492310	for cable connection	00	-	-40	75/40
		IP66	EEx ia IIB T6	0.8	-	VZ22	482160.01	for cable connection	00	-	-40	65
		IP66	EEx ia IIC T6	0.8	-	VZ23	482870.01	for cable connection	00	-	-40	65

Note: This table is indicative only. Please contact your distributor to confirm your selection.

EExPress™

EEx p [ia] m IIC T5 Bus Manifold for Pneumatic actuator control



Parker Lucifer has developed industry's first fully integrated fieldbus manifold system – the patented EExPress™ Bus Manifold – for the control of pneumatic actuators in hazardous (Zone 1 and Zone 2) process industry environments like chemical, petrochemical applications. The EExPress™ Bus Manifold is a stackable valve system that fully integrates 5/2 solenoid valves, control electronics and input sensors, a unique feature on the market today, and uses the Profibus DP fieldbus communications protocol – the preferred protocol of the process industries. One bus address can operate up to 32 individual 5/2 modular solenoid valves, or a combination of valves and actuator position sensors.

The concept consists in an “integrated solution” which permits to install the manifold close to the pneumatic actuators - without the need for expensive explosion-proof pressurised cabinets. The **EEx p [ia] m IIC T5** protection is reached by using a “safety pressure” - the complete block is put under 50 mb safety pressure. This permits a substantial reduction of installation and maintenance costs, a simplification of the electrical connections, the use of Profibus DP and offers increased safety due to separated wiring of communication and power supply.

For more information see brochure 8752/GB

1. PRODUCT INTRODUCTION

The EExPress™ bus Manifold is a patented stackable system composed of:

- 1 x End plates Kit
- X x Solenoid valve module
- X x Input sensor module
- 1 x Gateway

The EExPress™ Explosion-proof manifold 5/2 valve island design uses the **EEx [ia] pm protection**.



Up to 32 valves per island require one bus address only.

The system includes a bus part satisfying the intrinsic safety requirements and communicating directly with a master control unit by using the Profibus DP protocol.

The manifold assembly and the dedicated power supply are coping with the "p" protection. The galvanic separation between the EEx ia zone and the EEx p is assured by opto-coupler and by a transformer.

The valve coils are coping with the ìmî protection.

2. APPLICATIONS

This smart EExPress™ bus manifold package has been designed for the control of pneumatic actuators in Process Industries with **hazardous environments Zone 1 or Zone 2** such as:

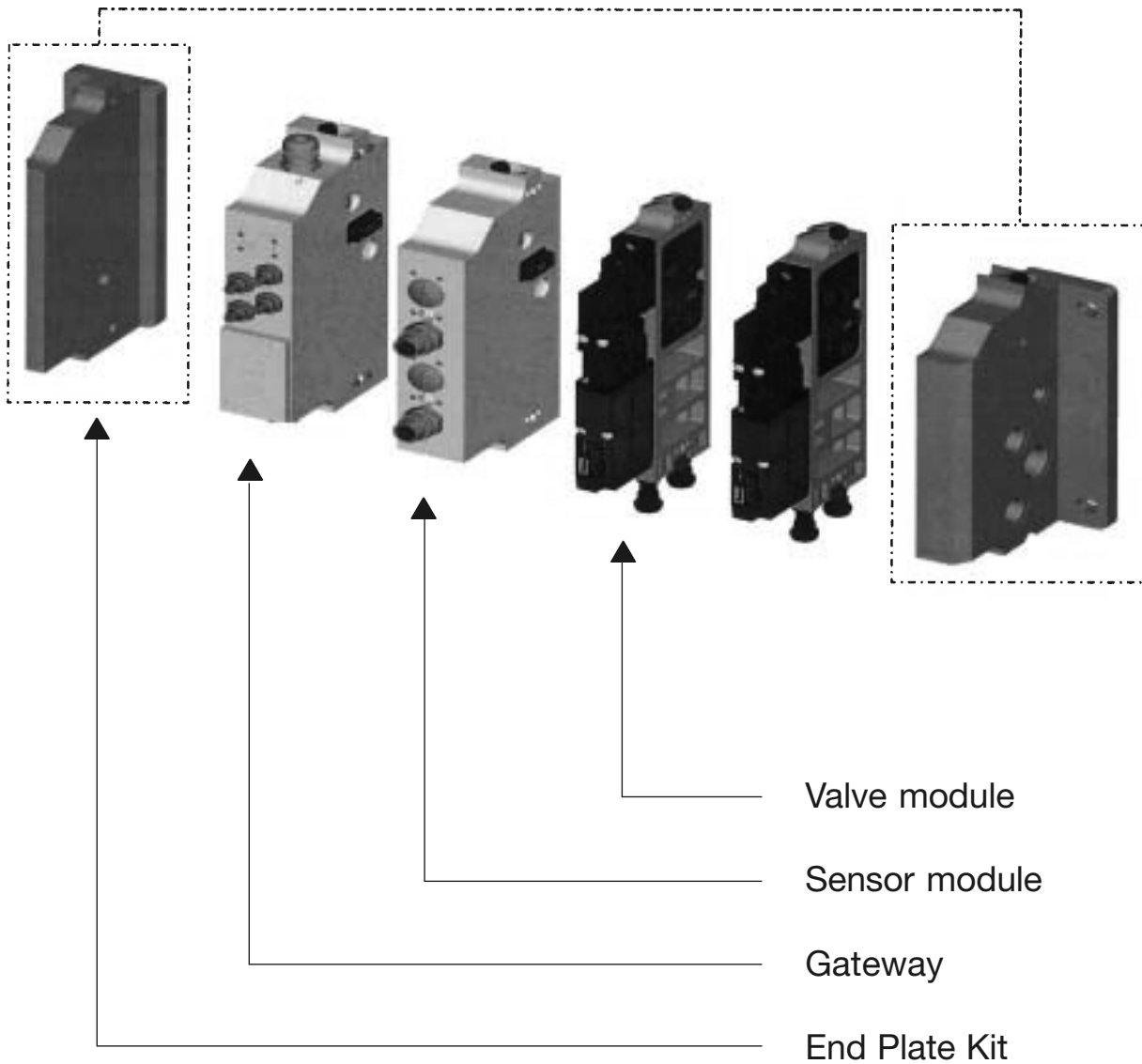
- Ghemical & Pharmaceutical.
- Gas and solvant handling
- Powder transportation.
- Refining.
- Etc.

These high demanding markets are concerned with:

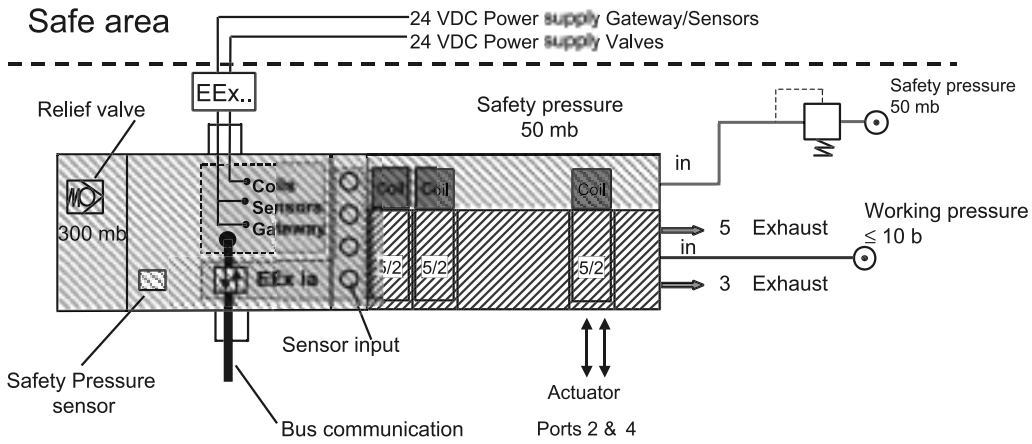
- Process & people safety
- Plant installation simplification
- Process productivity
- Friendly use product
- Partners support



3. PRODUCT CONFIGURATION



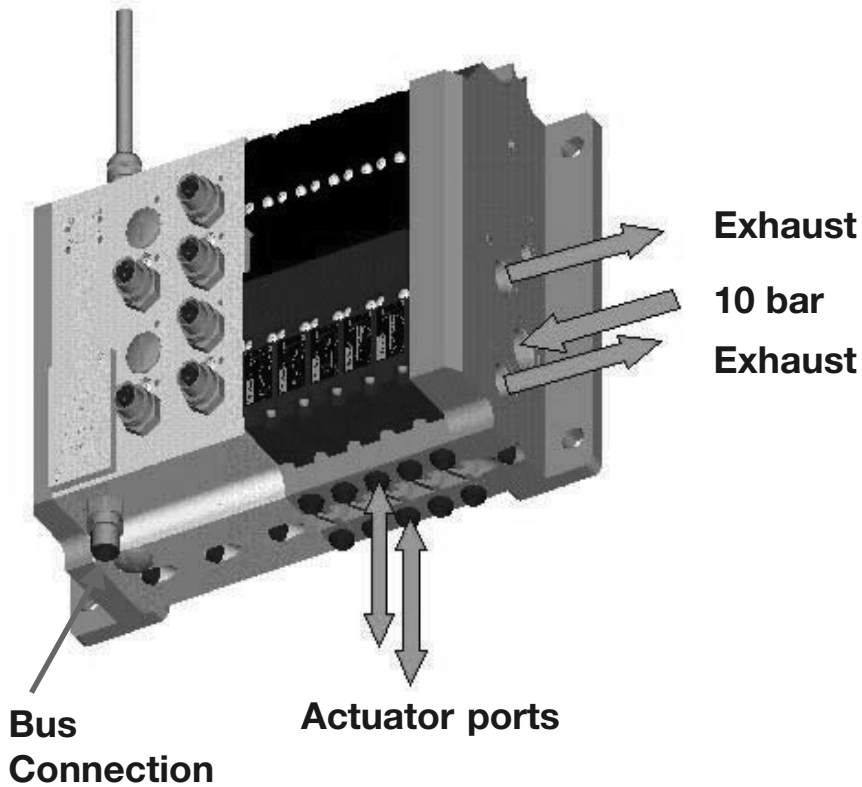
5. PRODUCT OPERATING PRINCIPLE



Hazardous area zone 1 or 2

- Gateway
- Intrinsically safe circuit = "ia" protection
- Solenoid valve coil = "m" protection
- ≤ 50 mb safety pressure area = "p" protection
- ≤ 10 b working pressure area

Power supply



HOW TO ORDER ASSEMBLED MANIFOLDS**21.2 Choose the components for 1 manifold in the following order:**

1 - Plate kit				
N.B. One plate kit only per manifold				
<i>End plate A</i>	<i>Pressure supply plate B</i>	<i>Order No.</i>	<i>Qty</i>	
BSP	BSP	495190	1	
2 - Gateway selection				
N.B. One gateway only per manifold				
<i>Protocol</i>	<i>Communication link</i>	<i>Order No.</i>	<i>Qty</i>	
Profibus DP	Copper (1 connector)	495176	1	
Profibus DP	Copper (1 connectors + 1 repeater)	495275	1	
Profibus DP	Optical fibre	493972	1	
3 - Sensor modules				
N.B. 0 up to 8 sensor modules per manifold				
<i>Nb of connectors</i>	<i>Connection</i>	<i>ON/OFF</i>	<i>Order No.</i>	<i>Qty*</i>
2x IN connectors	M 12	x	495141	0 to 8
4x IN connectors	M 12	x	495142	0 to 8
4 - Valve modules			<i>Order No.</i>	<i>Qty</i>
N.B. 0 up to 32 valve modules per manifold				
Module with 5/2 valves			494237	0 to 32

* **Warning:** For one bus address, the combination sensor module + valve module has to fit the following formula: $4 \times (\text{Number of sensor modules with } 2 \times \text{IN connectors} + \text{Number of sensor modules with } 4 \times \text{IN connectors}) + \text{Number of valve modules} < 32$.

21.3 Example of manifold configuration and order:

Description	Order No. chosen	Qty per Manifold chosen
Plate Kit	495190	1
Gateway	495176	1
Sensor module – 2 IN connectors	495141	4
Sensor module – 4 IN connectors	–	–
Valve module	494237	8

Order: 5 manifold with above mentioned components.

The selected components will be supplied as an assembled manifold.

A – The label on the manifold shows:

1. The LCIE conformity for the EEx ia pm protection.
2. The LCIE approval code: EM followed by a manufacturing code. I.e. **EM 12345**

B – Each manufacturing code defines a specific manifold configuration

C – The **EM XXXXX** is also mentioned on the shipping bulletin and on the invoice

D – To simplify, customers can re-order the same manifold by using the **EM XXXXX** code mentioned on these documents.

	Page
Electropneumatic pressure regular EPP3	324
EP - Transducer.	326
Electropneumatic pressure regulator EPP3 -High Flow Series.	328

The product

A range of electropneumatic pressure regulators (G 1/8, G 1/4 and G 1/2) which, by means of an integrated electronic control system and pulse width modulated solenoid valve, controls the output pressure proportional to an analogue or digital electrical signal. A high precision is achieved by means of internal feedback through an integrated pressure sensor.

Applications

Pressure control independent of flow in electropneumatic control systems, in particular for the following industries:

- Robotics: welding, painting lines etc.
- Paper and printing: tension regulations, speed and brake control for rolls
- Machine Tools: Plastic moulding, laser welding, presses, polishing etc.
- Trucks and Trains: control of adaptive suspensions.

Benefits

- More flexibility of the controls
- Very fast response times
- Excellent linearity and hysteresis
- No air consumption in rest position
- Increase of productivity (performance, Quality, reliability)
- Direct interface to programmable controllers.

Electropneumatic pressure regulator

EPP3 Series

TECHNICAL DATA

Fluid

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50 μ

Temperature range:

Ambient 0 to 50°C.
Fluid 0 to 50°C.

Inlet pressure range:

1 to 12 bar (the inlet pressure must always be at least 1 bar above the regulated pressure value).

Outlet pressure range:

0.2 to 10 bar

Hysteresis:

~100 mbar. (Factory set up)

Linearity:

1% f.s.o.

Air consumption at constant control signal:

0.

Supply voltage:

24 V DC \pm 15% (Max. ripple 1 V)

Power consumption:

Max. 6 W with 24 V DC and constant changes of the control signal ; < 1W without change of control signal

Control signal:

Analog 0 - 10 V Impedance: 10 k Ω
Analog 4 - 20 mA Impedance: 0.5 k Ω

Outlet sensor signal:

A) proportional pressure outlet signal 0-10 V from integrated sensor (recommended load resistance 10 k Ω)

B) proportional pressure outlet signal 4-20 mA from integrated sensor (recommended load resistance 0.5 k Ω)

C) "Alarm" output signal 0/24 V with adjustable triggering level. (Difference between control signal and sensor pressure signal) (Imax. = 40 mA)

- factory set up: diff. signal = \pm 0.8 V to \pm 1 V
- possible set up: diff. signal = \pm 0.1 V to \pm 5 V
To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required.

Indicative response time:

With a volume of 330 cm³ at the outlet of the regulator.

Filling : 2 to 4 bar - 2 to 8 bar

Step response: ~60 ms - ~120 ms

Emptying: 4 to 2 bar - 8 to 2 bar

Step response: ~70 ms - ~130 ms

Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant (with eventual discrepancy due to loss of pressure in the servo-chamber).

Electrical connection:

4 screw terminals under the protection cover with Pg 13.5 cable gland or through DIN 43651 connector (6 P + E).

Life expectancy:

> 50 Mio changes of control signal steps.

Attention: It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted,

it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

Mounting position:

Indifferent (recommended position: upright; electronic part on top).

Resistance to vibrations:

30 g in all directions

Degree of protection:

IP 65.

External sensors:

All pressure sensors with following characteristics are compatible with the EP-transducer

Sensitivity: 0.5 V/bar up to 10 V/bar

Zero offset: -3 V/bar to 10 V/bar

Assembly:

Silicone free

Electromagnetic compatibility:

in accordance with IEC 801-4 part 4 standards.

Installation and setting instructions:

see publication MI-9202 and appendix supplied with the product.

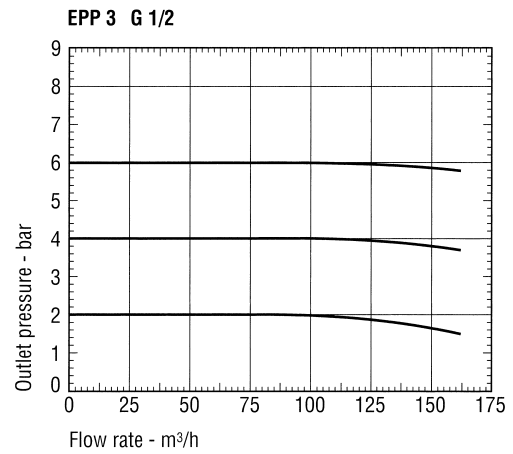
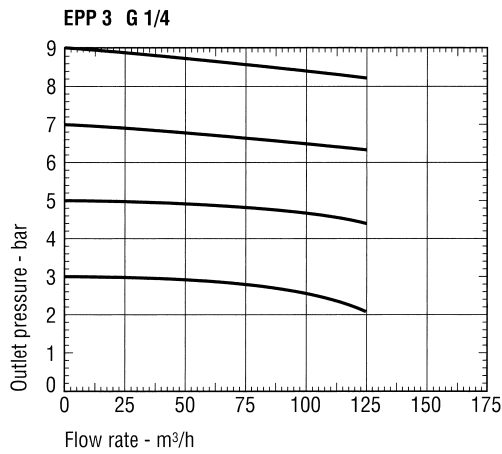
Please ask for the special technical specification sheet No. 8677 for more details.

SUMMARY OF TYPES

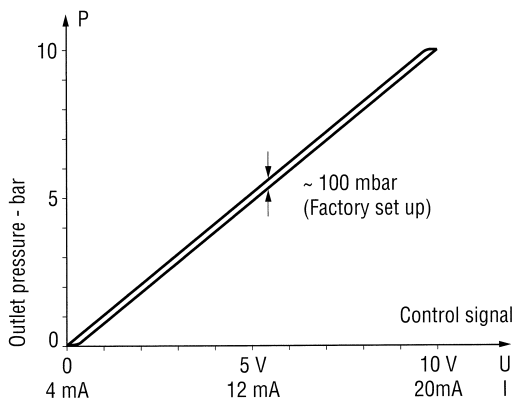
	Connection G	With integrated pressure sensor	Entry options for external sensor signal		Outlet signal options			Electrical connection	
			Feedback signal 0-10 V	Feedback signal 4-20 mA	without	0 - 10 V 4 - 20 mA	0 - 10 V 0/24 alarm	DIN 43651 connector	Cable gland Pg. 13.5
EPP3JC 21 U/I 100 10	1/4	•			•				•
21 U/I 600 10	1/4	•				•		•	
21 U/I 700 10	1/4	•					•	•	
EPP3JC 23 U/I 130 10	1/4		•		•			•	
24 U/I 130 10	1/4			•	•			•	
EPP3JC 41 U/I 100 10	1/2	•			•				•
41 U/I 600 10	1/2	•				•		•	
41 U/I 700 10	1/2	•					•	•	
EPP3JC 43 U/I 130 10	1/2		•		•			•	
44 U/I 130 10	1/2			•	•			•	

FLOW DATA

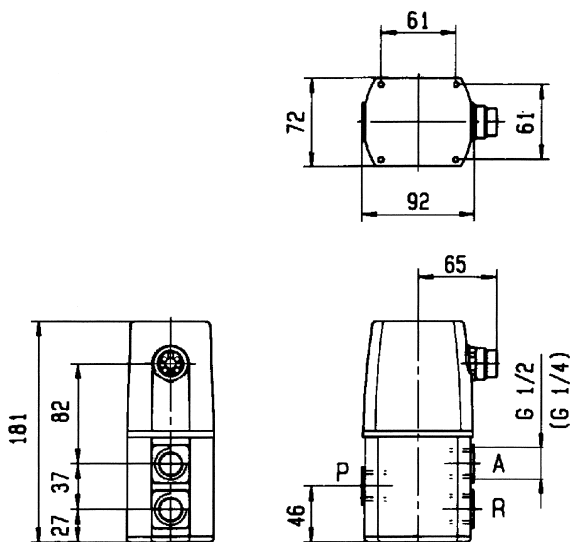
Outlet Pressure in Function of Flow at Constant Control Signal (P1 = 10 bar)



HYSTERESIS DIAGRAM



**EPP3JC...130/600/700... with
DIN circular plug-in connection
6 P + E (connector included)**



TECHNICAL DATA

Fluid:

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50 μ

Temperature range:

Ambient 0 to 50°C
Fluid 0 to 50°C

Inlet pressure range:

G 1/8 - 1 to 10 bar
G 1/4 - 1 to 7 bar

Outlet pressure range:

G 1/8 - 0.2 to 10 bar
G 1/4 - 0.2 to 7 bar

Hysteresis:

~ 50 mbar (Factory set up)

Linearity:

1% f.s.o.

Air consumption at constant control signal:

0

Supply voltage:

24 V DC \pm 15% (Max. ripple 1 V)

Power consumption:

G 1/8 - max. 6 W } with 24 V DC and constant
G 1/4 - max. 7 W } changes of the control signal
<1 W without change of control signal

Control signal:

Analog 0 - 10 V Impedance: 10 k Ω
Analog 4 - 20 mA Impedance: 0.5 k Ω

Outlet sensor signal:

For types with output signal module.
Proportional pressure output signal supplied by the pressure sensor.

A) 0-10 V, voltage signal (recommended load resistance 10 k Ω)

B) 4-20 mA, current signal (recommended load resistance 0.5 k Ω)

Voltage and current signal can be received simultaneously. Both are protected against short-circuits

C) "Alarm" output signal 0/24 V (Imax. = 40 mA) with adjustable triggering level.

(Difference between control signal and sensor pressure signal)

- factory set up: diff. signal = \pm 0.8 V to \pm 1 V

- possible set up: diff. signal = \pm 0.1 V to \pm 5 V

To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required.

Indicative response time:

With a volume of 30 cm³ at the outlet of the EP-transducer

Filling :	2 to 4 bar	-
Emptying :	-	4 to 2 bar
Step response: G 1/8	~ 100 ms	~120 ms
G 1/4	~ 70 ms	~100 ms

Conductance C (dm³/s.bar):

G 1/8 - 0.1

G 1/4 - 0.2

Outlet pressure/Flow rate:

G 1/8 - pressure drop 0.5 bar at 1.0 Nm³/h
(P₁ = 7 bar, P_{out} = 6 bar)

G 1/4 - pressure drop 0.5 bar at 2.1 Nm³/h
(P₁ = 7 bar, P_{out} = 6 bar)

Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant

Electrical connection:

4 screw terminals under the protection cover with Pg 13.5 cable gland or through DIN 43651 connector (6 P + E)

Life expectancy:

> 50 Mio changes of control signal steps

Attention: It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted, it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

Mounting position:

Indifferent (recommended position: upright; electronic part on top).

Resistance to vibrations:

30 g in all directions

External sensors:

All pressure sensors with following characteristics are compatible with the EP-transducer

Sensitivity: 0.5 V/bar up to 10 V/bar

Zero offset: -3 V/bar to 10 V/bar

Degree of protection:

IP 65

Electromagnetic compatibility:

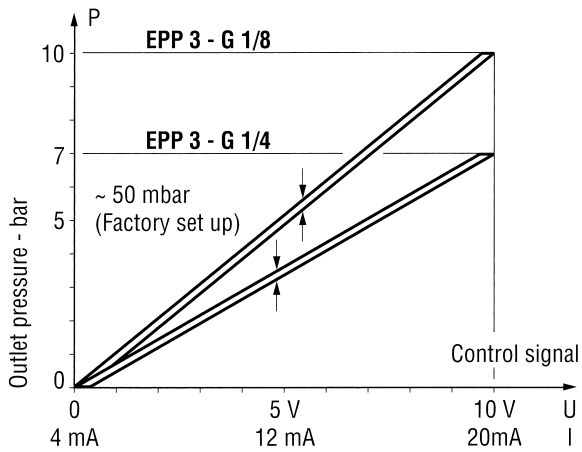
In accordance with IEC 801-4 part 4 standards

Installation and setting instructions:

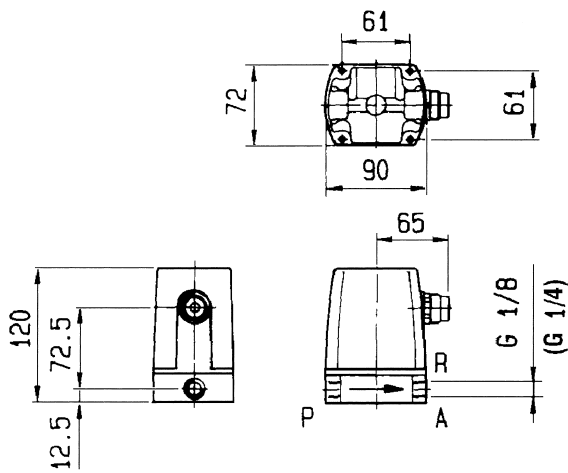
See publication MI-9202 and appendix supplied with the product.

