BIERI
HYDAC INTERNATIONAL

Seated valve

Type WVH700

NG 4 Bieri
up to 12 l/min, up to **700 bar**

Features

- Direct operated
- Leakage free
- Good resistance to corrosion
- As 2/2-, 3/2-, 3/3- or 4/2-valve* with solenoid actuation

* pre-operated

Design

- With hardened closing elements as cone or ball seat
- Functions with negative or positive overlap
- Solenoids with slide on coil technology
- Mounting on single subplates (EAP) as stand-alone valve or in valve bank with subplates (APH)

Applications

- Controlling of cylinders and motors in higher pressure ranges as full replacement for spool valve technology (especially for leakage free holding, bending and clamping)
- In machine tools, hoisting technology, test stands and rescue devices
- Power units (e.g. as with limited space conditions or weight reduction)

Technical data

Hydraulic fluid	Mineral oil according to DIN 51524 (other fluids on request)
Fluid temperature range	-20 to 80 °C
Ambient temperature range	-30 to 50 °C
Viscosity range	5 to 400 mm^2/s
Porting	NG 4
Max. operating pressure	700 bar / Pressure difference from P to A, B to T must be adhered! ($p_P > p_A \geq p_B > p_T$)
Duty cycle ED	100%
Max. flow rate	12 l/min
Filtration (recommendation)	According to NAS 1638 class 6 resp. ISO/DIN 4406 class 17/15/12
DIN connector (2P + E)	According to EN 175301-803 / ISO 4400 / DIN 43650
Power	24 VDC (23 W), 110 VAC (25 W) and 230 VAC (25 W)
Power tolerance	+/- 10%
Switching time	40 - 120 ms
Degree of protection according DIN 40050	IP 63 (solenoid IP 65)
Material/Surface finish of the valves	Corrosion-resistant steel and aluminium (coil housing: ZnFe - corrosion protection)

Ordering codes WVH700, APH and EAP

Example WVH700

WVH	700	-	4	-	2	/	2	-	WS	-	24	-	V	-			00

Seated valve

Type HV700

Nominal size 4

Ports 2, 3 or 4

Positions 2 or 3

Functions see product information of the valve type

Actuation types

24	solenoid 24 VDC
110	solenoid 110 VAC
230	solenoid 230 VAC

Seal material

V	[FPM]

other seal materials on request

Special design
01 ... 99
(00 for standard)

Part index
Please leave blank (small letters a-d; defferent letters do not effect interchangeability)

Desing revision
Capital letters A-Z; identical letters equal same connecting dimensions

Example APH

APH	-	4B	-	2	/	2	-	AT	-	G1/4	-	V	-			00

Subplate

Nominal size 4
Porting ..B

Ports 2, 3 or 4

Positions 2 or 3

Connection

PA	P - A (2/2-valve)
AT	A - T (2/2-valve)
PT	P - T (2/2-valve)
X	for 3/2, 3/3, 4/2 and 4/3

Threaded connection

G1/4	G 1/4“
G3/8	G 3/8“
X	no external port (for PT)

Seal material

V	[FPM]

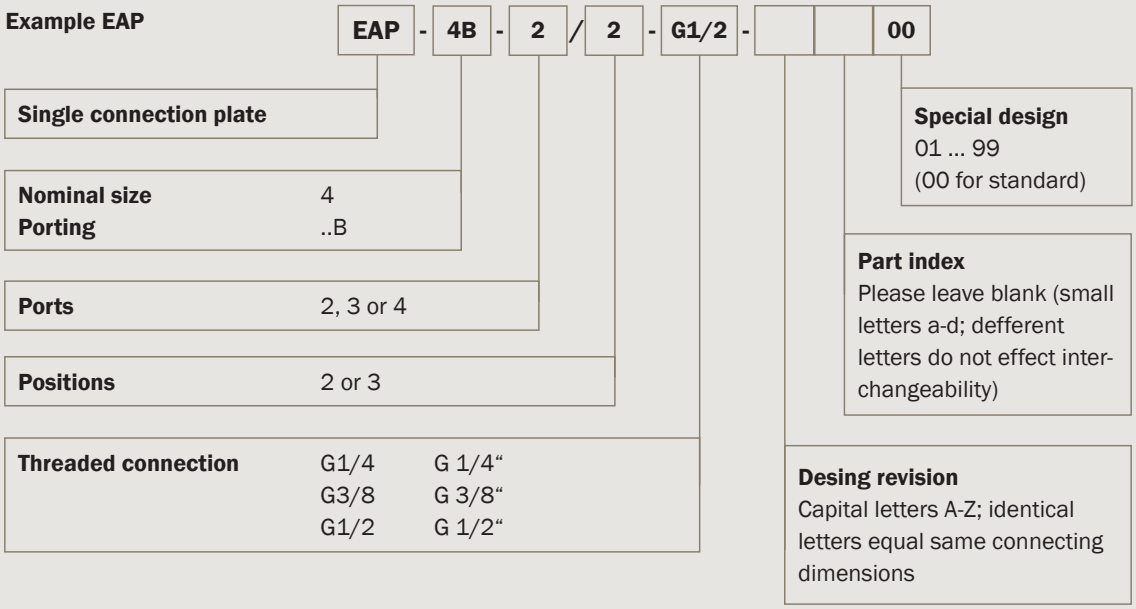
other seal materials on request

Special design
01 ... 99
(00 for standard)

Part index
Please leave blank (small letters a-d; defferent letters do not effect interchangeability)

Desing revision
Capital letters A-Z; identical letters equal same connecting dimensions

Example EAP


EAP - 4B - 2 / 2 - G1/2 - 00
Single connection plate
Nominal size 4
Porting ..B
Ports 2, 3 or 4
Positions 2 or 3
Threaded connection G1/4 G 1/4“
G3/8 G 3/8“
G1/2 G 1/2“
Special design
01 ... 99
(00 for standard)
Part index
Please leave blank (small letters a-d; defferent letters do not effect inter-changeability)
Desing revision
Capital letters A-Z; identical letters equal same connecting dimensions

Spare parts (included in delivery)

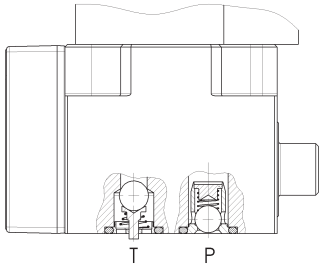
	Description	Part No.
5 pcs.	O-Ring, 5x1,5 mm, FPM	3853409
5 pcs.	O-Ring, 8x1,5 mm, FPM	
4 pcs.	Fixing screw, M6x35 mm	
4 pcs.	Fixing screw, M6x60 mm	
1 pcs.	Gasket for port B	

