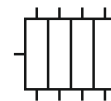




## Progressive distributor VPA-C



### Use:

In progressive mode based central lubrication systems.

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

- **Accurate proportioning volumes.**
- Clear and precise arrangement of control channels in **spite of small-size construction.**
- **Modular system construction.**  
Quick fault remedy possible without having to loosen the pipeline.
- **9 different proportioning volumes** selectable in accordance with the lubricant required.
- **Extremely long service life** due to refined sliding surfaces.
- **Pluggable monitoring elements** can be replaced during operation.
- **No proportioning decrease at the piston monitored.**

### Technical data:

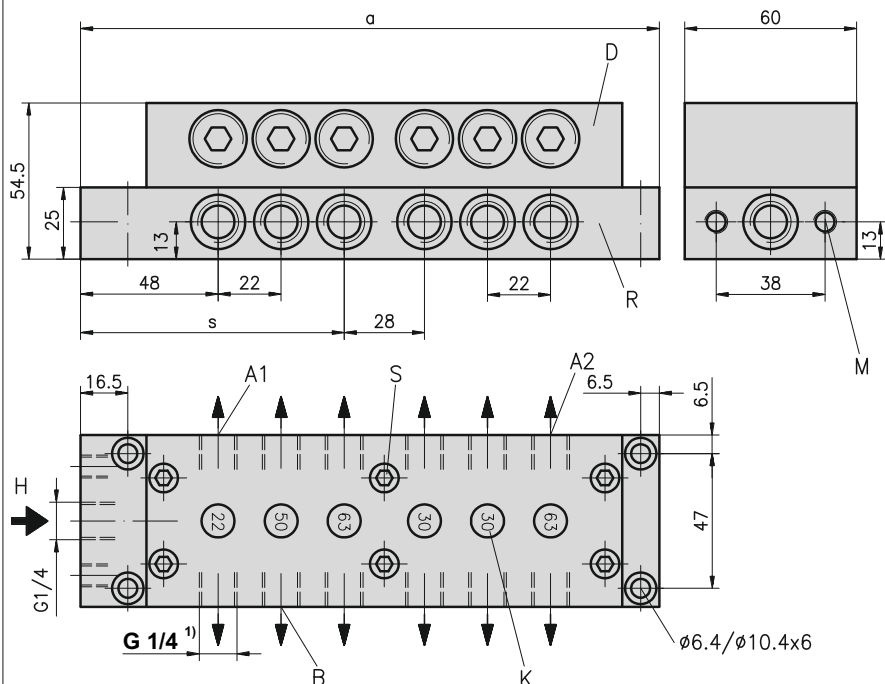
|                                 |                                                                                         |
|---------------------------------|-----------------------------------------------------------------------------------------|
| Proportioning volume per cycle: | 0,1 ... 0,9 cm <sup>3</sup>                                                             |
| on request:                     | 0,05 cm <sup>3</sup>                                                                    |
| Lubrication point connections:  | max. 20                                                                                 |
| Operating pressure:             | max. 150 bar                                                                            |
| Throughput volume               |                                                                                         |
| Oil:                            | max. 2500 cm <sup>3</sup> /min                                                          |
| Grease:                         | max. 250 cm <sup>3</sup> /min                                                           |
| Delivery medium                 |                                                                                         |
| Oil-viscosity:                  | >6 cP                                                                                   |
| Grease:                         | up to NLGI category 2                                                                   |
| Lubricant:                      | The intended lubricant must be suitable for use with centralized lubrication equipment. |
| Material                        |                                                                                         |
| Proportioning block:            | Aluminium                                                                               |
| Internal parts:                 | Steel                                                                                   |
| Connecting plate:               | Aluminium                                                                               |
| Gasket material:                | FPM                                                                                     |
| Temperature range:              | -20 ... +80 °C                                                                          |
| Mounting position:              | usually as needed                                                                       |

Note: In case of heavy vibration or shock load, install the distributor such that piston axes are situated vertically to the main direction of shock impact.