Please ask for the special technical specification sheet No. 8678 for more details.

HYSTERESIS DIAGRAM



EPP3PC ... 130/600/700



SUMMARY OF TYPES

	Connection G	With integrated pressure sensor	Entry options for external sensor signal		Outlet signal options			Electrical connection	
			Feedback signal 0-10 V	Feedback signal 4-20 mA	Without	0 - 10 V 4 - 20 mA	0 - 10 V 0/24 alarm	DIN 43651 connector	Cable gland Pg. 13.5
EPP3PC 11 U/I 100 10	1/8	•			•				•
11 U/I 600 10	1/8	•				•		•	
11 U/I 700 10	1/8	•					•	•	
EPP3PC 13 U/I 130 10	1/8		•		•			•	
14 U/I 130 10	1/8			•	•			•	
EPP3PC 21 U/I 100 07	1/4	•			•				•
21 U/I 600 07	1/4	•				•		•	
21 U/I 700 07	1/4	•					•	•	
EPP3PC 23 U/I 130 07	1/4		•		•			•	
24 U/I 130 07	1/4			•	•			•	

Electropneumatic Pressure Regulator - High Flow

EPP3 Series

TECHNICAL DATA

Fluid:

Lubricated or non lubricated air and neutral gases recommended filtration : 25-50 μ

Temperature range:

Ambient 0 to 50°C
Fluid 0 to 50°C

Inlet pressure range:

1 to 12 bar (the inlet pressure must always be at least 1 bar above the regulated pressure)

Outlet pressure range:

0.2 to 10 bar

Hysteresis:

~ 100 mbar (Factory set up)

Linearity:

1% f.s.o.

Air consumption at constant control signal:

0

Supply voltage:

24 V DC \pm 15% (Max. ripple 1 V)

Power consumption:

Max. 6 W with 24 V DC and constant changes of the control signal
<1 W without change of control signal

Control signal:

Analog 0 - 10 V Impedance: 10 k Ω
Analog 4 - 20 mA Impedance: 0.5 k Ω

Outlet sensor signal:

A) proportional pressure outlet signal 0-10 V from integrated sensor (recommended load resistance 10 k Ω)

B) proportional pressure outlet signal 4-20 mA from integrated sensor (recommended load resistance 0.5 k Ω)

C) "Alarm" output signal 0/24 V with adjustable triggering level. (Difference between control signal and sensor pressure signal) (Imax. = 40 mA)

- factory set up: diff. signal = \pm 0.8 V to \pm 1 V
- possible set up: diff. signal = \pm 0.1 V to \pm 5 V
To neutralize the alarm output signal during the control signal changes, the use of a synchronized time lag relay is required

Safety position:

In case of control failure or if it is less than 1% of its full scale value, the regulated pressure drops automatically to 0 bar (atmospheric pressure). In case of voltage supply failure, the regulated pressure will be kept constant

Electrical connection:

Through DIN 43651 circular plug-in connector (6 P + E)

Life expectancy:

> 20 Mio changes of control signal steps
Attention: It is compulsory to set the control signal at 0 V or 4 mA each time the air pressure supply is turned off (during the night or the weekend). When the air pressure supply cannot be fully exhausted, it is necessary to assure that the deviation between the control value and the inlet pressure remains smaller than 1 bar.

Mounting position:

Indifferent (recommended position: upright; electronic part on top)

Resistance to vibrations:

30 g in all directions

Degree of protection:

IP 65

Assembly:

Silicone free

Electromagnetic compatibility:

In accordance with IEC 801-4 part 4 standards.

Installation and setting instructions:

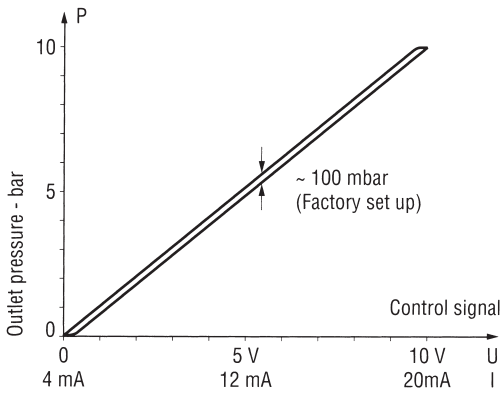
See publication MI-9202 and appendix supplied with the product.

Please ask for the special technical specification sheet No. 8679 for more details.

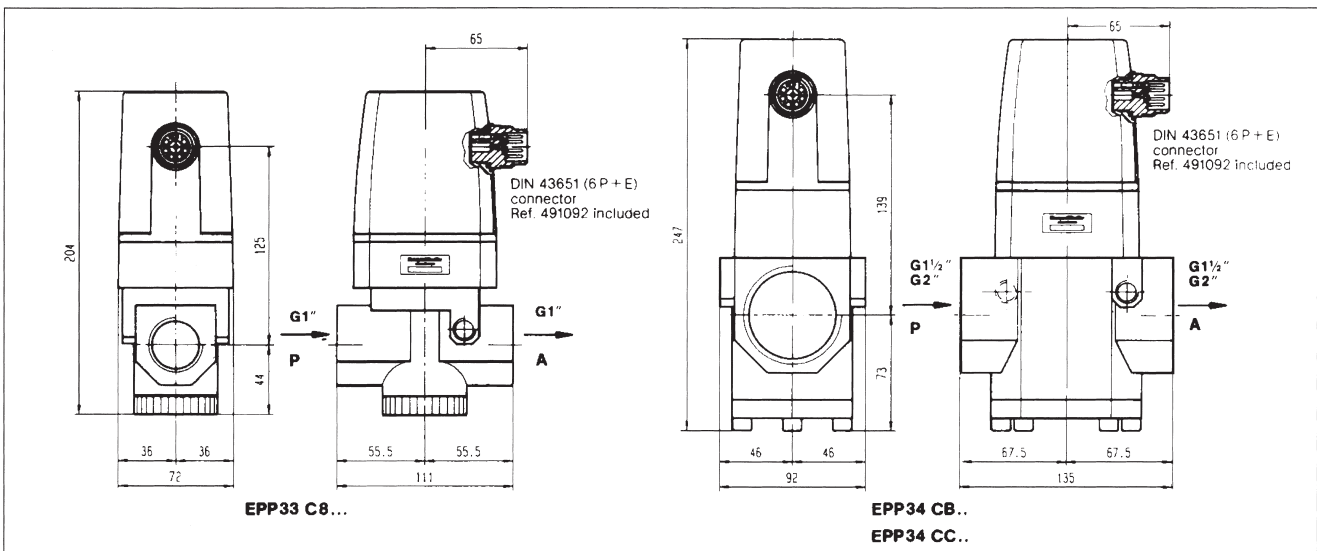
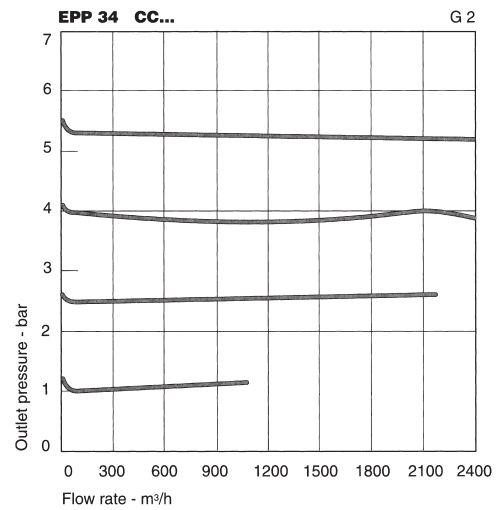
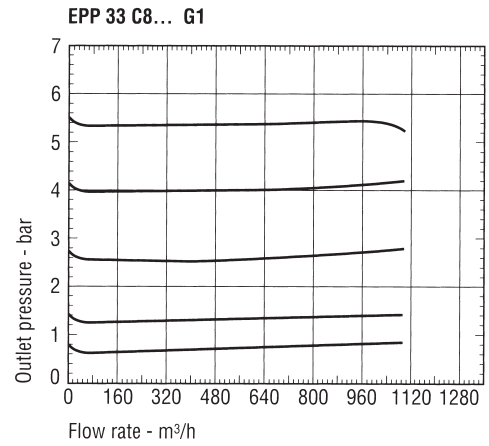
SUMMARY OF TYPES

	Connection G	With integrated pressure sensor	Outlet signal options		Electrical connection
			0 - 10 V 4 - 20 mA	0 - 10 V 0/24 alarm	DIN 43651 connector
EPP3C8 1 U/I 600 10	1	•	•		•
1 U/I 700 10	1	•		•	•
EPP34CC 1 U/I 600 10	2	•	•		•
1 U/I 700 10	2	•		•	•

HYSTERESIS DIAGRAM



FLOW DATA Outlet Pressure in Function of Flow at Constant Control Signal (P1 = 7 BAR)

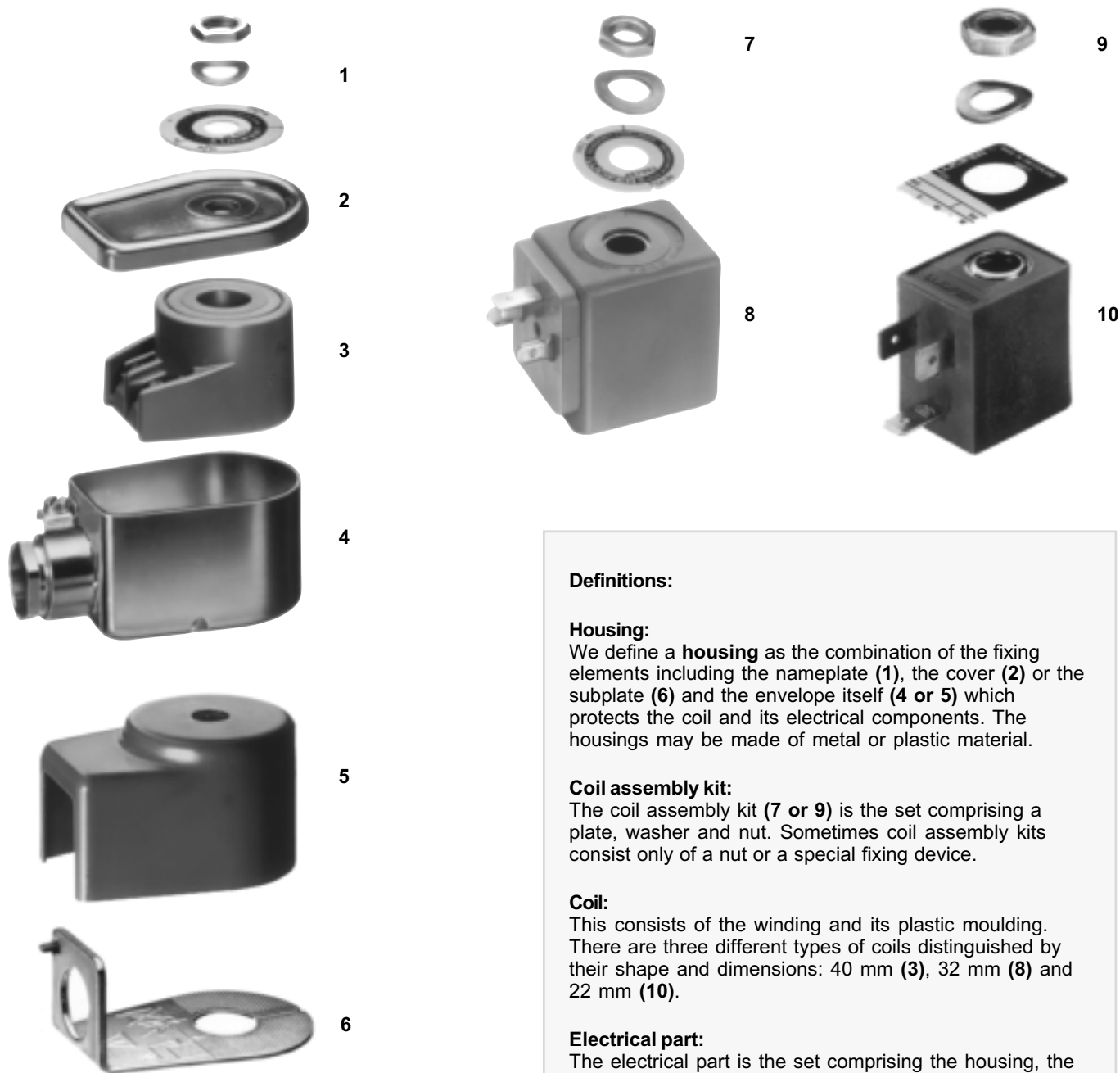


Electrical Parts

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For complete information please refer to publication No. 8700/GB

Housings or coil assembly kits, coils and electrical parts



Definitions:

Housing:

We define a **housing** as the combination of the fixing elements including the nameplate (1), the cover (2) or the subplate (6) and the envelope itself (4 or 5) which protects the coil and its electrical components. The housings may be made of metal or plastic material.

Coil assembly kit:

The coil assembly kit (7 or 9) is the set comprising a plate, washer and nut. Sometimes coil assembly kits consist only of a nut or a special fixing device.

Coil:

This consists of the winding and its plastic moulding. There are three different types of coils distinguished by their shape and dimensions: 40 mm (3), 32 mm (8) and 22 mm (10).

Electrical part:

The electrical part is the set comprising the housing, the assembly kit and the coil.

Warning:

Any Lucifer coil or electrical part may be energized **only when mounted on a valve**. Otherwise there is a risk of damaging the product and its surroundings (overheating, explosion, fire, etc.).

The data supplied in the Parker Lucifer Catalogs are to be consulted, and pertinent accident prevention regulations are to be followed during product installation and use. Any unauthorized work performed on the product by the purchaser or by third parties can impair its function, and relieves us of all warranty claims and liability for any resulting damage.

Part 1: Housings or coil assembly kits

1.1 Coil housing with screw terminals

1.1.1 Standard housing



Reference: 4270 or E0

Material: epoxy-coated steel

Degree of protection: IP according to IEC/EN 60529
IP 10 with armoured conduit
IP 44 with cable gland

Electrical connection:

Can be made with armoured conduit or cable gland M12x1.5, Parts No. 495740 and 495741 to be ordered separately.

Grounding connection by screw M3 on the inside of housing base plate.

Weight: 120 g.

Benefits:

This metal housing offers the ideal protection against shocks and corrosion – rotatable 360° – easy mounting in confined spaces – single-nut mounting – light weight – simplifies conversion of existing equipment to other requirements.

Application:

The majority of the Lucifer valves can be fitted with this standard housing, and can be mounted with several compatible Lucifer coils.

Compatible coils:

481000 or **EZ01**

Standard coil,
8 W, class F (155°C), page 12

483520 or **EZ90**

Double-frequency coil,
9 W, class F (155°C), page 12

481044 or **EZ91**

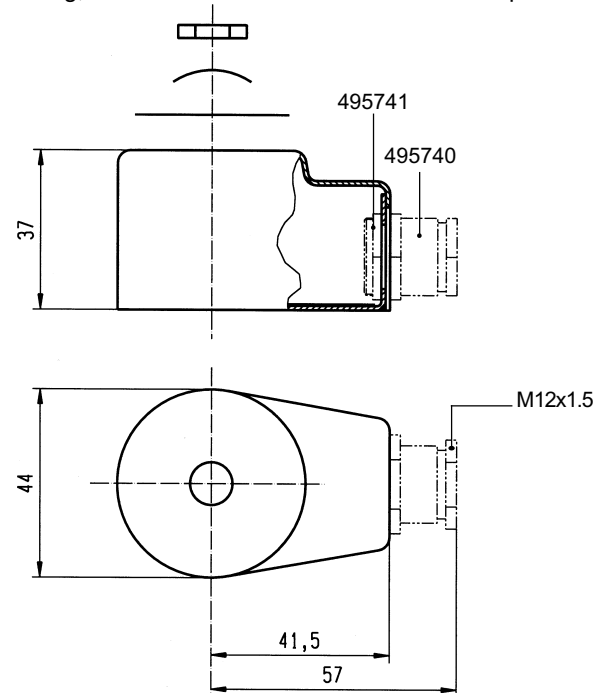
Standard high-power coil,
14 W, class F (155°C), page 12

485100 or **EZ02**

Standard high-temperature coil,
8 W, class H (180°C), page 12

486265 or **EZ92**

High-temperature and high-power coil,
14 W, class H (180°C), page 12



1.1.2 Housing for bistable (impulse) coils



Reference: 4269 or E1

Material: epoxy-coated steel

Degree of protection: IP according to IEC/EN 60529
IP 10 with armoured conduit
IP 44 with cable gland

Electrical connection:

Can be made with armoured conduit or cable gland M12x1.5, Parts No. 495740 and 495741 to be ordered separately.

Grounding connection by screw M3 on the inside of housing base plate.

Weight: 120 g.

Benefits:

This metal housing offers the ideal protection against shocks and corrosion – rotatable 360° – easy mounting in confined spaces – single-nut mounting – light weight – simplifies conversion of existing equipment to other requirements.

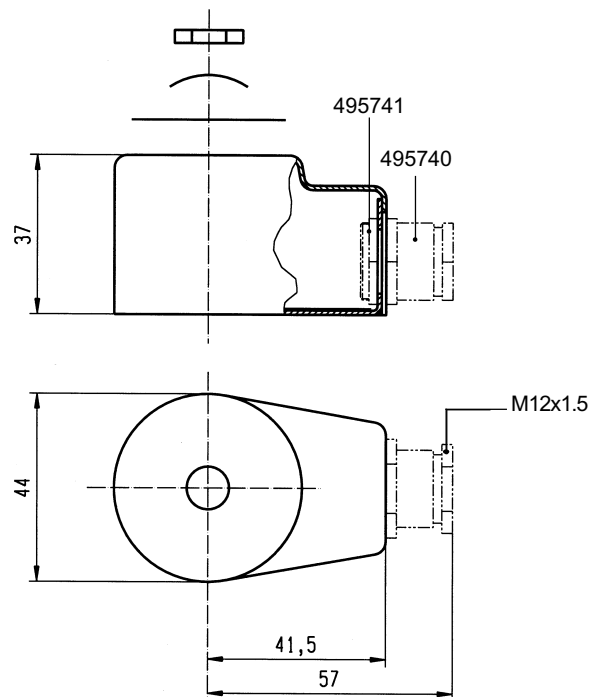
Application:

This housing is specially designed for group 4 coils and can be mounted only with valves controlled by electrical impulses.

Compatible coils: Gr. 4

484990 or **MZ01**
 Impulse coil for AC,
 11 W, class F (155°C), page 13

485400 or **MZ02**
 Impulse coil for DC,
 13 W, class F (155°C), page 13



1.2 Waterproof and dustproof housing

1.2.1 Waterproof housing



Reference: 4538 or G1 **M20 x 1.5**

Material: Galvanized passivated steel

Degree of protection: IP 67 according to IEC/EN 60529

Electrical connection:

Cable connection by cable gland according to DIN 46320. Cable with outer diameter 6.5 -13.5 mm (M20 x 1.5) can be simply sealed using a rubber gland with resilient sealing rings.

The enclosure is internally and externally fitted with grounding and earthing screw terminals.

Weight: 180 g.

Benefits:

This enclosure is dust- and waterproof. It corresponds to the degree of "International Protection" IP 67 according to IEC / EN 60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks and other outside influences – rotatable 360° – easy mounting in confined spaces – easy access to the screw terminals – single-nut mounting – light weight – simple conversion of existing electrical equipment to other requirements without interruption of fluid passage in the valve.

Application:

This housing can be equipped with several coils of our programme, like the standard, double-frequency and magnetic latch coils

Compatible coils:

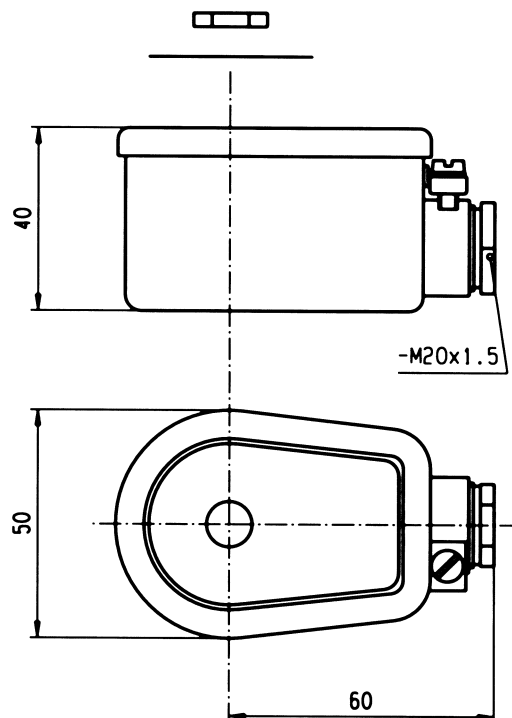
481000 or **EZ01**
Standard coil,
8 W, Class F (155°C), page 12

483520 or **EZ90**
Double-frequency coil,
9 W, class F (155°C), page 12

485100 or **EZ02**
Coil for high temperature,
8 W, class H (180°C), page 12

484990 or **MZ01**
Impulse coil for AC,
11 W, class F (155°C), page 13

485400 or **MZ02**
Impulse coil for DC,
13 W, class F (155°C), page 13



1.2.2 Waterproof housing for high-temperature coils



Reference: 8520 or G5 **M20 x 1.5**

Degree of protection: IP 67 according to IEC/EN 60529

Electrical connection:

Cable connection by cable gland according to DIN 46320. Cable with outer diameter 6.5 - 13.5 mm can be simply sealed using a rubber gland with resilient sealing rings.

The enclosure is internally and externally fitted with grounding and earthing screw terminals.

Weight: 180 g.

Benefits:

This enclosure is dust- and waterproof. It corresponds to the degree of "International Protection" IP 67 according to IEC / EN 60529. Corrosion resistant, the metal housing offers good protection for the coil against shocks and other outside influences – rotatable 360° – easy mounting in confined spaces – easy access to the screw terminals – single-nut mounting – light weight – simple conversion of existing electrical equipment to other requirements without interruption of fluid passage in the valve.

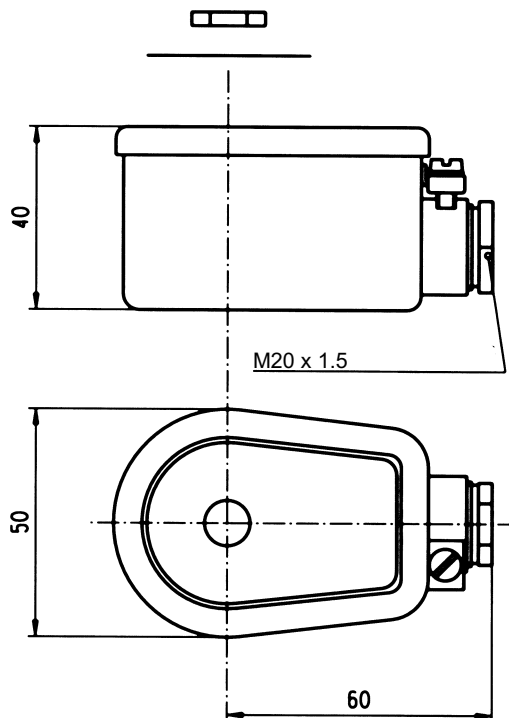
Application:

The majority of the Lucifer valves can be fitted with this housing and can be mounted with several compatible Lucifer coils for high temperature (14W, class F).

Compatible coils:

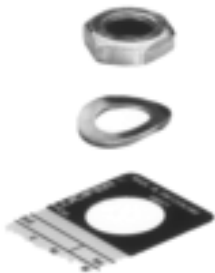
481044 or **EZ91**
High power coil,
14 W, Class F (155°C), page 12

486265 or **EZ92**
High power coil,
14 W, class H (180°C), page 12



1.3 Coil assembly kits

1.3.1 Coil assembly kit for 22 mm coil



The coil assembly kit corresponds to the numbering system for Lucifer valve housings (Valve-housing - coil - voltage).

It is composed of a nameplate with the details of the valve type, a washer and a nut to secure the 22 mm coil to the valve.

Reference	Code	Specification	Application
8993	A4	Standard - aluminium nameplate - passivated washer and nut - pressure indication in [bar]	Standard valves
8993.03	A1	Standard - aluminium nameplate - passivated washer and nut - pressure indication in [psi]	Standard valves
8122	A2	Special - aluminium nameplate - stainless steel washer and nut - pressure indication in [kPa]	316L St. Steel Valves

1.3.2 Coil assembly kit for 32 mm coil



The coil assembly kit corresponds to the "housing" of Lucifer valve numbering system (Valve - housing - coil - voltage).

It is composed of a nameplate giving details of the valve type, a round washer and a nut to ensure the fixing between 32 mm coil and the valve.

Reference	Code	Specification	Application
2995	N1	Standard - aluminium nameplate - passivated iron washer and nut - pressure indication in [bar]	Standards valves
2995.03	N3	Standard - aluminium nameplate - passivated iron washer and nut - pressure indication in [psi]	UL / CSA valves
8132	NL	Special - aluminium nameplate - stainless steel washer and nut - pressure indication in [kPa]	316L St. Steel valves

1.3.3 Coil assembly kit for CPR coils



It is composed of a plastic nut with a metal insert to secure the CPR coils to the valves, e.g. 133x.../432300C2.

