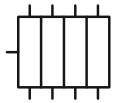




**Progressive distributor  
VPB**



**Use:**

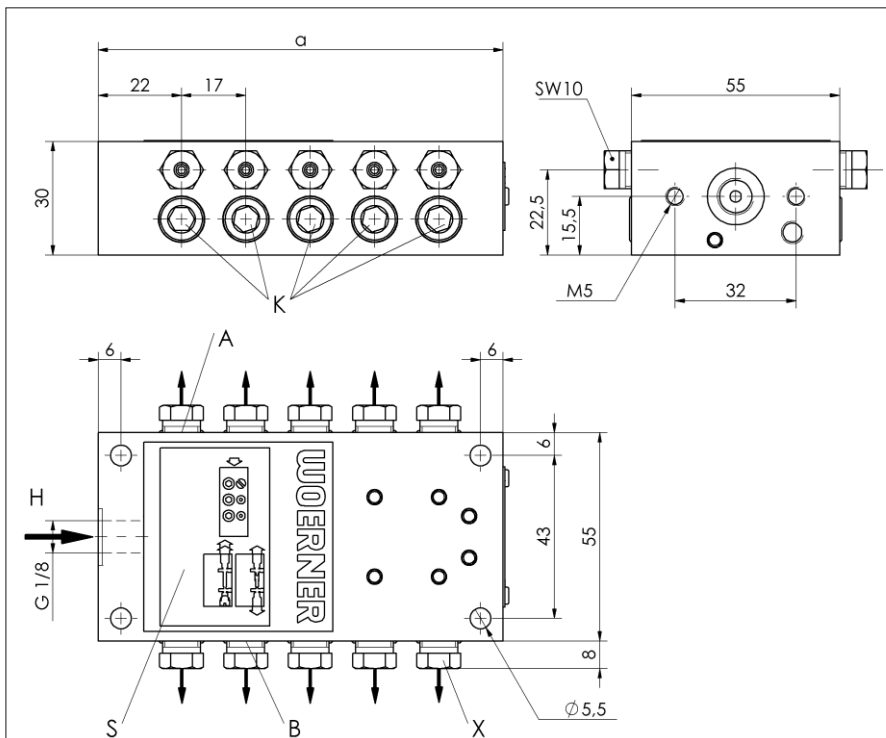
In progressive mode based central lubrication systems.

The main features of **WOERNER** progressive distributors are as follows:

- **Accurate proportioning volumes**
- **3 different proportioning volumes** selectable in accordance with the lubricant volume required
- **Extremely long service life due to** refined sliding surfaces
- **Easy combination** of opposing outlets
- **Various options for monitoring**

**Technical data:**

- Proportioning volume per cycle
- |                            |                      |
|----------------------------|----------------------|
| Distinctive colour green:  | 0,09 cm <sup>3</sup> |
| Distinctive colour yellow: | 0,14 cm <sup>3</sup> |
| Distinctive colour red:    | 0,20 cm <sup>3</sup> |
| on request:                | 0,05 cm <sup>3</sup> |
- Lubrication point connections at max. 20
- Operating pressure: at max. 150 bar
- Throughput volume
- |         |                                  |
|---------|----------------------------------|
| Oil:    | at max. 700 cm <sup>3</sup> /min |
| Grease: | at max. 70 cm <sup>3</sup> /min  |
- Delivery medium
- |                |                 |
|----------------|-----------------|
| Oil-viscosity: | >6 cP           |
| Grease up to:  | NLGI category 2 |
- Material
- |             |                          |
|-------------|--------------------------|
| Outer body: | Aluminium anodised       |
| VPB-B:      | Bronze                   |
| VPB-H:      | seawater-resistant Steel |
- Internal parts: Steel
- Temperature range: -20 ... +80 °C
- Lubricant: The intended lubricant must be suitable for use with centralized lubrication equipment.
- Mounting position: usually as needed



