

Seated valve bidirectional

Type WVM-4B-Bi

NG 4

up to 12 l/min

Features

- Bidirectional (flow of fluid in both directions, independently of pressure prof)
- Low pressure drop
- Direct operated
- Leakage free
- Good resistance to corrosion
- As 2/2-, 3/2-valve with solenoid or alternative actuation



Design

- With hardened closing elements as cone seat
- Solenoids with slide on coil technology
- Mounting on single subplate (EAP) as stand-alone valve or in valve bank with subplate (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)
- Use of high viscosity fluids and grease
- Use in lubrication systems

Technical data

Hydraulic fluid	Mineral oil according to DIN 51524 / Grease according to class NLGI 2
Fluid temperature range	-25 to 80 °C (down to -40 °C on Request)
Ambient temperature range	-25 to 50 °C (down to -40 °C on Request)
Viscosity range	from 5 mm ² /s to class NLGI 2
Porting	NG 4
Max. operating pressure	700 bar continuous pressure (S1)
Duty cycle DC	100% (at continuous pressure operation)
Max. flow rate / mass flow	12 l/min (Grease: approx. 2.5 kg/min)
Filtration (recommendation)	According NAS 1638 class 6 resp. ISO/DIN 4406 17/15/12
DIN connector (2P + E)	According EN 175301-803 / ISO 4400 / DIN 43650
Power	24 VDC (23 W) / 110 VAC (25 W) / 230 VAC (25 W)
Power tolerance	+/- 10%
Switching time	40 - 120 ms (depending on viscosity)
Degree of protection according DIN 40050	IP 65
Material	Corrosion-resistant steel and aluminium (coil housing: ZnFe - corrosion protection)

