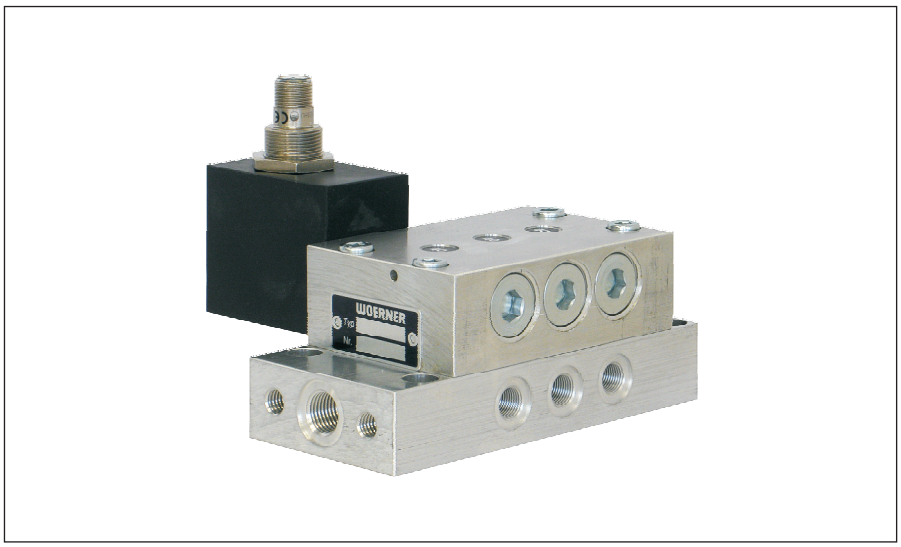
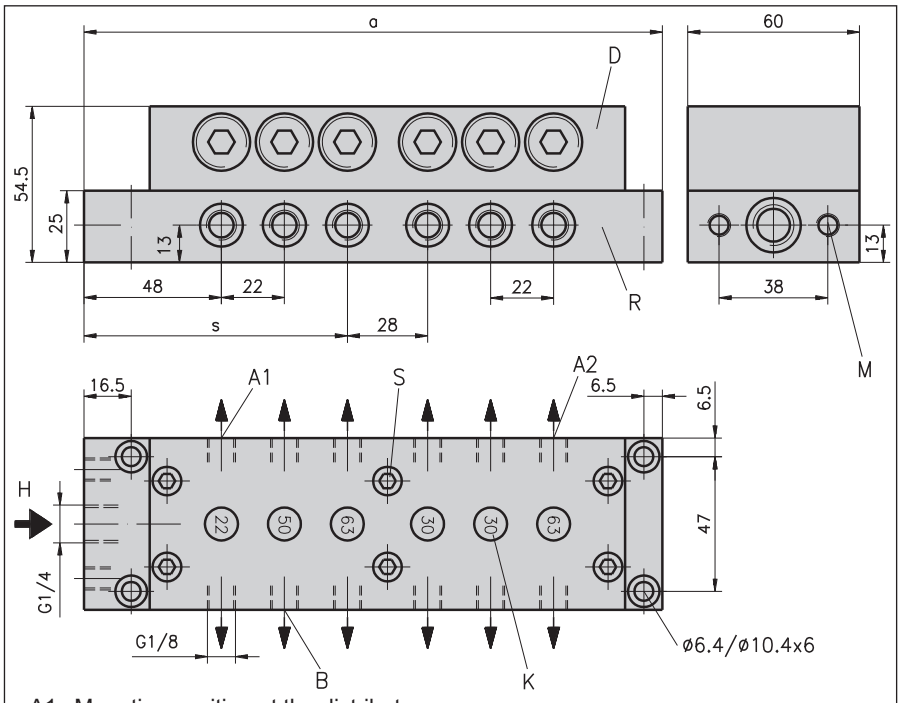
WOERNER
The Experts in Lubrication



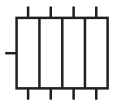


A1 = Mounting position at the distributor (for visual indication and electrical checking device) at first place
A2 = Mounting position at the distributor (for electrical checking device) at last place
B = Mounting point for viewing indicator at distributor (if point A is occupied)
D = DPA-C proportioning block
H = Main line
K = Proportioning volume distinctive number
M = 2x M8 fastening threads for assembly of auxiliary units (see data sheet 0683)
R = APA-D connecting plate
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

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 cm³

Lubrication point connections at max.: 20

Operating pressure at max.: 150 bar

Throughput volume in case of:
Oil at max.: 2500 cm³/min
Grease at max.: 250 cm³/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 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.