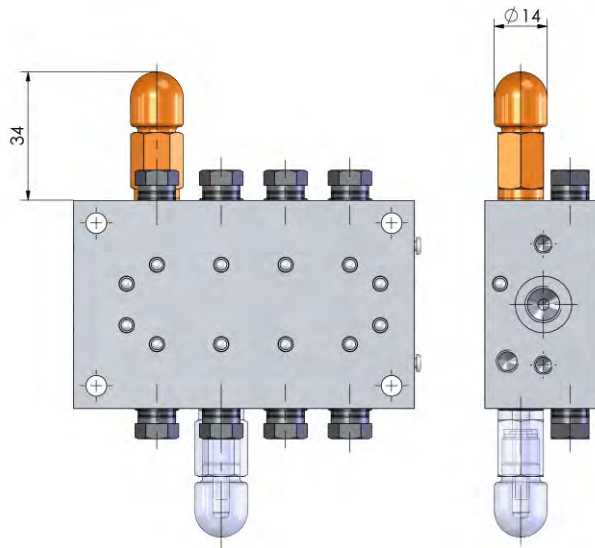
- A = Mounting point at distributor (for viewing indicator and electrical functionality check)
- B = Mounting point for viewing indicator at distributor (if point A is occupied)
- H = Input line
- K = Proportioning volume distinctive colours (see technical data)
- S = Note to proportioning volume distinctive colours
- X = Outlet screwing for pipe outer diameters 4 or 6, connection hole in distributor for double-cone ring 6 DIN 3862 and ALL6 male fitting DIN 3871 with thread M10x1

Number of outlets	Length "a"	Weight kg	
		VPB-B	VPB-H
6	73	0,39	0,97
8	90	0,49	1,19
10	107	0,59	1,41
12	124	0,69	1,63
14	141	0,79	1,83
16	158	0,89	2,04
18	175	0,99	2,26
20	192	1,09	2,47

- Subject to modifications -



### Visual check "S"



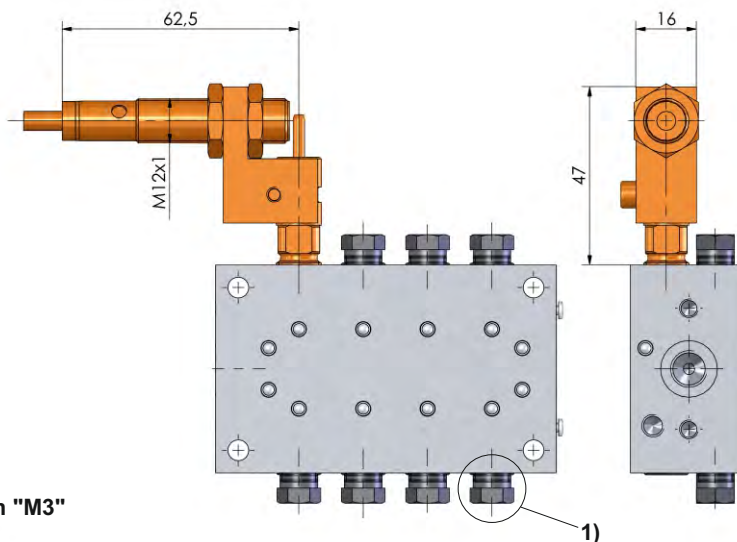
### Functional checks:

#### Visual check "S":

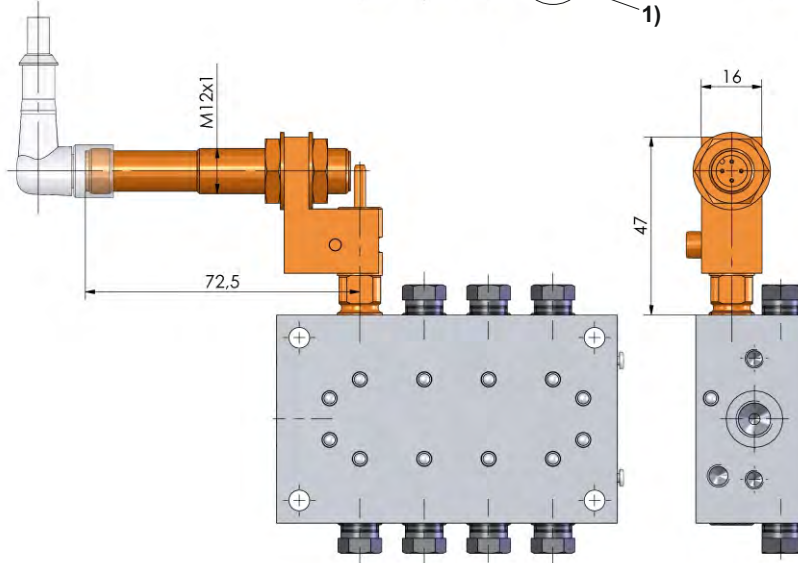
In a translucent polyamide receptacle, a red pin being fixed to the piston shows the piston's movement.

