

for dual-line central lubrication systems



MS



AS



FD3



FV50

Applications

DUOFLEX grease lubrication pumps are used when a large number of lube points have to be reliably supplied with lubricant.

Pumps for dual-line systems are distinguished in particular by their rugged and compact design.

DUOFLEX lubrication pumps are applicable for use in progressive systems or as filling and lube pumps.

The maximum operating pressure is 350 or 400 bars (AS 175 bars).

Lube pumps for dual-line central lubrication systems can be used for grease up to NLGI grade 3 (AS NLGI grade 2) with a worked penetration of $> 220 \frac{1}{10}$ mm and also for oil conforming to ISO VG with an operating viscosity greater than 50 mm²/s.

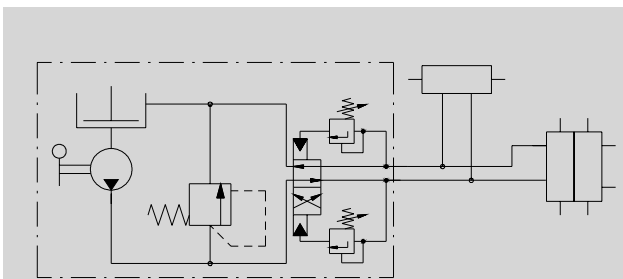


Fig. 1
Example of a 1-string, manually operated dual-line system with MS pump

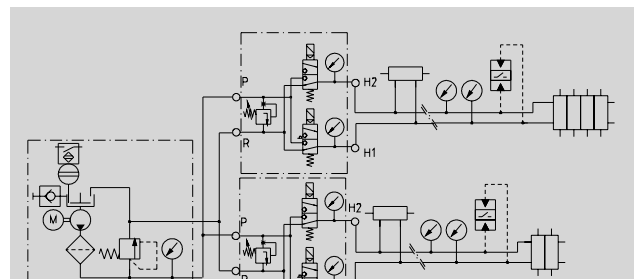


Fig. 2
Example of a 2-string, electromagnetic operated dual-line system with FD3 pump

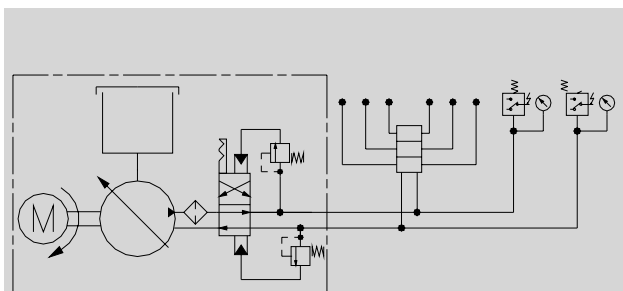


Fig. 3
Example of a 1-string, hydr. operated dual-line system with AS pump

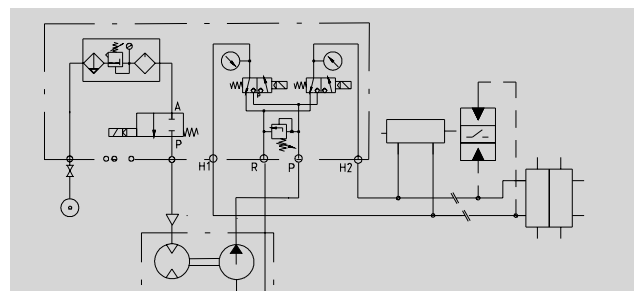


Fig. 4
Example of a 1-string, electromagnetic operated dual-line system with FV50



MS hand pump

MS type hand pumps are designed to supply dual-line systems with grease or oil. They come with double-action pistons and integrated reservoirs. The pumps are equipped with a change-over valve for a maximum pressure of up to 160 bars. The valve switches between the two main feed lines (1+2). When the set pressure is reached, the change-over takes place automatically.