Reference	Code	Specification	Application
8886	NT	Plastic nut with metal insert	CPR valves

1.4 Degrees of protection “IP” – IEC/EN 60529

Full-enclosure protection is often required, either in the standards concerning “potentially explosive environments” or for other specific needs.

First figure indicates protection against dangerous access and foreign objects	Index	IP	Index	Second figure indicates protection against water penetration
Non-protected	0			0
Protected against solid objects Ø 50 mm or more	1		1	Protected against vertically falling water drops
Protected against solid objects Ø 12.5 mm or more	2		2	Protected against vertically falling water drops when enclosure tilted 15°
Protected against solid objects Ø 2.5 mm or more	3		3	Protected against spraying water up to 60° from vertical
Protected against solid objects Ø 1 mm or more	4		4	Protected against splashing water from any direction
Dust-protected	5		5	Protected against jets of water from any direction
Dust-tight	6		6	Protected against powerful jets of water from any direction
			7	Protected against immersion
			8	Protected against continuous immersion

Correlation between IP (IEC) and NEMA* 250 standards

IP 10	NEMA 1
IP 11	NEMA 2
IP 14	NEMA 3R
IP 52	NEMA 5-12-12K
IP 54	NEMA 3-3S-13
IP 56	NEMA 4-4X
IP 67	NEMA 6-6P

* NEMA: National Electrical Manufacturers Association (USA)

The enclosures to NEMA standards 7 to 10 concern equipment for hazardous areas.

Part 2: Coils

Groups:

Lucifer coils and electrical parts are classified by groups determining their compatibility with Lucifer solenoid valves.

In this catalogue you will find the global reference of these groups which is given in most Lucifer catalogues.

The global reference of these groups is composed of one number (principal reference from 1 to 12) defined as follows:

- 1** Application on valves of 2000 series with 22 mm pilot
- 2** Application on standard valves or on 7000 series with M20 x 1 pilot
- 3** Specific application
- 4** Application on standard valves or on 7000 series with magnetic latch pilot
- 5** Application on special valves for flameproof electrical parts
- 6** Application on standard valves or on 7000 series, for coils and low-power electrical parts
- 7** Application on standard valves or on 7000 series, for intrinsically safe coils and electrical parts
- 8** Application on special valves, for intrinsically safe coils and electrical parts with booster
- 9** Application on special valves, for CPR or Offshore coils and electrical parts
- 10** Application on valves for Offshore coils and electrical parts
- 11** Application flameproof "d" for Offshore coils and electrical parts
- 12** Application on Offshore valves with manual reset.

How to order:

1. Valve reference or global reference
2. Housing reference or global reference
3. Coil / electrical part or global reference
4. Voltage or voltage code (see table on page 64)

Ordering example:

121K0756-2995-481865- 3D 220-230/50 3D **or**
7121KBG2LVM0-N1-DZ02 3D

Important: valve, housing or coil can be ordered separately for use as a replacement or spare part.

2.1 Coils with screw terminals:

2.1.1 Standard coils

2



These coils can be mounted with the majority of the Lucifer solenoid valves. They can be mounted with all Lucifer metal housings. The coil winding is completely encapsulated in synthetic material. Easy mounting in confined spaces. Electrical connection with screw terminals for wire up to 1.5 mm².



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

2 / 3

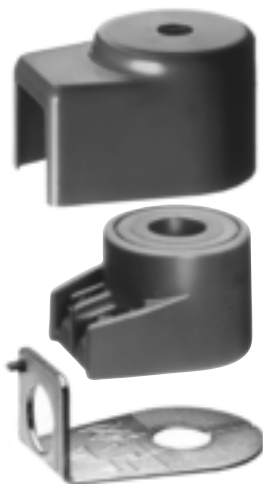
Coil / specification		Standard	Double frequency	High power	High temperature	High temp. + high power	
Reference		481000 or EZ01	483520 or EZ90	481044 or EZ91	485100 or EZ02	486265 or EZ92	
Class of insulation		F 155°C	F 155°C	F 155°C	H 180°C	H 180°C	
Ambient temperature		-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	
The application is limited also by the temperature range of the valve							
Elect. Power	DC	Pn (hot)	8 W	-	-	8 W	14 W
		P (cold) 20°C	9 W	-	-	9 W	21 W
	AC	Pn (holding)	8 W	9 W	14 W	8 W	14 W
		Attraction cold	32 VA (9 W)	36 VA (10 W)	56 VA (20 W)	32 VA (9 W)	56 VA (20 W)
Weight		130 g	130 g	130 g	140 g	140 g	

Voltage tolerance: -10% to +10% of Un (-15% to +5% for double-frequency coil with voltage code S6 if 240 V/50/Hz is used).

Duty: Continuous duty coil (ED 100%)

Voltages: see voltage code table

Mounting: examples



2.1.2 Bistable (impulse) coils

4



These coils are specially designed for Lucifer bistable (or impulse or magnetic latch) solenoid valves.

They can be mounted only with Lucifer metallic housings 4269 or 4538. The coil winding is completely encapsulated in synthetic material. Easy mounting in confined spaces. Electrical connection with screw terminals for wire up to 1.5 mm².



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Coil / Specification		Direct Current	Alternating Current		
Diagram		<p>Only an electrical impulse given to terminals A-C reverses the magnetic field. This magnetic field demagnetises the reversible magnet enough to allow the return spring to bring the plunger back to its initial position and close the valve.</p>			
Length of impulses		Switch on (terminals A-B): minimum 50 ms, (maximum 1s) Switch off (terminals A-C): minimum 35 ms, (maximum 1s)			
Reference		485400 or MZ02	* 482245 or MZ90	484990 or MZ01	
Electr. Power consumption	DC	Attraction (hot)	13 W	13 W	-
		Attraction (cold)	19 W	19 W	-
		Release (hot)	8 W	8 W	-
		Release (cold)	10 W	10 W	-
	AC	Attraction (hot)	-	-	11 W
		Attraction (cold)	-	-	17 W
		Release (hot)	-	-	4 W
		Release (cold)	-	-	7 W

* Electrical part IP67; contact your distributor for details.

Class of insulation material: F 155°C

Ambient temperature: -40°C to +50°C

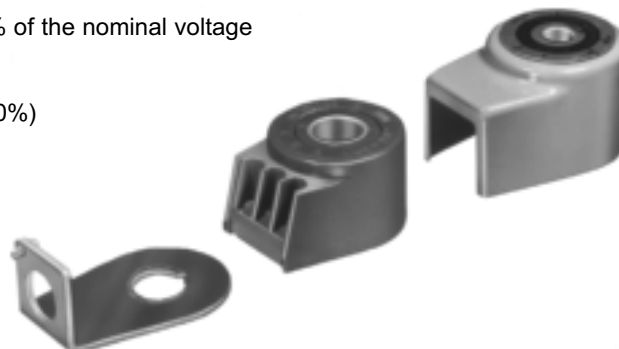
Voltage tolerances: -10% to +10% of the nominal voltage

Voltages: See voltage code table

Duty: Continuous duty coil (ED 100%)

Weight: 150 g

Mounting: example



2.2 Coils for DIN plug connection:

2.2.1 32 mm Coils

2



These coils can be mounted with the majority of the Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

2 / 3

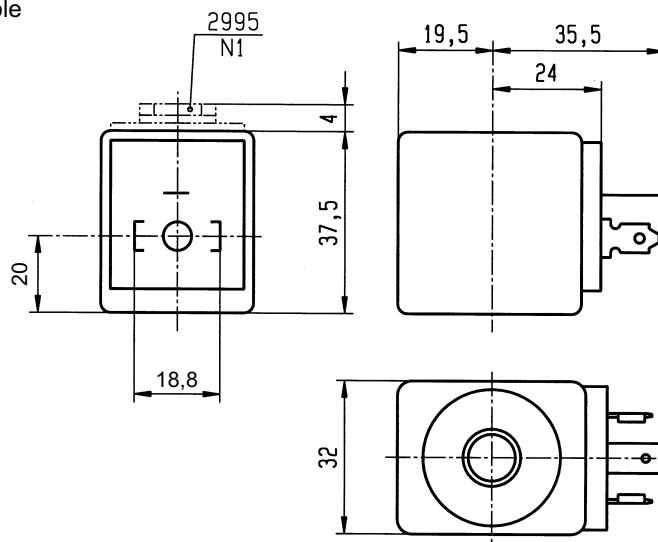
Specification		Standard	Double frequency	Reduced power	High temperature	High temp. + High power	
Ref. (without plug)		481865 or DZ02	483510 or DZ06	482730 or DZ90	492453 or DZ04	492425 or DZ08	
Ref. (with plug)		482725 or DZ03	482635 or DZ07	482735 or DZ91	492726 or DZ05	492727 or DZ09	
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)					
Class of insulation		F 155°C	F 155°C	F 155°C	H 180°C	H 180°C	
Electrical connection		Through a 2 P + E plug according to DIN 43650 type A					
Ambient temperature		-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	-40°C to +50°C	
The application is limited also by the temperature range of the valve							
Elect. Power	DC	P_n (hot)	9 W	-	7 W	9 W	14 W
		P (cold) 20°C	12 W	-	9 W	12 W	21 W
	AC	P_n (holding)	8 W	9 W	6 W	8 W	14 W
		Attraction cold	26 VA (9 W)	32 VA (10 W)	20 VA (7 W)	26 VA (9 W)	55 VA (18 W)

Voltage tolerances: -10% to +10% of the nominal voltage

Duty: Continuous duty coil (ED 100%)

Voltages: see voltage code table

Weight: 130 g (without plug)



2.2.1.1 32 mm UL-recognized Coil

2



These coils can be mounted with the majority of the Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic-iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil is UL-approved as a recognized component for the insulation class F, conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

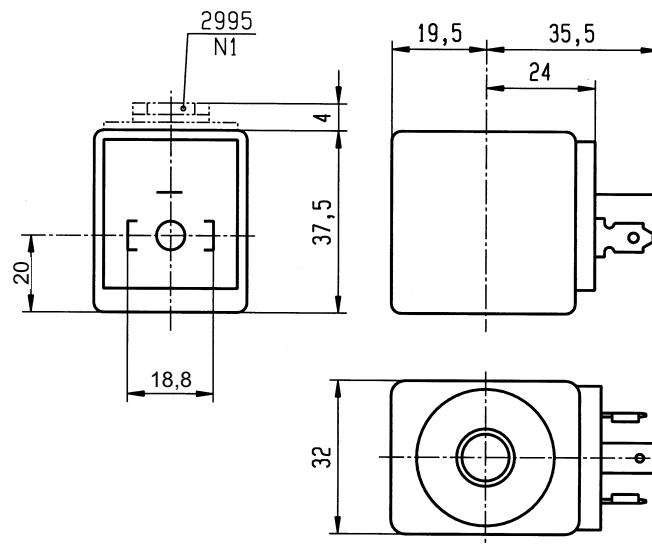
Specification		UL-recognized coil - UL File E125678 - designation AMIF		
Reference (without plug)		491514 or D400	491514 or D500	
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)		
Class of insulation		F 155°C	F 155°C	
Electrical connection		Through a 2 P + E plug according to DIN 43650 type A		
Ambient temperature		-40°C to 50°C	- 40°C to 50°C	
		The application is limited also by the temperature range of the valve		
Elect. Power	DC	Pn (hot)	-	12 W
		P (cold) 20°C	-	16 W
	AC	Pn (holding)	11 W	-
		Attraction cold	40 VA (13 W)	-

Voltage tolerances: -15% to +10% of the nominal voltage

Duty: Continuous duty coil (ED 100%)

Voltages: see voltage code table

Weight: 130 g (without plug)



2.2.1.2 32 mm Miniwatt Coil

6



This reduced power coil is compatible with certain types of Lucifer solenoid valves only. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

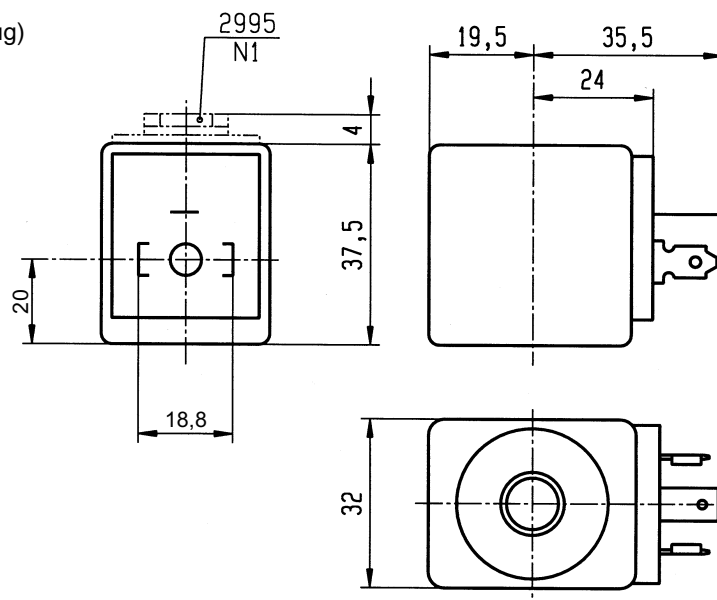
Specification		Miniwatt	
Reference (without plug) Reference (with plug)		482740 or DZ10 482745 or DZ11	
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)	
Class of insulation		F 155°C	
Electrical connection		Through a 2 P + E plug according to DIN 43650 type A	
Ambient temperature		-40°C to +50°C The application is limited also by the temperature range of the valve	
Elect. Power	DC	P_n (hot)	1.6 W
		P (cold) 20°C	2.1 W
	AC	P_n (holding)	-
		Attraction cold	-

Voltage tolerance: -10% to +10% of the nominal voltage

Duty: continuous duty coil (ED 100%)

Voltages: see voltage code table

Weight: 130 g (without plug)



2.2.1.2 32 mm CPR Coil

9



This coil is compatible only with the Offshore and CPR* types of Lucifer solenoid valves. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.
(* CPR = Chemical, Petrochemical and Refinery application)



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Specification		CPR
Reference (without plug) Reference (with plug)		492385 or DZ92 492387 or DZ93
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)
Class of insulation		F 155°C
Electrical connection		Through a 2 P + E plug according to DIN 43650 type A
Ambient temperature		-40°C to +50°C The application is limited also by the temperature range of the valve
Elect. Power	DC	
	P_n (hot)	9 W
	P (cold) 20°C	12 W
AC	P_n (holding)	9 W
	Attraction cold	12 W

Voltage tolerance: -10% to +10% of the nominal voltage

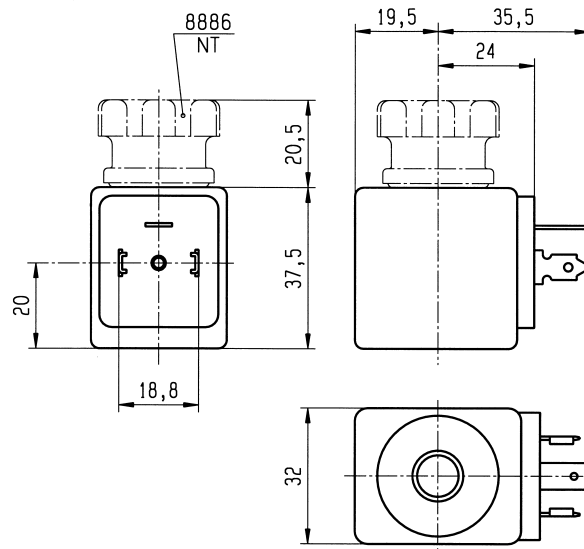
Duty: continuous duty coil (ED 100%)

Voltages: see voltage code table

Weight: 130 g (without plug)

Important:

For AC voltage, this coil must be mounted with a connector (DIN plug) including a rectifier-bridge.



2.2.2 22 mm Coil

1



This miniature coil is designed for valves equipped with a miniature tube assembly. This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc. Ease of mounting in confined space - offers shock and corrosion protection - simplifies conversion of existing equipment to other requirements, etc.



This coil conforms to the IEC/CENELEC safety standards and complies with European low-voltage directive 73/23/EC.

Specification		Low power	High power	Standard UL / CSA*	Double frequency	
Ref. (without plug)		488980 or DA01	481180 or DA03	492912 or DA05	483590 or DA07	
Ref. (with plug)		481045 or DA02	481530 or DA04	492919 or DA06		
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)				
Classe of insulation		F 155°C	F 155°C	A 105°C for UL/CSA	F 155°C	
Electrical connection		Through a 2 P + E plug according to DIN 43650 type B				
Ambient temperature		-40°C to +50°C The application is limited also by the temperature range of the valve				
Elect. Power	DC	Pn (hot)	2.5 W DC	5 W DC	4 W	-
		P (cold) 20°C	3 W	6.5 W	4.5 W	-
	AC	Pn (holding)	2 W	4 W	3 W	3 W
		Attraction cold	5.7 VA (2.5 W)	8.9 VA (5 W)	7.5 VA (4 W)	7.5 VA (4 W)

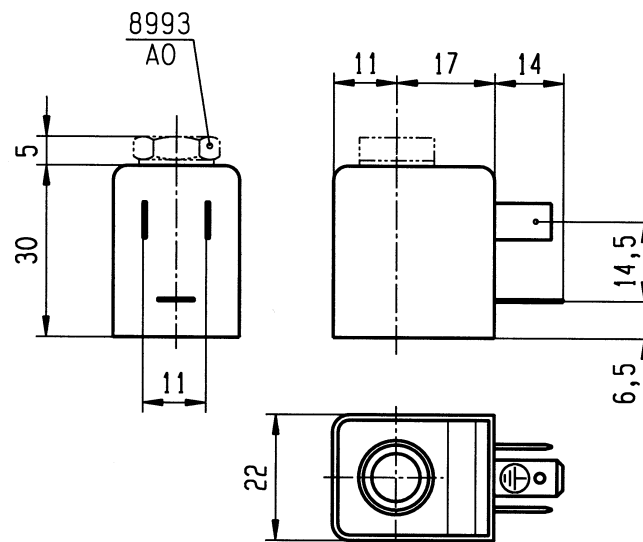
* This coil is UL/CSA accepted with corresponding approved valves only.

Voltage tolerance: -10 to +10% of the nominal (for coil 492912 and 492919 : - 15% to + 10% of the nominal voltage)

Duty: continuous duty coil (ED 100%)

Voltages: see voltage code table

Weight: 100 g with plug



Part 3: Explosion proof electrical parts

3.1 Encapsulated electrical parts for zone 22:

3.1.1 22 mm electrical part with connector



Application: Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

Benefits: This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined spaces.

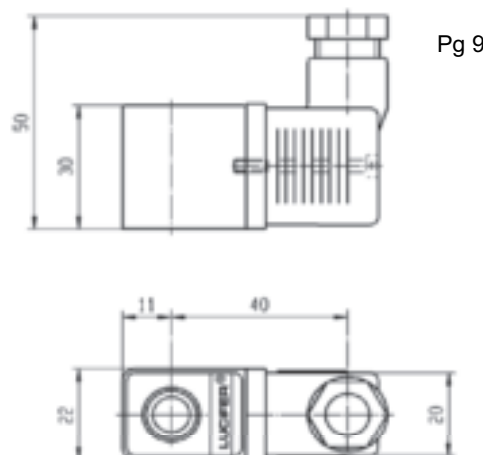
All Lucifer valves which are suitable for standard 22 mm coils can be fitted with those electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

Reference		495865	
Specification		Standard 22 mm	
Type of protection	Dust	II 3 D (zone 22)	
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)	
Ambient temperature		- 40 °C to + 50 °C The application is limited also by the temperature range of the valve	
Dust temperature class (D)		95 °C	
Class of insulation		F (155 °)	
Electrical connection		Through a 2 P + E plug according to EN 175301-803 type B	
Elect. Power	DC	Pn (hot)	2.5 W
		P (cold) 20°C	3 W
	AC	Pn (holding)	2 W
		Attraction cold	5.7 VA (2.5W)
Voltage		24 VDC, 220-230/50	
Voltage tolerance		± 10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 120 g.



Pg 9

3.1.2 32 mm electrical parts with connector

2



Application: Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

Benefits: This is an encapsulated assembly comprising a coil, integral magnetic iron path and snap-on plug connection. The synthetic material encapsulation provides an effective compact housing, offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined spaces.

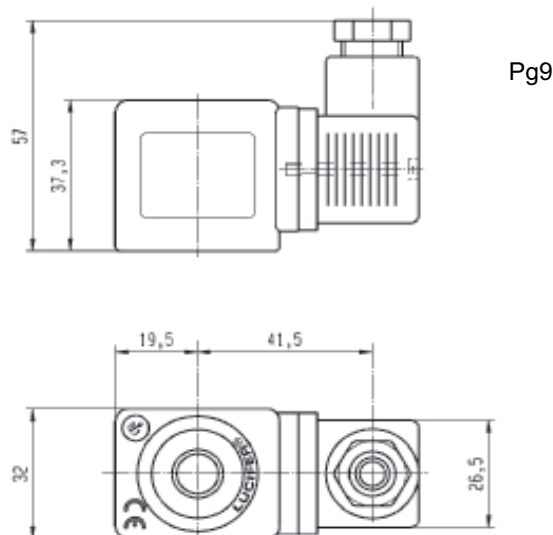
All Lucifer valves which are suitable for standard 32 mm coils can be fitted with those electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

Reference		495870	495875	495880	
Specification		Standard 32 mm	Low power 32 mm	High power 32 mm	
Type of protection	Dust	II 3 D (zone 22)			
Degree of protection		IP65 according to IEC / EN 60529 standards (with plug connection)			
Ambient temperature		- 40 °C to + 50 °C The application is limited also by the temperature range of the valve			
Dust temperature class (D)		130 °C	130 °C	170 °C	
Class of insulation		F (155 °C)	F (155 °C)	H (180 °C °)	
Electrical connection		Through a 2 P + E plug according to EN 175301-803 type A			
Elect. Power	DC	Pn (hot)	9 W	7 W	14 W
		P (cold) 20°C	12 W	9 W	21 W
	AC	Pn (holding)	8 W	6 W	14 W
		Attraction cold	26 VA (9W)	20 VA (7W)	55 VA (18W)
Voltage		24 VDC, 48/50, 110/50, 220-230/50	24 VDC, 220-230/50	24 VDC, 230/50	
Voltage tolerance		± 10% of the nominal voltage			
Solenoid duty		Continuous duty solenoid (ED 100%)			

Weight: 150 g.



3.2 Increased safety electrical parts for zone 22

3.2.1 Electrical parts 495915

4



Application: Control of solenoid valves in explosive atmospheres where dust dangerous area (zone 22) is required.

Benefits: Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

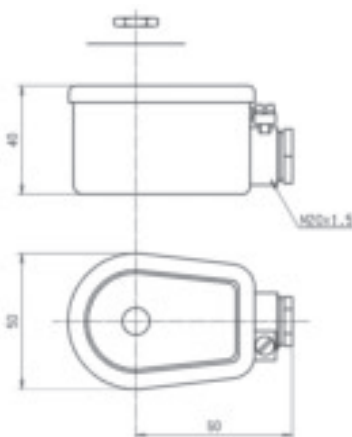
These electrical parts are specially designed for Lucifer bistable (or impulse or magnetic latch) solenoid valves.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC « ATEX ».

Reference		495915 DC	495915 AC	
Type of protection	Dust	II 3 D (zone 22)		
Dust temperature class (D)		130 °C		
Insulation Class		F (155 °C)		
Ambiant temperature		- 40 °C ÷ + 50 °C The application is limited also by the temperature range of the valve		
Electr. Power conspition	DC	Attraction (hot)	13 W	-
		Attraction (cold)	19 W	-
		Release (hot)	8 W	-
		Release (cold)	10 W	-
	AC	Attraction (hot)	-	11 W
		Attraction (cold)	-	17 W
		Release (hot)	-	4 W
		Release (cold)	-	7 W
Voltages, (voltage tolerance)		24 VDC (± 10%)	110-115 VAC; 220-230 VAC, (± 10%)	
Duty cycle		100%		

Weight: 320 g



As soon as an electrical impulse is given to the terminals A-B, the electromagnetical force attracts the plunger and simultaneously magnetizes a reversible permanent magnet ring. This magnet retains the plunger in place. Repeated or extended impulses or continuous current do not alter the position of the movable core. It stays in position even without current.

Only an electrical impulse given to terminals A-C reverses the magnetic field. This magnetic field demagnetises the reversible magnet enough to allow the return spring to bring the plunger back to its initial position and close the valve

Switch on (terminals A-B): minimum 50 ms, maximum 1 s
Switch off (terminals A-C): minimum 35 ms, maximum 1 s

3.3 Encapsulated electrical parts “m”:

3.3.1 22 mm electrical part

1



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

Benefits: coil and magnetic circuit encapsulated in synthetic material - offering shock and corrosion protection. AC coils with integrated thermal fuse.

Small size for ease of mounting in confined spaces.