An optimum ventilation of the whole lubrication system is the precondition for its functionally safe operation.

For quicker ventilation, the flow direction from bottom to top in the distributor is of advantage (inlet on bottom side).

The distributor must not be "distorted". Therefore, when mounting it, always be careful that the supporting surface is level.

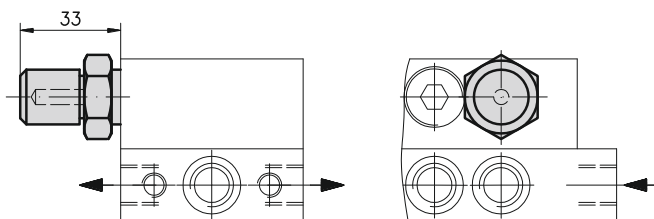


- A1 = Mounting position at the distributor (for visual indication and electrical checking device) at first place  
A2 = Mounting position at the distributor (for electrical checking device) at last place  
B = Mounting point for viewing indicator at distributor (if point A is occupied)  
D = Proportioning block DPA-C  
H = Main line  
K = Proportioning volume distinctive number  
M = 2x fastening threads M8 for assembly of auxiliary units (see data sheet P0683)  
R = Connecting plate APA-C  
S = mid fastening screw

| Number of outlets | Length "a" | Length "s" | Weight kg |
|-------------------|------------|------------|-----------|
| 6                 | 130        | —          | 1,30      |
| 8                 | 152        | —          | 1,65      |
| 10                | 174        | —          | 2,00      |
| 12                | 202        | 92         | 2,30      |
| 14                | 224        | 114        | 2,60      |
| 16                | 246        | 114        | 2,90      |
| 18                | 268        | 136        | 3,25      |
| 20                | 290        | 136        | 3,60      |

<sup>1)</sup> Base plates threaded G 1/8 see data sheet S0688

### Visual check "S"



### Functional checks:

#### Visual check "S":

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

Casing material: Polyamide, translucent  
Ambient temperature: -10 ... +80 °C  
Weight: 0,35 kg  
Mounting point at distributor: A or B

#### Electrical check with proximity switch:

##### Casing for proximity switch:

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

##### Version "D":

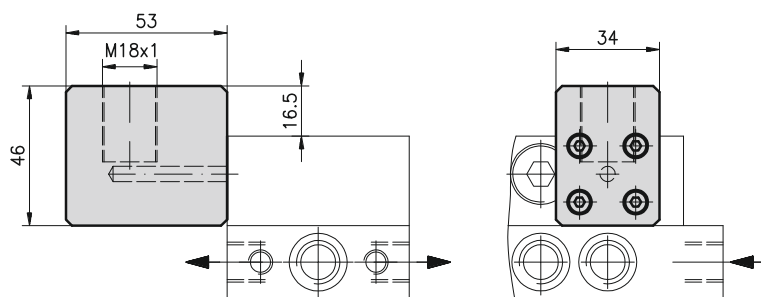
Casing material: Polyamide, translucent  
(Piston movement is visible)  
for proximity switch  
with a switching distance of:  $\geq 8$  mm

##### Version "W":

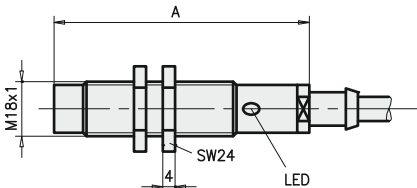
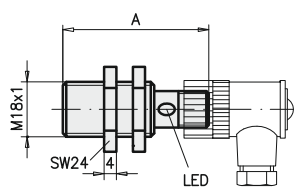
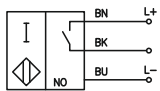
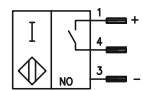
Casing material: Polyamide, black  
for proximity switch  
with a switching distance of:  $\geq 5$  mm

Use proximity switch with M18x1 thread!  
(When using other proximity switches than those depicted below, such proximity switches must be checked for suitability).

