

## Seated valve

### Type WVH700

NG 4

up to 12 l/min

#### 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 <sup>2</sup> /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)

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Ordering codes WVH700, APH and EAP

**Example WVH700**

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

<b>Seated valve</b>		
<b>Type</b>	HV700	
<b>Nominal size</b>	4	
<b>Ports</b>	2, 3 or 4	
<b>Positions</b>	2 or 3	
<b>Functions</b>	see product information of the valve type	
<b>Actuation types</b>	24	solenoid 24 VDC
	110	solenoid 110 VAC
	230	solenoid 230 VAC
<b>Seal material</b>	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 interchan-  
geability)

**Desing revision**  
Capital letters A-Z; iden-  
tical letters equal same  
connecting dimensions

**Example APH**

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

<b>Subplate</b>		
<b>Nominal size</b>	4	
<b>Porting</b>	..B	
<b>Ports</b>	2, 3 or 4	
<b>Positions</b>	2 or 3	
<b>Connection</b>	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
<b>Threaded connection</b>	G1/4	G 1/4"
	G3/8	G 3/8"
	X	no external port (for PT)
<b>Seal material</b>	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 interchangeabi-  
lity)

**Desing revision**  
Capital letters A-Z; identical  
letters equal same connec-  
ting 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; different letters do not effect interchangeability)

**Desing revision**

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

Type WVH700

NG 4  
up to 12 l/min

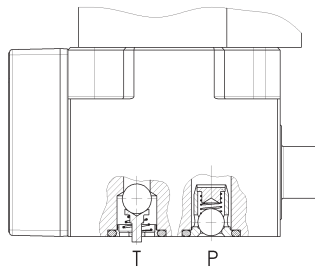
### Spare parts (included in delivery)

	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	4006062
Solenoid 110 VAC	4006150
Solenoid 230 VAC	4006151
Plastic nut	4006061
O-Ring for plastic nut	4006140

### Accessories (optional)

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 2PoI LED	all	plug for solenoid with integrated reduction of performance	3689354
Orifice	2/2, 3/2	Orifice (for assembly at port T)	on Request



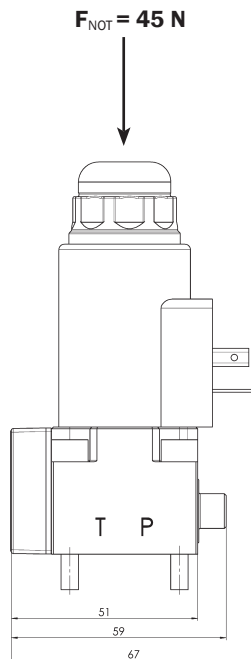
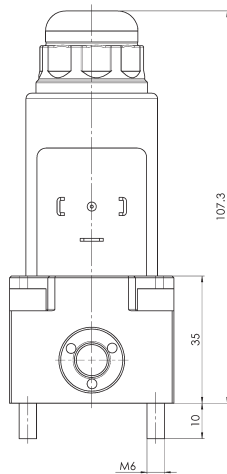
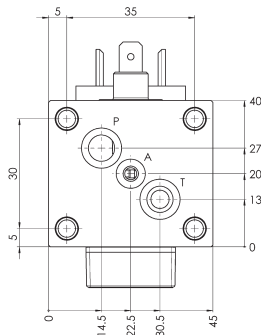
## Product information 2/2-valve

### 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

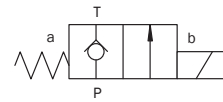
**Note:** Characteristics see page 19-20!

### Dimensional drawing

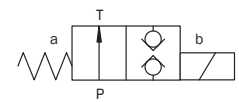


### Hydraulic schematics

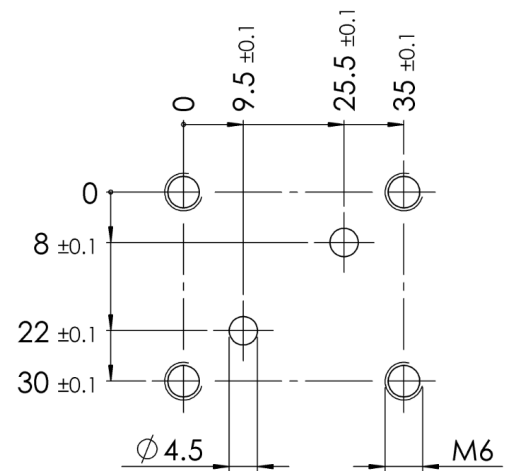
2/2-WO



2/2-WS



### Pattern of drilling for 2/2-valve



**Subplate APH for 2/2-valve  
(valve bank - example see page 17)**

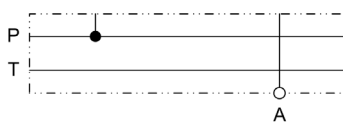
Connection	Threaded connection Dim. G* [°]	Dim. H* [mm]	Dim. D* Ø [mm]	Weight ca. [kg]	Part No.
P - A	G 1/4	15	25	0,35	3832459
P - A	G 3/8	14	28	0,35	3832460
A - T	G 1/4	15	25	0,35	3832457
A - T	G 3/8	14	28	0,35	3832458
P - T				0,35	3832461

\*See drawings below

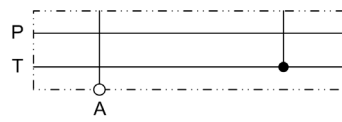
**Attention:** Mounting elements for valve bank have to be ordered separately (see page 16)!