- Subject to modifications -

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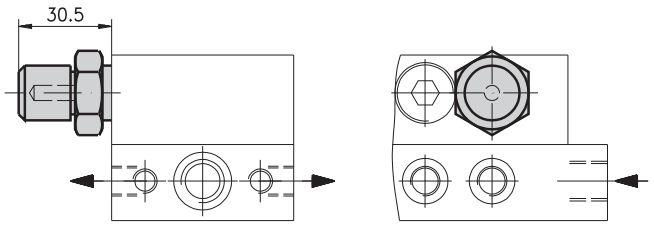
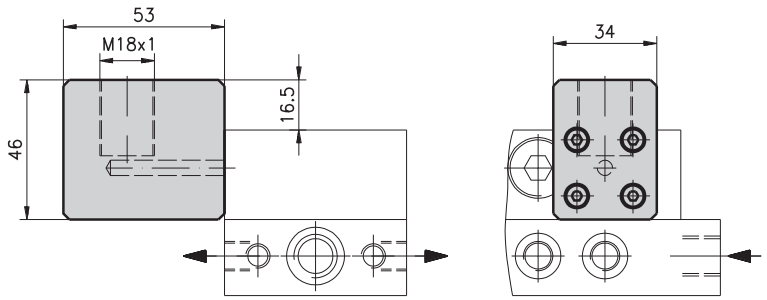
Leaflet-No. **0688.07.07 EN**
Replaces No. 0688.01.07 EN

Visual check



Casing for initiator



Functional checks:

Visual check:

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 initiator:

Casing for initiator:

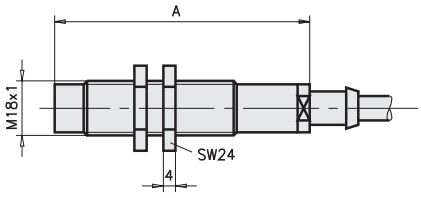
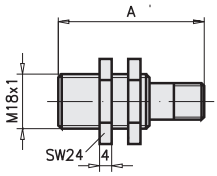
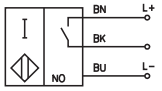
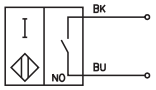
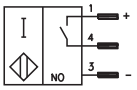
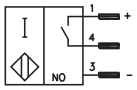
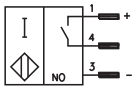
A pin being connected with the piston attenuates an initiator once per cycle.

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.)

Choice of initiators:

Designation / Purchase-no.	**Initiator "C" 913.900-03**	**Initiator "F" 913.900-11**	**Initiator "N" 913.900-21**	**Initiator "I" 913.900-14**	**Initiator "2" 979.044-88**
Suits for	Casing "W" Switching distance≥5mm	Casing "D" and "W" Switching distance≥8mm	Casing "D" and "W" Switching distance≥8mm	Casing "W" Switching distance≥5mm	Casing "W" Switching distance≥5mm
Dimension drawing:					
Connection diagram:					
Operating voltage:	10 ... 30 VDC	20 ... 250 VUC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
Residual ripple:	≤ 10%		≤ 15%	≤ 15%	≤ 15%
Load current at max.:	250 mA	500 mA	130 mA	200 mA	130 mA
Protection system:	IP67	IP67	IP67	IP67	IP67
Power connection:	Cable 3 m	Cable 3 m	Unit plug (see accessories page 3)		
Length "A":	60 mm	62 mm	45 mm	83 mm	65 mm

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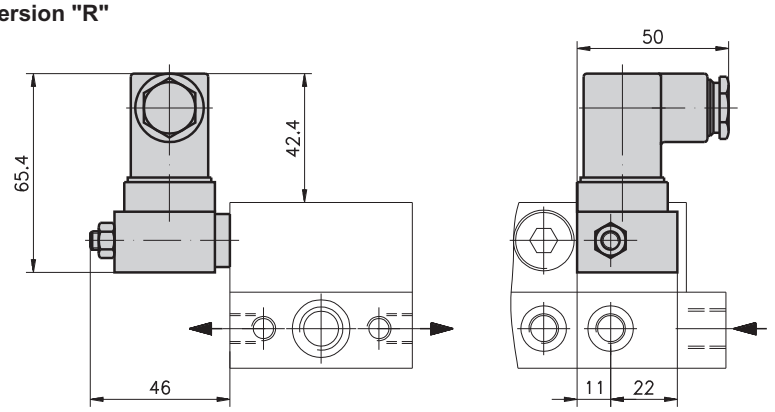
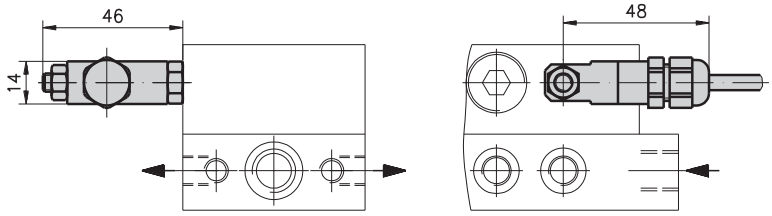
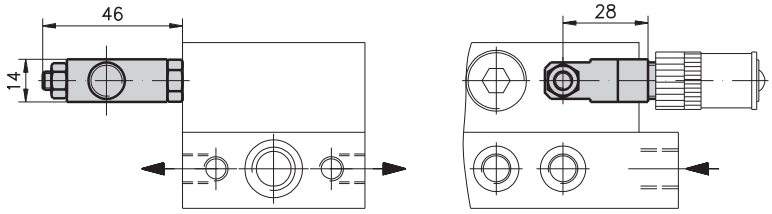
Version "R"