### Casing for proximity switch

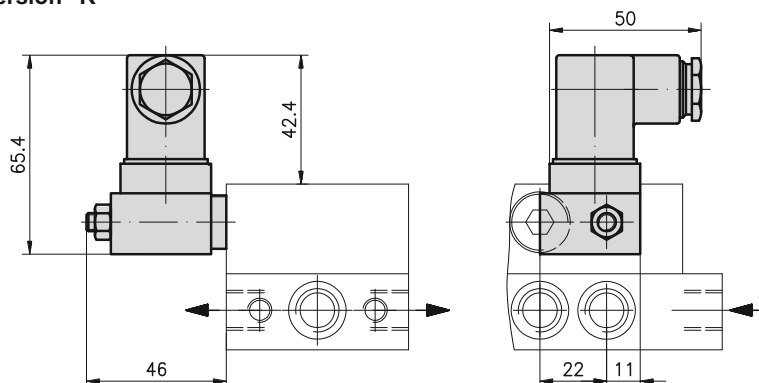


### Choice of proximity switches:

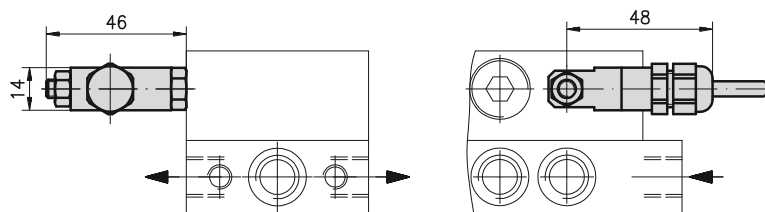
| Designation / Order no. | Proximity switch "C"<br>913.900-03                                                  | Proximity switch "N"<br>913.900-40                                                    |
|-------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Dimension drawing:      |  |   |
| Connection diagram:     |  |  |
| Switching distance:     | 8 mm                                                                                | 8 mm                                                                                  |
| Operating voltage:      | 10 ... 30 VDC                                                                       | 10 ... 30 VDC                                                                         |
| Residual ripple:        | $\leq 10\%$                                                                         | $\leq 15\%$                                                                           |
| Load current:           | max. 250 mA                                                                         | max. 130 mA                                                                           |
| Protection system:      | DIN EN 60529 IP67                                                                   | DIN EN 60529 IP67                                                                     |
| Power connection:       | Cable 3 m                                                                           | Unit plug (see accessoires page 3)                                                    |
| Length "A":             | 76,5 mm                                                                             | 45 mm                                                                                 |



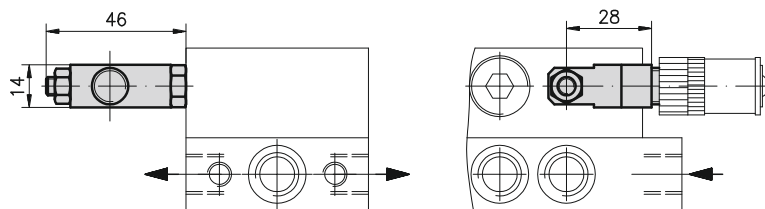
## Version "R"