**Hydraulic schematics**

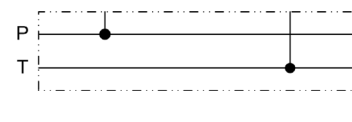
**P - A**



**A - T**

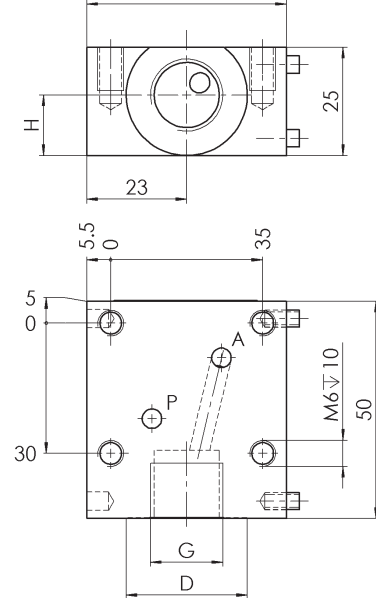


**P - T**

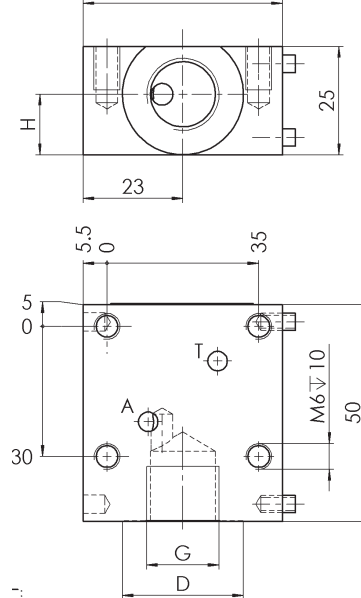


**Dimension drawings**

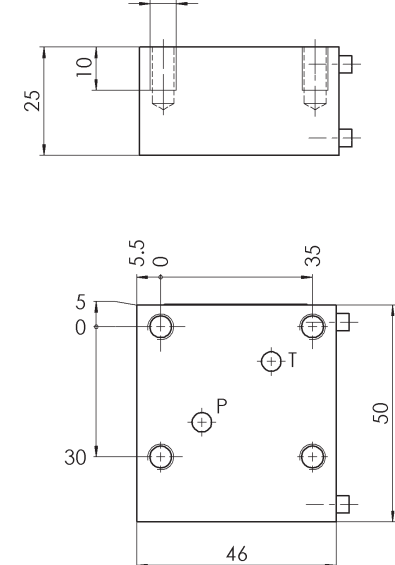
**P - A**



**A - T**



**P - T**



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

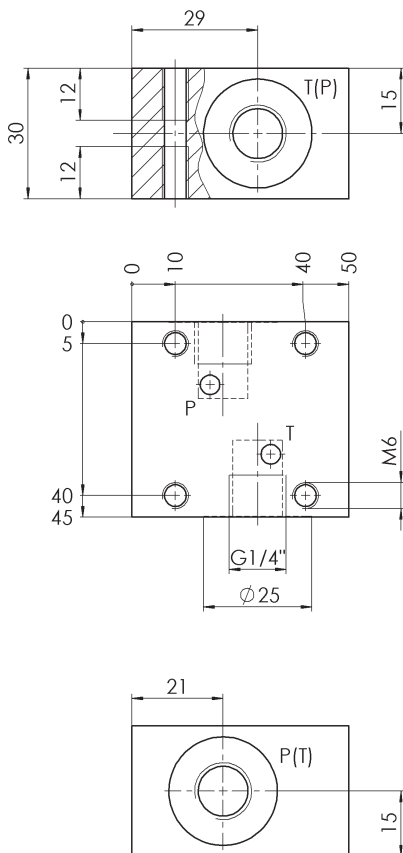
Threaded connection Dim. G ["]	Weight ca. [kg]	Part No.
G 1/4	0,45	3763413
G 3/8	0,45	3807978
G 1/2	0,75	3832462

