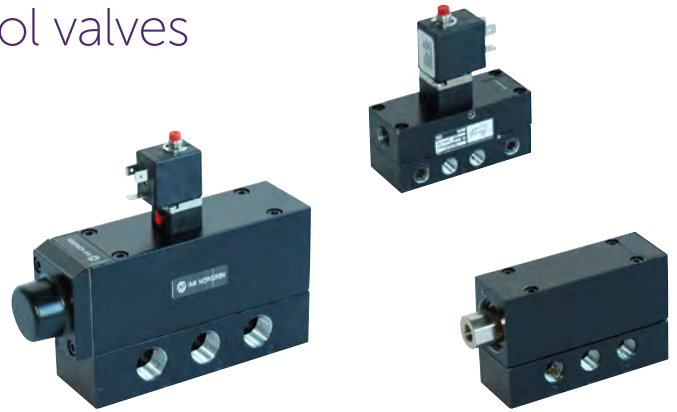


M/1700; 5/2 & 5/3 Solenoid and pilot actuated spool valves

- Port size: G1/8 ... G1
Sub-base mounted
- Rugged, well proven range of valves
- Simple to service
- Ideal for control of large cylinders
- Ideally suited to heavy duty applications in harsh environments
- G1 port size - with integral high flow silencer



Technical features

Medium:

Compressed air, filtered, lubricated or non-lubricated

Operation:

Spool valves, solenoid pilot or air pilot actuated

Mounting:

On sub-bases

Port sizes:

G1/8, G1/4, G1/2 or G1

Maximum operating pressure:

Solenoid pilot actuated valves
2 ... 10 bar (29 ...145 psi)
2,7 ... 10 bar (39 ...145 psi) or
3 ... 10 bar (43 ...145 psi)
depending on solenoid pilot operator
Air pilot operated valves:
2 ... 10 (29 ...145 psi)
Refer to technical specification table for details

Ambient/Media temperature:

Solenoid pilot actuated valves
+5 ... +50°C (+41 ... +122°F)
Air pilot actuated valves
-20 ... +80°C (-4 ... +176°F)
Air supply must be dry enough to avoid ice formation at temperatures below +2°C (+35°F).

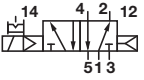
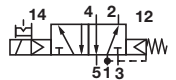
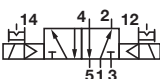
Materials:

M/1761..., M/1764...
Body and sub-base: Die-cast zinc alloy
Spool: Aluminium
Centering mechanism: Steel or plastic
Seals: NBR
M/1748
Body and sub-base: Die-cast Aluminium
Bush: Brass
Spool: and end caps: Light alloy
Cushion discs: PU
Seals: NBR

Electrical details for solenoid operators

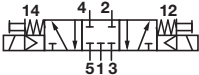
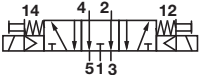
Voltage tolerance	± 10%
Rating	100% continuous duty
Inlet orifice	1,0 mm (low power) 1,6 mm (high power)
Electrical connection (corresponding to choosen coil)	Industrial Standard, 22 mm
Solenoid coil mounting	Four positions x 90°
Manual override	Push and turn to lock (plastic)
Protection class	IP 65 (with sealed plug)