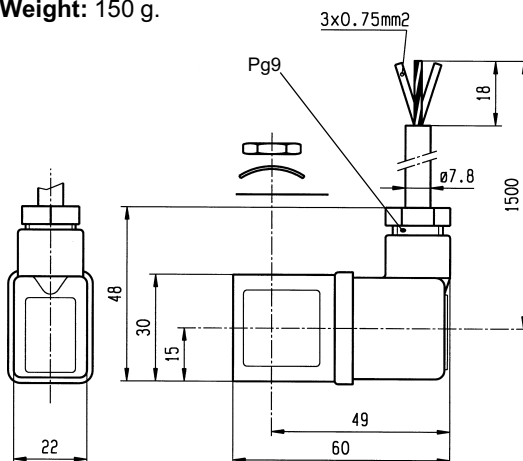
All Lucifer valves which are suitable for standard 22 mm coils can be fitted with those electric parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		482605 or VA01	482606 or VA02 * 482606.10 or VA12 ° 482606.160 or VA07
Approval		LCIE 02 ATEX 6014 X	
Type of protection	Gas	II 2 G - EEx m II T4	II 2 G - EEx m II T5
	Dust	II 2 D - 130°C	II 2 D - 95°C
Degree of protection		IP65 according to IEC / EN 60529 standards	
Ambient temperature		-40°C to +50°C	-40°C to +50°C The application is limited also by the temperature range of the valve
Class of insulation		F (155°C)	F (155°C)
Electrical connection		Cable connection (3 x 0.75 mm ²) encapsulated with coil	
Elect. Power	DC	P_n (hot)	5 W
		P (cold) 20°C	6.5 W
	AC	P_n (holding)	4 W
		Attraction cold	8.9 VA (5 W)
Voltage / Voltage tolerance		see voltage code table / tolerance ± 10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 150 g.



* 482606.10 for stainless steel application - 1.5 m cable length.
° 482606.160 - 6 m cable length.

Fuses:

Both electrical parts VA01 and VA02 have to be connected in series with a safety fuse according to CEI 60127-3.

VA01:

DC: 12V, 1000mA - 24V, 500mA - 48V, 200mA - 110V, 100mA
AC 50 Hz: 24V, 500mA - 48V, 250mA - 110/115V, 100mA - 220/230V, 63mA
AC 60 Hz: 24V, 630mA - 110/115V, 125mA - 220/230V, 63mA

VA02:

DC: 12V, 400mA - 24V, 200mA - 48V, 100mA - 110V, 50mA
AC 50 Hz: 24V, 250mA - 48V, 125mA - 110/115V, 63mA - 220/230V, 32mA
AC 60Hz: 24V, 315mA - 110/115V, 63mA - 220/230V, 32mA

3.3.2 32 mm electrical part

2



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 is required.

Benefits: Coil and magnetic circuit encapsulated in synthetic material - offering shock and corrosion protection. AC/DC coils with integrated thermal fuse. DC coils with integrated surge suppression diode.

Small size for ease of mounting in confined spaces.

All Lucifer valves which are suitable for standards coils (9W DC or 8W AC) can be fitted with this electrical part.

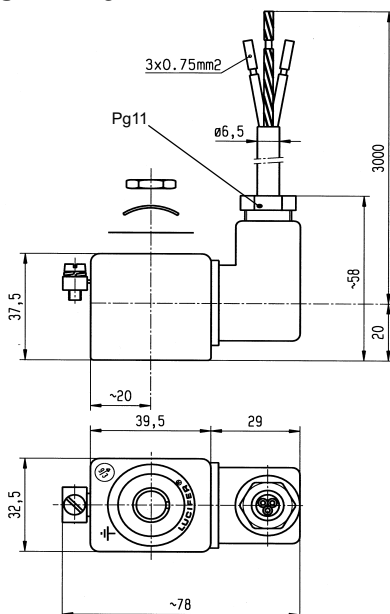


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

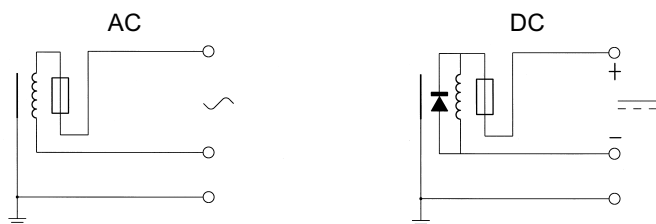
Reference		492670 or HZ05 * 492670.10 or HZ90 ° 492670.160 or HZ91	
Approval		LCIE 02 ATEX 6015 X	
Type of protection	Gas	II 2 G - EEx m II T4	
	Dust	II 2 D - 130°C	
Degree of protection		IP65	
Ambient temperature		-40°C to +40°C The application is limited also by the temperature range of the valve	
Class of insulation		F (155°C)	
Electrical connection		Cable connection (3 x 1.5 mm ²) encapsulated with coil	
Elect. Power	DC	Pn (hot)	9 W
		P (cold) 20°C	12 W
	AC	Pn (holding)	8 W
		Attraction cold	26 VA (9 W)
Voltage / Voltage tolerance		see voltage code table / tolerance ±10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 320g.

* 492670.10 for stainless steel application - 3 m cable length.
° 492670.160 - 6 m cable length

**Special conditions:**

The supply connection lines have to be fixed and positioned in such a way that they are protected against mechanical damages.



It is necessary to use a safety fuse with a nominal current corresponding to the coil current (max. 3 x nominal according to IEC 60127 and IEC 60269) against short-circuits.

Recommended values:

DC: 12V, 1250mA - 24V, 630mA - 48V, 315mA - 110V, 125mA
AC 50 Hz: 24V, 1000mA - 48V, 500mA - 110, 250mA - 230V, 100mA
AC 60 Hz: 240V, 100mA

3.3.3 Standard electrical parts with waterproof metal housing:

2 / 6



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

Benefits: Epoxy-coated steel housing - solenoid coil, rectifier (silicium diodes), fuse and varistor protection element are completely encapsulated in the coil housing by means of epoxy resin.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves which are suitable for standards coils (8 W or 2.5 W DC) can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

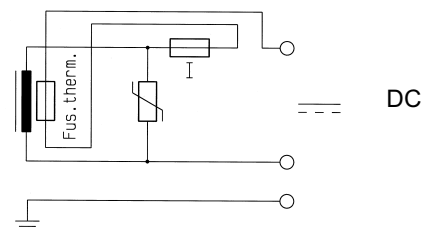
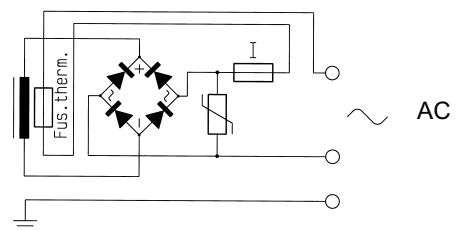
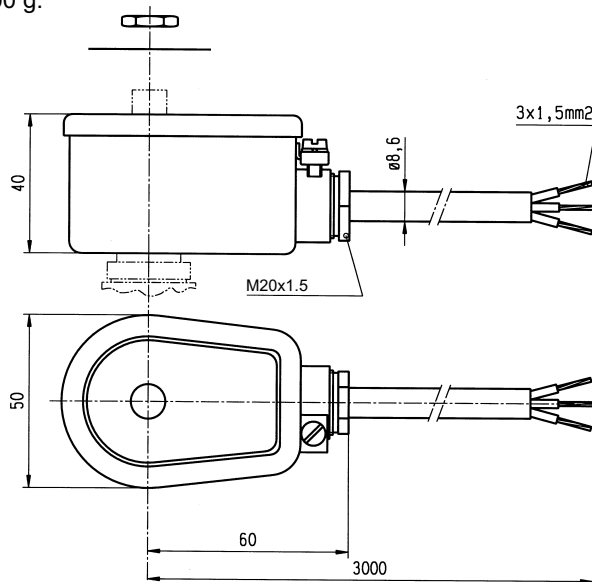
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6

Reference		492070 or VZ01 *492070.60 or VZ96	492370 or VZ05	492070.03 or VZ21	
Approval		LCIE 02 ATEX 6017 X		AUS Ex. 321	
Type of protection	Gas	II 2 G - EEx m II T4	II 2 G - EEx m II T5	Ex m IIC T4 / T5 Classe I - Zone 1	
	Dust	II 2 D - 130°C	II 2 D - 95°C		
Degree of protection		IP67		IP67	
Ambient temperature		-40°C to +65°C The application is limited also by the temperature range of the valve	-40°C to +40°C	-40 to +65°C / +40 °C	
Class of insulation		F (155°C)		F (155°C)	
Electrical connection		Cable connection (3 x 1.5mm ²) with cable gland M20x1.5, external earth screw connection			
Elect. Power	DC	Pn (hot)	8 W	2.5 W	8 W
		P (cold) 20°C	10 W	3 W	10 W
	AC	Pn (holding)	9 W	2.5 W	9 W
		Attraction cold	11 W	3 W	11 W
Voltage / Voltage tolerance		see voltage code table / tolerance ± 10% of the nominal voltage			
Solenoid duty		Continuous duty solenoid (ED 100%)			

Weight: 500 g.

* 492070.60 - 6 m cable length



3.3.4 CPR electrical parts with waterproof metal housing:

9



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx m II T4 or T5 is required.

Benefits: Epoxy-coated steel housing - solenoid coil, rectifier (silicium diodes), fuse and varistor protection completely encapsulated in the coil housing by means of epoxy resin.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves equipped with the specific CPR* upper parts, can be fitted with this electrical part.

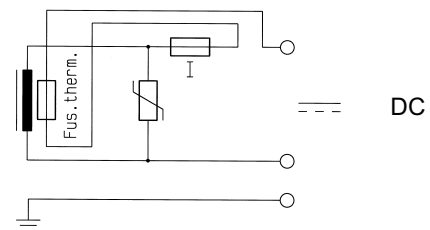
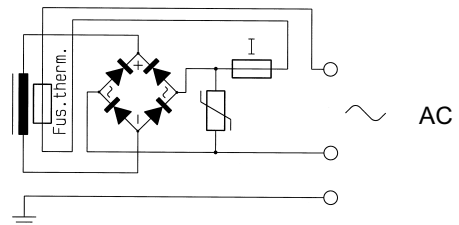
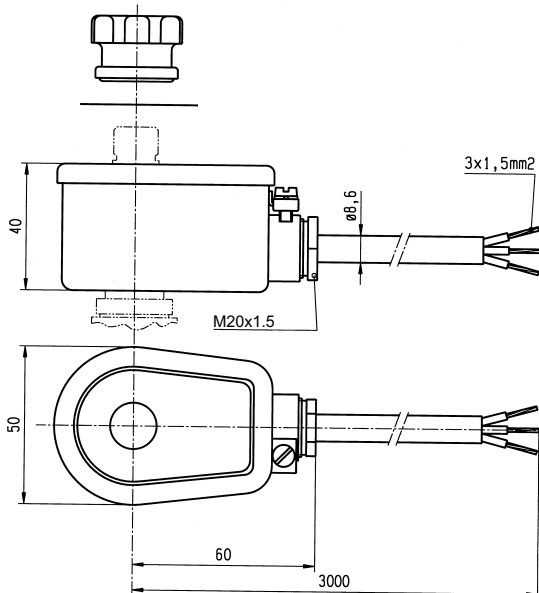
(* CPR = Chemical, Petrochemical and Refinery application)



These electrical parts conform to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		492270 or VZ02	
Approval		LCIE 02 ATEX 6017 X	
Type of protection	Gas	II 2 G - EEx m II T4	II 2 G - EEx m II T5
	Dust	II 2 D - 130°C	II 2 D - 95°C
Degree of protection		IP67	
Ambient temperature		-40°C to +65°C	-40°C to +40°C The application is limited also by the temperature range of the valve
Class of insulation		F (155°C)	
Electrical connection		Cable connection (3 X 1.5mm ²) with cable gland M20 x 1.5, external earth screw connection	
Elect. Power	DC	Pn (hot)	5 W
		P (cold) 20°C	6 W
	AC	Pn (holding)	5 W
		Attraction cold	6 W
Voltage / Voltage tolerance		see voltage code table / tolerance ±10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 500 g.



3.4 Increased safety electrical parts “me”:

3.4.1 Electrical parts 483371 or HZ06 and 494040 or HZ23

2



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T3 or T4 is required.

Benefits: Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

All Lucifer valves suitable for standard 8 W DC or AC coils can be fitted with these electrical parts.

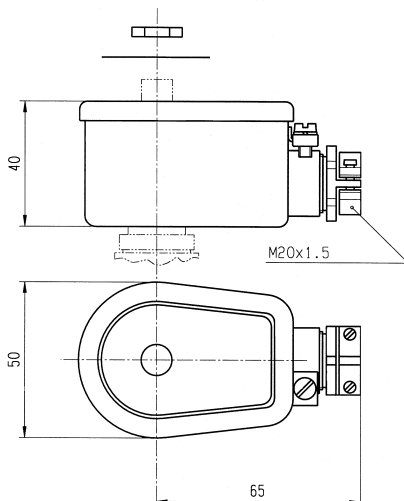


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		483371 or HZ06 * 483371.01 or HZ14	494040 or HZ23	
Approval		LCIE 02 ATEX 6011 X		LCIE 02 ATEX 6013 X
Type of protection	Gas	II 2 G - EEx me II T4	II 2 G - EEx me II T3	II 2 G - EEx me II T4
	Dust	II 2 D - 130°C	II 2 D - 195°C	II 2 D - 130°C
Degree of protection		IP67		IP67
Ambient temperature		-40°C to +65°C	-40°C to +90°C	-40°C to +65°C
The application is limited also by the temperature range of the valve				
Class of insulation		F (155°C)	H (180°C)	
Electrical connection		By special cable gland M20 x 1.5 EExe on screw terminals for wires up to 1.5 mm ² . Cables with outside diameter 6.5 to 13.5 mm can be simply sealed using the rubber gland with resilient sealing rings supplied.		
Elect. Power	DC	Pn (hot)	8 W	8 W
		P (cold) 20°C	9 W	9 W
	AC	Pn (holding)	8 W	8 W
		Attraction cold	32 VA (9 W)	32 VA (9 W)
Voltage / Voltage tolerance		see voltage code table / tolerance -10/ +10% of the nominal voltage		
Solenoid duty		Continuous duty solenoid (ED 100%)		

Weight: 320 g.

*483371.01 for CPR valves



Fuses:

Both electrical parts HZ06 and HZ23 have to be connected in series with a safety fuse according to IEC 60127-3.

HZ06:

DC: 12V, 1000mA, 24V, 400mA - 48V, 250mA - 110V, 100mA
 AC 50 Hz: 24V, 630mA - 48V, 315mA - 110V, 160mA - 220/230V, 80mA
 AC 60 Hz: 24V, 750mA - 110V, 160mA - 240V, 80mA

HZ23:

DC: 24V, 400mA - 48V, 250mA - 110V, 100mA, 220V, 63mA
 AC 50 Hz: 24V, 630mA - 48V, 315mA - 110/115V, 160mA - 220/230V, 80mA

3.4.2 Low power electrical part 491117 or VZ04

6



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 is required.

Benefits: Rotatable housing 360°, galvanized steel with internal and external screw terminals for earth connection.

Small size for ease of mounting in confined space. Simplifies conversion of existing equipment to hazardous area requirements.

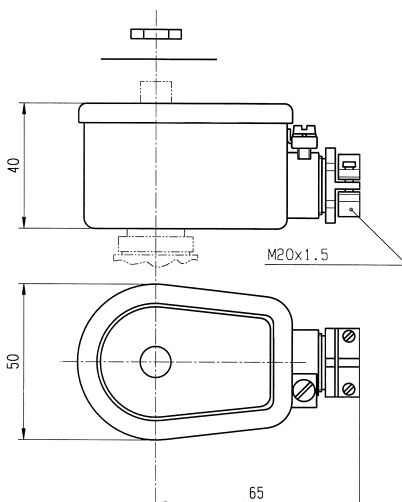
All Lucifer valves which are suitable for standard coils 2.5 WDC only can be fitted with this electrical part.



This electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		491117 or VZ04	
Approval		LCIE 02 ATEX 6012 X	
Type of protection	Gas	II 2 G - EEx me II T5	
	Dust	II 2 D - 95°C	
Degree of protection		IP67	
Ambient temperature		-40°C to +65°C The application is limited also by the temperature range of the valve	
Class of insulation		F (155°C)	
Electrical connection		By special cable gland M20 x 1.5 "EEx e" on screw terminals for wires up to 1.5 mm". Cables with outside diameter 6.5 mm to 13.5 mm can be simply sealed using the rubber gland with resilient sealing rings supplied.	
Elect. Power	DC	P_n (hot)	2.5 W
		P (cold) 20°C	3 W
	AC	P_n (holding)	-
		Attraction cold	-
Voltage / Voltage tolerance		see voltage code table / tolerance -10/ +10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 320 g.

**Fuses:**

The electrical part VZ04 has to be connected in series with a safety fuse according to IEC 60127-3

VZ04:

DC: 24V, 160mA

3.5 Encapsulated and increased safety electrical parts “me”:

3.5.1 Electrical parts 492190 or VZ03 and 492390 or VZ06

2 / 6



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T3 to T6 is required.

Benefits: Rotatable 360°, fibreglass-reinforced plastic housing. Solenoid coil, rectifier (silicium diodes), fuses and varistor protection are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for standard 8WDC coils can be fitted with the VZ03, and all Lucifer valves with the suffix “80” can be fitted with VZ06 electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

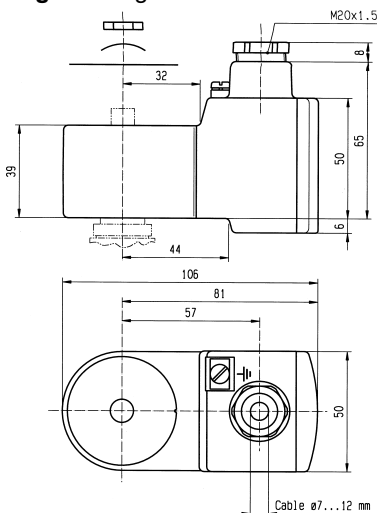
2

6

Reference		492190 or VZ03 *492190.10 or VZ90	492390 or VZ06	492190.03 or VZ34
Approval		LCIE 02 ATEX 6023 X		
Type of protection	Gas	II 2 G - EEx me II T3	II 2 G - EEx me II T4	II 2 G - EEx me II T5/T6
	Dust	II 2 D - 195°C	II 2 D -95°C	II 2 D -130°C / 80°C
Degree of protection		IP66	IP66	IP66
Ambient temperature		-40°C to +75°C	-40°C to +40°C	-40°C to 75/+40°C
The application is limited also by the temperature range of the valve				
Class of insulation		F (155°C)		F (155°C)
Electrical connection		Screw terminals within terminal box. Cable connection through a cable gland M20 x 1.5 Additional earth connection on external screw terminal		
Elect. Power	DC	Pn (hot)	9 W	2.5 W
		P (cold) 20°C	11 W	3 W
	AC	Pn (holding)	11 W	2.5 W
		Attraction cold	13 W	3 W
Voltage / Voltage tolerance		see voltage code table / tolerance ±10% of the nominal voltage		
Solenoid duty		Continuous duty solenoid (ED 100%)		

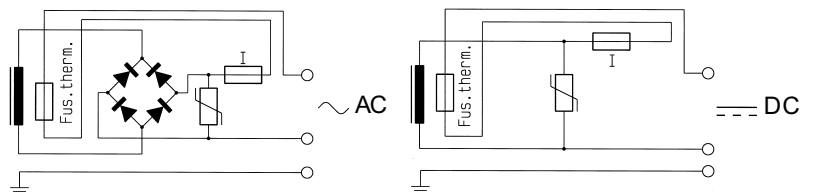
Weight: 500 g.

* 492190.10 for stainless steel valves applications.



Simplifies conversion of existing equipment to hazardous area requirements (according to CENELEC standards EN 50014, EN 50019 and EN 50028).

The electrical part **VZ06** can be used only with the low-power valves.



3.5.2 Electrical parts 492200 or VZ13, 492210 or VZ26

9 / 10



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 to T6 is required.

Benefits: Rotatable 360°, fibreglass-reinforced plastic housing. Solenoid coil and booster electronic are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



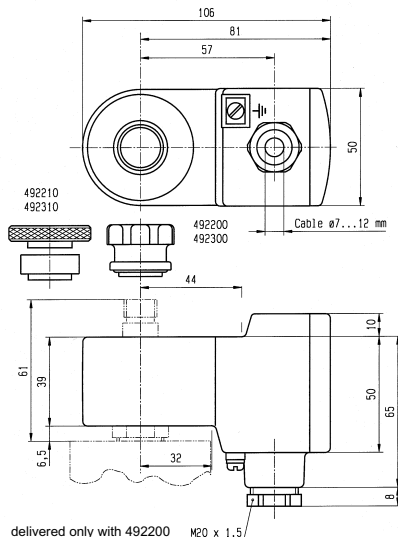
These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

9

10

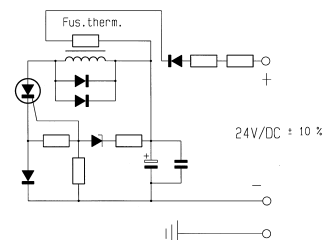
Reference		492200 or VZ13		492210 or VZ26	
Approval		LCIE 02 ATEX 6023 X			
Type of protection	Gas	II 2 G - EEx me II T5	II 2 G - EEx me II T6	II 2 G - EEx me II T5	II 2 G - EEx me II T6
	Dust	II 2 D -95°C	II 2 D -80°C	II 2 D -95°C	II 2 D -80°C
Degree of protection		IP66		IP66	
Ambient temperature		-40°C to +75°C	-40°C to +40°C	-40°C to +75°C	-40°C to +40°C
The application is limited also by the temperature range of the valve					
Class of insulation		F (155°C)		F (155°C)	
Electrical connection		Screw terminals within terminal box. Cable connection through a cable gland M20X1.5 Additional earth connection on external screw terminal			
Power consumption DC		1 bis 1.8 W, depending on cable length		1 bis 1.8 W, depending on cable length	
Inrush current (attraction) min. required for holding		Provided by booster circuit during ~50 ms as soon as the Zener voltage of 21.6 V is reached I mini = 60 mA (I nominal = 75 mA)			
Voltage DC		U nominal = 24 VDC, Umini = 21.6 VDC			
Resistance/additional resistance		23 Ω + (R = 270 Ω)			
Inductance		0 mH			
Capacitance		0 μF			
Response time		2 - 4 s			
Voltage / Voltage tolerance		see voltage code table / tolerance ± 10% of the nominal voltage			
Solenoid duty		Continuous duty solenoid (ED 100%)			

Weight: 500 g.



Indications:

VZ13 = Booster for CPR valves
VZ26 = Booster for Offshore valves



These electrical parts need an external fuse of I = 100 mA

3.5.3 Electrical part 492300 or VZ14 and 492310 or VZ27

9/10/12



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx me II T5 to T6 is required.

Benefits: Rotatable 360° fibreglass-reinforced plastic housing. Solenoid coil, rectifier (silicium diodes), fuses and varistor protection are completely encapsulated into the coil housing by epoxy resin for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

9

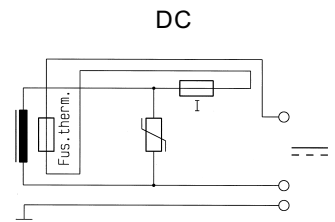
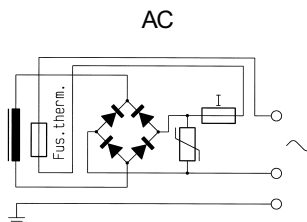
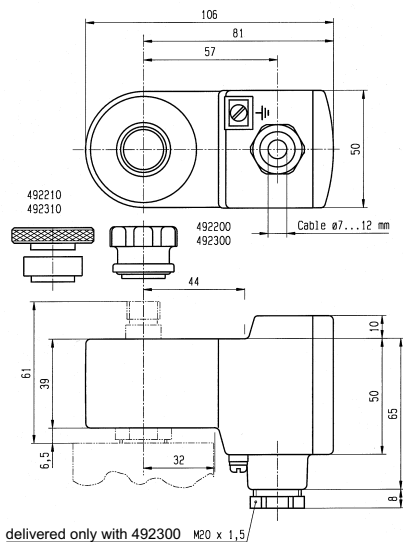
10/12

Reference		492300 or VZ14	492310 or VZ27	492310.03 or VZ29
Approval		LCIE 02 ATEX 6023 X		AUS Ex 321
Type of protection	Gas	II 2 G - EEx me II T4	II 2 G - EEx me II T5	Ex me IIC T4 / T5 Classe I - Zone 1
	Dust	II 2 D - 130°C	II 2 D - 95°C	
Degree of protection		IP66		IP65
Ambient temperature		-40°C to +75°C	-40°C to +40°C	-40 to +40 / + 75°C
		The application is limited also by the temperature range of the valve		
Class of insulation		F (155°C)		
Electrical connection		Screw terminals within terminal box. Cable connection through a cable gland M20 x 1.5 Additional earth connection on external screw terminal		
Elect. Power	DC	Pn (hot)	6 W	6 W
		P (cold) 20°C	7.5 W	7.5 W
	AC	Pn (holding)	6 W	6 W
		Attraction cold	7.5 W	7.5 W
Voltage / Voltage tolerance		see voltage code table / tolerance ±10% of the nominal voltage		
Solenoid duty		Continuous duty solenoid (ED 100%)		

Weight: 500 g.

