

# PIMATIC

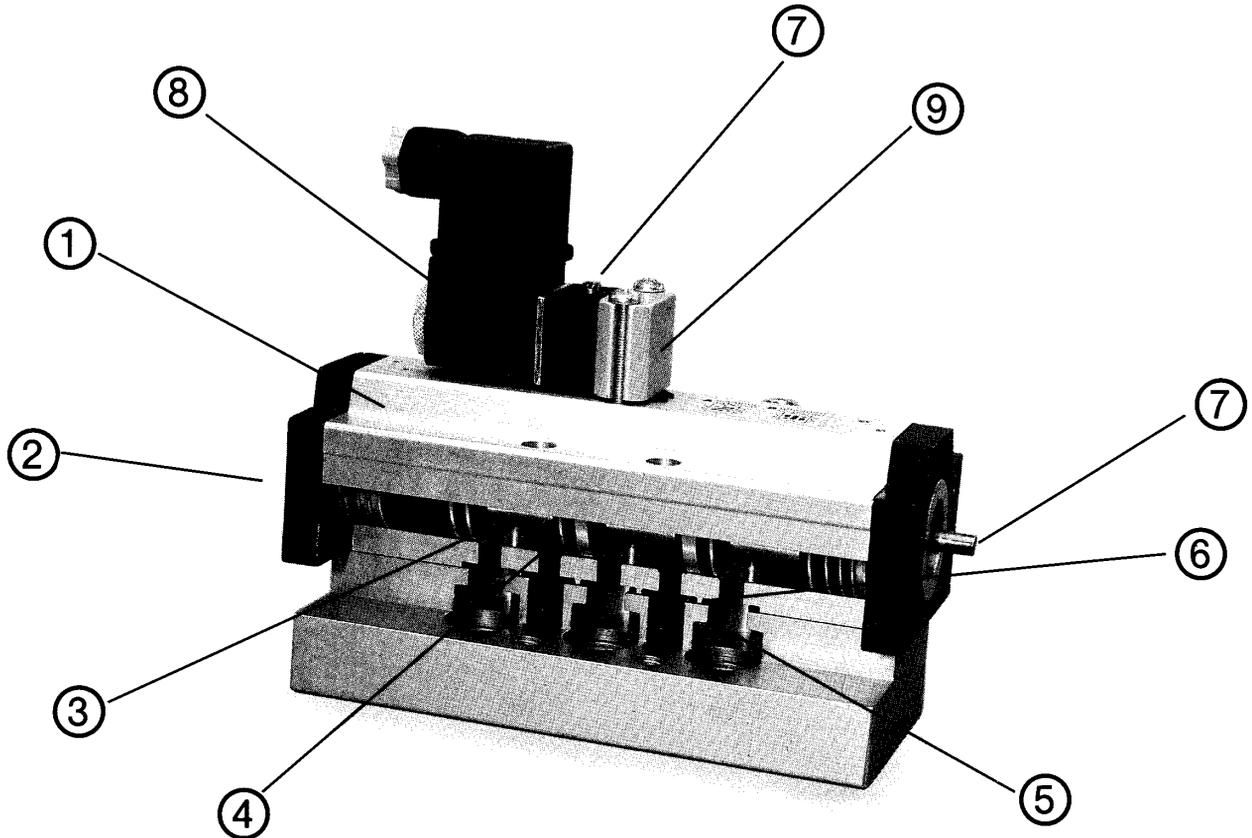
## 5/2- AND 5/3-WAY VALVES

for ISO sub-base  
electro-magnetically or pneumatically actuated

BERENDSEN PMC OY AB

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## CHOICE CRITERIA:

- |  |   |   |
|--|---|---|
| <p><b>1. Strong housing of anodised aluminium</b><br/>- Resistant to corrosion, thermal variations and abrasion</p> <p><b>2. Easy maintenance</b><br/>- All wearing parts can be easily replaced</p> <p><b>3. Reliable spool construction</b><br/>- Simple and solid spool construction ensures trouble-free operation</p> | <p><b>4. Teflon seals – no lubrication</b><br/>- Lubrication unnecessary<br/>- Good resistance to chemical agents<br/>- Insignificant seal friction diminishes abrasion and lengthens service life</p> <p><b>5. Big flow orifices</b><br/>- Small pressure loss even on fast flows</p> <p><b>6. Valve ports correspond to ISO standard</b><br/>- International dimensioning ensures compatibility anywhere in the world</p> | <p><b>7. Manual override</b><br/>- Manual override control as standard in all models, also in pneumatically operated models</p> <p><b>8. Low power consumption</b><br/>- Suitable for logic control systems</p> <p><b>9. Modular construction</b><br/>- Valve actuation can be changed easily</p> |
|--|---|---|

## TECHNICAL DATA:

### Valve type:

5 port 2 and 3 position valves for ISO sub-base, for controlling double acting cylinders or for equivalent use.

### Operating medium:

Compressed or lubricated air or neutral gas.

