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Global ISO Valves for the Rail Industry

ISO 5599-1 - 1, 2 and 3 sizes

Catalogue PDE2607TCUK 04/2022



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Global ISO Valves for the Rail Industry

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Important !

Before carrying out any service work, ensure that the valve and manifold have been vented. Remove the primary supply air hose to ensure total disconnection of the air supply before dismantling valves or blank connection blocks.



NB !

All technical data in this catalogue is typical only. The air quality is decisive for the valve life: see ISO 8573.



WARNING

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Global ISO Valves for the Rail Industry

The Isomax Railway range of directional control valves, ISO5599-1

DX1 1/4", size 1,

DX2 3/8", size 2,

DX3 1/2", size 3,

includes both 5/2 and 5/3 valves, for pneumatic and electrical actuation with a wide choice of subbases and manifolds to suit different application needs in the Railway market.

ISO 5599 - 1



Parker's many years of experience in designing pneumatic products and systems for the rail industry has produced a depth of 'industry specific' knowledge unrivalled in the market place, with a wealth of products, both standard and custom built ideally suited to a wide range of applications.

Throughout Europe Parker have a team of Application Engineers and Design and System Engineers who work closely with customers to understand their requirements and to ensure the optimum engineering solution is provided.

The principal application areas that ISOMAX Railway have experience in include :

Door Step Control

Coupling Systems

Sanding Control Systems

Pantograph Operation

Parking Brake

Trip Cock Reset Valves

Horn

Whistle

Internal and External Door Actuation and Control



Global ISO Valves for the Rail Industry

ISO Specifications

Common for Railway



5599-1



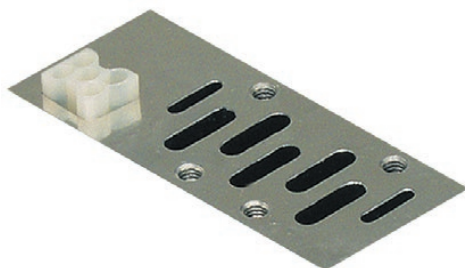
ISO 5599-1

External electrical connection subbase valves

The ISO Standard 5599-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2 & 4 and pilot passages 12 & 14. The width of the pattern and location of the 4 bolt holes are also specified. There are no specifications for the type of external electrical connection used to control the valve.

Size : 1 2 3

Other specifications not used for Railway (for information)



5599-2

Body-to-base plug-in subbase valves

Same as 5599-1 for pneumatic pressure passages, 5599-2 standard also specifies a plug-in electrical connection.

Sizes : 1 2 3



15407-1

(VDMA 24563)

External electrical connection subbase valves

The ISO Standard 15407-1 specifies an interface pattern for a common subbase valve consisting of pressure passages 1, 3, 5, 2 & 4 and pilot passages 12 & 14. The width of the pattern and location of the 4 bolt holes are also specified. There are no specifications for the type of external electrical connection used to control the valve.

Size : 02 01



15407-2

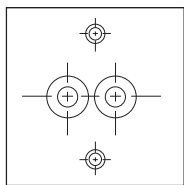
Body-to-base plug-in subbase valves

Same as 15407-1 for pneumatic pressure passages, 15407-2 standard also specifies a plug-in electrical connection.

Size : 01 02

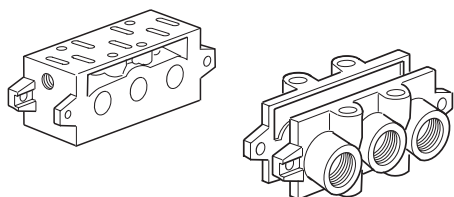
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ISO Specifications



CNOMO 06-05-01

The solenoid pilot interface often used with ISO 5599-1 valves is the CNOMO interface. The CNOMO interface specifies the pressure and actuator port, and the screw holes for the mounting of this solenoid pilot. It is commonly used in European automotive plants, and its usage is becoming more prevalent for industrial ISO 5599-1 valves.



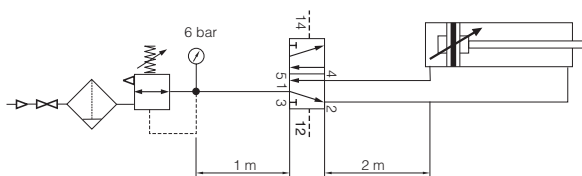
VDMA 24345

The VDMA 24345 is a standard for Manifolds and Subbase specifying a common base mounting footprint in addition to ISO 5599-1 Interface standard. (VDMA is a German organisation - Verband Deutscher Maschinen und Anlagen-Bauer - which is translated to Federation of German Machine and Unit Builders.)

Choice of components for air supply to cylinders

In the chart below can you find the suitable valves, tubes etc. for each cylinder size. If you have a tube length over 2 m, choose one tube size larger than in the chart.

