Directional Valves

for oil or grease

161-110-031

161-120-010

161-140-050

161-120-032

Function

The directional valves listed overleaf are used to control the flow of lubricants, e.g. to divide up a central lubrication system into a number of lube circuits (zoned actuation, Fig. 1) or to switch between circulating and intermittently operated lube circuits (Fig. 2).

Directional valves are selected on the basis of the following criteria:

- 2, 3 or 4-way valve switching functions
- range of valve pressures
- flow rate of the valves
- lubricant for which the valve is to be used:
  oils with a low or high eff. viscosity,
  greases up to NLGI grade 2.

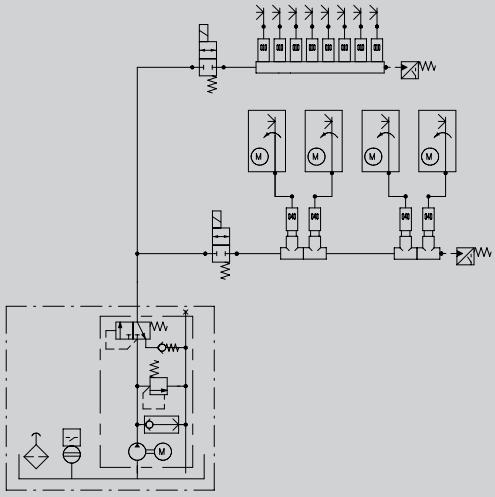
The valve data are listed in two tables, subdivided into:

- hydraulic and mechanical characteristics
- electrical characteristics.

Valves for a maximum pressure of up to about 50 bars can be used for single-line lubrication systems with piston distributors.

Valves for a pressure range of up to 300 or 500 bars are suitable for progressive systems.

Fig. 1



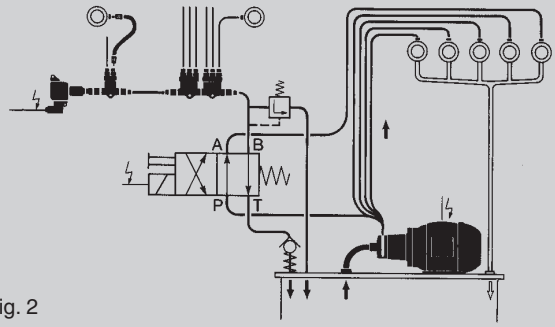


Fig. 2

VOGEL® Central Lubrication

Hydraulic / mechanical characteristics

Order No.	Valve function	Basic position	Type	Rated width [mm]	Fc *) value	Connec-tion threads	Flow rate max. [l/min]	Max. pressure DC [bars]	Max. pressure AC [bars]	Lubricants Oil [mm²/s]	Lubricants Grease NLGI 2 [mbars]	Lubricant temperature oil [°C]	Ambient temperature Oil [°C]	Ambient temperature Grease [°C]	Materials Housing	Materials Seals	Manual actuation	Fig.
161-110-018	2/2	closed	seat valve	1.2	0.8	G 1/8	–	50	75	max. 21	–	–10 to +80	–15 to +50	–	Al	NBR	yes	1
161-110-035	2/2	open	seat valve	1.2	0.8	G 1/8	–	45	45	max. 21	–	–10 to +80	–15 to +50	–	Al	NBR	yes	2
161-110-031	2/2	closed	ball seat v.	–	–	G 1/4	cf. KL[1])	500	–	4-1500	max. 700	––	–40 to +80	–25 to +80	Al	–	yes	3
161-110-032	2/2	closed	ball seat v.	–	–	G 1/4	cf. KL[1])	500	–	4-1500	–	––	–40 to +80	–	Al	–	yes	3
161-120-010	3/2	closed	seat valve	0.8	0.4	G 1/8	–	23	35	max. 21	–	–15 to +130	–15 to +50	–	Al	NBR	yes	4
161-120-018	3/2	closed	seat valve	0.8	0.4	G 1/8	–	23	35	max. 21	–	–15 to +130	–	–	Al	Viton	yes	4
161-120-019	3/2	closed	seat valve	0.8	0.35	cf. GP[2])	–	28	35	max. 21	–	–15 to +130	–15 to +50	–	Al	NBR	yes	5
161-120-032 to 161-120-038	like 161-120-019 but 2-8 individual valves installed as valve manifold					M10x1											yes	6
161-120-064	3/2	open C->B	ball seat v.	–		G 1/4	cf. KL[1])	500	–	4-1500	max. 700	––	–40 to +80	–25 to +80	Al	–	yes	7
161-120-065	3/2	open C->B	ball seat v.	–		G 3/8	cf. KL[1])	500	–	4-1500	max. 700	––	–40 to +80	–25 to +80	Al	–	yes	8
161-120-028	3/2	closed	ball seat v.	–		G 1/4	5	320		4-800	–	–	–40 to +80	–	Al	–	yes	9
161-140-050	4/2	open P->A	sliding	–	cf. KL[1])	cf. GP[2])	8 (NG 6)	320[3])	–	20-1000	–	–25 to +75	–	–	Al	–	yes	10
202-860	4/2	open P->A	sliding	–	cf. KL[1])	cf. GP[2])	cf. KL[1])	320[3])		10-500	–	–25 to +80	–24 to +50	–	Al	–	yes	11