**Hydraulic schematics**

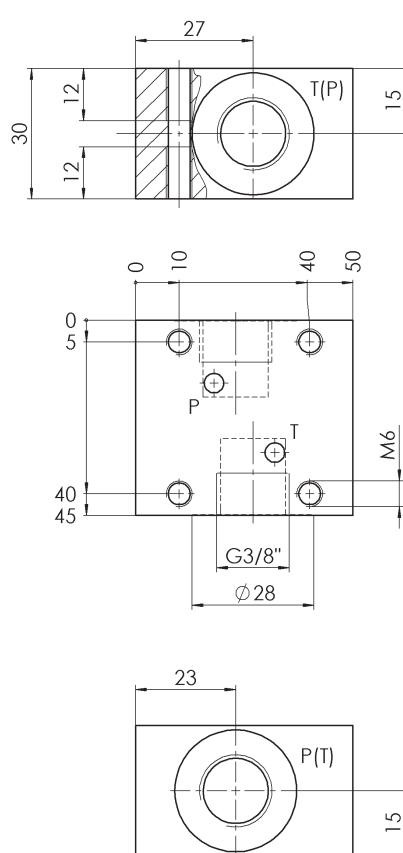


**Dimensional drawings**

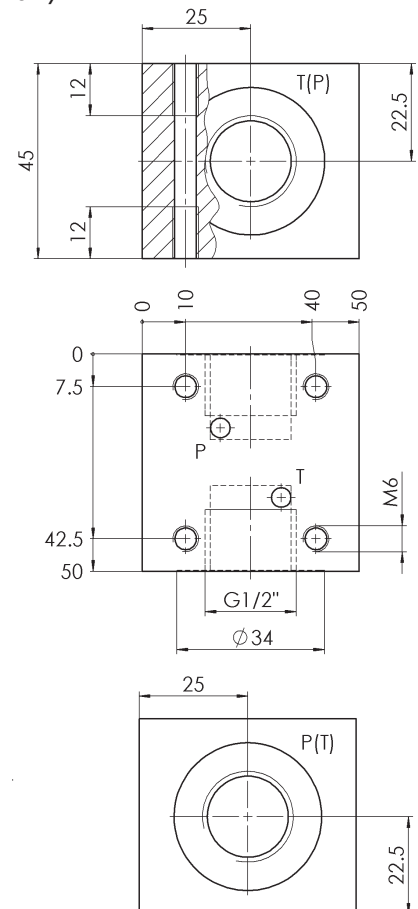
**G 1/4"**



**G 3/8"**



**G 1/2"**



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up to 12 l/min

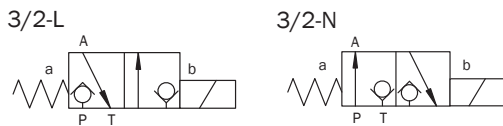
## Product information 3/2-valve

### Functions L and N (negative overlap)

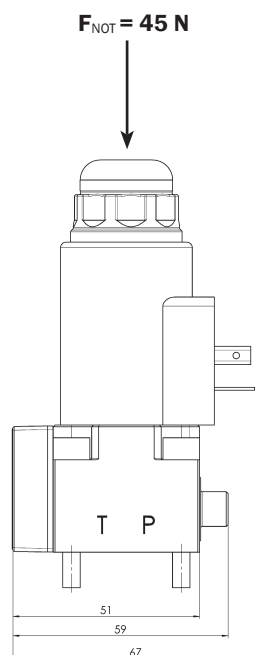
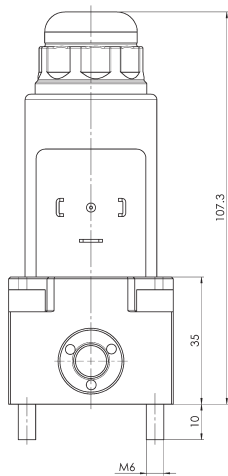
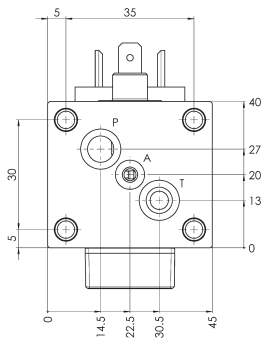
Actuation type	Weight ca. [kg]	Part No. 3/2-L	Weight ca. [kg]	Part No. 3/2-N
Magnet 24 VDC	0,85	3661077	0,85	3665430
Magnet 110 VAC	0,85	3678679	0,85	3742968
Magnet 230 VAC	0,85	3678684	0,85	3678715

**Note:** Characteristics see page 17-18!

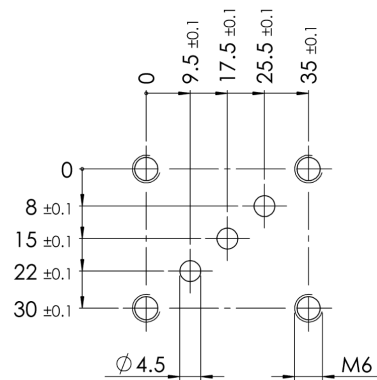
### Hydraulic schematics



### Dimensional drawing



### Pattern of drilling for 3/2-valve





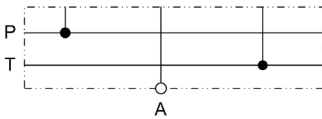
## Subplate APH for 3/2-valve (valve bank - example see page 18)

