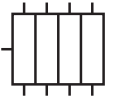




**Progressive distributor
VPA-C**



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 ³
on request	0,05 cm ³
Lubrication point connections at max.:	20
Operating pressure at max.:	150 bar
Throughput volume in case of Oil at max.:	2500 cm ³ /min
Grease at max.:	250 cm ³ /min
Delivery medium Oil-viscosity:	>6 cP
Grease:	up to NLGI category 2

Material

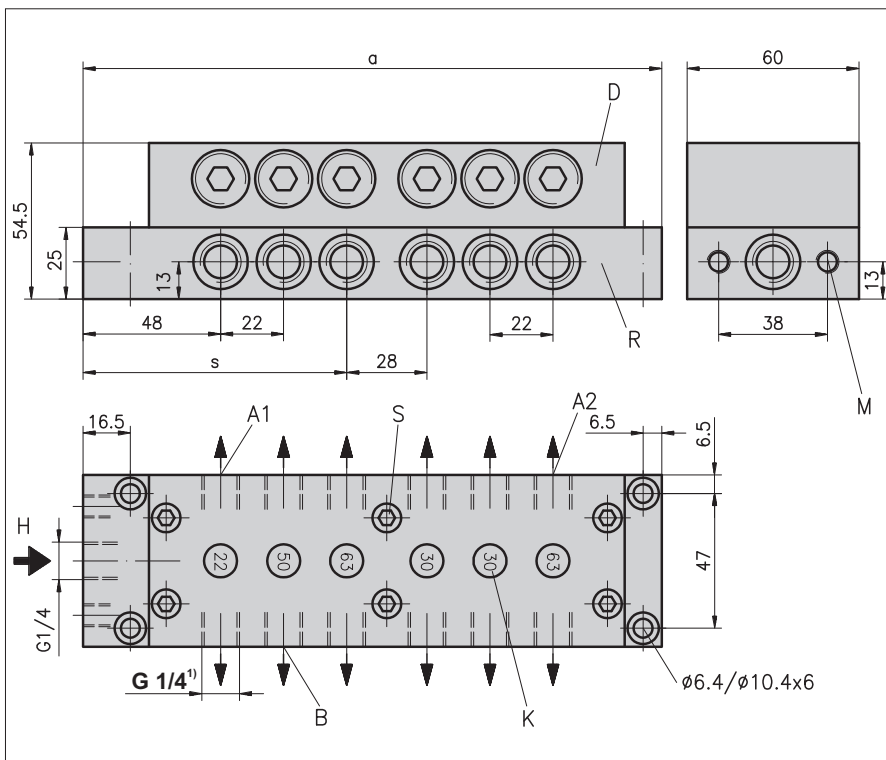
Proportioning block:	Aluminium
Internal parts:	Steel
Connecting plate:	Aluminium

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 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.

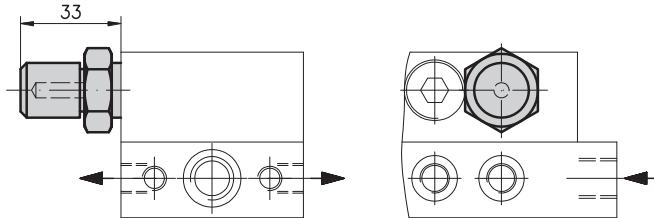
- Subject to modifications -



- 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 M8 fastening threads for assembly of auxiliary units (see data sheets P0683)
- R = Connecting plate APA-C
- S = Mid fastening screw

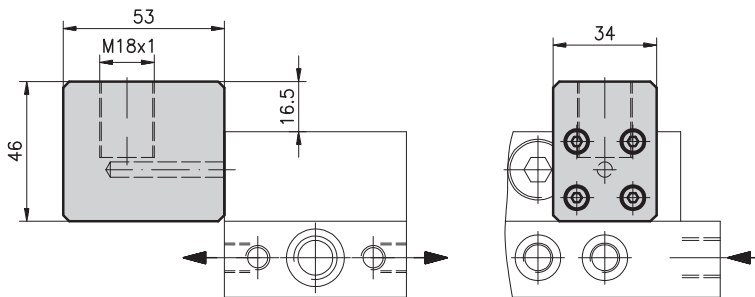
Number of outlets	Length "a"	Length "s"	Weight kg
6	130	-	1,30
8	152	-	1,65
10	174	-	2,00
12	202	92	2,30
14	224	114	2,60
16	246	114	2,90
18	268	136	3,25
20	290	136	3,60