[1]) CC = characteristic curve
[2]) BP =baseplate
[3]) max. 160 bars with connection **T**.
*) flow coefficient

Electrical characteristics

Order No.	Available voltages [1)]	Rated current [A]	Rated power	Type of enclosure	ON time	Insulation class	Switching time ON [ms]	Switching time OFF [ms]	Electrical connections
161-110-018	Standard 24 V DC DC and AC	–	AC: 16 VA, 8 W DC: 10 W	IP 65 with plug	100 % ED	H 180	10-15	–	DIN 43650-AF3
161-110-035	Standard 24 V DC DC and AC	–	AC: 16 VA, 8 W DC: 10 W	IP 65 with plug	100 % ED	H 180	10-15	–	DIN 43650-AF3
161-110-031	24 V DC	0.67	16 W	IP 65 with plug	100 % ED at max. +35 °C	F	40	40	DIN 43650-AF3
161-110-032	230 V AC 115 V AC 50 or 60 Hz	0.10	20 W	IP 65 with plug	100 % ED at +20 °C	F	100	125	DIN 43650-AF3
161-120-010	DC and AC	–	10 W at 24 V DC 8 W at 220 V, 50 Hz	IP 65 with plug	100 % ED at +20 °C	H 180	10-15	–	DIN 43650-AF3
161-120-018	DC and AC	–	10 W at 24 V DC 8 W at 220 V, 50 Hz	IP 65 with plug	100 % ED	H 180	10-15	–	DIN 43650-AF3
161-120-019	DC and AC	–	AC: 10 W DC: 8 W	IP 65 with plug	100 % ED	H 180	10-15	–	DIN 43650-AF3
161-120-032 to 161-120-038	DC and AC	–	AC: 10 W DC: 8 W	IP 65 with plug	100 % ED	H 180	10-15	–	DIN 43650-AF3
161-120-028	DC and AC	2.0 at 12 V DC 1.0 at 24 V DC 0,14 at 220 V, 50/60 Hz	–	IP 65 with plug	– DIN 43650-AF3	F	70	200	DIN 43650
161-120-064	12 V DC 24 V DC	1.70 at 12 V DC 0.83 at 24 V DC	20 W	IP 65 with plug	100 % ED at max. +35 °C	F	100	50	DIN 43650-AF3
161-120-065	12 V DC 24 V DC	1.70 at 12 V DC 0.83 at 24 V DC	20 W	IP 65 with plug	100 % ED at max. +35 °C	F	100	50	DIN 43650-AF3
161-140-050	DC and AC	1.33 at 24 V DC 0.17 at 220 V, 50 Hz	–	IP 65 with plug	100 % ED	–	–	–	DIN 43650-AM3
202-860	DC and AC	–	30 W at 24 V DC 120 VA at 220 V, 50 Hz	IP 65 with plug	100 % ED	–	–	–	DIN 43650

