WOERNER
Lubrication Experts since 1922

Progressive distributor VPB-B01

Technical data sheet



D037801

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WOERNER only uses materials complying with the criteria of EU Directive 2011/65/EU in control and switching units. If hexavalent chromium formerly has been used as corrosion protection for in-house produced parts, it has already been replaced by other environmentally compliant protective measures.
The mechanical devices supplied by WOERNER are not affected by EU Directive 2011/65/EU.
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ADDITIONAL INSTRUCTIONS

Illustrations

Illustrations in this operating manual are examples to provide a basic understanding of the specified devices.

Dimensions

Unless otherwise stated, dimensions are in millimetres.

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Changes

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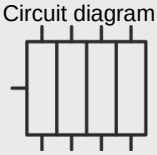
PROGRESSIVE DISTRIBUTOR VPB-B01

A progressive distributor ensures even and controlled distribution of the supplied lubricant to all outlets. It is used in central lubrication systems for multiple lubrication points.

Properties and advantages

- Accurate dosing volumes
- Proven quality: Low start-up pressure and long blockage times
- Various options for monitoring
- Distribution of lubricant to up to 22 different outlets
- 4 different dosing volumes selectable in accordance with the lubricant volume required
- Extremely long service life due to refined sliding surfaces
- Easy combination of opposing outlets
- Fast and safe venting of the progressive distributor

Circuit diagram



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ORDER DESIGNATION

VPB-B | 01 | | | | | | |

internal

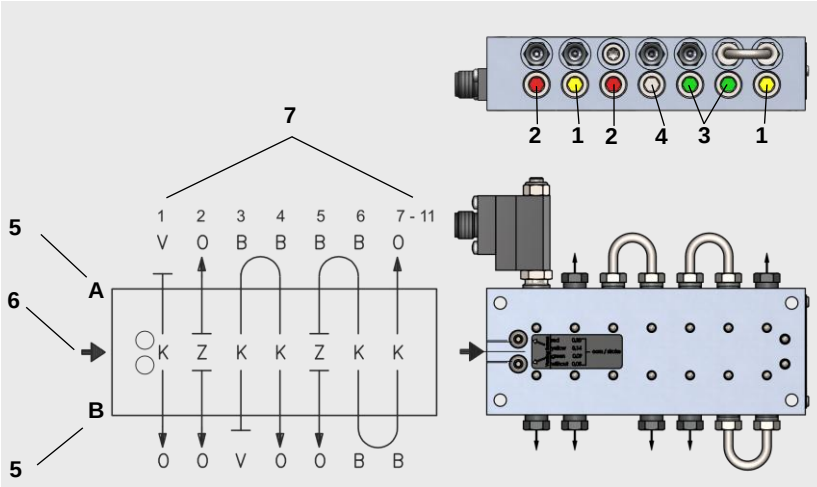
Version	Number of outlets	Function monitoring visual control	Function monitoring electrical control	Dosing volume per piston stroke and outlet in cm³
see page 7 ff.	see page 7 ff.	see page 8 ff.	see page 8 ff.	see page 7 ff.
Aluminium anodised A	6, 8, 10, 12, 14, 16, 18, 20, 22	with [1] S without 0	Mount with proximity switch P3 Mount without proximity switch P0 Reed contact with male [1] RS without 0	0,05 05 0,09 09 0,14 14 0,20 20

[1] Only for dosing volume 20

Order example: Progressive distributor VPB-B01

- Version A
- Number of outlets 14
- Function monitoring with visual control S
- Function monitoring Reed contact with male
- Dosing volume 20 | 14 | 20 | 05 | 09 | 09 | 14

Order designation:
VPB-B01 | 00 | A | 14 | S | P3 | 20 | 14 | 20 | 05 | 09 | 09 | 14
Side A: V | O | B | B | B | B | O
Centre: K | Z | K | K | Z | K | K
Side B: O | O | V | O | O | B | B



The colour marking indicates the dosing size of the outlet above it:

1 yellow 14
2 red 20
3 green 09
4 no colour 05
5 Side
6 Centre
7 Outlet pairs point 1 - 11

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PRODUCT AND FUNCTIONAL DESCRIPTION

Product description

A progressive distributor allocates the delivered lubricant to the individual lubrication points in forced order. Due to the functional process as described herein, a safe dosing is ensured. The dosing volume varies by combining the outlets and can be selected based on the number of outlets.