Following data is valid :
 Supply pressure : min 7,0 bar
 Regulator pressure setting : 6,0 bar
 Pipe length between air treatment unit and valve : max 1 m
 Pipe length between valve and cylinder : max 2 m



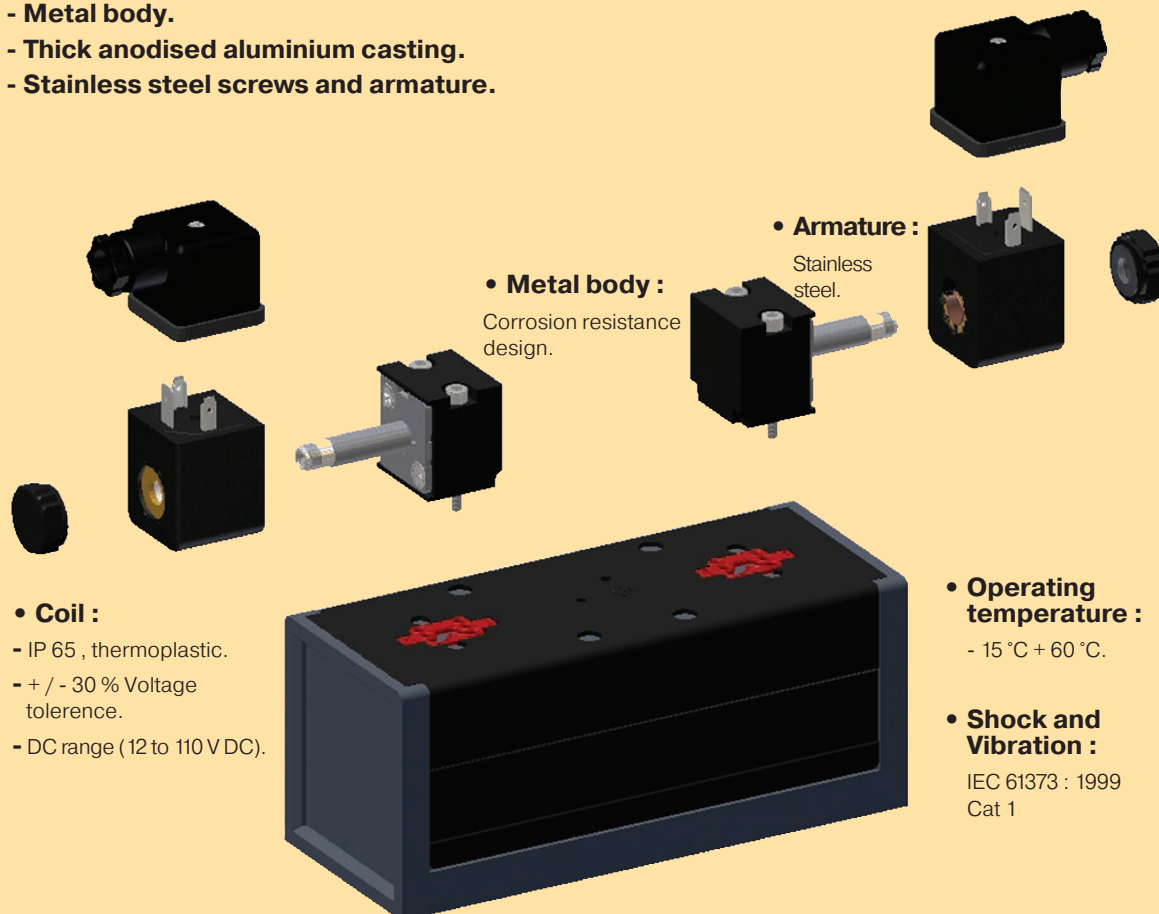
Cylinder bore	<Ø20	Ø20-32	Ø40-50	Ø63	Ø80	Ø100	Ø125	Ø160	Ø200
Cylinder port	M5	G1/8	G1/4	G3/8	G3/8	G1/2	G1/2	G3/4	G3/4
Tubing Ext / Int	4 / 2.7	6 / 4	8 / 6	10 / 7	10 / 7 12 / 9	12 / 9 14 / 11	14 / 11	18 / 15	20 / 18
Size 1 Isomax	G1/4	G1/4	G1/4	G1/4	G1/4	G1/4			
Size 2 Isomax			G3/8	G3/8	G3/8	G3/8	G3/8		
Size 3 Isomax				G1/2	G1/2	G1/2	G1/2	G1/2	G1/2

Cylinder speed < 0.5 m/s
 Cylinder speed < 1 m/s
 Cylinder speed > 1 m/s

Global ISO Valves for the Rail Industry

• Rust and Corrosion resistance Design :

- Metal body.
- Thick anodised aluminium casting.
- Stainless steel screws and armature.



• **Metal body :**
Corrosion resistance design.

• **Armature :**
Stainless steel.

• **Coil :**

- IP 65 , thermoplastic.
- + / - 30 % Voltage tolerance.
- DC range (12 to 110 VDC).

• **Operating temperature :**
- 15 °C + 60 °C.

• **Shock and Vibration :**
IEC 61373 : 1999
Cat 1

• Ceramic technology

- **Stable long lasting performances :**

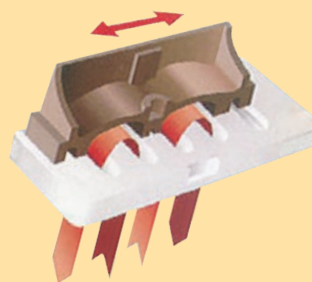
Low friction switching : minimum wear of the valve member/seal assembly.

