

# BARREL LUBRICATION PUMP

# BEG-R

## APPLICATION

Lubrication pumps BEG-R are used as sources of force-feed lubrication for lubrication systems with progressive distributors, for permanent, regular lubrication of various machines, machine technologies, and equipment. They are also recommended for use in larger lubrication circuits. i.e. in circuits with tens of lubricating points. Considering the variable number of outlets, from 1 to 8, the lubrication pumps BEG-R can also be used as a direct source of force-feed lubrication (multi-line lubrication pump). Combined with electric two-line change-over valve DPE, the lubrication pump BEG-R can be used as a source of force-feed lubrication in two-line central lubrication circuits. They can also be used for automated refilling of various types of lubrication pumps (Z1, UCF, VEG) when in operation.

The version with 8 outlets can achieve a maximum nominal output of 256 cm<sup>3</sup>/min. by connecting the working units to a single outlet. Electric motors are supplied in standard versions for 230/400V 50Hz, 230/460V 60Hz and 290/500V 50Hz; consult the supplier for other voltage versions.

Lubrication pumps are supplied in a uniform version for standardized barrels with a capacity of 200 litres. The maximum working pressure is 350 bar.

## DESCRIPTION

The lubrication pump BEG-R consists of a piston pump which contains an optional number of working dosing units which are mounted on the bottom side of a pressure plate. The pressure plate has a rubber scraper around its edge to wipe the lubricant from the inner diameter of the barrel when the pump descends into the barrel as the lubricant level decreases. The pump is powered by a three-phase flange asynchronous motor, and the torque is transmitted to a shaft with an eccentric via a front transmission and a flexible clutch. When the thrust collar mounted on the eccentric moves, it makes the working pistons exert pressure, and the thrust collar skirt returns the pistons to suction. The working piston, precisely fitted in the working cylinder, and the slide closing valve form the working unit. The closing valves' outlets lead above the pressure plate. Using high-pressure tubes in a chain carrier, the closing valve outlets are connected to a panel for a two-line or a progressive and multi-line system. The end of the shaft with the eccentric is fitted with a paddle scraper which is synchronized with the movement of individual pistons of the dosing units (at the moment of suction it presses the lubricant to the suction holes of the working cylinders). This ensures perfect suction of the lubricant.

Connecting the outlets of dosing units on the upper side of the pressure plate ensures the required nominal output of lubricant.

The pressure plate is also fitted with an alarm system to signal lubricant decrease in the barrel under the minimum level. The empty barrel alarm has two stages and it is ensured by means of two induction sensors (expanding) which are connected by cables to the electrical switchboard located on the pillar of the lifting device. The control lamps on the switchboard are constantly on until the lubricant amount decreases to the defined level, i.e. if the control lamps are on, the lubricant level in the barrel is sufficient. The first induction sensor disconnects the electrical circuit of the control lamp on the switchboard, i.e. the "INTERMEDIATE LEVEL" control lamp goes off, at the moment when the pump is about 23 mm from the barrel bottom.

The second induction sensor disconnects the electrical circuit of the second control lamp, i.e. the "MINIMUM LEVEL" control lamp goes off, at the moment when the pump is about 2 to 4 mm from the bottom barrel, and at the same time automatically turns off the electric motor of the pump. The connection of the alarm system in the disconnecting mode at the same time ensures that the function of induction sensors is checked, which eliminates the failure to report lack of lubricant and subsequent air intake in the lubrication system in case of signalling system failure (e.g. mechanical damage).

The pressure plate is fitted with an air-inlet ball valve with a filter, serving to supply air to the barrel when the pump is being lifted from the barrel. The pressure plate is also equipped with a connection for connecting the return (pressure-release) line if the pump operates in a two-line system. If the pump operates in a multi-line system, the return line opening is blind.

The connection panel for a multi-line system is composed of inlets and outlets, pressure gauges, and overload valves for individual pressure lines.

The connection panel for a two-line system contains connections from the pressure and return line, a pressure gauge with a pressure gauge damper, an adjustable electronic pressure sensor with two output switches, and an overload valve.

The pump is stabilized in the barrel during lubricant pumping by means of a telescopic rod, on end of which is fitted to the pressure plate, while the other end passes through the hole in a collar connected to the pillar of the lifting device.

The lubrication pump BEG-R includes a lifting device with a lifting capacity of 300 kg which is composed of a base, a pillar with a boom and cable pulleys, a manual cable winch with an automatic brake and locking pawl, and a cable with a hook for suspending the pump.

## OPERATION

The barrel lubrication pump is actuated by an electric motor. The rotational motion from the electric motor is transmitted via a clutch to the eccentric mounted on the shaft. The eccentric is encircled by a rotary thrust collar which moves the pistons of the working dosing units. When the piston is being pushed radially to the centre of the axis of the eccentric, lubricant is sucked in through the suction hole of the working cylinders, while in the opposite direction the lubricant is pushed out. The pumped lubricant passes through the closing valve to the outlet. Then the lubricant passes through the high-pressure hydraulic tube to the connection panel located on the pillar of the lifting device.

In the versions for multi-line and progressive systems, the current working pressure in the given line of the lubricating circuit is displayed on the installed pressure gauge. The pump and the lubricating circuit are protected against exceeding the maximum working pressure by an overload valve (set to 350 bar).

In the version for a two-line system, the installed pressure gauge shows the current working pressure in the pressure line of the two-line system. The overload valve protects the system against exceeding the maximum working pressure (set to 350 bar). The electrical pressure sensor installed on the connection panel transmits an electric pulse upon reaching the set pressure in the lubricating circuit (the moment of change-over of the two-line system). The pulse is transmitted to the automatic control system (or the central control system) of the two-line system and it is used for switching on the electric motor on the two-line change-over valve DPE, i.e. for changing over the lines of the two-line system.

As the lubricant level in the barrel decreases, the pump descends to the bottom until the barrel is completely empty. The rubber scraper of the descending pump wipes the lubricant off the barrel wall, the paddle scraper is constantly rotating in the direction of the electric motor rotation, pushing the lubricant to the suction holes of the working cylinders.