Receptacle material:	Polyamide, translucent
Ambient temperature:	-10 ... +80 °C
Weight:	0,035 kg
Mounting point at distributor:	A or B

### Version "M1"



### Version "M3"



### Electrical check with proximity switch:

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

#### Material

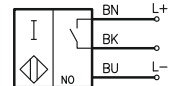
Holder:	Aluminium
VPB-B:	Bronze
VPB-H:	Bronze
Indicator pin:	1.4521

<sup>1)</sup> On the functional checking device "M", the metering volume at the last point (opposite the proximity switch side) decreases by 25% for design-related reasons.

### Version proximity switch "M1" with cable:

Operating voltage:	8 ... 30 VDC
Residual ripple:	≤10%
Output:	NO contact, plus switching PNP
Load current:	at max. 400 mA
Protection system:	DIN EN 60529 IP67
Connection:	Cable 2 m

Connection diagram:

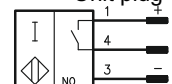


### Version proximity switch "M3" with unit plug 4-pin (M12x1):

(for matching cable jack see auxiliaries)

Operating voltage:	8 ... 30 VDC
Residual ripple:	≤10%
Output:	NO contact, plus switching PNP
Load current at max.:	400 mA
Protection system:	DIN EN 60529 IP65
Connection:	Unit plug

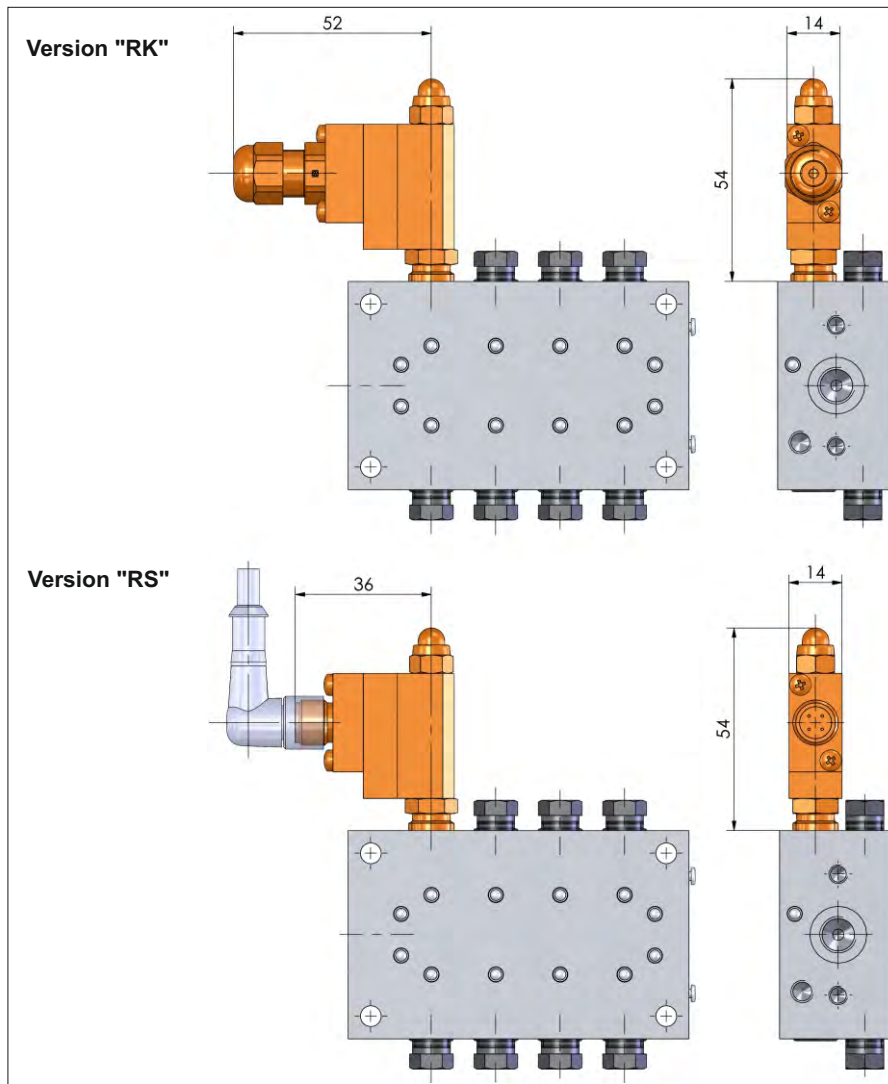
Connection diagram:



- Subject to modifications -



- Subject to modifications -



**Electrical check with reed contact:**

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

Switching voltage: 10 ... 36 VUC  
Switching current: at max. 25 mA  
Switching power: at max. 0,9 VA  
Ambient temperature: -5 ... +80 °C

**Version "RK" with cable:**

Material (receptacle): PA or 1.4305  
System of protection: DIN EN 60529 IP65  
Cable  
Length: 10 m  
Cross section: 2x0,75 mm<sup>2</sup>  
Material: Oilflex

Connection diagram: 100 Ω

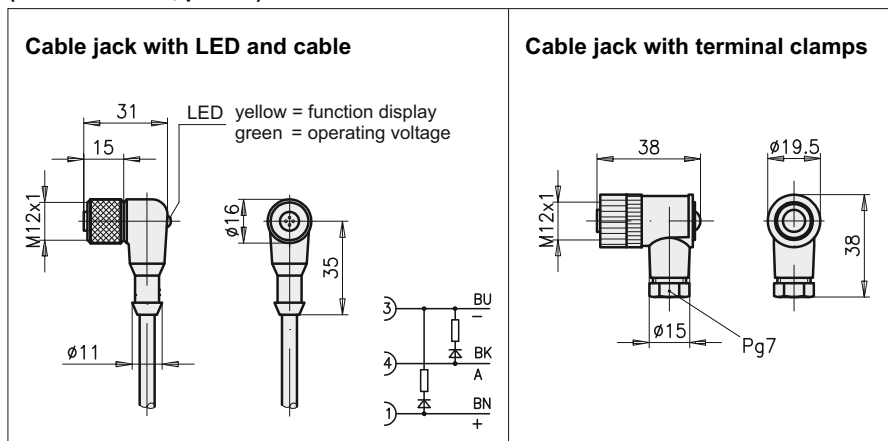
**Version "RS" with unit plug 4-pin (M12x1):**  
(for matching cable jack see auxiliaries)

Material (receptacle): PA or 1.4305

Connection diagram: 100 Ω

**Auxiliaries:**

Cable jack for functional check "RS" and proximity switch "M3"  
(state order no., please)



**Cable jack with LED and cable:**

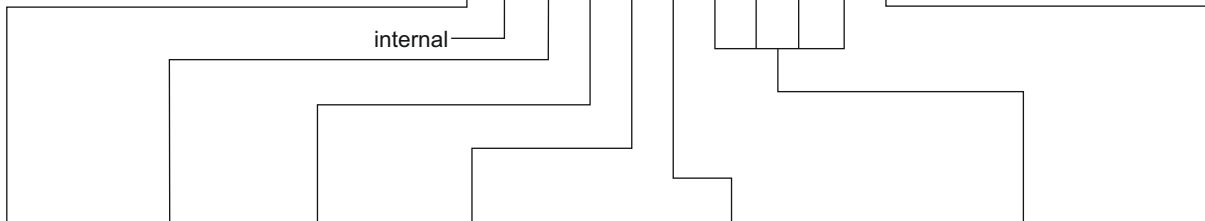
Order no.: **913.404-19**  
Operating voltage: 10 ... 30 VDC  
Cable  
Cross section: 3x0,34 mm<sup>2</sup>  
Length: 5 m  
System of protection: DIN EN 60529 IP68

