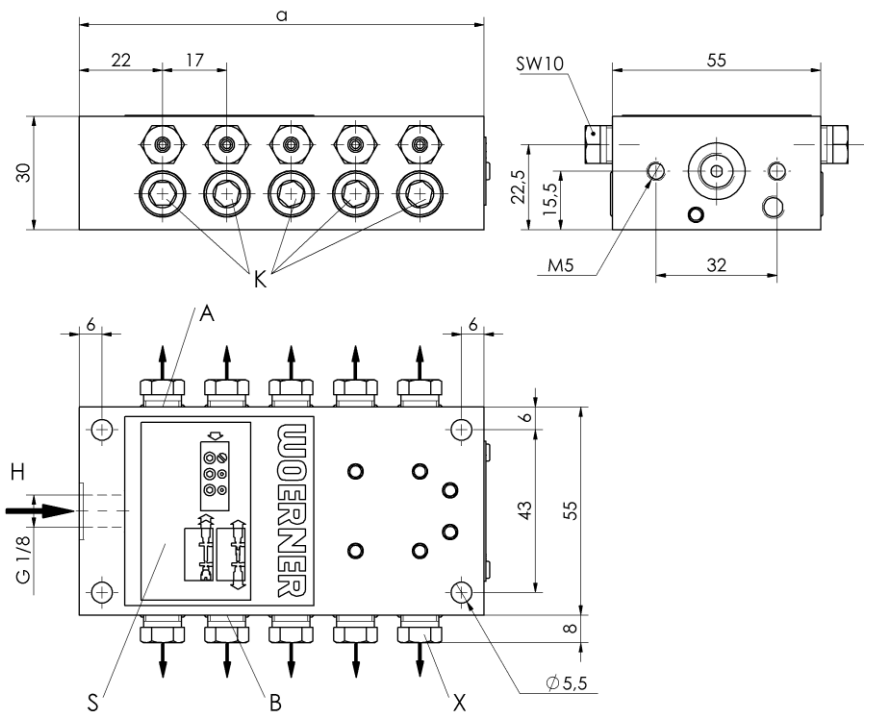
WOERNER
The Experts in Lubrication

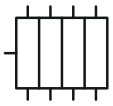


A = Mounting point at distributor (for viewing indicator and electrical functionality check)
B = Mounting point at distributor for viewing indicator (if point A is occupied)
H = Input line
K = Proportioning volume distinctive colours (see technical data)
S = Note to proportioning volume distinctive colours
X = Outlet screwing for pipe outer diameters ø4 or 6 connection hole in distributor for double-cone ring 6 DIN 3862 and male fitting ALL6 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

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 cm³
- Distinctive colour yellow: 0,14 cm³
- Distinctive colour red: 0,20 cm³
- on request: 0,05 cm³

Lubrication point connections: max. 20
Operating pressure: max. 150 bar
Throughput volume
- Oil: max. 700 cm³/min
- Grease: max. 70 cm³/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
- Outer body:
  - VPB-B: Aluminium anodised
  - VPB-H: Bronze seawater-resistant
- Internal parts: Steel
- 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.

The distributer must not be distorted while being mounted!

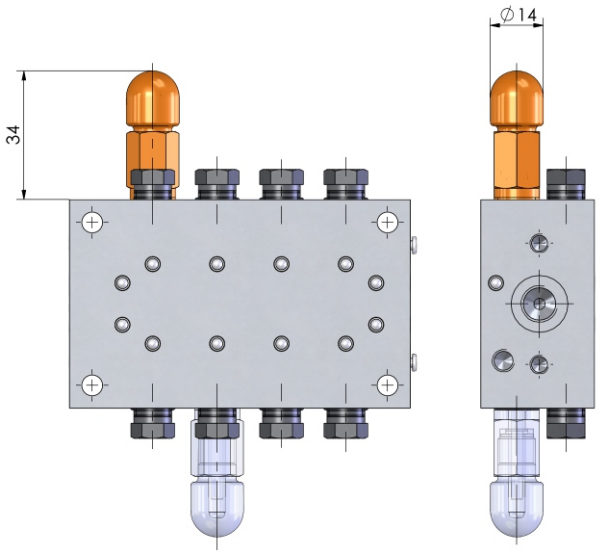
Make sure that the flatness error of the mounting surface does not get larger than 0,2 mm related to the supporting surface of the distributor, when fixing the distributor on its supporting surface.

- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

Data sheet **P0378.02.20 EN**
Replaces P0378.07.16 EN

Visual check "S"



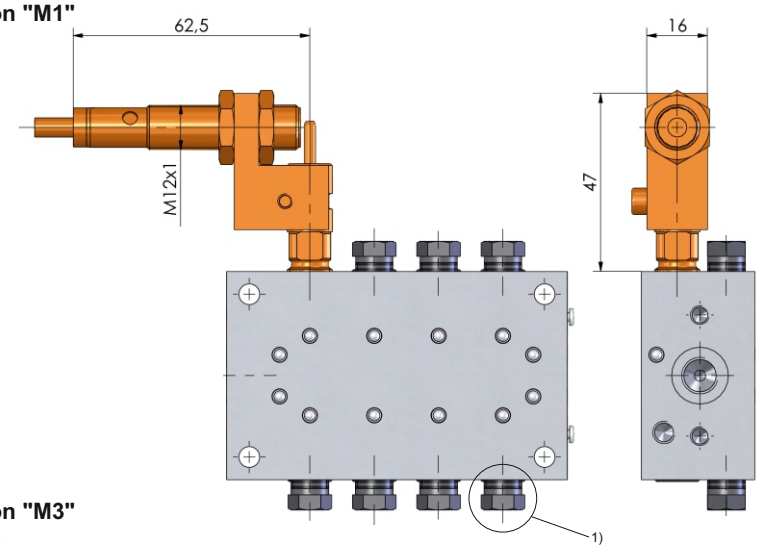
Functional checks:

Visual check "S":

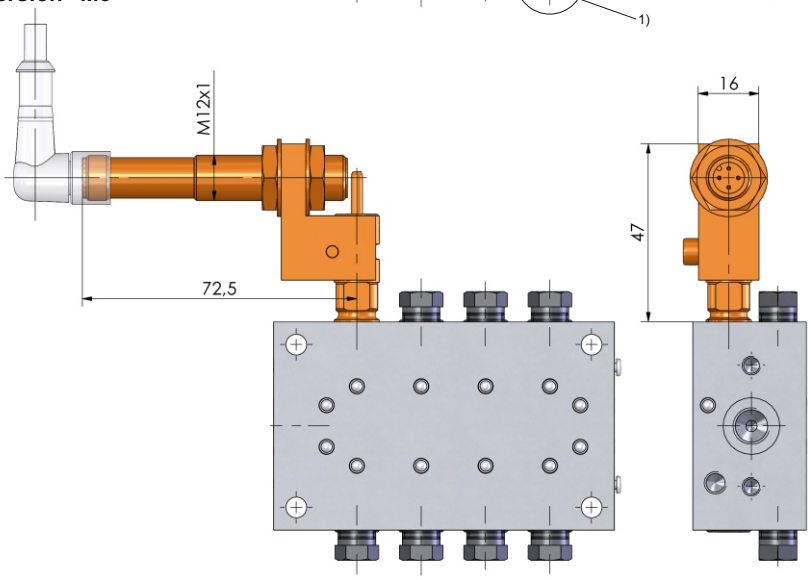
In a translucent polyamide receptacle, a red pin being fixed to the piston shows the piston's movement.

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

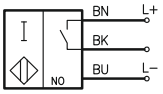
Holder:	
VPB-B:	Aluminium
VPB-H:	Bronze
Indicator pin:	1.4521

[1] 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:	max. 400 mA
Protection system:	DIN EN 60529 IP67
Connection:	Cable 2 m

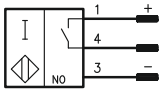
Connection diagram:



Version proximity switch "M3" with unit plug M12x1, 4-pin:
(for matching cable jack see auxiliaries)

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

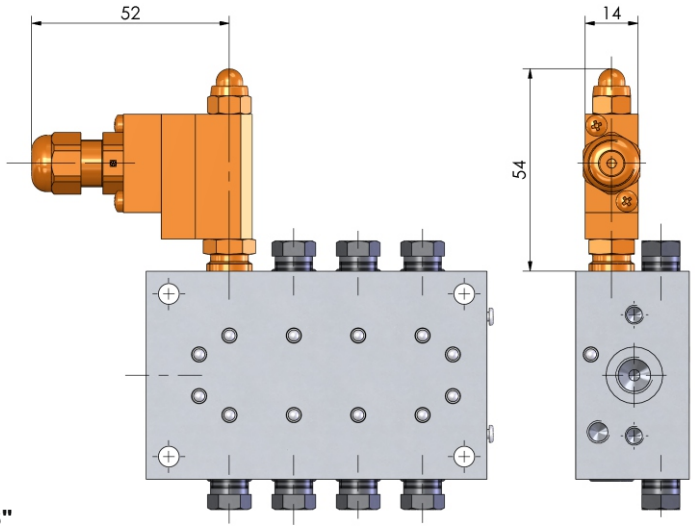
Connection diagram:



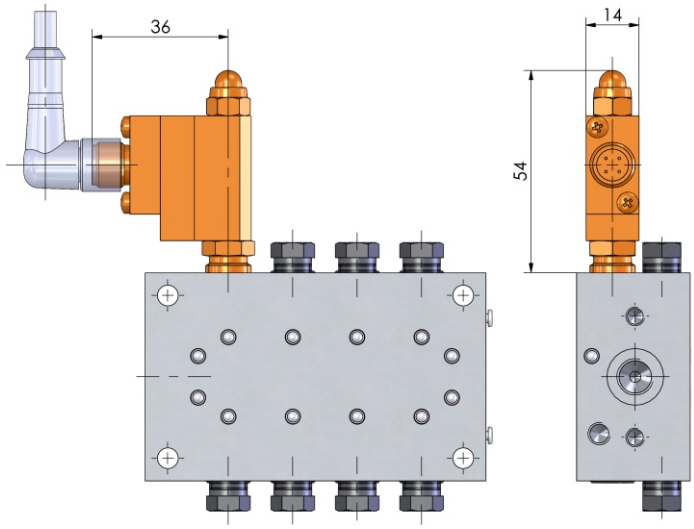
- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

Version "RK"



Version "RS"



Electrical check with reed contact:

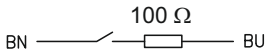
A magnet connected with the piston switches a reed contact once per cycle.

Switching voltage:	10 ... 36 VUC
Switching current:	max. 25 mA
Switching power:	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 mm²
Material:	Oilflex

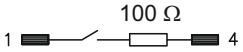
Connection diagram:



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

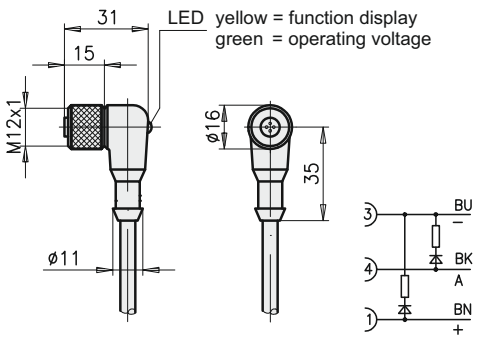
Material (receptacle):	PA or 1.4305

Connection diagram:

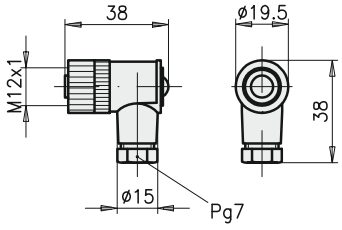


Auxiliaries:
Cable jack for functional check "RS" and proximity switch "M3"
(please order no. specify)

Cable jack with LED and Kabel



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 mm²
Length:	5 m
System of protection:	DIN EN 60529 IP68

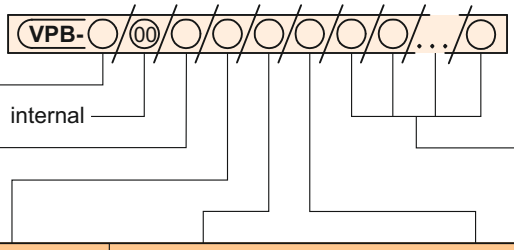
Cable jack with terminal clamps: (without LED)

Order no.:	**913.404-24**
Connection type:	Screws
Connection cross section:	max. 0,75 mm²
Cable diameter:	4 ... 6 mm
System of protection:	DIN EN 60529 IP67

- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

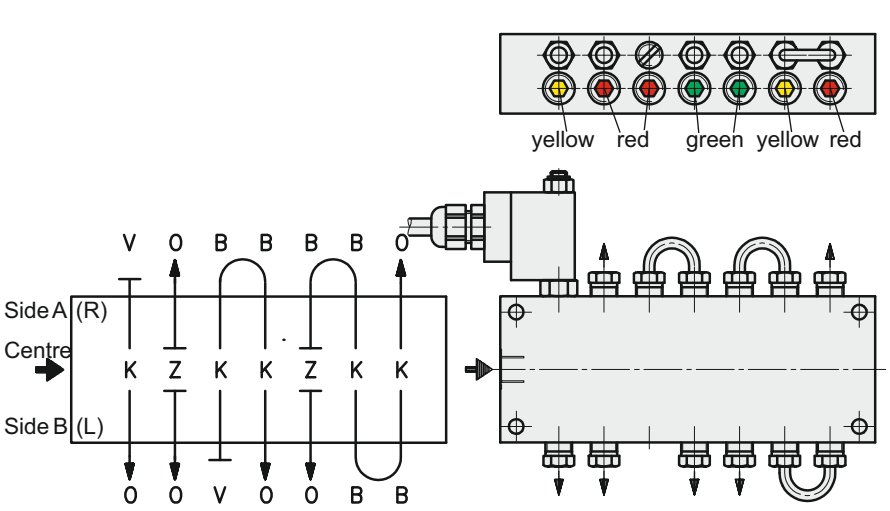
Order designation:



Material outer body	Number of outlets	Pipe screwing for outlet	Functional check: Visual check	Functional check: electrical control		Proportioning volume per piston stroke and outlet in cm³
Aluminium anodised (B)	6 ... 20 increasing by 2 outlets each	without (0)	without (0)	without (0)		0,05 on request [1] (05)
Bronze seawater resistant (H)		ø4 (4)	with (S)	Mount without proximity switch (M0)	Reed contact with cable (RK)	0,09 (09)
		ø6 (6)		Proximity switch with cable (M1)	Reed contact with plug [2] (RS)	0,14 (14)
				Proximity switch with plug [2] (M3)		0,20 (20)

Note:
When a functionality checking device is to be mounted, the proportioning volume must be 0,20 cm³ 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.

Scheme



Distributor view

[1] **ATTENTION!**
The proportioning volume 0,05 cm³ 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, 20, 09, 09, 14, 20.

Order designation:

VPB-B / 00 / 14 / 6 / 0 / RK / 14 / 20 / 20 / 09 / 09 / 14 / 20
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

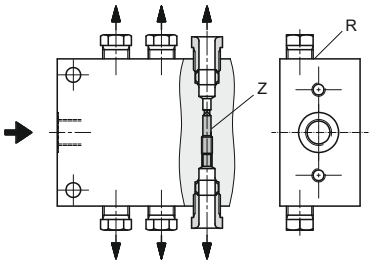
- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

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	**205.507-65**	**205.505-47** (Torx 30)
VPB-H	**205.507-61**	**205.505-41** (Torx 30)

Plug screw connections [1)]

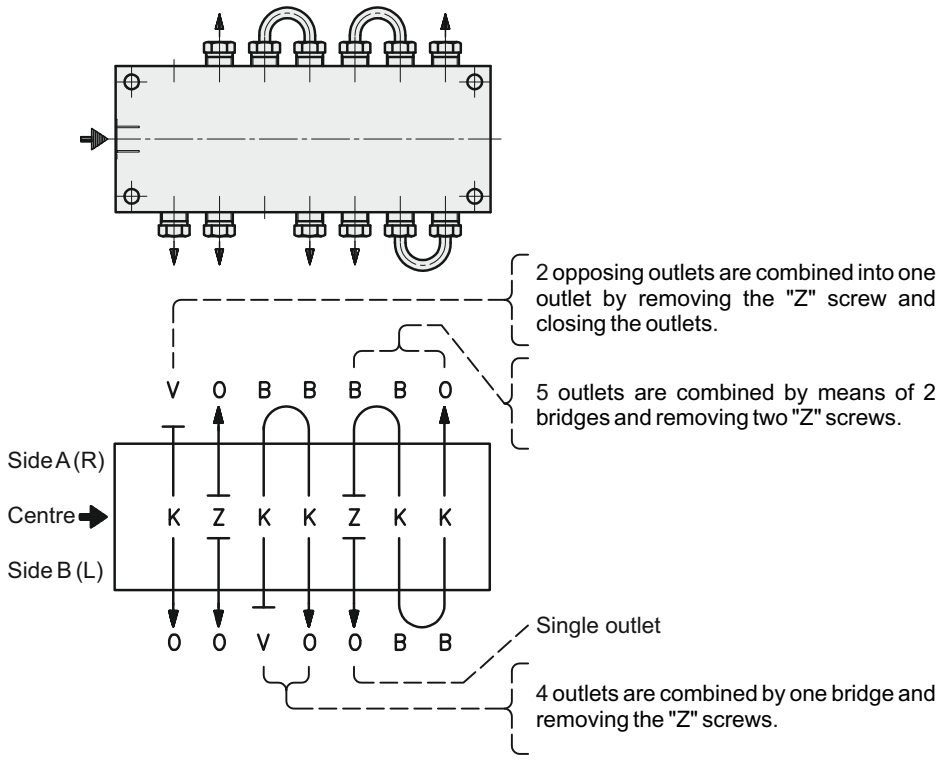
Material	Pipe AD	straight screw-in union	swivel equal-elbow-fitting	
Brass nickel plated	4	**943.600-60**		Further informations: Data sheet P0354 Fastening torque max. 12 Nm To be used with flexible pipes only.
	6	**943.600-56**	**943.600-57**	