Solenoids	Part No.
Solenoid 24 VDC	3546095
Solenoid 110 VAC	3547372
Solenoid 230 VAC	3547373
Plastic nut	4422997
O-Ring for plastic nut	629833

Accessories (optional)

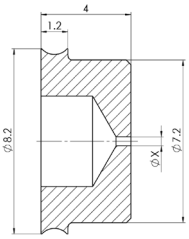
(not included in scope of supply)

Type	Valve type	Item description	Part No.
RVH700-4B-D6,5-X-A*00	2/2, 3/2, 4/2, 3/3	Check valve (fitting in connection P)	3680704
	2/2, 3/2, 4/2, 3/3	Return pressure stop (fitting in connection T)	3687580
	all	plug for solenoid (black)	3728850
LRS KPL Z4 TR 2Pol LED	all	plug for solenoid with integrated reduction of performance	3689354

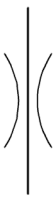


Type	Valve type	Item description	Part No.
Orifice insert Ø 0,4	2/2, 3/2	Orifice insert for T	4002279
Orifice insert Ø 0,5	2/2, 3/2	Orifice insert for T	4002353
Orifice insert Ø 0,6	2/2, 3/2	Orifice insert for T	4002354
Orifice insert Ø 0,7	2/2, 3/2	Orifice insert for T	4002355
Orifice insert Ø 0,8	2/2, 3/2	Orifice insert for T	4002356
Orifice insert Ø 1,0	2/2, 3/2	Orifice insert for T	4002357

Dimensional drawing



Hydraulic schematics



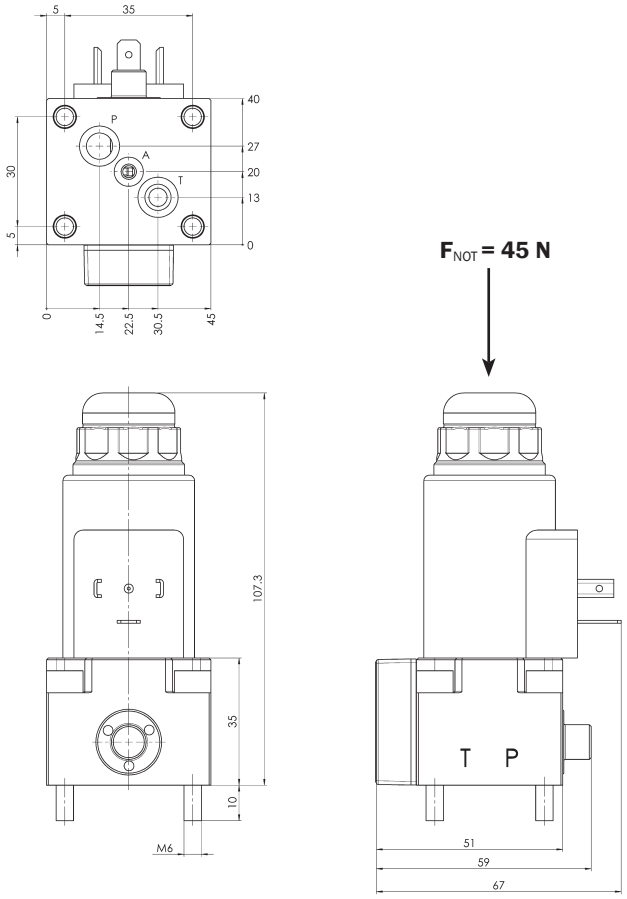
Product information 2/2-valve

Functions WO and WS

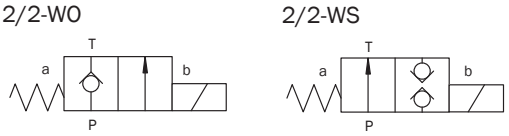
Actuation type	Weight ca. [kg]	Part No. 2/2-WO	Weight ca. [kg]	Part No. 2/2-WS
Solenoid 24 VDC	0,85	3665428	0,85	3661076
Solenoid 110 VAC	0,85	3678640	0,85	3678665
Solenoid 230 VAC	0,85	3665427	0,85	3678669

Note: Caracteristics see page 19!

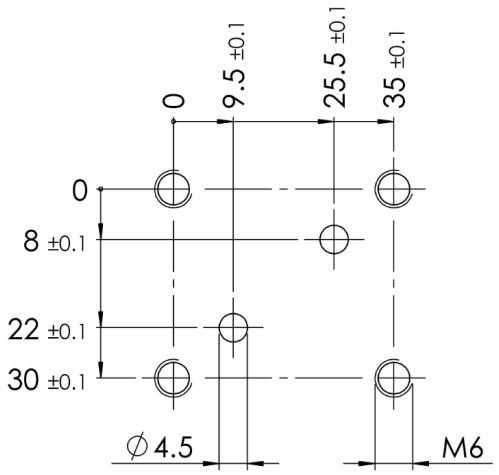
Dimensional drawing



Hydraulic schematics



Pattern of drilling for 2/2-valve



Subplate APH for 2/2-valve (valve bank - example see page 18)

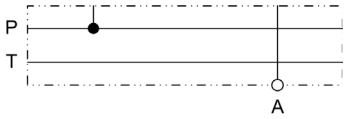
Connection	Threaded connection Dim. G* [”]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight ca. [kg]	Part No.
P - A	G 1/4	15	25	0,35	3832459
P - A	G 3/8	14	28	0,35	3832460
A - T	G 1/4	15	25	0,35	3832457
A - T	G 3/8	14	28	0,35	3832458
P - T				0,35	3832461

*See drawings below

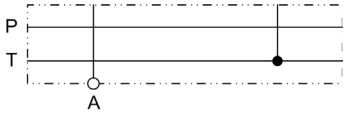
Attention: Mounting elements for valve bank have to be ordered seperately (see page 17)!