[1)] Please indicate voltage, type of current and frequency when ordering

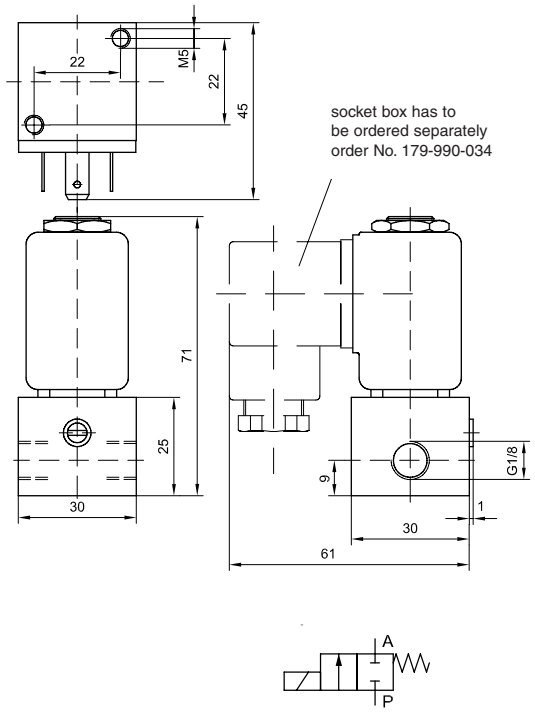


Fig. 1
161-110-018

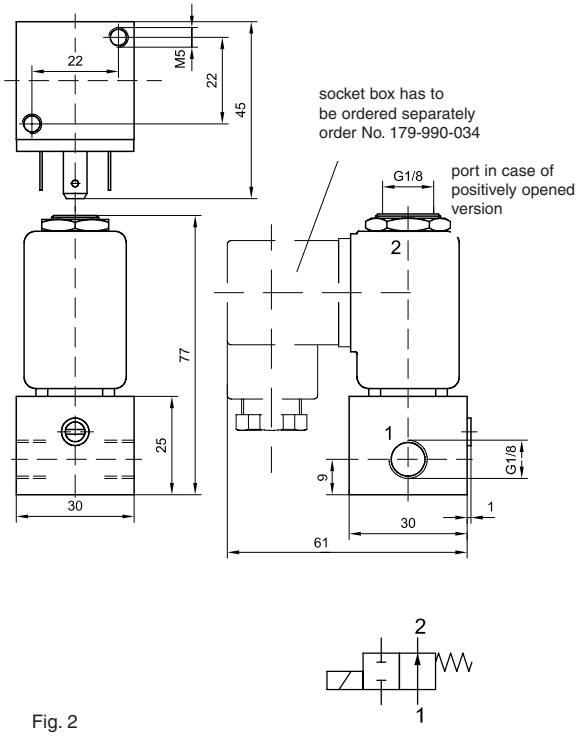
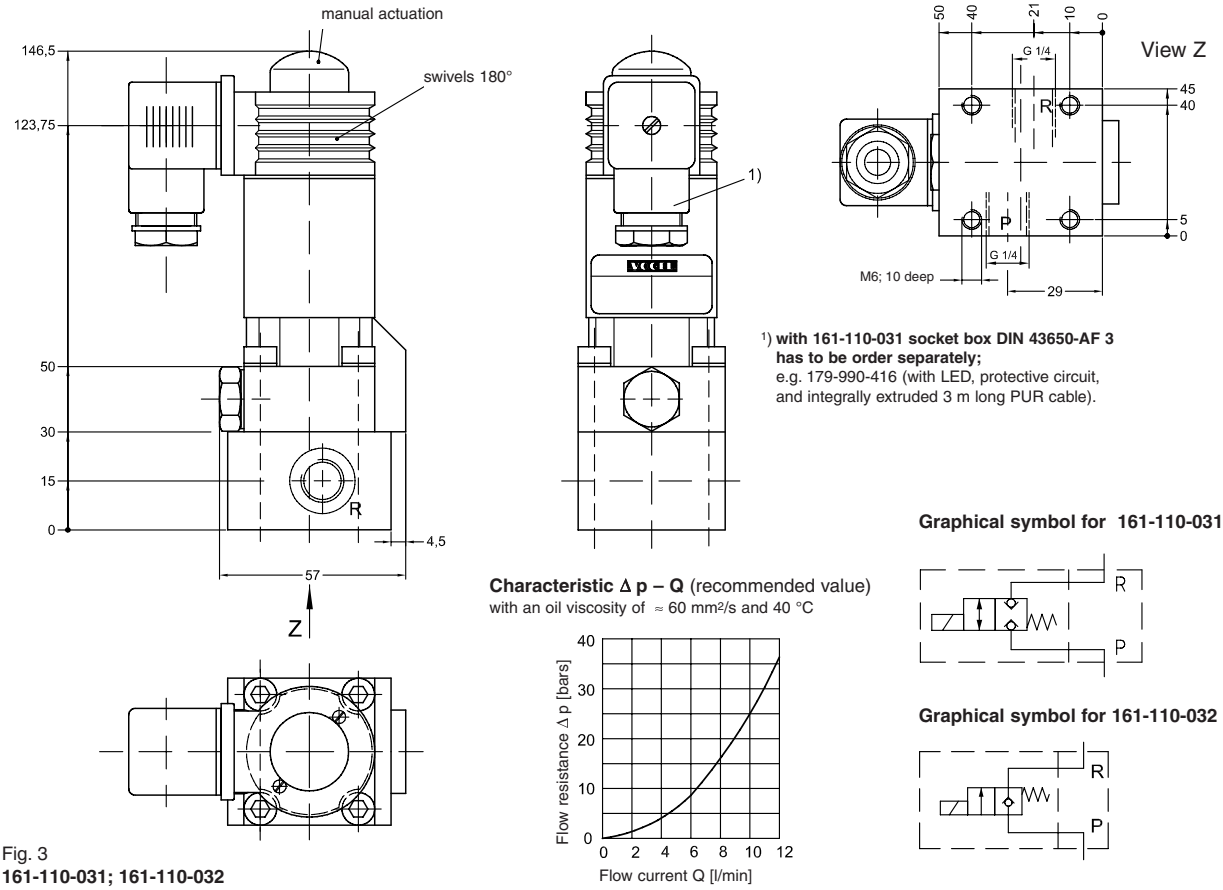