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

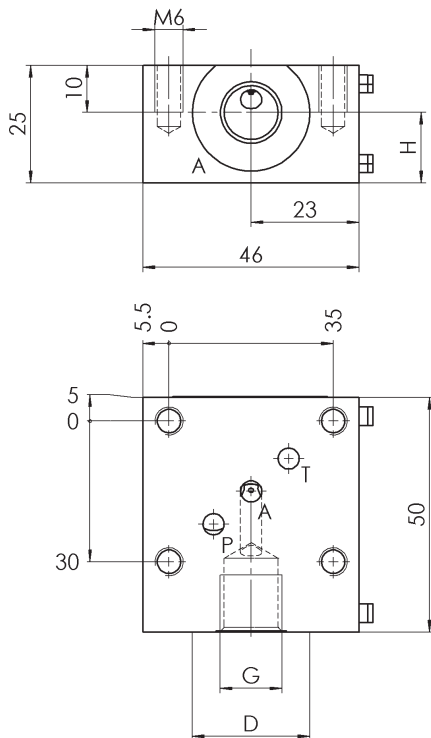
\*See drawing below

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

### Hydraulic schematics



### Dimension drawings



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

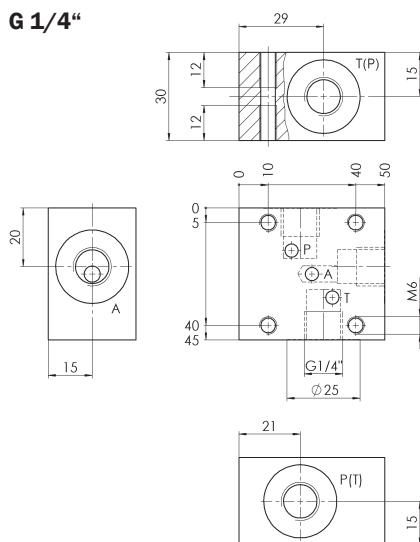
Threaded connection Dim. G ["]	Weight ca. [kg]	Part No.
G 1/4	0,45	3832498
G 3/8	0,45	3832499
G 1/2	0,70	3832497

**Hydraulic schematics**

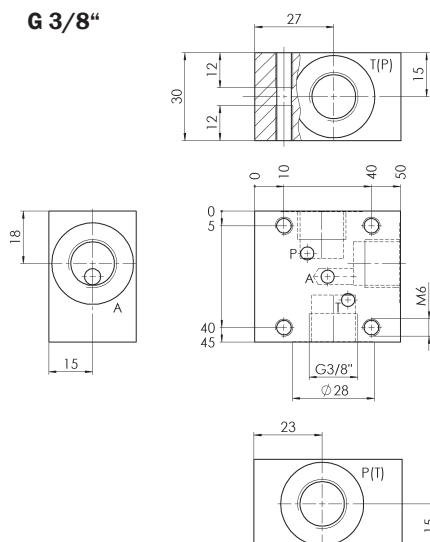


**Dimensional drawings**

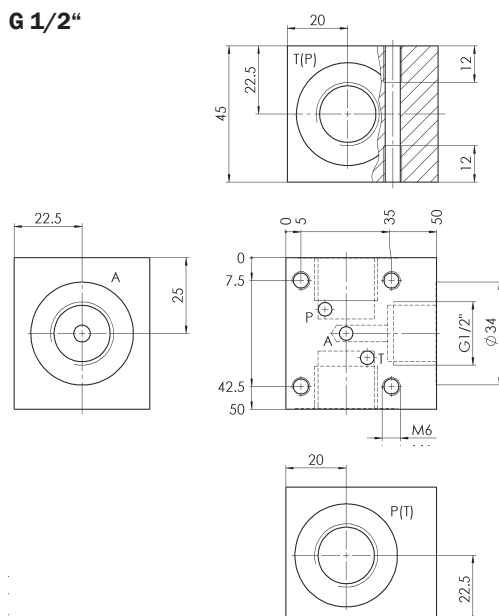
**G 1/4"**



**G 3/8"**



**G 1/2"**



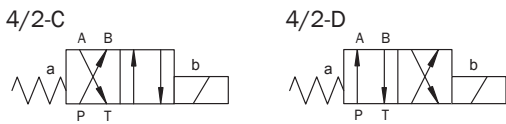
## Product information 4/2-valve

### Functions C and D (negative overlap)

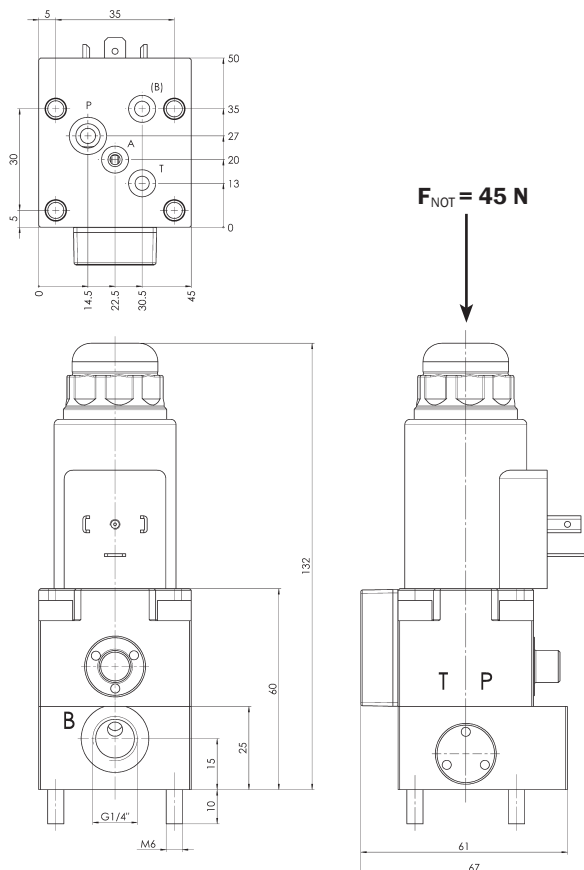
Actuation type	Weight ca. [kg]	Part No. 4/2-C	Weight ca. [kg]	Part No. 4/2-D
Solenoid 24 VDC	1,20	3665431	1,20	3665432
Solenoid 110 VAC	1,20	3678752	1,20	3678755
Solenoid 230 VAC	1,20	3678753	1,20	3678756