Hydraulic schematics

P - A



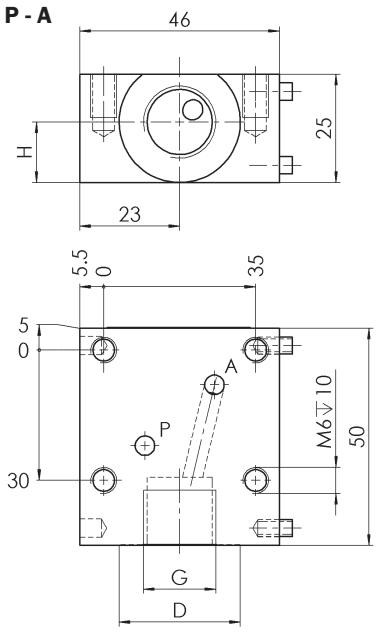
A - T



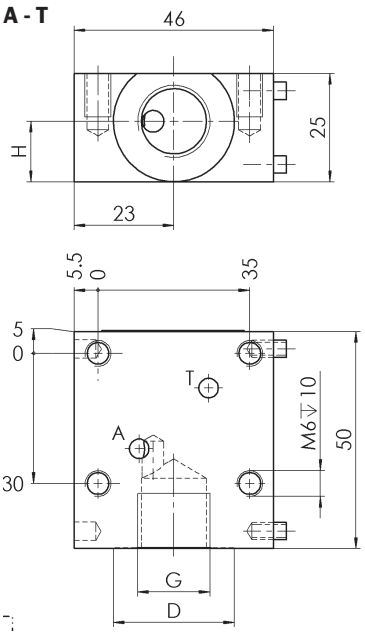
P - T

Dimension drawings

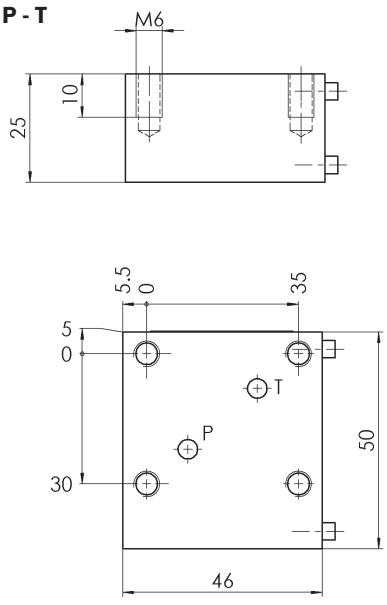
P - A



A - T



P - T



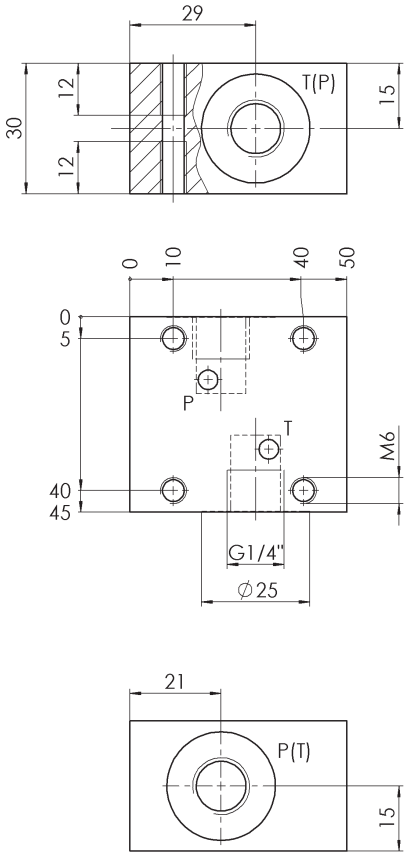
Single connection plate EAP for 2/2-valve (in-line mounting)

Threaded connection Dim. G [”]	Weight ca. [kg]	Part No.
G 1/4	0,45	3763413
G 3/8	0,45	3807978
G 1/2	0,75	3832462

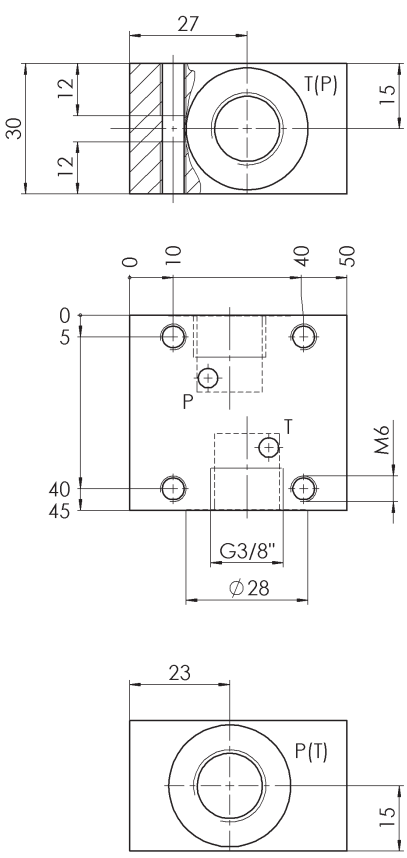
Hydraulic schematics

Dimensional drawings

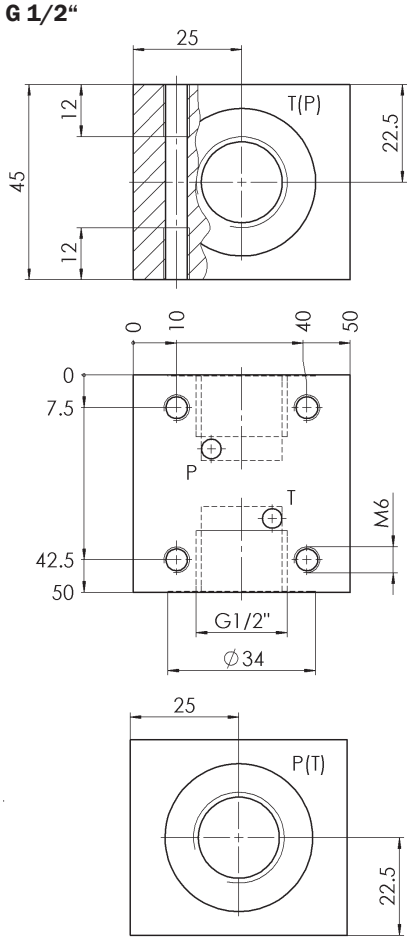
G 1/4“



G 3/8“



G 1/2“



Product information 3/2-valve

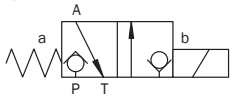
Functions L and N (negative overlap)

Actuation type	Weight ca. [kg]	Part No. 3/2-L	Weight ca. [kg]	Part No. 3/2-N
Magnet 24 VDC	0,85	3661077	0,85	3665430
Magnet 110 VAC	0,85	3678679	0,85	3742968
Magnet 230 VAC	0,85	3678684	0,85	3678715

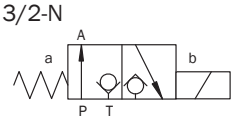
Note: Caracteristics see page 19!