Functional process

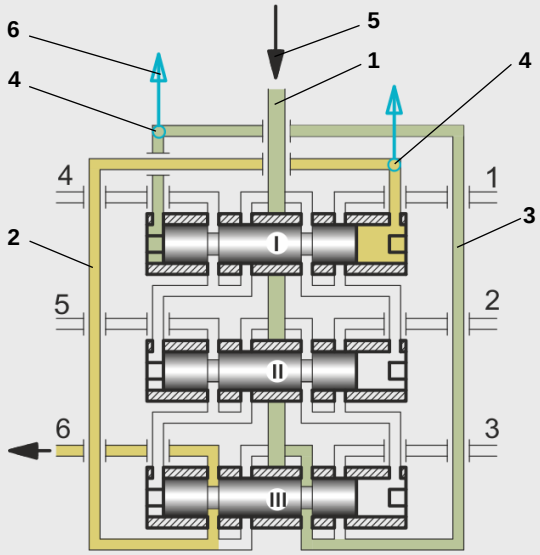


Fig. 1
The lubricant flows from the main line through the right-side ring groove of piston III as well as the bypass line (right) and to the left side of piston I and moves it into its home position. The lubricant displaced by piston I is ejected via the left bypass line through outlet no. 6.

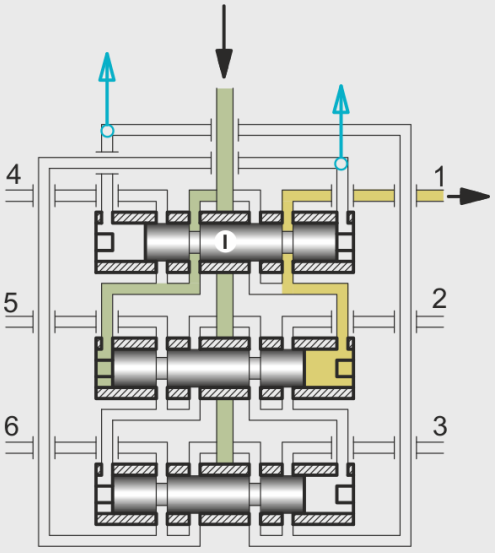


Fig. 2
After shifting of piston I, lubricant flows to the left side of piston II and pushes it into its right-side home position. The displaced lubricant is ejected via outlet no. 1.

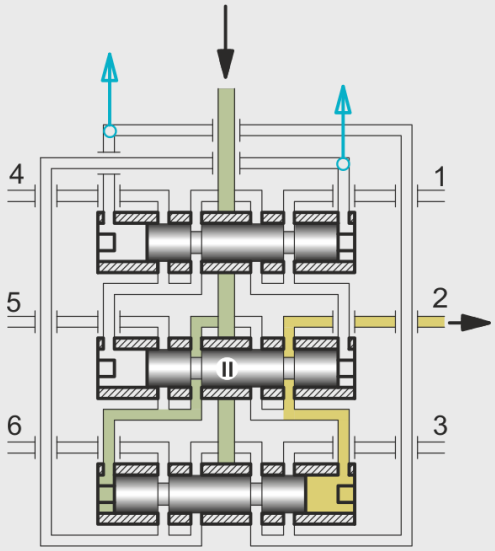


Fig. 3
After shifting of piston II, lubricant flows to the left side of piston III and pushes it into its right-side home position. The displaced lubricant is ejected via outlet no. 2.

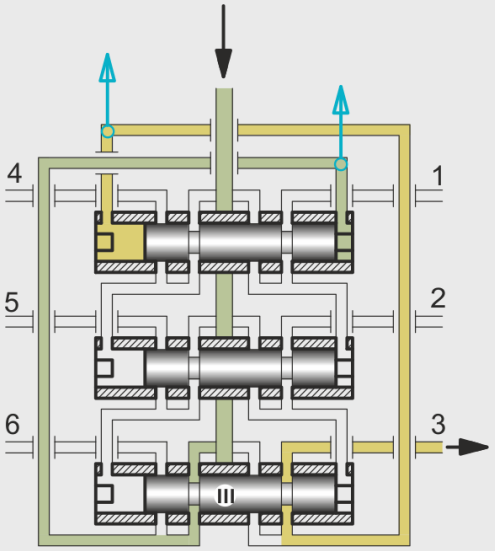


Fig. 4
After shifting of piston III, lubricant flows to the right side of piston I and pushes it into its left-side home position. The displaced lubricant is ejected via outlet no. 3. The continuation of that process is evidenced in the scheme described.