Version "RK"



Version "RS"



Electrical check with reed contact

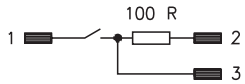
A magnet connected with the piston switches the reed contact once per cycle.

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

Version "R" with DIN 43650A plug-in connection:

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

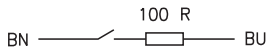
Connection diagram:



Version "RK" with cable:

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

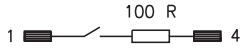
Connection diagram:



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

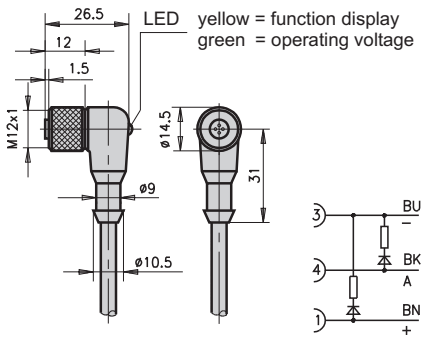
Material (casing):	PA or 1.4305

Connection diagram:

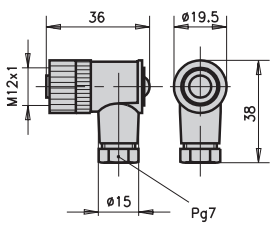


Accessories:
Cable jack for functionality check "RS" and initiator
(state purchase-no., please)

Cable jack with LED and cable



Cable jack with terminal clamps



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

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Purchase-designation:
Progressive distributor VPA-C .B ... (internal)

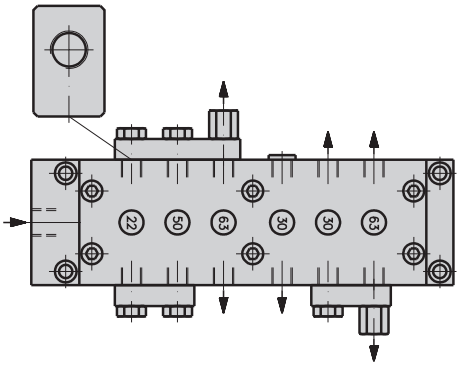
Number of outlets	Functionality check	Electrical check	Initiator	Proportioning volume per piston stroke and outlet [cm³] distinctive number	Gasket material
6 ... 20 increasing by 2 outlets each	viewing indicator	without (0)	without (0)	0,10 (10) 0,50 (50)	NBR (Perbunane) (P)
	with (S)	Reed contact (R) (RK) (RS)		0,15 (15) 0,63 (63)	
	without (0)			0,22 (22) 0,75 (75)	
	Electrical checking device mounted at 1st place[1] (0)	Translucent initiator casing Switching distance ≥8mm (D)	(N) (F)	0,30 (30) 0,90 (90)	FPM (Viton) (V)
	last place[2] (Z)	Reinforced initiator casing Switching distance ≥5mm (W)	(N) (I) (2) (C) (F)	0,40 (40)	

Purchase-designation: Proportioning block DPA-C ...

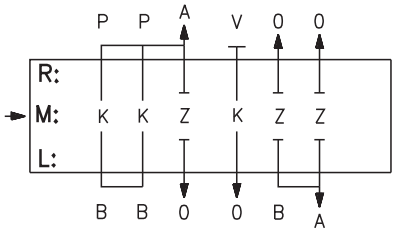
Purchase-designation: Connecting plate APA-C .B

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!**

Distributor view



Scheme



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 / 12 / 0 / W / C / 22 / 50 / 63 / 30 / 30 / 63 / P
R : P P A V 0 0
M : K K Z K Z Z
L : B B 0 0 B A