Hydraulic schematics

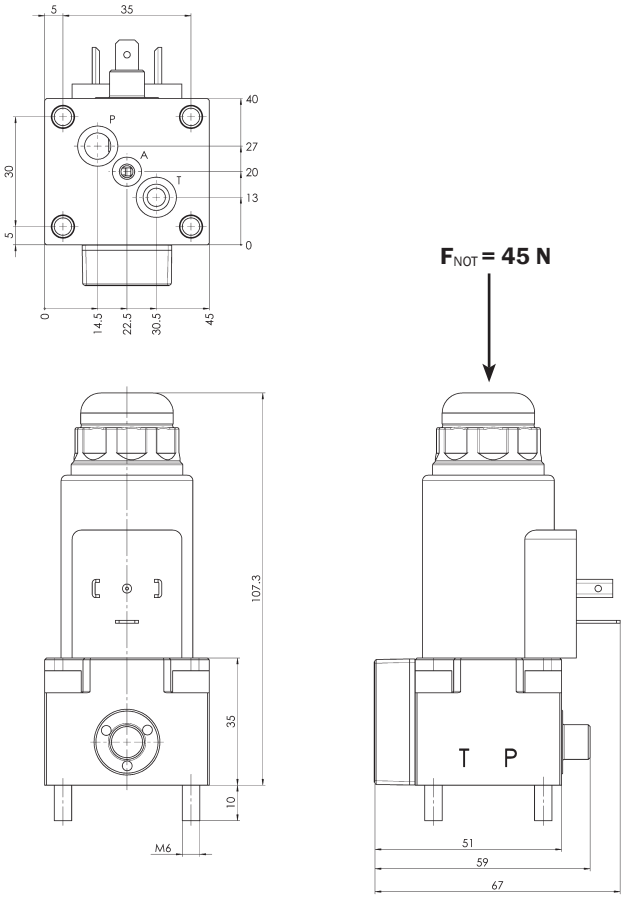
3/2-L



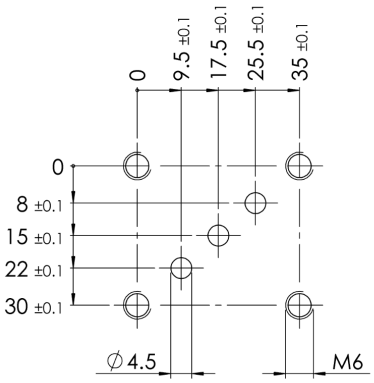
3/2-N



Dimensional drawing



Pattern of drilling for 3/2-valve



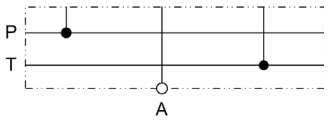
Subplate APH for 3/2-valve (valve bank - example see page 18)

Threaded connection Dim. G* [”]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight ca. [kg]	Part No.
G 1/4	15	25	0,35	3832495
G 3/8	14	28	0,35	3832496

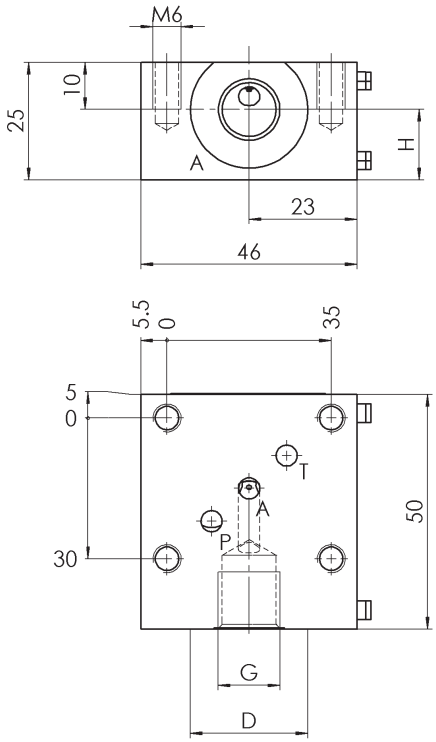
*See drawing below

Attention: Mounting elements for APH have to be ordered seperately (see page 17)!

Hydraulic schematics



Dimension drawings



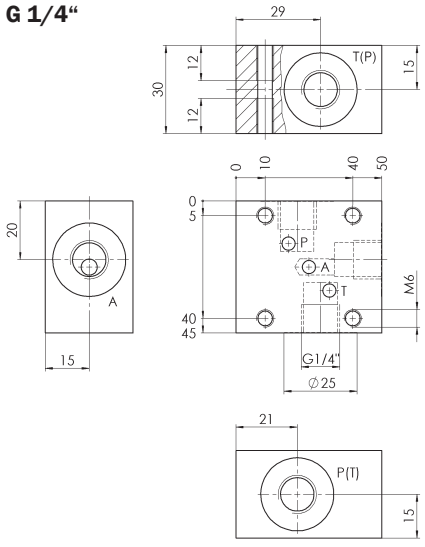
Single connection plate EAP for 3/2-valve (in-line mounting)

Threaded connection Dim. G [”]	Weight ca. [kg]	Part No.
G 1/4	0,45	3832498
G 3/8	0,45	3832499
G 1/2	0,70	3832497

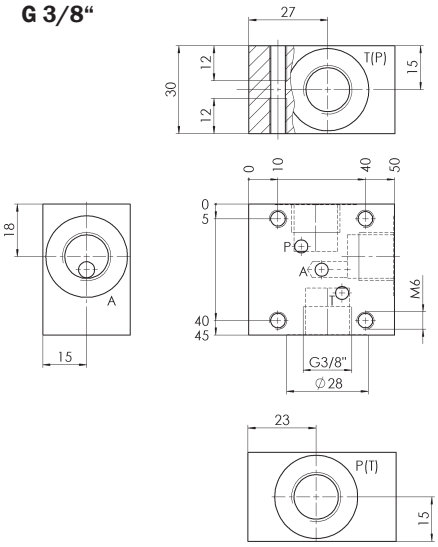
Hydraulic schematics

Dimensional drawings

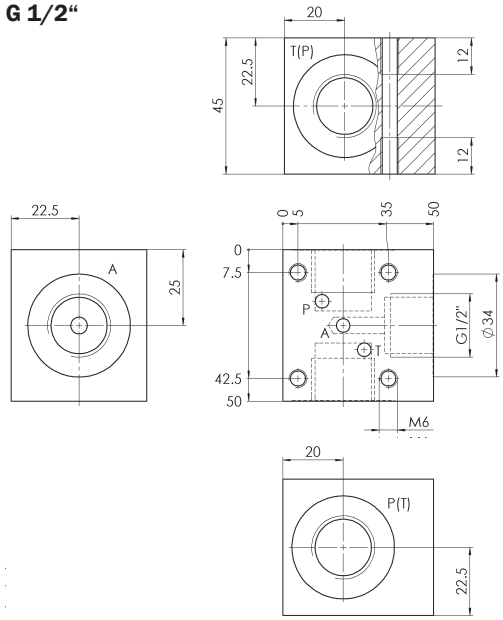
G 1/4“



G 3/8“



G 1/2“



Product information 4/2-valve

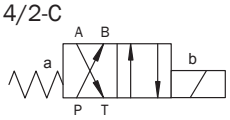
Functions C and D (negative overlap)