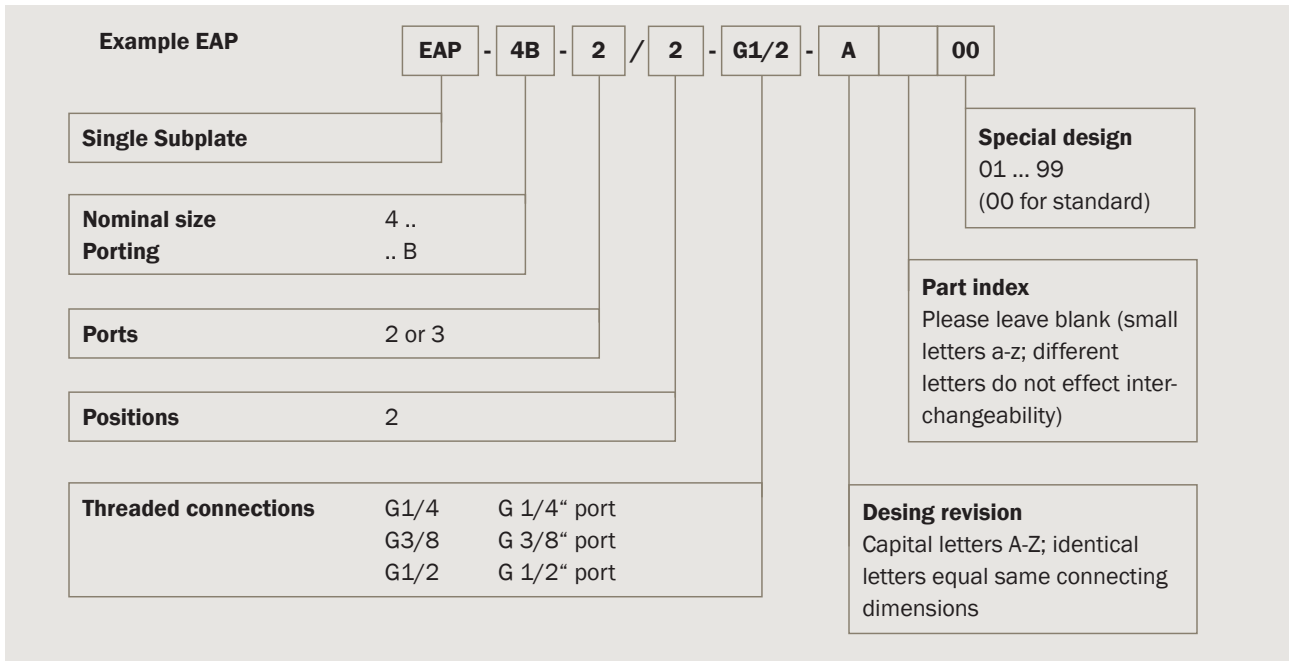
Type WVM-4B-Bi

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up to 12 l/min

Ordering codes WVM, APH and EAP

Example WVM		WV	M	-	4B	-	2	/	2	-	WS	-	24	-	BI	-	V	-	A		00	
Seated valve																						
Type	500+																					
Nominal size	4 ..																					
Connection Bieri	.. B																					
Ports	2 or 3																					
Positions	2																					
Functions	see product information valve types																					
Actuator types	24	solenoid 24 VDC																				
	110	solenoid 110 VAC																				
	230	solenoid 230 VAC																				
Technical design	bidirectional																					
Seal material	V	[FPM] / other seal materials on request																				
Special design																						
01 ... 99 (00 for standard)																						
Part index																						
Please leave blank (small letters a-z; different 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	-	A		00	
Subplate																			
Nominal size	4 ..																		
Porting	.. B																		
Ports	2 or 3																		
Positions	2																		
Internal connection	PA	P - A (2/2-valve)																	
	AT	A - T (2/2-valve)																	
	PT	P - T (2/2-valve)																	
	X	for 3/2																	
Threaded connections (in-line body)	G1/4	G 1/4"																	
	G3/8	G 3/8"																	
	X	no external port for P - T																	
Seal material	V	[FPM] other seal materials on request																	
Special design																			
01 ... 99 (00 for standard)																			
Part index																			
Please leave blank (small letters a-z; different letters do not effect interchangeability)																			
Desing revision																			
Capital letters A-Z; identical letters equal same connecting dimensions																			



Spare parts set WVM

Description	Part No.
5 pcs. O-Ring, 5x1,5 mm, FPM	4091040
5 pcs. O-Ring, 8x1,5 mm, FPM	
4 pcs. Fixing screw, M6x35 mm	

Solenoid	Part No.
Solenoid 24 VDC	3546095
Solenoid 110 VAC	3547372
Solenoid 230 VAC	3547373
Plastic nut	4006061
O-Ring for plastic nut	4006140

Accessories (optional)

(not included in scope of supply)

Valve type	Item description	Part No.
All types	Connector for solenoid (black)	3728850

Type WVM-4B-Bi

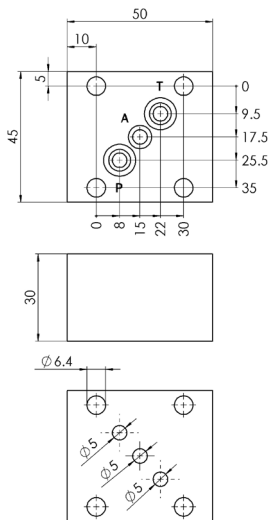
NG 4
up to 12 l/min

Adapter plate for the use of orifices insert and check valves

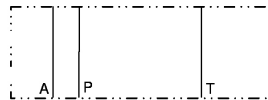
Type	Valve type	Item description	Part No.
ZP700-4-X-X-V-A*00	2/2 WO , 2/2 WS, 3/2 L *, 3/2 N	adapter plate	4319547
4 x socket head screw ISO 4762-M6x65 mm		screw for ZP700	4362502

* Use of check valves (also with ZP700) not possible.

Dimensional drawing

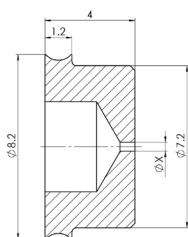


Hydraulic schematics



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

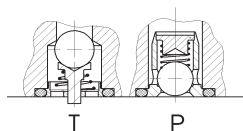
Dimensional drawing



Hydraulic schematics



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 types	Plug for solenoid (black)	3728850
LRS KPL Z4 TR 2PoI LED	All types	Plug for solenoid with integratet reduction of performance	3689354



Orifice insert and check valves cannot be installed directly in the valve (**ZP700 required**).