Indications:

VZ14 = for CPR valves
VZ27 = for Offshore valves



3.6 Flameproof electrical parts “d”:

3.6.1 Electrical part 483250 or HZ08

5



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx d IIC T4 to T6 is required.

Benefits: Rotatable 360°, housing made of cast iron with internal connection chamber: Cover made of aluminium alloy fixed with 4 screws. The electromagnetic control pilot is composed of three main elements: housing, coil and plunger tube including housing plate.

Small size for ease of mounting in confined space.

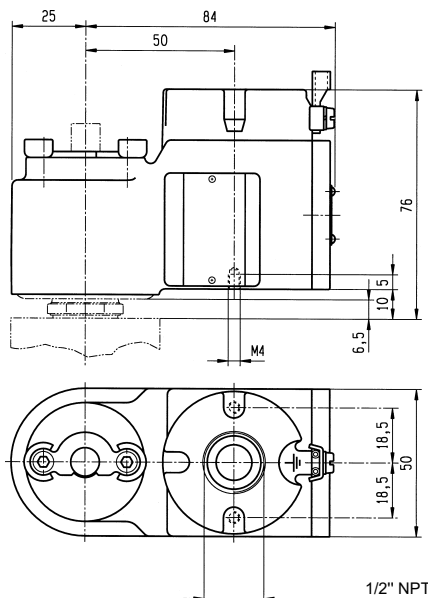
All Lucifer valves with the suffix “1D” (except CPR/Offshore valves 1D) can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and

Reference		483250 or HZ08		
Approval		LCIE 02 ATEX 6007		
Type of protection	Gas	II 2 G - EEx d IIC T4	II 2 G - EEx d IIC T5	II 2 G - EEx d IIC T6
	Dust	II 2 D - 130°C	II 2 D - 95°C	II 2 D - 80°C
Degree of protection		IP64 with appropriate cable gland		
Ambient temperature		-40 to +80°C	-40 to +75°C	-40 to +60°C
		The application is limited also by the temperature range of the valve		
Class of insulation		F (155°C)		
Electrical connection		The electrical connection is made within the housing connection chamber on an accessible screw terminal. The cable entry to the connecting chamber is made through 1/2" NPT thread suitable for fitting an approved EEx d IIC cable gland (493426).		
Elect. Power	DC	Pn (hot)	8 W	
		P (cold) 20°C	9 W	
	AC	Pn (holding)	8 W	
		Attraction cold	32 VA (9 W)	
Voltage / Voltage tolerance		see voltage code table / tolerance -10/ +10% of the nominal voltage		
Solenoid duty		Continuous duty solenoid (ED 100%)		

Weight: 1100 g (with coil)



Plunger tube

The plunger tube is welded to the stainless steel plate and is therefore integrated into the housing, which is screwed on the valve body.

This electrical part is supplied only as complete unit mounted on a valve, as the “EEx d” protection depends on minimum gap between plunger tube, plate and housing.

3.4.2 Electrical parts 483270 or HZ19 and 483270.02 or HZ21

9



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx d IIC T4 to T6 is required.

Benefits: Rotatable 360°, housing made of cast iron with internal connection chamber: Cover made of aluminium alloy fixed with 4 screws. The electromagnetic control pilot is composed of three main elements: housing, coil and plunger tube including housing plate.

Small size for ease of mounting in confined space.

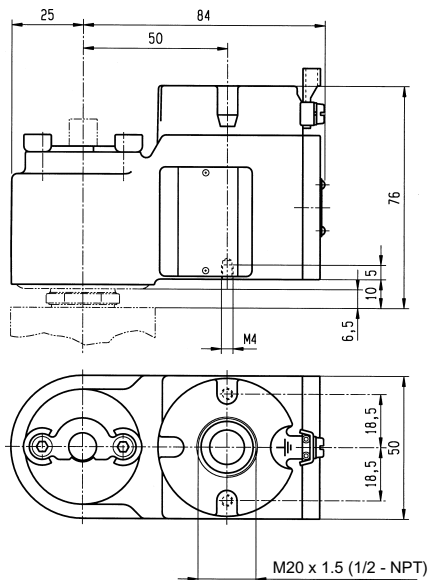
All Lucifer valves with suffix "1D" and suited for CPR/Offshore application can be fitted with these electrical parts



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		483270 or HZ19 (M20 x 1.5)	483270.02 or HZ21 (1/2 NPT)	
Approval		LCIE 02 ATEX 6008 X		
Type of protection	Gas	II 2 G - EEx d IIC T4	II 2 G - EEx d IIC T5	II 2 G - EEx d IIC T6
	Dust	II 2 D - 130°C	II 2 D - 95°C	II 2 D - 80°C
Degree of protection		IP65 with appropriate cable gland		
Ambient temperature		-40 to +80°C	-40 to +75°C	-40 to +60°C
		The application is limited also by the temperature range of the valve		
Class of insulation		F (155°C)		F (155°C)
Electrical connection		The electrical connection is made within the housing connection chamber on an accessible screw terminal. The cable entry to the connecting chamber is made through 1/2" NPT or M20 x 1.5 thread suitable for fitting an approved EEx d IIC cable gland.		
Elect. Power	DC	Pn (hot)	8 W	
		P (cold) 20°C	9 W	
	AC	Pn (holding)	8 W	
		Attraction cold	9 W	
Voltage / Voltage tolerance		see voltage code table / tolerance -10/ +10% of the nominal voltage		
Solenoid duty		Continuous duty solenoid (ED 100%)		

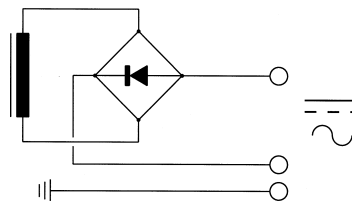
Weight: 1100 g (with coil)



Plunger tube

The plunger tube is welded to the stainless steel plate and is thus integrated to the housing which is screwed on the valve body.

This electrical part is supplied only as complete unit mounted on a valve, as the "EEx d" protection depends on minimum gap between plunger tube, plate and housing.



3.6.3 Electrical part HZ09

5



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx md IIC T4 to T5 is required.

Benefits: Metal armature encapsulated in synthetic material provides high shock and corrosion protection.

Small size for ease of mounting in confined space.

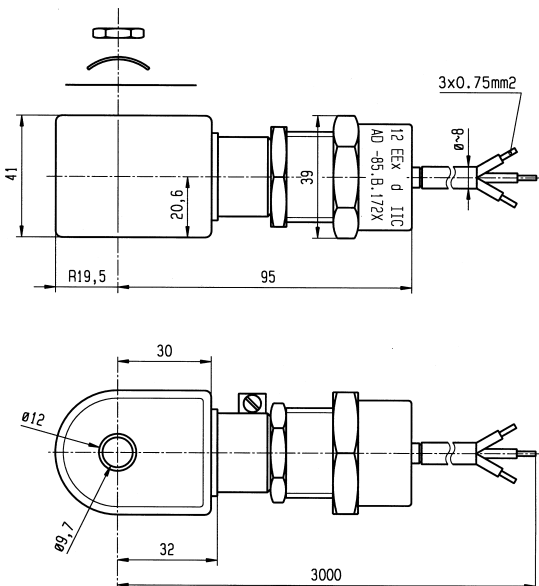
All Lucifer valves suitable for standard 8W coils can be fitted with this electrical part.



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		493640 or HZ09	
Approval		LCIE 02 ATEX 6009 X	
Type of protection	Gas	II 2 G - EEx md IIC T4	II 2 G - EEx md IIC T5
	Dust	II 2 D - 130°C	II 2 D - 95°C
Degree of protection		IP65	
Ambient temperature		-40°C to +75°C	-40°C to +40°C
The application is limited also by the temperature range of the valve			
Class of insulation		F (155°C)	
Electrical connection		Special "EEx d" cable gland 1/2" NPT, galvanized steel, with EPDM sealing. (EPR) cable, outside diameter 7.3 ± 0.5 mm	
Elect. Power	DC	P_n (hot)	8 W
		P (cold) 20°C	9 W
	AC	P_n (holding)	8 W
		Attraction cold	32 VA (9 W)
Voltage / Voltage tolerance		see voltage code table / tolerance -15/ +10% of the nominal voltage	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 500 g



Fuses

The HZ09 electrical part is equipped with a standard thermal cut-off fuse on all models and voltages

This electrical part HZ09 must be connected in series with a safety fuse according to IEC 60127-3.

- DC: 24V, 630 mA
- AC: 110/50-120/60, 250 mA - 220/50-240/60, 125mA
- 230/50, 125 mA

3.7 Intrinsically safe electrical parts “i”:

Intrinsic safety

A system or an element of a system in a hazardous area is intrinsically safe when in any circumstance no explosion can be caused by either a spark or other heat source. The power level of an intrinsically safe electrical system is therefore extremely low.

Application

Intrinsically safe valves are recommended or even compulsory where the highest safety level against explosions is required: chemical industry, refineries, mines, on-and off-shore platforms, etc. In addition to the «intrinsic safety» characteristic, a remarkable low power consumption is needed to control such valves. They can be triggered directly from an electronic circuit such as in a computerised system as they require neither relay nor amplifier.

Safety barriers

Each electrical apparatus, e.g. solenoid valves within the hazardous area must be further protected by safety barriers. Lucifer solenoid operators are compatible with commercially available safety barriers (see guidance chart page 39 to 44). In order to determine whether a barrier is compatible, one must be fully aware of its electrical characteristics.

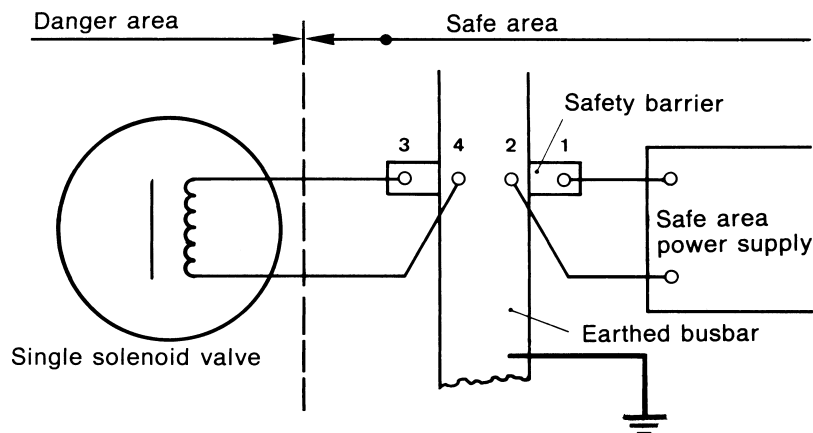
Minimum voltage calculations for proper valve functioning must be made with the total resistance value of barrier, coil (hot) and wiring (total length), and with the maximum ambient temperature.

Electrical supply

Parker Lucifer intrinsically electrical parts may only be fed from:

- Certified I.S. power supplies or
- Through an adequate intrinsic safe safety barrier
- Through intrinsically safe Remote I/O

Installation sketch



3.7.1 Electrical part 32 mm IS

7



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

Benefits: Fully encapsulated assembly comprising a coil, metal armature, three diodes circuit and DIN plug connection.

The encapsulation provides an effective compact housing offering full protection against dust, oil, water, etc.

Small size for ease of mounting in confined space.

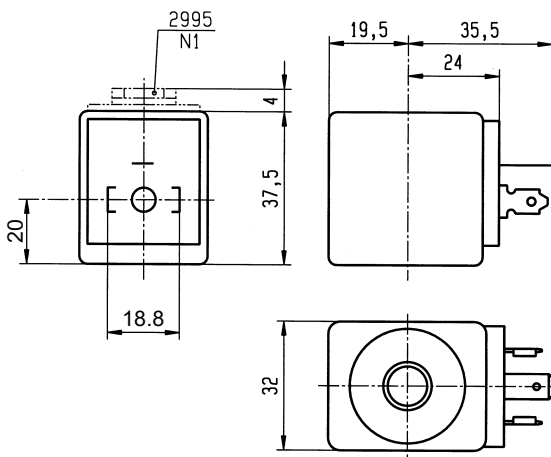
All Lucifer valves with the suffix "90" can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere 94/9/EC «ATEX» directive.

Reference (without plug) (with plug)		483580.01 or DZ12 483960.01 or DZ13	483580.03 or DZ16 483960.03 or DZ17	490880 or DZ18 493997 or DZ19
Zulassungsnummer		LCIE 02 ATEX 6065 X	AUS 1146 X	LCIE/FM - CSA (pending)
Type of protection	Gas	II 1 G - EEx ia IIC T6	Ex ia IIC T6 Classe I - Zone 0	Cl. I, Div. I, Gr. A, B, C, D Cl. II, Div. I, Gr. E, F, G
	Dust	II 1 D - 80°C		
Degree of protection		IP65 with plug connection		NEMA 4-4X
Ambient temperature		-40°C to +55°C The application is limited also by the temperature range of the valve		+60°C
Class of insulation		F (155°C)		
Electrical connection		The coil is connected with a 2P + E plug according to EN 175301-803 type A - contact 1 is marked as the positive pole +		
Maximum supply voltage		28 VDC – 110 mA		30 VDC – 100 mA
		The minimum operating voltage at maximum +60°C is 14 VDC		
Power	DC	Minimum	500 mW	500 mW
		Maximum	3 W	3 W
Depending on applied voltage, IS barrier type and resistance of connected cable				
Coil resistance at 20°C		340 Ω		
Impedance		340 Ω		
Apparent inductance		0 mH		
Apparent capacitance		0 μF		
Solenoid duty		Continuous duty solenoid (ED 100%)		

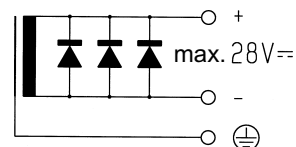
Weight: 160 g (with plug)



Important

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 35 mA** through the coil.

The minimal holding current is 20 mA



For the barrier compatibility see the corresponding table on pages 39, 40 and 41.

3.7.2 Electrical part 488650.01 or VZ07 and 494035.10 or VZ93

7



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

Benefits: Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

All Lucifer valves with the suffix "90" can be fitted with these electrical parts.

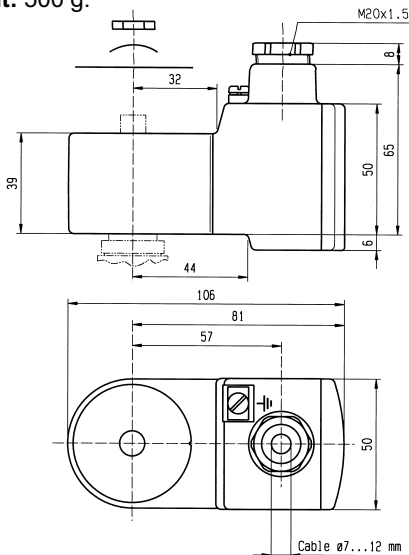


These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		488650.01 or VZ07	* 494035.10 or VZ93	488650.03 or VZ31	490885 or VZ33
Approval		LCIE 02 ATEX 6024 X		AUS Ex 137 X	LCIE / FM / CSA
Type of protection	Gas	II 1 G - EEx ia IIC T6		Ex ia IIC T6	Cl. I, Div. I, Gr. A, B, C, D
	Dust	II 1 D - 80°C		Classe I - Zone 0	Cl. II, Div. I, Gr. E, F, G
Degree of protection		IP66		IP65	NEMA 4-4X
Ambiant temperature		-40°C to +65°C		-40°C to +65°C	+60°C
The application is limited also by the temperature range of the valve					
Electrical connection		Cable entry through a cable gland M20 x 1.5. Screw terminals for leads 3 x 1.5 mm" max. Additional earth connection possible with external screw terminal			
Maximum supply voltage		28 VDC – 110 mA		28 VDC – 110 mA	30 VDC – 100 mA
The minimum operating voltage at maximum +60°C is 11.5 VDC					
Power	DC	Minimum	300 mW	300 mW	300 mW
		Maximum	3 W	3 W	3 W
Depending on applied voltage, IS barrier type and resistance of connected cable					
Coil resistance at 20°C				295 Ω	
Impedance				345 Ω	
Apparent inductance				0 mH	
Apparent capacitance				0 μF	
Solenoid duty		Continuous duty solenoid (ED 100%)			

* with stainless steel fixing kit.

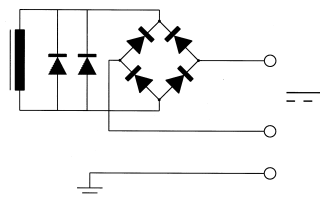
Weight: 500 g.



Important

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a minimum operating current of 29 mA through the coil.

The minimal holding current is 20 mA



For the barrier compatibility see the corresponding table in pages 39, 40 and 41.

3.7.3 Electrical part 488660.01 or VZ08

7



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

Benefits: Rotatable 360° housing, epoxy-coated metal housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

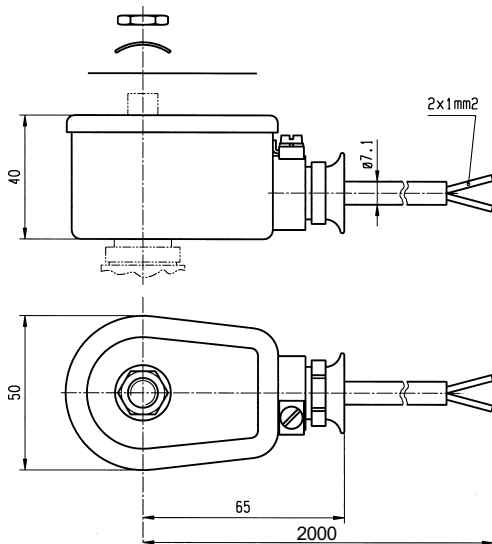
All Lucifer valves with the suffix "90" can be fitted with these electrical parts.



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

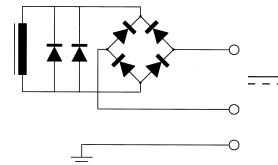
Reference		488660.01 or VZ08	488660.03 or VZ17	490890 or VZ18
Approval		LCIE 02 ATEX 6024 X	AUS Ex 137 X	LCIE / FM / CSA
Type of protection	Gas	II 1 G - EEx ia IIC T6	Ex ia IIC T6 Classe I - Zone 0	Cl. I, Div. I, Gr. A, B, C, D Cl. II, Div. I, Gr. E, F, G
	Dust	II 1 D - 80°C		
Degree of protection		IP67		NEMA 4-4X
Ambiant temperature		-40°C to +65°C The application is limited also by the temperature range of the valve		+60°C
Electrical connection		Fixed and potted dual-core (2 x 1mm ²), blue connection cable, entry cable gland M20 x 1.5. Additional earth connection possible with external screw terminal		
Maximum supply voltage		28 VDC – 110 mA The minimum operating voltage at maximum +60°C is 11.5 VDC		30 VDC – 100 mA
Power	DC	Minimum	300 mW	300 mW
		Maximum	3 W	3 W
Depending on applied voltage, IS barrier type and length resistance of connected cable				
Coil resistance at 20°C		295 Ω		
Impedance		345 Ω		
Apparent inductance		0 mH		
Apparent capacitance		0 μF		
Solenoid duty		Continuous duty solenoid (ED 100%)		

Weight: 500 g.

**Important**

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 29 mA** through the coil.

The minimal holding current is 20 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

3.7.4 Electrical part 488670.01 or VZ09

7



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia or ib IIC T6 is required.

Benefits: Rotatable 360° housing, epoxy-coated metal housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

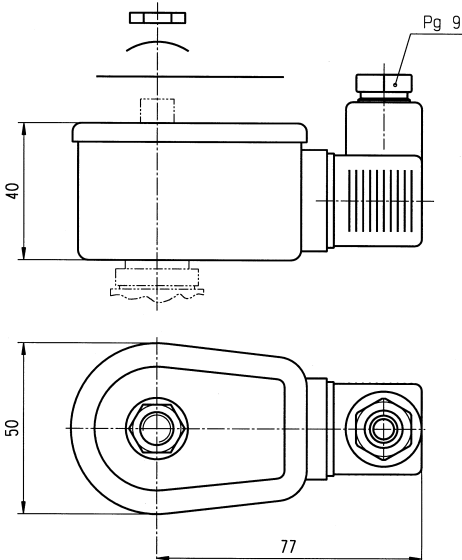
All Lucifer valves with the suffix "90" can be fitted with these electrical parts



These electrical part conforms to the IEC/CENELEC safety standards and complies with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		488670.01 or VZ09	490895 or VZ20
Approval		LCIE 02 ATEX 6024 X	LCIE / FM / CSA
Type of protection	Gas	II 1 G - EEx ia IIC T6	Cl. I, Div. I, Gr. A, B, C, D
	Dust	II 1 D - 80°C	Cl. II, Div. I, Gr. E, F, G
Degree of protection		IP67	NEMA 4-4X
Ambiant temperature		-40°C to +65°C The application is limited also by the temperature range of the valve	+60°C
Electrical connection		DIN standard plug interface 2P + T (DIN 43650 A) with Pg 9 cable gland.	
Maximum supply voltage		28 VDC – 110 mA The minimum operating voltage at maximum +60°C is 11.5 VDC	30 VDC – 100 mA
Power	DC	Minimum	300 mW
		Maximum	3 W
Depending on applied voltage, IS barrier type and resistance of connected cable			
Coil resistance at 20°C		295 Ω	
Impedance		345 Ω	
Apparent inductance		0 mH	
Apparent capacitance		0 μF	
Solenoid duty		Continuous duty solenoid (ED 100%)	

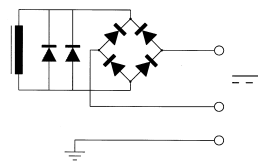
Weight: 500 g.



Important

The intrinsically safe supply circuit should have enough capacity in all environmental conditions to assure a **minimum operating current of 29 mA** through the coil.

The minimal holding current is 20 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

3.7.5 Electrical parts 482160.01 or VZ95 and 482870.01 or VZ23

12



Application: Control of solenoid valves in dangerous areas where explosion-proof protection EEx ia IIB or IIC T6 is required.

Benefits: Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

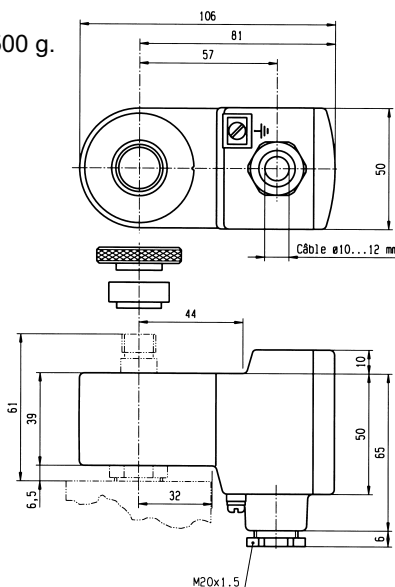
All Lucifer valves labelled "033X" with manual-reset can be fitted with these electrical parts.



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

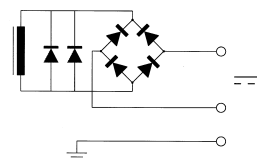
Reference		482160.01 or VZ95	482870.01 or VZ23	482870.03 or VZ24	492335 or VZ30
Approval		LCIE 02 ATEX 6024 X		AUS Ex 137 X	LCIE / FM / CSA
Type of protection	Gas	II 1 G - EEx ia IIB T6	II 1 G - EEx ia IIC T6	EEx ia IIC T6 Classe I - Zone 0	Cl. I, Div. I, Gr. A, B, C, D Cl. II, Div. I, Gr. E, F, G
	Dust	II 1 D - 80°C			
Degree of protection		IP66		IP65	NEMA 4-4X
Ambiant temperature		-40°C to +65°C The application is limited also by the temperature range of the valve			+60°C
Electrical connection		Cable connection through a stainless steel cable gland M20 x 1.5 allowing use of cable diameter from 10 to 12 mm. Additional earth connection possible with external screw terminal			
Maximum supply voltage		28 VDC – 280 mA	28 VDC – 110 mA	28 VDC – 110 mA	30 VDC – 100 mA
Power	DC	Minimum	300 mW		300 mW
		Maximum	3 W		3 W
Depending on applied voltage, IS barrier type and resistance of connected cable					
Coil resistance at 20°C		295 Ω			
Impedance		345 Ω			
Apparent inductance		0 mH			
Apparent capacitance		0 μF			
Solenoid duty		Continuous duty solenoid (ED 100%)			

Weight: 500 g.



Important

The required minimal holding current is 25 mA



For the barriers compatibility see the corresponding table in pages 39, 40 and 41.

3.7.6 Electrical part 482660 or VZ11 with booster

9



Application: Control of solenoid valves in dangerous areas where an explosion-proof protection EEx ib IIB or IIC T6 is required.