Actuation type	Weight ca. [kg]	Part No. 4/2-C	Weight ca. [kg]	Part No. 4/2-D
Solenoid 24 VDC	1,20	3665431	1,20	3665432
Solenoid 110 VAC	1,20	3678752	1,20	3678755
Solenoid 230 VAC	1,20	3678753	1,20	3678756

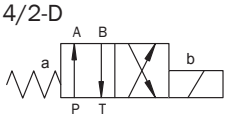
Note: Caracteristics see page 19

Hydraulic schematics

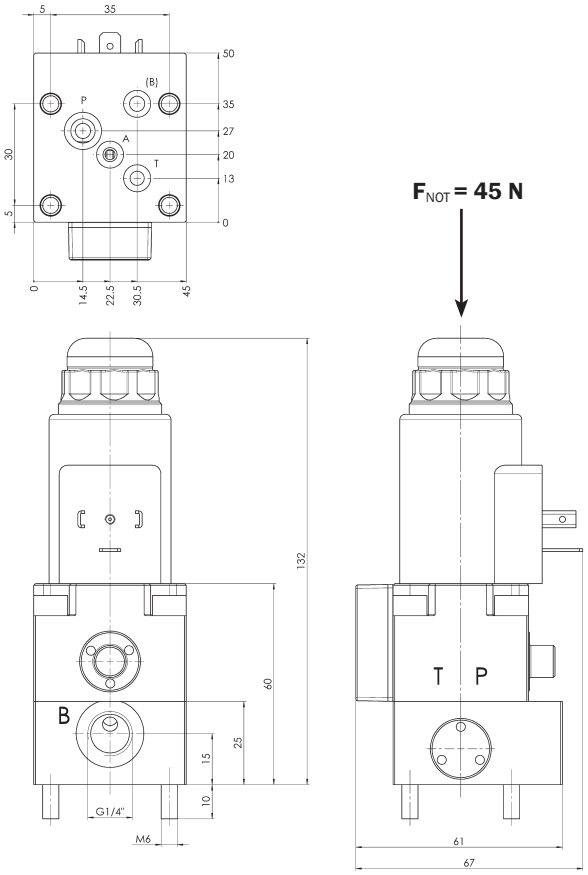
4/2-C



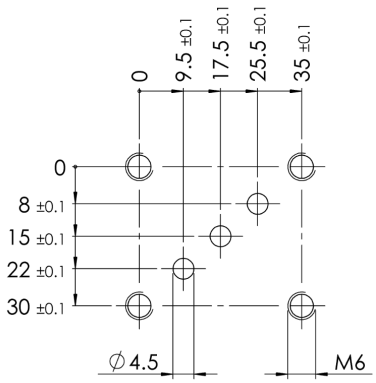
4/2-D



Dimensional drawing (solenoid design)



Pattern of drilling for 4/2-valve



Gasket (see spare part list page 4) assembling in port B on the subplate

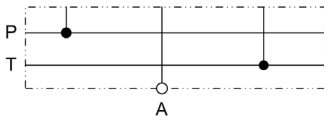
Subplate APH for Function 4/2 (valve bank - example see page 18)

Threaded connection Dim. G* [”]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight [kg]	Part No.
G 1/4	15	25	0,35	3832530
G 3/8	14	28	0,35	3832532

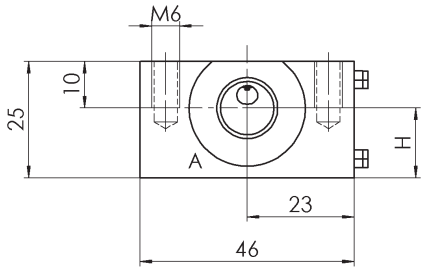
*See drawing below

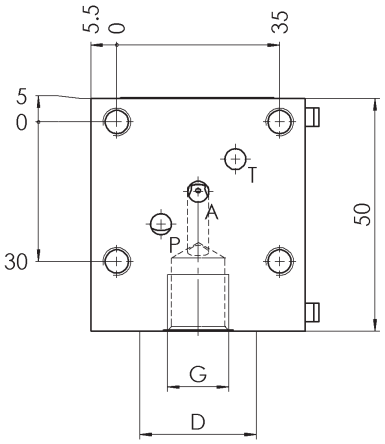
Attention: Mounting elements for APH have to be ordered seperately (see page 17)!

Hydraulic schematics



Dimensional drawings





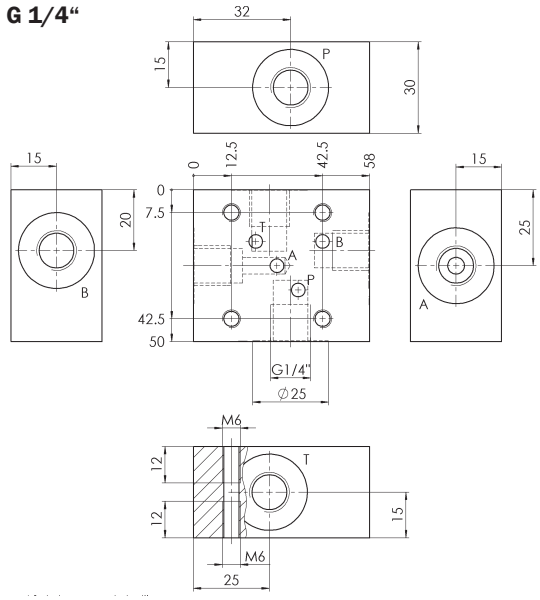
Single connection plate EAP for 4/2-valve (in-line mounting)

Threaded connection Dim. G [”]	Weight ca. [kg]	Part No.
G 1/4	0,45	3832534
G 3/8	0,45	3832535
G 1/2	0,70	3832533

