## Valves 2019



### Hafner-Pneumatik Excellence in Pneumatics



# Pilot Actuated Valves Selected valves can be used for technical vacuum too.

MI

Selected models are available for low temperature application. For detailed information refer to chapter 2.11.

Selected models are available

For detailed information refer to

in stainless steel.

chapter 2.12.

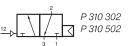
Selected models can be equipped with FKM seals for high temperature environment up to 120 °C. 

Selected models are available for explosion hazardous environment. They are ATEX-Ex certified. For detailed information refer to chapter 2.14.



### P 310 302/P 310 502

**2.4.1.1** page 50



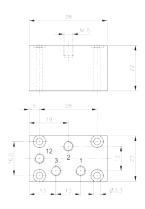


Pneumatically actuated 3/2-way spool valve with air spring return.

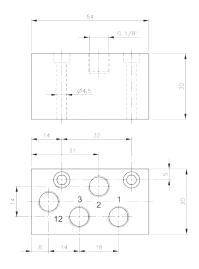
If pressure is attached to port 1 the function is normally closed. If pressure is applied to port 3 the function is normally open. Do not attach pressure at port 2.

Operating pressure and actuating pressure should be at the same level.

Exhaust can be throttled.



P 310 302



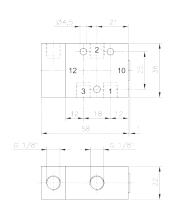
P 310 502

| Туре      | Port size | Air flow  | Operating press. | Actuating press. | Weight  |     |
|-----------|-----------|-----------|------------------|------------------|---------|-----|
| P 310 302 | M5        | 180 I/min | 2 - 10 bar       | the same         | 0,05 kg |     |
| P 310 502 | G 1/8"    | 650 l/min | 2 - 10 bar       | the same         | 0,13 kg | Æx> |

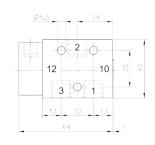


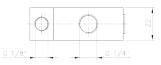
### P 310 501/P 310 701/P 310 801 P 311 501/P 311 701/P 311 801

**2.4.1.2** page 51

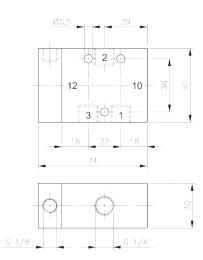


P 310 501/P 311 501

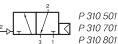




#### P 310 701/P 311 701



P 310 801/P 311 801





P 311 501 P 311 701 B 311 801



Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

Type P 311 \_\_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function is normally closed. If pressure is applied to port 3 the function is normally open. Pressure can only be attached to port 2 if valve has a mechanical spring (type P 311 \_\_\_\_).

| Туре      | Port size | Air flow   | Operating press.    | Actuating press.  | Weight  |          |
|-----------|-----------|------------|---------------------|-------------------|---------|----------|
| P 310 501 | G 1/8"    | 650 l/min  | 2 <b>-</b> 10 bar   | the same          | 0,13 kg | ً⊗₩      |
| P 310 701 | G 1/4"    | 1250 I/min | 2 - 10 bar          | the same          | 0,14 kg | (Ex) 316 |
| P 310 801 | G 1/4"    | 1450 I/min | 1,5 <b>-</b> 10 bar | the same          | 0,29 kg | (Ex)     |
| P 311 501 | G 1/8"    | 650 l/min  | 1 - 10 bar          | 3 <b>-</b> 10 bar | 0,13 kg | *        |
| P 311 701 | G 1/4"    | 1250 l/min | 1 - 10 bar          | 3 - 10 bar        | 0,14 kg | 316      |
| P 311 801 | G 1/4"    | 1450 I/min | 1 - 10 bar          | 3 - 10 bar        | 0,29 kg |          |

**2.4.1.3** page 52

### P 310 101/P 310 121/P 310 181 P 311 101/P 311 121/P 311 181





P 311 101 P 311 121 P 311 121 P 311 181 P 311 121 NPT



Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

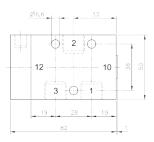
Type P 311 \_\_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function is normally closed.

If pressure is applied to port 3 the function is normally open.

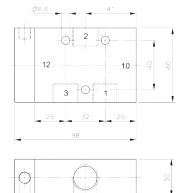
Pressure can only be attached to port 2 if valve has a mechanical spring (type P 311\_\_\_).

Exhaust can be throttled.



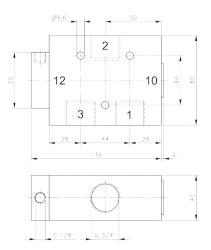


#### P 310 101/P 311 101



### G 1/2"

#### P 310 121/P 311 121 P 310 121 NPT/ P 311 121 NPT

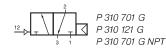


P 310 181/P 311 181

| Туре          | Port size | Air flow   | Operating press. | Actuating press. | Weight  |          |
|---------------|-----------|------------|------------------|------------------|---------|----------|
| P 310 101     | G 3/8"    | 2250 I/min | 1 - 10 bar       | the same         | 0,32 kg | Æx>      |
| P 310 121     | G 1/2"    | 3000 l/min | 1 - 10 bar       | the same         | 0,45 kg | €x ₩ 3   |
| P 310 181     | G 3/4"    | 6000 l/min | 1 - 10 bar       | the same         | 0,85 kg |          |
| P 311 101     | G 3/8"    | 2250 I/min | 1 - 10 bar       | 3 - 10 bar       | 0,32 kg |          |
| P 311 121     | G 1/2"    | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,45 kg | *        |
| P 311 181     | G 3/4"    | 6000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,85 kg |          |
| P 310 121 NPT | 1/2" NPT  | 3000 l/min | 1 - 10 bar       | the same         | 0,45 kg | (Ex) 316 |
| P 311 121 NPT | 1/2" NPT  | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,45 kg | 316      |



### P 310 701 G/P 311 701 G P 310 121 G/P 311 121 G





701 G

2.4.1.4

page 53

#### G-Series 701 G



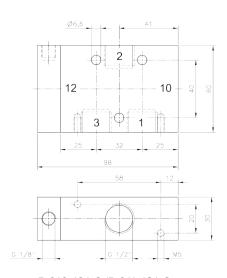




G-Series 121 G



#### P 310 701 G/P 311 701 G P 310 701 G NPT/ P 311 701 G NPT



Pneumatically actuated 3/2-way spool valve.

Type P 310 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

Type P 311 \_\_\_\_ with mechanical spring return.

If pressure is attached to port 1 the function is normally closed. If pressure is applied to port 3 the function is normally open.

Pressure can only be attached to port 2 if valve has a mechanical spring (type P 311\_\_\_).

The G-Series valves offer the flexibility of in-line fitment as well as the option of being assembled on to a manifold as shown. Plates are displayed on page 2.7.1.4 and 2.7.1.5.