After all lubricant is pumped out of the barrel, the pump is lifted by means of the lifting device; air intake under the pressure plate must be ensured in advance by means of an air-inlet valve.

## SERVICE AND MAINTENANCE

The lubrication pump BEG-R can be installed and moved using the hole for an S-hook in the lifting device boom.

The lubrication pump is installed in a horizontal position using four anchor holes with a diameter of 14 mm. The complete pump is lifted using a cable winch to the upper position, and a standardised barrel in accordance with DIN 6644 with a capacity of 200 l filled with lubricant is placed on the base plate of the lifting device between two fixed stops.

After removing the barrel lid and carefully removing any impurities from the barrel edge, the pump is slowly lowered onto the lubricant surface in the barrel. When it touches the lubricant surface, the adhesion of the pressure membrane to the inner wall of the barrel and the parallel position of the telescopic guide rod to the lifting device are checked. The hook of the lifting device is unhooked from the pump shackle. The final position of the barrel is adjusted and fixed using two adjustable clamps located on the base plate. The air between the lubricant surface and the pressure plate of the pump is let out by opening the air-inlet valve. For perfect de-airing it is recommended to move the pump a couple of times using the telescopic guide rod.

The switchboard is connected to the mains in accordance with applicable standards. The lubrication pump is put into operation, while observing if its operation is smooth and regular, the direction of rotation of the electric motor is to the right (clockwise) and the scraper rotates in the opposite direction.

The lubricant which remained in the lubrication pump after the pressure test as a preservative is pumped out. If the lubricant flows the outlets on the connection panel regularly and without air bubbles, the outlet is closed by connecting it to the lubricating circuit line.

When the "INTERMEDIATE LEVEL" control lamp on the switchboard goes off, it is recommended to prepare a new barrel filled with lubricant so that the current barrel can be operatively replaced, i.e. the lubricant can be refilled. When the "MINIMUM LEVEL" control lamp goes off, the empty barrel must be immediately replaced with a new barrel with lubricant; the lubrication pump is turned off automatically when the minimum level of lubricant is reached and does not supply lubricant to the lubricating circuit.

The lubrication pump must be operated only with clean lubricant, free of impurities, i.e. only original filled barrels can be used. If the requirement for clean lubricant is not respected, correct functioning of the lubrication pump cannot be guaranteed.

For continuous operation it is recommended to check the connection of the pressure tubes, tightness of individual connection elements of the lubrication pump, and connection to the lubricating circuit line at least once a month.

## TECHNICAL DATA

TYPE	BEG-R 4V
Maximum pressure	350 bar
Working pressure	300 bar
Number of working units (outlets)	4
Nominal output	32 cm <sup>3</sup> /min./working unit (1.92 dm <sup>3</sup> /hour/working unit)
Total nominal output	128 cm <sup>3</sup> /min. (7.68 dm <sup>3</sup> /hour)
Barrel capacity	200 l (according to DIN 6644)
Outlet pipe union (connection panel)	G1/4"
Connection tube	DN6, DKL/DKL
Electric motor	230/400V 50Hz, 0,37kW, 1.09A 230/460V 60Hz, 0,37kW, 1.09A 290/500V 50Hz, 0,37kW, 1.09A
Alarm nominal voltage	24V DC, 0÷100mA
Lubricant	grease
Temperature of working environment	-25°C to 60°C
Pump weight	62 kg
Lifting device weight	122 kg
Total weight (depending on model)	215 kg
TYPE	BEG-R 8V
Maximum pressure	350 bar
Working pressure	300 bar
Number of working units (outlets)	8
Nominal output	32 cm <sup>3</sup> /min./working unit (1.92 dm <sup>3</sup> /hour/working unit)
Total nominal output	256 cm <sup>3</sup> /min. (15.6 dm <sup>3</sup> /hour)
Barrel capacity	200 l (according to DIN 6644)
Outlet pipe union (connection panel)	G1/4"
Connection tube	DN6, DKL/DKL
Electric motor	230/400V 50Hz, 0.37kW, 1.09A 230/460V 60Hz, 0.37kW, 1.09A 290/500V 50Hz, 0.37kW, 1.09A
Alarm nominal voltage	24V DC, 0÷100mA
Lubricant	grease
Temperature of working environment	-25°C to 60°C
Pump weight	67 kg
Lifting device weight	122 kg
Total weight (depending on model)	220 kg

