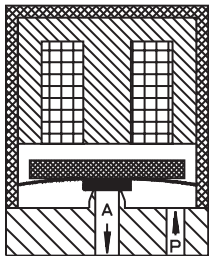
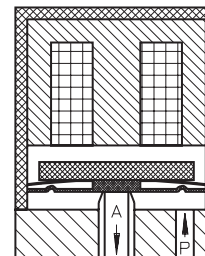


» Principals of Spider®-Valve VA series



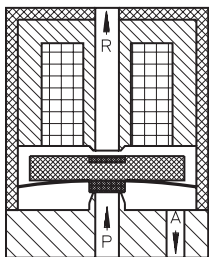
2-way-Spider®-Valve, direct actuated, NC (normally closed)

In the rest position the leaf spring pushes the disk armature with sealing element against the valve seat. The medium supports the sealing action. Upon energizing the solenoid, the disk armature is lifted away from valve and allows through flow. The medium flows from P to A. Upon de-energizing the solenoid, the leaf spring pushes the disk armature back against the valve seat and the valve is closed.



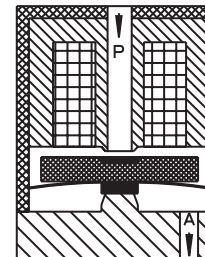
2-way-Spider®-diaphragm Valve, direct actuated, NC (normally closed)

In the rest position a leaf spring pushes the disk armature with integrated sealing element against the valve seat. The medium separated from the magnet system by the diaphragm. Upon energizing the solenoid, the disk armature is lifted away from the valve seat allowing flow through the valve. The medium flows from P to A. Upon de-energizing the solenoid the leaf spring pushes the disk armature against the valve seat and the valve is closed.



3-way-Spider®-Valve, direct actuated, NC (normally closed)

In the rest position a leaf spring pushes the disk armature with sealing against valve seat P. Port A is connected with port R. Upon energizing the solenoid, the disk armature is attracted and seals off exhaust R. The connection from P to A is opened. The medium flows around the armature. Upon de-energizing the solenoid, the leaf spring pushes the disk armature back into the rest position again, and the valve is closed.



2-way-Spider®-Valve, direct actuated, NO (normally open)

In the rest position a leaf spring pushes the disk armature into the lower position. Port P is connected with port A. Upon energizing the solenoid the armature is lifted and seals port P, the valve is closed. Upon de-energizing the leaf spring pushes the armature back into the rest position and opens the valve.

» Spider®-Valves VA series

Principle of operation

Instead of having a plunger which moves through a coil, Spider®-Valve have a flat armature that is pulled against the magnetic yoke in the energized position. The flat armature is fastened together with a leaf spring that presses the integrated sealing element against the valve seat in the de-energized position. Flat armature valves distinguish themselves according to practically frictionless movement throughout very high life cycles (depending upon application $> 10^9$) and, due to the very low mass of the armature, through switching times in the microsecond (ms) range.

Hereby, for example, they are applicable as quasi-proportional valves in that they can be driven with current pulses. The response time in switching can be varied as desired to attain variable flow rates (so called pulse width modulation).

Micro-valves

The unique design of the Spider®-Valve enables a great degree of miniaturization. Staiger produces a series of micro-valves with an outside diameter from 7 mm.

Characteristics

- » Frictionless movement
- » High life cycles
- » Fast response times
- » Small size

Basic models

Size 7 mm (Micro-valves):

VA 204 - 7...
VA 304 - 7...

Size 15 mm:

VA 204 - 5...
VA 304 - 5...