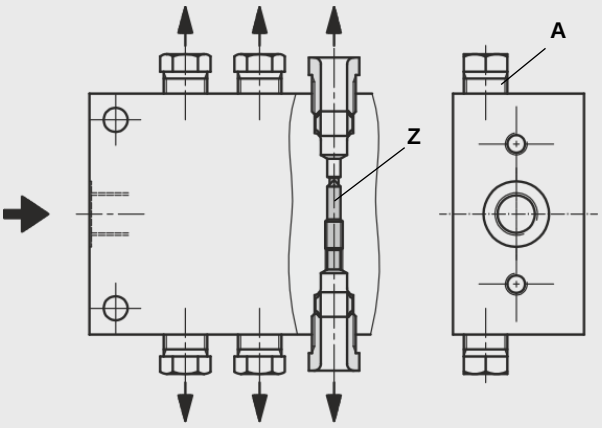
1	Main line	**4**	Vent screws E
2	Bypass line left-side	**5**	Black arrow: Lubricant
3	Bypass line right-side	**6**	Blue arrow: Air outlet venting

Formula for calculating the lubricant available per lubrication point

$$q_i = \frac{K_i}{2 * (K_1+K_2+K_3...)} * Q$$

A progressive distributor allocates the delivered lubricant to the individual lubrication points in forced order. Due to the functional process as described herein, a safe dosing is ensured.

q_i = the lubricant delivered to a lubrication point 1
Q = lubricant delivered to the distributor
K_i = distinctive number of the outlet i

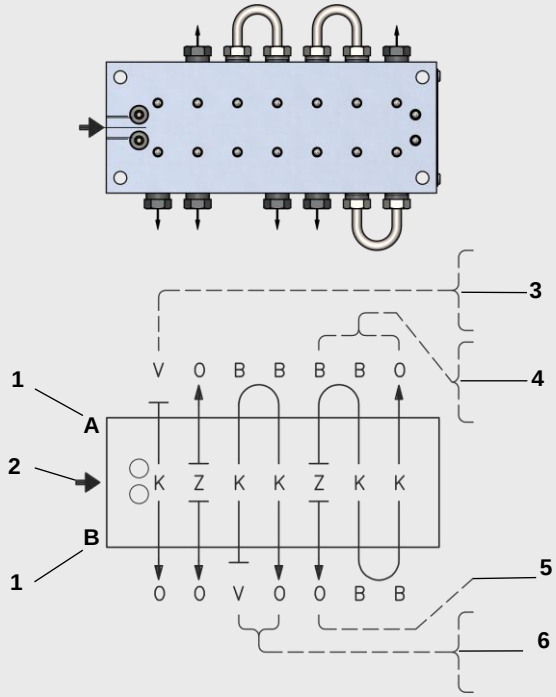


Combination of outlets, doubling the dosing volume at an outlet:

Connect opposite outlets by removing the **Z** screw.
Close any of the outlets by means of a screwed sealing plug.
Without **Z** screw removal, no outlet must be locked.

Assembly of the screw **Z** from the output side **A** with Allen® wrench, size 2.

A Outlet side
Z Screw **Z**



Distinctive letters:

O Open outlet
V Locking screw
B Double bridge
E Venting screws
K Opposing outlets connected
Z Opposing outlets separated
1 Side
2 Centre

Combination of outlets

3 2 opposing outlets are combined into one outlet by removing the **Z** screw and closing the outlets.

4 5 outlets are combined by means of 2 bridges and removing two **Z** screws.