5/2 Solenoid pilot actuated valves

Symbol	Port size	Actuation	Pilot supply	Flow (l/min)	Operating pressure (bar)	Power *1)	Voltage	Weight (kg)	Drawing No.	Model
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	Low	24 V d.c.	0,59	1	M/1761/152/MA13J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	Low	110 V a.c.	0,59	1	M/1761/152/MA18J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	Low	240 V a.c.	0,59	1	M/1761/152/MA19J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	Low	Without coil		1	QM/1761/152/MA/11
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	High	24 V d.c.	0,59	1	M/1761/152/MD83J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	High	110 V a.c.	0,59	1	M/1761/152/MD88J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	High	240 V a.c.	0,59	1	M/1761/152/MD89J
	G1/8	Solenoid/air spring	Internal	240	2 ... 10	High	Without coil		1	QM/1761/152/MD/11
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	Low	24 V d.c.	1,07	3	M/1762/152/MA13J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	Low	110 V a.c.	1,07	3	M/1762/152/MA18J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	Low	240 V a.c.	1,07	3	M/1762/152/MA19J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	Low	Without coil		3	QM/1762/152/MA/11
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	High	24 V d.c.	1,07	3	M/1762/152/MD83J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	High	110 V a.c.	1,07	3	M/1762/152/MD88J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	High	240 V a.c.	1,07	3	M/1762/152/MD89J
	G1/4	Solenoid/air spring	Internal	1290	2,7 ... 10	High	Without coil		3	QM/1762/152/MD/11
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	Low	24 V d.c.	2,42	5	M/1764/152/MA13J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	Low	110 V a.c.	2,42	5	M/1764/152/MA18J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	Low	240 V a.c.	2,42	5	M/1764/152/MA19J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	Low	Without coil		5	QM/1764/152/MA/11
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	High	24 V d.c.	2,42	5	M/1764/152/MD83J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	High	110 V a.c.	2,42	5	M/1764/152/MD88J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	High	240 V a.c.	2,42	5	M/1764/152/MD89J
	G1/2	Solenoid/air spring	Internal	3200	2,7 ... 10	High	Without coil		5	QM/1764/152/MD/11
	G1	Solenoid/air and spring	Internal	9380	2,7 ... 10	High	24 V d.c.	6,25	7	M/1748/172/MD83J
	G1	Solenoid/air and spring	Internal	9380	2,7 ... 10	High	110 V a.c.	6,25	7	M/1748/172/MD88J
	G1	Solenoid/air and spring	Internal	9380	2,7 ... 10	High	240 V a.c.	6,25	7	M/1748/172/MD89J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	Low	24 V d.c.	0,71	2	M/1761/123/MA13J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	Low	110 V a.c.	0,71	2	M/1761/123/MA18J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	Low	240 V a.c.	0,71	2	M/1761/123/MA19J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	Low	Without coil		2	QM/1761/123/MA/11
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	High	24 V d.c.	0,71	2	M/1761/123/MD83J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	High	110 V a.c.	0,71	2	M/1761/123/MD88J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	High	240 V a.c.	0,71	2	M/1761/123/MD89J
	G1/8	Solenoid/solenoid	Internal	240	2 ... 10	High	Without coil		2	QM/1761/123/MD/11
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	Low	24 V d.c.	1,18	4	M/1762/123/MA13J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	Low	110 V a.c.	1,18	4	M/1762/123/MA18J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	Low	240 V a.c.	1,18	4	M/1762/123/MA19J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	Low	Without coil		4	QM/1762/123/MA/11
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	High	24 V d.c.	1,18	4	M/1762/123/MD83J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	High	110 V a.c.	1,18	4	M/1762/123/MD88J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	High	240 V a.c.	1,18	4	M/1762/123/MD89J
	G1/4	Solenoid/solenoid	Internal	1290	2 ... 10	High	Without coil		4	QM/1762/123/MD/11
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	Low	24 V d.c.	2,54	6	M/1764/123/MA13J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	Low	110 V a.c.	2,54	6	M/1764/123/MA18J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	Low	240 V a.c.	2,54	6	M/1764/123/MA19J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	Low	Without coil		6	QM/1764/123/MA/11
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	High	24 V d.c.	2,54	6	M/1764/123/MD83J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	High	110 V a.c.	2,54	6	M/1764/123/MD88J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	High	240 V a.c.	2,54	6	M/1764/123/MD89J
	G1/2	Solenoid/solenoid	Internal	3200	2 ... 10	High	Without coil		6	QM/1764/123/MD/11
	G1	Solenoid/solenoid	Internal	9380	2 ... 10	High	24 V d.c.	6,50	8	M/1748/123/MD83J
	G1	Solenoid/solenoid	Internal	9380	2 ... 10	High	110 V a.c.	6,50	8	M/1748/123/MD88J
	G1	Solenoid/solenoid	Internal	9380	2 ... 10	High	240 V a.c.	6,50	8	M/1748/123/MD89J

*1) Power see table on page 3

5/3 Solenoid pilot actuated valves

Symbol	Port size	Actuation	Function	Pilot supply	Flow (l/min)	Operating pressure (bar)	Power *1)	Voltage	Weight (kg)	Drawing No.	Model
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	Low	24 V d.c.	1,21	4	M/1762/6123/MA13J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	Low	110 V a.c.	1,21	4	M/1762/6123/MA18J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	Low	240 V a.c.	1,21	4	M/1762/6123/MA19J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	Low	Without coil		4	QM/1762/6123/MA/11
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	High	24 V d.c.	1,21	4	M/1762/6123/MD83J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	High	110 V a.c.	1,21	4	M/1762/6123/MD88J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	High	240 V a.c.	1,21	4	M/1762/6123/MD89J
	G1/4	Solenoid/solenoid	APB	Internal	1290	2,7 ... 10	High	Without coil		4	QM/1762/6123/MD/11
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	Low	24 V d.c.	2,54	6	M/1764/6123/MA13J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	Low	110 V a.c.	2,54	6	M/1764/6123/MA18J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	Low	240 V a.c.	2,54	6	M/1764/6123/MA19J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	Low	Without coil		6	QM/1764/6123/MA/11
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	High	24 V d.c.	2,54	6	M/1764/6123/MD83J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	High	110 V a.c.	2,54	6	M/1764/6123/MD88J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	High	240 V a.c.	2,54	6	M/1764/6123/MD89J
	G1/2	Solenoid/solenoid	APB	Internal	3200	2,7 ... 10	High	Without coil		6	QM/1764/6123/MD/11
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	Low	24 V d.c.	1,21	4	M/1772/6123/MA13J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	Low	110 V a.c.	1,21	4	M/1772/6123/MA18J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	Low	240 V a.c.	1,21	4	M/1772/6123/MA19J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	Low	Without coil	1,21	4	QM/1772/6123/MA11
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	High	24 V d.c.	1,21	4	M/1772/6123/MD83J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	High	110 V a.c.	1,21	4	M/1772/6123/MD88J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	High	240 V a.c.	1,21	4	M/1772/6123/MD89J
	G1/4	Solenoid/solenoid	COE	Internal	1290	3 ... 10	High	Without coil	1,21	4	QM/1772/6123/MD11
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	Low	24 V d.c.	2,54	6	M/1774/6123/MA13J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	Low	110 V a.c.	2,54	6	M/1774/6123/MA18J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	Low	240 V a.c.	2,54	6	M/1774/6123/MA19J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	Low	Without coil		6	QM/1774/6123/MA11
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	High	24 V d.c.	2,54	6	M/1774/6123/MD83J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	High	110 V a.c.	2,54	6	M/1774/6123/MD88J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	High	240 V a.c.	2,54	6	M/1774/6123/MD89J
	G1/2	Solenoid/solenoid	COE	Internal	3200	2,7 ... 10	High	Without coil		6	QM/1774/6123/MD11

*1) Power see table below

Spare coils and alternative voltages

22 mm coil - 1,0 mm orifice (low power)
for connector interface acc. to industrial standard