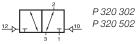
Take into consideration that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

| Туре            | Port size | Air flow   | Operating press.  | Actuating press.  | Weight  |   |
|-----------------|-----------|------------|-------------------|-------------------|---------|---|
| P 310 701 G     | G 1/4"    | 1250 I/min | 2 <b>-</b> 10 bar | the same          | 0,14 kg | ₩ |
| P 310 121 G     | G 1/2"    | 3000 l/min | 1 <b>-</b> 10 bar | the same          | 0,45 kg |   |
| P 311 701 G     | G 1/4"    | 1250 l/min | 1 <b>-</b> 10 bar | 3 - 10 bar        | 0,14 kg | ₩ |
| P 311 121 G     | G 1/2"    | 3000 l/min | 1 - 10 bar        | 3 - 10 bar        | 0,45 kg |   |
| P 310 701 G NPT | 1/4" NPT  | 1250 I/min | 2 - 10 bar        | the same          | 0,14 kg |   |
| P 311 701 G NPT | 1/4" NPT  | 1250 l/min | 1 <b>-</b> 10 bar | 3 <b>-</b> 10 bar | 0,14 kg |   |





### P 320 302/P 320 502 P 322 302/P 322 502







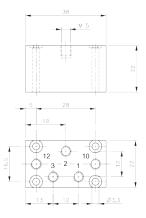
Pneumatically actuated 3/2-way spool valve actuated by impulse.

Type P 320 \_\_\_\_ double pilot Type P 322 \_\_\_\_ double pilot dominating at port 12

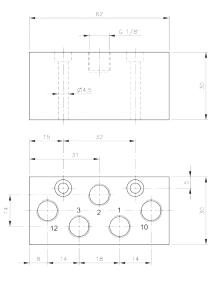
If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked. If signal is applied at 10 the valve is open from 2 to 3.

Position is kept until next pneumatic signal is applied.

Exhaust can be throttled.



P 320 302/P 322 302



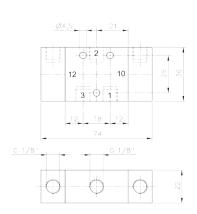
P 320 502/P 322 502

| Туре      | Port size | Air flow  | Operating press. | Actuating press. | Weight  |     |
|-----------|-----------|-----------|------------------|------------------|---------|-----|
| P 320 302 | M5        | 180 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,05 kg |     |
| P 320 502 | G 1/8"    | 650 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,13 kg | (Ex |
| P 322 302 | M5        | 180 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,05 kg |     |
| P 322 502 | G 1/8"    | 650 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,13 kg |     |

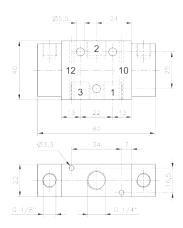


### P 320 501/P 320 701 G/ P 320 801 P 322 501/P 322 701 G

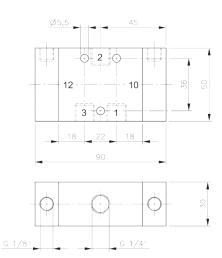
**2.4.1.6** page 55



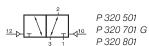
#### P 320 501/P 322 501



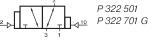
#### P 320 701 G/P 322 701 G











G-Series 701 G





Pneumatically actuated 3/2-way spool valve actuated by impulse.

| Туре Р 320     | double pilot                         |
|----------------|--------------------------------------|
| Туре Р 322     | double pilot dominating at port 12   |
| Type P 3 701 G | dual use, in-line and on manifold.   |
|                | Plates are displyed on page 2.7.1.4. |

If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked. If signal is applied at 10 the valve is open from 2 to 3.

The G-Series valves offer the flexibility of in-line fitment as well as the option of being assembled on to a manifold as shown. Plates are displayed on page 2.7.1.4 and 2.7.1.5.

Position is kept until next pneumatic signal is applied.

Operating pressure can also be applied to 2.

| Туре        | Port size | Air flow   | Operating press.  | Actuating press.    | Weight  |       |
|-------------|-----------|------------|-------------------|---------------------|---------|-------|
| P 320 501   | G 1/8"    | 650 l/min  | 1 - 10 bar        | 2,5 <b>-</b> 10 bar | 0,16 kg | €x>‡‡ |
| P 322 501   | G 1/8"    | 650 l/min  | 1 - 10 bar        | 2,5 - 10 bar        | 0,16 kg |       |
| P 320 701 G | G 1/4"    | 1250 l/min | 1 - 10 bar        | 2,5 - 10 bar        | 0,17 kg | €⋧₩   |
| P 322 701 G | G 1/4"    | 1250 I/min | 1 <b>-</b> 10 bar | 2,5 - 10 bar        | 0,17 kg |       |
| P 320 801   | G 1/4"    | 1450 l/min | 1 <b>-</b> 10 bar | 2,5 - 10 bar        | 0,34 kg | Æx>   |

### **2.4.1.7** page 56

### P 320 101/P 320 121/P 320 181

P 320 101 P 320 121



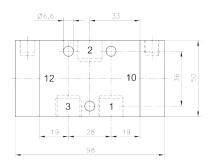
Pneumatically actuated 3/2-way spool valve actuated by impulse.

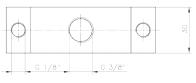
If signal is applied to 12 the valve is open from 1 to 2 and 3 is blocked. If signal is applied at 10 the valve is open from 2 to 3.

Operating pressure can also be applied to 2.

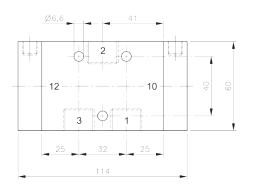
Position is kept until next pneumatic signal is applied.

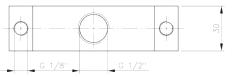
Exhaust can be throttled.



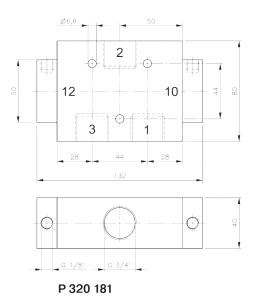


P 320 101









| Туре      | Port size | Air flow   | Operating press. | Actuating press. | Weight  |      |
|-----------|-----------|------------|------------------|------------------|---------|------|
| P 320 101 | G 3/8"    | 2250 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,38 kg | ⟨€x⟩ |
| P 320 121 | G 1/2"    | 3000 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,52 kg | ⟨€x⟩ |
| P 320 181 | G 3/4"    | 6000 l/min | 1 - 10 bar       | 2 - 10 bar       | 0,88 kg |      |

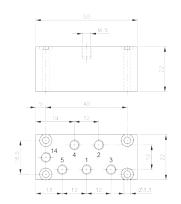


### P 510 302/P 510 502

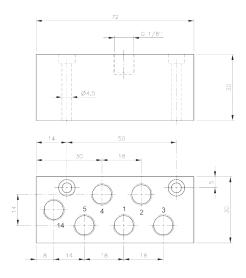
14

**2.4.2.1** page 57

P 510 302 P 510 502



P 510 302



P 510 502



Pneumatically actuated 5/2-way spool valve actuated by permanent signal and equipped with air spring return.

Normally open from 1 to 2 and from 4 to 5. If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

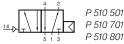
Operating pressure and actuating pressure should be at the same level.

| Туре      | Port size | Air flow  | Operating press. | Actuating press. | Weight   |      |
|-----------|-----------|-----------|------------------|------------------|----------|------|
| P 510 302 | M5        | 180 l/min | 2 - 10 bar       | the same         | 0,07 kg  |      |
| P 510 502 | G 1/8"    | 650 l/min | 2 - 10 bar       | the same         | 0, 17 kg | ⟨€x⟩ |



**2.4.2.2** page 58

### P 510 501/P 510 701/P 510 801 P 511 501/P 511 701/P 511 801









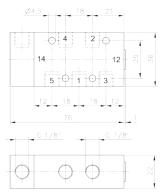
Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

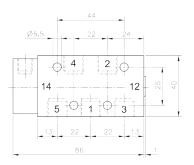
Type P 511 \_\_\_\_ with mechanical spring return.