Fig. 2
161-110-035



[1]) **with 161-110-031 socket box DIN 43650-AF 3 has to be order separately;**
e.g. 179-990-416 (with LED, protective circuit, and integrally extruded 3 m long PUR cable).

Characteristic Δ p – Q (recommended value)
with an oil viscosity of ≈ 60 mm²/s and 40 °C

Graphical symbol for 161-110-031

Graphical symbol for 161-110-032

Fig. 3
161-110-031; 161-110-032

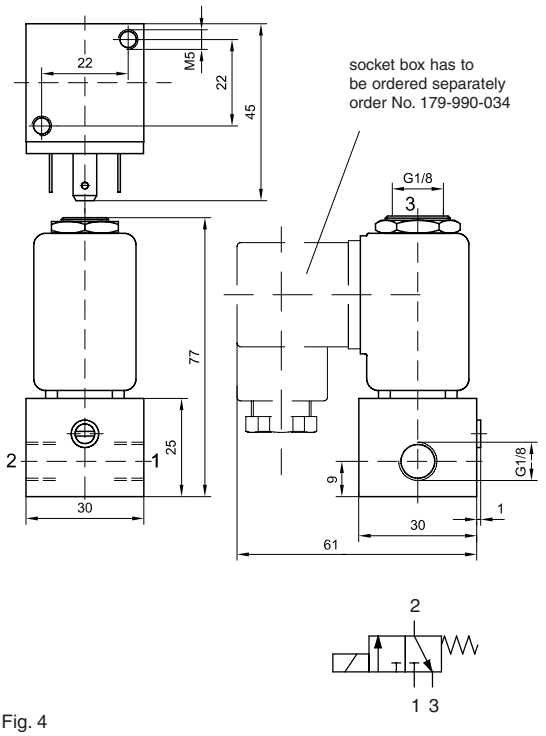


Fig. 4
161-120-010; 161-120-018

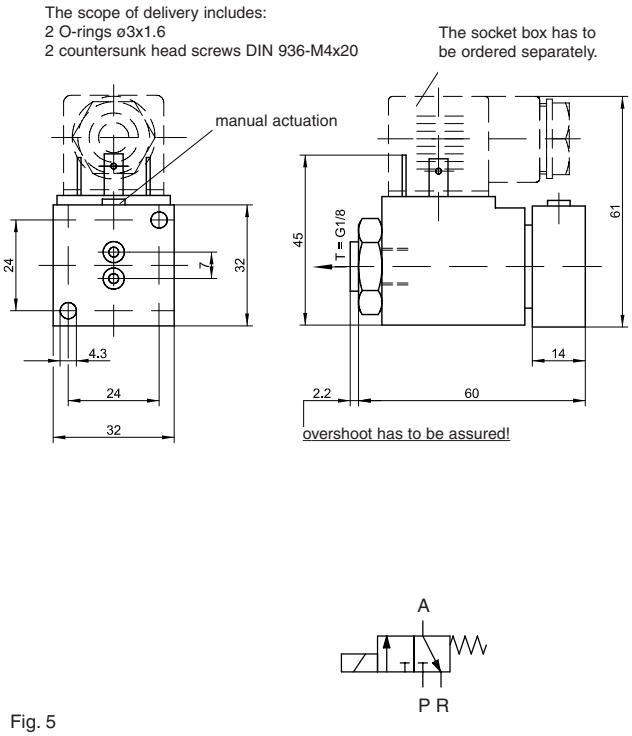
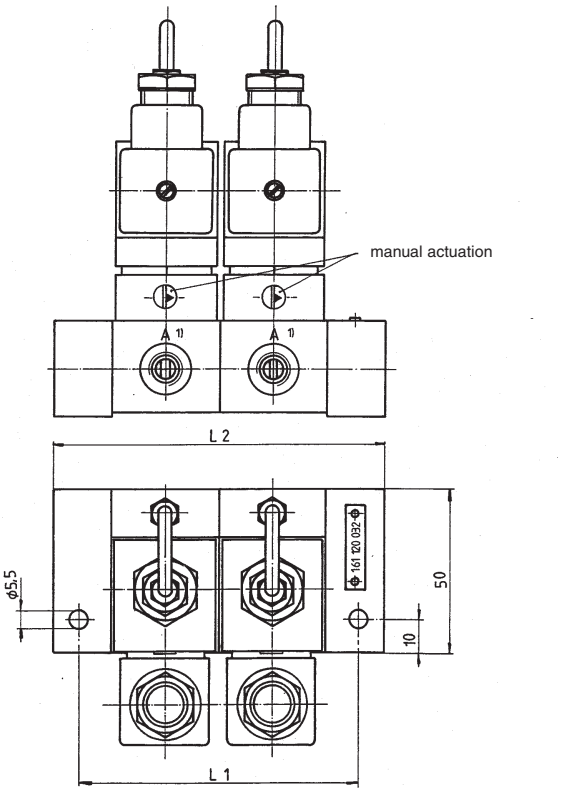
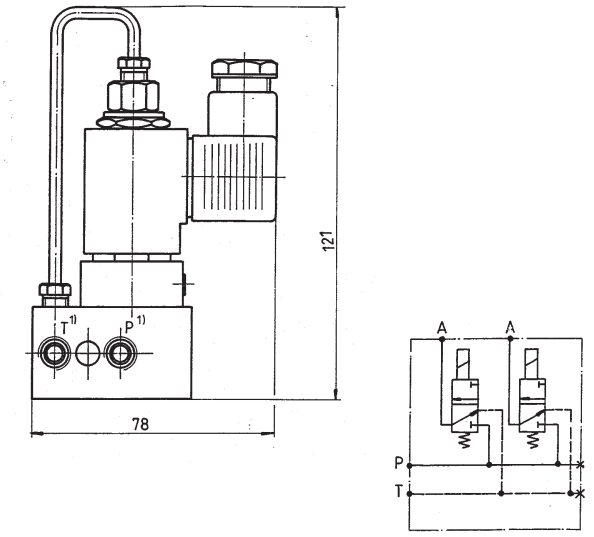