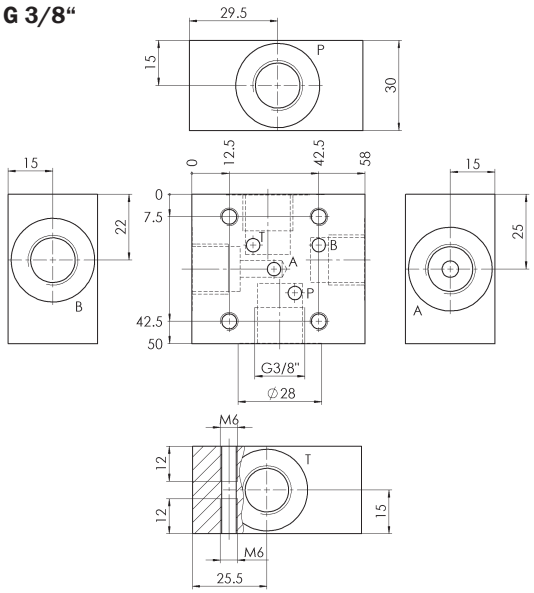
Hydraulic schematics

Dimensional drawings

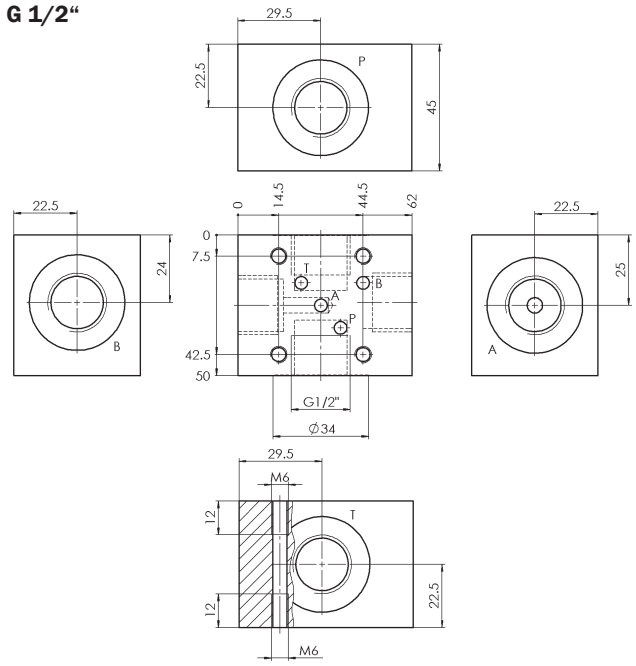
G 1/4“



G 3/8“



G 1/2“



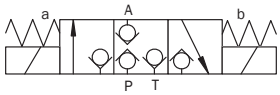
Product information 3/3-valve

Function K

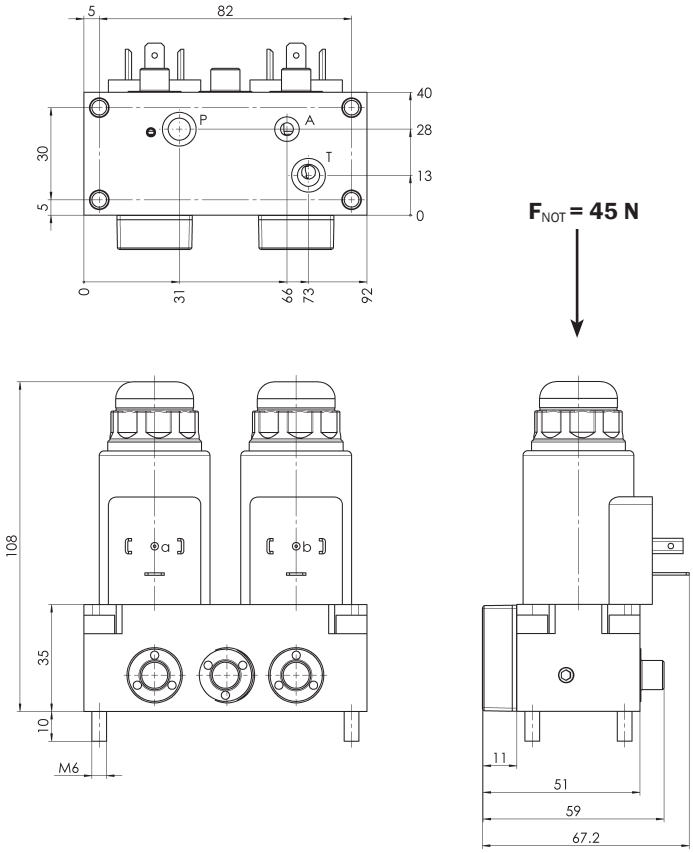
Actuation type	Weight ca. [kg]	Part No. 3/3-K
Solenoid 24 VDC	1,75	3678751
Solenoid 110 VAC	1,75	3678720
Solenoid 230 VAC	1,75	3678750

Note: Caracteristics see page 19!

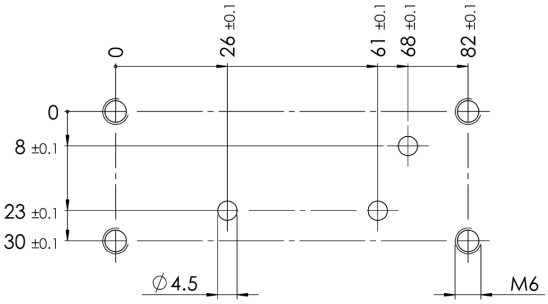
Hydraulic schematics



Dimensional drawing



Pattern of drilling for 3/3-valve



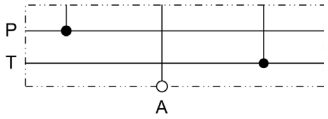
Subplates APH for 3/3-valve (valve bank - example see page 18)

Threaded connection Dim. G* [”]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight [kg]	Part No.
G 1/4	15	25	0,75	3832508
G 3/8	14	28	0,75	3832509

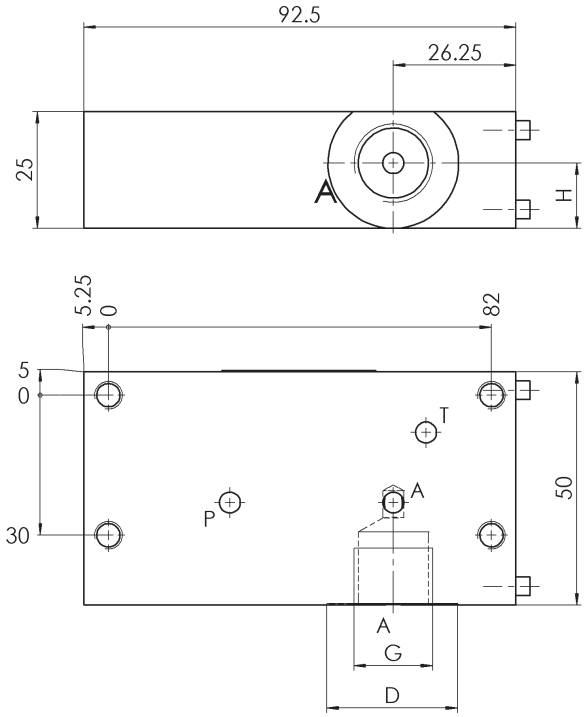
* See drawing below

Attention: Mounting elements for APH have to be ordered seperately (see page 17)!