### Mounting:

Sub-base ISO 5599/1

### Materials:

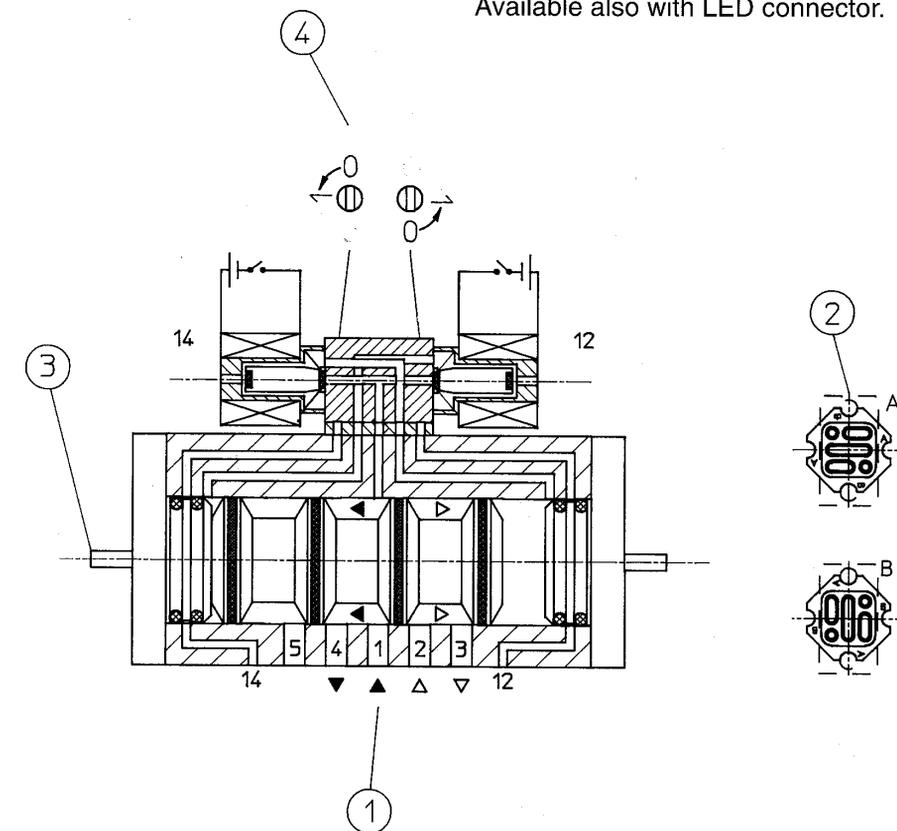
Housing of anodised aluminium, end caps of polyacetal or aluminium, inner parts of aluminium or stainless steel.

### Seals:

Nitrile rubber or PTFE

### Ports and connections:

1. Port numbers:
  - 1 operating pressure
  - 2, 4 inlet/outlet
  - 3, 5 exhaust
  - 12, 14 pilot ports
2. Mounting of control unit seal
  - A: internal pilot supply (as standard)
  - B: external pilot supply
3. Push buttons for manual override of spool
4. Screws for manual override



### Pressure range:

-1...10 bar (-0.1...1.0 MPa)

### Lubrication:

Free of maintenance, no lubrication needed

### Temperature range:

-20...+80°C valve  
-20...+50°C ambient

### Electrical data:

Cable terminal: PG 9  
Protective system: IP 65 (plugged in)

Insulation: F 155°C

Control voltages:  
DC 12, 24, 48, 110 V  
AC 24, 48, 110, 220 V/50 tai 60 Hz

Operating time: 100% ED

Voltage tolerance:  
±10% from nominal

Power consumption:  
ISO 1 and 2: DC 5 W, AC 8/13 VA  
alternatively DC 2,5 W, AC 4,5/7 VA  
ISO 3 and 4: DC 10 W, AC 16/26 VA

Manual override as standard

Available also with LED connector.

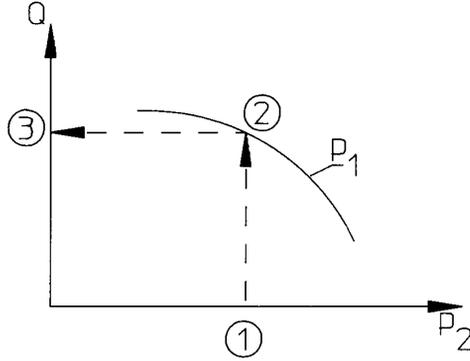
## FLOW RATES:

Valve size	Port size	Flow orifice	Nominal flow *)
ISO 1	G1/8", G1/4"	Ø 7 mm	24 dm <sup>3</sup> /s
ISO 2	G1/4", G3/8"	Ø 9 mm	42 dm <sup>3</sup> /s
ISO 3	G1/2"	Ø 13 mm	105 dm <sup>3</sup> /s
ISO 4	G3/4"	Ø 18 mm	130 dm <sup>3</sup> /s

\*) Valve mounted on sub-base. Inlet pressure 6 bar, outlet pressure 5 bar.

**INTERPRETATION:**

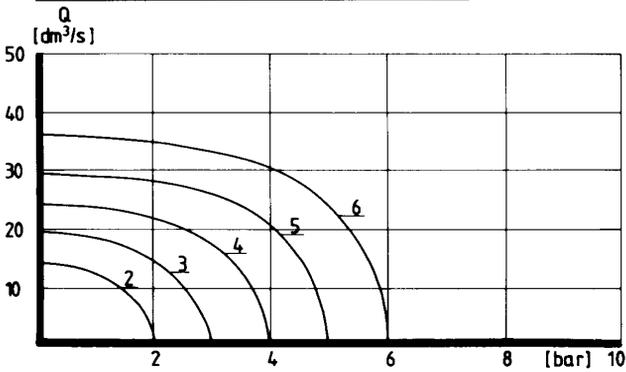
Flowing-through depends on the accepted pressure loss. Flow volume at particular inlet pressure ( $p_1$ ) can be read in the diagram by means of outlet pressure ( $p_2$ ).



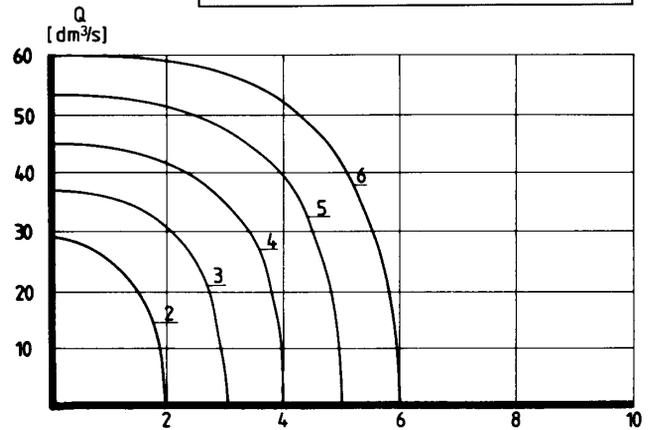
**FLOWING CURVES:**

1. outlet pressure e.g.  $p_2 = 5$  bar
2. inlet pressure e.g.  $p_1 = 6$  bar
3. valve flow-through e.g.  $Q = 24 \text{ dm}^3/\text{s}$  (ISO 1 valve)