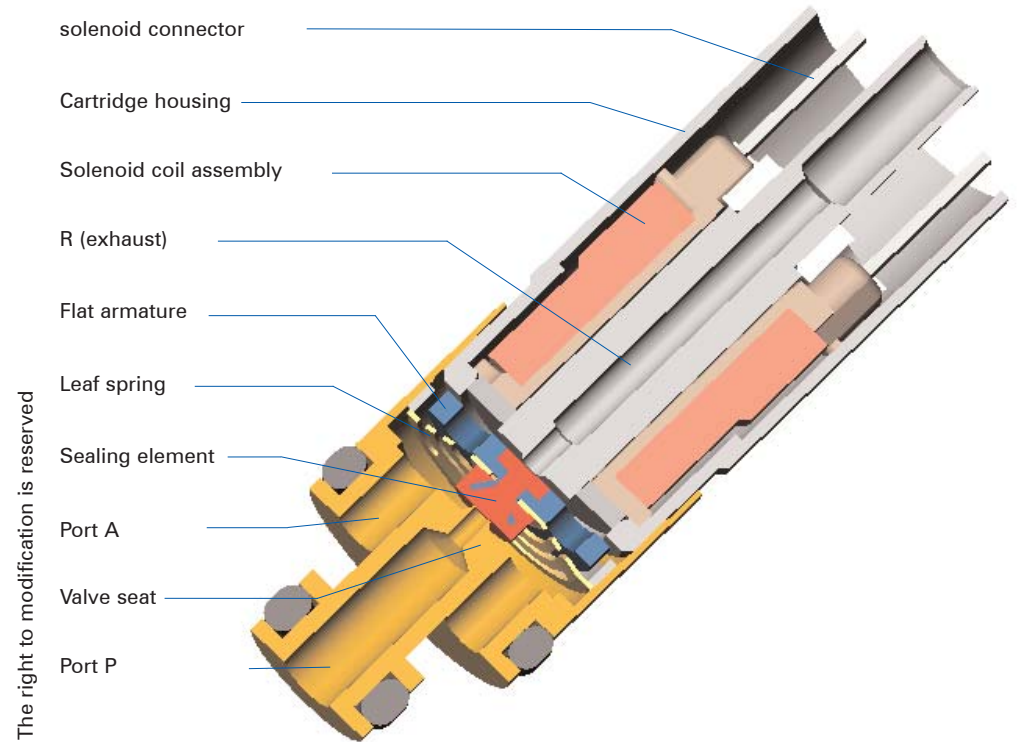
Size 21 mm:

VA 204 - 1...
VA 304 - 1...

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» Inner construction and major parts of cartridge type 3-way micro-valve



The right to modification is reserved

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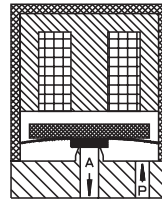
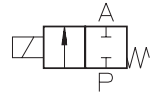
VA 204-1

2-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 204-102	21	1,0	Cartridge	0 - 10	0,032	0,060
VA 204-103	21	2,0	Cartridge	0 - 8	0,110	0,060
VA 204-104	21	3,0	Cartridge	0 - 4	0,280	0,060
VA 204-105	21	4,0	Cartridge	0 - 2	0,500	0,060

Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

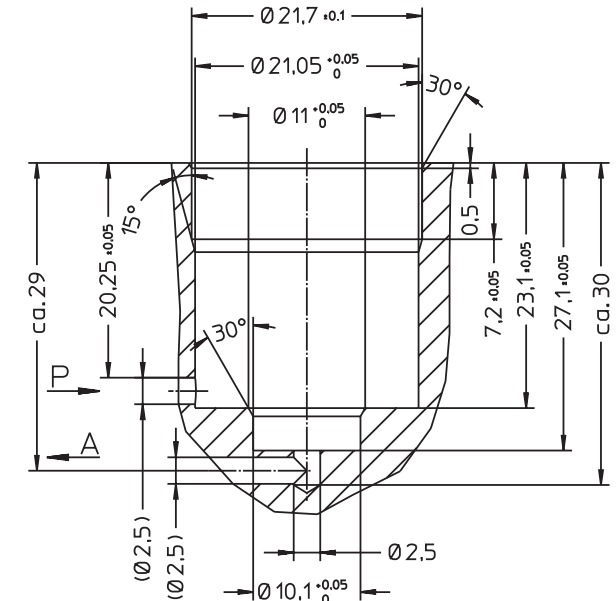
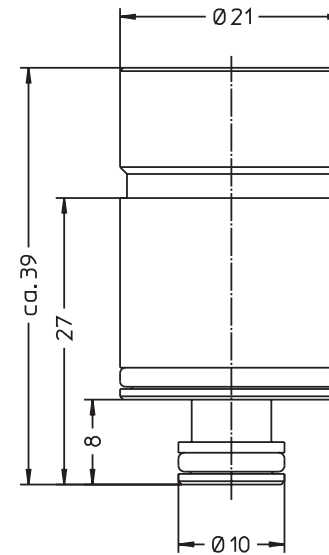
Body material:	Stainless steel (1.4305)	Power consumption:	2 - 3 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 50/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	3 ms to 7 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

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Other configurations upon request