	Voltage	Power Inrush/Hold	Model
	12 V d.c.	2 W	QM/48/12J/21
	24 V d.c.	2 W	QM/48/13J/21
	24 V a.c.	4/2,5 VA	QM/48/14J/21
	110/120 V 50/60 Hz	4/2,5 VA	QM/48/18J/21
	220/240 V 50/60 Hz	6/5 VA	QM/48/19J/21

22 mm coil - 1,6 mm orifice (high power)
for connector interface acc. to industrial standard

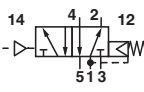
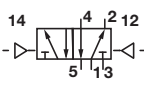
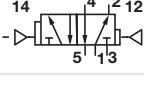
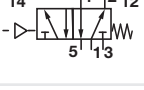
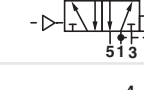
	Voltage	Power Inrush/Hold	Model
	12 V d.c.	7,5 W	QM/48/82J/21
	24 V d.c.	6 W	QM/48/83J/21
	24 V a.c.	12/8 VA	QM/48/84J/21
	110/120 V 50/60 Hz	12/8 VA	QM/48/88J/21
	220/240 V 50/60 Hz	12/8 VA	QM/48/89J/21

Connector plugs - ordered separately

Industrial standard 22 mm
2-pole + PE



5/2 air pilot actuated valves

Symbol	Port size	Actuation	Flow (l/min)	Operating pressure (bar)	Pilot pressure (bar)	Weight (kg)	Drawing No.	Model
	G1/8	Air operated/ air spring return (internal)	240	2 ... 10	0,7 + (0,6 x supply pressure)	0,46	9	M/1701/2
	G1/4	Air operated/ air spring return (internal)	1290	2 ... 10	0,7 + (0,75 x supply pressure)	0,95	11	M/1702/2
	G1/2	Air operated/ air spring return (internal)	3200	2 ... 10	0,6 + (0,7 x supply pressure)	2,50	13	M/1704/2
	G1/8	Air operated/ air spring return (internal)	240	2 ... 10	2 + (0,25 x supply pressure)	0,46	10	M/1701/3
	G1/4	Air operated/ air spring return (internal)	1290	2 ... 10	1,2 + (0,2 x supply pressure)	0,84	12	M/1702/3
	G1/2	Air/air	3200	2 ... 10	2 + (0,15 x supply pressure)	2,24	14	M/1704/3
	G1	Air/air		2 ... 10	0,7 + (0,1 x supply pressure)	6,00	16	M/1718/3
	G1/8	Priority air/air	240	2 ... 10	*1)	0,46	10	M/1701/33
	G1/4	Priority air/air	1290	2 ... 10	*2)	0,99	11	M/1702/33
	G1/2	Priority air/air	3200	2 ... 10	*3)	2,50	15	M/1704/33
	G1/4	Air/spring	1290	2 ... 10	2,5 + (0,05 x supply pressure) *4)	1,00	11	M/1702/40
	G1/2	Air/spring	3200	2 ... 10	2,5 + (0,15 x supply pressure) *4)	2,35	14	M/1704/40
	G1	Air/air spring	9380	2 ... 10	1 + (0,6 x supply pressure)	6,00	16	M/1718/45
	G1/4	Air/single impulse	1290	2 ... 10	0,66 x supply pressure (≥ 2 bar) *5)	0,90	17	M/1787 *6)

*1) Large end '14' 0,8 + (0,10 x supply pressure) bar, '12' at zero; Small end '12' 2,0 + (0,25 x supply pressure) bar, '14' at zero

If air is permanently applied to '12' the pilot pressure to '14' is 0,7 + (0,6 x supply pressure) bar when '12' = supply

*2) Large end '14' 0,8 + (0,08 x supply pressure) bar, '12' at zero; Small end '12' 1,2 + (0,2 x supply pressure) bar, '14' at zero

If air is permanently applied to '12' the pilot pressure to '14' is 0,7 + (0,75 x supply pressure) bar when '12' = supply

*3) Large end '14' 0,5 + (0,08 x supply pressure) bar, '12' at zero; Small end '12' 1,0 + (0,15 x supply pressure) bar, '14' at zero

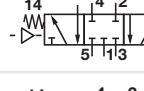
If air is permanently applied to '12' the pilot pressure to '14' is 0,6 + (0,7 x supply pressure) bar when '12' = supply

*4) M/1702/40 and M/1704/40 when used with dual supplies (i.e. main supply to both ports '3' and '5') the supply pressure range is 3 ... 7 bar.

This valve is not intended to be held in the operated condition for more than 24 hours. Where the operation involves delay in excess of 24 hours, please consult our Technical Service.

*5) Single pulse valve; signal time: ≥ 100 ms; pilot signal sequence: ≤ 200 ms. Application of a signal on reset port 81 ensures that the valve is in the 1 » 2 flow condition

5/3 air pilot actuated valves

Symbol	Port size	Actuation	Function	Flow (l/min)	Operating pressure (bar)	Pilot pressure (bar)	Weight (kg)	Drawing No.	Model
	G1/4	Air/air	APB	1290	2 ... 10	2,2 + (0,25 x supply pressure)	0,85	13	M/1702/63
	G1/2	Air/air	APB	3200	2 ... 10	2,2 + (0,25 x supply pressure)	2,28	14	M/1704/63
	G1/4	Air/air	COE	1290	2 ... 10	2,2 + (0,25 x supply pressure)	0,85	13	M/1712/63
	G1/2	Air/air	COE	3200	2 ... 10	2,2 + (0,25 x supply pressure)	2,28	14	M/1714/63