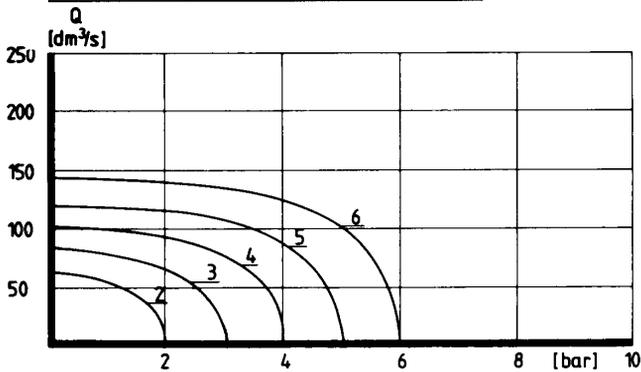
**ISO 1, Series 5111**  
on sub-base 7512-S



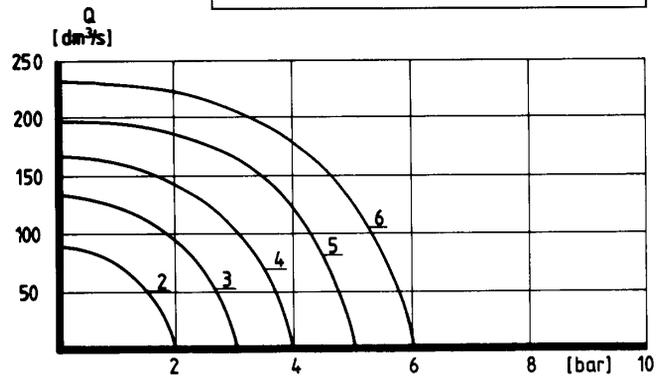
**ISO 2, Series 5112**  
on sub-base 7523-S

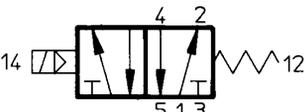
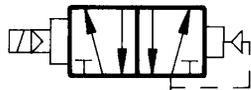
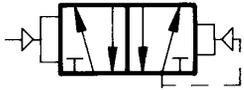
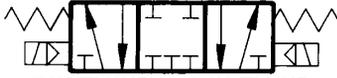
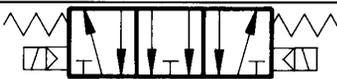
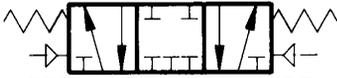
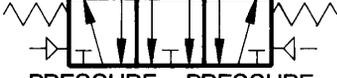