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cartridge diagram



The right to modification is reserved

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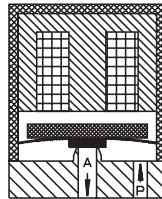
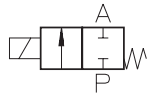
VA 204-5

2-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 204-505	15	0,5	Cartridge	0 - 10	0,008	0,022
VA 204-506	15	1,0	Cartridge	0 - 8	0,032	0,022
VA 204-507	15	1,5	Cartridge	0 - 4	0,072	0,022
VA 204-508	15	2,0	Cartridge	0 - 1,5	0,120	0,022

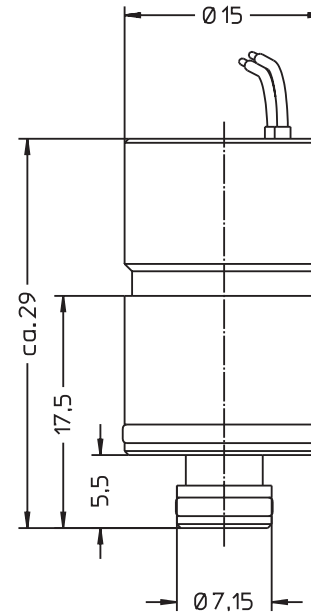
Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

Body material:	Stainless steel (1.4305)	Power consumption:	1 - 1,5 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 200/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	1 ms to 5 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

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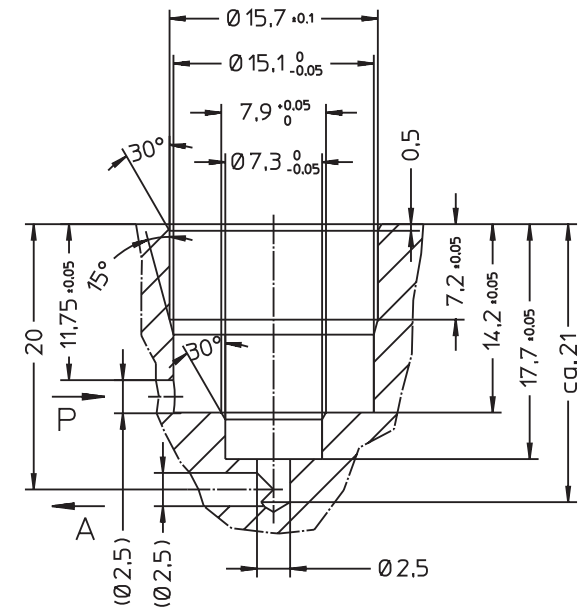
Other configurations upon request

staiger



The right to modification is reserved

cartridge diagram



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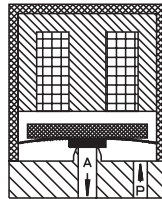
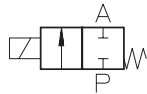
VA 204-7

2-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 204-715	7	0,3	Cartridge	0 - 10	0,003	0,003
VA 204-716	7	0,5	Cartridge	0 - 8	0,008	0,003
VA 204-717	7	0,8	Cartridge	0 - 6	0,020	0,003
VA 204-718	7	1,0	Cartridge	0 - 3	0,032	0,003

Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

Body material:	Stainless steel (1.4305)	Power consumption:	0,5 - 1 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 500/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	0,5 ms to 4 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