Check valves [1)]

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

[1)] Beneath monitoring elements, can be used only with extension **505.096-45**!

Combination of outlets:



Distinctive letters:

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

Technical documents also valid for this product:

B0336 EN Operating instructions VP

- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

Fig. 1

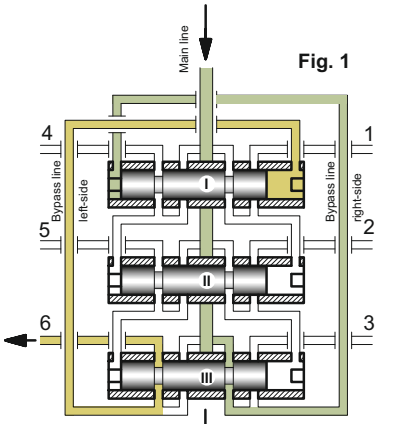


Fig. 2

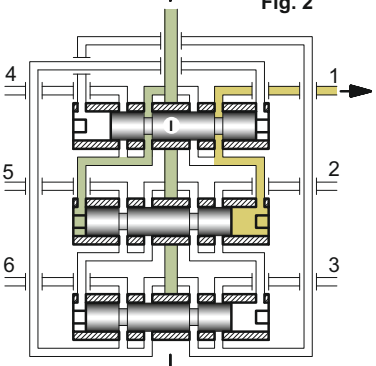


Fig. 3

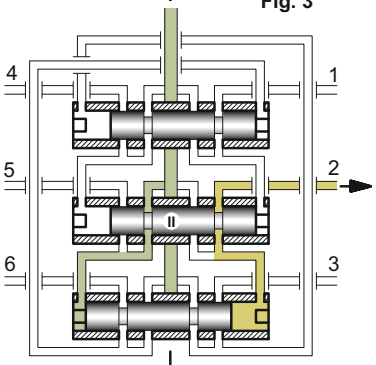
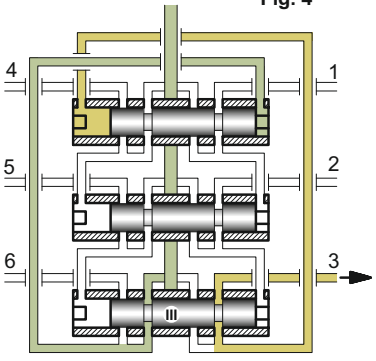


Fig. 4



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 displaced lubricant is ejected via outlet no. 3. 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

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

Q = lubricant delivered to the distributor,

K_i = distinctive number of the outlet i

- Subject to modifications -

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de

Important information about this data sheet

Reproduction, also in extracts, only permitted with the approval of the firm of EUGEN WOERNER GmbH & Co. KG.

All the information in this data sheet has been examined for correctness with great care. Nevertheless, WOERNER cannot assume any liability for losses or damage resulting directly or indirectly from the application of the information contained in this data sheet.

All products from WOERNER may only be used as intended and corresponding to the information in this data sheet.
For products supplied with operating instructions, the additional directives and information contained in them are to be complied with.

Materials deviating from those mentioned in this data sheet and the technical documents which further apply may only be poured into and processed in the appliances and systems manufactured and supplied by WOERNER by following agreement with and written approval by WOERNER.
The safety and danger information stated in the safety data sheets of the substances used must be taken into account at all costs.

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.

- Subject to modifications -

Information on EU Directive 2011/95/EU (RoHS)

In its controls and switching devices, WOERNER only uses materials which fulfil the criteria of EU Directive 2011/95/EU. 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 2011/95/EU.

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 2011/95/EU as soon as they are generally available and their use is technically possible.

EUGEN WOERNER GmbH & Co. KG
Hafenstrasse 2 DE-97877 Wertheim
Tel. +49 9342 803-0 info@woerner.de
Fax +49 9342 803-202 www.woerner.de