- **Excellent reliability :**

Long life in excess of 100 million operation, subject to the air supply being filtered to ISO 8573-1 standard.

- **High performances :**

Slide valve concept allows high flow / size ratio and short response time due to short slide stroke and low friction.



Global ISO Valves for the Rail Industry

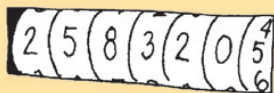
Rust and corrosion resistant body

With the valve body in polyamide reinforced fiberglass and the casting in thick anodised aluminium, stainless steel screws Isomax Railway presents a comprehensive modern design to suit most Railway applications.

External supply selection

In order to use actuator with low pressure, it is possible to connect an external pressure on port 14 to supply both solenoids. Selection is easily made by reversing the gasket under the operator.

High reliability



Valves easily comply with the requirements for the component reliability in accordance with EU Machinery Directive standards EN292-2 and EN983.

Ceramic technology

Isomax Railway is developed with ceramic technology allowing

- Stability
- Long performance reliability
- Pressure through exhaust port.

Manual Override

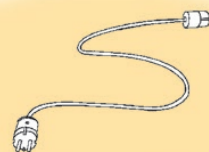
Without manual override as standard, due to safety choice. As option, solenoids are available with flush (locking or non-locking), or extended non-locking metal manual overrides; so that valves can be operated when the electrical supply is turned off.

Solenoid valves, CNOMO interface



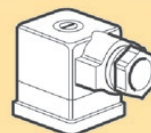
Valve is fitted with a 30mm solenoid having DIN 43650 Industrial form A. Operator body in thick anodised aluminium, stainless steel screws and armature allows compatibility with Railway applications.

High electrical encapsulation class



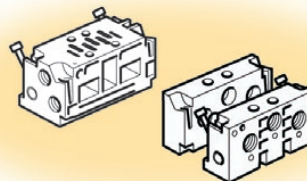
The solenoid valves are protected to IP65 with the standard cable plug.

Wide choice of solenoid connectors/cable plugs



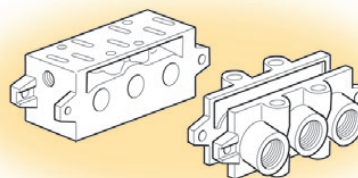
Solenoid connectors are available with or without LED and rectifier.

Bottom or side ported manifold



Manifolds with common ducts for ports 1,3 and 5, outlet port 2 and 4, and supply port for 12 and 14 are available side or bottom ported. Those manifolds are common for Isomax and Isys Iso.

Subbase installation VDMA



A large range of subbase, VDMA or not VDMA, bottom or side ported.

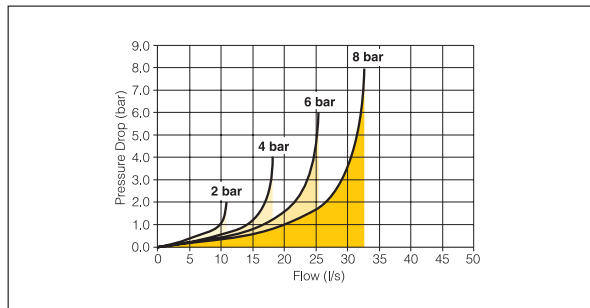
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Isomax Flow Characteristics

Flow capacities in accordance with ISO6358, for 5/2 function. 5/3 function are around 10 to 20% less.

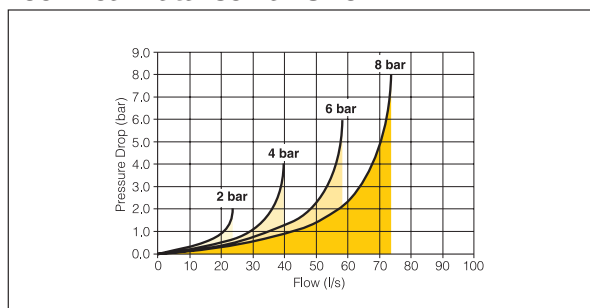


Technical Data Isomax Size 1



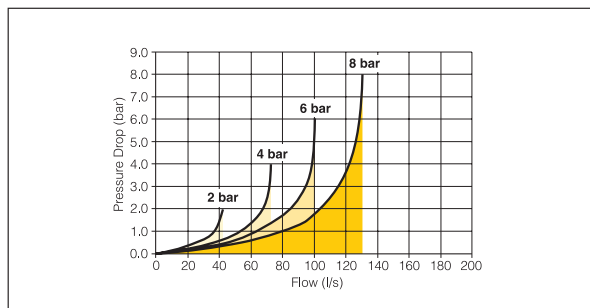
Operating pressure :	5/2 Spring return	4,0 - 10 bar
	5/2 Double solenoid	2,5 - 10 bar
	5/3 Double solenoid	4,0 - 10 bar
Pneumatic version :		12 bar
Working temperature :		-15 °C to + 60 °C
Flow (acc. to ISO 6358) :		$c = 3,8 \text{ NI/s} \times \text{bar}$
		$b = 0,35$
		$Q_n = 17,2 \text{ l/s}$
		$Q_{max} = 25,5 \text{ l/s}$