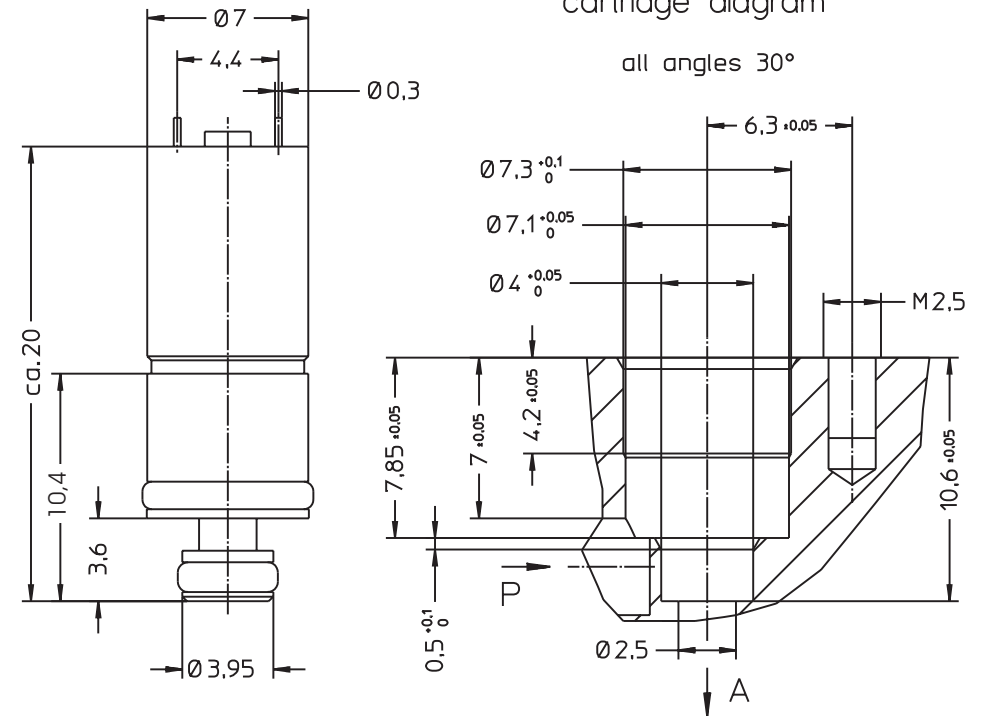
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Other configurations upon request

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cartridge diagram

all angles 30°



The right to modification is reserved

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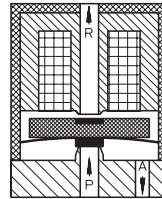
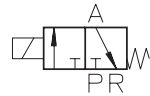
VA 304-1

3-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 304-102	21	1,0	Cartridge	0 - 10	0,030	0,060
VA 304-103	21	2,0	Cartridge	0 - 6	0,110	0,060
VA 304-104	21	3,0	Cartridge	0 - 2,5	0,280	0,060
VA 304-105	21	4,0	Cartridge	0 - 1	0,500	0,060

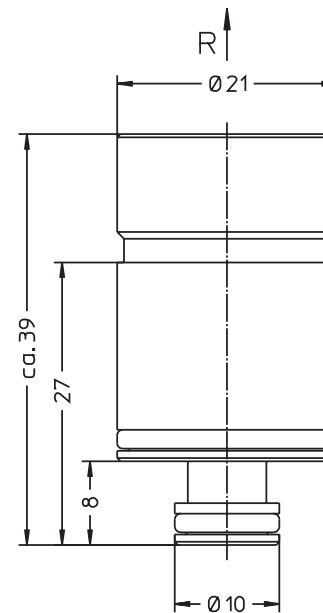
Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

Body material:	Stainless steel (1.4305)	Power consumption:	2 - 3 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 50/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	3 ms to 7 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

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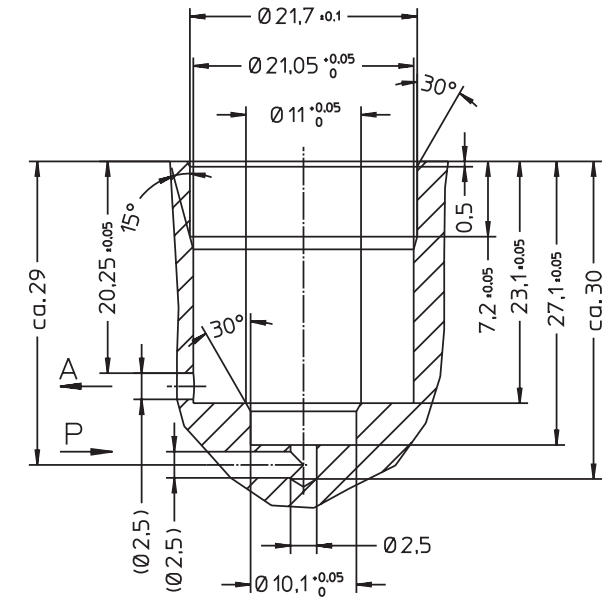
Other configurations upon request

staiger



The right to modification is reserved

cartridge diagram



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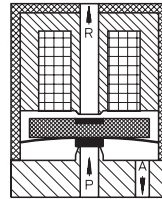
VA 304-5

3-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 304-505	15	0,5	Cartridge	0 - 10	0,008	0,022
VA 304-506	15	1,0	Cartridge	0 - 7	0,032	0,022
VA 304-507	15	1,5	Cartridge	0 - 3,5	0,072	0,022
VA 304-508	15	2,0	Cartridge	0 - 1	0,120	0,022