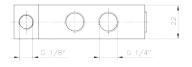
Normally open from 1 to 2 and from 4 to 5. If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

Exhaust can be throttled.

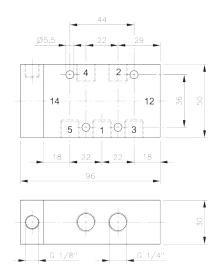


P 510 501/P 511 501





#### P 510 701/P 511 701

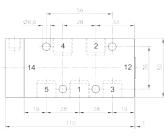


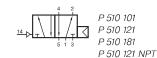
#### P 510 801/P 511 801

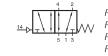
| Туре      | Port size | Air flow   | Operating press.    | Actuating press.  | Weight  |        |
|-----------|-----------|------------|---------------------|-------------------|---------|--------|
| P 510 501 | G 1/8"    | 650 l/min  | 2 - 10 bar          | the same          | 0,16 kg | Æx>    |
| P 510 701 | G 1/4"    | 1250 I/min | 2 - 10 bar          | the same          | 0,18 kg | (Ex) 💼 |
| P 510 801 | G 1/4"    | 1450 I/min | 1,5 <b>-</b> 10 bar | the same          | 0,38 kg | ⟨€x⟩   |
| P 511 501 | G 1/8"    | 650 l/min  | 1 - 10 bar          | 3 <b>-</b> 10 bar | 0,16 kg |        |
| P 511 701 | G 1/4"    | 1250 I/min | 1 - 10 bar          | 3 - 10 bar        | 0,18 kg | 316    |
| P 511 801 | G 1/4"    | 1450 l/min | 1 - 10 bar          | 3 - 10 bar        | 0,38 kg |        |



### P 510 101/P 510 121/P 510 181 P 511 101/P 511 121/P 511 181

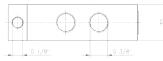




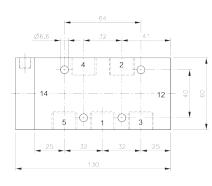


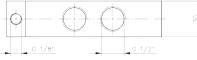
P 511 101 P 511 121 P 511 181 P 511 121 NPT 2.4.2.3

page 59

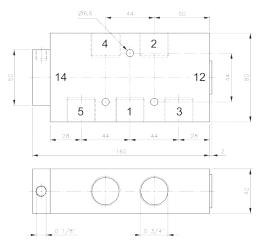


P 510 101/P 511 101





P 510 121/P 511 121 P 510 121 NPT/P511 121 NPT



#### P 510 181/P 511 181



Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

Type P 511 \_\_\_\_ with mechanical spring return.

Normally open from 1 to 2 and from 4 to 5. If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

| Туре          | Port size | Air flow   | Operating press. | Actuating press. | Weight   |          |
|---------------|-----------|------------|------------------|------------------|----------|----------|
| P 510 101     | G 3/8"    | 2250 l/min | 1,5 - 10 bar     | the same         | 0,42 kg  | Æx>      |
| P 510 121     | G 1/2"    | 3000 l/min | 1 - 10 bar       | the same         | 0,59 kg  | €x) ∰ ₃  |
| P 510 181     | G 3/4"    | 6000 l/min | 1 - 10 bar       | the same         | 1, 18 kg |          |
| P 511 101     | G 3/8"    | 2250 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,42 kg  |          |
| P 511 121     | G 1/2"    | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,59 kg  | ₩ 🖬      |
| P 511 181     | G 3/4"    | 6000 l/min | 1 - 10 bar       | 3 - 10 bar       | 1,18 kg  |          |
| P 510 121 NPT | 1/2" NPT  | 3000 l/min | 1 - 10 bar       | the same         | 0,59 kg  | (Ex) 316 |
| P 511 121 NPT | 1/2" NPT  | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,59 kg  | 316      |
|               |           |            |                  |                  |          | -        |

### P 510 501 G/P 510 701 G/P 510 121 G P 511 501 G/P 511 701 G/P 511 121 G

P 511 501 G

P 511 701 G

P 511 121 G

P 511 701 G NPT



G-Series 501 G/701 G





Pneumatically actuated 5/2-way spool valve.

Type P 510 \_\_\_\_ with air-spring-return. Operating pressure and actuating pressure should be at the same level.

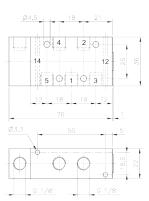
Type P 511 \_\_\_\_ with mechanical spring return.

Normally open from 1 to 2 and from 4 to 5. If pressure is applied at 14 the valve is open from 1 to 4 and 2 to 3.

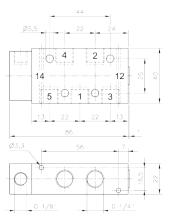
The G-Series valves offer the flexibility of in-line fitment as well as the option of being assembled on to a manifold as shown. Manifolds for valves type 501 G are displayed on page 2.7.2.2, manifolds for valves type 701 G are displayed on page 2.7.2.3, manifolds for valves type 121 G are displayed on page 2.7.2.5.

Take into consideration, that G 1/2" values have to be assembled onto the plate by fixing screws from the bottom through the plate into the value.

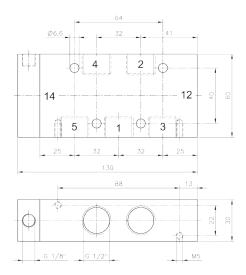
Exhaust can be throttled.



P 510 501 G/P 511 501 G



#### P 510 701 G/P 511 701 G P 501 701 G NPT/P 511 701 G NPT



P 510 121 G/P 511 121 G

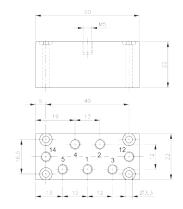
| Туре            | Port size | Air flow   | Operating press. | Actuating press.  | Weight  |   |
|-----------------|-----------|------------|------------------|-------------------|---------|---|
| P 510 501 G     | G 1/8"    | 650 l/min  | 2 - 10 bar       | the same          | 0,16 kg | * |
| P 510 701 G     | G 1/4"    | 1250 l/min | 2 - 10 bar       | the same          | 0,18 kg | * |
| P 510 121 G     | G 1/2"    | 3000 l/min | 1 - 10 bar       | the same          | 0,59 kg |   |
| P 511 501 G     | G 1/8"    | 650 l/min  | 1 - 10 bar       | 3 <b>-</b> 10 bar | 0,16 kg | * |
| P 511 701 G     | G 1/4"    | 1250 l/min | 1 - 10 bar       | 3 - 10 bar        | 0,18 kg | ∦ |
| P 511 121 G     | G 1/2"    | 3000 l/min | 1 - 10 bar       | 3 - 10 bar        | 0,59 kg |   |
| P 510 701 G NPT | 1/4" NPT  | 1250 l/min | 2 - 10 bar       | the same          | 0,18 kg |   |
| P 511 701 G NPT | 1/4" NPT  | 1250 I/min | 1 - 10 bar       | 3 - 10 bar        | 0,18 kg |   |



### P 520 302/P 520 502

**2.4.2.5** page 61

P 520 302 P 520 502





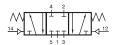
Pneumatically actuated 5/2-way spool valve actuated by impulse.