Hydraulic schematics



Dimensional drawing



Single subplates EAP for 3/3-valve (in-line mounting)

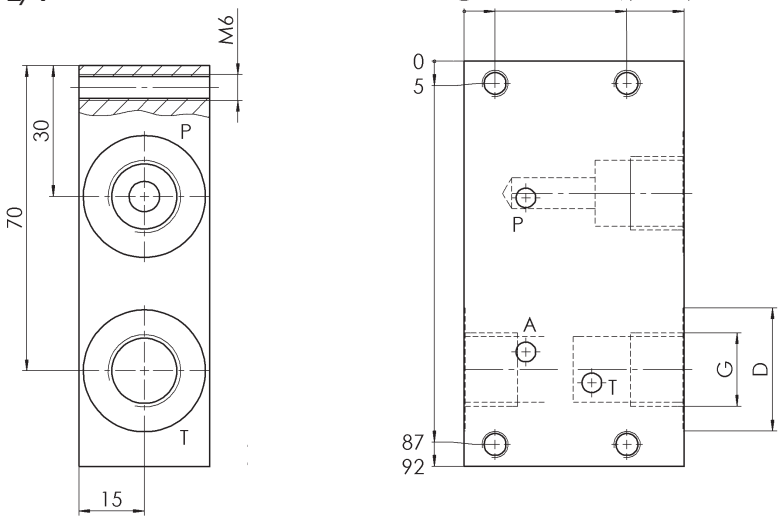
Threaded connection Dim. G* [”]	Dim. D* Ø [mm]	Weight ca. [kg]	Part No.
G 1/4	25	0,75	3832511
G 3/8	28	0,95	3832513
G 1/2	34	1,45	3832510

*See drawings below

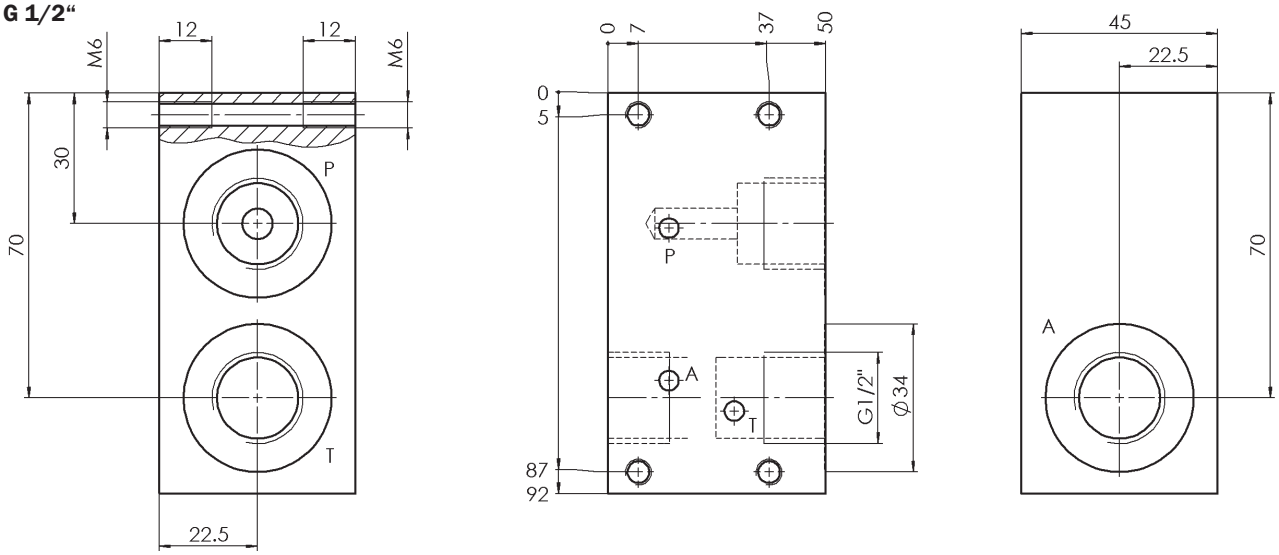
Hydraulic schematics

Dimensional drawings

G 3/8“ and G 1/4“



G 1/2“

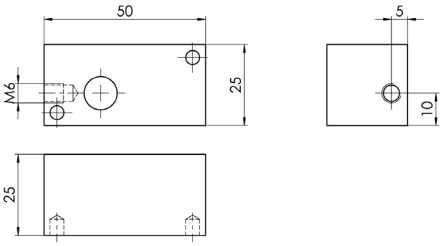


Valve bank (example see following page)

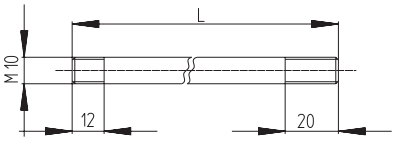
Mounting elements for subplates APH

Item description	Dimensions	Weight ca. [kg]	Part No.
End plate	see drawing below	0,10	4133564
Tie bolt	see table below	see table below	see table below
Cap nut	see drawing below	-	4006548
Usit-Ring	10,35 x 16 x 2 mm	-	6116776

End plate



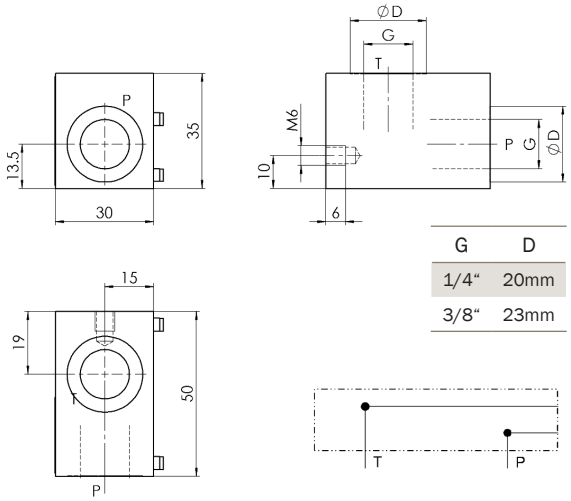
Tie bolt



Dimensional drawings

Subplate APH „starting block“ / without connection for pressure relief valve DV

Subplate with pressure relief see data sheet DVM (starting block is always required)!



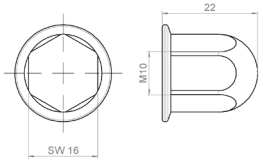
G	D
1/4“	20mm
3/8“	23mm

Table for tie bolts

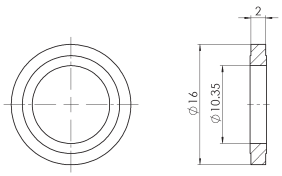
Number of sections [section length= 46 mm]	Length [mm]	Part No.	Weight ca. [kg]
1	101	4133634	0,05
2	147	4133689	0,08
3	193	4133692	0,10
4	239	4133781	0,13
5	285	4133823	0,16
6	331	4133861	0,20
7	377	4133906	0,22
8	423	4133907	0,25
9	469	4133909	0,28
10	515	4133913	0,31

Note: The 3/3-valve is a double section!