**ISO 3, Series 5113**  
on sub-base 7534-S



**ISO 4, Series 5114**  
on sub-base 7546-S

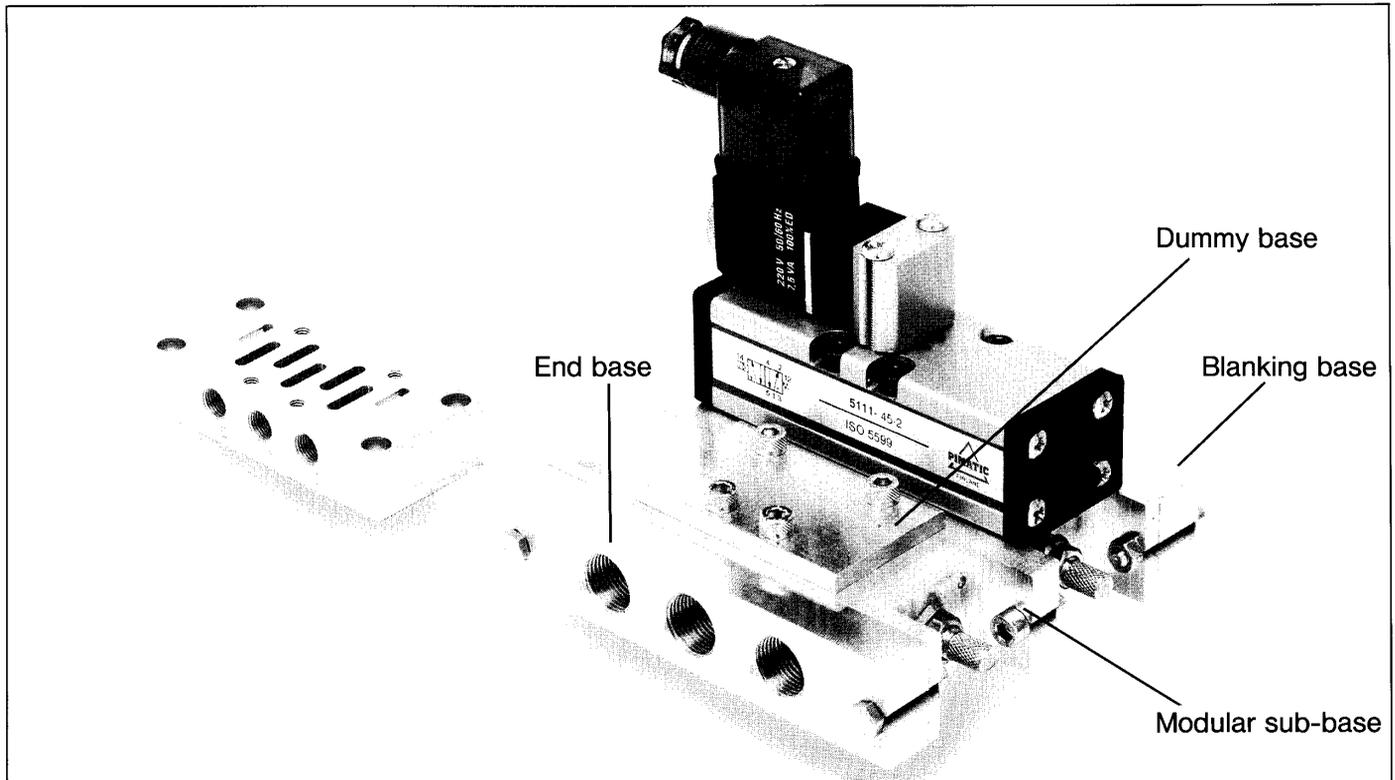


SYMBOL AND ACTUATION	SIZE	ORDER NO.	PILOT PRESSURE	RESPONSE TIME in/out	WEIGHT
 SOLENOID - SPRING	ISO 1 ISO 2 ISO 3 ISO 4	5111-45-2F-* 5112-45-2F-* 5113-45-2B-* 5114-45-2B-*	3-10 bar 2,5-10 bar 2,5-10 bar 2,5-10 bar	16/52 ms 22/90 ms 31/180 ms 45/105 ms	390 g 630 g 1160 g 1880 g
 SOLENOID - SOLENOID	ISO 1 ISO 2 ISO 3 ISO 4	5111-44-2F-* 5112-44-2F-* 5113-44-2B-* 5114-44-2B-*	2-10 bar 2-10 bar 2-10 bar 2-10 bar	14 ms 16 ms 23 ms 31 ms	470 g 700 g 1260 g 2050 g
 SOLENOID - PRESSURE	ISO 1 ISO 2 ISO 3 ISO 4	5111-42-2F-* 5112-42-2F-* 5113-42-2B-* 5114-42-2B-*	2-10 bar 2-10 bar 2-10 bar 2-10 bar	14 ms 16 ms 23 ms 31 ms	380 g 610 g 1180 g 1890 g
 PRESSURE - SPRING	ISO 1 ISO 2 ISO 3 ISO 4	5111-25-2 5112-25-2 5113-25-2 5114-25-2	3-10 bar 2,5-10 bar 2,5-10 bar 2,5-10 bar		290 g 520 g 1050 g 1560 g
 PRESSURE - PRESSURE	ISO 1 ISO 2 ISO 3 ISO 4	5111-22-2 5112-22-2 5113-22-2 5114-22-2	1,5-10 bar 1,5-10 bar 1,5-10 bar 1,5-10 bar		280 g 520 g 1070 g 1570 g
 SOLENOID - AIR RETURN	ISO 1 ISO 2 ISO 3 ISO 4	5111-41-2F-* 5112-41-2F-* 5113-41-2B-* 5114-41-2B-*	$\geq$ operating pressure	25/35 ms 30/60 ms 45/135 ms 60/90 ms	380 g 620 g 1140 g 1850 g
 PRESSURE - AIR RETURN	ISO 1 ISO 2 ISO 3 ISO 4	5111-21-2 5112-21-2 5113-21-2 5114-21-2	$\geq$ operating pressure		280 g 510 g 1030 g 1530 g
 SOLENOID - SOLENOID spring biased to centre position, N/C	ISO 2 ISO 3 ISO 4	5112-454-2F-* 5113-454-2B-* 5114-454-2B-*	2,5-10 bar 2,5-10 bar 2,5-10 bar	22/90 ms 31/180 ms 45/105 ms	690 g 1240 g 2080 g
 SOLENOID - SOLENOID spring biased to centre position, N/O	ISO 2 ISO 3 ISO 4	5112-454-2-AF-* 5113-454-2-AB-* 5114-454-2-AB-*	2,5-10 bar 2,5-10 bar 2,5-10 bar	22/90 ms 31/180 ms 45/105 ms	690 g 1240 g 2080 g
 PRESSURE - PRESSURE spring biased to centre position, N/C	ISO 2 ISO 3 ISO 4	5112-252-2 5113-252-2 5114-252-2	2,5-10 bar 2,5-10 bar 2,5-10 bar		500 g 1080 g 1600 g
 PRESSURE - PRESSURE spring biased to centre position, N/O	ISO 2 ISO 3 ISO 4	5112-252-2-A 5113-252-2-A 5114-252-2-A	2,5-10 bar 2,5-10 bar 2,5-10 bar		500 g 1080 g 1600 g

\*The coil voltage is to be added to the order No., e.g. 5112-45-2F-24 V DC.

Solenoid operated valves can be controlled by internal or external pilot pressure. When using internal pilot

pressure, inlet pressure must be higher than minimum pilot pressure given above.



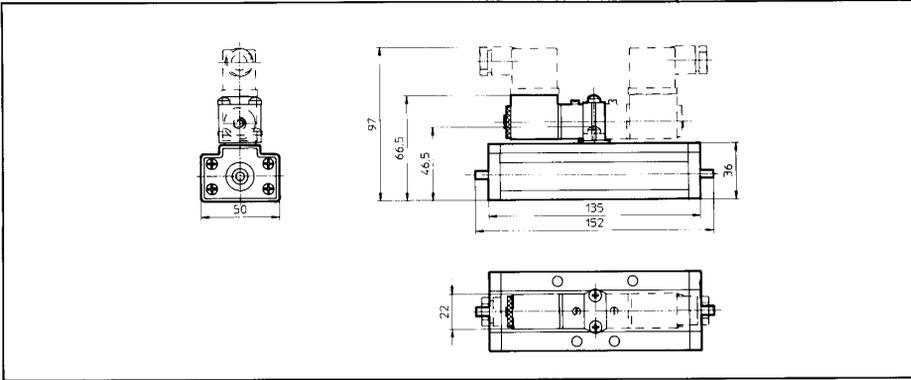
SIZE	DESCRIPTION	ORDER NO.	CONNECTIONS size - location	DIMENSIONS b x l x s	WEIGHT
ISO 1 Series 5111	Single sub-base	<b>7511-S</b>	G1/8" - side	40x90x20	160 g
	Single sub-base	<b>7512-S</b>	G1/4" - side	45x110x29	240 g
	Single sub-base	<b>7512-P</b>	G1/4" - bottom	45x110x25	220 g
	Modular sub-base	<b>7512-R</b>	G1/4" - bottom	43x123x28	280 g
	End base	<b>7513-RB</b>	G3/8" - side	15x123x28	100 g
	Blanking base	<b>751-RC</b>	-	15x123x28	100 g
	Manifold sub-base Dummy base	<b>7512-RL-n</b> <b>7921</b>	G3/8"/G1/4"	93x(30+n x 43)x28	40 g
ISO 2 Series 5112	Single sub-base	<b>7522-S</b>	G1/4" - side	56x107x25	470 g
	Single sub-base	<b>7523-S</b>	G3/8" - side	56x120x32	420 g
	Single sub-base	<b>7523-P</b>	G3/8" - bottom	56x120x32	420 g
	Modular sub-base	<b>7523-R</b>	G3/8" - bottom	56x150x30	450 g
	End base	<b>7524-RB</b>	G1/2" - side	20x150x30	170 g
	Blanking base	<b>752-RC</b>	-	20x150x30	170 g
	Manifold sub-base Dummy base	<b>7523-RL-n</b> <b>7922</b>	G1/2"/G3/8"	120x(40+n x 56)x30	90 g
ISO 3 Series 5113	Single sub-base	<b>7534-S</b>	G1/2" - side	65x150x32	650 g
	Single sub-base	<b>7534-P</b>	G1/2" - bottom	65x150x32	670 g
	Modular sub-base	<b>7534-R</b>	G1/2" - bottom	66,5x180x32	680 g
	End base	<b>7536-RB</b>	G3/4" - side	32x180x32	370 g
	Blanking base Dummy base	<b>753-RC</b> <b>7923</b>	-	16x180x32	240 g 120 g
ISO 4 Series 5114	Single sub-base	<b>7546-S</b>	G3/4" - side	85 x 186 x 40	1600 g
	Modular sub-base	<b>7546-R</b>	G3/4" - bottom	80 x 210 x 50	1520 g
	End base 1	<b>7548-RB</b>	G1" - side	25 x 210 x 50	500 g
	End base 2	<b>7548-RBS</b>	G1" - bottom or up	50 x 210 x 50	1000 g
	Blanking base	<b>754-RC</b>	-	25 x 210 x 50	700 g