**Cable jack with terminal clamps (without LED)**

Order no.: **913.404-24**  
Connection type: Screws  
Connection cross section: at max. 0,75 mm<sup>2</sup>  
Cable diameter: 4 ... 6 mm  
System of protection: DIN EN 60529 IP67



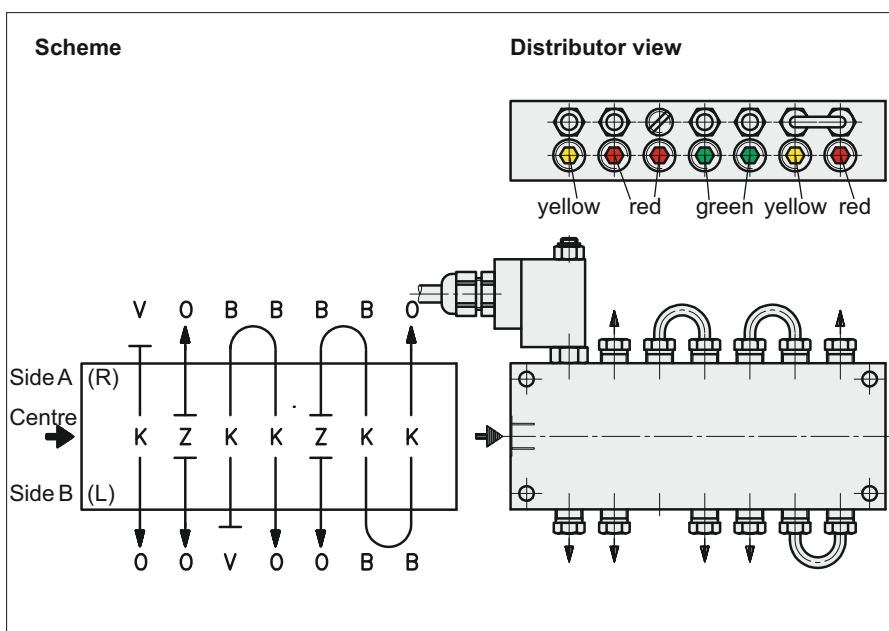
Order designation:



Material outer body	Number of outlets	Pipe screwing for outlet	Functional check		Proportioning volume per piston stroke and outlet in cm <sup>3</sup>	Gasket material	
			Visual check	electrical control			
Aluminium anodised (B)	6 ... 20 increasing by 2 outlets each	without (0)	without (0)	without (0)	0,05 on request <sup>1)</sup>	FPM (V)	
Bronze seawater resistant (H)		ø4 (4)		proximity switch with cable (M0)			Reed contact with cable (RK)
		ø6 (6)		proximity switch with cable (M1)			Reed contact with plug <sup>2)</sup> (RS)
			proximity switch with plug <sup>2)</sup> (M3)		0,09 (09)		
					0,14 (14)		
					0,20 (20)		

- Subject to modifications -

**Note:**  
When a functionality checking device is to be mounted, the proportioning volume must be 0,20 cm<sup>3</sup> at the last point!  
On the functional checking device "M", the metering volume at the last point (opposite the proximity switch side) decreases by 25% for design-related reasons.



- 1) ATTENTION!**  
The proportioning volume 0,05 cm<sup>3</sup> is not possible at the last point! Informations regard data sheet S0378!
- 2)** without cable jack (see auxiliaries)

**Order example:**  
(for the distributor shown)  
Progressive distributor VPB, outer body anodised, 14 outlets, for pipe outer diameter 6, without visual check, with reed contact (cable), proportioning volume 14, 20, 09, 09, 14, 20, gasket material FPM.

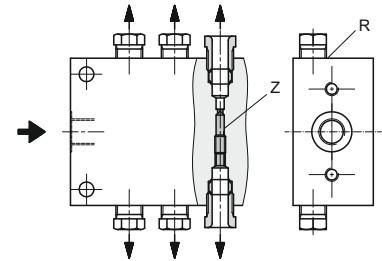
**Order designation:**  
VPB-B / 00 / 14 / 6 / 0 / RK / 14 / 20 / 20 / 09 / 09 / 14 / 20 / V  
Side A (R) : V / O / B / B / B / B / O  
Centre : K / Z / K / K / Z / K / K  
Side B (L) : O / O / V / O / O / B / B



**Combinaton of outlets,  
doubling the proportioning volume at an outlet:**

Connect opposing outlets by removing the "Z" screw.  
Close any of the outlets by means of a locking screw.  
Without "Z" screw removal, no outlet must be locked.