MS hand pump for grease with integrated change-over valve and stroke counter

Technical data

Mounting position vertical
 Ambient temperature $\geq +10\text{ }^{\circ}\text{C}$
 Reservoir 5 kg (grease) / 5 liters (oil)

Pump

Drive manual
 Type piston pump
 Operating pressure max. 160 bar
 (with safety valve set and lead-sealed)
 Filler connection filling port+ filter (grease)
 from the top (oil)
 Type of lubricant up to NLGI grade 3 with a
 worked penetration of $> 200\text{ }^1_{10}$
 mm
 as well as oil conforming to ISO
 VG with a operating viscosity of
 $> 50\text{ mm}^2/\text{s}$
 Filter fineness 0.270 mm
 Level indicator visual, by dip stick

Optional stroke counter
 Counting range 0 to 99999

Order information

MS hand pump with stroke counter for grease

Order No MS.CT5K

MS hand pump with dip stick for grease

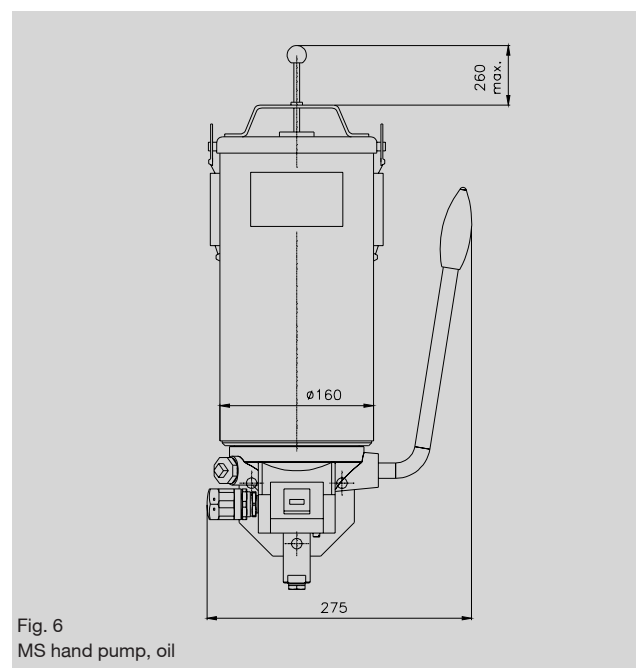
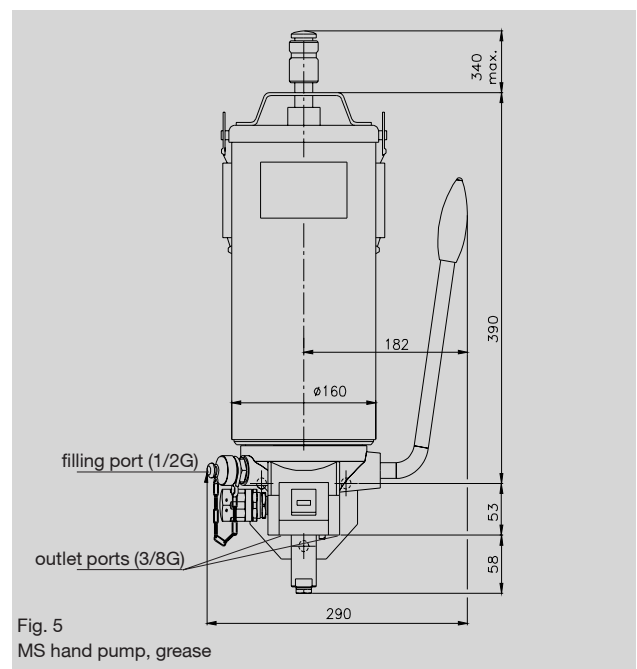
Order No MS.IT5K

MS hand pump with stroke counter for oil

Order No MS.CT5L

MS hand pump with dip stick for oil

Order No MS.IT5L



AS Work Pump

Pumps comprising the AS Group are designed for use in automatic central lubrication systems for grease.

AS pumps are distinguished by their rugged design and the fact they need absolutely no maintenance. That's why they're specially suitable for use in rough operating conditions.

Thanks to their large delivery rates (approx. 4kg/h), pressures as high as 175 bars and large reservoirs, AS pumps are especially used for cyclical or continuous lubrication of industrial installations with a large number of friction points and high lubricant consumption.

Description

AS pumps consist of independent subassemblies, so a variety of combinations are possible. They are supplied as completely assembled units.

Gears

The worm drive permits a transmission ratio of 1:40.

The pump only starts delivering when the drive shaft has completed at least the same number of revolutions as the transmission ratio.