Bases are made of aluminium. Modular and manifold sub-bases are equipped with adjustable exhaust

choke. Manifold bases for 4, 6 or 8 valves.

b x l x s = breadth x length x depth  
n = number of valves

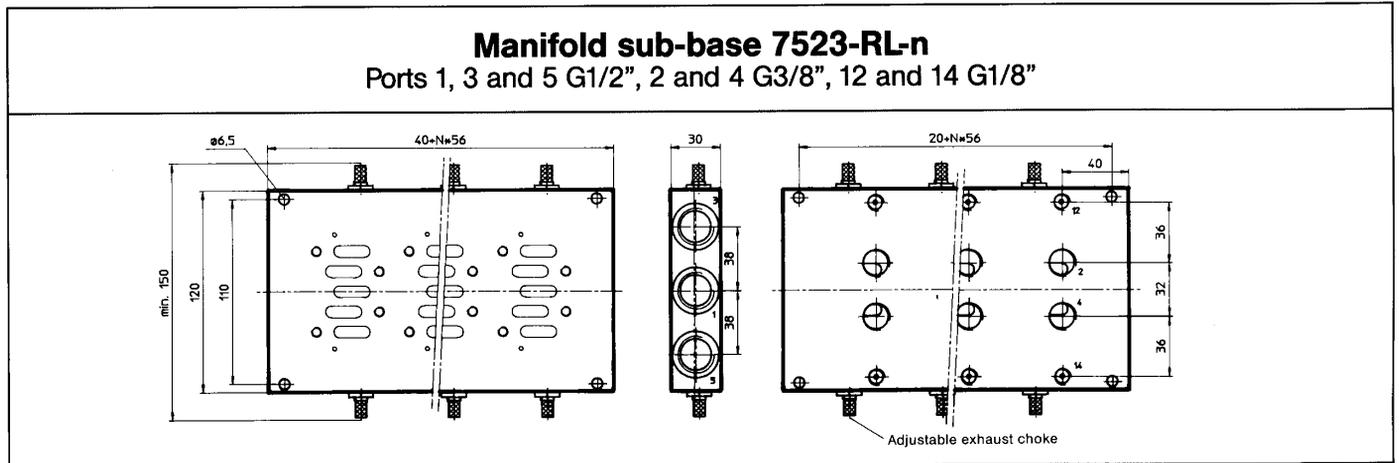
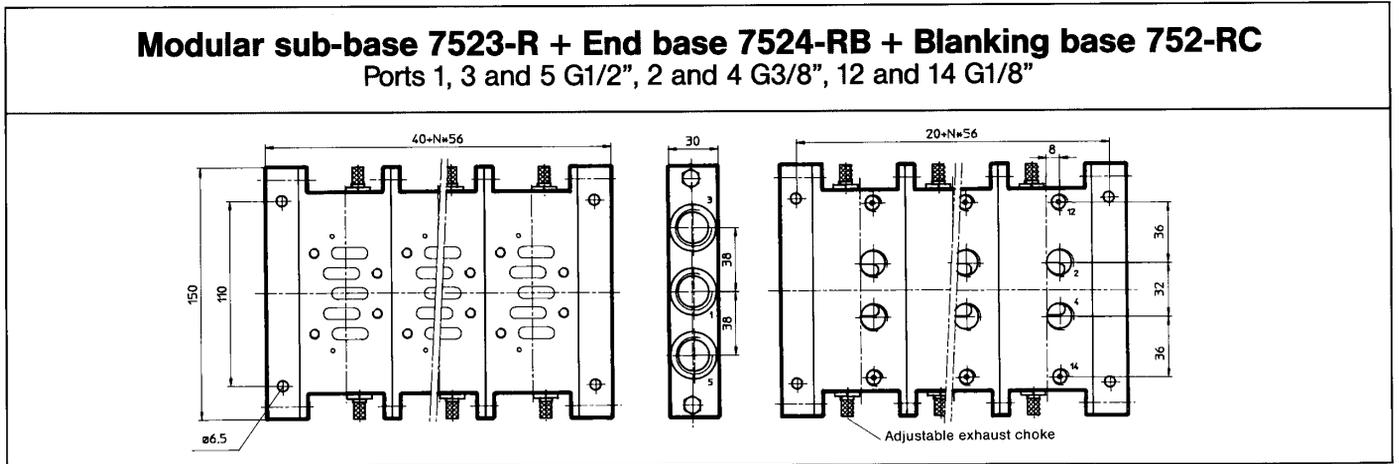
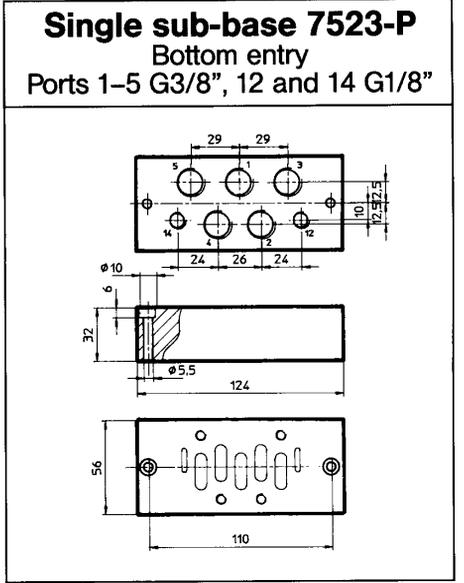
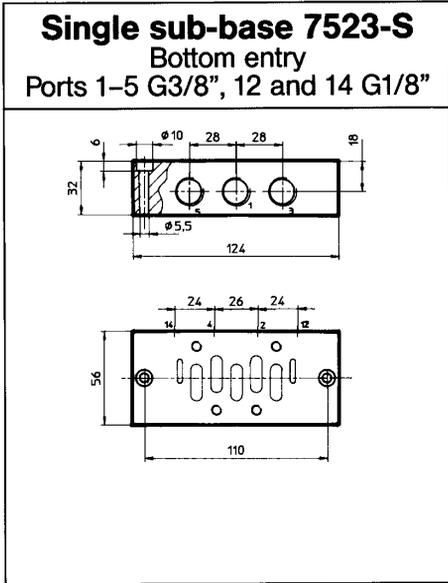
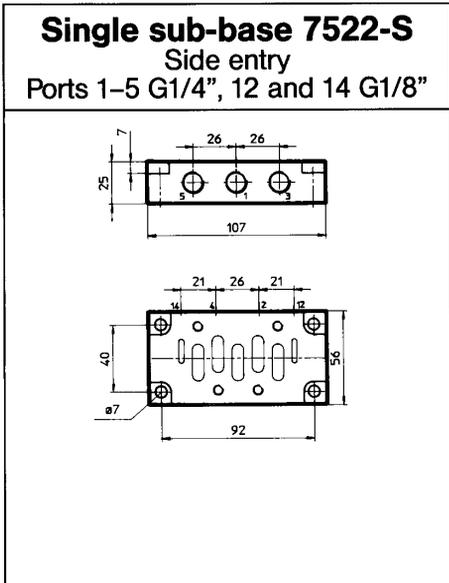