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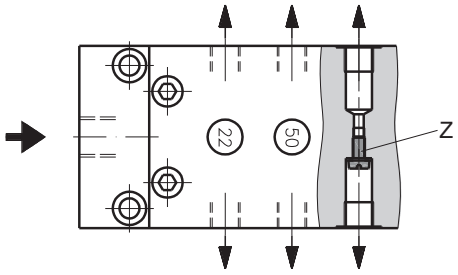
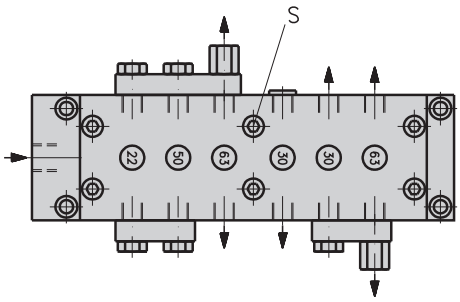
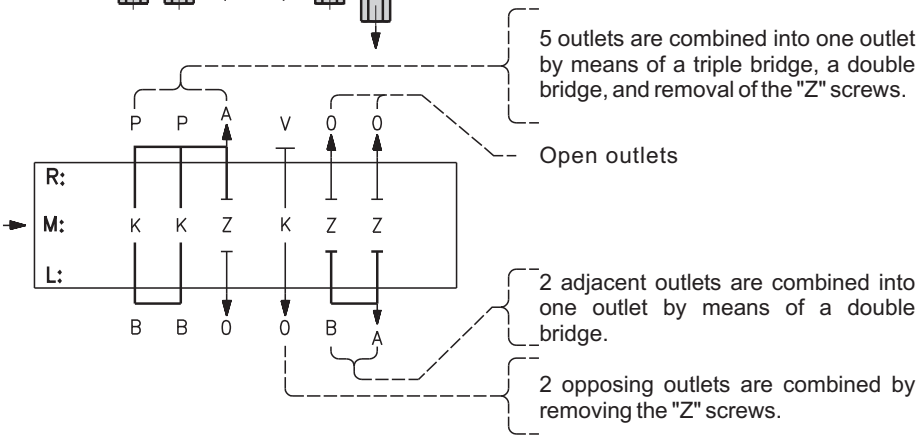
Combination of outlets,
doubling the proportioning volume at an outlet:

Connect opposing outlets by removing the "Z" screw.
Close the not needed outlet with the lock screw.
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
0 = open outlet
V = Lock screw

Accessories:

Pipe screw fittings DIN 2363: (please state purchase-no.)

Connection thread	Pipe screw fitting with pipe outer diameter					Check valve with pipe outer diameter		
	4	6	8	10	12	4	6	8
G1/8	951.100-04	951.100-05	951.100-06	-	-	501.060-65	501.065-65	501.070-65
G1/4	-	951.100-51	951.100-12	951.100-14	951.100-17	-	-	-

Bridges and lock screw: (please state purchase-no.)

Bridges				Bridges (location of the mid fastening screw "S")				Lock screw "V"
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)	
205.240-65	205.245-65	205.250-65	205.255-65	205.242-65	205.249-65	205.251-65	205.256-65	179.015-65
				For mid fastening screw "S" position				

Fig. 1

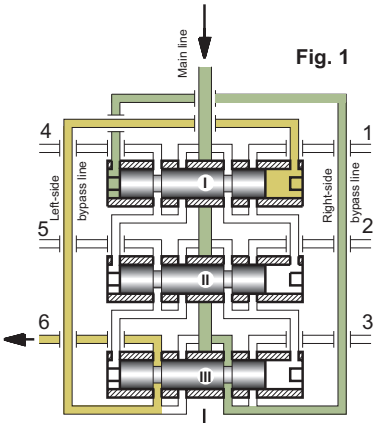


Fig. 2

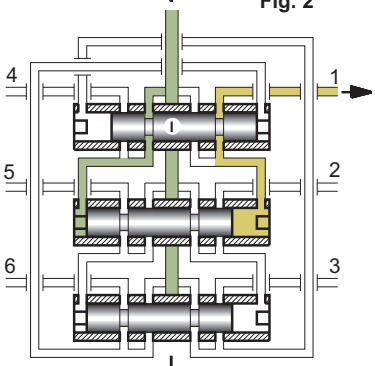


Fig. 3

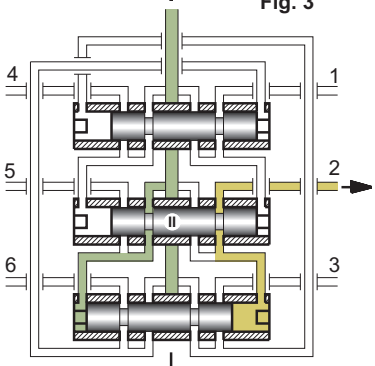
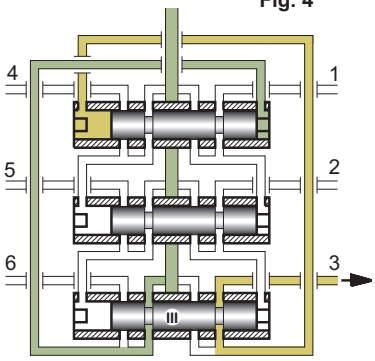


Fig. 4



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 depicted.

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.

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

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