The direction of rotation is shown by an arrow on the pump's housing.

Standard changeover block

The standard changeover block consists of a pump, changeover valve, filter element and pressure control valve.

The pump is a double-action piston pump with one piston and 2 automatically actuated valves.

The changeover valve is controlled by the pressure and works with 2 control pistons that make sure the working piston functions without a dead center.

The filter element serves as protection and is located upstream of the changeover valve. It can be easily removed for cleaning.

A pressure control valve controls the pressure in the two main lines. This valve can be secured with a lead seal against unauthorized or unintentional changes.

Reservoir

Grease: The reservoirs come with a follower plate to keep air from getting in.

A grease level indicator is located on the follower plate.

The purity of the grease, indispensable for proper functioning of the system, is assured by the reservoir's air-tightness. The reservoir is vented via a filter.

The filling filter (microfilter) is located on the foot of the housing and has a port with a G 1/2 male thread through which the grease reservoir can be topped up with a filler pump.

Electrical monitoring of the grease level is possible.



AS Work Pump with integrated changeover valve, grease level monitoring and pressure gauge

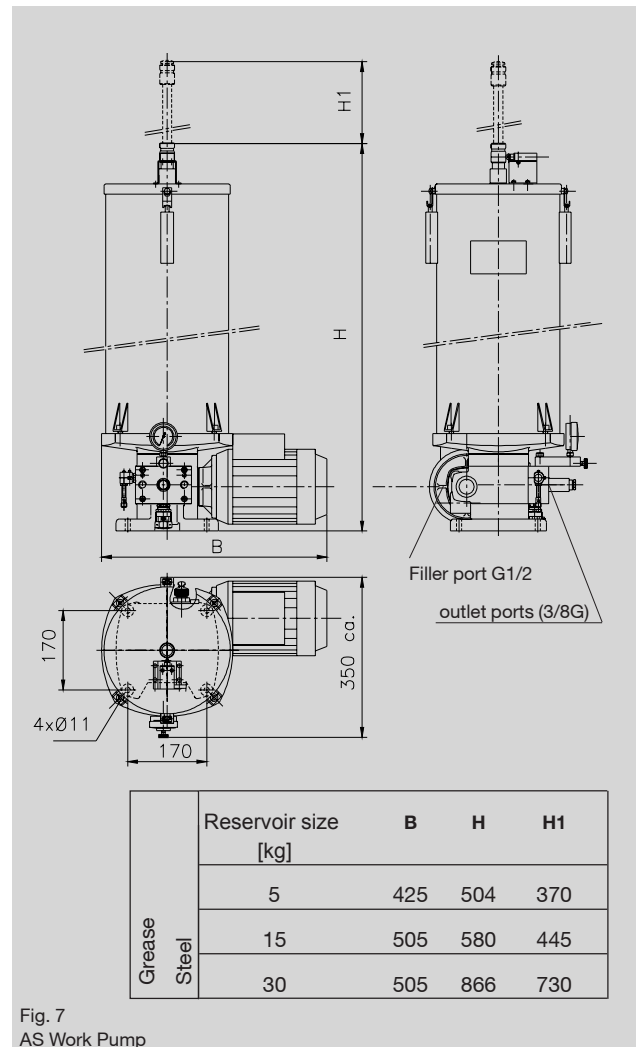


Fig. 7 AS Work Pump

Technical data (AS Work Pump)

Mounting position vertical
 Ambient temperature -25 °C to +60 °C ¹⁾
 Reservoir optionally for 5, 15 or 30 kg

Pump

Drive electric motor
 Type piston pump
 Operating pressure max. 175 bars
 (set with safety valve and lead-sealed)

Gears

Transmission ratio 1:40
 Medium delivered grease up to NLGI grade 2
 Delivery rate approx. 4 kg/h

Pressure gauge

Pressure gauge 0 to 315 bars
 Filter fineness 0.210 mm

Motor

Rated speed 1500 rpm
 Frequency 50 Hz
 Rated power 0.75 kW
 Rated voltage 230/400 V AC ²⁾
 Rated current 3.45/2 A

- 1) with a fluidity conforming to NLGI Grade 2
 2) other operating voltages on request

Please note:

An AS Work Pump version is available for oil or with a different transmission ratio on request.