Seal kit

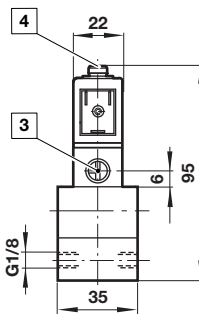
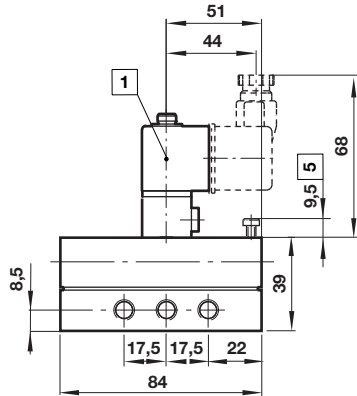
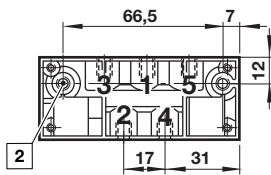
Valve series	Port size	Seal kit
M/1701/...; M/1761/...	G1/8	QM/1701/00
M/1702/...; M/1762/...; M/1772/...	G1/4	QM/1702/00
M/1787	G1/4	QM/1787/00
M/1704/...; M/1764/...; M/1774/...	G1/2	QM/1704/00
M/1718/...; M/1748/...	G1	QM/1718/00

Drawings

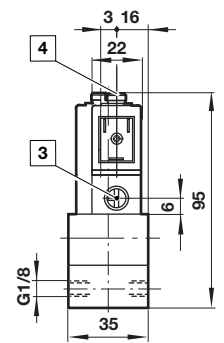
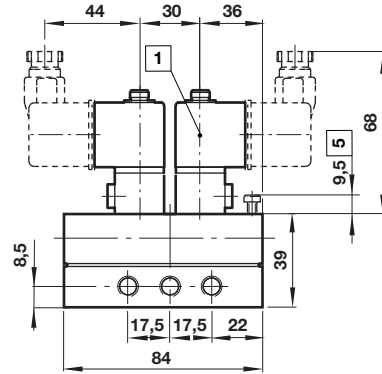
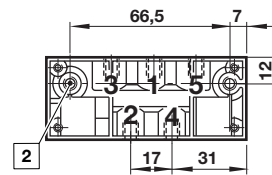
Dimensions in mm
Projection/First angle



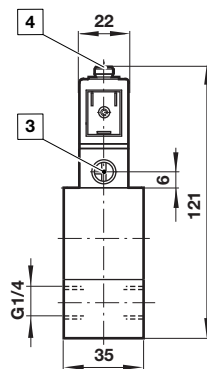
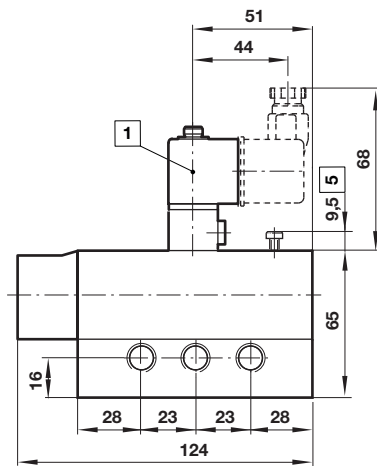
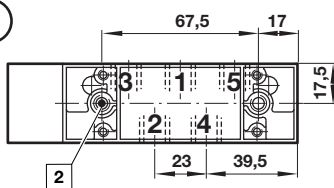
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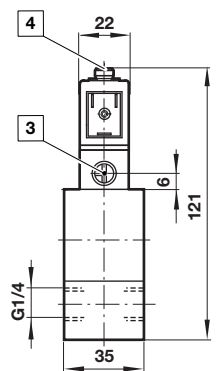
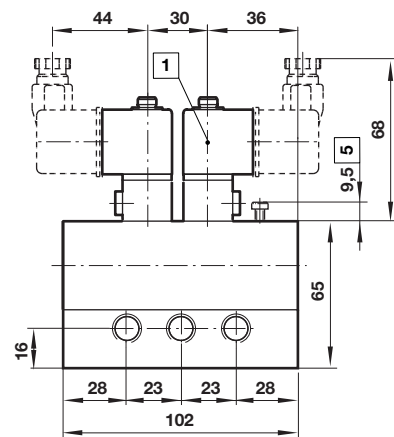
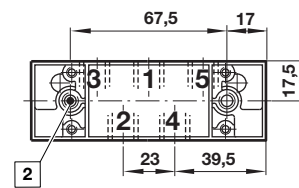
②



③

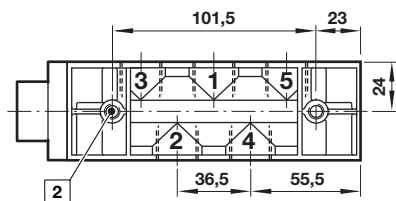


④

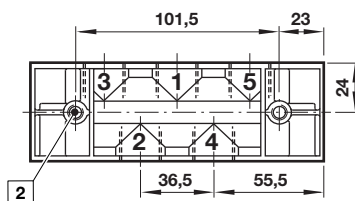


- ① Clockwise 90° turnable
- ② Mounting threads
M6 through sub-base (M/1761,
M1762)
- ③ Screwdriver manual override
- ④ Exhaust port (M5) with diffuser
- ⑤ Minimum