**Note:** Characteristics see page 17-18

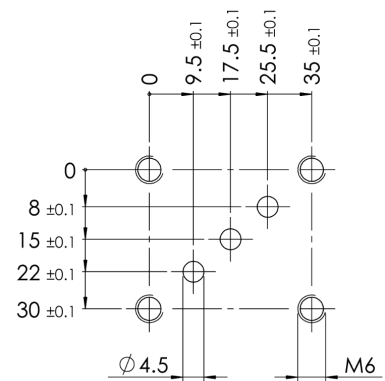
### Hydraulic schematics



### 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



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

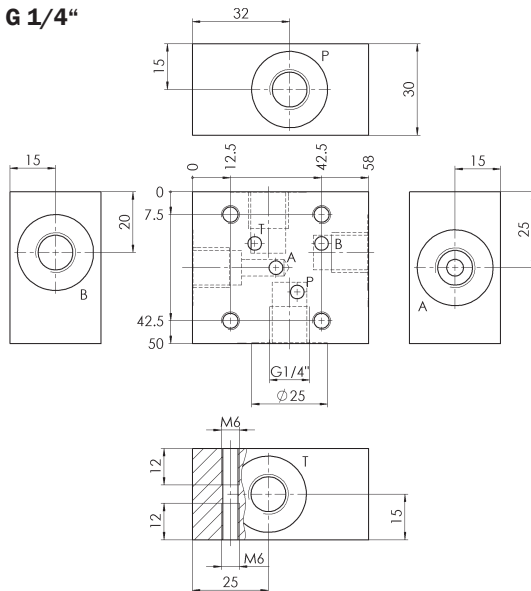
Threaded connection Dim. G ["]	Weight ca. [kg]	Part No.
G 1/4	0,45	3832534
G 3/8	0,45	3832535
G 1/2	0,70	3832533

### Hydraulic schematics

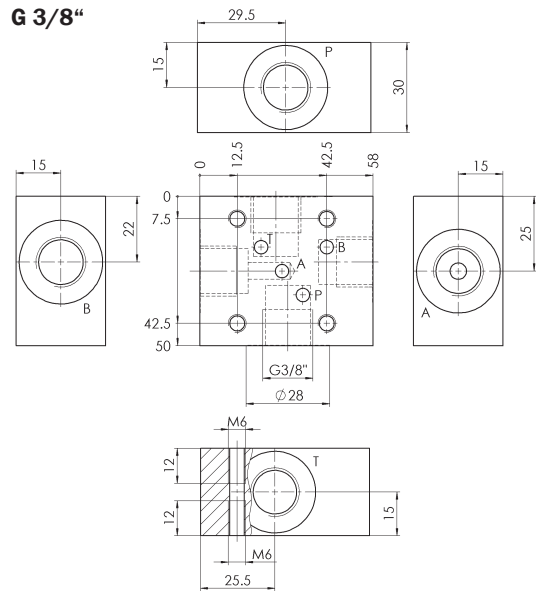


### Dimensional drawings

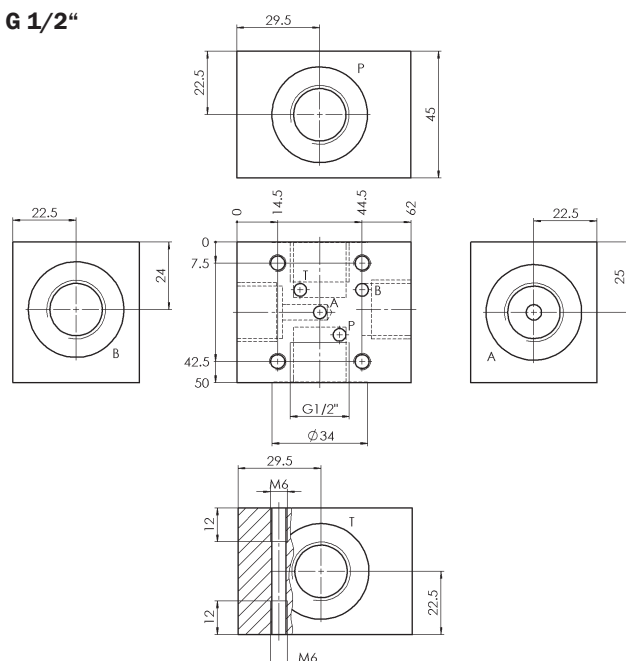
#### G 1/4"