Technical Data Isomax Size 2



Operating pressure :	5/2 Spring return	4,0 - 10 bar
	5/2 Double solenoid	2,5 - 10 bar
	5/3 Double solenoid	4,0 - 10 bar
Pneumatic version :		12 bar
Working temperature :		-15 °C to + 60 °C
Flow (acc. to ISO 6358) :		$c = 8,2 \text{ NI/s} \times \text{bar}$
		$b = 0,35$
		$Q_n = 38,3 \text{ l/s}$
		$Q_{max} = 58,7 \text{ l/s}$

Technical Data Isomax Size 3



Operating pressure :	5/2 Spring return	4,0 - 10 bar
	5/2 Double solenoid	2,5 - 10 bar
	5/3 Double solenoid	4,0 - 10 bar
Pneumatic version :		12 bar
Working temperature :		-15 °C to + 60 °C
Flow (acc. to ISO 6358) :		$c = 14,5 \text{ NI/s} \times \text{bar}$
		$b = 0,35$
		$Q_n = 64,0 \text{ l/s}$
		$Q_{max} = 101,0 \text{ l/s}$

Railway Solenoid Characteristics



Operating pressure :	3/2 Spring return	0,0 - 10 bar
Working temperature :		-40 °C to 60 °C (1)
Flow (acc. to ISO 6358) :		$Q_n = 0.7 \text{ l/s}$

(1) limited to 50°C if use with 100% duty cycle.
Increase of leakage below -25 %C.

Global ISO Valves for the Rail Industry

Material Specification and Characteristics

Isomax Railway Valve

Material

Valve member - seat :	Self lubricating acetal - ceramic
Body :	Polyamide reinforced fibreglass
Casing - End plates :	Anodised aluminium
Valve plate :	Zamak
Seals :	Nitrile
Springs :	Stainless steel
Screws :	Stainless steel

Railway Solenoid

Pilot Valve

Body :	Aluminium
Armature tube :	Stainless steel
Plunger & core :	Corrosion resistant Cr-Ni steel
Seals :	Low temp FKM
Screws :	Stainless steel

Railway

Coil

Encapsulation material :	Thermoplastic as standard
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Characteristics

Fluid :	Air or inert gas filtered 40 µ class 5 according to ISO 8573-1 dry class according to service temperature non-lubricated, or lubricated
Storage temperature :	-40 °C to + 70 °C
Low temperature climatic :	According to EN 60068-2-1, test Ad
High temperature climatic :	According to EN 60068-2-2, test Bd
Shock and Vibration :	According to IEC 61373 : 1999 Cat 1 Class B
Salt spray test :	According to ISO 9227, 168 h
Solenoid orifice :	1.2/1.3mm
Power (DC) :	6 to 6.8W
Voltage tolerance :	+/- 30%
Pull in voltage :	According to VDE 0580 July 2000
Duty cycle :	100%
Insulation :	Class II 2000 V
Temperature :	Class F 155 °C
Electrical connection :	Din A

Certification

EMC / CE mark. :	According to EN 61 000-6-2
Dust & water protection :	IP65 according to EN 60529

Transients

Interrupting the current through the solenoid coil produces momentary voltage peaks which, under unfavourable conditions, can amount to several hundred times the rated operating voltage. Normally, these transients do not cause problems, but to achieve the maximum life of relays in the circuit (and particularly of transistors, thyristors and integrated circuits) it is desirable to provide protection by means of voltage-dependent resistors (varistors). All connectors/cable plugs EN 175301-803 with LED's include this type of circuit protection.

Global ISO Valves for the Rail Industry

Isomax - ISO 5599 - Size 1 / 2 / 3 - CNOMO

Order chart

DX
1
-
R
06
-
A
N

Size	
1	Size 1 (ISO 5599)
2	Size 2 (ISO 5599)
3	Size 3 (ISO 5599)

Voltage	
DC	
47	12
48	24
74	48
70	72
71	96
72	110
Blank	Valve less coil

Railway Version	

Solenoid enclosure	
L	3 pin 30mm DIN 43650A
N	Valve less coil

Valve type function	
Internal pilot supply	
06	5/2 double solenoid
56	5/2 double solenoid, 14 prioritised
21	5/2 single solenoid, spring return
51	5/2 single solenoid, differential return
11	5/3 double solenoid vented centre
16	5/3 double solenoid closed centre
13	5/3 double solenoid pressurised centre
External pilot 14 supply	
05	5/2 double solenoid
59	5/2 double solenoid, 14 prioritised
23	5/2 single solenoid, spring return
54	5/2 single solenoid, differential return
09	5/3 double solenoid vented centre
19	5/3 double solenoid closed centre
14	5/3 double solenoid pressurised centre

Electrical version - manual override	
A	No override
B	Non-locking Flush - Metal
C	Locking Flush - Metal
D	Non-locking Extended - Metal
Pneumatic version	
60	No override

Isomax

Part numbers for complete valves available on request. Shaded part numbers are standard.