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



**Auxiliaries:**

Progressive distributor	Bridge	Locking screw
VPB-B	<b>205.507-65</b>	<b>205.505-47</b> (Torx 30)
VPB-H	<b>205.507-61</b>	<b>205.505-41</b> (Torx 30)

**Plug screw connections <sup>1)</sup>**

Material	Pipe AD	straight screw-in union	swivel equal-elbow-fitting	Further informations: Data sheet P0354 Fastening torque max. 12 Nm To be used with flexible pipes only.
Brass nickel plated	4	<b>943.600-60</b>		
	6	<b>943.600-56</b>	<b>943.600-57</b>	

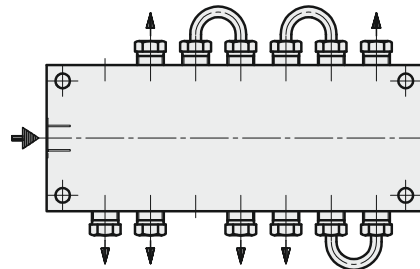
**Check valves <sup>1)</sup>**

Material	Pipe AD	Outlet	Order-no.	Further informations
Steel galvanized	4	Cutting ring union	<b>501.078-65</b>	Data sheet P0319
	6		<b>501.077-65</b>	
	6	ALL	<b>501.085-65</b>	Data sheet P0370

<sup>1)</sup> Beneath monitoring elements, can be used only with extension **505.096-45!**