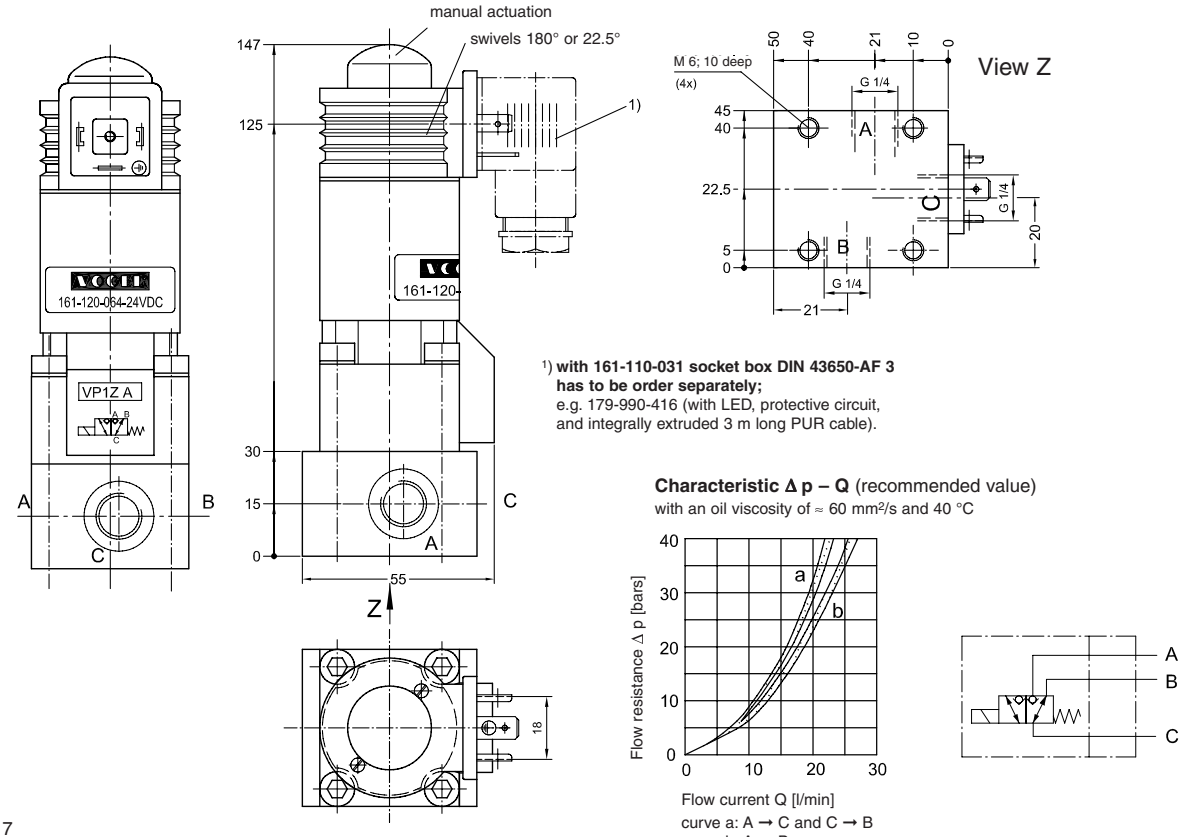
Fig. 5
161-120-019 (individual valve for manifolds 161-120-032 to -038)