If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed. If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

Position is kept until next pneumatic signal is applied.

Exhaust can be throttled.

5/3-way centre closed version type P 531 302 available on request.

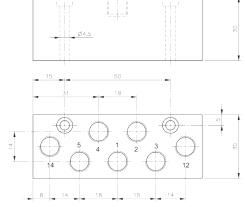


Туре Port size Air flow Operating press. Actuating press. Weight P 520 302 M5 180 I/min 1 - 10 bar 2,5 - 10 bar 0,07 kg P 520 502 G 1/8" 650 l/min 1 - 10 bar 2,5 - 10 bar 0,17 kg (Ex)





P 520 302



**2.4.2.6** page 62

### P 520 501/P 520 701/P 520 801 P 522 501/P 522 701

P 520 801



P 522 501



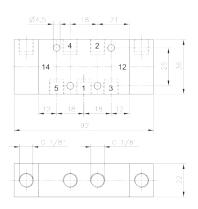
Pneumatically actuated 5/2-way spool valve.

Type P 520 \_\_\_\_ double pilot Type P 522 \_\_\_\_ double pilot dominating at port 14

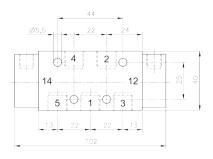
If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed. If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

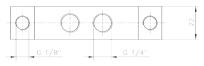
Position is kept until next pneumatic signal is applied.

Exhaust can be throttled.

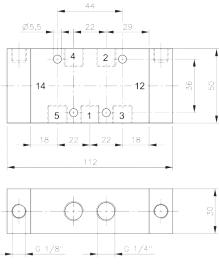


P 520 501/P 522 501





P 520 701/ P 522 701



P 520 801

| Туре      | Port size | Air flow   | Operating press. | Actuating press. | Weight  |
|-----------|-----------|------------|------------------|------------------|---------|
| P 520 501 | G 1/8"    | 650 I/min  | 1 - 10 bar       | 2,5 - 10 bar     | 0,20 kg |
| P 522 501 | G 1/8"    | 650 l/min  | 1 - 10 bar       | 2,5 - 10 bar     | 0,20 kg |
| P 520 701 | G 1/4"    | 1250 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,22 kg |
| P 522 701 | G 1/4"    | 1250 l/min | 1- 10 bar        | 2,5 - 10 bar     | 0,22 kg |
| P 520 801 | G 1/4"    | 1450 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,44 kg |

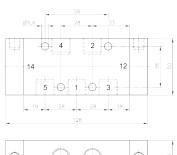


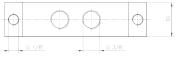
### P 520 101/P 520 121/P 520 181

2.4.2.7 page 63

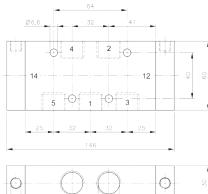


P 520 121 NPT



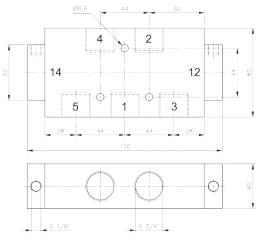


P 520 101





P 520 121/P 520 121 NPT



P 520 181



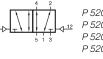
Pneumatically actuated 5/2-way spool valve actuated by impulse.

If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed. If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

Position is kept until next pneumatic signal is applied.

| Туре          | Port size | Air flow   | Operating press.  | Actuating press. | Weight  |                  |
|---------------|-----------|------------|-------------------|------------------|---------|------------------|
| P 520 101     | G 3/8"    | 2250 l/min | 1 - 10 bar        | 2,5 - 10 bar     | 0,48 kg | ⟨€x⟩             |
| P 520 121     | G 1/2"    | 3000 l/min | 1 <b>-</b> 10 bar | 2,5 - 10 bar     | 0,67 kg | €x) <b>₩</b> 316 |
| P 520 181     | G 3/4"    | 6000 l/min | 1 - 10 bar        | 2 - 10 bar       | 1,22 kg |                  |
| P 520 121 NPT | 1/2" NPT  | 3000 l/min | 1 <b>-</b> 10 bar | 2,5 - 10 bar     | 0,67 kg |                  |

### P 520 501 G/P 520 701 G/P 520 121 G P 522 501 G/P 522 701 G









G-Series 501 G/701 G



G-Series 121 G





Pneumatically actuated 5/2-way spool valve.

Type P 520 \_\_\_\_ double pilot Type P 522 \_\_\_\_ double pilot dominating at port 14

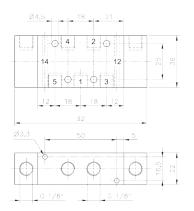
If signal is applied to 14 the valve is open from 1 to 4 and 2 to 3, 5 is closed. If signal is applied to 12 the valve is open from 1 to 2 and 4 to 5.

Position is kept until next pneumatic signal is applied.

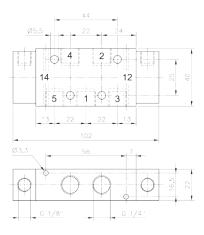
The G-Series valves offer the flexibility of in-line fitment as well as the option of being assembled on to a manifold as shown. Manifolds for valves type 501 G are displayed on page 2.7.2.2, manifolds for valves type 701 G are displayed on page 2.7.2.3, manifolds for valves type 121 G are displayed on page 2.7.2.5.

Take into consideration, that G 1/2" values have to be assembled onto the plate by fixing screws from the bottom through the plate into the value.

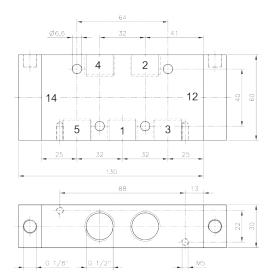
Exhaust can be throttled.



#### P 520 501 G/P 522 501 G



#### P 520 701 G/P 522 701 G P 520 701 G NPT



#### P 520 121 G

| Туре            | Port size | Air flow   | Operating press. | Actuating press. | Weight  |   |
|-----------------|-----------|------------|------------------|------------------|---------|---|
| P 520 501 G     | G 1/8"    | 650 l/min  | 1 - 10 bar       | 2,5 - 10 bar     | 0,20 kg | ₩ |
| P 522 501 G     | G 1/8"    | 650 l/min  | 1 - 10 bar       | 2,5 - 10 bar     | 0,20 kg |   |
| P 520 701 G     | G 1/4"    | 1250 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,22 kg | ₩ |
| P 522 701 G     | G 1/4"    | 1250 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,22 kg |   |
| P 520 121 G     | G 1/2"    | 3000 l/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,67 kg |   |
| P 520 701 G NPT | 1/4" NPT  | 1250 I/min | 1 - 10 bar       | 2,5 - 10 bar     | 0,22 kg |   |



### P 53\_501/P 53\_701/P 53\_801

P 532 501

P 532 701

P 532 801

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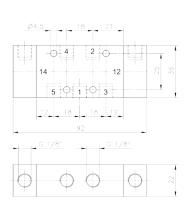
2.4.3.1 page 65