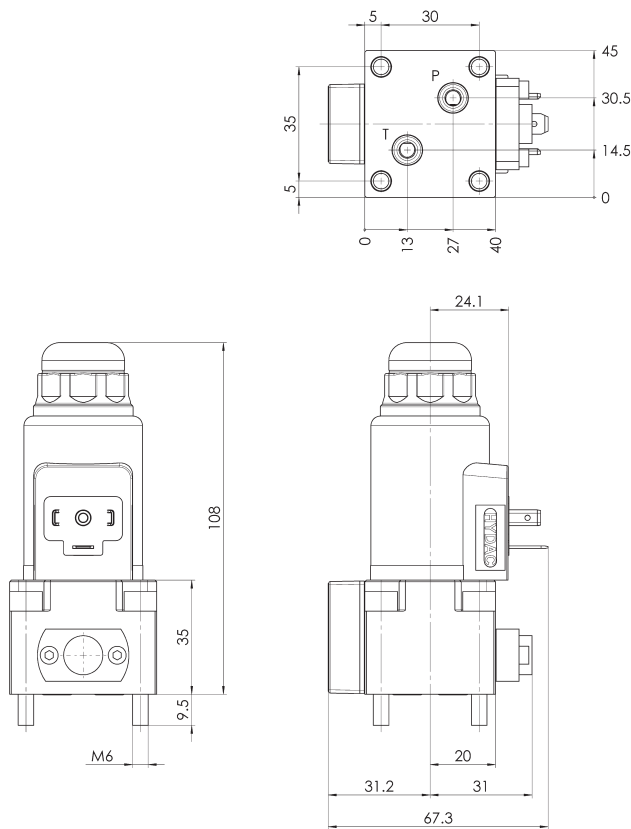
Product information 2/2-valve

Functions WO and WS

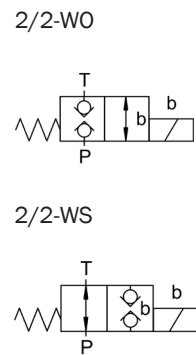
Actuator type	Part No. 2/2-WO	Weight ca. [kg]	Part No. 2/2-WS
Solenoid 24 VDC	4002620	0,85	4002624
Solenoid 110 VAC	4014031	0,85	4014033
Solenoid 230 VAC	4002891	0,85	4014034

Note: Characteristics see page 13

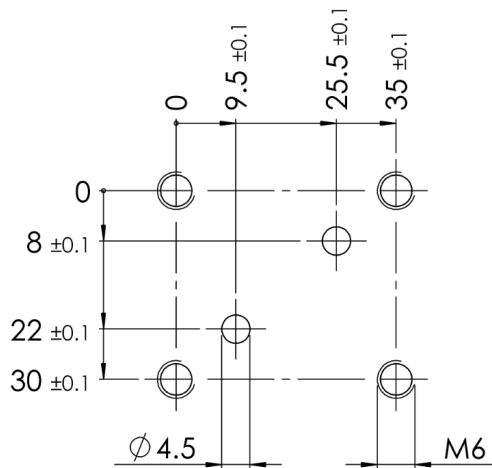
Dimensional drawing (solenoid operated)



Hydraulic schematics



Hole pattern 2/2-Valve



Subplates APH for 2/2-valve (valve bank - example see page 12)

Internal 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

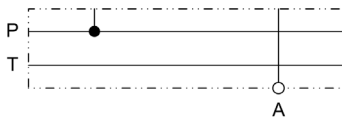
* see drawings below

Attention: Mounting elements for APH have to be ordered separately (see page 11)!

Note: For additional functions in subplates APH see data sheets size 500+ (ERVM, etc.)