¹⁾ 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

Casing for initiator

Electrical check with initiator:
Casing for initiator:

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

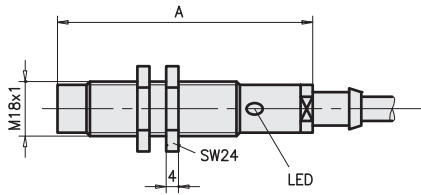
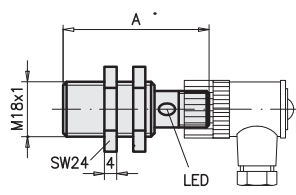
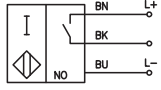
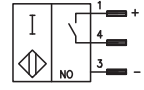
Version "D":
 Casing material: Polyamide, translucent
 (Piston movement is visible)
 for initiators with a
 switching distance of: ≥ 8 mm

Version "W":
 Casing material: Polyamide, black
 for initiators with a
 switching distance of: ≥ 5 mm

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

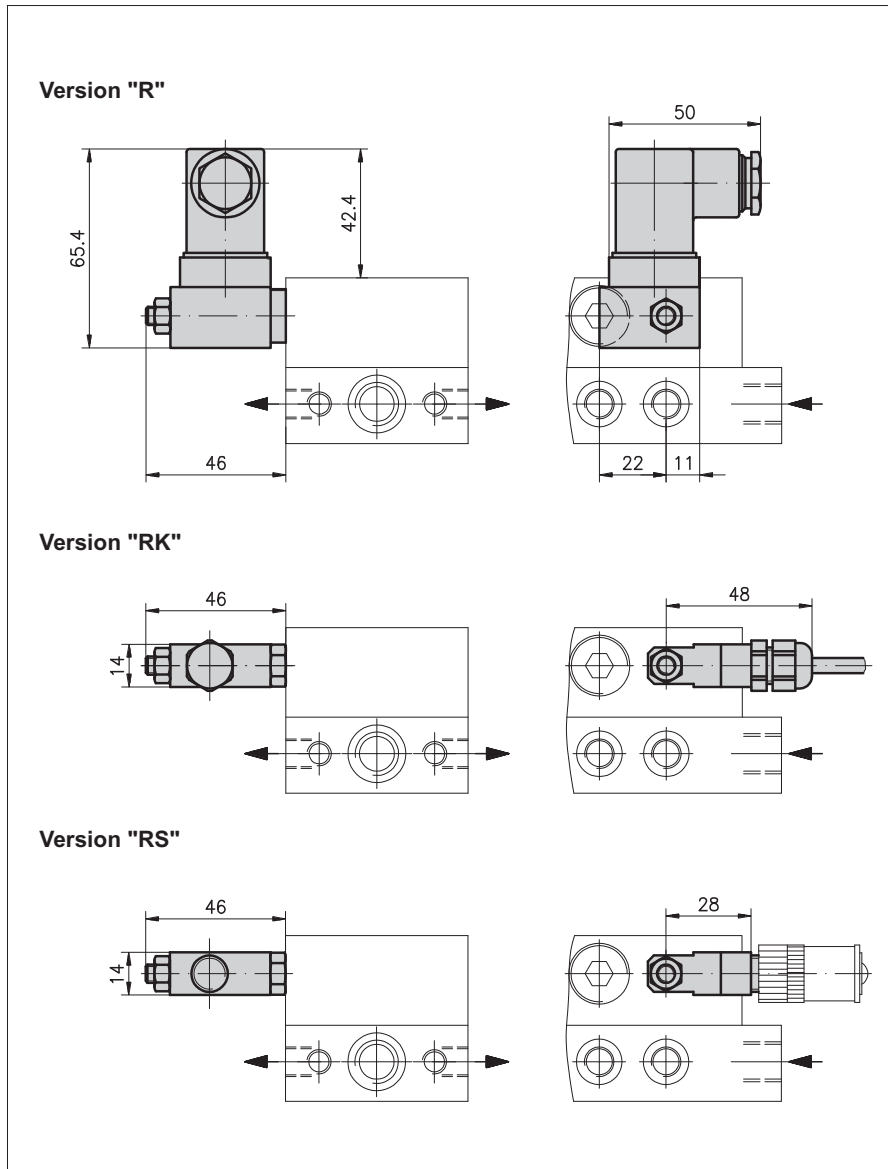
- Subject to modifications -

Choice of initiators:

Designation / Purchase-no.	Initiator "C" 913.900-03	Initiator "N" 913.900-21
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 at max.:	250 mA	130 mA
Protection system:	IP67	IP67
Power connection:	Cable 3 m	Unit plug (see accessoires page 3)
Length "A":	76,5 mm	45 mm



- Subject to modifications -



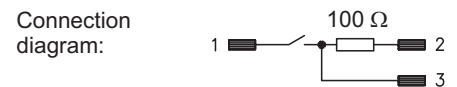
Electrical check with reed contact:

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

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

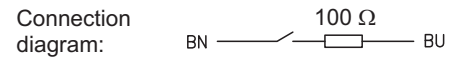
Version "R" with plug-in connection DIN EN 175301-803, shape A:

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



Version "RK" with cable:

Material (receptacle): PA or 1.4305
 System of protection: IP65
 Cable
 Length: 10 m
 Cross section: 2x0,75 mm²
 Material: Oil flex



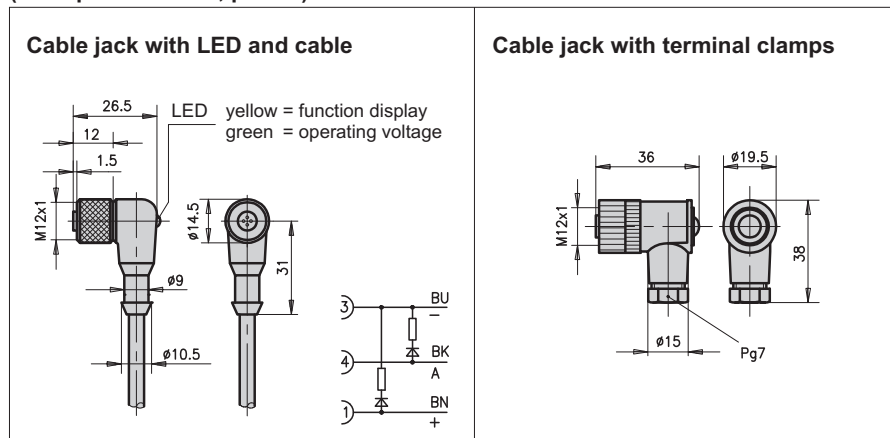
Version "RS" with unit plug, 4-pin (M12): (for matching cable jack see accessories)

Material (casing): PA or 1.4305



Accessories:

Cable jack for functionality check "RS" and initiator (state purchase-no., please)



Cable jack with LED and cable:

Purchase-no.: 913.404-19
 Operating voltage: 10 ... 30 VDC
 Cable
 Cross section: 3x0,34 mm²
 Length: 5 m
 System of protection: IP68

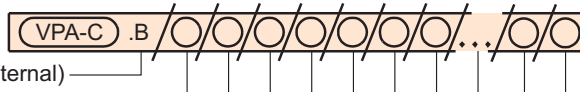
Cable jack with terminal clamps: (without LED)

Purchase-no.: 913.404-24
 Connection type: Screws
 Connection cross section: at max. 0,75 mm²
 Cable diameter: 4 ... 6 mm
 System of protection: IP67



Purchase-designation:

Progressive distributor



Number of outlets	Functionality check	electrical check	Initiator	Proportioning volume per piston stroke and outlet in cm ³	Gasket material	
Base plate with outlet thread G 1/4: A6 ... A20 increasing by 2 outlets each	Visual check	without (0)	without (0)	0,10 (10) 0,50 (50)	NBR (Perbunan) (P)	
	with (S)	Reed contact (R, RK, RS)		0,15 (15) 0,63 (63)		
Base plate with outlet thread G 1/8 on request (data sheet S0688)	Electrical checking device mounted at	translucent initiator casing Switching distance ≥8 mm (D) ³⁾	(N)	0,22 (22) 0,75 (75)		FPM (Viton) (V)
	1st place ¹⁾ (0) last place ²⁾ (Z)	reinforced initiator casing Switching distance ≥5 mm (W)	(C)	0,30 (30) 0,90 (90) 0,40 (40) 0,05 (05) on re-quest ⁴⁾		