Accessories

2 different devices are used for the changeover.

Half-cycle indicator

The motion of the indicator pin on the changeover valve's working piston makes it possible to monitor the cycles by eye. The indicator pin is protected by a transparent cap.

One movement back and forth indicates a complete lubrication cycle.

Please note: the position of the indicator pin in respect to the two outlets makes it possible to determine which line has been relieved.

- indicator pin extended: relief of left line
- indicator pin retracted: relief of right line

Changeover switch

Switch with LED:

This is used to control the lube pump.

The switch sends a respective signal to the control device after execution of the half cycles.

Filling level monitoring

Min. grease level switch:

Shows a shortage of lubricant in the reservoir.

Min.-max. grease level switch:

External filling pump automatically started when the defined level is reached (min.), and filling pump switched off when the desired level is reached (max.).

Delivery rate setting

The delivery rate controller (AS-200) upstream of the changeover block makes it possible to reduce the pump's delivery rate by as much as 50%.

It has a freely movable piston that admits a quantity of lubricant proportional to the defined piston travel.

The delivery rate controller is built into a housing to protect it from unauthorized or unintentional interference. The housing can be lead-sealed.

Order Information (AS Work Pump)

Order No.	Half cycle indicator		Reservoir		Reservoir capacity [kg]			Filling level switch	
	without	with	steel	plastic	5	15	30	min.	min.-max.
AS-1Q-1T05KA4+140	x		x		x			x	
AS-1Q-1T05KB4+140	x		x		x				x
AS-1Q-1T15KA4+140	x		x			x		x	
AS-1Q-1T15KB4+140	x		x			x			x
AS-1Q-1T30KA4+140	x		x				x	x	
AS-1Q-1T30KB4+140	x		x				x		x
AS-1Q-1F05KA4+140	x			x	x			x	
AS-1Q-1F05KB4+140	x			x	x				x
AS-1Q-1F15KA4+140	x			x		x		x	
AS-1Q-1F15KB4+140	x			x		x			x
AS-1Q-1F30KA4+140	x			x			x	x	
AS-1Q-1F30KB4+140	x			x			x		x
AS-1Q-3T05KA4+140		x	x		x			x	
AS-1Q-3T05KB4+140		x	x		x				x
AS-1Q-3T15KA4+140		x	x			x		x	
AS-1Q-3T15KB4+140		x	x			x			x
AS-1Q-3T30KA4+140		x	x				x	x	
AS-1Q-3T30KB4+140		x	x				x		x
AS-1Q-3F05KA4+140		x		x	x			x	
AS-1Q-3F05KB4+140		x		x	x				x
AS-1Q-3F15KA4+140		x		x		x		x	
AS-1Q-3F15KB4+140		x		x		x			x
AS-1Q-3F30KA4+140		x		x			x	x	
AS-1Q-3F30KB4+140		x		x			x		x

