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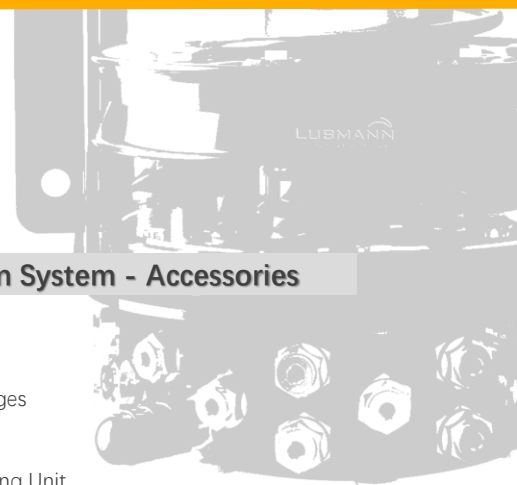
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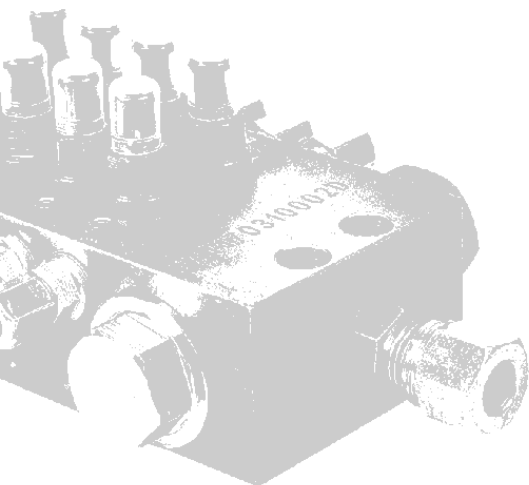
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# Our Brands

## Lubmann

Lubmann belongs to AUTOL Group, which locates in Duisburg, Germany since 2015 and provides you the world's leading lubrication equipment made in Germany – from manual greasing devices and tools to Automatic Lubrication Systems.



## AUTOL

AUTOL is an Automatic Lubrication System Solution supplier which established in 2005 in Zhengzhou, China and provides a lot of world class's equipment/machinery manufacturers the high-performance lubrication solutions.



## AUTOL Group

Both AUTOL and Lubmann systems are available through our global network of lubrication experts, offering you world-class installation and ongoing support on a local level – today and into the future. With the power of this network, and more than 200 years of combined friction management experience, we can help you improve machine reliability, reduce maintenance, increase productivity, enhance safety and optimize manpower resources.



***In this document, we present the contents only for Lubmann products, including specifications, order information and so on. Any information from AUTOL products please ask your local AUTOL/Lubmann dealer.***



# General Knowledge of Automatic Lubrication System

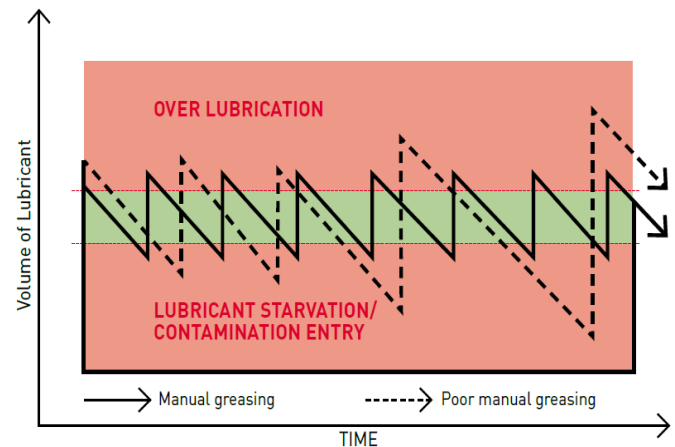
## Manual Lubrication

- **Interval:** long and irregular.
- **Grease used:** too much per time and easy to degrade.
- **Friction pairs:** either grease excess or grease starvation.
- **Manual labor:** intensive and uncontrollable.
- **External dirt:** easy to enter lube points.
- **Operation time:** machines stop.
- **Point location:** some are not easy to access.

## Results

- **Components' life:** greatly shortened.
- **Downtime:** unavoidable.
- **Environment:** polluted for excess grease.
- **Lubrication effect:** no guarantee.