Global ISO Valves for the Rail Industry

Solenoid operated ISO Railway Valve fitted with CNOMO operator without coil

Solenoid plug/connector to be ordered separately. See page 14.

Symbol	Size	Actuation	Return	Changeover time (ms) at 6 bar 20 °C actua./return	Weight kg	Order code
5/2 Valves						
	1 - 43 mm	Electrical signal	Spring	40/55	0.400	DX1-R21-AN
	2 - 56 mm	Electrical signal	Spring	60/105	0.650	DX2-R21-AN
	3 - 71 mm	Electrical signal	Spring	85/160	1.150	DX3-R21-AN
	1 - 43 mm	Electrical signal	Differential	30/70	0.400	DX1-R51-AN
	2 - 56 mm	Electrical signal	Differential	55/110	0.650	DX2-R51-AN
	3 - 71 mm	Electrical signal	Differential	80/180	1.150	DX3-R51-AN
	1 - 43 mm	Electrical signal	Electrical signal	25/25	0.550	DX1-R06-AN
	2 - 56 mm	Electrical signal	Electrical signal	30/30	0.800	DX2-R06-AN
	3 - 71 mm	Electrical signal	Electrical signal	40/40	1.300	DX3-R06-AN
5/3 Valves						
	1 - 43 mm	Electrical signal	Electrical signal	30/95	0.550	DX1-R16-AN
	2 - 56 mm	Closed centre	Self centering	40/190	0.800	DX2-R16-AN
	3 - 71 mm			55/330	1.300	DX3-R16-AN
	1 - 43 mm	Electrical signal	Electrical signal	25/70	0.550	DX1-R11-AN
	2 - 56 mm	Vented centre	Self centering	40/140	0.800	DX2-R11-AN
	3 - 71 mm			60/270	1.300	DX3-R11-AN
	1 - 43 mm	Electrical signal	Electrical signal	25/65	0.550	DX1-R13-AN
	2 - 56 mm	Press. centre	Self centering	40/150	0.800	DX2-R13-AN

Indicates stocked products.

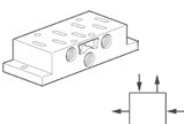
Pneumatic operated ISO Railway Valve without valve spool override

Symbol	Size	Actuation	Return	Changeover time (ms) at 6 bar 20 °C actua./return	Weight kg	Order code
5/2 Valves						
	1 - 43 mm	Air signal	Spring	30/45	0.350	DX1-R21-60
	2 - 56 mm	Air signal	Spring	50/95	0.600	DX2-R21-60
	3 - 71 mm	Air signal	Spring	80/160	1.100	DX3-R21-60
	1 - 43 mm	Air signal	Differential	25/60	0.350	DX1-R51-60
	2 - 56 mm	Air signal	Differential	45/100	0.600	DX2-R51-60
	3 - 71 mm	Air signal	Differential	70/170	1.100	DX3-R51-60
	1 - 43 mm	Air signal	Air signal	20/20	0.350	DX1-R06-60
	2 - 56 mm	Air signal	Air signal	25/25	0.600	DX2-R06-60
	3 - 71 mm	Air signal	Air signal	35/35	1.100	DX3-R06-60
5/3 Valves						
	1 - 43 mm	Air signal	Air signal	20/80	0.350	DX1-R16-60
	2 - 56 mm	Closed centre	Self centering	30/170	0.600	DX2-R16-60
	3 - 71 mm			45/330	1.100	DX3-R16-60
	1 - 43 mm	Air signal	Air signal	20/65	0.350	DX1-R11-60
	2 - 56 mm	Vented centre	Self centering	30/140	0.600	DX2-R11-60
	3 - 71 mm			50/270	1.100	DX3-R11-60
	1 - 43 mm	Air signal	Air signal	20/60	0.350	DX1-R13-60
	2 - 56 mm	Press. centre	Self centering	25/140	0.600	DX2-R13-60

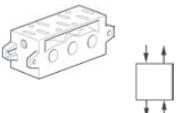

Global ISO Valves for the Rail Industry

ISO 5599-1 Subbase & Manifolds


VDMA Side Ported Subbases

Description	Size	Port size	Weight kg	Order code
 <p>Subbases VDMA Side port according to VDMA Side port according to VDMA Side port according to VDMA</p>	1 - 43 mm	G1/4	0.160	P2N-VS512SD
	2 - 56 mm	G3/8	0.280	P2N-WS513SD
	3 - 71 mm	G1/2	0.350	P2N-YS514SD