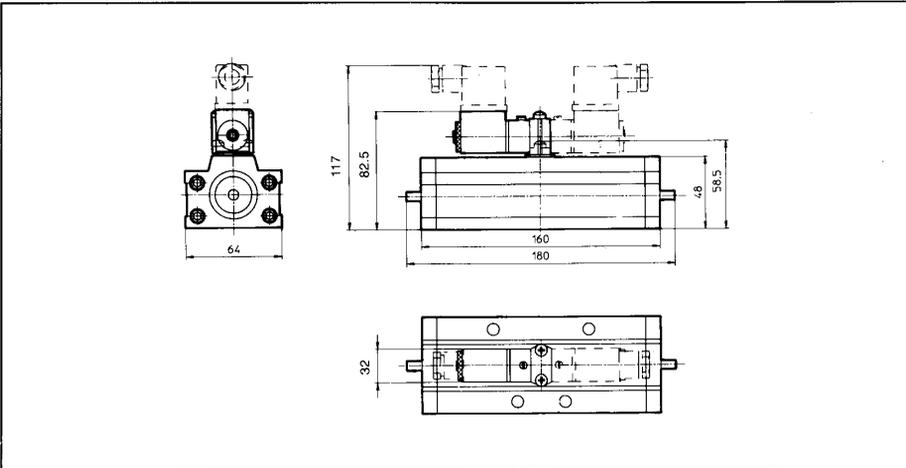


Valve series 5112 is modular – actuation can be changed.

- solenoid-spring (in figure)
- solenoid-pressure (in figure)
- solenoid-solenoid (broken line in figure)
- pressure-spring (dummy base instead of control unit)
- pressure-pressure (dummy base instead of control unit)

Plug-in socket to DIN 43650/B fits the coil.