### Manual Greasing



## Automatic Lubrication

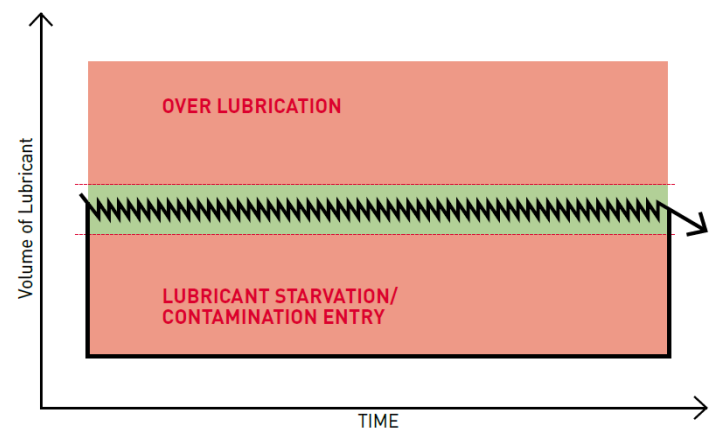
- **Interval:** short and regular.
- **Grease used:** as required every time, fresh and clean.
- **Friction pairs :** under adequate grease condition.
- **Manual labor:** save 95%, and actual effect is guaranteed.
- **External dirt:** a closed system, no dirt entrance.
- **Operation time:** the machine is running.
- **Point location:** regardless of location or ease of access

## Results

- **Components' life:** greatly extended.
- **Downtime:** greatly reduced
- **Environment:** protected.
- **Lubrication effect:** guarantee.
- **Investment:** returned quickly

Save time, save grease, save labor, reduce maintenance cost.

### Automatic Greasing



## Our Application Range

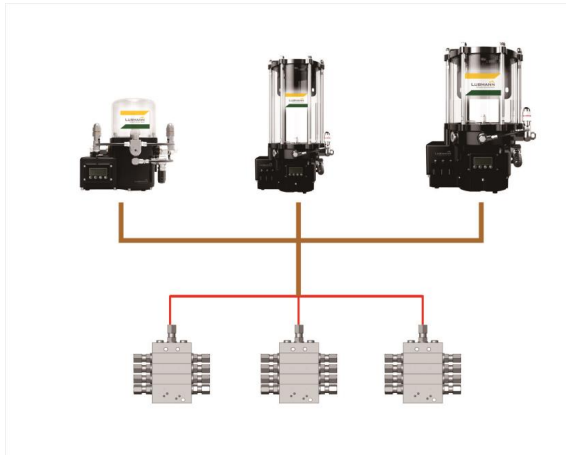
Lubmann Automatic Lubrication Systems are suitable for a variety of applications including: construction machines (concrete pumps, mortar pumps, loaders, excavators, trenchers); on-road trucks (snow removal, waste press); buses; agricultural machines (harvesters, balers, manure spreaders, sugar cane loaders); wood reclaimers; and material handling (reach stackers, crane carts) .

In addition, the single line systems are suitable for use in wind turbine generators and the single line pressurized systems for food and beverage facilities (fillers, washing machines), reciprocating compressors in the Oil and Gas industry, among many others.

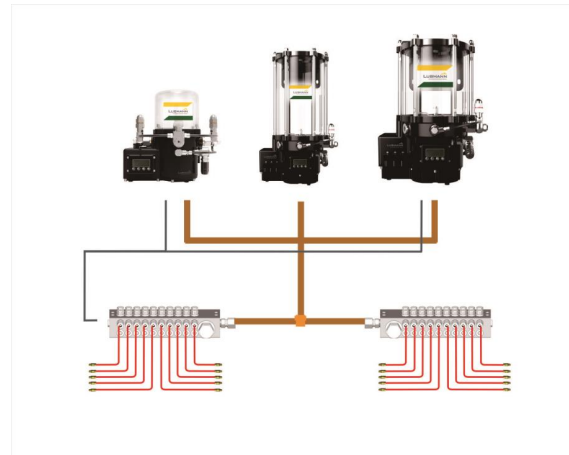
Lubmann progressive systems are reliable and operate effectively in harsh conditions with potentially high lubrication-point back pressure, dirty, wet or humid environments and low temperatures