VDMA Bottom Ported Manifold

Description	Size	Port size	Weight kg	Order code
 <p>VDMA Form C Bottom port according to VDMA Bottom port according to VDMA Bottom port according to VDMA</p>	1 - 43 mm	G1/4	0.240	P2N-VM512MB
	2 - 56 mm	G3/8	0.360	P2N-WM513MB
	3 - 71 mm	G1/2	0.700	P2N-YM514MB
<p>VDMA Transition plate Size 1 to Size 3 Kit includes : Transition plate only</p>	1 to 3	G1/4		P2N-VM500AK
 <p>VDMA Form D - End plate According to VDMA According to VDMA According to VDMA</p>	1 - 43 mm	G3/8	0.210	P2N-VM513ES
	2 - 56 mm	G1/2	0.360	P2N-WM514ES
	3 - 71 mm	G1	0.680	P2N-YM518ES
<p>VDMA Isolation - Main galley According to VDMA According to VDMA According to VDMA Kit includes : (1) Isolator plug.</p>	1 - 43 mm			P2N-VK0P
	2 - 56 mm			P2N-WK0P
	3 - 71 mm			P2N-YK0P


Accessories

Description	Size	Port size	Weight kg	Order code
 <p>Blanking plate Kit includes : (1) Blanking plate, (1) Gasket and (4) Mounting bolts</p>	1 - 43 mm	G1/4	0.100	P2N-AA5B
	2 - 56 mm	G3/8	0.150	P2N-BA5B
	3 - 71 mm	G1/2	0.200	P2N-CA5B


 Indicates stocked products.

Global ISO Valves for the Rail Industry






Side ported subbases

Description	Size	Port size	Weight kg	Order code BSP
 Single subbase 1 3 5 2 4 ports & 12 14	1 - 43 mm	G1/4	0.160	PL1-1/4-70
	1 - 43 mm	G3/8	0.160	PL1-3/8-70
	2 - 56 mm	G3/8	0.280	PL2-3/8-70
	2 - 56 mm	G1/2		P2N-HS514SS
	3 - 71 mm	G1/2		PL3-1/2-70
	3 - 71 mm	G3/4		P2N-JS516SD

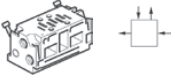
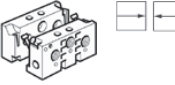
Bottom ported subbases

Description	Size	Port size	Weight kg	Order code BSP
 Single subbase 1 3 5 2 4 ports & 12 14	1 - 43 mm	G1/4	0.370	PD1-1/4-70
	2 - 56 mm	G3/8	0.590	PD2-3/8-70
	3 - 71 mm	G1/2	0.590	PD3-1/2-70

Size 1 bottom ported manifold

Description	Size	Port size	Weight kg	Order code
 Manifold With bottom ports low profile	1 - 43 mm	G1/4	0.200	P2N-AM512MB
 Connecting block Top or bottom ported connecting block for above manifold "low profile"	1 - 43 mm	G3/8	0.150	P2N-AM513GT
 End End piece for above manifold "low profile"	1 - 43 mm	no	0.060	P2N-AM500J
 Intermediate supply Top or bottom ported intermediate supply for above manifold "low profile"	1 - 43 mm	G3/8	0.140	P2N-AM513BT
 Isolation plugs Isolating seal for above manifold "low profile"	1 - 43 mm		0.070	P2N-AK0P

Sizes 1 & 2 side ported manifold

Description	Size	Port size	Weight kg	Order code
 Manifold Manifold with side ports	1 - 43 mm	G1/4	0.240	P2N-EM512MD
	2 - 56 mm	G3/8	0.210	P2N-FM513MD
 End Side ported connecting kit for above manifold with side ports	1 - 43 mm	G3/8	0.360	P2N-EM513ES
	2 - 56 mm	G1/2	0.290	P2N-FM514ES

 Indicates stocked products.

Global ISO Valves for the Rail Industry

Solenoid coils with Din A 30 x 30 connection

Voltage	Order code	Weight (kg)
Direct current		
12V DC	P2FCA447	0.105
24V DC	P2FCA448	0.105
48V DC	P2FCA474	0.105
72V DC	P2FCA470	0.105
96V DC	P2FCA471	0.105
110V DC	P2FCA472	0.105

Spare Solenoid Nut

Diffuser nut for vented exhaust

Description	Order code	Weight (kg)
Plastic Version	P2FND	0.010
Metalic Version	P2FNPR	0.020

Spare Solenoid Operators

Solenoid pilot operator CNOMO NC

Description	Order code	Weight (kg)	Order code	Weight (kg)	Order code	Weight (kg)
	No manual override		Non-lock. manual override		Locking manual override	
Mobile metal	P2FP43M4A	0.100	P2FP43M4B	0.100	P2FP43M4C	0.100


Note.

Solenoid pilot operators are fitted to the Isomax Railway valve range. Order the above part numbers for spares. The operators are supplied with mounting screws and interface 'O' rings.

Coils and connectors must be ordered separately.

Solenoid Connectors / Cable Plugs 30 mm Form A ISO4400

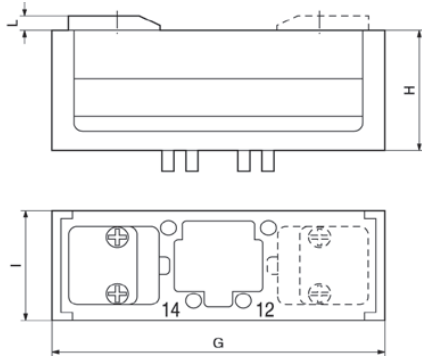
	Description	Order code
With standard screw	Standard IP65 without flying lead	3EV290V10
	With LED and protection 24V AC/DC	3EV290V20-24
	With LED and protection 110V AC	3EV290V20-110
With cable	24V AC/DC, 5m cable LED and protection IP65	3EV290V20-24L5
	110V AC/DC, 5m cable LED and protection IP65	3EV290V20-110L5

 Indicates stocked products.