Benefits: Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

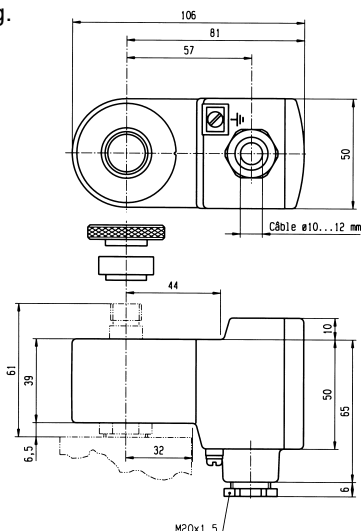
All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



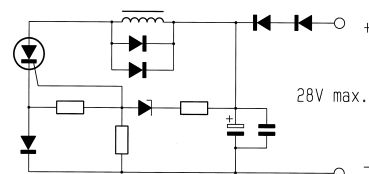
These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

Reference		482660 or VZ11	483330.01 or VZ12	483330.03 or VZ25	490860 or VZ28
Approval		LCIE 02 ATEX 6024 X		AUS Ex 137 X	LCIE / FM / CSA
Type of protection	Gas	II 2 G - EEx ib IIB T6	II 2 G - EEx ib IIC T6	EEx ib IIC T6 Classe I - Zone 1	Cl. I, Div. I, Gr. A, B, C, D Cl. II, Div. I, Gr. E, F, G
	Dust	II 2 D - 80°C			
Degree of protection		IP66		IP65	NEMA 4-4X
Ambiant temperature		-40°C to +75°C The application is limited also by the temperature range of the valve			+60°C
Electrical connection		Cable connection through a stainless steel cable gland M20X1.5 allowing use of cable diameter from 10 to 12 mm. Additional earth connection possible with external screw terminal			
Maximum supply voltage		28 VDC – 280 mA		28 VDC – 110 mA	30 VDC – 100 mA The minimum operating voltage is 21.6 VDC
Power	DC	Minimum	300 mW		300 mW
	Maximum	3 W		3 W	
Depending on applied voltage, IS barrier type and resistance of connected cable					
Coil resistance at 20°C		23 Ω			
Impedance		50 Ω			
Apparent inductance		0 mH			
Apparent capacitance		0 μF			
Response time		2 – 4 s			
Solenoid duty		Continuous duty solenoid (ED 100%)			

Weight: 500 g.

**Important**

The intrinsically safe supply circuit should have enough capacity under all environmental conditions to assure a **minimum operating current of 45 mA** through the coil.



For the barriers compatibility see the corresponding table in pages 42, 43 and 44.

3.7.7 Electrical parts 492965.01 or VZ91 with “Booster”.

9



Application: Control of solenoid valves in dangerous areas where an explosion-proof protection EEx ia IIC T6 is required.

Benefits: Rotatable 360° housing, polyamid with fibreglass housing and cover. Coil, electronic circuits and other elements required for intrinsic safety are completely encapsulated in the housing with epoxy material for shock and corrosion protection.

Small size for ease of mounting in confined space.

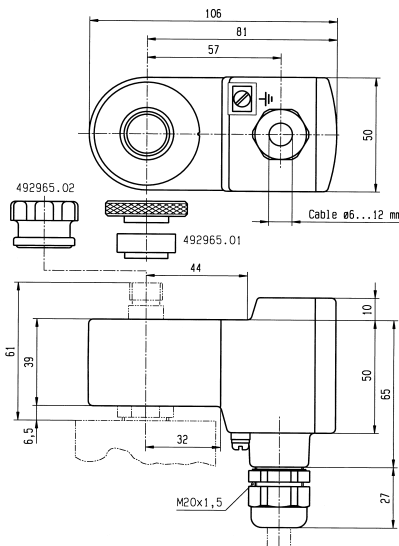
All Lucifer valves suitable for CPR/Offshore application can be fitted with these electrical parts (except type U033X).



These electrical parts conform to the IEC/CENELEC safety standards and comply with European explosive atmosphere directive 94/9/EC «ATEX».

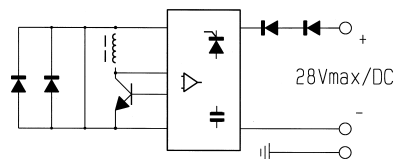
Reference		492965.01 or VZ91 - stainless steel fixation 492965.02 or VZ92 - plastic fixation	
Approval		LCIE 02 ATEX 6066 X	
Type of protection	Gas	II 1 G - EEx ia IIC T6	
	Dust	II 1 D - 80°C	
Degree of protection		IP66	
Ambiant temperature		-40°C to +65°C The application is limited also by the temperature range of the valve	
Electrical connection		Cable connection through a plastic cable gland M20 x 1.5 allowing use of cable diameter from 6 to 12 mm. Additional earth connection possible with external screw terminal	
Maximum supply voltage		28 VDC – 110 mA	
Power	DC	Minimum	0.3 W (with 13 VDC)
		Maximum	2.3 W (with 24 VDC)
Depending on applied voltage, IS barrier type and resistance of connected cable			
Line check		4 mA or 5 VDC max	
Coil resistance at 20°C		85 Ω	
Impedance		275 Ω (with 13 VDC) – 260 Ω (with 24 VDC)	
Apparent inductance		0 mH	
Apparent capacitance		0 μF	
Response time		2 – 4 s	
Solenoid duty		Continuous duty solenoid (ED 100%)	

Weight: 500 g.



Important

The intrinsically safe supply circuit should have enough capacity under all environmental conditions to assure a **minimum operating current of 20 mA** through the coil.



For the barriers compatibility see the corresponding table in pages 42, 43 and 44.

IS Standard coils parameters

IS- STANDARD ELECTRICAL PARTS									
Type of IS-protection	EEEx ia IICT6	EEEx ia IICT6	EEEx ia IIB T6	EEEx ia IIC T6	Ex ia	EEEx ia IIB T6	EEEx ia IIC T6	Ex ia	Ex ia
Order references	488650.01/03 488660.01/03 488670.01/03	490885 490890 490895	483580.01/03 483960.01/03	490880 493997	LCIE/FM/CSA LCIE/FM/CSA	LCIE	LCIE	LCIE/FM/CSA	492335
Certified by	LCIE/AUS	LCIE/FM/CSA	PTB/AUS	LCIE/FM	LCIE/FM/CSA	LCIE	LCIE	LCIE/FM/CSA	LCIE/FM/CSA
Resistance of coil winding at 20°C (for information only)	295 Ohm	295 Ohm	340 Ohm	340 Ohm	340 Ohm	295 Ohm	295 Ohm	295 Ohm	295 Ohm
Impedance of electrical part	345 Ohm	345 Ohm	340 Ohm	340 Ohm	340 Ohm	345 Ohm	345 Ohm	345 Ohm	345 Ohm
Minimum voltage required for functioning at 60°C	11.5 V	11.5 V	14 V	14 V	14 V	manual reset	manual reset	manual reset	manual reset
Minimum current required for functioning (attraction)	29 mA	29 mA	35 mA	35 mA	35 mA	manual reset	manual reset	manual reset	manual reset
Minimum current required for holding	20 mA	20 mA	20 mA	20 mA	20 mA	25 mA	25 mA	25 mA	25 mA
Inductance [L] of coil (mH apparent)	0	0	0	0	0	0	0	0	0
Capacitance [C] of coil (µF apparent)	0	0	0	0	0	0	0	0	0
Ambient temperatures	(-40 à +65°C)	(-40 à +65°C)	(-40 à +55°C)	(-40 à +55°C)	(-40 à +55°C)	(-40 à +65°C)	(-40 à +65°C)	(-40 à +65°C)	(-40 à +65°C)
Maximum admissible voltage/current	28V / 110mA - 0.77 W 27V / 120mA - 0.81 W 26V / 135 mA - 0.88 W 25V / 150 mA - 0.94 W 24V / 170 mA - 1.2 W	30V/100mA 28V/330 Ohm -	28V / 110mA - 0.77 W 27V / 120mA - 0.81 W 26V / 135 mA - 0.88 W 25V / 150 mA - 0.94 W 24V / 170 mA - 1.2 W	28V / 110mA - 1.96 W 27V / 320mA - 2.16 W 26V / 350 mA - 2.27 W 25V / 390 mA - 2.43 W 24V / 430 mA - 2.58 W	30V / 100mA -	28V / 280mA - 1.96 W 27V / 320mA - 2.16 W 26V / 350 mA - 2.27 W 25V / 390 mA - 2.43 W 24V / 430 mA - 2.58 W	28V / 110mA - 0.77 W 27V / 120mA - 0.81 W 26V / 135 mA - 0.88 W 25V / 150 mA - 0.94 W 24V / 170 mA - 1.2 W	30V / 100mA -	30V / 100mA 28V/300Ohm -
Security parameters									

Cable resistance (there and back): 0.6 mm_ - 59 Ohm/km; 1.0 mm_ - 35 Ohm/km; 1.5 mm_ - 24 Ohm/km . Assign approx. 30 Ohm for line-resistance.

Guidance chart for IS-barriers, Isolating interface units and Remote I/O for Standard IS -coils

TYPE	MANUFACTURER	REFERENCE	EEEx..	RESIST. of barrier in Ohm	IS ELECTRICAL PARTS								
					EEEx ia IIC T6 LCIE/AUS 488650.01/03 488660.01/03 488670.01/03	EEEx ia IIC T6 LCIE/FM/CSA 490885 490890 490895	EEEx ia IIC T6 LCIE/AUS 483580.01/03 483590.01	Ex ia LCIE/FM/CSA 490880 493997	EEEx ia IIB T6 LCIE 482160,01	EEEx ia IIC T6 LCIE 482870,01	Ex ia LCIE/FM/CSA 492335		
Shunt Diode Safety barriers (passive)	MTL	7128P	ia	275									
		728,7028	ia	332	x				x		x		
	Pepperl & Fuchs	Z 728	ia	300	x								
		Z779	ia	300	x								
	STAHL	9001/01-252-100-14	ia	252	x								
		9001/01-280-100-10	ia	280	x								
		9001/01-280-110-10	ia	255	x								
		9002/13-280-100-04	ia	340	24Vmin./LRmax3								
	Galvanic Isolated Interface Units (actives) and Remote I/O	A puissance 3	NAEV 22-140	ia									
			NAEV 26 -100	ia									
ABB		V1732-54	ib										
		V1732-55	ib										
		V1732-61	ia										
		DO 890	ib										
S900- DO4-Ex		S900- DO4-Ex	ib										
BARTEC		07-7331-2301/1000	ia										
		07-7331-2301/1100	ia										
BRADLEY	FEX-EX 24V	ia											
COOPER	LB 2101	ia											
	LB 2105	ia											
	LB 2112	ia											
ELCON	1881 / 1882	ia											
	471 / 472	ia											
	2871/2872	ia											
	2875/2876	ia											
GEORGIN	AVB 122	ia											
	AVB 125	ia											
	AVB 128	ia											
HIMA	F3328A	ib											
	F3335	ib											
	H4007	ib											

Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance. LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

IS Booster coils parameters

IS - BOOSTER ELECTRICAL PARTS						
Type of IS-protection	EEx ia IIB T6	EEx ia IIC T6	EEx ib IIB T6	EEx ib IIC T6	Ex ia	
Order reference	492965.01/02		482660	483330.01	490860	
Certified by	LCIE		LCIE	LCIE	LCIE/FM/CSA	
Function parameters	Resistance of coil winding at 20°C (for information only)		85 Ohm	23 Ohm	23 Ohm	
	Impedance of electrical part		275 Ohm/13V	50 Ohm*	50 Ohm*	
	Minimum voltage required for functioning at 60°C		13 V	21.6 V	21.6 V	
	Minimum current required for functioning (attraction)		-	-	-	
	Minimum current required for functioning (holding)		20 mA	45 mA	45 mA	
	Inductance [L] of coil (mH apparent)		-	0	0	
	Capacitance [C] of coil (µF apparent)		-	0	0	
	Ambient temperatures		-40 °C to +65 °C	-40 °C to +65 °C	-40 °C to +65 °C	+65°C
	Maximum current for continuous line check		4 mA	0	0	0
	Security parameters	Maximum admissible voltages /current		28V / 110mA - 0.77 W 27V / 120mA - 0.81 W 26V / 135 mA - 0.88 W 25V / 150 mA - 0.94 W 24V / 170 mA - 1.2 W	28V / 280mA - 1.96 W 27V / 320mA - 2.16 W 26V / 350 mA - 2.27 W 25V / 390 mA - 2.43 W 24V / 430 mA - 2.58 W	28V / 110mA - 0.77 W 27V / 120mA - 0.81 W 26V / 135 mA - 0.88 W 25V / 150 mA - 0.94 W 24V / 170 mA - 1.2 W

Cable resistance (there and back): 0.6 mm₂ - 59 Ohm/km; 1.0 mm₂ - 35 Ohm/km; 1.5 mm₂ - 24 Ohm/km. Assign 30 Ohm for line-resistance.

* Attention : For function tests without barrier, only with in series connected resistance of min. 170 Ohm.
Assign approx. 30 Ohm for line - resistance.

Guidance chart for IS-barriers, Isolating Interface Units and Remote I/O for Booster IS -coils

TYPE	MANUFACTURER	REFERENCE	EEEx..	RESIST. of barrier in Ohm	IS Booster coil								
					EEEx ia IIC T6 492965.01/02		EEEx ib IIB T6 482660		EEEx ib IIC T6 483330.01		Ex ia 490860		
					LCIE		LCIE		LCIE			LCIE/FM/GSA	
Shunt Diode	MTL	728	ia		x								
Safety Barriers (passive)	Pepperl & Fuchs	728,7028 Z 728 Z 779	ia ia ia		x			x					
	STAHL	9001/01-252-100-14 9001/01-280-100-10 9001/01-280-110-10 9002/13-280-100-04	ia ia ia ia	252 280 255 340				x					
Galvanic Isolated Interface Units (active) and Remotes I/O	A puissance 3 ABB	NAEV 26 - 1002-140 V171132-54 V171132-55 V171132-61 DO 890	ia ib ib ia ib										
	BARTEC	S900-DO4-EX 07-7331-2301/1000 07-7331-2301/1100	ib ia ia										
	BRADLEY COOPER	FEX-EX 24V LB 2101 LB 2105	ia ia ia										
	ELCON	1881 / 1882 471 / 472 2871/2872 2875/2876	ia ia ia ia										
	GEORGIN	AVB 122 AVB 125 AVB 128	ia ia ia										
	Hima	F3328A F3335 H4007	ib ib ib										
	MTL	3021, 4021, 4021S 3022 4023 4024 4025 5021, 5025	ia ia ia ia ia ia										






Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance.
LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

Guidance chart for IS-barriers, Isolating Interface Units and Remote I/O for Booster IS -coils

TYPE	MANUFACTURER	REFERENCE	EEx..	RESIST. of barrier in Ohm	IS Booster coil			EExia 490860 LCIE/FM/CSA	
					EEx ia IIC T6 492965.01/02	EEx ib IIB T6 482660	EEx ib IIC T6 483330,01		
					LCIE	LCIE	LCIE		
Galvanic Isolated Interface Units (active) and Remotes I/O	Pepperl & Fuchs	EGA-041-3	ia		x				
		KFD2-SD-Ex1.36	ia			x			
		KFD2-SL-Ex1.36	ia			x			
		KFD2-SD-Ex1.48	ia		x				
		KFD2-SL-Ex1.48	ia		x				
		KFD2-SL-Ex1.48.90A	ia		x		x	x	
		KFD2-SL-Ex1.48.90A	ia		x		x	x	
		KFD2-SL2-Ex1.LK	ia		x				
		KFD2-SL2-Ex2	ia		x				
		KSD2-BO-Ex	ia		x				
		RSD-BO-Ex4	ib		x				
		RSD-VO-Ex8	ib		x				
	PULS	5RD00-0AB0	ib						
	STAHL	93.11/52-11-10	ia		15Vmin/LRmax30		x	x	
		91.11/63-11-00	ia		15Vmin/LRmax30		x	x	
		9351/10-15-10	ia		x		x	x	
		9351/10-16-10	ia		x		x	x	
		9351/10-17-10	ia				x		
		9381/10-187-050-10	ib				x		
		9381/10-246-055-10	ib				x		
		9381/10-246-070-10	ib				x		
		9465/12-08-11	ib						
		9475/12-04-31	ib						
		9475/12-08-51	ib						
	Turck	MK72-S01-Ex	ib		x				
		MK72-S02-Ex	ib		x				
		MK72-S04-Ex	ib		x				
		MK72-S05-Ex	ib		x				
		MK72-S06-Ex	ib		x				
		MK72-S07-Ex	ib		x				
		MK72-S09-Ex	ia						
		MK72-S12-Ex	ia						
		MC72 - 41		ia					
		MC72 - 43		ia					
		MC72 - 44		ia					

Conditions: ED 100%, Max. ambient temp. 60°C. Coils marked with x: Suitable for > 30 Ohm additional Line Resistance.
LRmax = max.additional Line Resistance in Ohm with min. voltage if required.

Accessories

	<p>DIN plug connector according to DIN 43650 AB Pg 9 2P+T</p> <p>No. 481043</p> <p>Electrical connection suitable for all 22 mm coils (e.g. 488980, 481180)</p>
	<p>DIN plug connector according to DIN 43650 AA Pg 9 2P+T</p> <p>No. 486586 for standard version No. 492645 for high temperature version</p> <p>Electrical connection suitable for all 32 mm coils (e.g. 481865, 492425)</p>
	<p>Stainless steel assembly kit</p> <p>Nut No. 482213 M14 x 1+ Ring No. 482214 + O-Ring No. 483917</p> <p>Coil assembly kit for offshore electrical parts. (e.g. 482160.01, 482870.01, 483330.01, 492210, 492965.01)</p>
	<p>Cable gland</p> <p>No. 493841 - M20x1.5 - EEx ia IIC</p> <p>Electrical connection and mooring cable with 6 to 12 mm diameter, for electrical parts approved "me", "ia". (e.g. 492965...)</p>
	<p>Cable gland</p> <p>No. 493426 - 1/2"-14 NPT</p> <p>Electrical connection and mooring cable with 6 to 12 mm diameter, for flameproof approved electrical parts. (e.g. 493640)</p>

Part 4: Explosive environments

4.1. Introduction

Current European regulations concerning electrical equipment for potentially explosive environments are based on optional and partial European directives which require regular modification in the form of application or adaptation directives in order to keep pace with technical developments.

The basic European text in this field, directive **76/117/EC**, which allow the free circulation of goods within the European Union, provides the general framework for the present regulations.

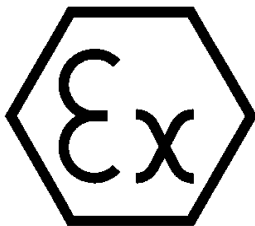
Electrical equipment for use in potentially explosive environments is certified by a government-approved body when it meets relevant European standards (EN 50014 and upwards) covering each type of protection (**d, i, e, m, p**, etc.). Such equipment is then issued with a **European certificate of conformity and control**, entitling it to carry the distinctive mark:



This mark opens the way for trading within the European Union and occasionally beyond.

This system has now been in operation for more than 15 years. Although largely beneficial, it has revealed certain drawbacks, notably a lack of flexibility and the absence of a global concept for safety. It has now been completely revised by the **new European directive 94/9/EC from March 23, 1994**.

The certificates of conformity to harmonised standards obtained in compliance with previous directives will remain valid until June 30, 2003, but their validity will cover only conformity to the harmonised standards specified in these directives.



**European Commission
mark for "Ex" equipment**

European Community member states

Austria - A	Belgium - B	Denmark - D	Germany - D	Finland - FIN
France - F	Great Britain - GB	Greece - GR	Ireland - IRL	Italy - I
Luxembourg - L	Netherlands - NL	Portugal - P	Spain - E	Sweden - S

4.2 Definitions (ref. IEC 60079-10)

4.2.1 Explosive gas environments

Mixture with air, under atmospheric conditions, of flammable substances in the form of gases, vapour, mists or dusts in which, after combustion has occurred, combustion spreads to the entire unburned mixture.

4.2.2 Hazardous areas

A hazardous area is an area in which an explosive gas environment is present, or may be expected to be present, in quantities such as to require special precautions for construction, installation and use of electrical apparatus.

4.2.3. Ingredients for an explosion

When combustible materials are mixed with air, an explosive mixture is produced. Danger of explosion therefore exists wherever these hazardous materials are handled: such a condition is to be found on the biggest chemical plant as well as at the smallest filling station.

Nowadays with the use of electronic and electrical instrumentation in process control, the risk of combustion by electrical energy has increased sharply.

To protect personnel and expensive equipment special precautions should be taken to prevent combustion of those dangerous substances. Conditions likely to ignite explosive mixtures are as follows:

- Electrical sparks and arcs produced when circuits are opened and closed (e.g. relay contacts)
- Conductors heated by passage of current or by faulty apparatus.
- Mechanical sparks; moving object hitting stationary object.
- Electrostatic sparks caused by charged components.
- Chemical action.
- Lightning strikes.
- Radio waves

4.2.4 Zones

The hazardous areas are classified in zones based on the frequency of the occurrence and the duration of an explosive gas environment as follows:

- **Zone 0**

An area in which an explosive gas environment is present continuously or is present for long periods

Type of protection: ia - intrinsic Safety

- **Zone 1**

An area in which an explosive gas environment is likely to occur in normal operations.

Type of protection: d - flameproof enclosure, e - increased safety, ib - intrinsic safety, m - encapsulation

- **Zone 2**

An area in which an explosive gas environment is not likely to occur and if it does occur it will exist for a short period only.

Type of protection: n - protection (IEC 60079-15)

Classification of hazardous location

Explosive environment	Continuous presence	Intermittent presence (normal operation conditions)	Occasional presence (abnormal operation)
IEC	Zone 0 (gas) Zone 20 (dust)	Zone 1 (gas) Zone 21 (dust)	Zone 2 (gas) Zone 22 (dust)
Europe	Zone 0 (gas) Zone 20 (dust)	Zone 1 (gas) Zone 21 (dust)	Zone 2 (gas) Zone 22 (dust)
Canada (CEC) * USA (NEC) **	Cl. I Div.1 (gas) Cl. II Div.1 (dust) Cl.III Div.1 (fibres)	Cl. I Div.1 (gas) Cl. II Div.1 (dust) Cl.III Div.1 (fibres)	Cl. I Div.2 (gas) Cl. II Div.2 (dust) Cl.III Div.2 (fibres)

* (CEC): Code Canadien d'Electricité / ** (NEC): National Electrical Code

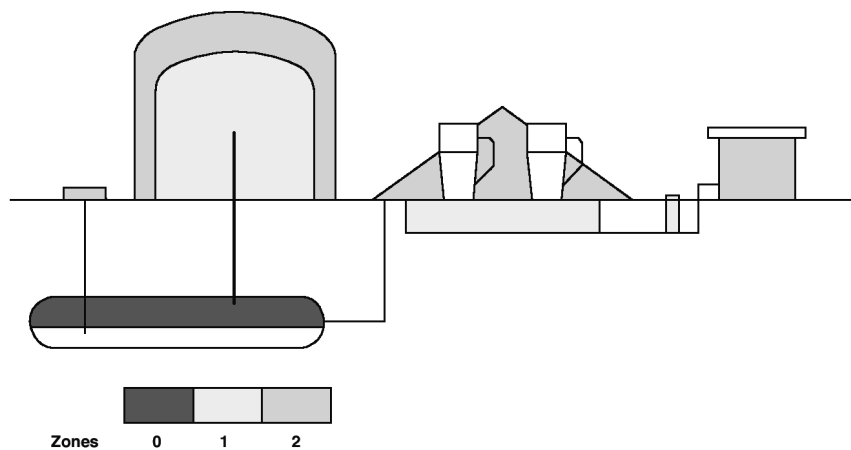
Zones and types of protection (gas applications)

Type of protection	ia	ib	o, p, q, d, e, m, or combination between 2 or more types
Suitable zones	0	1	1, 2

Some additional tests for gas and dust applications are applied to the product according to the new ATEX directive related to the EN 50281-1-1 and EN 50281-1-2 standards:

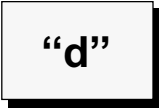
Type of protection	ia	ib	o, p, q, d, e, m, or a combination of 2 or more types
Suitable zones	20	21	21, 22

Example of classification:

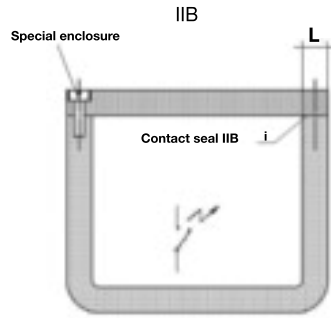


4.5. Types of protection used by Lucifer

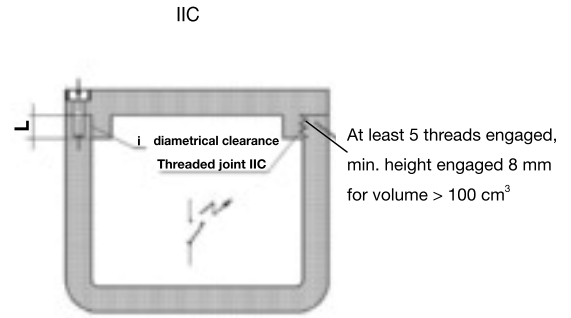
4.5.1 Flameproof enclosure



A type of protection where the parts that can ignite an explosive environment are placed in an enclosure which can withstand the pressure developed during an internal explosion of an explosive mixture and which prevents the transmission of the explosion to the explosive environment surrounding the enclosure.