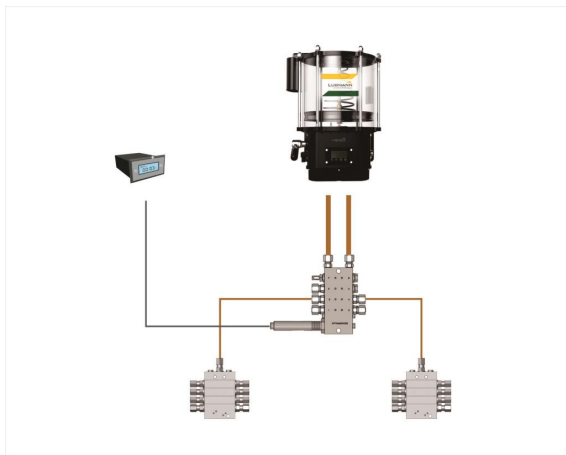
# Automatic Lubrication System



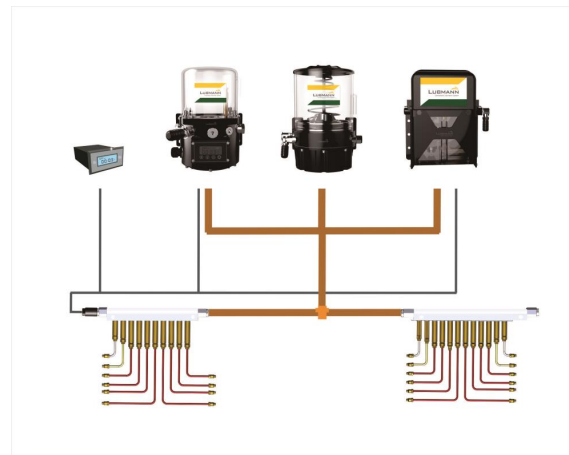
**Progressive System**



**Single Line System**



**Dual Line System**



**Pressurized Single Line System**

## Advantage of Automatic Lubrication System:

- Timing quantitative, balanced, forced lubrication;
- Save labor and material costs;
- Ensure effective lubrication of components;
- Reduce friction losses;
- Reduce operating costs;
- Improve operating efficiency;
- Prolong equipment life.



## Overview of Progressive System (Grease)

The progressive centralized lubrication system connects all levels of distributor (main block, secondary blocks) in turn by lubricating pump, conveys the grease to each lubricating point parallelly, and lubricates the friction pair.

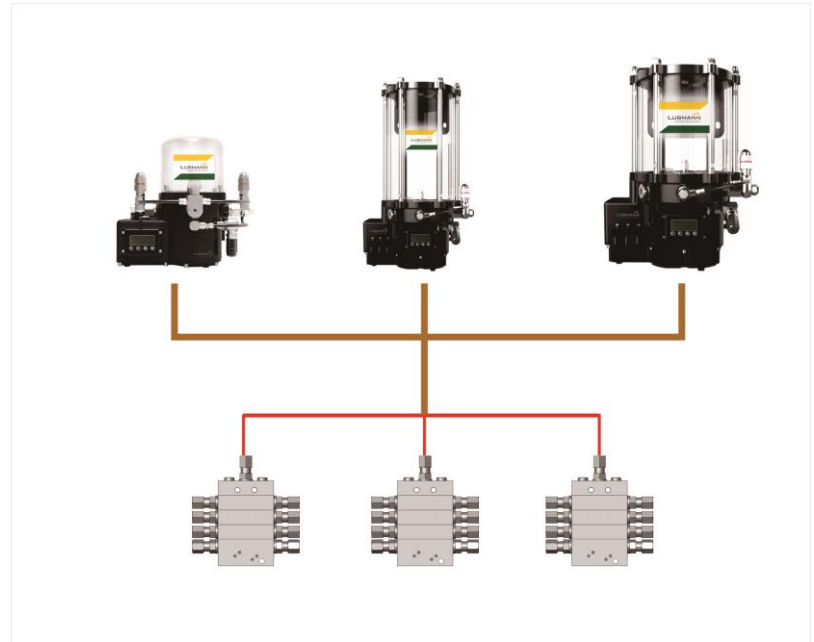
### Components

#### Standard:

- Piston pump: 1 piece (Progressive, Plunger)
- Primary distributor: 1 piece (Block Type/Progressive)
- Secondary distributor: Optional (Block Type/Progressive)
- Monitor: Integrated in Pump/External