P 533 501

P 533 701

P 533 801

M



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14

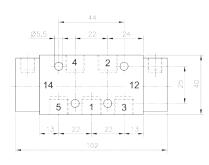
P 531 501

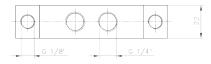
P 531 701

P 531 801

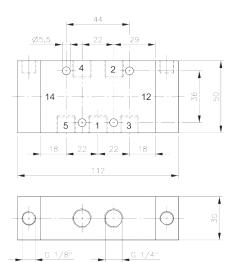
14 D

P 53\_ 501





P 53\_701



P 53\_801



14 D

Pneumatically actuated 5/3-way spool valve with spring return to middle position.

| Type 531 | centre closed      |
|----------|--------------------|
| Type 532 | centre exhausted   |
| Type 533 | centre pressurised |

When ordering please complete the type number by 1, 2 or 3 according to the type required.

| Туре      | Port size | Air flow   | Operating press. | Actuating press. | Weight  |          |
|-----------|-----------|------------|------------------|------------------|---------|----------|
| P 53_ 501 | G 1/8"    | 650 l/min  | 1 - 10 bar       | 3 - 10 bar       | 0,20 kg | (Ex)     |
| P 53_ 701 | G 1/4"    | 1250 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,22 kg | (Ex) 316 |
| P 53_801  | G 1/4"    | 1450 I/min | 1 - 10 bar       | 3 - 10 bar       | 0,44 kg |          |



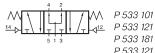
### P 53\_101/P 53\_121/P 53\_181

2.4.3.2 page 66

| P 531 101              |
|------------------------|
| P 531 101<br>P 531 121 |
| P 531 181              |
| P 531 121 NP           |
|                        |



P 532 101  $\mathbb{N}$ <u>\_\_\_\_</u>↓<u>12</u> P 532 121 P 532 181 P 532 121 NPT



P 533 121 P 533 181 P 533 121 NPT

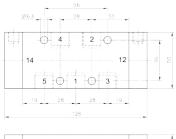


Pneumatically actuated 5/3-way spool valve with spring return to middle position.

| Type 531 | centre closed      |
|----------|--------------------|
| Type 532 | centre exhausted   |
| Type 533 | centre pressurised |

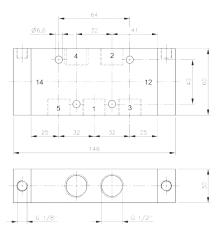
When ordering please complete the type number by 1, 2 or 3 according to the type required.

Exhaust can be throttled.

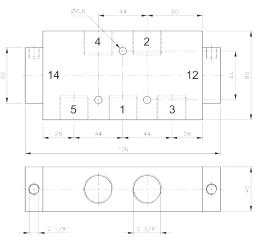




P 53\_101



#### P 53\_121/P 53\_121 NPT



P 53\_181

| Туре          | Port size | Air flow   | Operating press. | Actuating press. | Weight  |    |
|---------------|-----------|------------|------------------|------------------|---------|----|
| P 53_ 101     | G 3/8"    | 2250 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,49 kg | Æ, |
| P 53_ 121     | G 1/2"    | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,69 kg | Æ, |
| P 53_ 181     | G 3/4"    | 6000 I/min | 1 - 10 bar       | 3 - 10 bar       | 1,22 kg |    |
| P 53_ 121 NPT | 1/2" NPT  | 3000 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,69 kg | Æ; |



### P 53\_ 501 G/P 53\_ 701 G/P 53\_ 121 G

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P 532 501 G

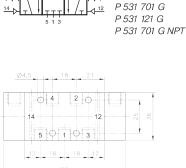
P 532 701 G

P 532 121 G

P 532 701 G NPT

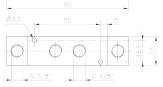
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2.4.3.3 page 67



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P 531 501 G



P 53\_ 501 G



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P 533 501 G

P 533 701 G

P 533 121 G

G-Series 121 G



Pneumatically actuated 5/3-way spool valve with spring return to middle position.

| Type 531 | centre closed      |
|----------|--------------------|
| Type 532 | centre exhausted   |
| Туре 533 | centre pressurised |

When ordering please complete the type number by 1, 2 or 3 according to the type in need.

The G-Series valves offer the flexibility of in-line fitment as well as the option of being assembled on to a manifold as shown. Manifolds for valves type 501 G are displayed on page 2.7.2.2, manifolds for valves type 701 G are displayed on page 2.7.2.3, manifolds for valves type 121 G are displayed on page 2.7.2.5.

Take into consideration, that G 1/2" valves have to be assembled onto the plate by fixing screws from the bottom through the plate into the valve.

Exhaust can be throttled.

| 14     |                     | 12 | 60 |
|--------|---------------------|----|----|
|        |                     | 3  |    |
| 25     | 32 32               | 25 |    |
| -      | 130                 |    |    |
| -      | 88                  | 13 |    |
| ф<br>- | $\bigcirc \bigcirc$ | φ  | 30 |
| 0.1/00 | G 1/2"              | M5 |    |

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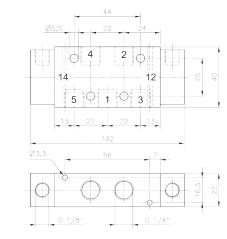
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#### P 53\_ 121 G

.... Тур P 53 P 53 P 53 P 53





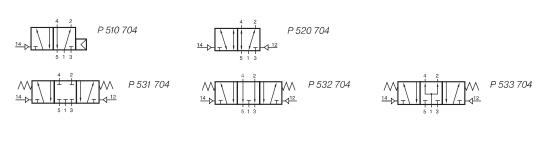
#### P 53\_701 G/P 53\_701 G NPT

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| ре           | Port size | Air flow   | Operating press. | Actuating press. | Weight  |    |
|--------------|-----------|------------|------------------|------------------|---------|----|
| 53_501 G     | G 1/8"    | 650 l/min  | 1 - 10 bar       | 3 - 10 bar       | 0,20 kg | ** |
| 53_701 G     | G 1/4"    | 1250 I/min | 1 - 10 bar       | 3 - 10 bar       | 0,22 kg | *  |
| 53_ 121 G    | G 1/2"    | 3000 I/min | 1 - 10 bar       | 3 - 10 bar       | 0,69 kg |    |
| 53 701 G NPT | 1/4" NPT  | 1250 l/min | 1 - 10 bar       | 3 - 10 bar       | 0,22 kg |    |

### P 510 704/P 520 704/P 53\_704





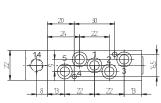
Pneumatically actuated 5/2-way and 5/3-way spool valves. All the ports are in the plate.

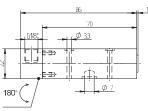
| Type 510 | single pilot       | 5/2-way |
|----------|--------------------|---------|
| Type 520 | double pilot       | 5/2-way |
| Type 531 | centre closed      | 5/3-way |
| Type 532 | centre exhausted   | 5/3-way |
| Type 533 | centre pressurized | 5/3-way |
|          |                    |         |

Blanking plates are also available type BP 5 704.

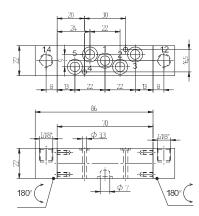
Manifolds are displayed on page 2.7.2.8.