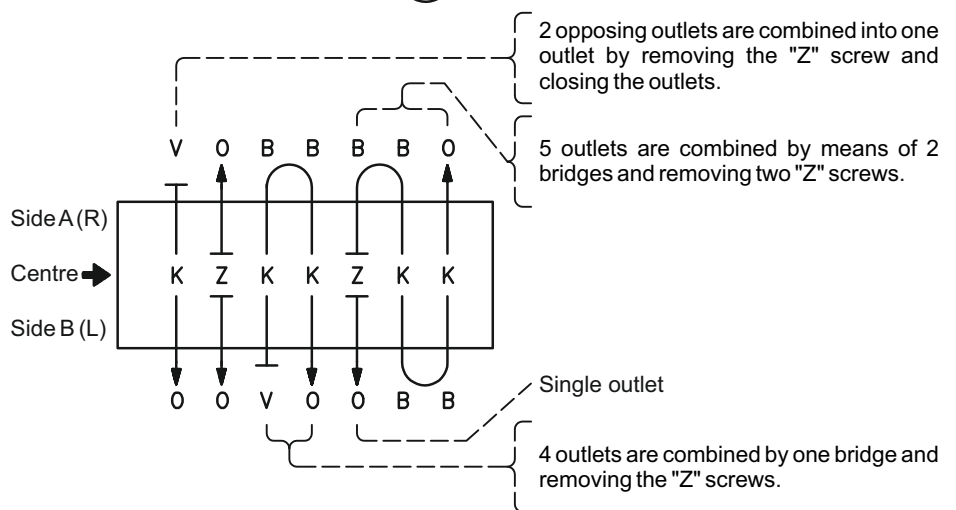
- Subject to modifications -

**Combination of outlets:**

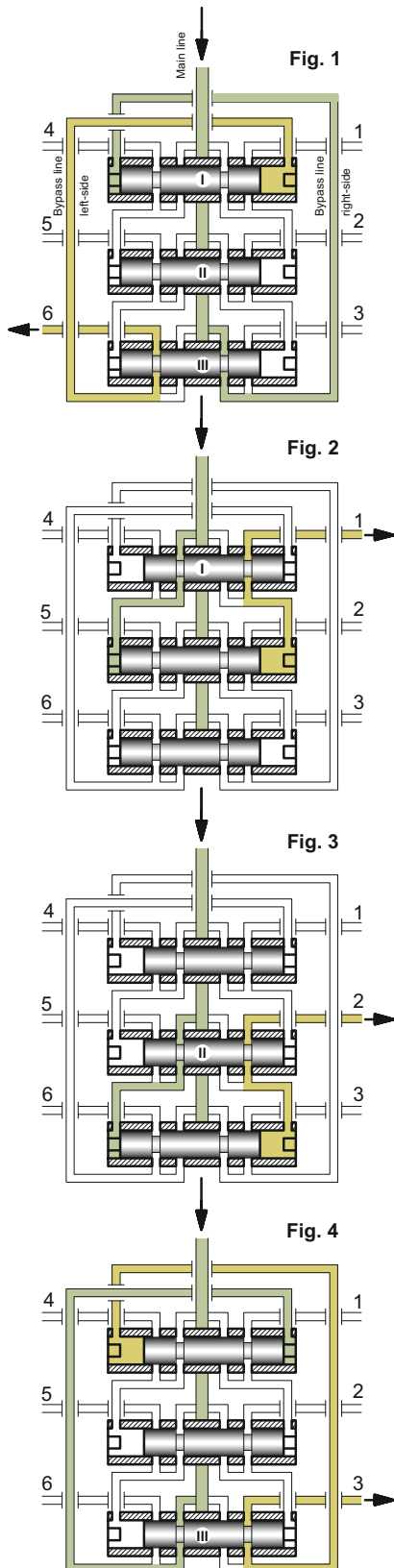


**Distinctive letters:**

- O = open outlet
- V = Locking screw
- B = double bridge
- K = opposing outlets connected
- Z = opposing outlets separated



### Functional process fig. 1 ... 4:



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.

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.

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.

After shifting of piston III, lubricant flows to the right side of piston I and pushes it into its left-side home position. The continuation of that process is evidenced in the scheme described.

### Monitoring of progressive distributors:

As for instance due to soiling, the flow through a lubricant point line may be prevented. This will cause a piston to get blocked. By virtue of the forced control as depicted in figures 1 up to 4, the other pistons will be stopped as well. Due to this configuration, the proportioning at all outlets of the distributor can be monitored by means of a sensor at one piston only.

### Setting of the proximity switch:

1. Switching on the pump (distributor circulates).
2. Screwing the proximity switch in as far as a permanent occurs, then turning back the proximity switch as far as an alternating signal occurs.
3. Turning back the proximity switch until no signal is released.
4. Setting the proximity switch between the limit values "2 (alternating)" and "3 (no signal)".
5. Secure the proximity switch with a counter nut.

### Mounting note:

The pistons are provided with an extremely small fitting clearance. Therefore, the pistons, after the dismantling of a distributor, must never be interchanged.

### Formula for calculating the lubricant available per lubrication point:

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 proportioning is ensured.

The lubricant  $q_i$  delivered to a lubrication point  $i$  can be calculated as follows

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

$Q$  = Lubricant delivered to the distributor,

$K_i$  = Distinctive number of the outlet  $i$

- Subject to modifications -



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Transportation of gases, liquefied gases, gases under pressure, vapours and liquids, the vapour pressure of which is more than 0,5 bar above normal atmospheric pressure (1013 mbar) at the maximum admissible temperature, of easy inflammable or explosive media as well as transportation of foodstuffs is forbidden.

## Information on EU Directive 2002/95/EC (RoHS)

With Directive 2002/95/EC of January 27, 2003, for the limitation of the use of certain hazardous substances in electrical and electronic devices (RoHS) material bans come into effect from July 2006 for electrical and electronic devices newly placed on the market for lead, cadmium, hexavalent chromium, mercury and brominated flame retardants.

In its controls and switching devices, WOERNER only uses materials which fulfil the criteria of EU Directive 2002/95/EC.

To the extent that hexavalent chromium has been used as corrosion protection in the parts which we produce ourselves, it has already been replaced by other environmentally tolerable protective measures.

The mechanical devices supplied by WOERNER are not affected by EU Directive 2002/95/EC.

But as WOERNER is conscious of its responsibility towards the environment, we shall also use materials fulfilling the requirements of the Directive for devices not covered by EU Directive 2002/95/EC as soon as they are generally available and their use is technically possible.

## Technical documents also valid for this product:

**B0336 Operating instructions VP**