## VERSION TYPES

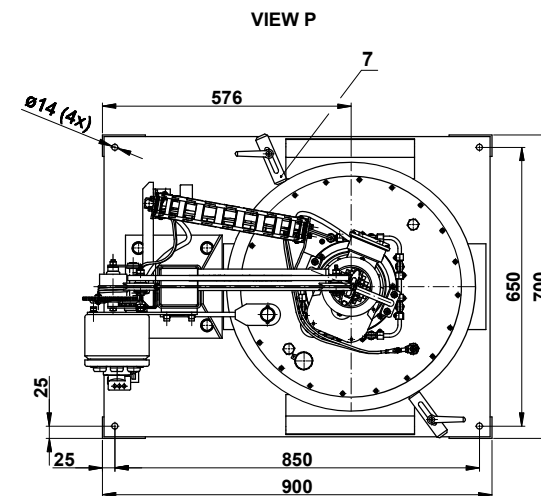
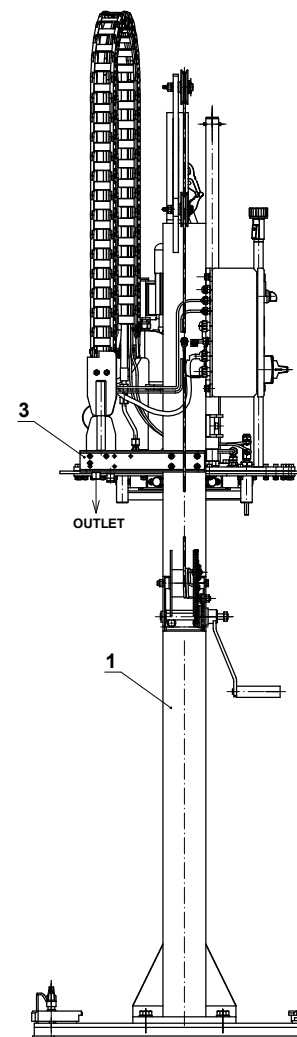
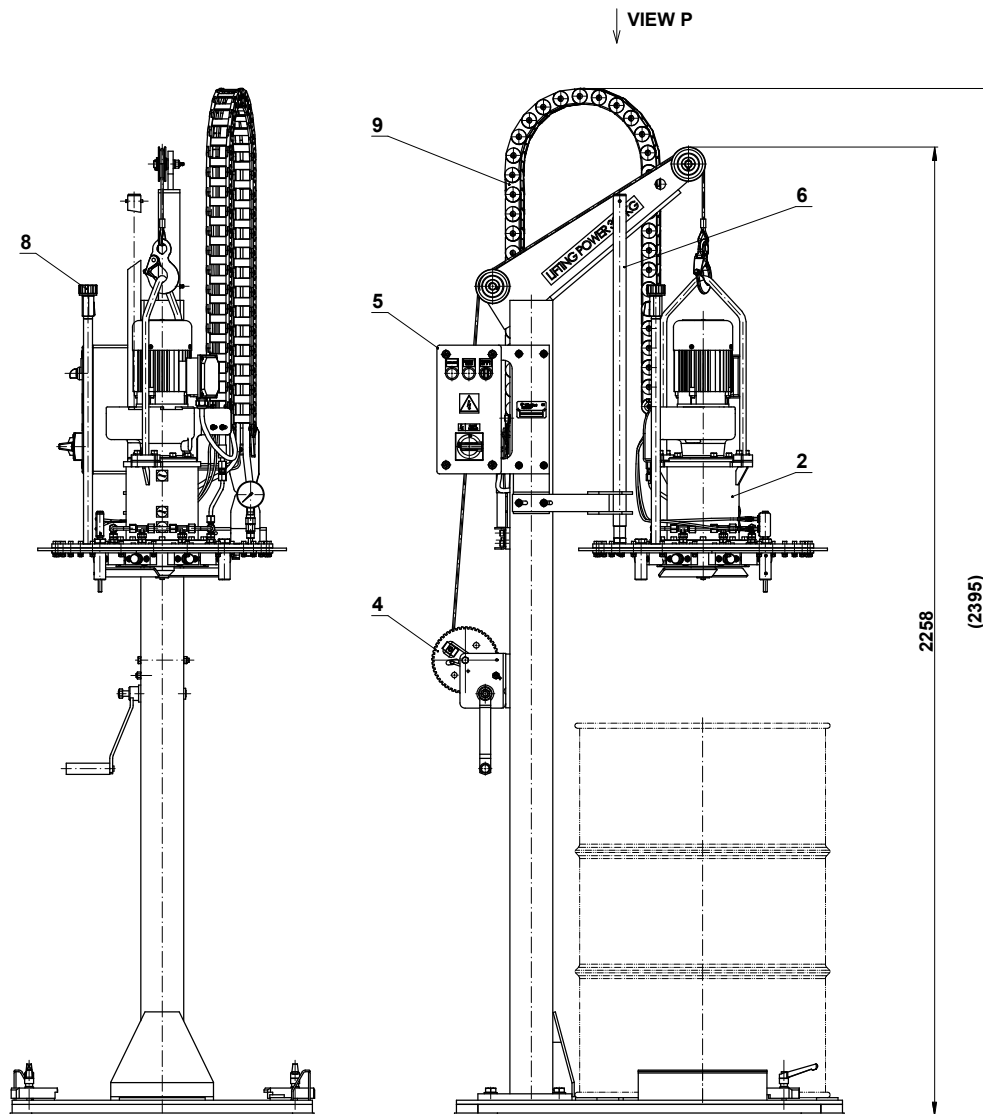
TYPE	CODE	VERSION
BEG-R 4V	9 50 2147	multi-line, 4 outlets, 32 cm <sup>3</sup> /min./outlet, 230/400V 50Hz
BEG-R 8V	9 50 2148	multi-line, 8 outlets, 32 cm <sup>3</sup> /min./outlet, 230/400V 50Hz
BEG-R 4V-P	9 50 2149	progressive, 1 outlet, 4 interconnected working units, 128 cm <sup>3</sup> /min./outlet, 230/400V 50Hz
BEG-R 8V-P	9 50 2150	progressive, 1 outlet, 8 interconnected working units, 256 cm <sup>3</sup> /min./outlet, 230/400V 50Hz
BEG-R 4V-T	9 50 2151	two-line, 2 outlets from DPE, 4 interconnected working units, 128 cm <sup>3</sup> /min./outlet, 230/400V 50Hz
BEG-R 8V-T	9 50 2152	two-line, 2 outlets from DPE, 8 interconnected working units, 256 cm <sup>3</sup> /min./outlet, 230/400V 50Hz

**NOTE:**


Lubrication pumps can also be supplied in custom versions based on customer's specifications, e.g. a combination of a multi-line, progressive, and two-line system.