#### G 3/8"



#### G 1/2"



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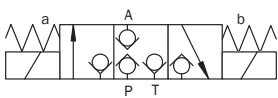
## Product information 3/3-valve

### Function K

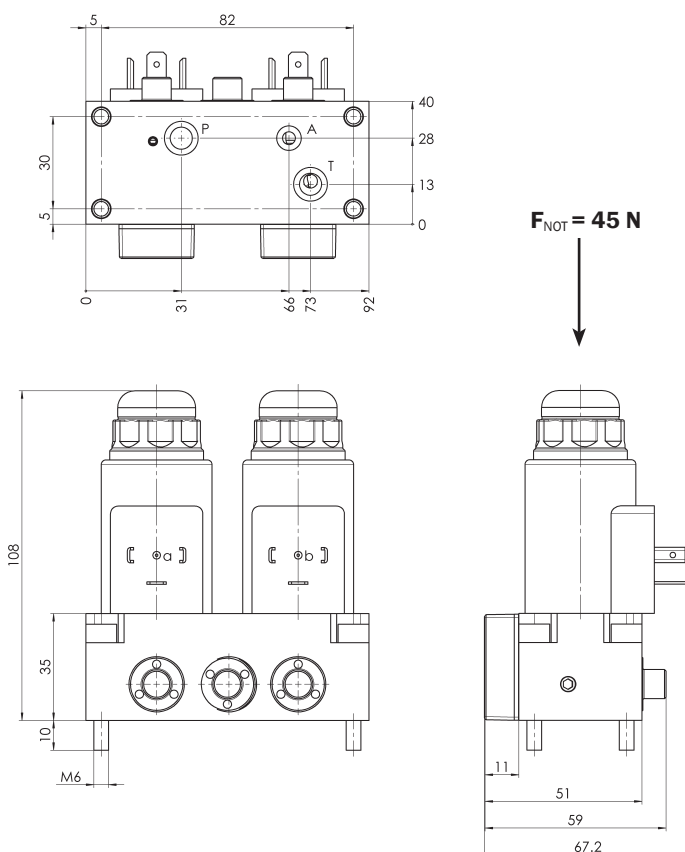
Actuation type	Weight ca. [kg]	Part No. 3/3-K
Solenoid 24 VDC	1,75	3678751
Solenoid 110 VAC	1,75	3678720
Solenoid 230 VAC	1,75	3678750

**Note:** Characteristics see page 17-18!

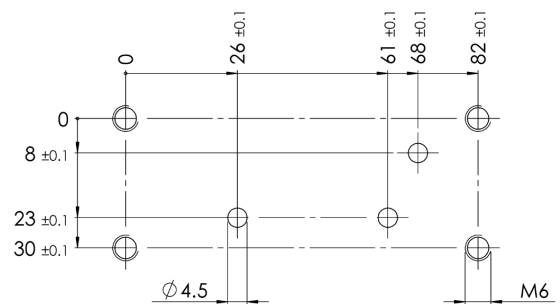
### Hydraulic schematics



### Dimensional drawing



### Pattern of drilling for 3/3-valve





**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

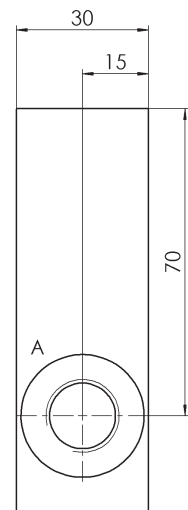
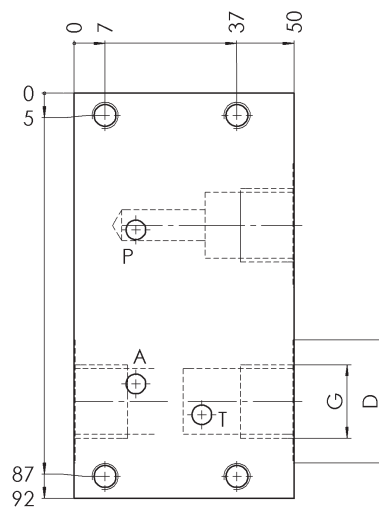
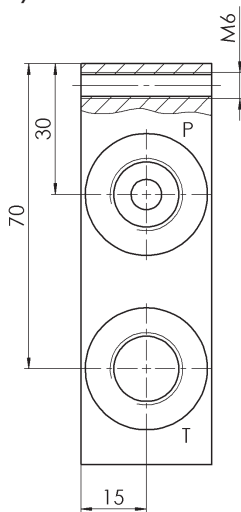
\*See drawings below