Purchase-designation: Proportioning block

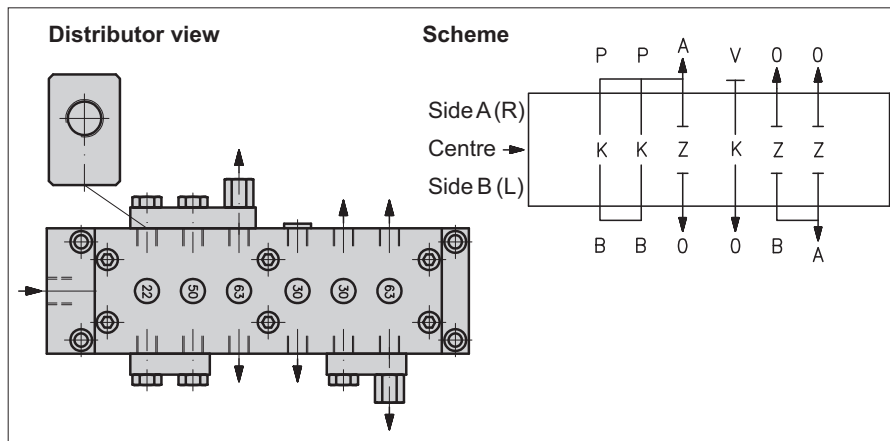


Purchase-designation: Connecting plate



Please note:

- ¹⁾ When mounting a functional checking device at the 1st place, metering volume at the last place must be 0,22 cm³ at least!
- ²⁾ When mounting a functional checking device at the last place, metering volume at the last but one place must be 0,22 cm³ at least!
- ³⁾ Resistance of the transparent case of the proximity switch "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 case "W" is to be used. If additional sight check is wanted, then the visual indicator "S" can be installed.
- ⁴⁾ Informations regard data sheet S0688!



Purchase-example:

(for the distributor as depicted here)

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

Purchase-designation:

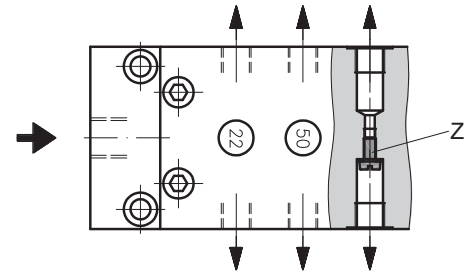
VPA-C . B / A12 / 0 / W / C / 22 / 50 / 63 / 30 / 30 / 63 / P
 Side A (R) : P / P / A / V / 0 / 0
 Centre : K / K / Z / K / Z / Z
 Side B (L) : B / B / 0 / 0 / B / A

- Subject to modifications -

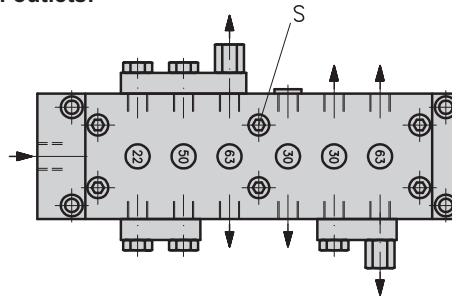


**Combination of outlets,
doubling the proportioning volume at an outlet:**

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.

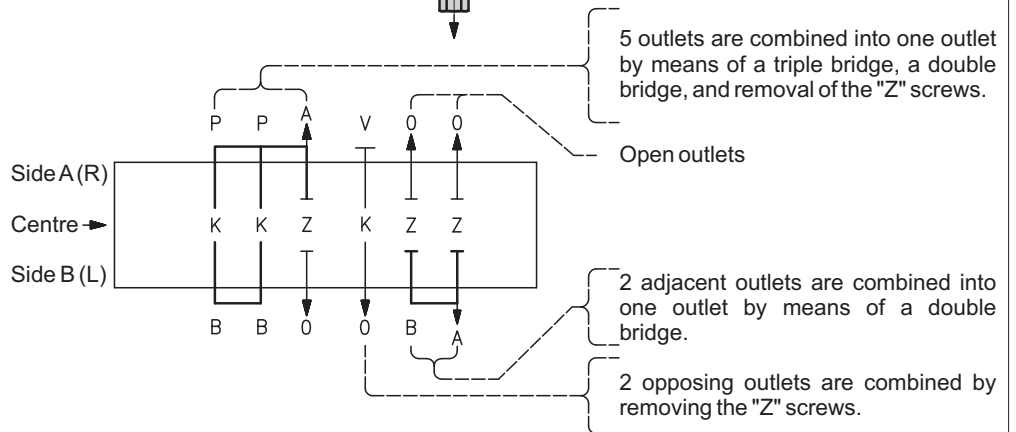


Add-on elements and combination of outlets:



Distinctive letters:

- B = Double bridge without check valve
- P = Triple bridge without check valve
- A = Outlet at the bridge without check valve
- Z = opposing outlets separated
- K = opposing outlets connected
- O = open outlet
- V = Lock screw



- Subject to modifications -

Accessories:

Only in conjunction with progressive distributor. For spare parts see spare part list E0117.

Pipe screw fittings DIN 2353 and lock screw: (please state purchase-no.)

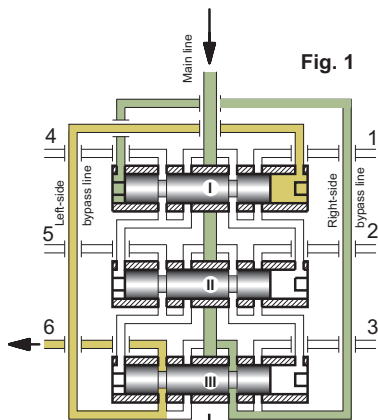
Connection thread	Pipe screw fitting with pipe outer diameter ¹⁾				Check valve with pipe outer diameter \varnothing			Lock screw "V"
	6	8	10	12	6	8	10	
G 1/4	951.100-51	951.100-12	951.100-14	951.100-17	501.152-65	501.151-65	501.153-65	206.674-65

¹⁾ Outlet at max $\varnothing 10$

Bridges: (please state purchase-no.)

Check valve at the outlet	Bridges				Bridges (location of the mid fastening screw "S")			
	double without outlet (B-B)	triple without outlet (P-P-P)	double with outlet (B-A)	triple with outlet (P-P-A)	double without outlet (B-B)	triple without outlet (P-P-P)	double with outlet (B-A)	triple with outlet (P-P-A)
	without	752.205-90	752.205-91	752.205-92	752.205-93	752.205-94	752.205-95	752.205-96
with	-	-	752.205-98	752.205-99	-	-	752.205-A0	752.205-A1

For mid fastening screw "S" position

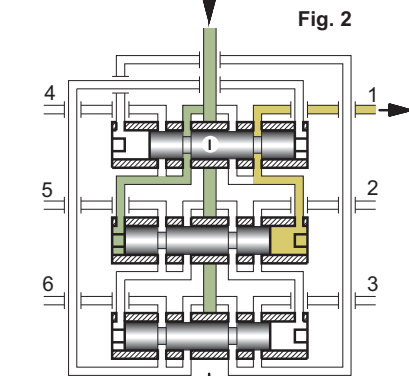
Functional process fig. 1 ... 4:

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.

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.

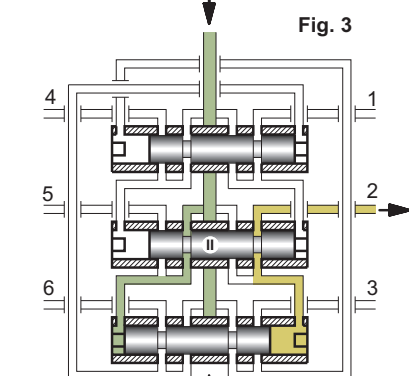
Due to this configuration, the proportioning at all outlets of the distributor can be monitored by means of a sensor at one piston only.


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.

Setting of the initiator:

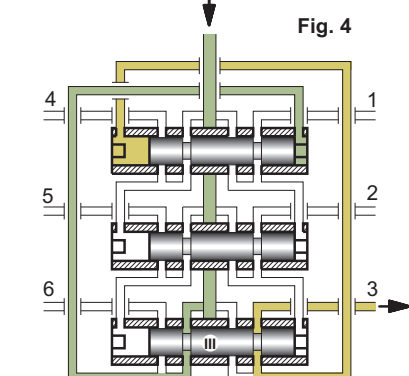
1. Switching on the pump (distributor circulates).
2. Screwing the initiator completely in. In the case of a permanent signal, turning back the initiator as far as an alternating signal occurs.
3. Turning back the initiator until no signal is released.
4. Setting the initiator between the limit values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


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.

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.


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 depicted.

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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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