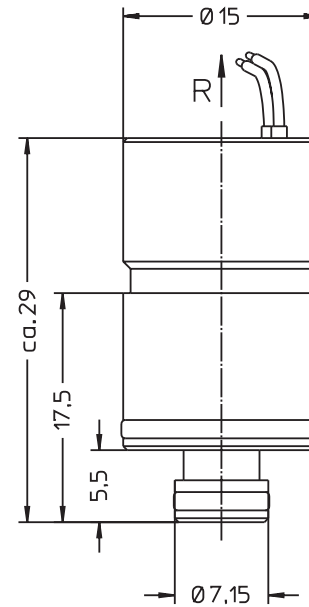
Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

Body material:	Stainless steel (1.4305)	Power consumption:	1 - 1,5 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 200/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	1 ms to 5 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

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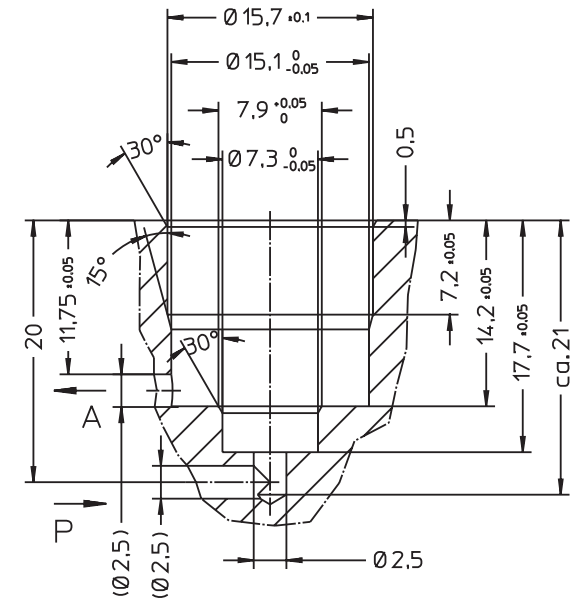
Other configurations upon request

staiger



The right to modification is reserved

cartridge diagram



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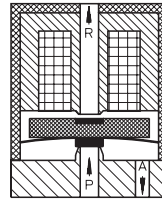
VA 304-7

3-way solenoid valve
direct actuated, NC
(normally closed)



Application

Neutral and mildly aggressive
liquids, gases and vapors



Type/ Order No.	Size s [mm]	Orifice [mm]	Port size	Pressure range [bar]	kv-value [m³/h]	Weight [kg]
VA 304-715	7	0,3	Cartridge	0 - 10	0,003	0,003
VA 304-716	7	0,5	Cartridge	0 - 6	0,008	0,003
VA 304-717	7	0,8	Cartridge	0 - 3	0,020	0,003
VA 304-718	7	1,0	Cartridge	0 - 1,5	0,032	0,003

Sealing material: **P** (NBR) **E** (EPDM) **V** (FPM) **Z** (FFKM)

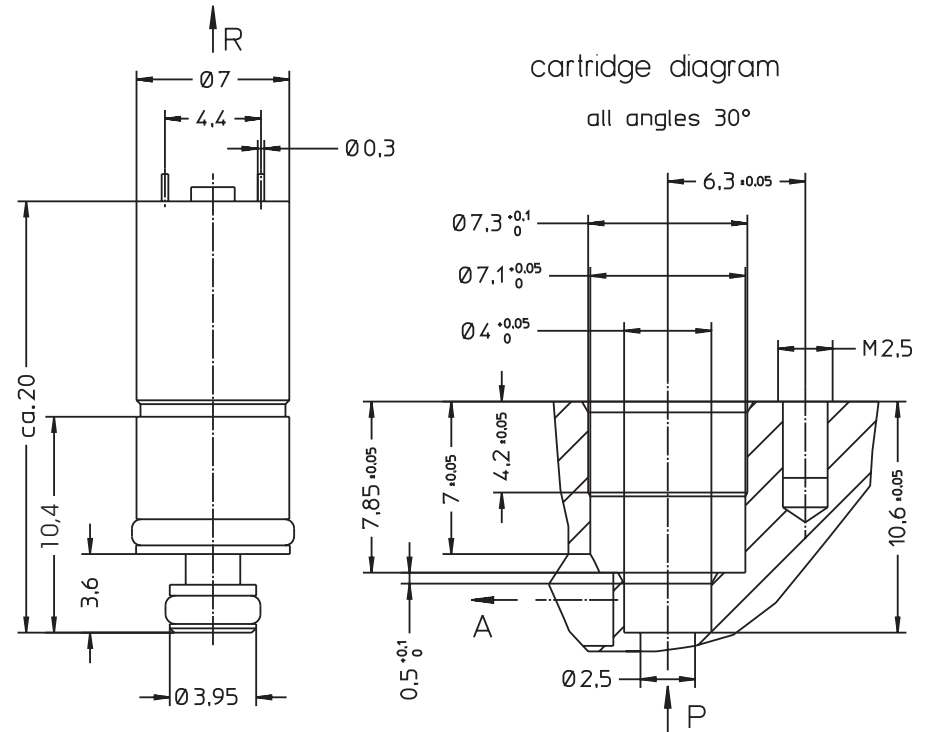
Body material:	Stainless steel (1.4305)	Power consumption:	0,5 - 1 W
Inner parts:	Stainless steel (1.4310 / 1.4105)	Voltage tolerance:	-15%... +10%
Mounting direction:	Free, preferred upwards	Duty cycle:	100 %
Max. ambient temp.:	50 °C	Operating frequency:	max. 500/s
Viscosity of the medium:	max. 21 mm²/s (3 °E)	Cycle time:	0,5 ms to 4 ms
Static pressure:	max. 20 bar		
Standard voltage:	DC: 24 V, 12 V, 9 V, 6 V		