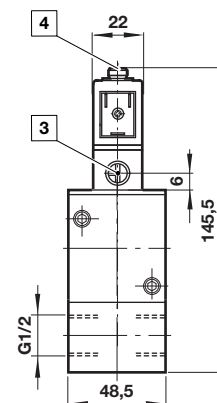
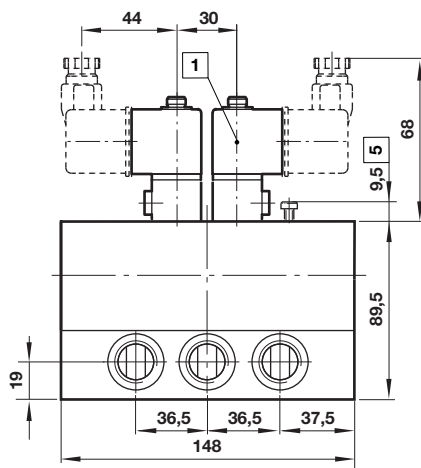
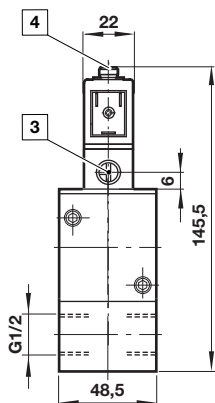
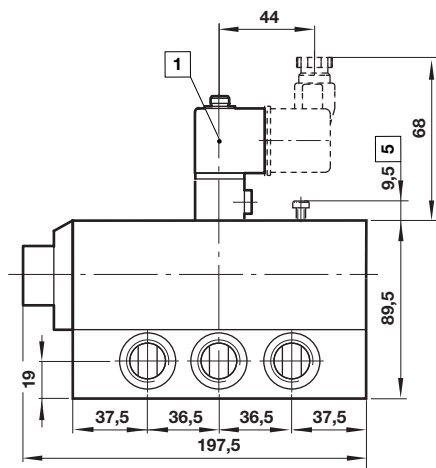
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6