Hydraulic schematics

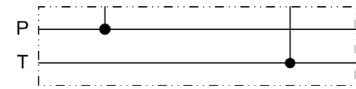
P - A



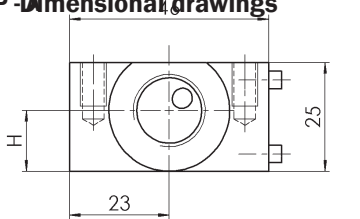
A - T



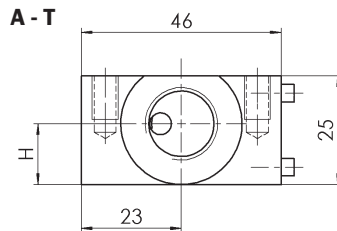
P - T



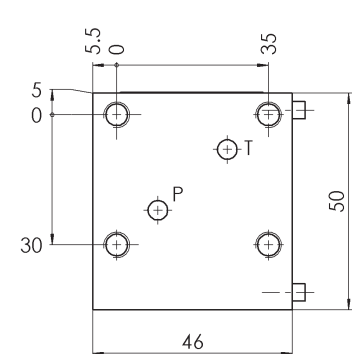
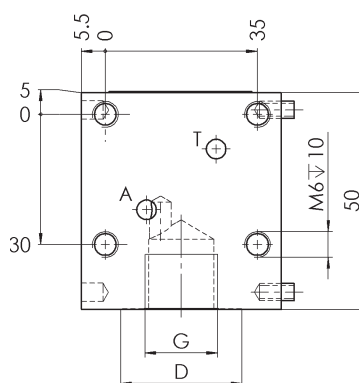
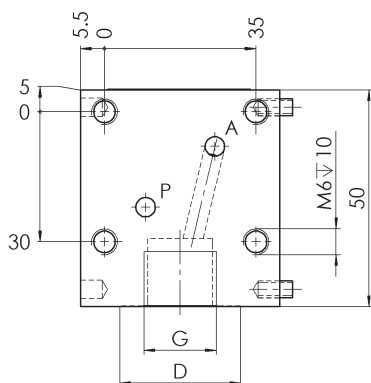
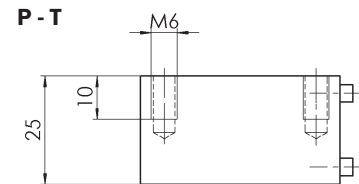
P - Dimensional drawings



A - T



P - T



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

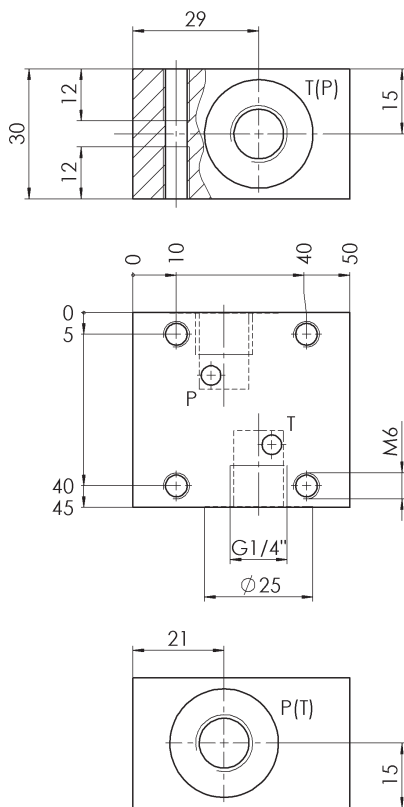
Threaded connection Dim. G ["]	Weight ca. [kg]	Part No.
G 1/4	0,45	3763413
G 3/8	0,45	3807978
G 1/2	0,75	3832462

Hydraulic schematics

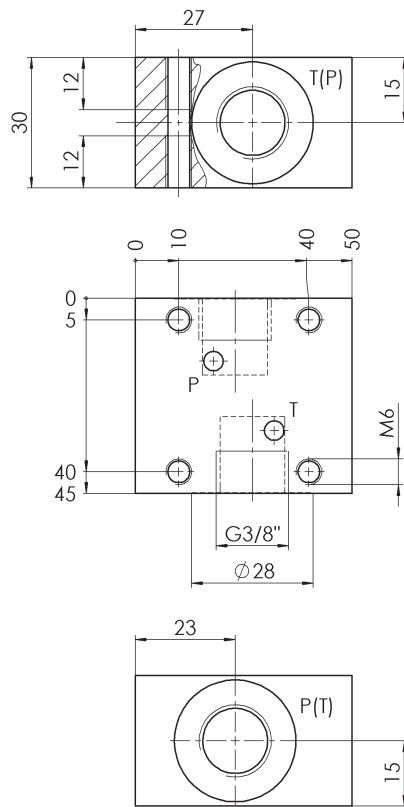


Dimensional drawings

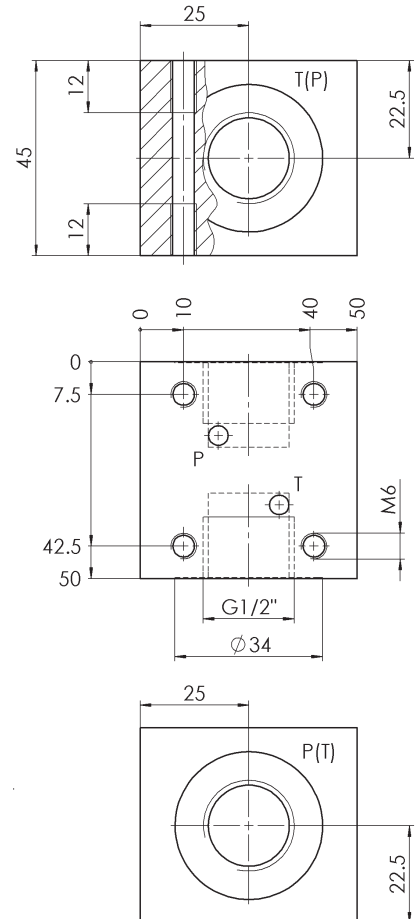
G 1/4"