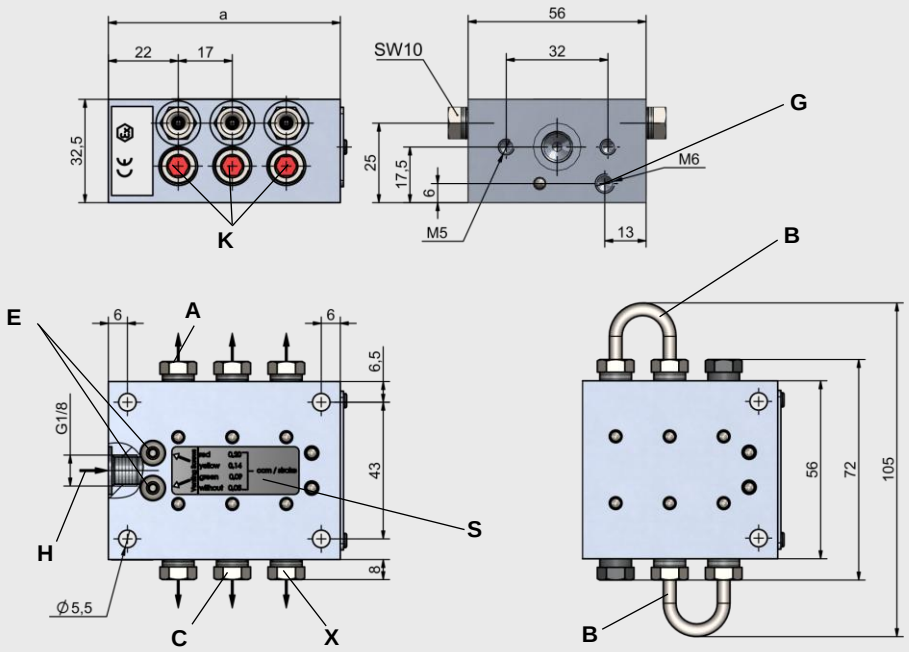
5 Single outlet

6 4 outlets are combined by one bridge and removing the **Z** screws.

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TECHNICAL DATA

Dimensions



A	Mounting point at distributor (for viewing indicator and electrical function monitoring)	**S**	Note to dosing volume distinctive colours
C	Mounting point at distributor for viewing indicator (if point A is occupied)	**X**	Outlet screwing for pipe outer diameters ø4 or 6 connection hole in distributor for double-cone ring 6 DIN 3862 and male fitting ALL6 DIN 3871 with screw plug M10x1
H	Input line		
K	Dosing volume distinctive colours (see technical data)	**B**	Bridge
E	Vent screw	**G**	Grounding screw M6 for version Atex ➡ see operating manual B0336

Number of outlets	**6**	**8**	**10**	**12**	**14**	**16**	**18**	**20**	**22**
Lenght a	73	90	107	124	141	158	175	192	209

Technical and electrical data

Dosing volume per cycle Distinctive colour green Distinctive colour yellow Distinctive colour red No colour	 0,09 cm^3 0,14 cm^3 0,20 cm^3 0,05 cm^3
Number of lubrication point connections / outlets	max. 22
Operating pressure	max. 150 bar
Throughput volume Oil Grease	 max. 700 cm^3/min max. 70 cm^3/min
Medium Oil viscosity Grease	 >7 mm^2/s up to NLGI category 2
Material Outer body Internal parts Seals	 Aluminium anodised Steel FPM
Temperature range	-20 - +80 °C
Mounting	user-defined Further information ➡ see operating manual B0336

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The lubricant used must be suitable for the use in centralized lubrication systems.

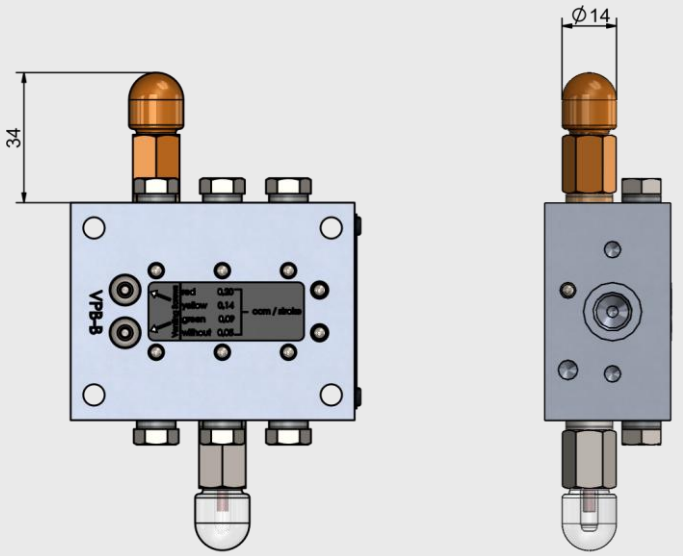
FUNCTION MONITORING

Monitoring of progressive distributors

The flow through a lubrication line may be prevented, for example, by contamination. This will result in a blocked piston. Due to the the forced control system, as depicted in the functional sequence, all other pistons will be stopped as well.

see page 5 ff.

This relation allows the dosage at a defined point of the distributor to be monitored, for example by a sensor on just one piston.