## Version "RK"



## Version "RS"



### Electrical check with reed contact:

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

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

### Version "R" with plug-in connection DIN EN 175301-803, shape A:

Material (casing): Al or 1.4305  
System of protection: DIN EN 60529 IP65

Connection diagram: 1 2 3

### 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: Oil flex

Connection diagram: BN BU

### Version "RS" with unit plug M12x1, 4-pin: (for matching cable jack see accessories)

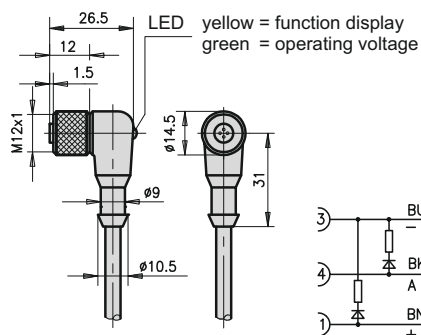
Material (casing): PA or 1.4305

Connection diagram: 1 4

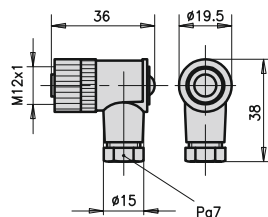
### Accessories:

Cable jack for functionality check "RS" and proximity switch  
(please order no. specify)

#### Cable jack with LED and cable



#### Cable jack with terminal clamps



### Cable jack with LED and cable:

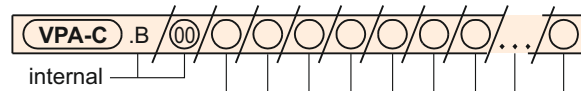
Order no.: 913.404-19  
Operating voltage: 10 ... 30 VDC  
Cable  
Cross section: 3x0,34 mm<sup>2</sup>  
Length: 5 m  
System of protection: DIN EN 60529 IP68

### Cable jack with terminal clamps: (without LED)

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



## Order designation:



| Number of outlets                                                                                                                                                                     | Functionality check                                                                                          | electrical check                                                                                                                                        | Proximity switch | Proportioning volume per piston stroke and outlet in cm <sup>3</sup>               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------------------------|
| Base plate with outlet thread G 1/4:<br><br>A6 ... A20<br><br>increasing by<br><br>2 outlets<br><br>each<br><br><br>Base plate with outlet thread G 1/8 on request (data sheet S0688) | Visual check<br><br>with (S)<br><br>without (0)                                                              | without (0)<br><br>Reed contact<br>(R)<br>(RK)<br>(RS)                                                                                                  | without (0)      | 0,10 (10)    0,50 (50)<br><br>0,15 (15)    0,63 (63)<br><br>0,22 (22)    0,75 (75) |
|                                                                                                                                                                                       | electrical checking device mounted at<br><br>1st place <sup>1)</sup> (0)<br><br>last place <sup>2)</sup> (Z) | translucent proximity switch casing switching distance ≥ 8 mm (D) <sup>3)</sup><br><br>reinforced proximity switch casing switching distance ≥ 5 mm (W) | (N)<br><br>(C)   | 0,30 (30)    0,90 (90)<br><br>0,40 (40)    0,05 (05) on request <sup>4)</sup>      |