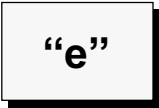


For volume > 2 dm³
Mini length L = 12.5 mm
Max gap i = 0.15 mm

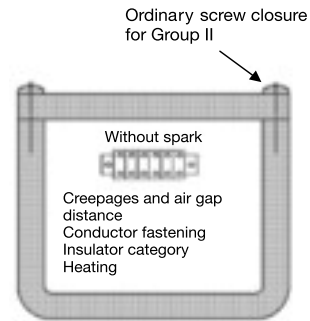


For volume > 2 dm³
Mini length L = 25 mm
Max dia. clearance i = 0.15 mm

4.5.2 Increased safety

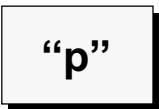


Type of protection applied to electrical apparatus that does not produce arcs or sparks in normal service, in which additional measures are applied so as to give increased security against the possibility of excessive temperatures and of the occurrence of arcs and sparks.

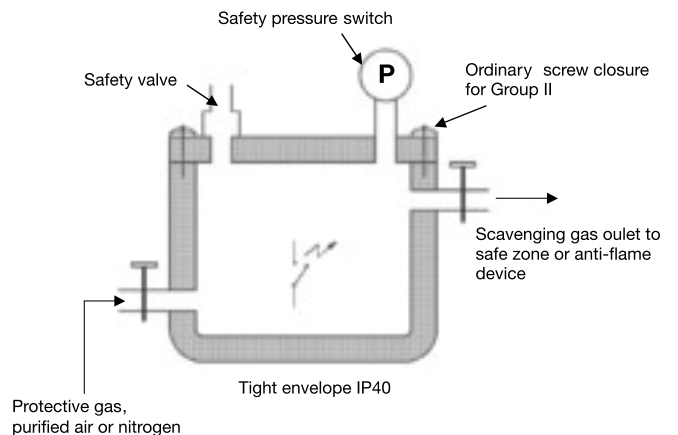


Tight envelope IP54

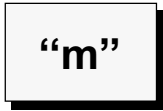
4.5.3 Pressurized apparatus



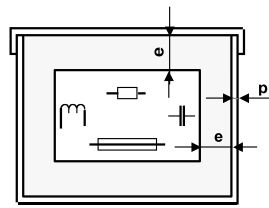
A type of protection by which the entry of a surrounding environment into the enclosure of the electrical apparatus, is prevented by maintaining, inside the said enclosure, a protective gas at a higher pressure than that of the surrounding environment. The overpressure is maintained either with or without a continuous flow of the protective gas.



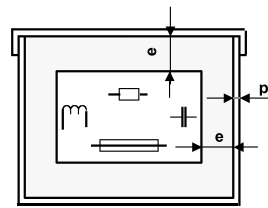
4.5.4 Encapsulation



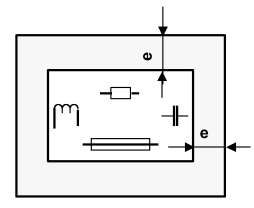
A type of protection in which the parts which could ignite an explosive environment by either sparking or heating are enclosed in a compound in such a way that this explosive environment cannot be ignited



Potting
Metallic envelope
 $e > 1 \text{ mm}$



Potting
Insulating envelope
If $p > 1 \text{ mm}$, e non-imposed
If $p > 1 \text{ mm}$, $e + p > 3 \text{ mm}$

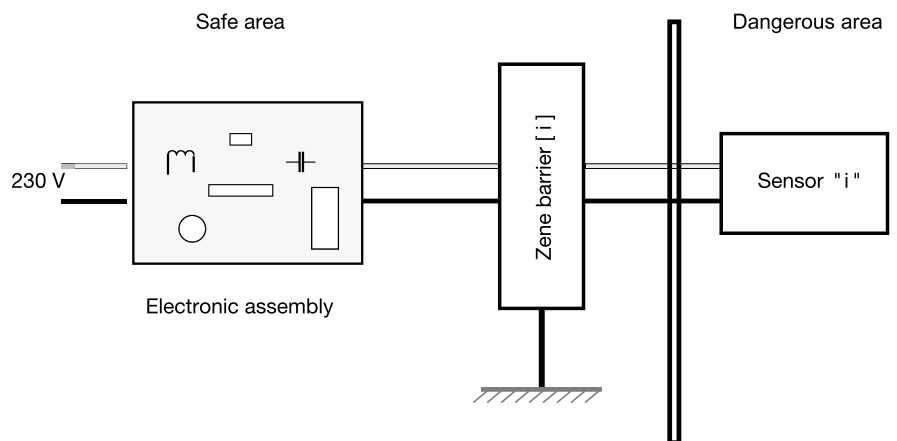


Casing
without envelope
 $e > 3 \text{ mm}$

4.5.5 Intrinsic safety



A circuit in which no spark or any thermal effect produced in the test conditions prescribed in the standard EN 50020 (which include normal operation and specified fault conditions) is capable of causing combustion of a given explosive environment.



Additional information

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Technical information about Lucifer valves	
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- Flow rate calculation	386
- Designation of seal materials	386
- Unit conversion	387
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Index by reference numbers/cross-reference list	390

Principles of operation

Solenoid valves are electro-mechanical devices that control fluid flow. This is achieved by opening or closing one or several orifices in the solenoid valve. The (solenoid) coil is the electrical element that converts an electrical signal into a mechanical force which, in turn, shifts the mobile plunger that opens or closes an orifice (nozzle) by means of its seat disc(s).

Solenoid valves are usually constructed from 3 distinct components:

- the body (including the sleeve assembly)
- the coil (or coil housing)
- the housing (or nut/nameplate fixing elements).

These 3 modular components are in many cases interchangeable i.e. a valve body can be used with a number of coil/housing combinations. This catalogue presents the main recommended versions. Your distributor will be pleased to speak to you about other specific versions.

Direct operated valves (see fig. 1)

The magnetic force is used directly to open or close the passage of fluid at the plunger sealing. The performance is limited by the available performance of the coil (limits of pressure/orifice size.) The pressure rating of the valve starts from zero bar to the maximum value.

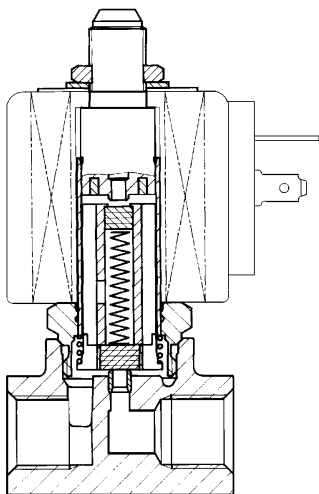


Fig. 1

Pilot operated valves (see fig. 2 and 3)

In cases where it is necessary to control higher flow/higher pressure it is necessary to use pilot operated valves. The supply pressure enters the direct operated "pilot stage" which directs the flow to a "pilot chamber" which, in turn, applies the pilot pressure over a large area (generally a diaphragm or a piston). Therefore, a large force is generated to move the main sealing elements against higher pressure or over a large orifice. One condition of operation is to have a minimum pressure (indicated in the catalogue table) available to shift the valve. In most applications this presents no particular problems (refer to "Magnalift valves" below). The pressure rating of the valve starts from a minimum value (0.3 or 0.5 bar) up to the maximum value.

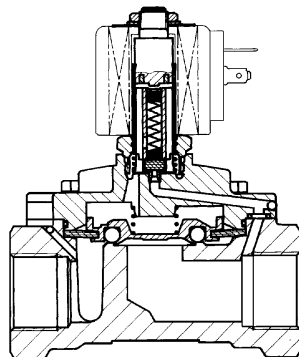


Fig. 2

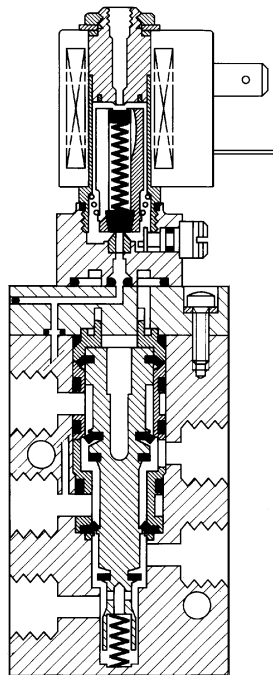


Fig. 3

Magnalift valves (see fig. 4)

The magnalift valves combine the features of a direct operated and a pilot operated valve. A mechanical link between the plunger and the diaphragm retainer allows the valve to operate as a direct operated valve at low pressures and as a pilot operated valve at higher pressures.

The advantage of this design is that the pressure rating of the valve starts from zero bar to the maximum value. Magnalift valves are specified when the valve controls the emptying/filling of a tank under gravity.

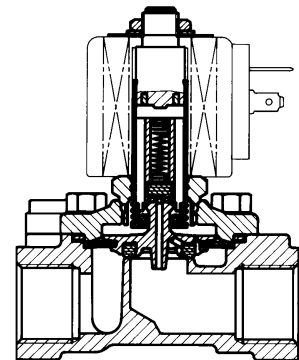


Fig. 4

Flow rate

Liquids

The flow through a pipe or a valve is given by:

$$Q = k_v \sqrt{\Delta p / \gamma}$$

where Q = flow (L/min)
 Δ = pressure drop (bar)
 γ = density of fluid (kg/dm³)
 k_v = flow factor of the pipe or valve (L/min)
 For water $\gamma = 1 \text{ kg/dm}^3$

Flow factor k_v

The k_v flow factor of a valve is defined as the flow rate of water in litres per minute with a pressure drop of 1 bar across the valve. Valve manufacturers use different definitions for k_v i.e. k_v may be expressed in L/h or m³/h, etc. Care should therefore be taken when comparing values.

Maximum flow rate Q_{max} .

For particular 2-way valves the maximum flow must be limited for reasons of mechanical resistance and durability. A very high flow velocity may dislocate a poppet sealing or a diaphragm. Maximum flow rates are indicated in the catalogue.

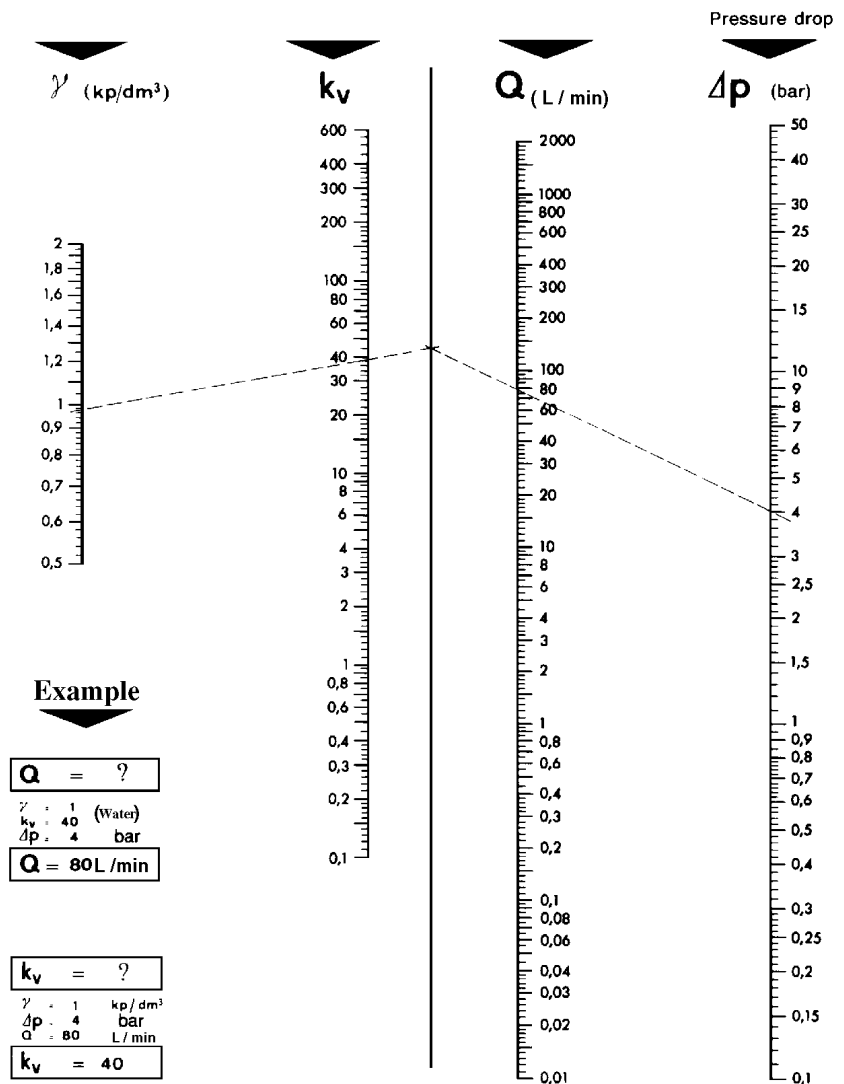
Gases

Nominal flow Q_n

Calculations can be made with specific flow factors based on the CETOP RP 50P standard. For practical purposes and ease of valve selection the catalogue shows the nominal flow Q_n . The nominal flow Q_n is defined as the flow rate (L/min) of air across the valve when the inlet pressure $p_1 = 6 \text{ bar}$ and the pressure drop $\Delta p = 1 \text{ bar}$.

N.B. THE VALUES OF FLOW FACTORS AND FLOW RATES MENTIONED IN CATALOGUES ARE SUBJECT TO $\pm 15\%$ TOLERANCES.

For detailed technical information please ask for publication 1230/GB



Nomogram for liquid flow calculation

Unit conversion tables/designation of sealing materials

Measures

1 inch = 25.4 mm
 1 mm = 0.039 inch
 1 U.S. gallon = 3.785 litres
 1 imperial gallon = 4.546 litres

Pressure

1 bar = 1.02 kg/cm² = 0.98 atm
 = 10⁵ Pa = 100 kPa
 1 bar = 14.51 psi
 1 psi = 0.0689 bar = 0.0703 kg/cm²

Flow rate

kv in L/min/Δp = 1 bar
 cv in gpm/Δp = 1 psi
 1 cv = 0.07 kv
 1 kv = 14.28 cv
 1 gpm (U.S. gallon) = 3.785 L/min
 1 L/min = 0.0353 cfm

Temperature

°F = °C x 9/5 + 32
 °C = (°F - 32) x 5/9

Torque

1 in. lb. = 0.113 Nm
 1 Nm = 8.25 in. lb.

Size

mm	inches	decimal inches
0.79	1/32	0.031
1.59	1/16	0.063
2.38	3/32	0.094
3.18	1/8	0.125
3.97	5/32	0.156
4.76	3/16	0.188
5.56	7/32	0.219
6.35	1/4	0.250
7.14	9/32	0.281
7.94	5/16	0.313
8.73	11/32	0.344
9.53	3/8	0.375
10.3	13/32	0.406
11.1	7/16	0.438
11.9	15/32	0.469
12.7	1/2	0.500
13.5	17/32	0.531
14.3	9/16	0.563
15.1	19/32	0.594
15.9	5/8	0.625
16.7	21/32	0.656
17.5	11/16	0.688
18.3	23/32	0.719
19.1	3/4	0.750
19.8	25/32	0.781
20.6	13/16	0.813
21.4	27/32	0.844
22.2	7/8	0.875
23.0	29/32	0.906
23.8	15/16	0.938
24.6	31/32	0.969
25.4	1	1.000

Designation of sealing materials

ASTM Designation	Commercial Designation
NBR	Nitrile rubber, Buna-N., Perbunan
FKM	Fluoroelastomer
EPDM	Ethylene propylene
PCTFE	Kel-F
PTFE	Teflon®
CR	Neoprene
PUR	Polyurethane
PFPM	Kalrez

Fluid compatibility of LUCIFER valves

Key:
 NBR = Buna N, Perbunan
 PTFE = Teflon
 PPFM = Kalrez
 PCTFE = Kel F
 EPDM = Ethylene - Propylene
 CR = Neoprene
 * Without phase shift ring only with DC coil

VALVE FUNCTIONS	2/2 DIRECT OPERATED				3/2 DIRECT OPERATED				5/2 SERVO OPERATED		
	125K 122K-V8-V9 121C1 121C2	121V5 121V5	Special valve on request	St. steel PTFE PCTFE PPFM EPDM PTFE Ruby	Brass 121G 222G 321F-G-H-K 322F-G-H-K 325K	St. steel 221G5	Brass 131E 131T2-T5 132T2-T5 133T2	St. steel 131V5 132V5 133V5		Special valve on request	Aluminium 331B-F-L 332B-F-L 335B-F-L 531L
VALVE TYPES											
BODY MATERIALS	121F-K-M V0	Brass									
FLUIDS											
SEALING DISCS OR MEMBRANES											
Acetone											
Acetylene, dry*											
Acid - Boric*	+20°C										
Acid - Chrome	+20°C										
Acid - Citric	<40%, +20°C										
Acid - Hydrochloric	<10%, +20°C										
Acid - Lactic	1%, +20°C										
Acid - Nitric*	+20°C										
Acid - Phosphoric	<10%, +20°C										
Acid - Picric	<10%, +20°C										
Acid - Salicylic	<10%										
Acid - Sulphuric	<20%										
Air, hot	<5%, +20°C										
Air, un lubricated	+120°C										
Alcohol - Amyl alcohol											
Alcohol - Butyl alcohol (Butanol)											
Alcohol - Ethyl alcohol (Ethanol)											
Alcohol - Methyl alcohol (Methanol)											
Alcohol - Propyl alcohol (Propanol)											
Ammonia, gas (anhydrous)											
Aniline*	+60°C										
Argon											
Beer											
Benzene - leaded and unleaded (motor)											
Chloroform	+20°C										
Cider											
Coffee											
Cream											
Cyclohexane											
Ethyl chloride											
Ethylene glycol (antifreeze)											
Exhaust gas											



Index by reference numbers

Valve reference number - global reference number

Valve reference	Global valve ref.	Page	Valve reference	Global valve ref.	Page	Valve reference	Global valve ref.	Page
U 033X5156	7033XRN2SN00	274/294	121V5206	7121VVG2QV00	96	131K65	7131KBG2BR00	176
U 033X51561D	7033XRN2SN1D	274/292	121V5212	7121VVG2QT00	96	131M14	-	124/226
U 033X5256	7033XRN3SN00	276/294	121V5263	7121VVG2QR00	74/96	131M15	-	124/226
U 033X52561D	7033XRN3SN1D	274/294	121V5306	7121VVG2NV00	96	131M74	-	142
E 121F43	7121FBF4NF00	14/88	121V53061D	7121VVG2NV1D	96	131M7450	-	142
E 121F4302	7121FBF4NV00	14/50	121V5363	7121VVG2NR00	74/96	131M75	-	138
E 121F44	7121FBF4GF00	14/88	121V5406	7121VVG2GV00	96	131M7550	-	138
E 121F4406	7121FBF4GV00	14/50	121V5463	7121VVG2GR00	74/96	131T21	7131TBG2RV00	132
121F47	7121FBF4LF00	14	121V5706	7121VVG2LV00	96	131T2101	7131TBG2RVM0	132
121F4706	7121FBF4LV00	14/50	121V5763	7121VVG2LR00	74/96	131T22	7131TBG2NVA0	132
121F63	7121FBF4LR00	14/88	122K83	7122KBG2LF00	12	131T23	7131TBG2JV00	126
121F64	7121FBF4NR00	14/88	122K8306	7122KBG2LV00	12/48	131T2301	7131TBG2JVM0	126
121F67	7121FBF4GR00	14/88	122K8321	7122KBG2LRT0	106	131T29	7131TBG2LV00	128
121G2320	7121GBG34VT0	106	122K8363	7122KBG2LR00	12/88/106	131T2901	7131TBG2LVM0	128
121G2520	7121GBG45VT0	106	122K84	7122KBG2GF00	12/88	131V5306	7131VVG2LV00	182
121G2523	7121GBG45VT1	106	122K8406	7122KBG2GV00	12/48	131V5363	7131VVG2LR00	182
121K01	7121KBG2SV00	12/48	122K8408	7122KBG2GR00	12/88	131V5406	7131VVG2GV00	182
121K0103	7121KBG2SE00	72	122K9321	7122KBG1LRT0	106	131V5463	7131VVG2GR00	182
121K0150	7121KBG2SVM0	10/48	122K9363	7122KBG1LR00	12/88/106	131V5490	-	182
121K02	7121KBG2QV00	10/48	125K01	7125KBG2SV00	14/50	131V65	7131VVG2BR00	176
121K0250	7121KBG2QVM0	10/48	125K03	7125KBG2NF00	12	131X1101	7131XAKLVN00	230
E 121K03	7121KBG2NF00	10/86	E 131E03	7131EBG2LN00	130/228	U 131X1201	7131XRKMVN00	276/292
E 121K0302	7121KBG2NV00	10/46	E 131F26	7131FDF2JV00	148	132F43	7132FBF4LV00	144
121K0323	7121KBG2NE00	72	E 131F43	7131FBF4LV00	144	132F44	7132FBF4GV00	144
E 121K0352	7121KBG2NVM0	10/46	E 131F4350	7131FBF4LVM0	144	132F46	7132FBF4JV00	144
E 121K04	7121KBG2GF00	10/86	E 131F44	7131FBF4GV00	144	132K03	7132KBG2LV00	132
E 121K0402	7121KBG2GV00	8/46	E 131F4450	7131FBF4GVM0	144	132K04	7132KBG2GV00	132
E 121K07	7121KBG2LF00	10	131F4480	7131FBF4GLV5	140	132K06	7132KBG2JV00	132
121K0706	7121KBG2LV00	10/46	131F4490	-	136	132T22	7132TBG2NVA0	134
121K0756	7121KBG2LVM0	10/46	131F46	7131FBF4JV00	144	132T23	7132TBG2JV00	132
121K1302	7121KBG1NV00	8	131F4650	7131FBF4JVM0	144	132T2301	7132TBG2JVM0	132
121K1352	7121KBG1NVM0	8/46	U 131F5695	7131FRF2LV95	276/292	132T29	7132TBG2LV00	132
E 121K14	7121KBG1GF00	8/86	U 131F56951D	7131FRF2LV1D	278	E 133F43	7133FBF4LV00	146
E 121K23	7121KBG1LR00	8/86/102	E 131K03	7131KBG2LV00	128	E 133F4350	7133FBF4LVM0	144
121K2423	7121KBG1NRT0	104	E 131K03001D	7131KBG2LV1D	228	E 133F44	7133FBF4GV00	144
121K3106	7121KBG3SV00	12/48/104	E 131K0308	7131KBG2LP00	130/228	E 133F4450	7133FBF4GVM0	144
121K3206	7121KBG3QV00	12/48/104	E 131K03081D	7131KBG2LP1D	130/228	133F46	7133FBF4JV00	144
121K3303	7121KBG3UE00	72	E 131K0350	7131KBG2LVM0	128/228	133F4650	7133FBF4JVM0	144
121K3306	7121KBG3UV00	12/48/104	E 131K0358	7131KBG2LPM0	130/228	E 133K03	7133KBG2LV00	134
E 121K45	7121KBG44V00	12/48	E 131K04	7131KBG2GV00	126/226	E 133K0350	7133KBG2LVM0	134
E 121K4503	7121KBG44E00	72	E 131K0450	7131KBG2GVM0	126/226	E 133K04	7133KBG2GV00	134
E 121K46	7121KBG42V00	12/48	131K0480	7131KBG2GLV5	126/226	E 133K04001D	7133KBG2GV1D	134
E 121K4603	7121KBG42E00	72	131K0490	7131KBG2CV90	126/226	E 133K0450	7133KBG2GVM0	134
121K6220	7121KBG2QRT0	104	131K05	7131KBG2BF00	176	E 133K05	7133KBG2BV00	176
E 121K63	7121KBG2LR00	10/86/104	E 131K06	7131KBG2JV00	126/226	E 133K06	7133KBG2JV00	134
E 121K64	7121KBG2NR00	10/86/104	E 131K06081D	7131KBG2JP1D	128/228	E 133K0650	7133KBG2JVM0	134
121K6423	-	104/104	E 131K0650	7131KBG2JVM0	126/226	E 133K13	7133KBG1LV00	134
E 121K65	7121KBG2ER00	8/86/104	E 131K13	7131KBG1LV00	124	E 133K14	7133KBG1GV00	134
E 121K67	7121KBG2GR00	10/86/104	E 131K14	7131KBG1GV00	124	E 133K16	7133KBG1JV00	134
121M13	-	8/46	131K16	7131KBG1JV00	124	133T21	7133TBG2NV00	134
121M14	-	8/46	131K1650	7131KBG1JVM0	124	133T2101	7133TBG2NVM0	134
121V5106	7121VVG2SV00	98	E 131K63	7131KBG2LR00	130	133T23	7133TBG2JV00	134
121V51061D	7121VVG2SV1D	98	E 131K6350	7131KBG2LRM0	130	133T2301	7133TBG2JVM0	134
121V5112	7121VVG2ST00	98	E 131K64	7131KBG2ER00	126	133V5306	7133VVG2LV00	182
121V5163	7121VVG2SR00	74/98	E 131K6450	7131KBG2ERM0	126	133V5363	7133VVG2LR00	182