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Other configurations upon request

staiger

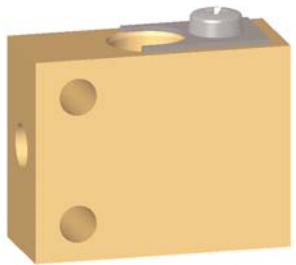
The right to modification is reserved



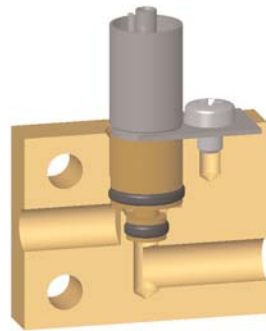
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» Accessories for Spider®-Valves VA series

Mounting base for cartridge version



Complete with blanc holder and screw



Section-view of assembly size 7

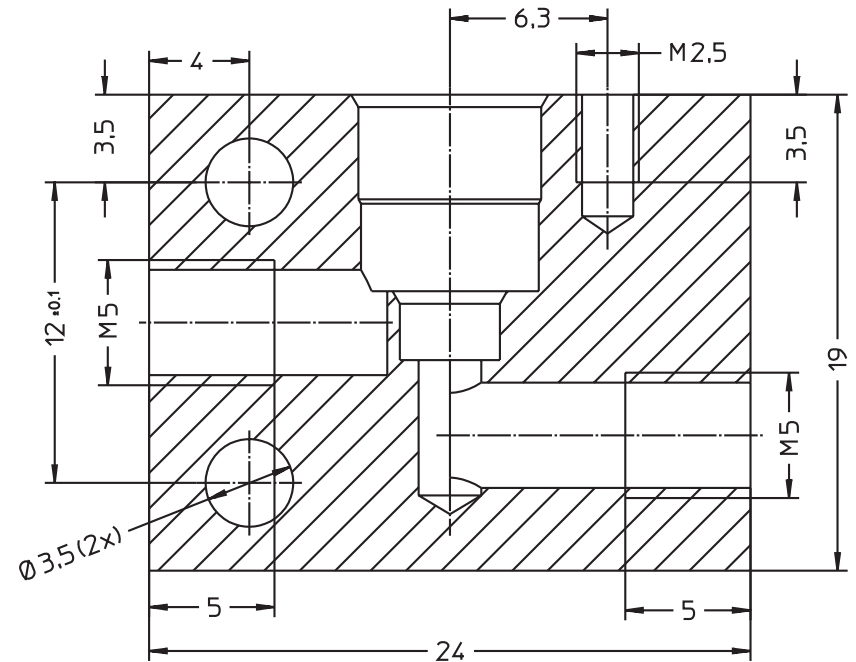
Type/ Order No.	Size s [mm]	Material	Port size
567 000 090	7	Brass	M5
567 000 114	7	Stainless steel	M5
565 000 059	15	Brass	G1/8
561 000 027	21	Brass	G1/8

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Other informations and further accessories upon request

» Mounting base for Size 7 mm

staiger



The right to modification is reserved

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