**Hydraulic schematics**

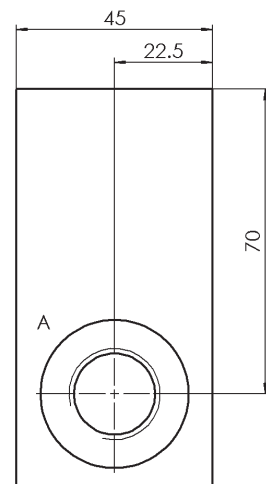
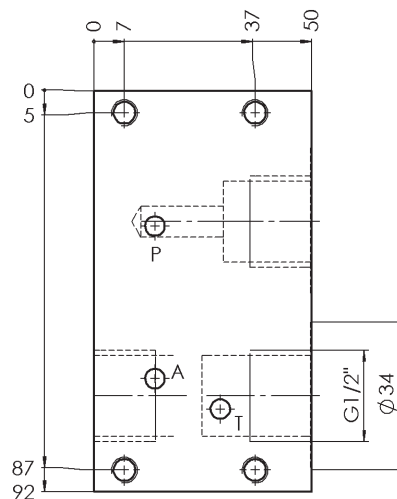
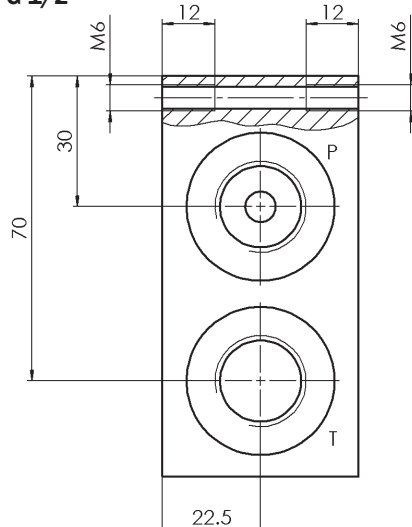


**Dimensional drawings**

**G 3/8" and G 1/4"**



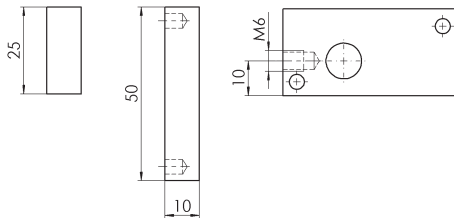
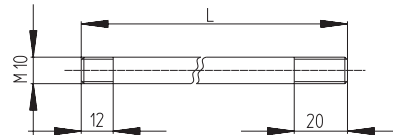
**G 1/2"**



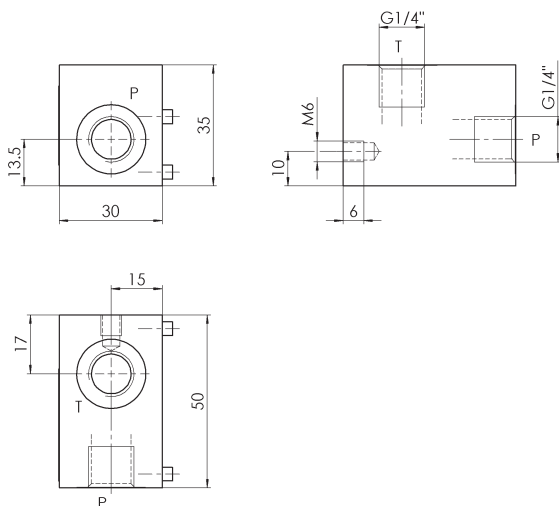


**Valve bank (example see following page)****Mounting elements for subplates APH**

Item description	Dimensions	Weight ca. [kg]	Part No.
Subplate „starting block“ / without connection for DV	see drawing below	0,30	3845391
End plate	see drawing below	0,10	3845392
Tie bolt	see table below	see table below	see table below
Cap nut	see drawing below	-	6112447
Usit-Ring	10,35 x 16 x 2 mm	-	6116776

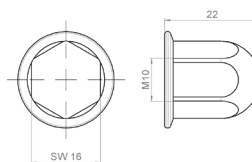
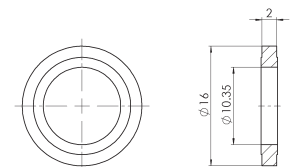
**End plate****Tie bolt****Dimensional drawings****Subplate APH „starting block“ / without connection for pressure relief valve DV**