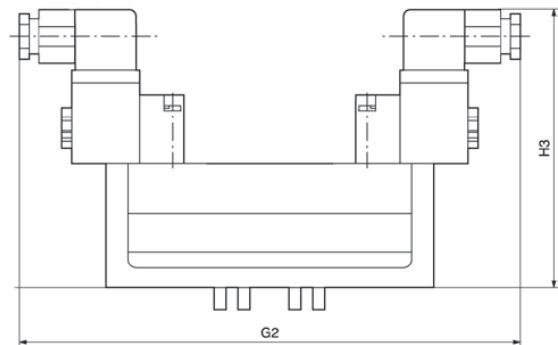
Global ISO Valves for the Rail Industry

Railway Isomax Valve - Dimensions (mm)

Pneumatically actuated

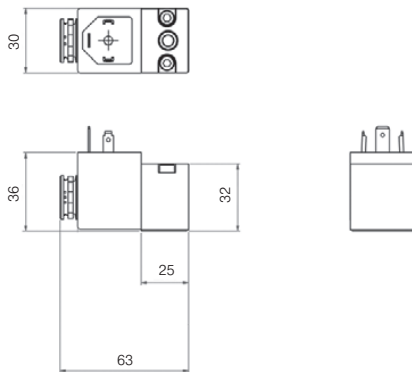


With P2F solenoids

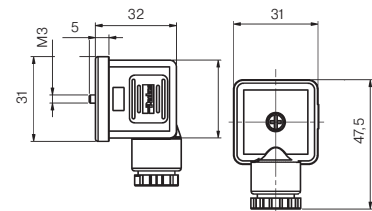


	G	G2	H	H3	I	L
Size 1	120	196	46	114	42	5
Size 2	140	206	58	126	54	5
Size 3	170	224	72	140	68,5	5

Solenoid operators (Mobile Metal) - 30 x 30mm

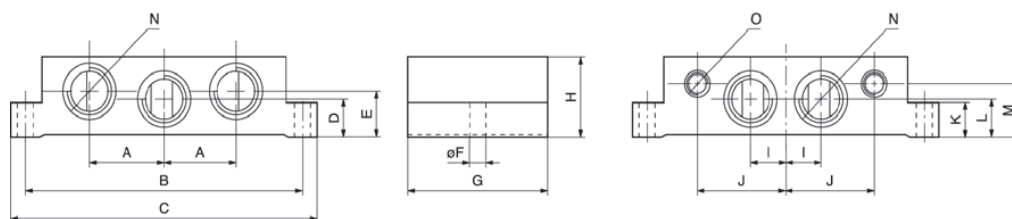


Cable plugs 3EV290V10



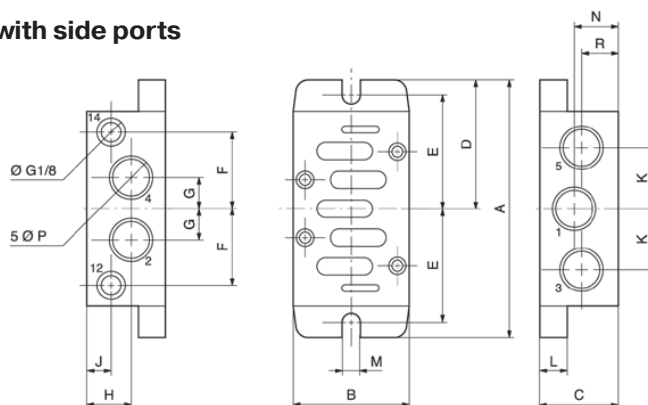
Global ISO Valves for the Rail Industry

Single subbase with side ports according to VDMA - Dimensions



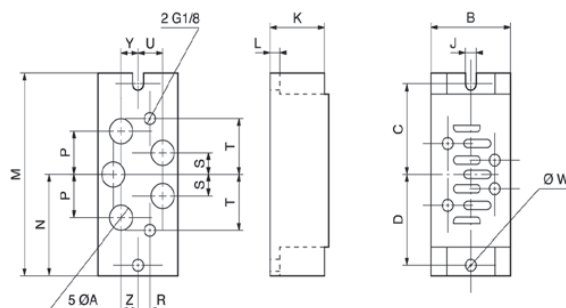
Order code	Size ISO	Port Size	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
P2N-VS512SD	1	G1/4	21,5	98	110	11	20	5,5	48	32	12	29	10	11	23	G1/4	G1/8
P2N-WS513S	2	G3/8	28	112	124	14	26	6,6	56	40	15	37	13	14	30	G3/8	G1/8
P2N-YS514SD	3	G1/2	34	136	149	17	17	6,6	71	32	16	45	18	17	22	G1/2	G1/8