FD3 central grease lubrication pump

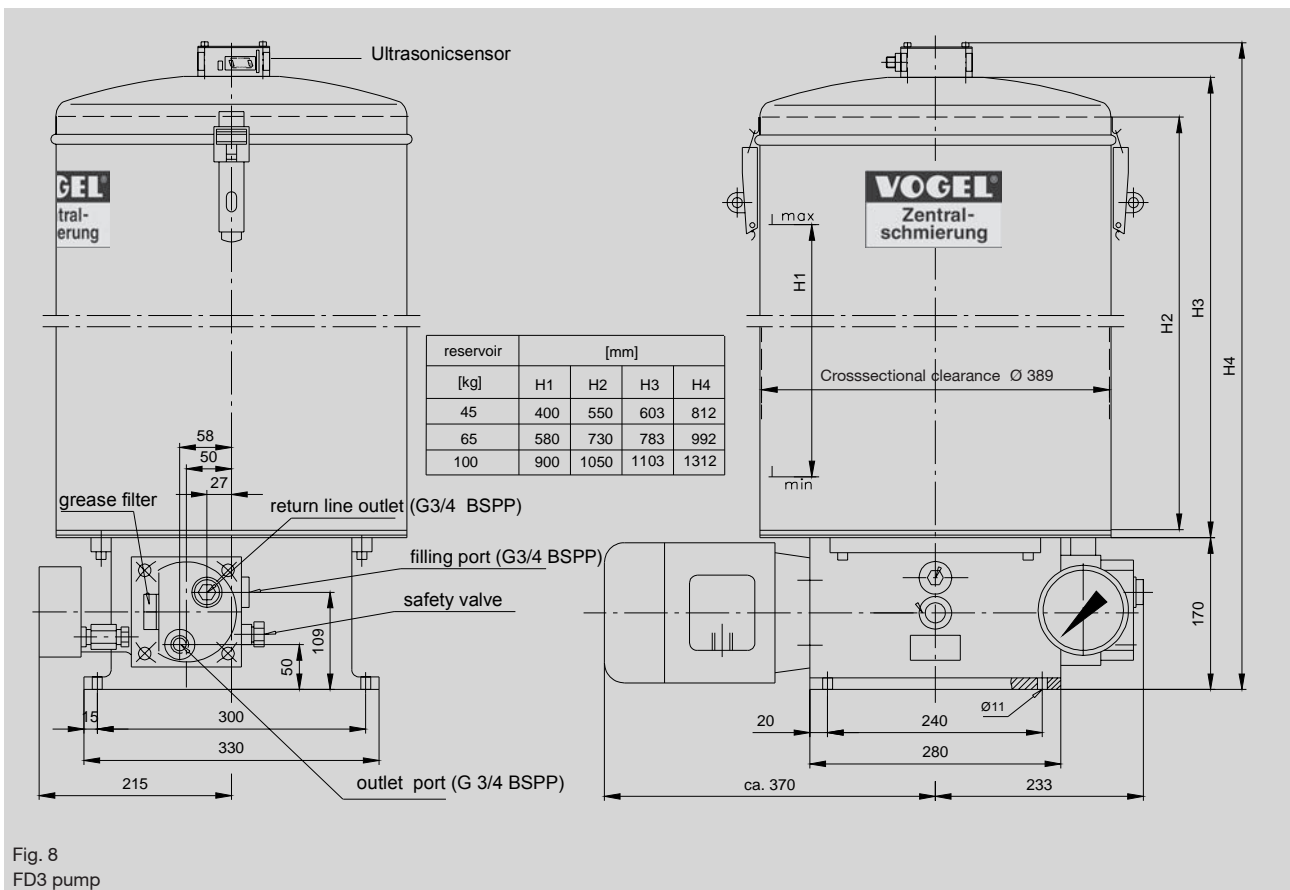
The FD3 pump unit is an axial piston pump. Depending on the version, the pump unit has two or three axial pistons that are combined to form one outlet. The pump is driven directly by an electric motor without gears. The pump unit is extremely compact and rugged. It consists of a foot-mounted housing that accommodates the pump unit together with its drive motor and grease reservoir with agitator blade.

Short distances between the inlet and outlet chambers ensure especially gentle delivery of the grease. The pump can be operated both with mineral-based and synthetic oil or grease.

The reservoir is filled up through a separate filling port (G 3/4 BSPP) . It comes with an electronic level switch. 2 brackets are provided to lock the covers.



FD3 central lubrication pump with level switch (min./max. switching point)



Technical data

Mounting position vertical

Ambient temperature -25 °C bis +60 °C

reservoir for 45, 65 or 100 kg optional

Pump

Drive electrical motor

Type axial piston pump with two or three pistons

Operating pressure max. 400 bars
(with safety valve set and lead sealed)

Oil filling SAE 90 (approx. 1,6 l)

Type of lubricant grease up to NLGI grade 3 with a worked penetration of > 220 $\frac{1}{10}$ mm as well as oil conforming to ISO VG with a operating viscosity of > 50 mm²/s

Delivery approx. 7 kg/h
approx. 14 kg/h
approx. 20 kg/h

Pressure gauge range 0 to 600 bar

Filter fineness 0.270 mm

Motor

Type / size B 14 / 80 C 120

Power supply 3-phase current (see table below)

protection cat. IP55
(EEXell version on request)

motor speed (min ⁻¹)	frequency (Hz)	output (kw)	voltage (V)	current (A)	order codes
1000	50	0,55	230/400	3,0/1,73	AG07
1000	50	0,55	290/500	2,65/1,55	AL07

(other electrical data on request)

Level switch

Type ultrasonic sensor (min./max.)