Order No.	Number of valves	L1 [mm]	L2 [mm]
161-120-032	**2**	86	102
161-120-033	**3**	119	135
161-120-034	**4**	152	168
161-120-035	**5**	185	201
161-120-036	**6**	218	234
161-120-037	**7**	251	267
161-120-038	**8**	284	300

Fig. 6
161-120-032 bis -038

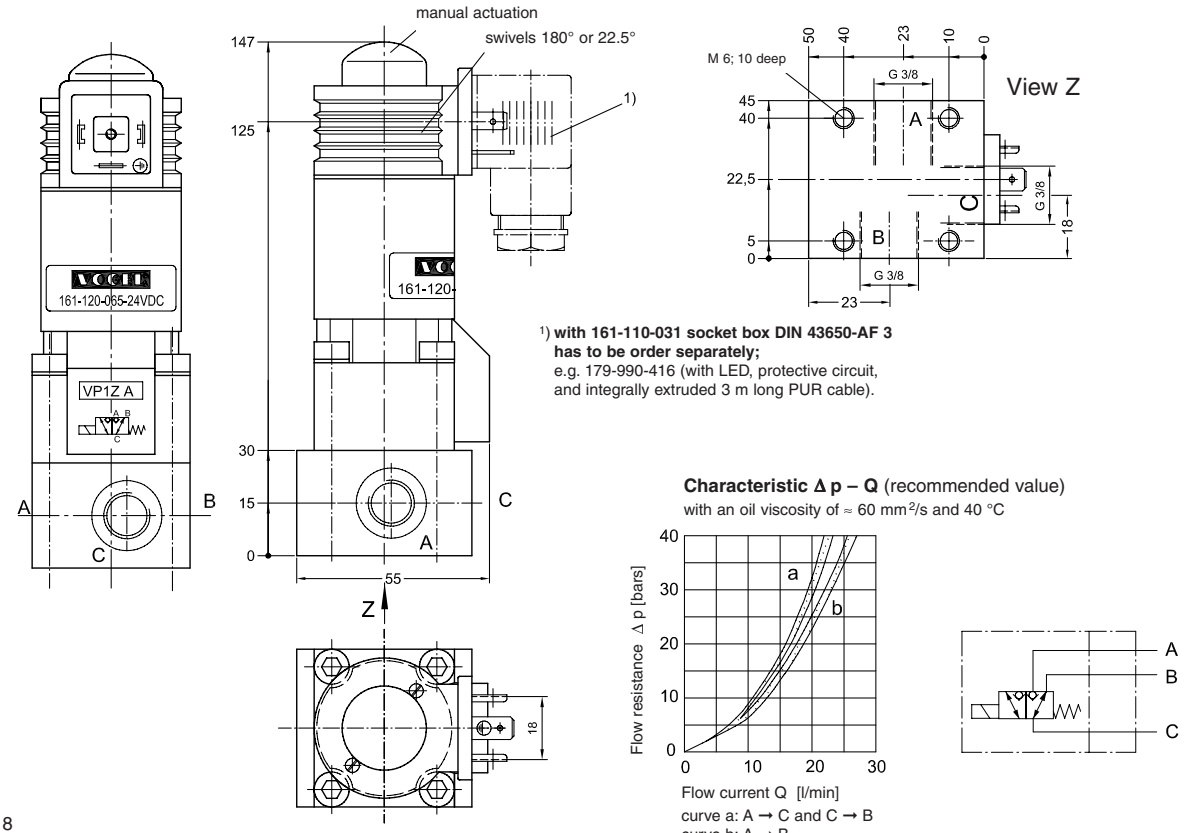


[1]) **with 161-110-031 socket box DIN 43650-AF 3 has to be order separately;**
e.g. 179-990-416 (with LED, protective circuit, and integrally extruded 3 m long PUR cable).