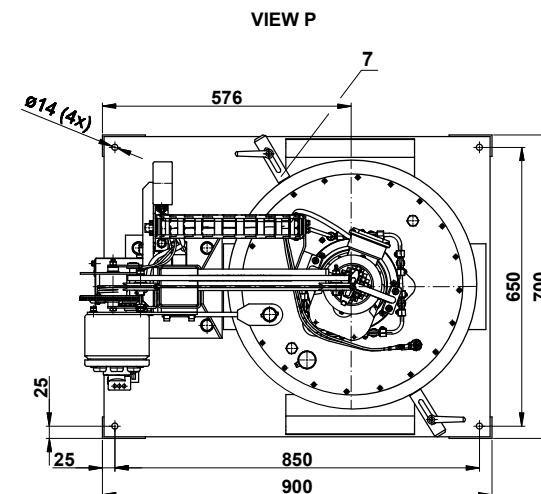
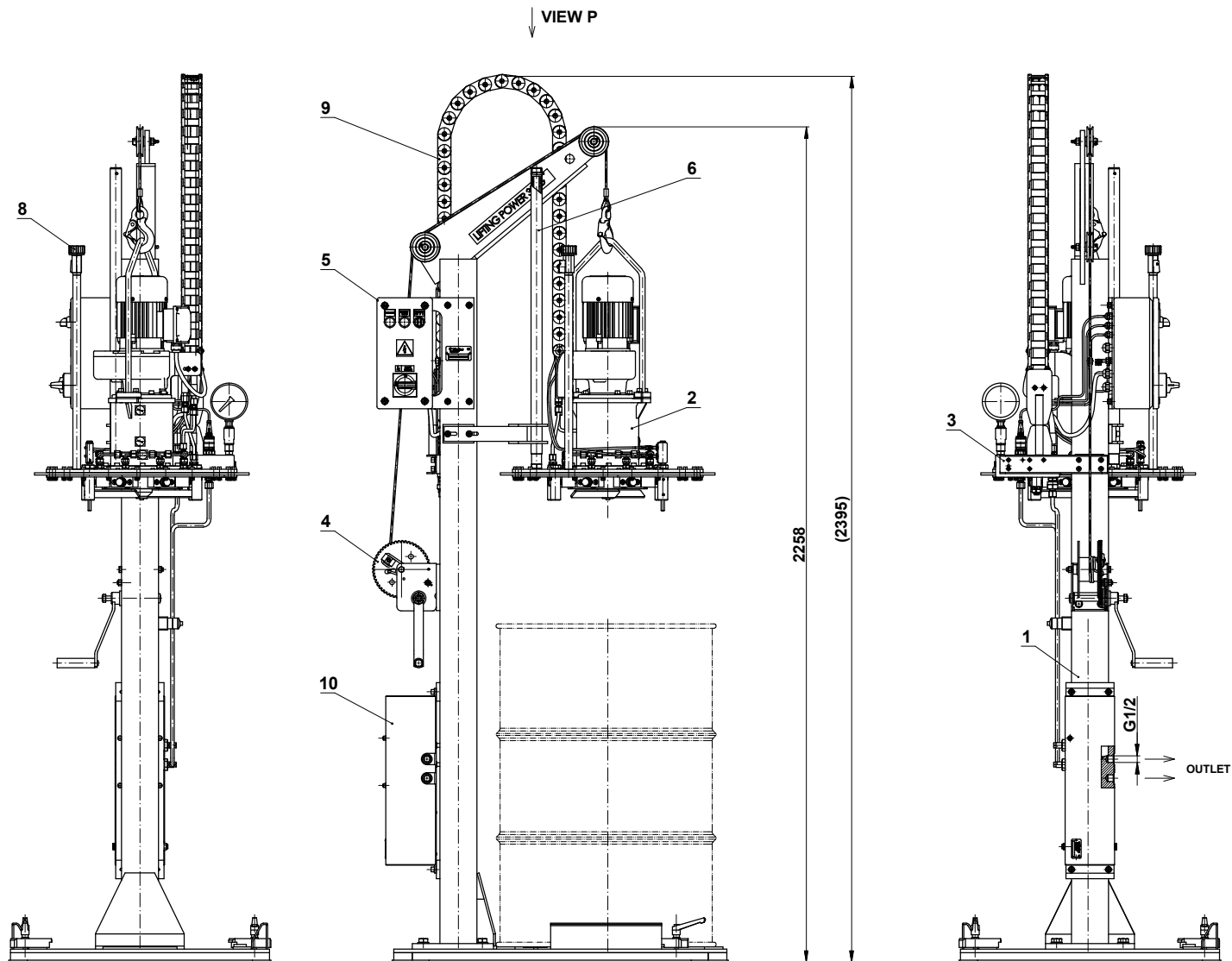
Lubricating circuits with the lubrication pump BEG-R can be equipped with automatic control systems AP2, AD1 etc.

When the lubrication pump is located in a challenging operating environment (dust nuisance, all-season operation in outdoor environment, risk of mechanical damage, etc.) it is recommended the protect the lubrication pump with a suitable structure (shed, housing) and it is necessary to strictly observe the requirement for clean lubricant, especially when handling and replacing the barrels (checking the impurities on lubricant surface and bottom side of the pump's pressure plate).