Protection cat. IP67

Order information

Type no. FD3 /14/ 45 U2 /1M 0001 AG07

Delivery rate _____

07/ = 7 kg/h

14/ = 14 kg/h

21/ = 21 kg/h

Reservoir capacity _____

45 = 45 kg

65 = 65 kg

100 = 100 kg

Filling level monitoring _____

X/ = Without monitoring

U2/ = Ultrasonic sensor
(2 switching points, min./max.)

Type of drive _____

1M = electrical motor
(further types of drives on request)

Version key _____

0001 = Basic version with motor

0003 = like basic version; but with adjustable pressure switch from 100 to 500 bars

Motor data _____

AG07 = 400 V, 50 Hz with IP55 protection cat.
(see table below)

AL07 = 500 V, 50 Hz with IP55 type of enclosure
(see table below)

How to order

for a **FD3** type unit with a delivery rate of 14 kg/h (**14/**), with a 45 kg reservoir (**45**), ultrasonic filling-level monitor (**U2/**), electrical motor (**1M**), basic version (**0001**) and a motor voltage of 400 V and IP55 motor protection (**AG07**) the type no. reads: **FD3/14/45U2/1M/0001AG07**.

FV50 grease supply unit

The FV50 grease supply unit is a grease delivery pump with a pneumatic drive for 180 kg drums conforming to DIN 6644 with cover, follower plate and relief port.

Drum pumps are used to fill work pumps or are used directly as work pumps for dual-line systems.

The pressure ratio of 50:1 allows operating grease pressures of 50 to 400 bars depending on the compressed air network available.

Technical data

- Lid drum, filling weight 180 kg (DIN 6644)
- Max. pneum. inlet pressure 8 bars
- Pump pressure ratio 50:1
- Max. operating pressure 400 bars
- Output see diagram below
- Type of lubricant grease up to NLGI grade 3 with a worked penetration of $> 220 \frac{1}{10}$ mm
- Hose port (air side) G 3/8 BSPP
- Hose port (grease side) G 1/4 BSPP

Scope of delivery

Drum pump complete with grease follower plate, drum lid, air and grease hoses (2 m each) and level switch.

Order information

- Grease supply unit **Order No FV50**
- FV50 grease supply unit with elevator **Order No FV50/A**