Order designation: Proportioning block

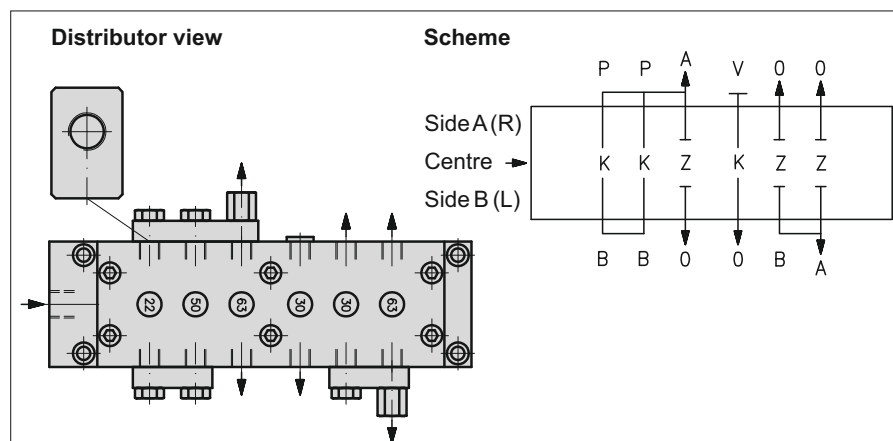


Order designation: Connecting plate



## Please note:

- <sup>1)</sup> When mounting a functional checking device at the 1st place, metering volume at the last place must be 0,22 cm<sup>3</sup> at least!
- <sup>2)</sup> When mounting a functional checking device at the last place, metering volume at the last but one place must be 0,22 cm<sup>3</sup> at least!
- <sup>3)</sup> Resistance of the transparent proximity switch casing "D" to synthetic lubricants and additives as well as to other consumables cannot be assured. The application under the planned conditions of operation, as fundamental rule, has to be checked. If required, the reinforced proximity switch casing "W" is to be used. If additional sight check is wanted, then the visual indicator "S" can be installed.
- <sup>4)</sup> Informations regard data sheet S0688!



## Order example:

(for the distributor as depicted here)

Progressive distributor with 12 outlets, without visual check "0", with casing for proximity switch "W" and proximity switch "C", proportioning distinctive numbers "22", "50", "63", "30", "30", "63".

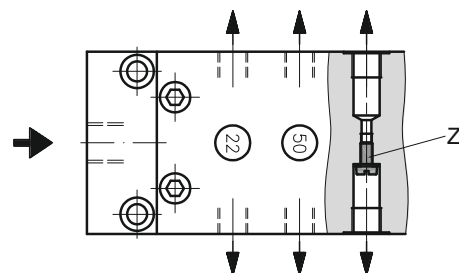
## Order designation:

VPA-C . B / 00 / A12 / 0 / W / C / 22 / 50 / 63 / 30 / 30 / 63  
Side A (R) : P / P / A / V / 0 / 0  
Centre : K / K / Z / K / Z / Z  
Side B (L) : B / B / 0 / 0 / B / A



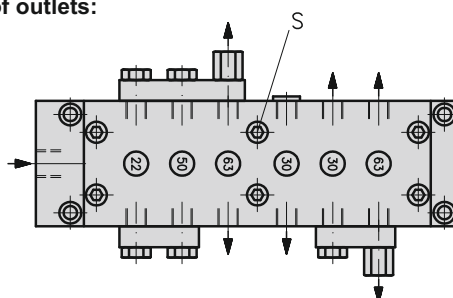
### Combination of outlets, doubling the proportioning volume at an outlet:

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



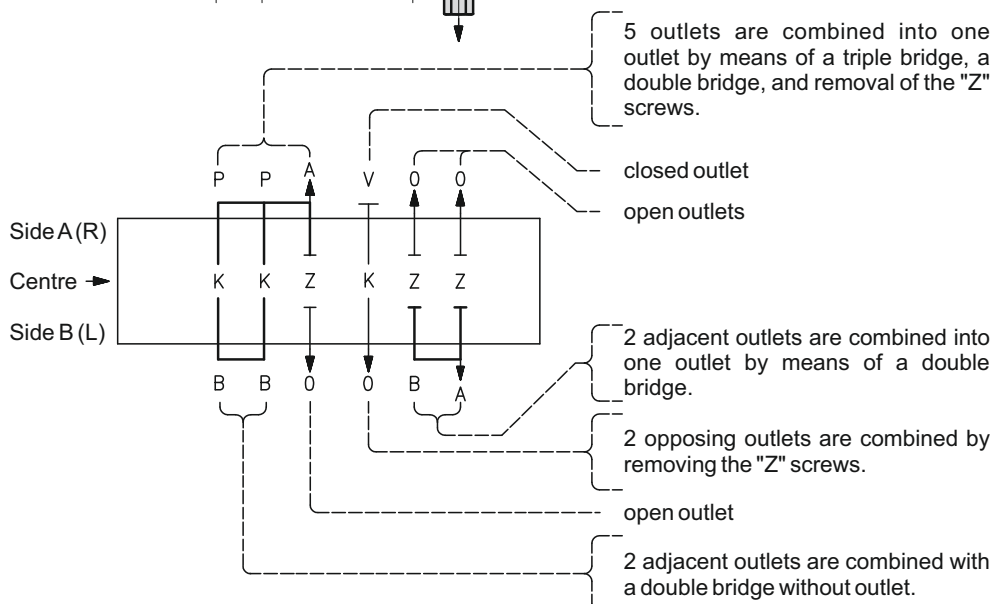
### Bridges and lock screw

#### Add-on elements and combination of outlets:



#### Distinctive letters:

B = double bridge  
BR = double bridge without outlet with check valve  
P = triple bridge  
PR = triple bridge without outlet with check valve  
A = Outlet at the bridge  
AR = Outlet at the bridge with check valve  
Z = opposing outlets separated  
K = opposing outlets connected  
O = open outlet  
V = Lock screw



**Accessories:** Only in conjunction with progressive distributor.

**Pipe screw fittings DIN 2353:** (please order no. specify)

| Connection thread | Pipe screw fitting with pipe outer diameter <sup>1)</sup> |            |            |            | Check valve with pipe outer diameter $\varnothing$ |            |            |
|-------------------|-----------------------------------------------------------|------------|------------|------------|----------------------------------------------------|------------|------------|
|                   | 6                                                         | 8          | 10         | 12         | 6                                                  | 8          | 10         |
| G 1/4             | 951.100-51                                                | 951.100-12 | 951.100-14 | 951.100-17 | 501.152-65                                         | 501.151-65 | 501.153-65 |

<sup>1)</sup> Outlet max.  $\varnothing 10$

**Technical documents also valid for this product:**

B0336 EN Operating instructions VP  
E0117 EN Spare parts VPA-B, -C, -D



## 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.

## 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 completely in. In the case of a permanent signal, 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:

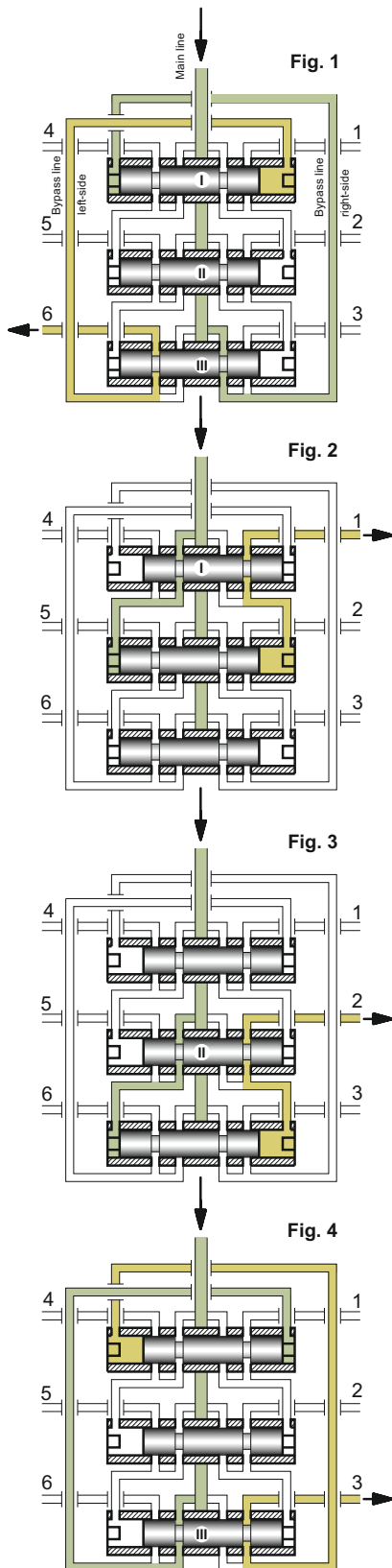
A progressive distributor allocates the delivered lubricant to the individual lubrication points in forced order. Due to the functional process as described herein, a safe proportioning is ensured.

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  $i$





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