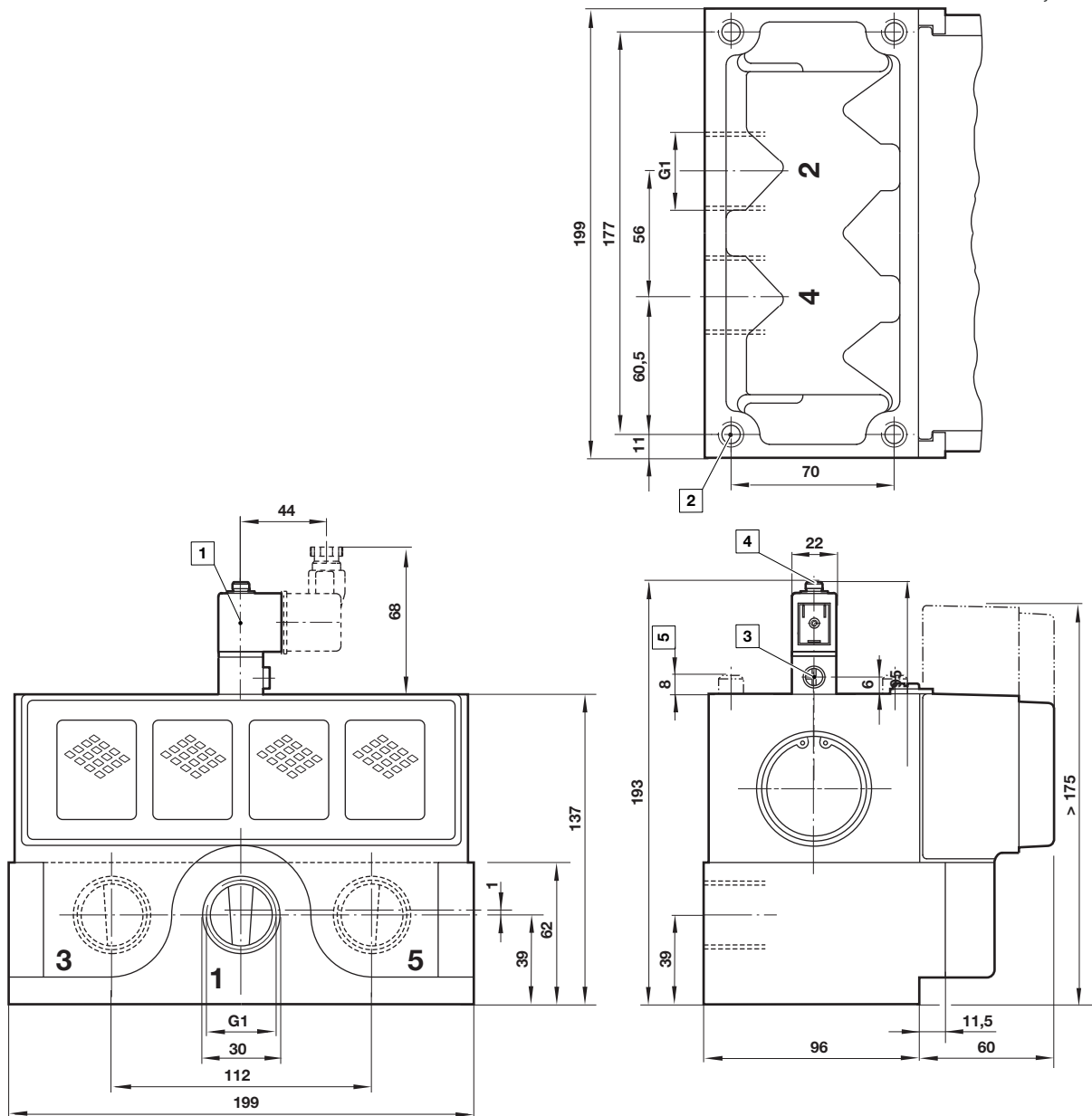
Dimensions in mm
Projection/First angle



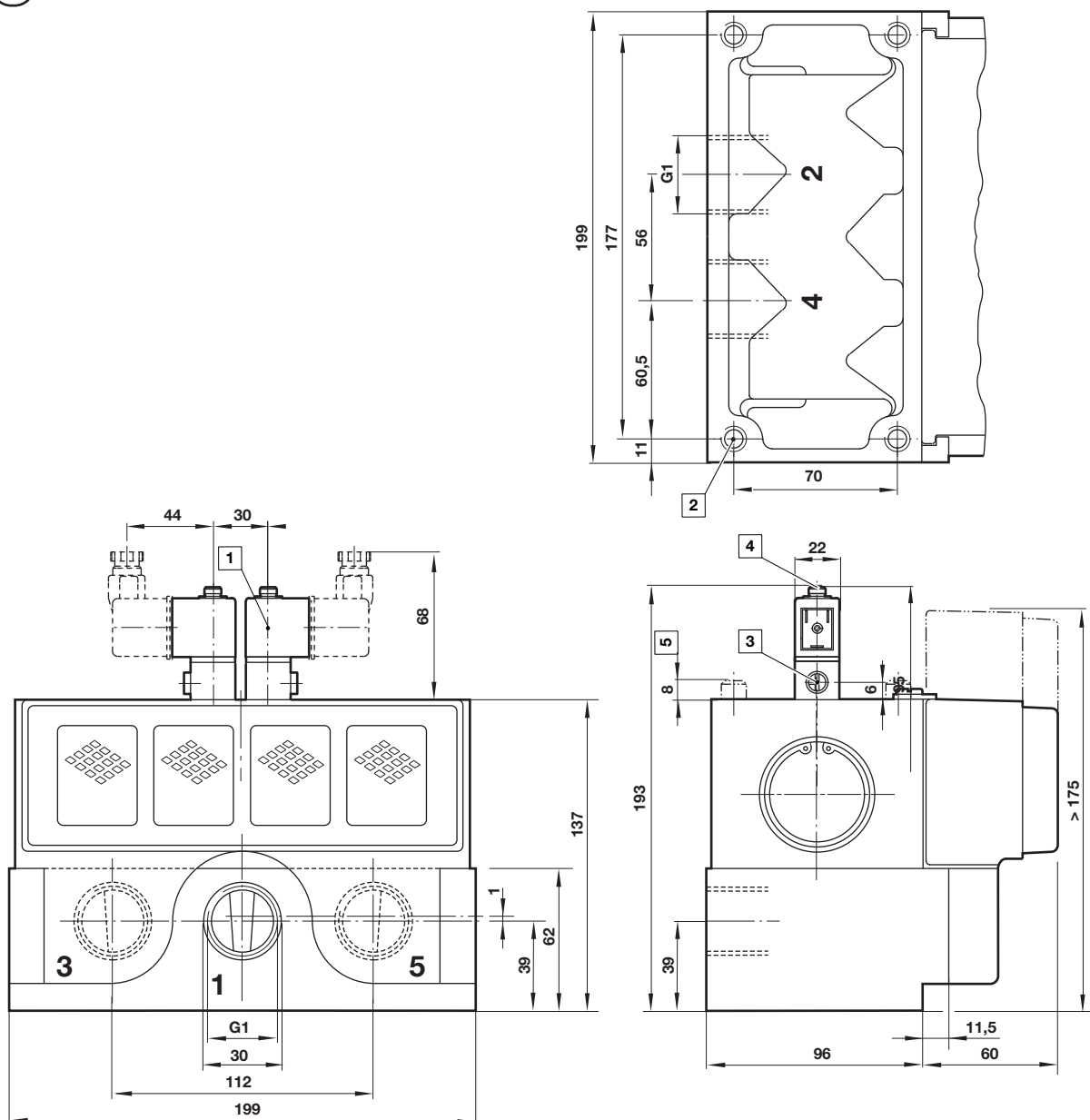
- 1 Clockwise 90° turnable
- 2 Mounting threads
M8 through sub-base (M/1764)
- 3 Screwdriver manual override
- 4 Exhaust port (M5) with diffuser
- 5 Minimum

7

Dimensions in mm
Projection/First angle

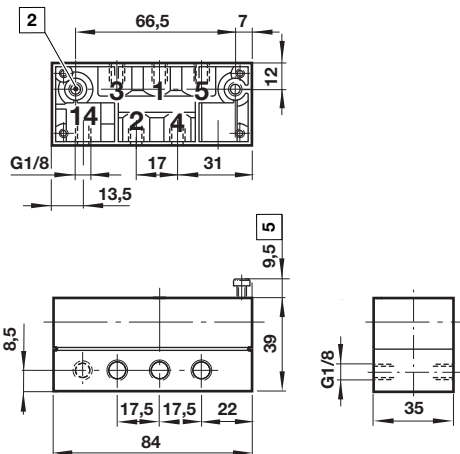


- 1 Clockwise 90° turnable
- 2 Mounting threads
M10, 20 mm deep (M/1748)
- 3 Screwdriver manual override
- 4 Exhaust port (M5) with diffuser
- 5 Minimum

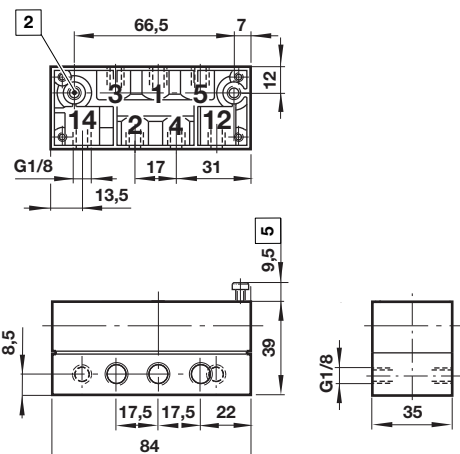


- 1 Clockwise 90° turnable
- 2 Mounting threads
M10 through sub-base (M/1748)
- 3 Screwdriver manual override
- 4 Exhaust port (M5) with diffuser
- 5 Minimum