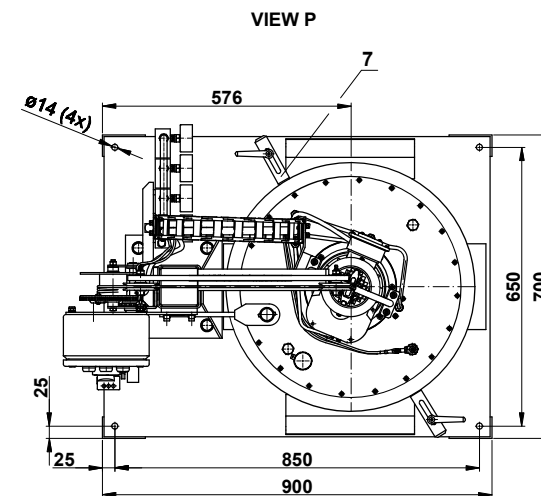
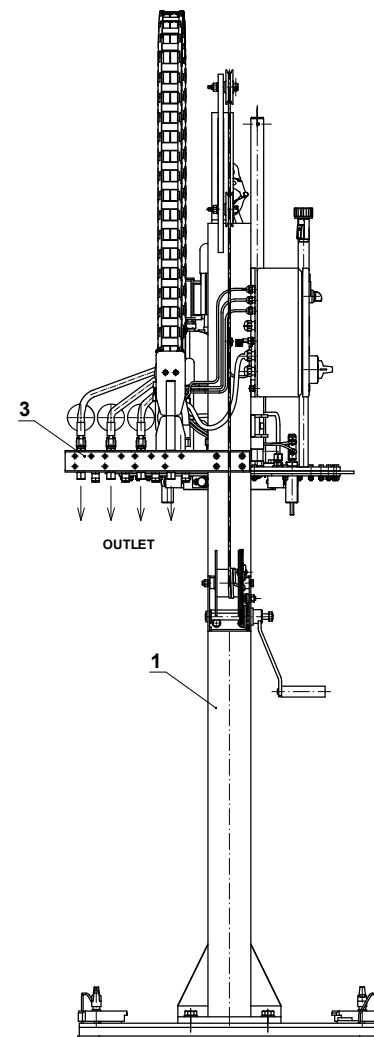
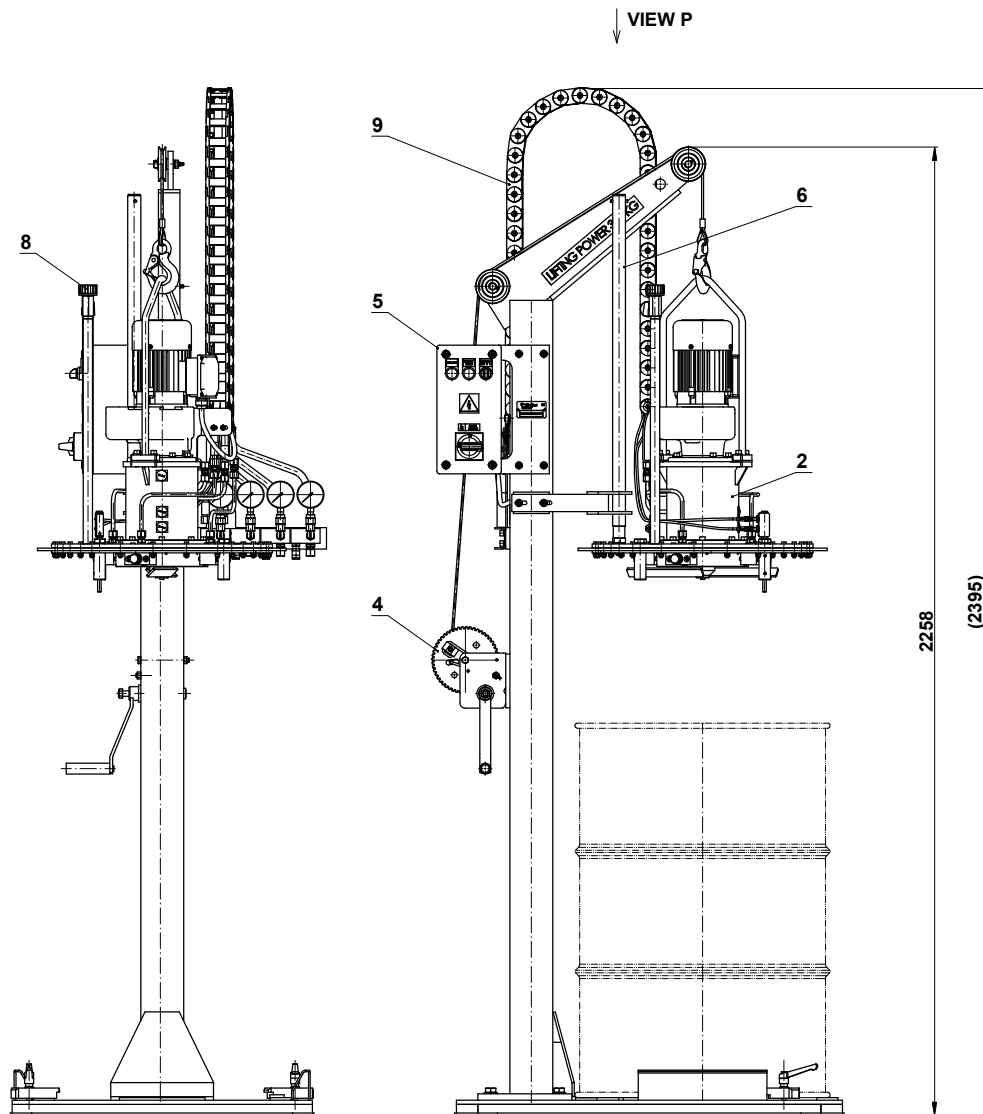
Pos.	Name
1	Lifting device
2	Complete pump
3	Connection bracket
4	Cable winch
5	Electric switchboard
6	Guides rod
7	Clamp
8	Vent valve
9	E-chain

Name	BARREL LUBRICATION PUMP	 <b>s.r.o.</b> Košuličova 4 Brno <a href="http://www.tribotec.cz">www.tribotec.cz</a> +420 543 425 611
Type	BEG-R 8V-P (PROGRESSIVE)	
Code	9 50 2150	



Pos.	Name
1	Lifting device
2	Complete pump
3	Connection bracket
4	Cable winch
5	Electric switchboard
6	Guides rod
7	Clamp
8	Vent valve
9	E-chain
10	Two-line change-over valve DPE