G 3/8"



G 1/2"



Product information 3/2-valve

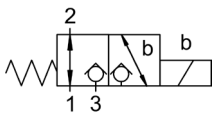
Functions N and L (negative overlap)

Actuator type	Weight ca. [kg]	Part No. 3/2-NL
Solenoid 24 VDC	0,85	4002628
Solenoid 110 VAC	0,85	4014048
Solenoid 230 VAC	0,85	4002892

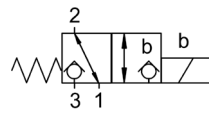
Note: Characteristics see page 13

Hydraulic schematics

3/2-N



3/2-L

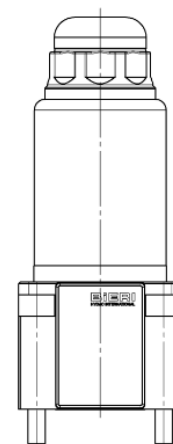
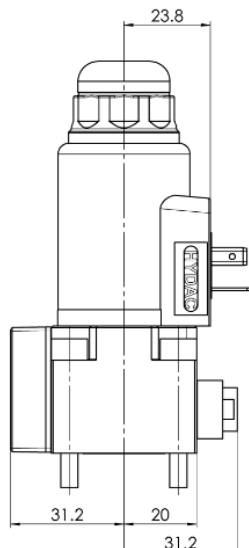
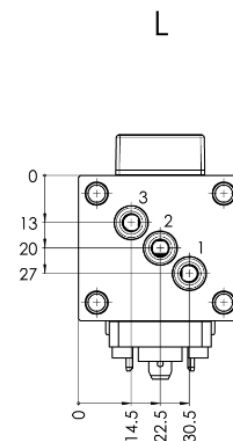
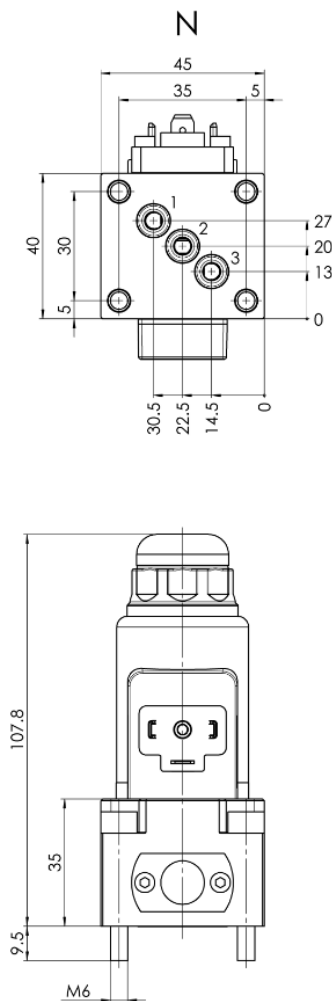


Attention: Valve body needs to be turned 180° to change over switching position N or L

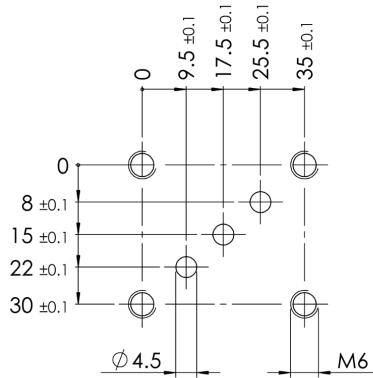
- To achieve function „L“, connection **3** (valve side) must be mounted to **P** (connecting plate), respectively connection **1** (valve) to **T** (plate)

- To achieve function „N“, connection **1** (valve side) must be mounted to **P** (connecting plate), respectively connection **3** (valve) to **T** (plate)

Dimensional drawing (solenoid operated)



Hole pattern 3/2-Valve



Subplates APH for 3/2-valve (valve bank - example see page 12)

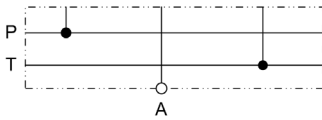
Threaded connection Dim. G* ["]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight ca. [kg]	Part No.
G 1/4	15	25	0,35	3832495
G 3/8	14	28	0,35	3832496