FV50 supply unit with optional pneumatic lifter

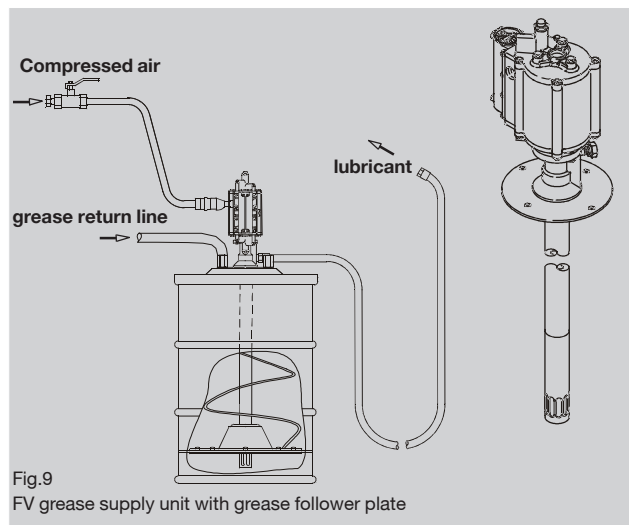
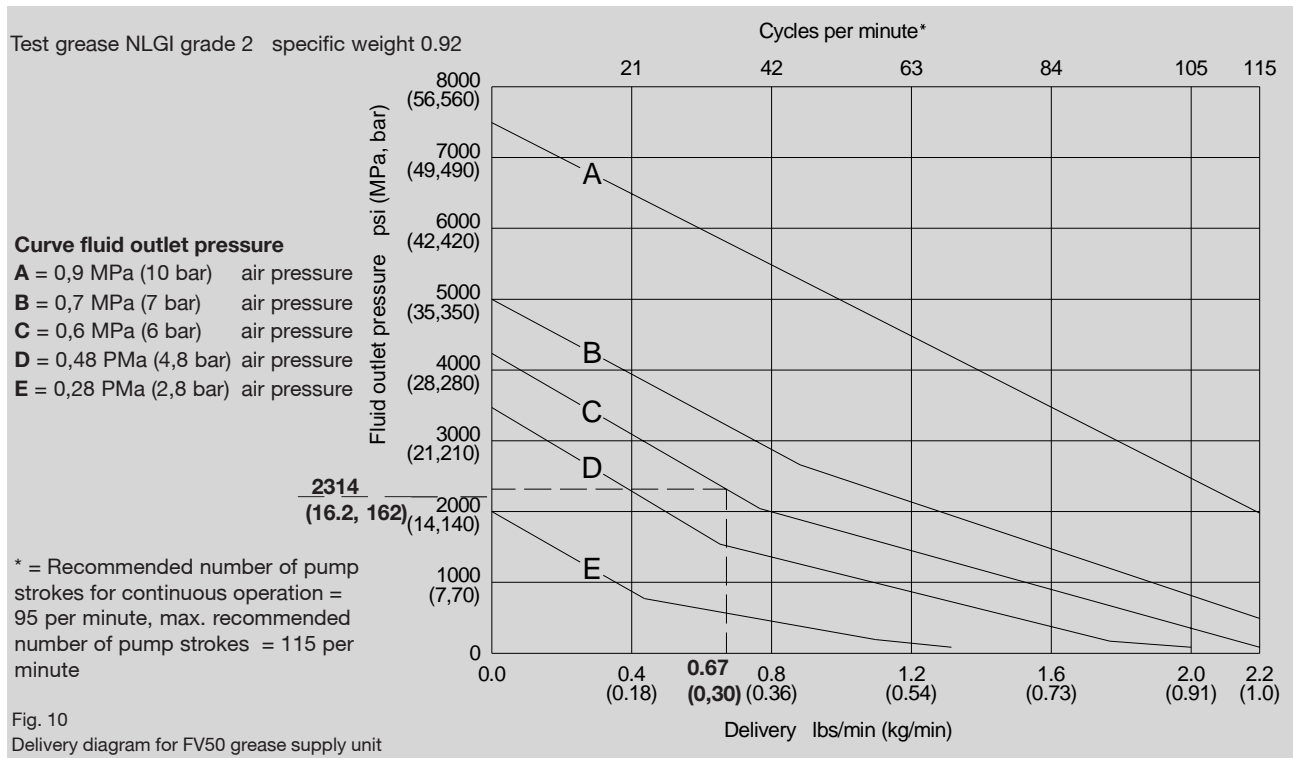


Fig.9 FV grease supply unit with grease follower plate



Practical example (diagram)

A delivery rate of 0.30 kg/min is reached with an assumed grease pressure of 16.2 MPa (162 bars) and an air inlet pressure of 6 bars