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133V5463	7133VVG2GR00	182	222G3606	72228BG5VV00	20/54	321K4306	7321KBG3TVW0	66
U 133V5695	7133VRN2LV95	278/288	222G5303	72228RG3TE00	78	321K4356	7321KBG3TVMW	66
U 133V56951D	7133VRN2LV9D	278/288	222G5306	72228RG3TV00	20/54	321K4503	7321KBG4TEW0	80
133X01	-	230	222G5503	72228RG4UE00	78	321K4506	7321KBG4TVW0	66
U 133X5156	7133XRN2SV00	280/290	222G5506	72228RG4UV00	20/54	321K4556	7321KBG4TVMW	66
U 133X51561D	7133XRN2SV1D	280/288	222G5603	72228RG5VE00	78	321K4603	7321KBG51EW0	80
U 133X5196	7133XRN2VN96	280	E 321F32	7321FBF3TN00	34/60/92	321K4606	7321KBG51VW0	66
U 133X51961D	7133XRN2VN9H	280	E 321F3202	7321FBF3TV00	34/92/110	321K4656	7321KBG51VMW	66
U 133X5296	7133XRN3SN96	282/290	E 321G36	7321GBG53N00	24/56	321K4703	7321KBG62EW0	80
U 133X52961D	7133XRN3SN9H	282/290	E 321G3606	7321GBG53V00	24	321K4706	7321KBG62VW0	66
135K03	7135KBG2LV00	136/228	E 321G3610	7321GBG53NMC	66	321K4756	7321KBG62VMW	66
135K04	7135KBG2GV00	136/228	E 321G37	7321GBG64N00	26/58	322F72	7322FBF3TN00	34/60/92
221G13	7221GBG3VN00	16/52/64	E 321G3706	7321GBG64V00	24	322F7206	7322FBF3TV00	34/92/110
221G1303	7221GBG3VE00	76	E 321G3710	7321GBG64NMC	66	322G36	7322GBG53N00	32/58
221G1330	7221GBG3VNH0	16/52/64	E 321G37101D	7321GBG64N1D	26	322G3606	7322GBG53V00	32
221G15	7221GBG4VN00	16/52/64	321G3790	-	26	322G3610	7322GBG53NCO	68
221G1503	7221GBG4VE00	76	E 321G38	7321GBG76N00	26/58	322G37	7322GBG64N00	32/60
221G1530	7221GBG4VNH0	16/52/64	E 321G3806	7321GBG76V00	26	322G3706	7322GBG64V00	32
221G16	7221GBG51N00	18/52	E 321G3810	7321GBG76NMC	68	322G3710	7322GBG64NCO	68
221G1603	7221GBG51E00	76	E 321G39	7321GBG88N00	28/58	322G38	7322GBG76N00	32/60
221G1610	7221GBG51NCO	64	E 321G3906	7321GBG88V00	26	322G3806	7322GBG76V00	32
221G1630	7221GBG51NH0	18/52	E 321G3910	7321GBG88NMC	68	322G3810	7322GBG76NCO	68
221G1631	7221GBG51NCH	64	E 321G39101D	7321GBG88N3D	28	322G39	7322GBG88N00	32/60
221G17	7221GBG61N00	18/52	321G3990	-	26	322G3906	7322GBG88V00	32
221G1703	7221GBG61E00	76	E 321G40	7321GBG99N00	30/58	322G3910	7322GBG88NCO	68
221G1710	7221GBG61NCO	64	E 321G4006	7321GBG99V00	28	322G40	7322GBG99N00	32/60
221G1730	7221GBG61NH0	18/52	E 321G4010	7321GBG99NMC	68	322G4006	7322GBG99V00	32
221G1731	7221GBG61NCH	64	E 321G40101D	7321GBG99N3D	30	322G4010	7322GBG99NCO	68
221G21	7221GBG64N00	18/54	321G4090	-	28	322G7506	7322GBG4UV00	110
221G2103	7221GBG64E00	76	321G8312	73218BG3TTS0	80	322G8312	73228BG3TTS0	82
221G2106	7221GBG64V00	18	321G8512	73218BG4UTS0	80	322G8512	73228BG4UTS0	82
221G2110	7221GBG64NCO	64	321G8612	73218BG5VTS0	80	322G8612	73228BG52TTS0	82
221G2130	7221GBG64NH0	18/52	321G8712	73218BG64TTS0	82	322G8712	73228BG64TTS0	82
221G2131	7221GBG64NCH	64	321G8812	73218BG75TTS0	82	322G8812	73228BG75TTS0	82
221G2136	7221GBG64VHO	18	321G8912	73218BG87TTS0	82	322G8912	73228BG87TTS0	82
221G23	7221GBG3VV00	16	E 321H11	7321HBG2SN00	22/90	322H71	7322HBG2SN00	30/92
221G2330	7221GBG3VVHO	16	E 321H13	7321HBG3TN00	22/90	322H7106	7322HBG2SV00	30/90/108
221G25	7221GBG4VV00	16	E 321H15	7321HBG4UN00	24/90	322H73	7322HBG3TN00	32/92
221G25001D	7221GBG4VV1D	16	321H1590	-	22	322H7306	7322HBG3TV00	32/92/108
221G2530	7221GBG4VVHO	16	E 321H21	7321HBG2SV00	22/90/108	322H75	7322HBG4UN00	32/92
221G26	7221GBG51V00	18	E 321H23	7321HBG3TV00	22/90/108	322H7506	7322HBG4UV00	32/92/110
221G26001D	7221GBG51V1D	16	321H2322	7321HBG3TVT0	108	322K4106	7322KBG2SVW0	32
221G2630	7221GBG51VHO	18	E 321H25	7321HBG4UV00	22/90/108	322K4306	7322KBG3TVW0	32
221G27	7221GBG61V00	18	321H2522	7321HBG4UVT0	108	322K4506	7322KBG4TVW0	32
221G27001D	7221GBG61V1D	18	321K31	-	22/56	322K4606	7322KBG51VW0	32
221G2730	7221GBG61VHO	18	321K3106	-	22	322K4706	7322KBG62VW0	32
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221G5306	72218RG3TV00	20/54	321K3306	-	22	325K4306	7325KBG3TVW0	34
221G5503	72218RG4UE00	78	321K35	-	22/56	325K4506	7325KBG4TVW0	34
221G5506	72218RG4UV00	20/54	321K3506	-	22	325K4606	7325KBG51VW0	34
221G5603	72218RG5VE00	78	321K36	-	24/56	325K4706	7325KBG62VW0	34
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E 332B01	7332BAG2QN00	154	U 341P0150	2341PRN2JNM1	296	-	3121BBN1GV00	38
332B02	7332BAG2KN00	152/178	341P02	2341PAG2HNM0	242	-	3121BBN1JV00	38
E 332B21	7332BAG4QN00	154	U 341P0250	2341PRN3NNM1	298	-	3121BBN1LV00	38
E 341B01	7341BAG2PN00	198	341P21	7341PAG1JNM0	238	-	3121BBN1NV00	38
341B02	7341BAG2KN00	198	341P21001D	7341PAG1JN1D	240	-	3121BBN1QV00	38
E 341B11	7341BAG3PN00	200	341P2108	7341PAG1JPM0	238	-	3121BJA7EVC#	42
E 341B21	7341BAG4TN00	212	341P2180	7341PAG1JNL2	238	-	3121BJA7GVC#	42
341B34	7341BAG2JNMR	188	341P2190	7341PAG1JN90	238	-	3121BSN1AV00	40
341B3403	7341BAG2JNM0	188	341P22	7341PAG2PNM0	244	-	3121BSN1EV00	40
341B3480	7341BAG2JNL8	188	341P22001D	7341PAG2PN1D	246	-	3121BSN1GV00	40
341B3490	-	188	341P2280	7341PAG2PNL2	244	-	3121BSN1JV00	40
341F34	7341FAS3JNMR	190	341P2290	7341PAG2PN90	244	-	3121BSN1LV00	40
341F3403	7341FAS3JNM0	190	U 341P3150	7341PRN2JN00	296	-	3121BSN1NV00	40
E 341L01	7341LDC1LNM8	218	U 341P3192	7341PRN2JN92	296	-	3121BSN1QV00	40
341L0180	7341LDC1LNL8	218	U 341P3195	7341PRN2JN95	298	-	3129BBN1AV00	40
E 341L02	7341LDC1LNM1	218	U 341P31951D	7341PRN2JN9D	298	-	3129BBN1EV00	40
341L04	-	218	U 341P3250	7341PRN3NN00	300	-	3129BBN1GV00	40
341L05	-	218	U 341P3292	7341PRN3NN92	300	-	3129BBN1JV00	40
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341L9588	7341LAPBGPL2	270	347L9101	-	198/260	-	3131BBN1GV00	162
341L9594	7341LAKBGN90	270	347L9201	-	214	-	3131BBN1JV00	162
341L9598	-	270	347N11	2347NAKBHNM0	262	-	3131BBN1LV00	162
341N01	2341NAKBJNM1	258	347N12	2347NAKBPNM0	268	-	3131BBN1NV00	162
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341N12	2341NAKBNNM0	264	U 347N3250	7347NRKNNN00	314	-	3131BSN1EV00	166
341N21	7341NAKBJNM1	258	347P01	2347PAG1HNM0	240	-	3131BSN1GV00	166
341N22	7341NAKBPNM1	264	347P02	2347PAG2PNM0	246	-	3131BSN1JV00	166
341N31	7341NAKBJNM0	260	347P21	7347PAG1HNM0	240	-	3131BSN1LV00	166
341N31001D	7341NAKBJN1D	260	347P2190	7347PAG1HN90	240	-	3131BSN1NV00	166
341N3108	7341NAKBJP00	260	347P22	7347PAG2PNM0	244	-	3131BSN1QV00	166
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U 341N31501D	7341NRKDJN1D	308	U 347P3250	7347PRN3NN00	304	-	3133BBN1GV00	164
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U 341N3192	7341NRKDJN92	310	441P2108	7441PAG1JPM0	242	-	3133BBN1NV00	164
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341N3280	7341NAKBPNL2	266	541P0108	7541PAG1JPM0	244	-	3133BSN1EV00	168
341N3290	7341NAKBPN90	266	U 541P0250	7541PRN3NNM1	302	-	3133BSN1GV00	168
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-	3921BSN1AV00	40	-	7321BBG88NM0	58
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2341PRN2JNM1	U 341P0150	296	3133BBN1LV00	-	164	3921BSN1JV00	-	40
2341PRN3NNM1	U 341P0250	298	3133BBN1NV00	-	164	3921BSN1LV00	-	40
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3121BSN1GV00	-	40	3138BBN1NV00	-	166	3933BSN1AV00	-	168
3121BSN1JV00	-	40	3138BBN1QV00	-	166	3933BSN1EV00	-	168
3121BSN1LV00	-	40	3138BJA7EVC#	-	172	3933BSN1GV00	-	168
3121BSN1NV00	-	40	3138BJA7GVC#	-	172	3933BSN1JV00	-	168
3121BSN1QV00	-	40	3138BSN1AV00	-	170	7033XRN2SN00	U 033X5156	274/294
3129BBN1AV00	-	40	3138BSN1EV00	-	170	7033XRN2SN1D	U 033X51561D	274/292
3129BBN1EV00	-	40	3138BSN1GV00	-	170	7033XRN3SN00	U 033X5256	276/294
3129BBN1GV00	-	40	3138BSN1JV00	-	170	7033XRN3SN1D	U 033X52561D	274/294
3129BBN1JV00	-	40	3138BSN1LV00	-	170	71214TN2KT00	-	114
3129BBN1LV00	-	40	3138BSN1NV00	-	170	71214TN2MT00	-	114
3129BJA7EVC#	-	42	3138BSN1QV00	-	170	71214TN2QT00	-	114
3129BJA7GVC#	-	42	3139BBN1AV00	-	162	71214TN2ST00	-	114
3129BJA7LVC#	-	42	3139BBN1EV00	-	164	71214VN2KN00	-	114
3129BSN1AV00	-	42	3139BBN1GV00	-	164	71214VN2KT00	-	114
3129BSN1EV00	-	42	3139BBN1JV00	-	164	71214VN2MN00	-	114
3129BSN1GV00	-	42	3139BBN1LV00	-	164	71214VN2MT00	-	114
3129BSN1JV00	-	42	3139BBN1NV00	-	164	71214VN2QN00	-	114
3129BSN1LV00	-	42	3139BBN1QV00	-	164	71214VN2QT00	-	114
3131BBN1AV00	-	162	3139BJA7EVC#	-	170	71214VN2SN00	-	114
3131BBN1EV00	-	162	3139BJA7GVC#	-	170	71214VN2ST00	-	114
3131BBN1GV00	-	162	3139BSN1AV00	-	168	7121FBF4GF00	E 121F44	14/88
3131BBN1JV00	-	162	3139BSN1EV00	-	168	7121FBF4GR00	121F67	14/88
3131BBN1LV00	-	162	3139BSN1GV00	-	168	7121FBF4GV00	E 121F4406	14/50
3131BBN1NV00	-	162	3139BSN1JV00	-	168	7121FBF4LF00	121F47	14
3131BBN1QV00	-	162	3139BSN1LV00	-	168	7121FBF4LR00	121F63	14/88
3131BJA7EVC#	-	170	3139BSN1NV00	-	168	7121FBF4LV00	121F4706	14/50
3131BJA7GVC#	-	170	3139BSN1QV00	-	168	7121FBF4NF00	E 121F43	14/88
3131BSN1AV00	-	166	3921BBN1AV00	-	38	7121FBF4NR00	121F64	14/88
3131BSN1EV00	-	166	3921BBN1EV00	-	38	7121FBF4NV00	E 121F4302	14/50
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7121KBG1NRT0	121K2423	104
7121KBG1NV00	121K1302	8
7121KBG1NV00	121K1352	8/46
7121KBG2ER00	E 121K65	8/86/104
7121KBG2GF00	E 121K04	10/86
7121KBG2GR00	E 121K67	10/86/104
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7121KBG2LF00	E 121K07	10
7121KBG2LR00	E 121K63	10/86/104
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7121KBG2LVM0	121K0756	10/46
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7121KBG2NF00	E 121K03	10/86
7121KBG2NR00	E 121K64	10/86/104
7121KBG2NRT0	121K6423	104
7121KBG2NV00	E 121K0302	10/46
7121KBG2NV00	E 121K0352	10/46
7121KBG2QRT0	121K6220	104
7121KBG2QV00	121K02	10/48
7121KBG2QVM0	121K0250	10/48
7121KBG2SE00	121K0103	72
7121KBG2SV00	121K01	12/48
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7121KBG3QV00	121K3206	12/48/104
7121KBG3SV00	121K3106	12/48/104
7121KBG3UE00	121K3303	72
7121KBG3UV00	121K3306	12/48/104
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7121VVG2GV00	121V5406	96
7121VVG2LR00	121V5763	74/96
7121VVG2LV00	121V5706	96
7121VVG2NR00	121V5363	74/96
7121VVG2NV00	121V5306	96
7121VVG2NV1D	121V53061D	96
7121VVG2QR00	121V5263	74/96
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7121VVG2QV00	121V5206	96
7121VVG2SR00	121V5163	74/98
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7121VVG2SV00	121V5106	98
7121VVG2SV1D	121V51061D	98
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7121ZBG1KRT0	-	102
7121ZBG1LR00	-	102
7121ZBG1LV00	-	8/46
7122KBG1LR00	122K9363	12/88/106
7122KBG1LRT0	122K9321	106
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7125KBG2SV00	125K01	14/50
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7131FBF4GVM0	E 131F4450	144
7131FBF4JV00	131F46	144
7131FBF4JVM0	131F4650	144
7131FBF4LV00	E 131F43	144
7131FBF4LVM0	E 131F4350	144
7131FDF2JV00	E 131F26	148
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7131KBG1LV00	E 131K13	124
7131KBG2BF00	131K05	176
7131KBG2BR00	131K65	176
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7131KBG2ERM0	E 131K6450	126
7131KBG2GV00	E 131K04	126/226
7131KBG2GLV5	131K0480	126/226
7131KBG2GVM0	E 131K0450	126/226
7131KBG2JP1D	E 131K06081D	128/228
7131KBG2JV00	E 131K06	126/226
7131KBG2JVM0	E 131K0650	126/226
7131KBG2LP00	E 131K0308	130/228
7131KBG2LP1D	E 131K03081D	130/228
7131KBG2LPM0	E 131K0358	130/228
7131KBG2LR00	E 131K63	130
7131KBG2LRM0	E 131K6350	130
7131KBG2LV00	E 131K03	128
7131KBG2LV1D	E 131K03001D	228
7131KBG2LVM0	E 131K0350	128/228
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7131TBG2JVM0	131T2301	126
7131TBG2LV00	131T29	128
7131TBG2LVM0	131T2901	128
7131TBG2NVA0	131T22	132
7131TBG2RV00	131T21	132
7131TBG2RVM0	131T2101	132
7131VVG2GR00	131V5463	182
7131VVG2GV00	131V5406	182
7131VVG2LR00	131V5363	182
7131VVG2LV00	131V5306	182
7131VVG2BR00	131V65	176
7131XAKLVN00	131X1101	230
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7132TBG2JVM0	132T2301	132
7132TBG2LV00	132T29	132
7132TBG2NVA0	132T22	134
7133FBF4GV00	E 133F44	144
7133FBF4GVM0	E 133F4450	144
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7133FBF4LV00	E 133F43	146
7133FBF4LVM0	E 133F4350	144
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7133KBG1JV00	E 133K16	134
7133KBG1LV00	E 133K13	134
7133KBG2BV00	E 133K05	176
7133KBG2GV00	E 133K04	134
7133KBG2GV1D	E 133K04001D	134
7133KBG2GVM0	E 133K0450	134
7133KBG2JV00	E 133K06	134
7133KBG2JVM0	E 133K0650	134
7133KBG2LV00	E 133K03	134
7133KBG2LVM0	E 133K0350	134
7133TBG2JV00	133T23	134
7133TBG2JVM0	133T2301	134
7133TBG2NV00	133T21	134
7133TBG2NV00	133T2101	134
7133VRN2LV95	U 133V5695	278/288
7133VRN2LV9D	U 133V56951D	278/288
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7133VVG2GV00	133V5406	182
7133VVG2LR00	133V5363	182
7133VVG2LV00	133V5306	182
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72218RG3TV00	221G5306	20/54
72218RG4UE00	221G5503	78
72218RG4UV00	221G5506	20/54
72218RG5VE00	221G5603	78
72218RG5VV00	221G5606	20/54
7221GBG3VE00	221G1303	76
7221GBG3VN00	221G13	16/52/64
7221GBG3VNH0	221G1330	16/52/64
7221GBG3VV00	221G23	16
7221GBG3VWH0	221G2330	16
7221GBG4VE00	221G1503	76
7221GBG4VN00	221G15	16/52/64
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7221GBG51NCH	221G1631	64
7221GBG51NH0	221G1630	18/52
7221GBG51V00	221G26	18
7221GBG51V1D	221G26001D	16
7221GBG51VH0	221G2630	18
7221GBG61E00	221G1703	76
7221GBG61N00	221G17	18/52
7221GBG61NC0	221G1710	64
7221GBG61NCH	221G1731	64
7221GBG61NH0	221G1730	18/52
7221GBG61V00	221G27	18
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7221GBG64NH0	221G2130	18/52
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72228BG3TV00	222G3306	20/54
72228BG4UES0	222G3503	78
72228BG4UV00	222G3506	20/54
72228BG5VES0	222G3603	78
72228BG5VV00	222G3606	20/54
72228RG3TE00	222G5303	78
72228RG3TV00	222G5306	20/54
72228RG4UE00	222G5503	78
72228RG4UV00	222G5506	20/54
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73218BG64TS0	321G8712	82
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7321BBG64NM0	-	58
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7321BBG99E00	-	82
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7321BBGCBNM1	-	58
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7321GBG64NMC	E 321G3710	66
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7321GBG88NMC	E 321G3910	68
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7321GBG99NMC	E 321G4010	68
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7321HBG2SN00	E 321H11	22/90
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7321HBG4UN00	E 321H15	24/90
7321HBG4UV00	E 321H25	22/90/108
7321HBG4UVT0	321H2522	108
7321KBG2SEW0	321K4103	80
7321KBG2SVMW	321K4156	66
7321KBG2SVW0	321K4106	66
7321KBG3TEW0	321K4303	80
7321KBG3TVMW	321K4356	66
7321KBG3TVW0	321K4306	66
7321KBG4TEW0	321K4503	80
7321KBG4TVMW	321K4556	66
7321KBG4TVW0	321K4506	66
7321KBG51EW0	321K4603	80
7321KBG51VMW	321K4656	66
7321KBG51VW0	321K4606	66
7321KBG62EW0	321K4703	80
7321KBG62VMW	321K4756	66
7321KBG62VW0	321K4706	66
73228BG3TTS0	322G8312	82
73228BG4UTS0	322G8512	82
73228BG52TS0	322G8612	82
73228BG64TS0	322G8712	82
73228BG75TS0	322G8812	82
73228BG87TS0	322G8912	82
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7322BBG78N00	-	60
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7322BBG99N00	-	60
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7322FBF3TV00	322F7206	34/92/110
7322GBG4UV00	322G7506	110
7322GBG53N00	322G36	32/58
7322GBG53NC0	322G3610	68
7322GBG53V00	322G3606	32
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7322GBG88V00	322G3906	32
7322GBG99N00	322G40	32/60
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7322GBG99V00	322G4006	32
7322HBG2SN00	322H71	30/92
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7322HBG3TN00	322H73	32/92
7322HBG3TV00	322H7306	32/92/108
7322HBG4UN00	322H75	32/92
7322HBG4UV00	322H7506	32/92/110
7322KBG2SVW0	322K4106	32
7322KBG3TVW0	322K4306	32
7322KBG4TVW0	322K4506	32
7322KBG51VW0	322K4606	32
7322KBG62VW0	322K4706	32
7325KBG2SVW0	325K4106	34
7325KBG3TVW0	325K4306	34
7325KBG4TVW0	325K4506	34
7325KBG51VW0	325K4606	34
7325KBG62VW0	325K4706	34
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7331BAG2KNM0	E 331B74	150
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7341BAG2PN00	E 341B01	198
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7341LAKBGNM0	341L9534	270
7341LAPBGPL2	341L9588	270
7341LAV4TN90	341L2190	216
7341LAV4TNM0	E 341L21	218
7341LDC1LNL8	341L0180	218
7341LDC1LNM8	E 341L01	218
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7341NAKBJNM1	341N21	258
7341NAKBJP1D	341N31081D	260
7341NAKBJPM0	341N3108	260
7341NAKBPN1D	341N32001D	266
7341NAKBPN90	341N3290	266
7341NAKBPNL2	341N3280	266
7341NAKBPNM0	341N32	266
7341NAKBPNM1	341N22	264
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7341PAG1JNM0	341P21	238
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7345LAV4TNM0	345L21	218
7345LDC1LNM8	345L01	220
7345PAG1JNM0	345P21	242
7347LMG2NNM0	E 347L1130	208
7347NAKBHNM0	347N31	262
7347NAKBPNM0	347N32	268
7347NRKDH92	U 347N3192	314
7347NRKDHNM0	U 347N3150	314

Global valve ref.	Valve reference	Page
7347NRKNNN00	U 347N3250	314
7347PAG1HN90	347P2190	240
7347PAG1HNM0	347P21	240
7347PAG2PNM0	347P22	244
7347PRN2JN00	U 347P3150	304
7347PRN2JN95	U 347P3195	304
7347PRN3NN00	U 347P3250	304
7347PRN3NN95	U 347P3295	306
7441NAKBJPM0	441N3108	266
7441PAG1JPM0	441P2108	242
7441PRN3NN00	U 441P3250	302
7541LDC1LNR0	541L01	220
7541NAKBJN00	541N01	262
7541PAG1JP00	541P0108	244
7541PRN3NNM1	U 541P0250	302
7547LMG2NN00	547L11	210
-	121K6423	104
-	121M13	8/46
-	121M14	8/46
-	131F4490	136
-	131M14	124/226
-	131M15	124/226
-	131M74	142
-	131M7450	142
-	131M75	138
-	131M7550	138
-	131V5490	182
-	133X01	230
-	221J3301E	118
-	321G3790	26
-	321G3990	26
-	321G4090	28
-	321H1590	22
-	321K31	22/56
-	321K3106	22
-	321K33	22/56
-	321K3306	22
-	321K35	22/56
-	321K3506	22
-	321K36	24/56
-	321K3606	24
-	321K37	24/56
-	321K3706	24
-	331B7490	150
-	341B3490	188
-	341L04	218
-	341L05	218
-	341L11	202/250
-	341L1190	204/254
-	341L9101	196/248
-	341L9201	214
-	341L9504	270
-	341L9598	270
-	347L11	206/252
-	347L9101	198/254
-	347L9201	214

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