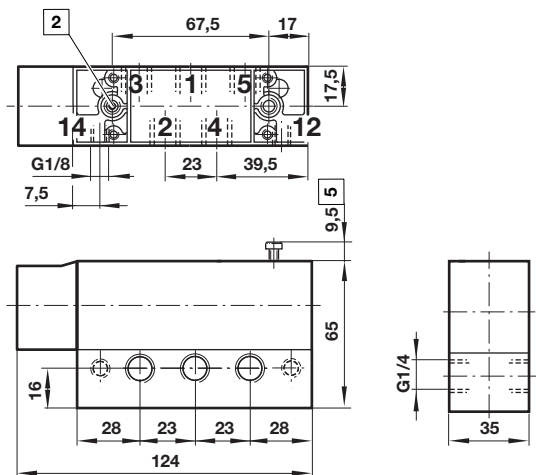
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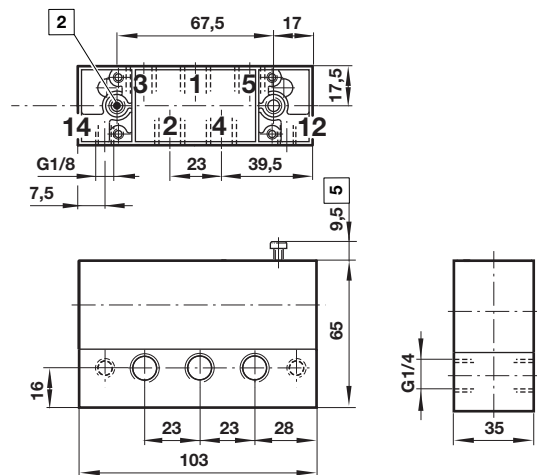
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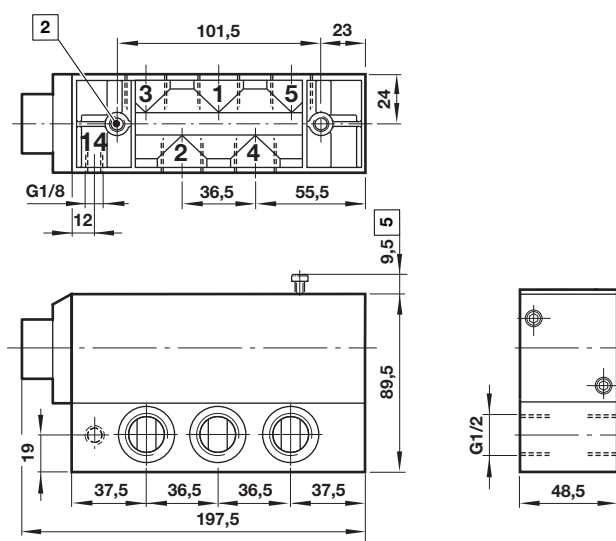
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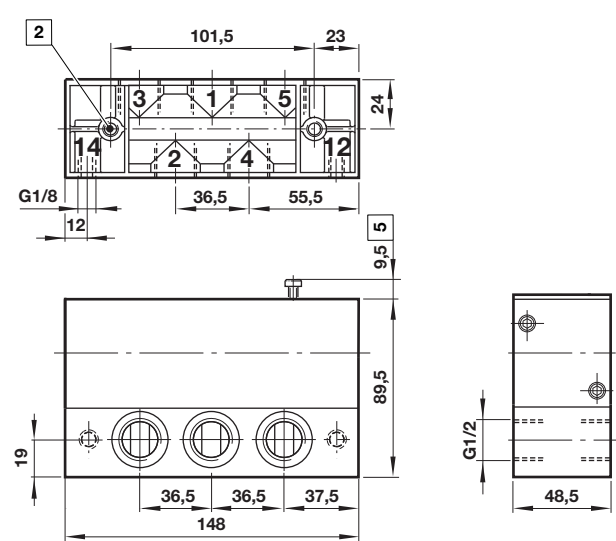
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13

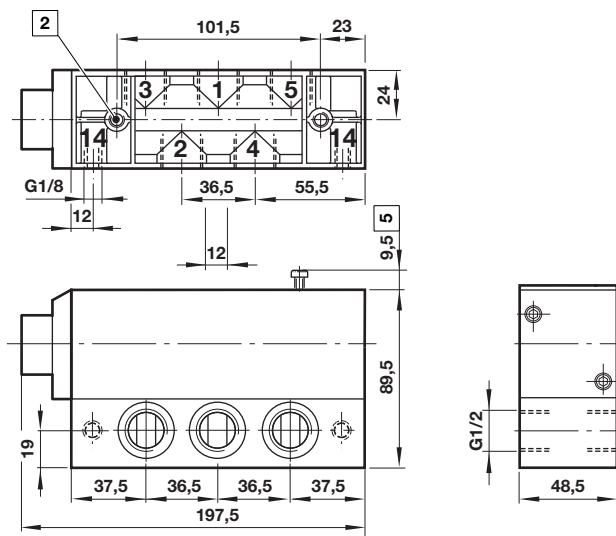


14



- 2 Mounting threads
M6 through sub-base (M/1701, M1702)
M8 through sub-base (M/1704)
- 5 Minimum