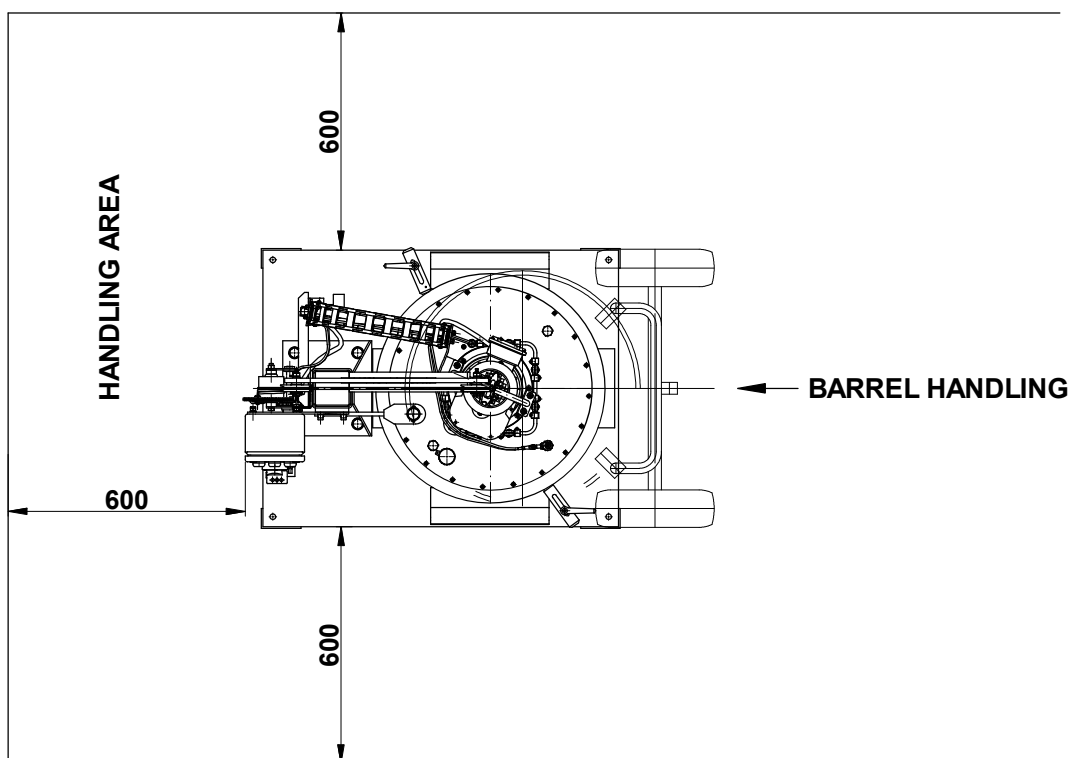
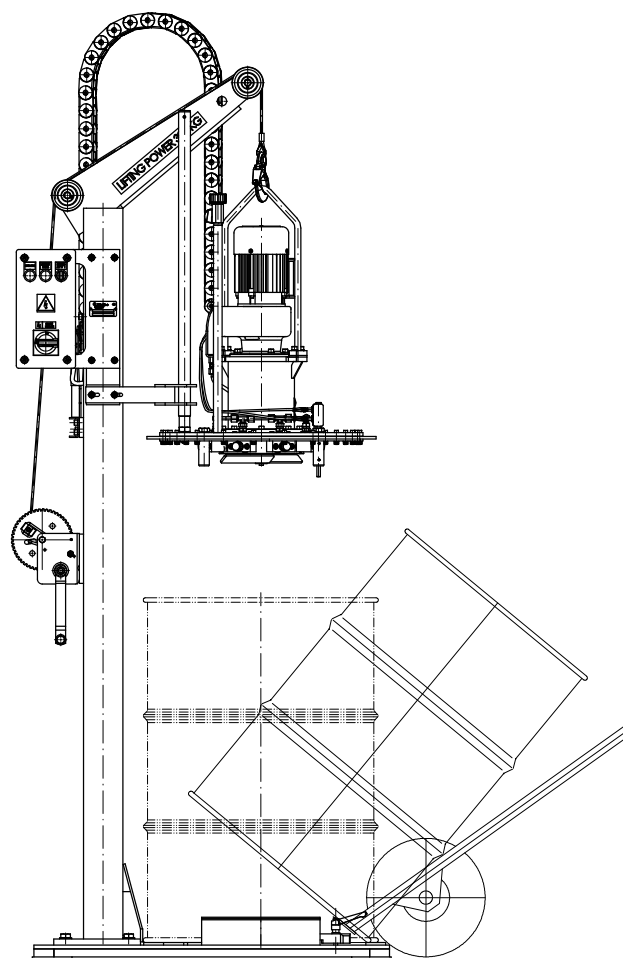
Name	BARREL LUBRICATION PUMP	 <b>S.r.o.</b> Košuličova 4 Brno <a href="http://www.tribotec.cz">www.tribotec.cz</a> +420 543 425 611
Type	BEG-R 8V-T (TWO-LINE)	
Code	9 50 2152	



Pos.	Name
1	Lifting device
2	Complete pump
3	Connection bracket
4	Cable winch
5	Electric switchboard
6	Guides rod
7	Clamp
8	Vent valve
9	E-chain