* see drawing below

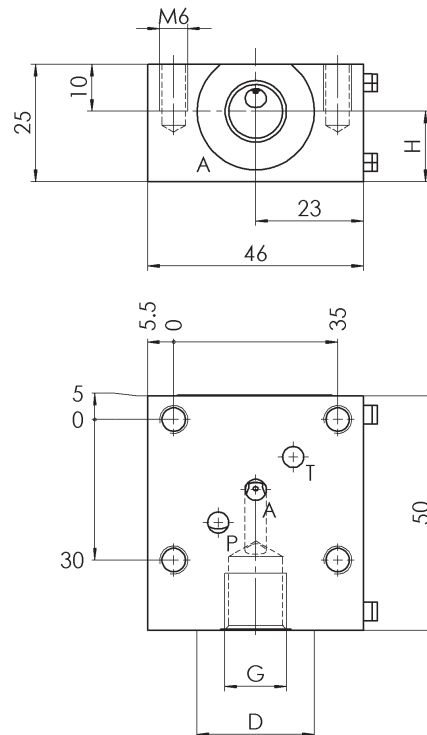
Attention: Mounting elements for APH have to be ordered separately (see page 11)!

Note: For additional functions in subplates APH see data sheets size 500+ (ERVM, etc.)

Hydraulic schematics



Dimensional drawing



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

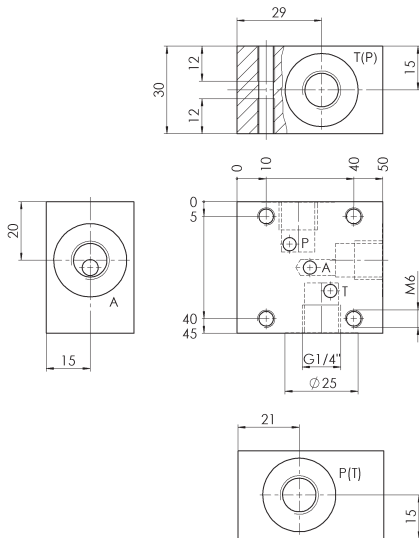
Threaded connection Dim. G ["]	Weight ca. [kg]	Part No.
G 1/4	0,45	3832498
G 3/8	0,45	3832499
G 1/2	0,70	3832497

Hydraulic schematics

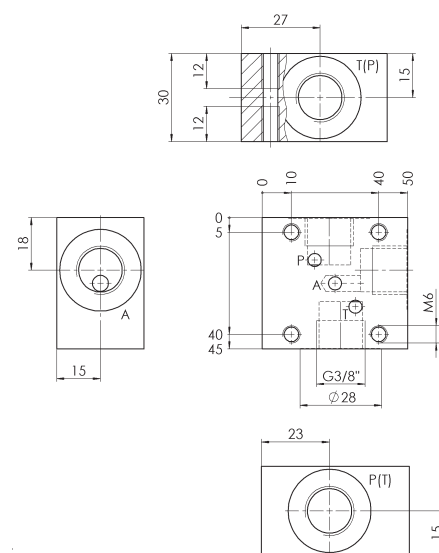


Dimensional drawings

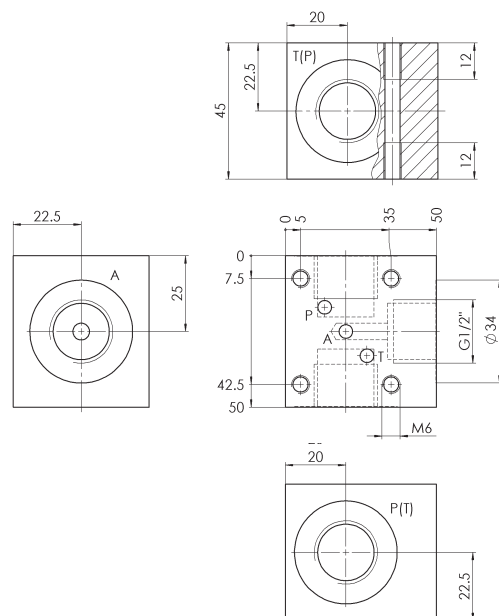
G 1/4"



G 3/8"