Characteristic Δ p – Q (recommended value)
with an oil viscosity of ≈ 60 mm²/s and 40 °C

curve a: A → C and C → B
curve b: A → B

Fig. 7
161-120-064



[1]) **with 161-110-031 socket box DIN 43650-AF 3 has to be order separately;**
e.g. 179-990-416 (with LED, protective circuit, and integrally extruded 3 m long PUR cable).

Characteristic Δ p – Q (recommended value)
with an oil viscosity of ≈ 60 mm²/s and 40 °C

curve a: A → C and C → B
curve b: A → B

Fig. 8
161-120-065

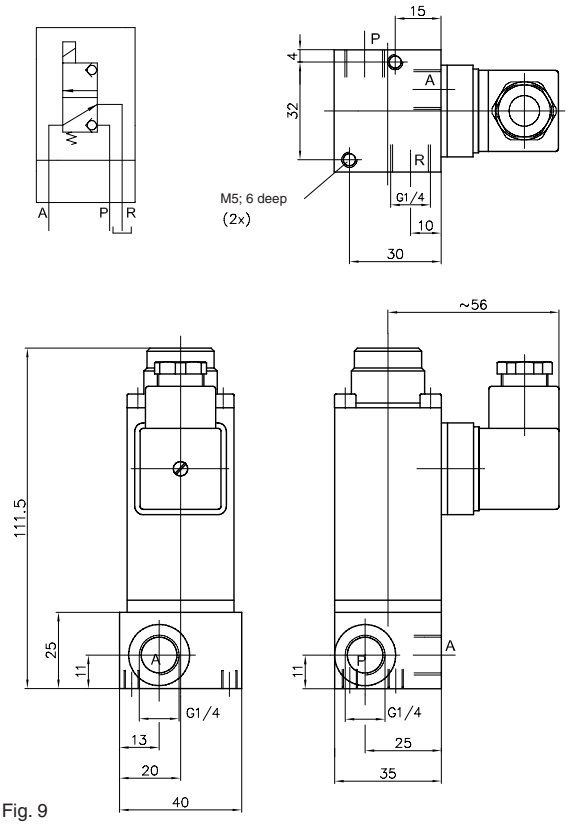


Fig. 9
161-120-028

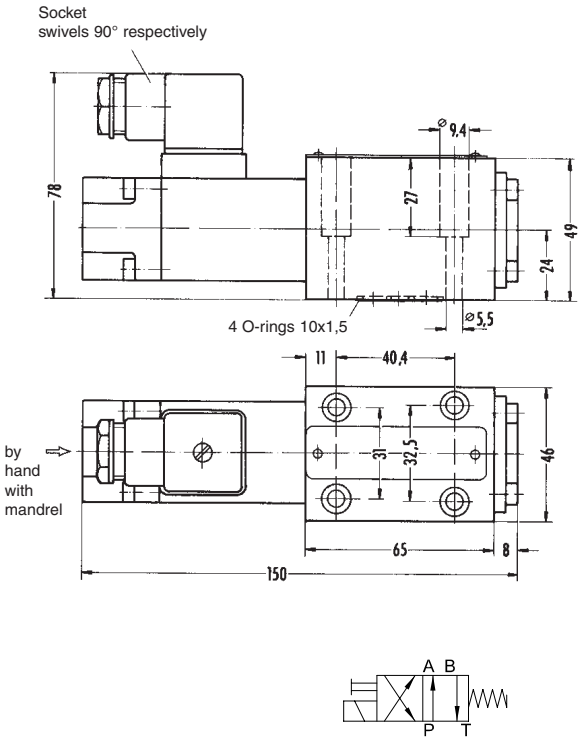
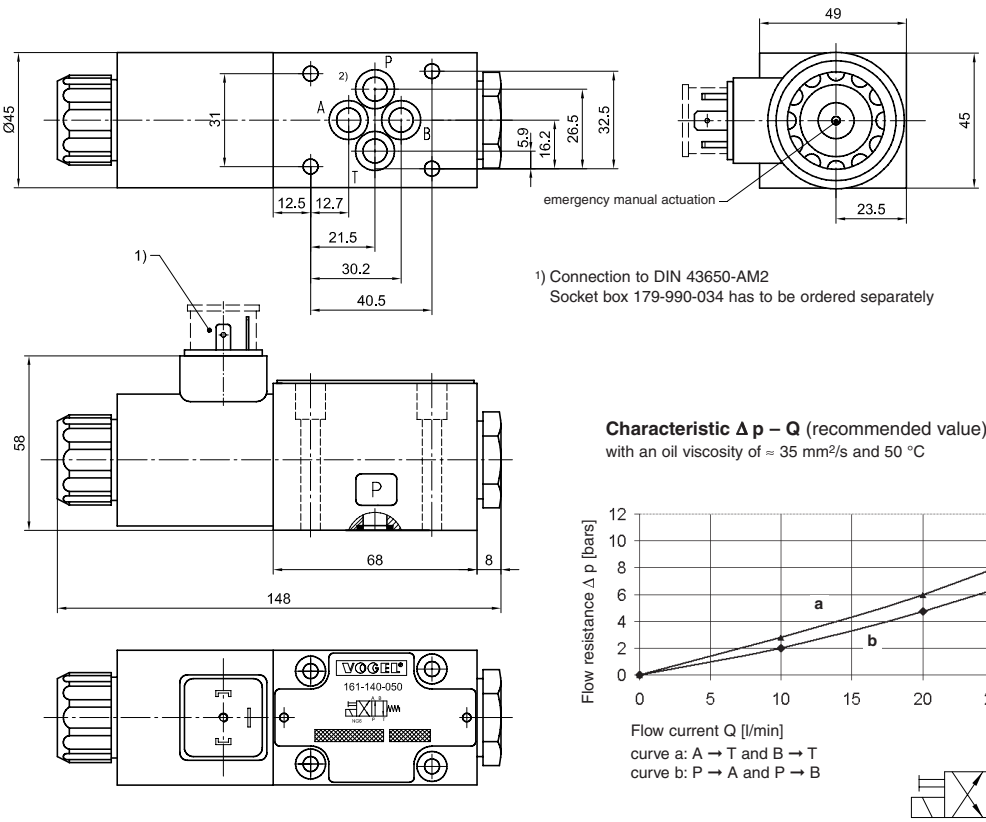