Single subbase with side ports



Order code	ISO Size	ØP	A	B	C	D	E	F	G	H	J	K	L	M	N	R
PL1-1/4-70	1	G1/4	110	46	29	55	49	30	11	17,75	17,75	22	6	5,5	17,75	17,75
PL2-3/8-70	2	G3/8	124	56	37	62	55	37	14,5	22,5	14	28	6	5,5	22,5	14,5
P2N-JS516SD	3	G3/4	149	71	60	74,5	68	45	21	33	10	40	18	6,6	37,5	22,5

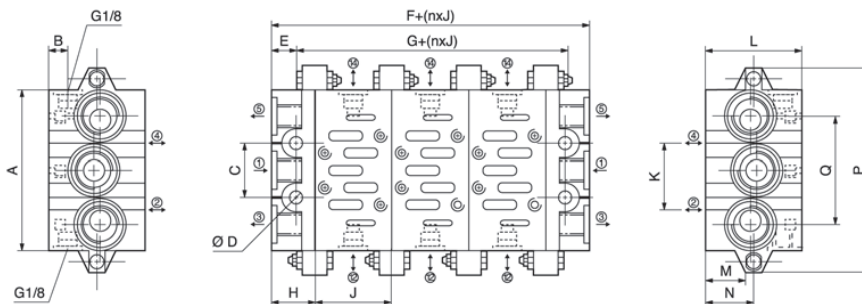
Single subbase with bottom ports



Order code	A	B	C	D	J	K	L	M	N	P	R	S	T	U	W	Y	Z
PD1-1/4-70	G1/4	46	49	49	5,5	29	6	110	55	22	10	11	30	10	5,5	10	10
PD2-3/8-70	G3/8	56	55	55	5,5	37	6	124	62	29	10	14,5	37	12,5	5,5	12,5	12,5
PD3-1/2-70	G1/2	77	68	68	6,6	32	18	149	74,5	34	10	17	45	17	6,5	17	17

Global ISO Valves for the Rail Industry

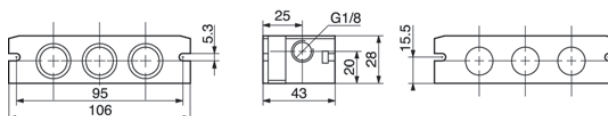
Manifold and end plates according to VDMA (P2N-VM / WM / YM) - Dimensions



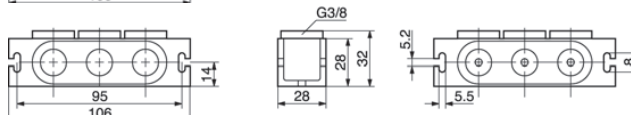
ISO Size	Port 1, 3, 5	Port 2, 4	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
1	G3/8	G1/4	85	8,5	28	7	11	44	22	22	43	26	46	21	24	56	110
2	G1/2	G3/8	100	9	35	9	13	52	26	26	56	30	47	22	24	68	135
3	G1	G1/2	140	10	52	12	15	60	30	30	71	38	56	31	34	104	190

Manifold and end plates with bottom ports "low profile" (P2N-AM..)

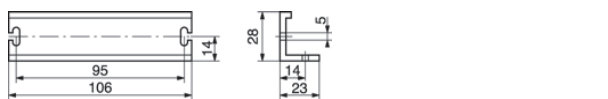
Manifold P2N-AM512MB



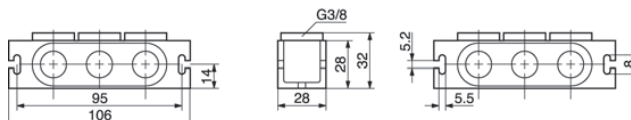
Connecting block P2N-AM513GT



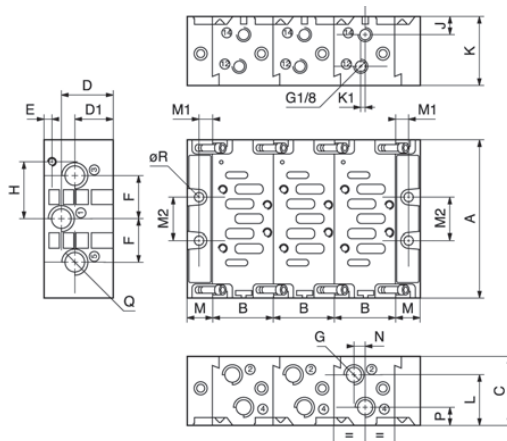
End piece P2N-AM500J



Intermediate supply P2N-AM513BT



Manifold and end plates with side ports (P2N-EM / FM..)



Order code	A	B	C	D	D1	E	F	G	H	J	K	K1	L	M	M1	M2	N	P	Q	R
P2N-EM . . .	110	43	48	35,5	26,5	5,5	28	G1/4	36	15,5	35	3	32	20	11	28	12	12,5	G3/8	6
P2N-FM . . .	129	56	60	44,5	35,5	6	34,5	G3/8	45	16	41,5	3	41	24	13	35	12,5	16	G1/2	8

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