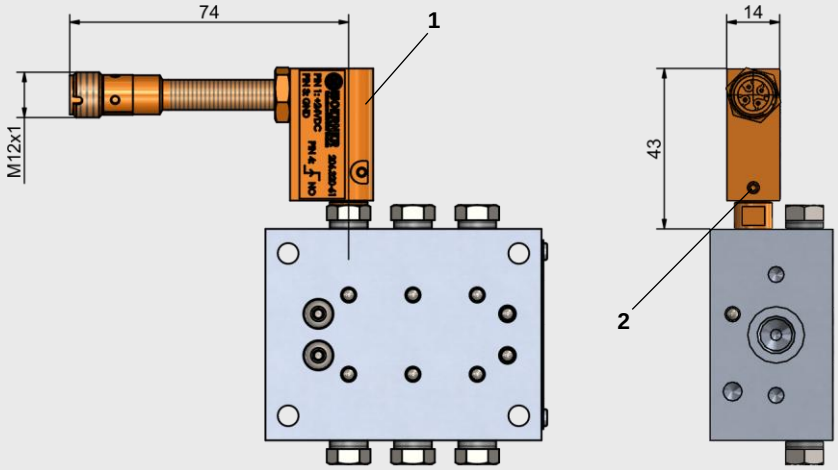
Visual control S

S

In a translucent polyamide casing, a red pin, fixed to the piston, shows the piston's movement.

Casing material	Polyamide translucent
Ambient temperature	-10 - +80 °C
Mounting location on the distributor	Side A or B

see page 4 ff.



Electrical control
mounting with proximity switch
with male M12x1, 4-pin

P3

A pin, connected with the piston attenuates a proximity switch once per cycle.

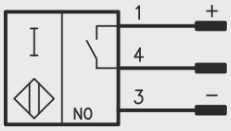
1 rotatable 360°
2 Adjusting screw for fixing the proximity switch in the desired position.

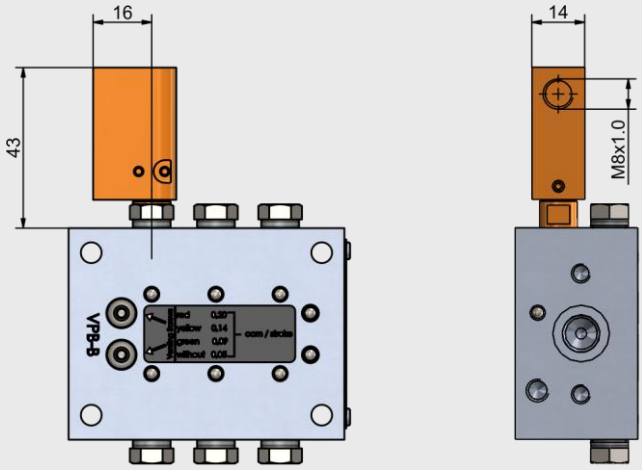
Adjusting the proximity switch:
see operating manual B0336.

Operating voltage	10 - 30 VDC
Switching hysteresis	≤10%
Switching function	NO contact
Switching current	max. 150 mA
Protection class	DIN EN 60529 IP67
Connection type	Male M12x1, 4-pin
Material holder	Polyamide
IO- link capable	yes

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Connection diagram

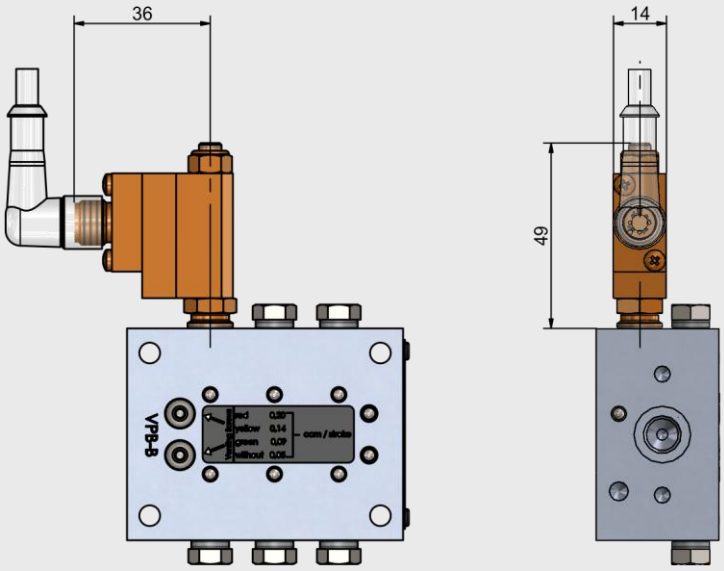




Mounting without proximity switch

P0

Connection thread M8x1,0



Electrical control
version Reed contact with male M12x1, 4-pin

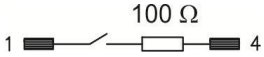
RS

A magnet, connected with the piston switches a reed contact once per cycle.