Mounting screws and seals are included.





P 510 704



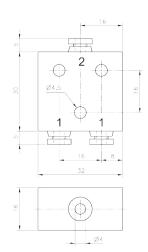
P 520 704/P 53\_704

| Туре      | Function             | Port size | Air flow   | Operating press.  | Actuating press. | Weight  |
|-----------|----------------------|-----------|------------|-------------------|------------------|---------|
| P 510 704 | 5/2-way single pilot | Ø7mm      | 1250 I/min | 2 - 10 bar        | the same         | 0,20 kg |
| P 520 704 | 5/2-way double pilot | Ø7mm      | 1250 l/min | 1 <b>-</b> 10 bar | 2,5 - 10 bar     | 0,29 kg |
| P 53_704  | 5/3-way              | Ø7mm      | 1250 l/min | 1 - 10 bar        | 3 - 10 bar       | 0,29 kg |

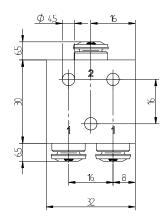


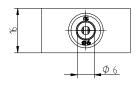
HAFNER

**2.4.4.1** page 68

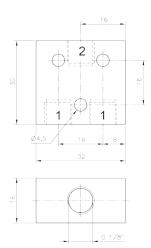


VA 341/ES 341









#### VA 401/ES 401

### VA 341/VA 361/VA 401 ES 341/ES 401

VA 341

VA 361

VA 401

ES 341 ES 401



#### VA 341/VA 361/VA 401: OR-gate

The OR-gate has two inputs 1 and one output 2.

The shuttle valve is used when only one of two possible signals is required to pass on a signal.

Function: If one of two signal inputs are activated, an output signal on port 2 is present and the other input is blocked.

In case of pressurising both inputs at different pressure levels, the higher pressure is fed to port 2.

#### ES 341/ES 401: AND-gate

The AND-gate has two inputs 1 and one output 2.

The dual-pressure valve is used when at least 2 signals are required before a signal is passed on.

Function: Only when both inputs are pressurised output 2 is pressurised.

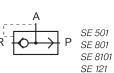
If two different pressures are applied the lower pressure is fed to output 2.

In case of only one signal at one of the two ports 1, the output 2 is blocked.

| Туре   | Function | Port size | Air flow  | Operating press.  | Weight  |
|--------|----------|-----------|-----------|-------------------|---------|
| VA 341 | OR       | pif 4 mm  | 280 I/min | 1 <b>- 10</b> bar | 0,04 kg |
| VA 361 | OR       | pif 6 mm  | 280 I/min | 1 <b>-</b> 10 bar | 0,04 kg |
| VA 401 | OR       | G 1/8"    | 280 l/min | 1 <b>-</b> 10 bar | 0,04 kg |
| ES 341 | AND      | pif 4 mm  | 280 I/min | 1 <b>-</b> 10 bar | 0,04 kg |
| ES 401 | AND      | G 1/8"    | 280 I/min | 1 <b>-</b> 10 bar | 0,04 kg |

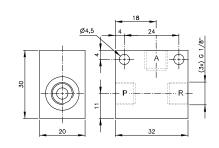


2.4.5.1 page 69 **2.4.5.2** page 70





SE 501/SE 801/SE 8101/SE 121



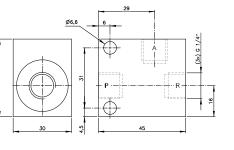
Quick-exhaust valve which can also be used as non-return valve as well as or-gate.

If used as a non-return valve please plug port R. Open from P to A, closed from A to P.

If used as an or-gate connect pressure to P and R. Port A is outlet.

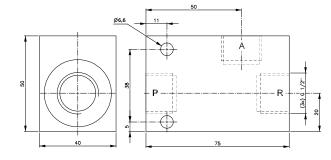
Temperature range: -20° C to +80° C

Stainless steel version as well as low temperature version (-40° C) available on request.

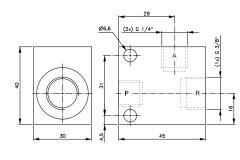




SE 501



SE 121



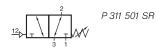
SE 8101

| Туре    | Port size A + P | Port size R | Air flow from A to R | Operating press. | Weight  |       |
|---------|-----------------|-------------|----------------------|------------------|---------|-------|
| SE 501  | G 1/8"          | G 1/8"      | 564 I/min            | 0,3 - 10 bar     | 0,06 kg | ₩ 16  |
| SE 801  | G 1/4"          | G 1/4"      | 1188 I/min           | 0,2 - 10 bar     | 0,18 kg | * 316 |
| SE 8101 | G 1/4"          | G 3/8"      | 1188 I/min           | 0,2 - 10 bar     | 0,18 kg | *     |
| SE 121  | G 1/2"          | G 1/2"      | 3600 l/min           | 0,5 - 10 bar     | 0,26 kg | *     |



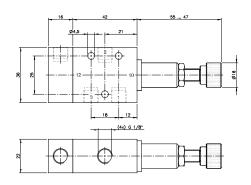
### P 311 501 SR/P 411 701 SR P 411 701 SR NPT

**2.4.5.3** page 71

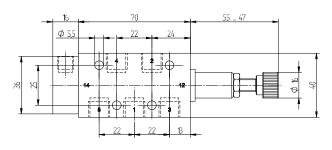


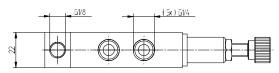


P 411 701 SR P 411 701 SR NPT



#### P 311 501 SR





#### P 411 701 SR/P 411 701 SR NPT



P 311 501 SR pneumatically actuated 3/2-way valve with mechanical spring return. Valve can be used normally closed (pressure at port 1) and normally open (pressure at port 3). Can also be used as 2/2-way valve. Unused port to be closed with a silencer or plug.

**P 411 701 SR** pneumatically actuated 4/2-way valve with mechanical spring return. Valve either blocks all ports or is open from 1 to 4 and from 3 to 2.

Port 5 is a vent port and should have a silencer installed, do not plug.

Valve can be used as an **adjustable pneumatic pressure switch**. By turning the hand-wheel the required minimum actuation pressure can be set. Adjustment is not independent from operation pressure.

Switch-on pressure differs from switch-off pressure due to a hysteresis of around 1.5 bar. The hysteresis is the difference between the pressure point when the valve is opening (e.g. 5 bar) and closing (e.g. 3.5). The 1.5 bar hysteresis is just a reference point as it is depending on the friction force.