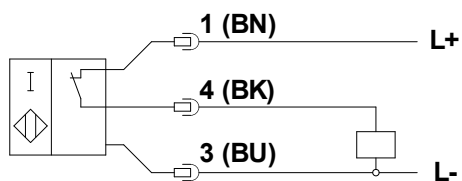
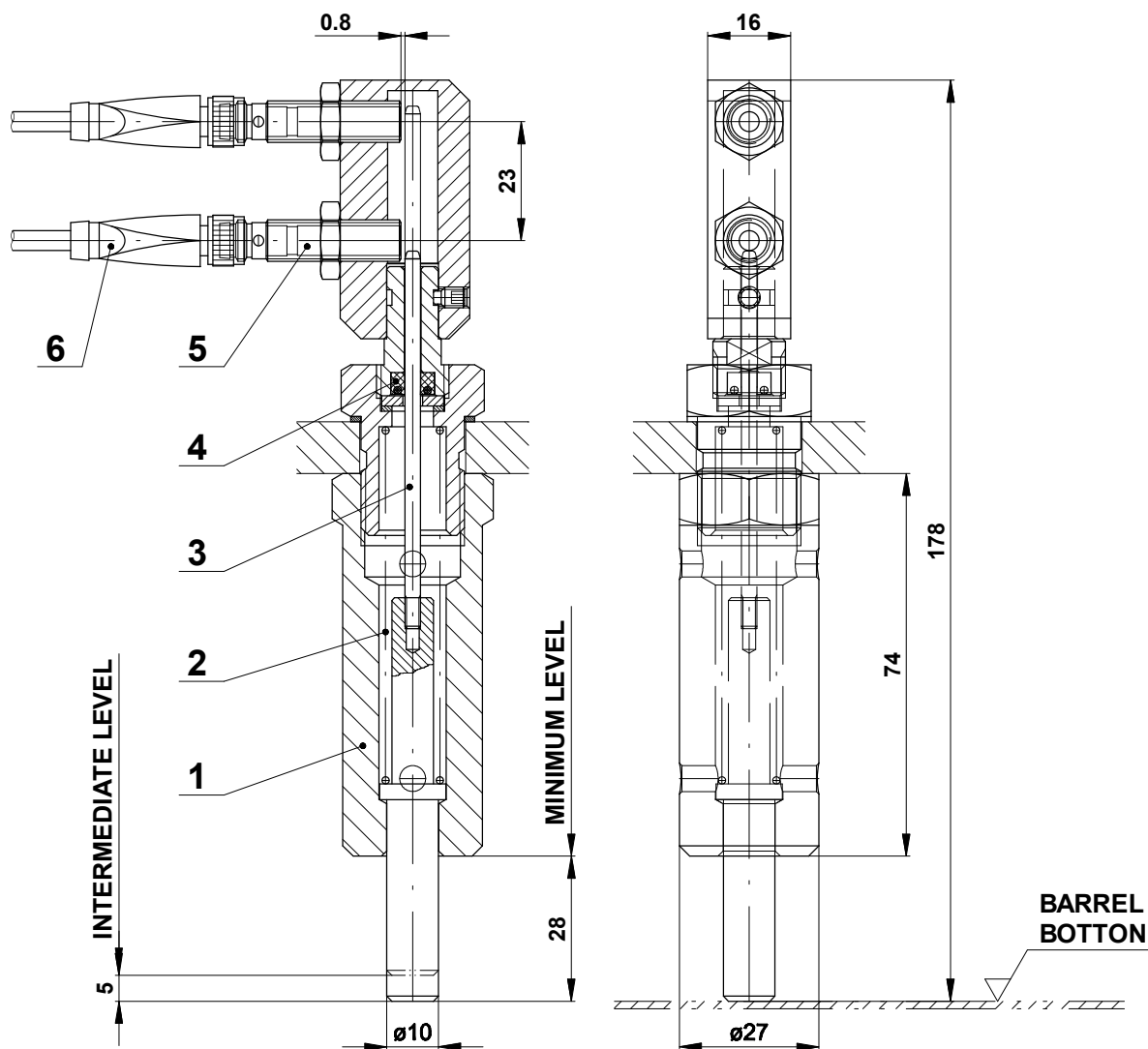
Name	BARREL LUBRICATION PUMP	 <b>tribotec</b> s.r.o. Košuličova 4 Brno <a href="http://www.tribotec.cz">www.tribotec.cz</a> +420 543 425 611
Type	BEG-R 4V (MULTI-LINE)	
Code	9 50 2147	





Name	<b>BARREL LUBRICATION PUMP</b>	
Type	<b>BEG-R</b>	
Code		

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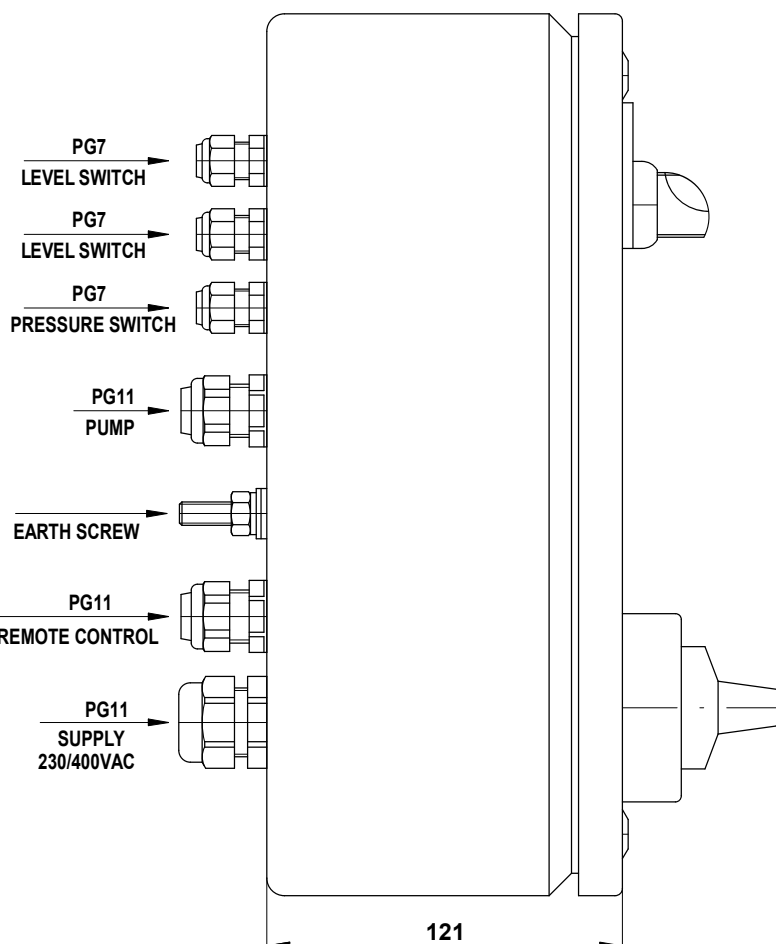
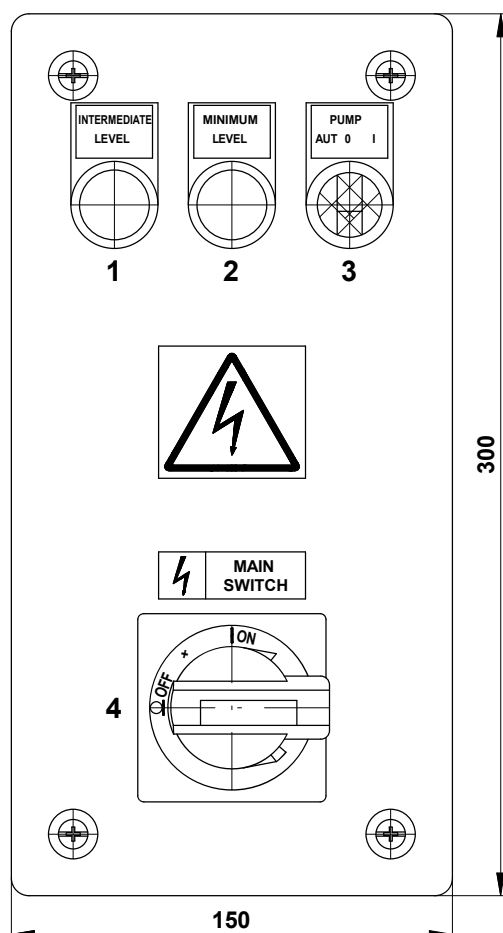