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

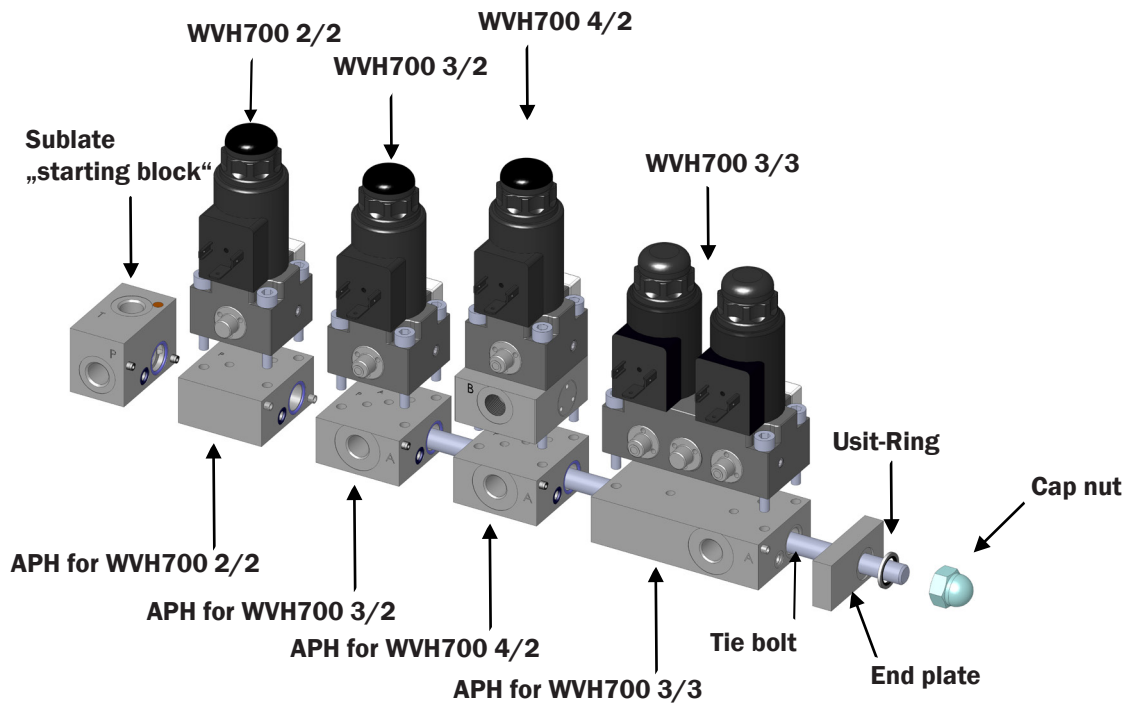
**Table for tie bolts**

Number of sections [section length= 46 mm]	Length [mm]	Part No.	Weight ca. [kg]
1	80,5	3688992	0,05
2	126,5	3689281	0,08
3	172,5	3689283	0,10
4	218,5	3689284	0,13
5	264,5	3689295	0,16
6	310,5	3689296	0,20
7	356,5	3689297	0,22
8	402,5	3689299	0,25
9	448,0	3689300	0,28
10	494,0	3689302	0,31

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

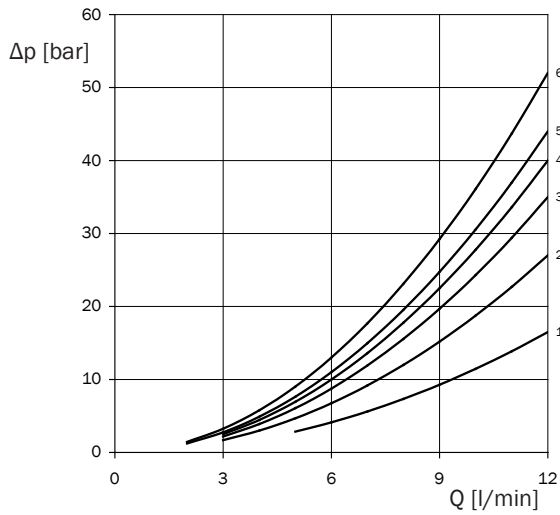
**Cap nut****Usit-Ring**

### Example valve bank



## Carateristics

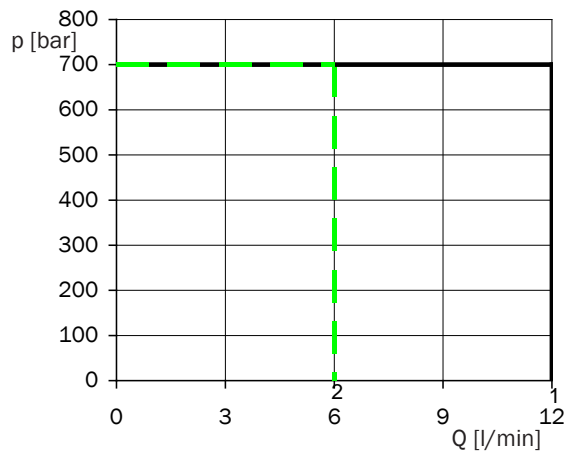
### Pressure drop



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

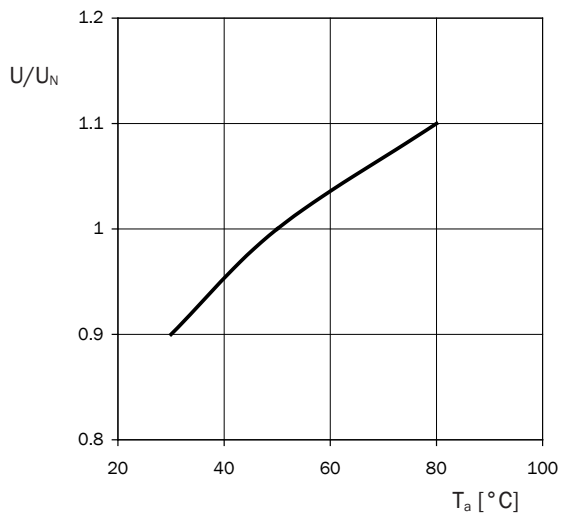
### Hydraulic switching power



Hydraulic switching power at rating voltage and ambient temperature  $T_a = 50^\circ \text{C}$ .

- 1 — C, D, K1, L, N, WO
- 2 — WS

### Working voltage



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