The proportion between the friction force and the force of the air is changing when the air pressure increases. Therefore the hysteresis is getting smaller when the set actuating pressure increases.

| Туре             | Port size | Air flow   | Operating press. | Regulating range act. press. | Max. act.<br>press. | Weight  |      |
|------------------|-----------|------------|------------------|------------------------------|---------------------|---------|------|
| P 311 501 SR     | G 1/8"    | 650 I/min  | 2 - 10 bar       | 3 <b>-</b> 6 bar             | 10 bar              | 0,16 kg | ⟨€x⟩ |
| P 311 501 SR 02  | G 1/8"    | 650 l/min  | 2 - 10 bar       | 5 <b>-</b> 8 bar             | 10 bar              | 0,16 kg |      |
| P 311 501 SR 03  | G 1/8"    | 650 l/min  | 2 - 10 bar       | 2 <b>-</b> 4 bar             | 10 bar              | 0,16 kg |      |
| P 411 701 SR     | G 1/4"    | 1250 l/min | 2 - 10 bar       | 3 <b>-</b> 6 bar             | 10 bar              | 0,21 kg | (Ex) |
| P 411 701 SR NPT | 1/4" NPT  | 1250 l/min | 2 - 10 bar       | 3 <b>-</b> 6 bar             | 10 bar              | 0,21 kg |      |



### ERV 701/ERV 101/ERV 121

**2.4.5.4** page 72

|   | 2    |         |
|---|------|---------|
| 1 |      | ERV 701 |
|   | 19 W | ERV 101 |
| - | 1    | ERV 121 |



ERV 701

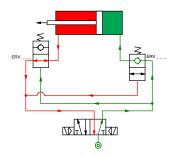
Pilot operated non-return valve.

Port 1 is blocked in basic position, but port 2 can exhaust through port1.

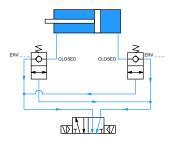
When a pilot signal is applied to port 12, the valve opens from 1 to 2.

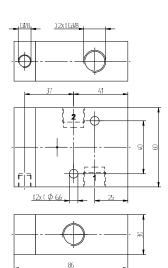
Valve can be used to lock the air in a cylinder in case of loss of air pressure.

Cylinder in movement:

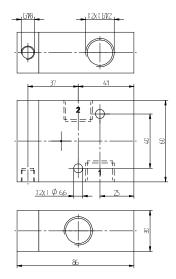


Pressure loss:





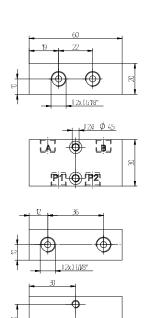
ERV 101

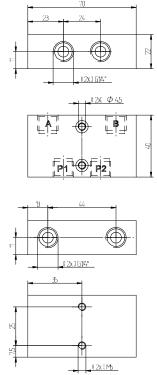


ERV 121

| Туре    | Port size 1 and 2 | Port size 12 | Air flow   | Operating press. | Weight  |     |
|---------|-------------------|--------------|------------|------------------|---------|-----|
| ERV 701 | G 1/4"            | G 1/8"       | 1250 I/min | 1 - 10 bar       | 0,14 kg | 316 |
| ERV 101 | G 3/8"            | G 1/8"       | 2250 I/min | 1 - 10 bar       | 0,32 kg | 316 |
| ERV 121 | G 1/2"            | G 1/8"       | 3000 I/min | 1 - 10 bar       | 0,45 kg | 316 |









19

12X1M5

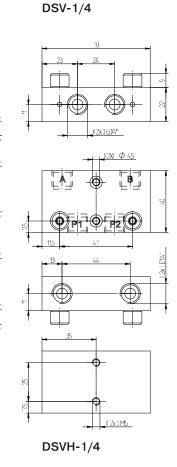
12x161/8\*

2X Φ 45

B

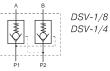
12x1M5

**DSVH-1/8** 



### DSV-1/8/DSV-1/4 VH-1/8/DSVH-1/4

2.4.5.5 page 73







DSVH-1/4



Pressure holding valves to hold a double acting actuator at the current position in case of pressure failure.

The valve consists of two non-return valves which will be unlocked by pressurising port P1 or P2.

Installation between pilot valve and actuator.

This valve is often used for gripper-applications. In case of pressure failure, the Hafner valve is locking the air in the gripper and thereby it does not lose its load.

Type DSVH with manual exhaust function. The user can exhaust the actuator manually by pushing the manual exhaust buttons.

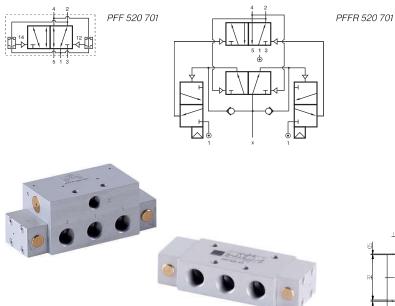
Inner parts are made of brass and POM, seals are made of NBR.

| Туре     | Port size | Air flow P to A/B | Air flow A/B to P | Operating press. | Weight  |
|----------|-----------|-------------------|-------------------|------------------|---------|
| DSV-1/8  | G 1/8"    | 230 l/min         | 360 l/min         | 1 - 10 bar       | 0,10 kg |
| DSV-1/4  | G 1/4"    | 650 l/min         | 1000 l/min        | 1 - 10 bar       | 0,10 kg |
| DSVH-1/8 | G 1/8"    | 230 l/min         | 360 l/min         | 1 - 10 bar       | 0,10 kg |
| DSVH-1/4 | G 1/4"    | 650 l/min         | 1000 l/min        | 1 - 10 bar       | 0,10 kg |



### PFF 520 701/PFFR 520 701

**2.4.5.6** page 74



Valves to generate oscillating movements for devices where continuous cycling is required, e.g. shaking, hammering, scraping, wiping, dipping etc.

#### Oscillating valve type PFF 520 701:

When compressed air is applied to port 1, the outlet ports 2 and 4 are alternately supplied with compressed air.

The valve always moves the position as soon as the cylinder has reached the end position and a back pressure is applied to the valve.

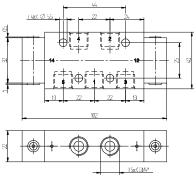
#### Flip-Flop valve type PFFR 520 701:

The PFFR is a bistable 5/2-way valve, which is operated by only one pilot port. When a signal is applied to pilot port X, the valve is switching the position. It will remain in this position even if the signal is taken away. When the pilot signal is applied to port X again, the valve will switch the position again.

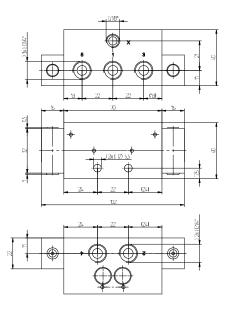
The speed of the operated cylinder and thus the frequency can be adjusted by adding flow regulators to the exhaust ports 3 and 5 of the valve. Please ask for SVE-1/4.



SVE-1/4



PFF 520 701



PFFR 520 701

| Туре         | Port size | Air flow   | Operating press. | Weight  |
|--------------|-----------|------------|------------------|---------|
| PFF 520 701  | G 1/4"    | 1250 l/min | 2 - 10 bar       | 0,22 kg |
| PFFR 520 701 | G 1/4"    | 1250 l/min | 2 - 10 bar       | 0,40 kg |

### DR 501/DR 801/DR 101 D 501/D 801/D 101

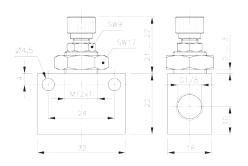
DR 501 DR 801

DR 101

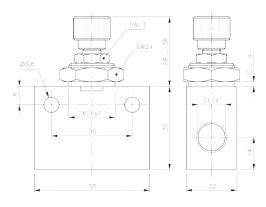
**2.4.5.7** page 75

D 501 D 801

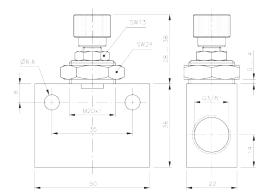
D 101







#### DR 801/D 801



#### DR 101/D 101

### Block form flow regulator.

#### Type DR

uni-directional block form flow regulator. Air streaming in the direction of the throttle can be regulated by turning the spindle. In the opposite direction air streams unthrottled.