Accessories for grease supply unit

Socket type ball valve

Operating pressure max. 40 bars

Order information

Ball valve with socket ends **Order No 24-0857-2170**

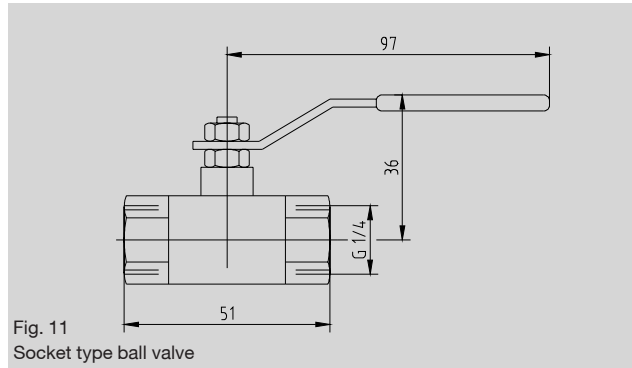


Fig. 11
Socket type ball valve

Maintenance unit

Version with filter, water separator, controller and oiler

Perm. oil for oiler resin-free cylinder oil

Connection thread G 1/8 , G1/4 or G 3/8 BSPP

Order information

Maintenance unit G 1/8 **Order No 24-2580-2018**

Maintenance unit G 1/4 **Order No 24-2578-2024**

Maintenance unit G 3/8 **Order No 24-2578-2037**

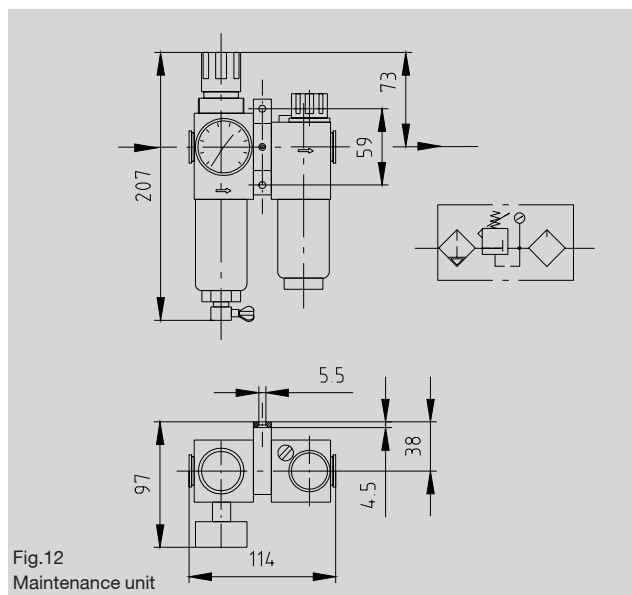


Fig.12
Maintenance unit

Hydraulic control cabinet for dual-line central lubrication systems

with maintenance unit and electromagnetic change-over valve IH-P+924

Power supply 24 V DC

Order information

Hydraulic control cabinet **Order No 24-1878-2610**

Further accessories

You will find further accessories in our accessories leaflet, no. 1-0103-US

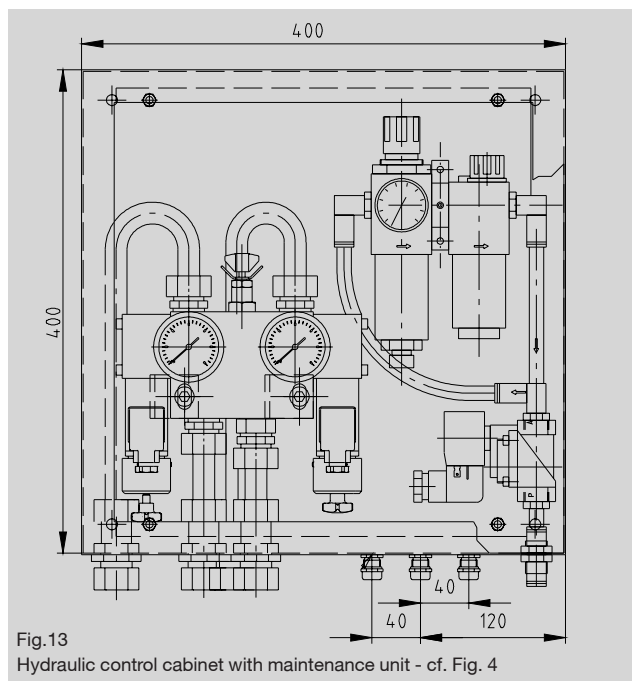


Fig.13
Hydraulic control cabinet with maintenance unit - cf. Fig. 4

Notiz

Notiz

Please ask for the following leaflets to find individual components for VOGEL dual-line systems:

Application, function, system configuration	1 -0012-US
Hydr. and electr. control units for dual-line central lubrication systems	1-0012-2-US
Lubricant distributors	1-0012-3-US
Modular distributors ZVM	1-0012-4-US
Fixtures and accessories	1-0103-US

Please note:

All VOGEL products must be used correctly. If operating instructions are supplied with the products, any additional device-specific instructions and information given in those operating instructions should be applied.

Please note, in particular, that hazardous materials of any type, particularly materials that are classified as hazardous in EU Directive 67/548/EEC, article 2, para. 2, must not be used to fill or be pumped and/or distributed by VOGEL central lubrication systems and components without the prior written approval of VOGEL.

No products manufactured by VOGEL are approved for use with gases, liquefied gases, gases that are released under pressure, vapours and any liquids with a vapour pressure of more than 0.5 bar above normal atmospheric pressure (1013 mbar) at the maximum permitted temperature.



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