#### Optional:

- Indicator Rod
- Grease Level Sensor
- Pressure Sensor
- Flowrate Sensor



**Accessories:** Hoses and Fittings for connecting the whole system

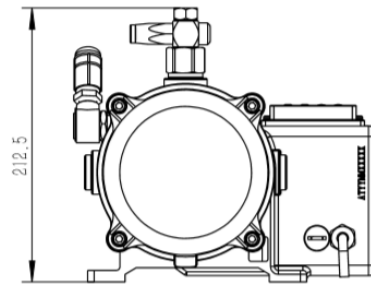
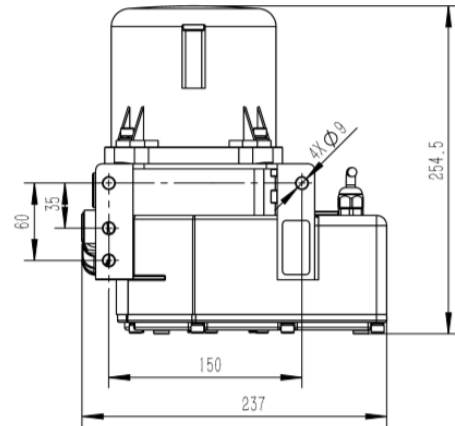
Product	Function Principle	Grease Thickness till	Metering Quantity per Pump Element	Reservoir	Operating Max. Pressure	Operating Max. Pressure	Power Supply	Max. Pump Elements
			ml/Min		in bar	in psi		
<b>LEP</b>	Piston Pump/Paddle Mode	Up to 2	1.5-4.5	1-2	350 bar	5075	12/24 V DC 220V AC	3
<b>LRMP</b>	Piston Pump/Paddle Mode	Up to 2	1.5-4.5	2-8	350 bar	5075	12/24 V DC 220V AC	3
<b>LRBP</b>	Piston Pump/Paddle Mode	Up to 2	1.5-4.5	4-20	350 bar	5075	12/24 V DC 220V AC	4
<b>LIGP</b>	Piston Pump	Up to 2	400	60/100	400 bar	5800	220/380 AC	1
<b>LIMP</b>	Piston Pump/Spring Mode	Up to 2	1.5-4.5	2-8	350 bar	5075	12/24 V DC 220V AC	3
<b>LIBP</b>	Piston Pump/Spring Mode	Up to 2	1.5-4.5	4-20	350 bar	5075	12/24 V DC 220V AC	4







## Description and Technical Data – LEP Serie



### Product description

The LEP Serie high-pressure pump can be used as a centralized lubrication pump in small-sized progressive systems. It can drive 1 element, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LEP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Construction Machinery  
Agricultural Machinery  
Commercial Vehicle

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	1
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	1L-255mm 2L-378mm
<b>Width</b>	237mm
<b>Depth</b>	212.5mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Main Switch Refill Coupling

## Pump Unit – LRMP Serie

### Identification Code

LRMP



#### Reservoir Size

1=2L  
3=6L  
2=4L  
4=8L

#### Power Supply and Monitor

A=12VDC internal Monitor  
C=24VDC internal Monitor  
E=230VAC internal Monitor  
G=Customized Power Supply with internal Monitor  
B=12VDC external Monitor  
D=24VDC external Monitor  
F=230VAC external Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
L=Prefilled with default NGLI 1  
N=Prefilled with Customized Lubricant  
K=Prefilled with default NGLI 0  
M=Prefilled with default NGLI 2

#### Pump Elements (max. 3)

SSS=without Pump Elements  
X00=PE on left side of pump  
00X=PE on right side of pump  
P=1.5ml/Min  
R=4.5ml/Min  
XXX=Customized with special PE  
0X0=PE on mid/front side of pump  
Q=2.5 ml/Min  
X=special Volume

For ex. PSR=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, mid without PE