Pos	Name
1	Switch body
2	Spring
3	Switching pin
4	Cap seal
5	Induction switch
6	Connector with cable

#### CYLINDER INDUCTIVE SENSOR

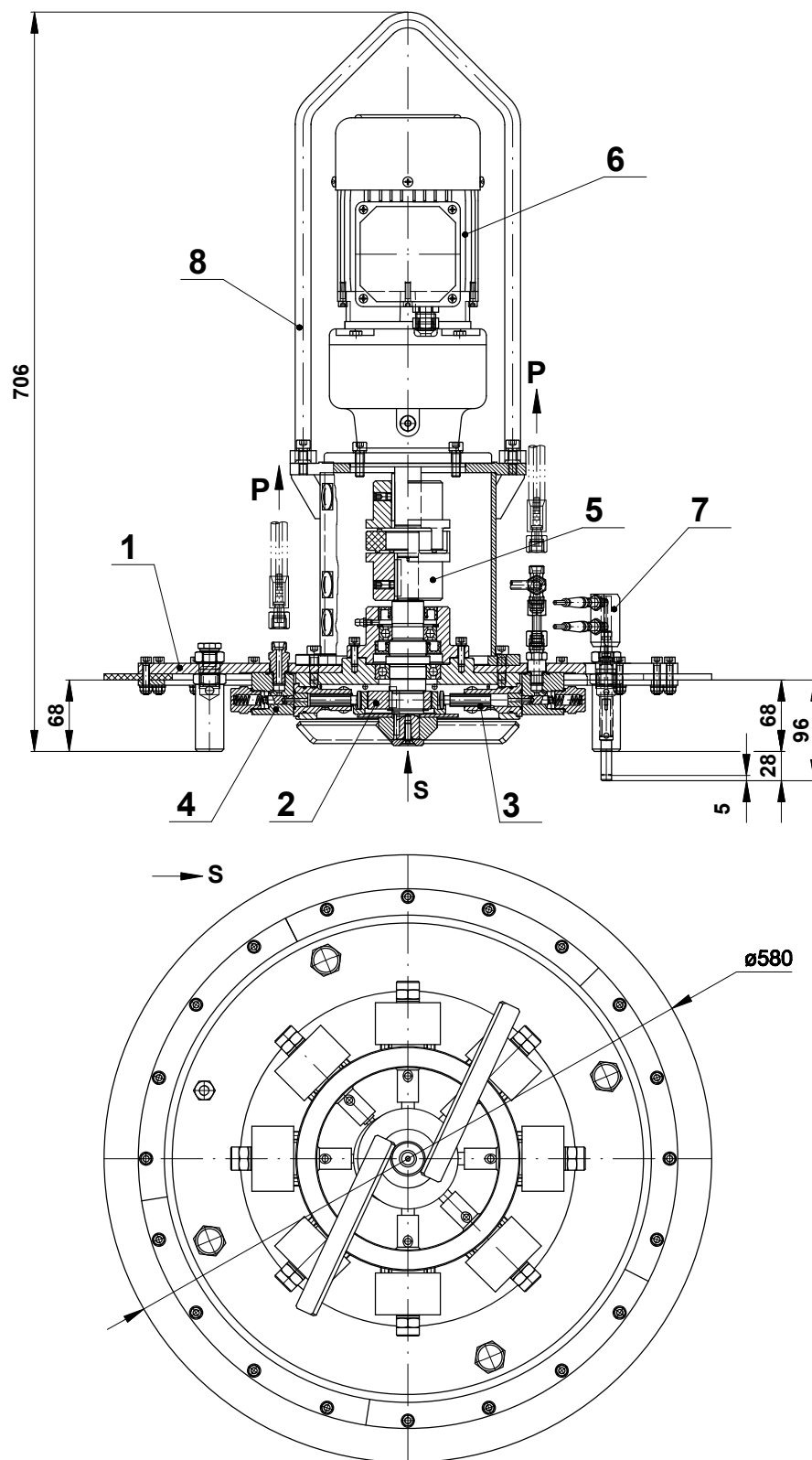
Type	NBB2-8GM25-E3-V3
Rated operating distance	2 mm
Installation	embeddable
Switching element function	PNP Break function
Operating voltage	10...30VDC
Operating current	0...100 mA
Switching frequency	0...3000 Hz
No-load supply current	15 mA
Voltage drop	3 V
Protection	short circuit polarity reversal
	yes pulsing
Output indication	multihole-LED, yellow
Connection	M8x1 connector
Housing material	brass, nickel-plated
Protection degree	IP 67
Ambient temperature	-25...70°C

Name	MINIMUM LEVEL SWITCH	<b>Tribotec</b> s.r.o. Košuličova 4 Brno www.tribotec.cz +420 543 425 611
Type	LUBRICATION PUMP BEG-R	
Code		



Pos	Name
1	Control lamp-Intermediate level
2	Control lamp-Minimum level
3	Switch-Remote control-Continuous operation
4	Main switch

Name	<b>ELECTRIC SWITCHBOARD</b>	<b>©Tribotec s.r.o.</b> Košuličova 4 Brno <a href="http://www.tribotec.cz">www.tribotec.cz</a> +420 543 425 611
Type	<b>LUBRICATION PUMP BEG-R</b>	
Code		



Pos	Name
1	Pressure plate
2	Eccentric
3	Working unit
4	Outlet valve

Pos	Name
5	Clutch
6	Electric transmission
7	Minimum level switch
8	Suspension shackle

Name	COMPLETE PUMP 8V	©Tribotec s.r.o. Košuličova 4 Brno www.tribotec.cz +420 543 425 611
Type	LUBRICATION PUMP BEG-R	
Code		