DR 101

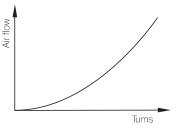
#### Type D

bi-directional flow regulator. Air is regulated in both directions.

The throttle can be adjusted very precisely along the entire regulation range.

Adjustment can be locked.

Suitable for wall and panel mounting. Nut is included.



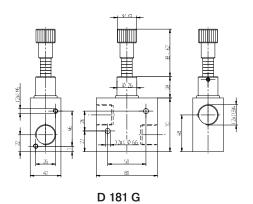
| Туре   | Port size | Air flow   | Airflow in opposite direction | Operating press. | Weight  |
|--------|-----------|------------|-------------------------------|------------------|---------|
| D 501  | G 1/8"    | 450 l/min  | 450 I/min                     | 0,5 - 10 bar     | 0,04 kg |
| D 801  | G 1/4"    | 1150 l/min | 1150 I/min                    | 0,5 - 10 bar     | 0,13 kg |
| D 101  | G 3/8"    | 1450 I/min | 1450 I/min                    | 0,5 - 10 bar     | 0,13 kg |
| DR 501 | G 1/8"    | 450 l/min  | 450 I/min                     | 2 - 10 bar       | 0,04 kg |
| DR 801 | G 1/4"    | 1150 I/min | 1150 I/min                    | 2 - 10 bar       | 0,13 kg |
| DR 101 | G 3/8"    | 1450 l/min | 1450 l/min                    | 2 - 10 bar       | 0,13 kg |



**2.4.5.8** page 76

D 181 G





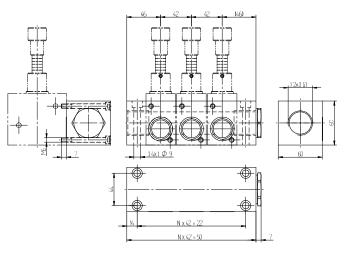
Block form flow regulator, bi-directional. Air is regulated in both directions.

Adjustment can be locked by a socket screw. 7 coloured rings are indicating the adjustment.

The flow regulator can either be used in-line or on a manifold plate. The following manifold sizes are available:

D 181 02D 181 02D 181 03S stations, including flow regulators

Temperature range: 0°C to 120°C.



D 181 0\_

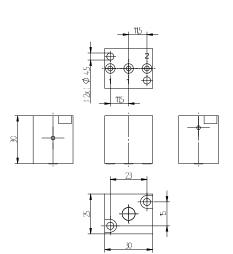
| Туре    | Port size | Air flow   | Operating press. | Weight  |
|---------|-----------|------------|------------------|---------|
| D 181 G | G 3/4"    | 6000 l/min | 0 - 10 bar       | 0,75 kg |



YES 204

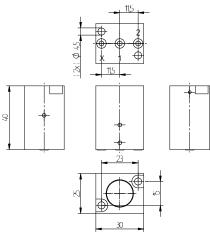
**2.4.6.1** page 77

NOT 204

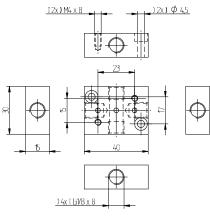


AND 204

AND 204/OR 204



YES 204/NOT 204







OR 204



Logical elements with standardized interface used in commercial vehicle industries.

Elements can be mounted to subbase RP LG 204.

| AND 204:   | Gives output signal only when                                    |
|------------|--|
| OR 204:    | both input signals are present.                                  |
| UN 204.    | Gives output signal if either or both input signals are present. |
| YES 204:   | The unit will give an output signal                              |
|            | when there is an input signal present at port X.                 |
| NOT 204:   | The unit gives an output signal                                  |
|            | when there is no input signal present at port X.                 |
| RP LG 204: | Subbase for logical elements                                     |

P LG 204: Subbase for logical elements series 204 with 4 x G 1/8" ports.

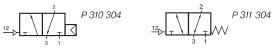
Delivery of logical elements includes 2 screws and 3 O-Rings.

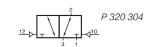
| Туре      | Function | Port size | Air flow  | Operating press. | Actuating press.  | Weight  |
|-----------|----------|-----------|-----------|------------------|-------------------|---------|
| AND 204   | OR       | Ø2mm      | 100 l/min | 1 - 10 bar       |                   | 0,06 kg |
| OR 204    | AND      | Ø2mm      | 100 l/min | 1 - 10 bar       |                   | 0,06 kg |
| YES 204   | N.C.     | Ø2mm      | 100 l/min | 1 - 10 bar       | 1 - 10 bar        | 0,08 kg |
| NOT 204   | N.O.     | Ø2mm      | 100 l/min | 1 - 10 bar       | 1 <b>-</b> 10 bar | 0,08 kg |
| RP LG 204 |          | G 1/8"    |           |                  |                   | 0,08 kg |

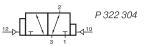


**2.4.6.2** page 78

### P 310 304/P 311 304 P 320 304/P 322 304/RP 3 344









Pneumatically actuated 3/2-way spool valves. To be assembled to plate RP 3 344.

Four different versions are offered:

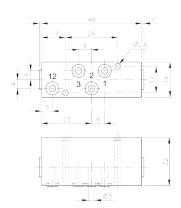
P 310 304 valve with air-spring return

| P 311 304 | valve with mechanical spring return       |  |  |  |
|-----------|---|--|--|--|
|           | Pressure applied to port 1 = YES-function |  |  |  |
|           | Pressure applied to port 3 = NOT-function |  |  |  |
| P 320 304 | double pilot valve                        |  |  |  |

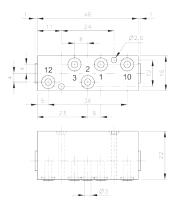
P 322 304 double pilot valve dominating at port 12

For P 310 304 the operating and actuating pressure should be at the same level.

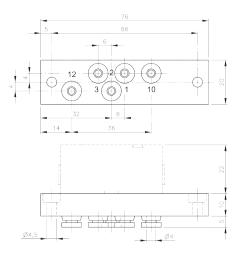
RP 3 344 is designed for carrying one 3/2-way valve type P 310 304, P 311 304, P 320 304 or P 322 304. The plate is equipped with 5 push-in fittings for 4 mm tube.



P 310 304/P 311 304



#### P 320 304/P 322 304



RP 3 344

| Туре      | Port size | Air flow  | Operating press. | Actuating press | Weight  |
|-----------|-----------|-----------|------------------|-----------------|---------|
| P 310 304 | Ø3mm      | 280 I/min | 2 - 10 bar       | the same        | 0,04 kg |
| P 311 304 | Ø3mm      | 280 l/min | 2 - 10 bar       | 3 - 10 bar      | 0,04 kg |
| P 320 304 | Ø3mm      | 280 l/min | 2 - 10 bar       | 2,5 - 10 bar    | 0,04 kg |
| P 322 304 | Ø3mm      | 280 I/min | 2 - 10 bar       | 2,5 - 10 bar    | 0,04 kg |
| RP 3 344  | pif 4 mm  |           |                  |                 | 0,04 kg |