#### Type of Safety Valve

T=Safety Valve with grease return  
U=Safety Valve without grease return

#### Additional Functions

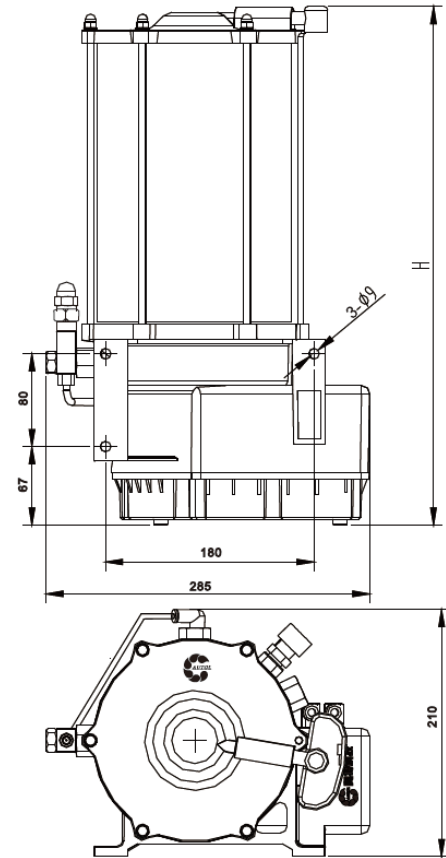
0=Without any additional Function  
8=With Grease Level Warning  
7=With Pressure Lost Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

*For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.*

## Description and Technical Data – LRMP Serie



### Product description

The LRMP Serie high-pressure pump can be used as a centralized lubrication pump in middle-sized progressive systems. It can drive max. 3 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LRMP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Construction Machinery  
Agricultural Machinery  
Mining Machinery  
Heavy Metal Industry

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	3
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions</b>	
<b>Height:</b>	2L-385mm 4L-485mm 6L-585mm 8L-685mm
<b>Width:</b>	285mm
<b>Depth:</b>	210mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Pump Unit – LRBP Serie

### Identification Code

LRBP

X - X - X - XXXX - X - X - X

#### Reservoir Size

1=4L  
3=10L  
5=20L  
2=8L  
4=15L

#### Power Supply and Monitor

A=12VDC internal Monitor  
C=24VDC internal Monitor  
E=230VAC internal Monitor  
G=Customized Power Supply with internal Monitor  
B=12VDC external Monitor  
D=24VDC external Monitor  
F=230VAC external Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
L=Prefilled with default NGLI 1  
N=Prefilled with Customized Lubricant  
K=Prefilled with default NGLI 0  
M=Prefilled with default NGLI 2

#### Pump Elements (max. 4)

SSSS=without Pump Elements  
X000=PE on left side of pump  
00X0=PE on right side of pump  
P=1.5ml/Min  
R=4.5ml/Min  
XXXX=Customized with special PE  
0X00=PE on mid/front side of pump  
000X=PE on mid/back side of pump  
Q=2.5 ml/Min

For ex. PSRS=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, both mid/front and back without PE

#### Type of Safety Valve

T=Safety Valve with grease return  
U=Safety Valve without grease return

#### Additional Functions

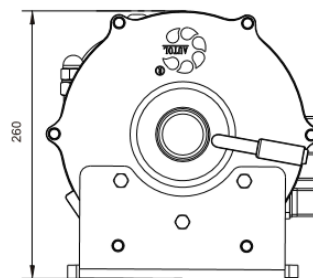
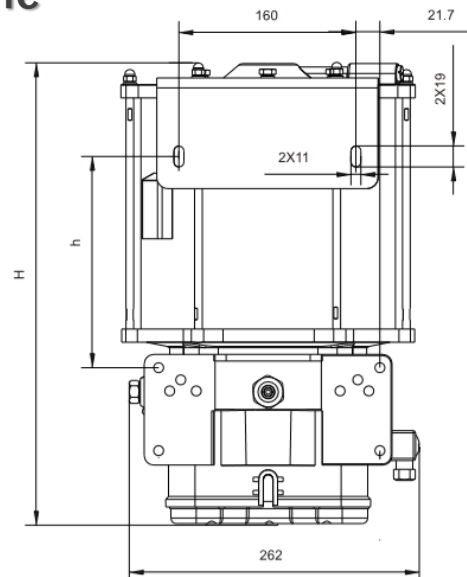
0=Without any additional Function  
8=With Grease Level Warning  
7=With Pressure Lost Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

**For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.**

## Description and Technical Data – LRBP Serie



### Product description

The LRBP Serie high-pressure pump can be used as a centralized lubrication pump in large-sized progressive systems. It can drive max. 4 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LRBP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Construction Machinery  
Agricultural Machinery  
Mining Machinery  
Heavy Metal Industry

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	4
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 66
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	4L-418mm 8L-523mm 10L-576mm 15L-771mm 20L-848mm
<b>Width</b>	262mm
<b>Depth</b>	260mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling



## Description and Technical Data – LIGP Serie



### Product description

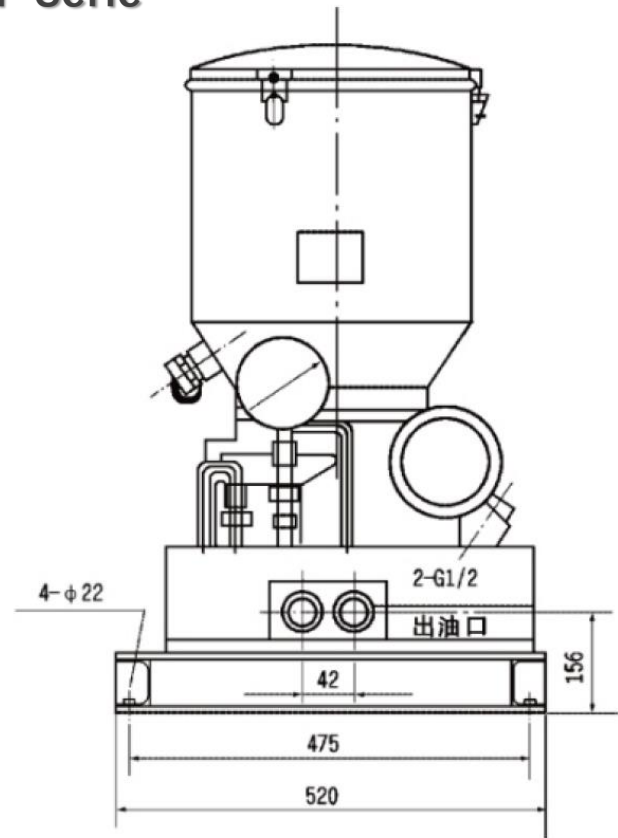
The LIGP Serie high-pressure pump can be used as a centralized lubrication pump in giant-sized progressive systems. It can drive 1 element, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LIGP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Mining Machinery  
Heavy Metal Industry



### Technical data

Function principle:	electrically operated piston pump
Metering quantity Grease:	400 ml/Min
Outlets:	1
Lubricant:	Grease up to NLGI 2
Operating Pressure:	350 bar/5800 psi
Operating Temperature:	-20 to +80 °C
Max. Greasing Points	300
Max. Power:	1100W
Electrical Connection:	220/380V AC
Dimensions :	
Height	60L-1055mm 100L-1300mm
Width	520mm
Depth	1200mm
Mounting Position:	Vertical
Options:	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

**For Identification Code of LIGP Serie Pump please contact us for more details.**

## Pump Unit – LIMP Serie

### Identification Code

LIMP



#### Reservoir Size

1=2L  
3=6L  
2=4L  
4=8L

#### Power Supply and Monitor

A=12VDC internal Monitor  
C=24VDC internal Monitor  
E=230VAC internal Monitor  
G=Customized Power Supply with internal Monitor  
B=12VDC external Monitor  
D=24VDC external Monitor  
F=230VAC external Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
L=Prefilled with default NGLI 1  
N=Prefilled with Customized Lubricant  
K=Prefilled with default NGLI 0  
M=Prefilled with default NGLI 2

#### Pump Elements (max. 3)

SSS=without Pump Elements  
X00=PE on left side of pump  
00X=PE on right side of pump  
P=1.5ml/Min  
R=4.5ml/Min  
XXX=Customized with special PE  
0X0=PE on mid/front side of pump  
Q=2.5 ml/Min

For ex. PSR=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, mid without PE