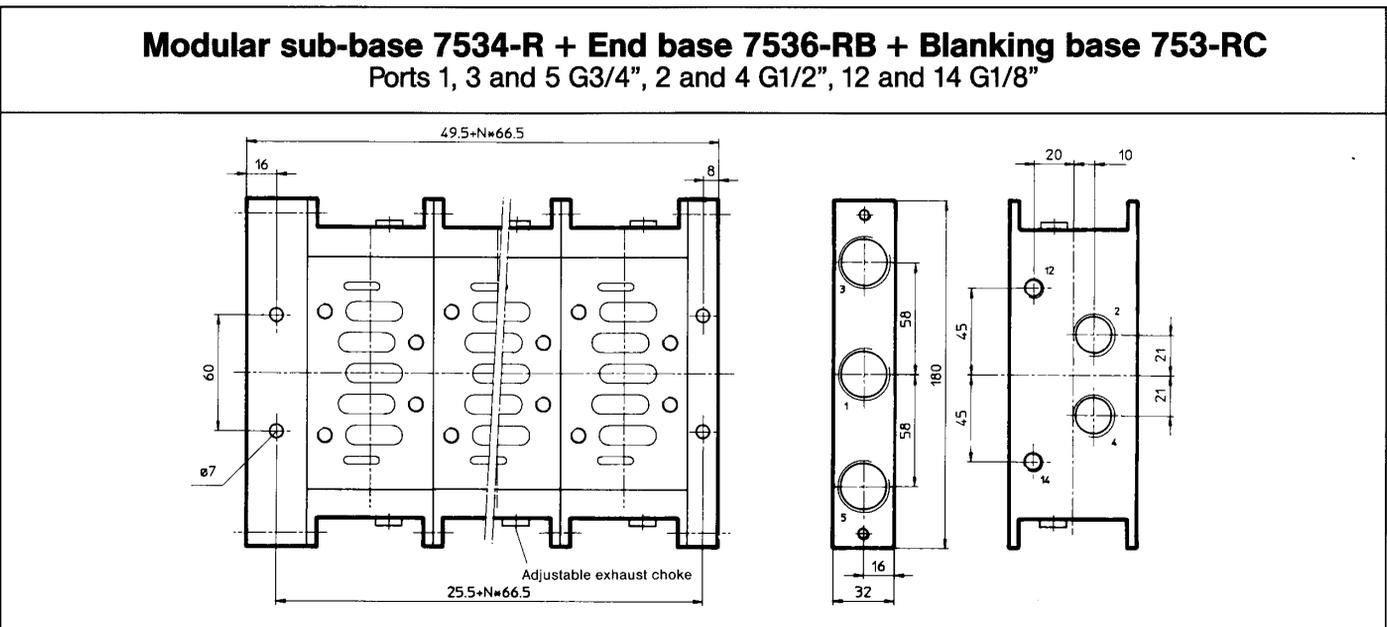
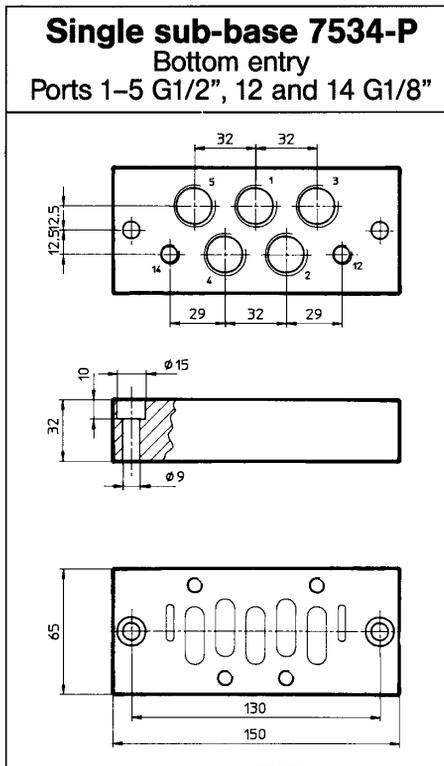
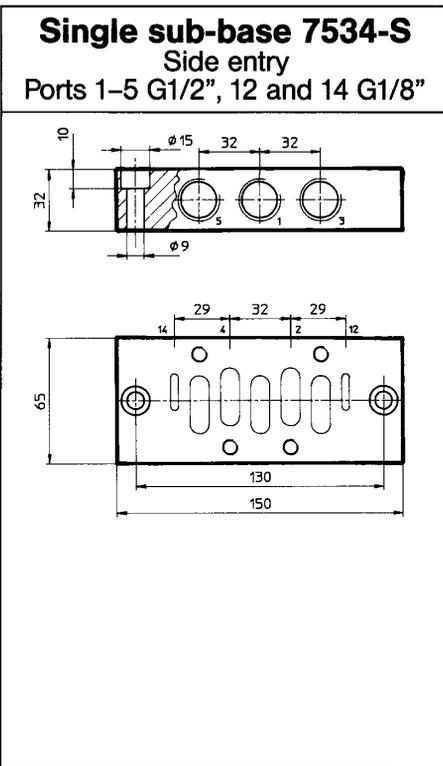


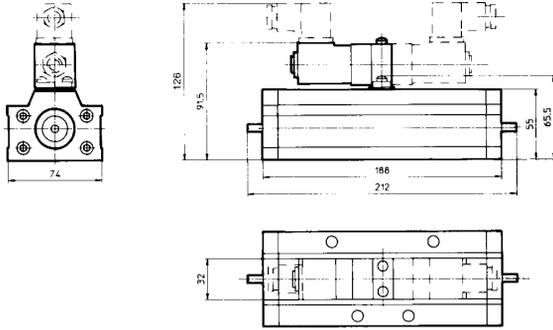


Valve series 5113 is modular – actuation can be changed.

- solenoid-spring (in figure)
- solenoid-pressure (in figure)
- solenoid-solenoid (broken line in figure)
- pressure-spring (dummy base instead of control unit)
- pressure-pressure (dummy base instead on control unit)

Plug-in socket to DIN 43650/B fits the coil.



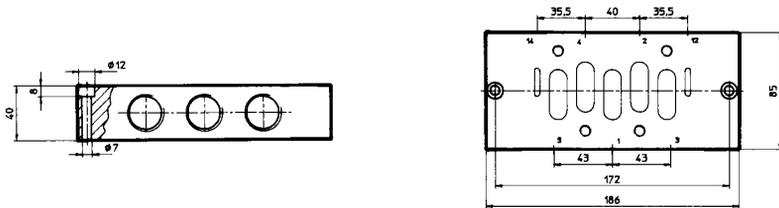


Valve series 5114 is modular – actuation can be changed.

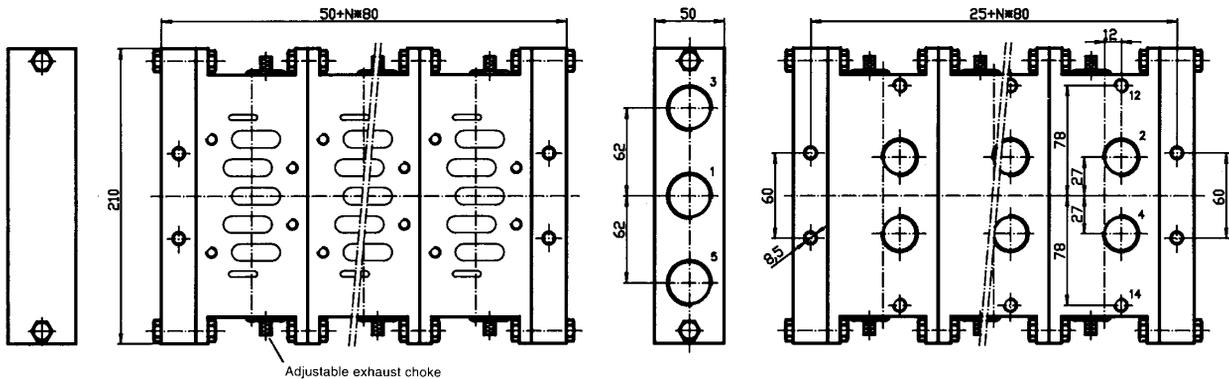
- solenoid-spring (in figure)
- solenoid-pressure (in figure)
- solenoid-solenoid (broken line in figure)
- pressure-spring (dummy base instead of control unit)
- pressure-pressure (dummy base instead of control unit)

Plug-in socket to DIN 43650/A fits coil.