Cap nut



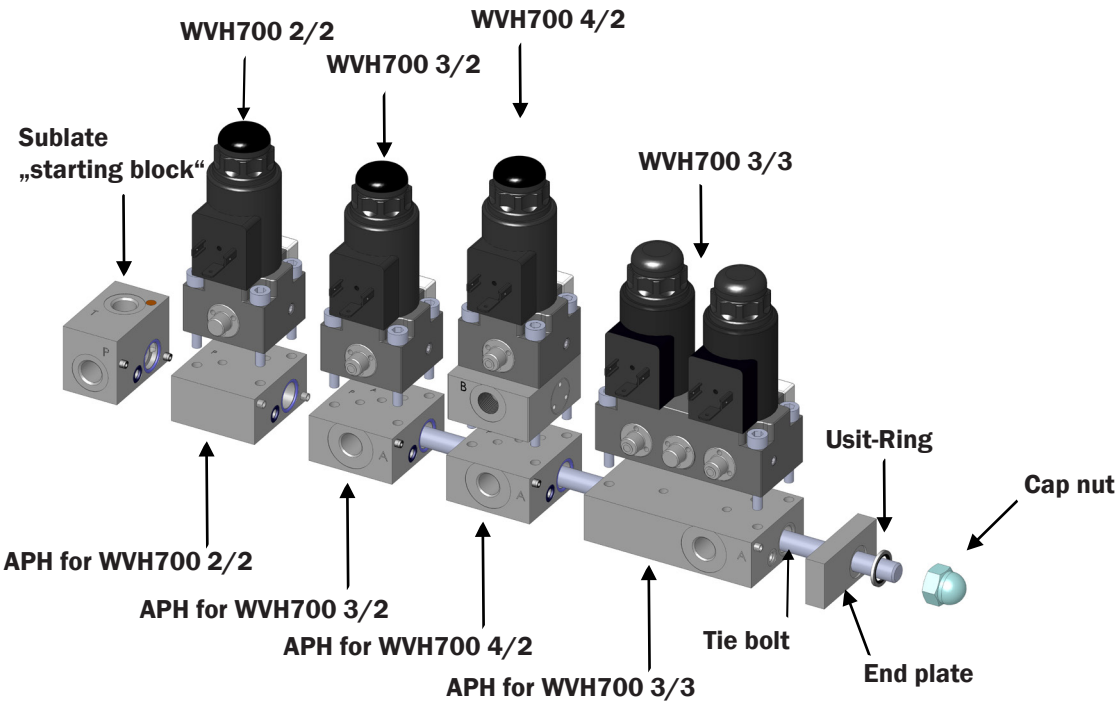
Usit-Ring



Type	Connecting threads	Type of setting	Part No.
DV700-4B-G1/4VR-D-V-A*00**	1/4“	Twist grip	4034777
DV700-4B-G1/4VR-K-V-A*00**	1/4“	Cross-handle	4034779
DV700-4B-G1/4VR-P-V-A*00**	1/4“	Blombed	4034781
DV700-4B-G3/8VR-D-V-A*00**	3/8“	Twist grip	4034778
DV700-4B-G3/8VR-K-V-A*00**	3/8“	Cross-handle	4034780
DV700-4B-G3/8VR-P-V-A*00**	3/8“	Blombed	4034782
APH-4B-SP-G1/4-V-A*00	1/4“	None	3845391
APH-4B-SP-G3/8-V-A*00	3/8“	None	4139619

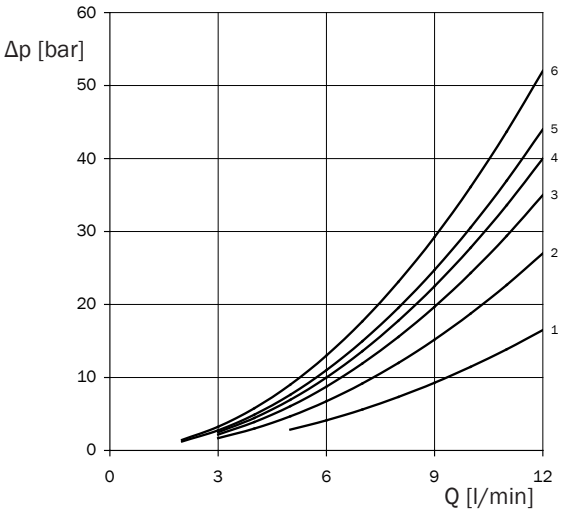
** including pressure relief valve

Example valve bank



Carateristics

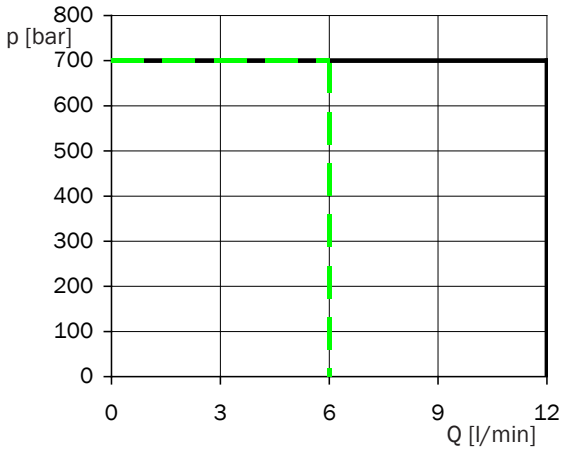
Pressure drop



Valve type	P - A	P - B	A - T	B - T	P - T
4/2-C	5	3	6	5	
4/2-D	5	5	5	6	
3/3-K1	5		2		
3/2-L	4		6		
3/2-N	3		4		
2/2-WO					1
2/2-WS					2

( ) = for mid-position

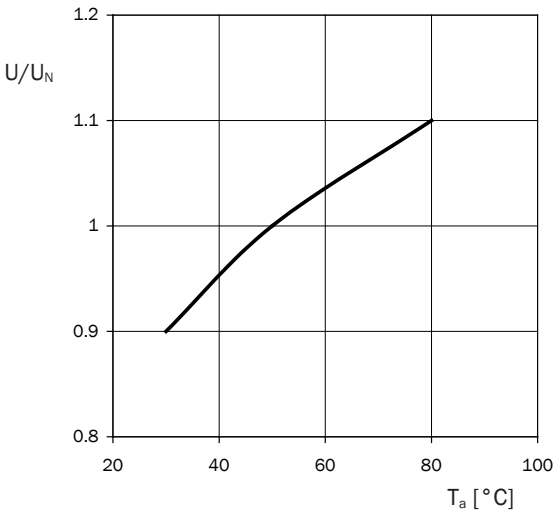
Hydraulic switching power



Hydraulic switching power at rating voltage and ambient temperature T_a = 50° C.

C, D, K1, L, N, WO
WS

Working voltage



Working voltage for achievement of the hydraulic switching power with deviating ambient temperatures.

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The information in this brochure relates to the operating conditions and applications described.
For applications and operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.