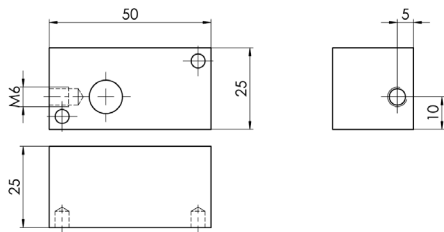
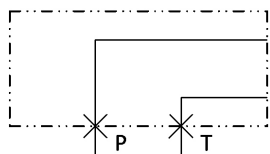
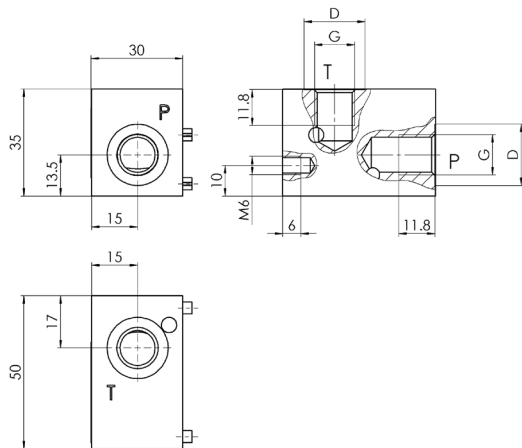
G 1/2"



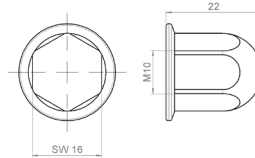
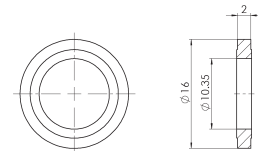
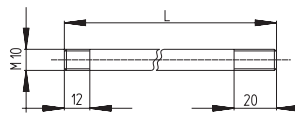
Valve bank (example see following page)**Mounting elements to subplates APH**

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

Note: For additional controlfunctions in subplate „starting block“ see data sheets size 500+ (DVM, AVM, etc.)

Dimensional drawings**End plate****Subplate „starting block“ / without connection for pressure relief valve**

„Starting block“ with pressure relief: see data sheet DV 700 page 9 „Starting block“ is always required!

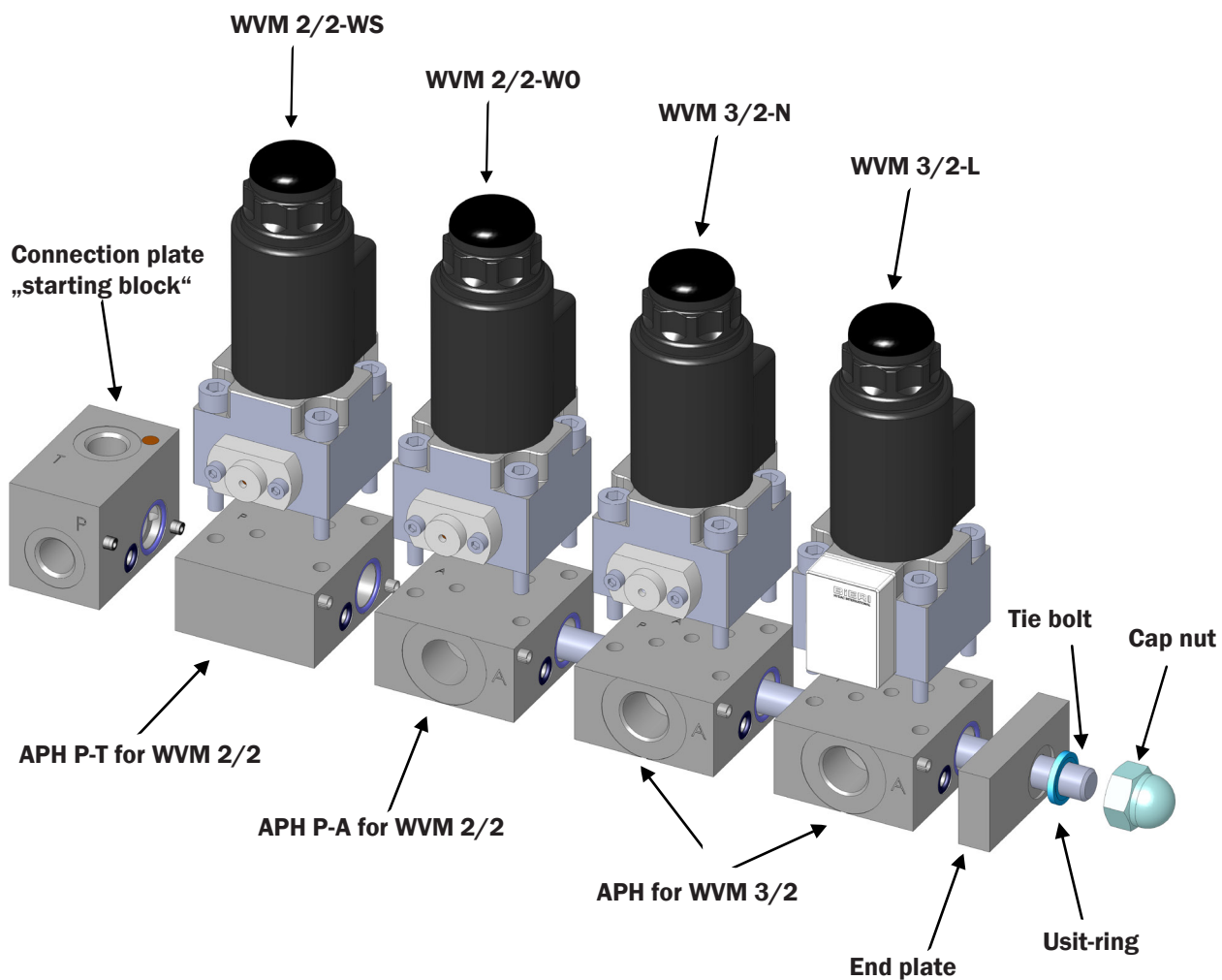
Cap nut**Usit-ring****Tie bolt****Dimensional table tie bolts**