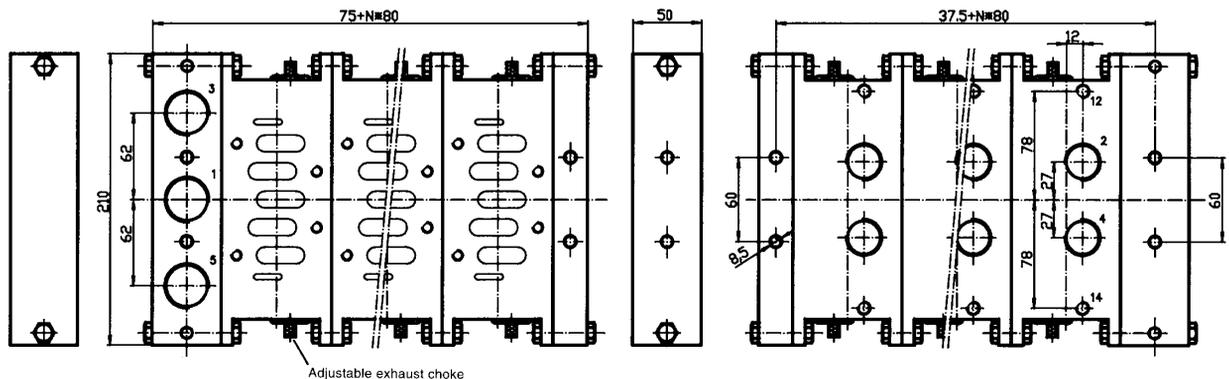
**Single sub-base 7546-S**  
Side entry  
Ports 1-5 G3/4", 12 and 14 G1/8"

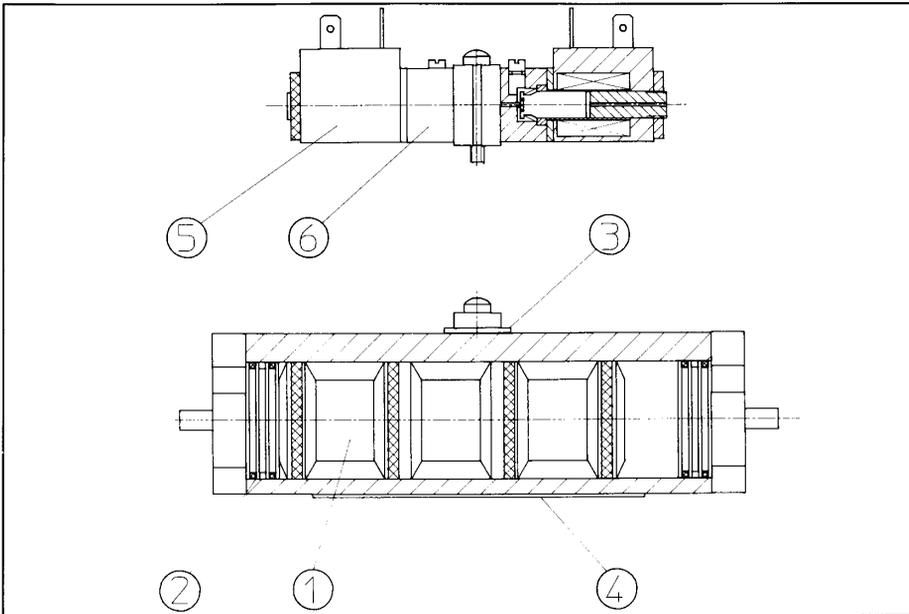


**Modular sub-base 7546-R + End base 7548-RB + Blanking base 754-RC**  
Ports 1, 3 and 5 G1", 2 and 4 G3/4", 12 and 14 G1/8"



**Modular sub-base 7546-R + End base 7548-RBS + Blanking base 754-RC**  
Ports 1,3 and 5 G1", 2 and 4 G3/4", 12 and 14 G1/8"





Following repair kits and electrical spares are available:

### Repair kits:

Contents of repair kit:

1. Spool with seals (also spring, if spring-return)
2. O-rings for sealing of end caps
3. Seal between control unit and housing
4. Seal for sub-base

### Electrical spares:

5. Solenoid assembly
6. Pilot valve

Other spare parts as per agreement.

VALVE SIZE AND TYPE	OPERATION /RETURN	ORDER NO. OF REPAIR KIT	ORDER NO. OF SOLENOID ASSEMBLY	ORDER NO. OF PILOT VALVE
ISO 1 5111	5/2 spring return	5111-25/-45-2	FAS-*	344-35F-*
5111	5/2 solenoid both ways	5111-22/-44/-42-2	FAS-*	344-35F-*
5111	5/2 air spring return	5111-21/-41-2	FAS-*	344-35F-*
ISO 2 5112	5/2 spring return	5112-25/-45-2	FAS-*	344-35F-*
5112	5/2 solenoid both ways	5112-22/-44/-42-2	FAS-*	344-35F-*
5112	5/2 air spring return	5112-21/-41-2	FAS-*	344-35F-*
5112	5/3 spring centring, N/C	5112-252/-454-2	FAS-*	344-35F-*
5112	5/3 spring centring, N/O	5112-252/-454-2-A	FAS-*	344-35F-*
ISO 3 5113	5/2 spring return	5113-25/-45-2	85-*	85301-105-*
5113	5/2 solenoid both ways	5113-22/-44/-42-2	85-*	85301-105-*
5113	5/2 air spring return	5113-21/-41-2	85-*	85301-105-*
5113	5/3 spring centring, N/C	5113-252/-454-2	85-*	85301-105-*
5113	5/3 spring centring, N/O	5113-252/-454-2-A	85-*	85301-105-*
ISO 4 5114	5/2 spring return	5114-25/-45-2	85-*	85301-105-*
5114	5/2 solenoid both ways	5114-22/-44/-42-2	85-*	85301-105-*
5114	5/2 air spring return	5114-21/-41-2	85-*	85301-105-*
5114	5/3 spring centring, N/C	5114-252/-454-2	85-*	85301-105-*
5114	5/3 spring centring, N/O	5114-252/-454-2-A	85-	85301-105-*

Add coil voltage to the Order No. of solenoid assembly, e.g. FAS-220/50

Add coil power to the Order No. of pilot valve, e.g. 344-35F-5 W.