Fig. 11
202-860



1) Connection to DIN 43650-AM2
Socket box 179-990-034 has to be ordered separately

Characteristic Δ p – Q (recommended value)
with an oil viscosity of ≈ 35 mm²/s and 50 °C

Flow current Q [l/min]
curve a: A → T and B → T
curve b: P → A and P → B

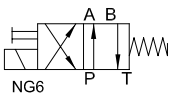


Fig. 10
161-140-050

Attachment of directional valve to the respective mounting plate

for valve 161-140-050:

4 cap screws, DIN912-M5x45-8.8
4 washers 650-050

for valve 202-860:

4 cap screws, DIN912-M5x30-8.8
4 spring washers, DIN7980-5

The parts have to be ordered separately.

Connection fittings

solderless tube union
(at p max. to 50 bars)

connecting piece
for ø 6 tubing: order No. 406-054
for ø 8 tubing: order No. 301-020
for ø10tubing: order No. 410-163
washer: order No. 508-108

Tube union with cutting ring to DIN 2353
(at p max. greater than 50 bars)

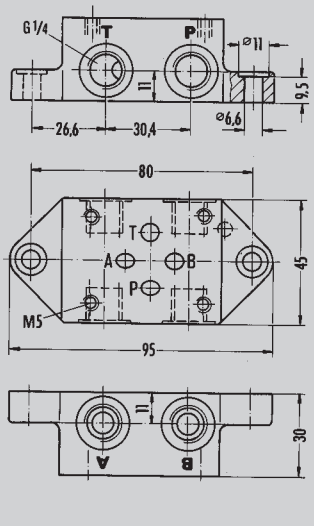
connecting piece
for ø 8 tubing: order No. 408-403W
for ø10tubing: order No. 410-403W
washer: order No. 508-108

Please note:
All equipment may only be installed and/or assembled by qualified personnel. Observe existing safety regulations.

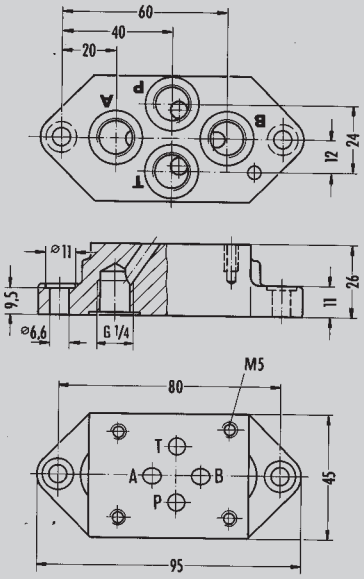
Mounting plates for line connector

for directional valves 161-140-050, 202-860
(to be ordered separately)

Order No. 892-530-030
lateral line connector



Order No. 892-530-020
bottom line connector



WILLY VOGEL AKTIENGESELLSCHAFT

Willy Vogel AG
Motzener Strasse 35/37
12277 Berlin, Germany
P.O. Box 97 04 44 · 12704

Phone (++49) 30-7 20 02-0
Fax (++49) 30-7 20 02-111
E-mail info@vogel-berlin.de
Internet www.vogelag.com