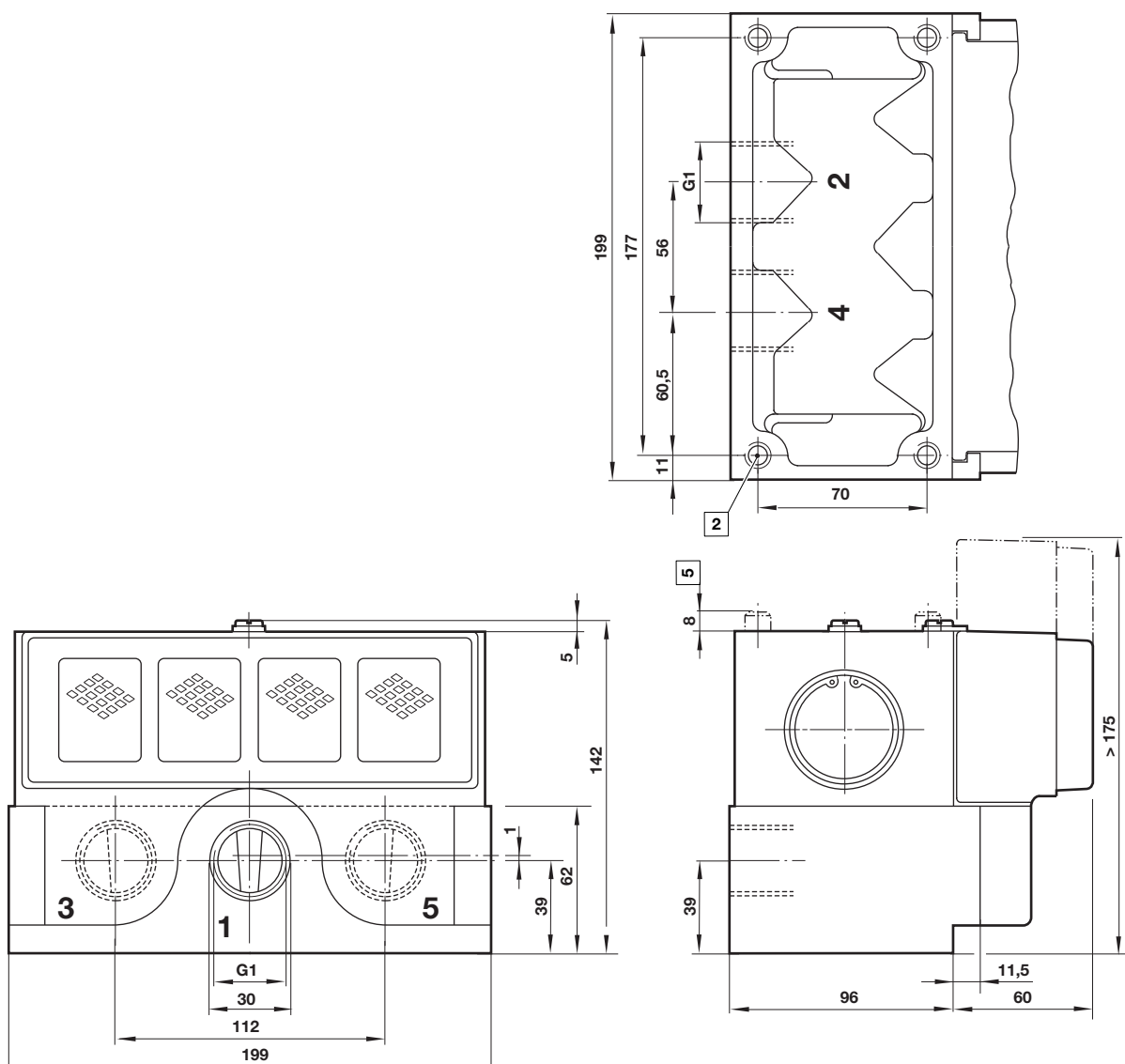
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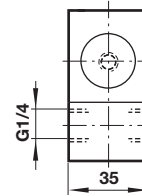
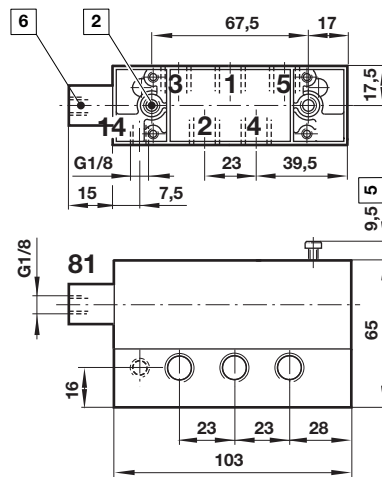
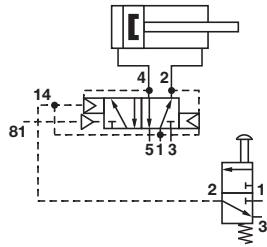
Dimensions in mm
Projection/First angle



16



- 2 Mounting threads
M8 through sub-base (M/1704)
M10 through sub-base (M/1718)
- 5 Minimum



- 2** Mounting threads
 M6 through sub-base (M/1787)
5 Minimum
6 Signal reset port

Warning

These products are intended for use in industrial compressed air systems only. Do not use these products where pressures and temperatures can exceed those listed under »**Technical features/data**«.

Before using these products with fluids other than those specified, for non-industrial applications, life-support systems or other applications not within published specifications, consult Norgren Ltd.

Through misuse, age, or malfunction, components used in fluid power systems can fail in various modes.

The system designer is warned to consider the failure modes of all component parts used in fluid power systems and to provide adequate safeguards to prevent personal injury or damage to equipment in the event of such failure.

System designers must provide a warning to end users in the system instructional manual if protection against a failure mode cannot be adequately provided.

System designers and end users are cautioned to review specific warnings found in instruction sheets packed and shipped with these products.