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: Tie bolt need a special length when an end plate with a shut-off valve will be assembled (see data sheet AVM page 4)!

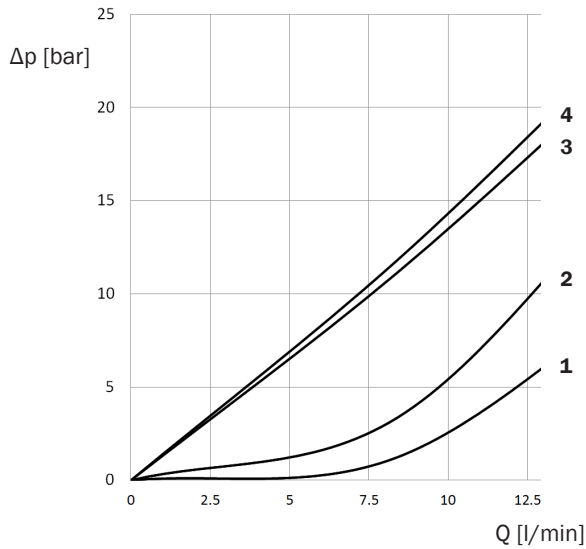
Type	Connecting threads	Part No.
APH-4B-SP-G1/4-V-A*00	1/4"	3845391
APH-4B-SP-G3/8-V-A*00	3/8"	4139619

Example valve bank



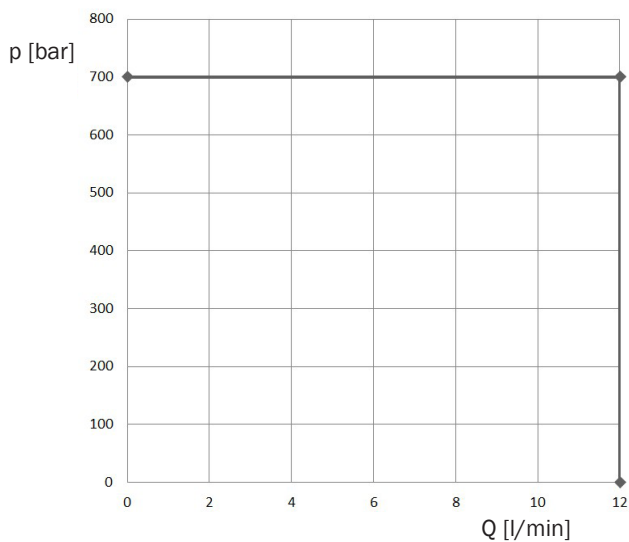
Characteristics

Pressure drop



Function	P - A	A - P	A - T	T - A	P - T	T - P
3/2-NL	2	4	3	2		
2/2-WO					1	1
2/2-WS					1	1

Hydraulic operating powerlimits



Hydraulic operating powerlimits at rated voltage and ambient temperature $T_a = 50^\circ \text{C}$.

— NL, WO, WS

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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.