(matching connecting cables see accessories)

Switching voltage	10 - 36 VUC
Switching current	max. 25 mA
Switching power	max. 0,9 VA
Ambient temperature	-5 - +80 °C
Material (casing)	PA or 1.4305
Protection class	DIN EN 60529 IP65

Circuit diagram



WEIGHT

Depending on the model, the weight of the progressive distributor results from the following components:

- Function monitoring
- Number of outlets

All weights in kg

Function monitoring

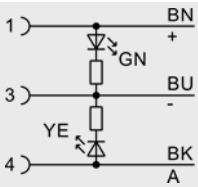
Visual control S	Proximity switch RS	Proximity switch P3	Proximity switch P0
0,035	0,054	0,044	0,03

Progressive distributor with outlet

Number of outlets	6	8	10	12	14	16	18	20	22
	0,39	0,49	0,59	0,69	0,79	0,89	0,99	1,09	1,19

ACCESSORIES

Connection cable for functional monitoring RS and proximity switch P3 (provide order no.)

Connection cable with LED	Order no. **913.404-19 | 913.405-29**
Operating voltage **Cable:** Cross-section Length Degree of protection	10 - 30 VDC 3x0,34 mm² 5 m/ 90° | 10 m/90° DIN EN 60529 IP68
Circuit diagram	
Cable socket with connection terminals (w/o LED)	Order no. **913.404-24**
Connection type Cross-section Cable diameter Degree of protection	screws max. 0,75 mm² 4 - 6 mm DIN EN 60529 IP67

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Fittings | check valves

Progressive distributor	
	Order no.
Bridge	**205.507-65**
Screw plug	**205.505-47** (drive T 30)
Push-in fittings	
Material	use only with elastic pipes
Torque	brass nickel-plated, max. 12 Nm
Further information	➡ see catalogue K0941
Inlet of distributor	Order no.
Straight push-in screw fitting, pipe Ø4	**943.602-00**
Straight push-in screw fitting, pipe Ø6	**943.602-07**
Straight push-in screw fitting, pipe Ø8	**943.602-11**
Swivel elbow push-in screw fitting, pipe Ø4	**943.602-12**
Swivel elbow push-in screw fitting, pipe Ø6	**943.602-17**
Swivel elbow push-in screw fitting, pipe Ø8	**943.602-21**
Outlet of distributor	
Straight push-in screw fitting, pipe Ø4	**943.602-05**
Straight push-in screw fitting, pipe Ø6	**943.602-10**
Swivel elbow push-in screw fitting, pipe Ø4	**943.602-15**
Swivel elbow push-in screw fitting, pipe Ø6	**943.602-20**
Check valve straight push-in screw fitting Ø4	**943.602-22**
Check valve straight push-in screw fitting Ø6	**943.602-23**
Straight screw fitting	
Material	galvanized steel, 1.4571 on request
Further information	➡ see catalogue K0941
Inlet of distributor	Order no.
Pipe Ø4	**951.100-04**
Pipe Ø6	**951.100-05**
Pipe Ø8	**951.100-06**
Pipe Ø10	**951.102-23**
Pipe fittings ALL	
Material	galvanized steel
Outlet of distributor	Order no.
Pipe Ø4	**205.533-65**
Pipe Ø6	**205.532-65**
Pipe Ø8	**505.149-65** [1)]
Check valves	
Material	galvanized steel
Further information	➡ see data sheet P0319 and P0370
Outlet of distributor	Order no.
Check valve ALL cutting ring connection Ø4	**501.078-65** [1)]
Check valve ALL cutting ring connection Ø6	**501.077-65** [1)]
Check valve ALL outlet for tube fitting ALL Ø6	**501.085-65** [1)]
[1)] Can only be used with extension **505.096-45** under monitoring elements!	
Fastening Kit VPB	Order no.
M5	**502.300-00**

Other applicable technical documentation for this product

Number	Documentation	Unit
B0336	Operating manual	VP
E9904	Spare parts	VPB-B

3D CAD-Data for configuration and download

➡ see Link (Account required)

https://woerner.partcommunity.com

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