#### Type of Safety Valve

T=Safety Valve with grease return  
U=Safety Valve without grease return

#### Additional Functions

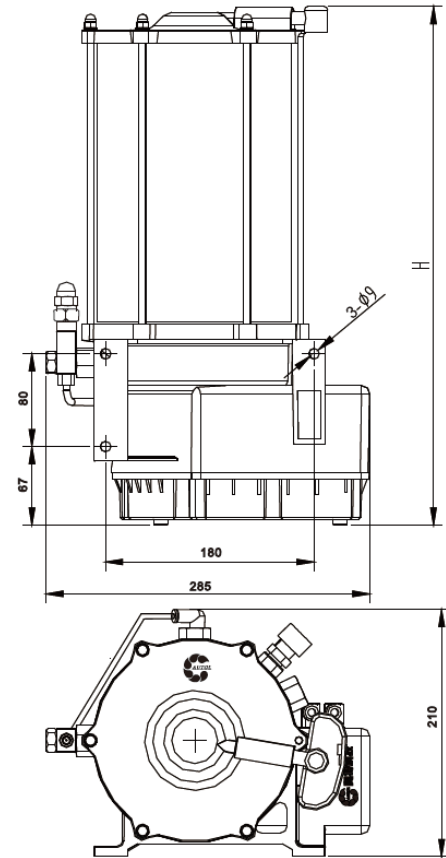
0=Without any additional Function  
8=With Grease Level Warning  
7=With Pressure Lost Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

*For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.*

## Description and Technical Data – LIMP Serie



### Product description

The LIMP Serie high-pressure pump can be used as a centralized lubrication pump in middle-sized progressive systems. It can drive max. 3 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LIMP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Wind Turbine  
Construction Machinery  
Agricultural Machinery  
Mining Machinery  
Heavy Metal Industry

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	3
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	2L-385mm 4L-485mm 6L-585mm 8L-685mm
<b>Width</b>	285mm
<b>Depth</b>	210mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Pump Unit – LIBP Serie

### Identification Code

LIBP



#### Reservoir Size

1=4L  
3=10L  
5=20L  
2=8L  
4=15L

#### Power Supply and Monitor

A=12VDC internal Monitor  
C=24VDC internal Monitor  
E=230VAC internal Monitor  
G=Customized Power Supply with internal Monitor  
B=12VDC external Monitor  
D=24VDC external Monitor  
F=230VAC external Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
L=Prefilled with default NGLI 1  
N=Prefilled with Customized Lubricant  
K=Prefilled with default NGLI 0  
M=Prefilled with default NGLI 2

#### Pump Elements (max. 4)

SSSS=without Pump Elements  
X000=PE on left side of pump  
00X0=PE on right side of pump  
P=1.5ml/Min  
R=4.5ml/Min  
XXXX=Customized with special PE  
0X00=PE on mid/front side of pump  
000X=PE on mid/back side of pump  
Q=2.5 ml/Min

For ex. PSRS=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, both mid/front and back without PE

#### Type of Safety Valve

T=Safety Valve with grease return  
U=Safety Valve without grease return

#### Additional Functions

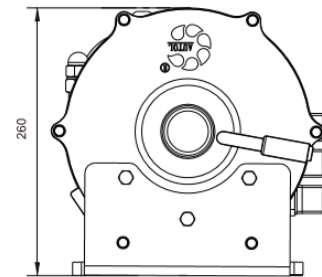
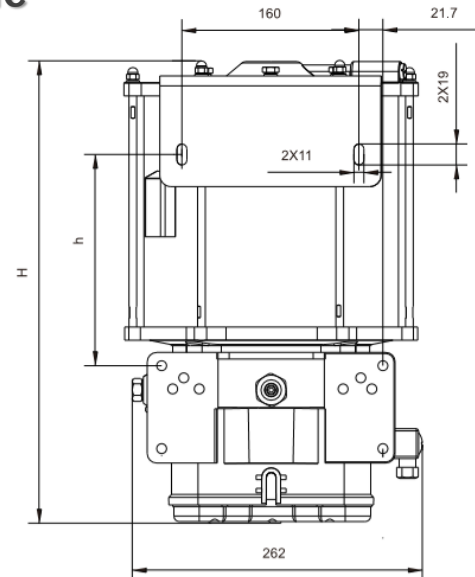
0=Without any additional Function  
8=With Grease Level Warning  
7=With Pressure Lost Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

**For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.**

## Description and Technical Data – LIBP Serie



### Product description

The LIBP Serie high-pressure pump can be used as a centralized lubrication pump in large-sized progressive systems. It can drive max. 4 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LIBP pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Wind Turbine  
Construction Machinery  
Agricultural Machinery  
Mining Machinery  
Heavy Metal Industry

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	4
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 66
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	4L-418mm 8L-523mm 10L-576mm 15L-771mm 20L-848mm
<b>Width</b>	262mm
<b>Depth</b>	260mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling



## Overview of Dual Line System (Grease)

The Dual Line centralized lubrication system has a variety of connections. System can be decided according to the actual demand. The distributors can be connected in series, parallel and mixed connection.

### Components

#### Standard:

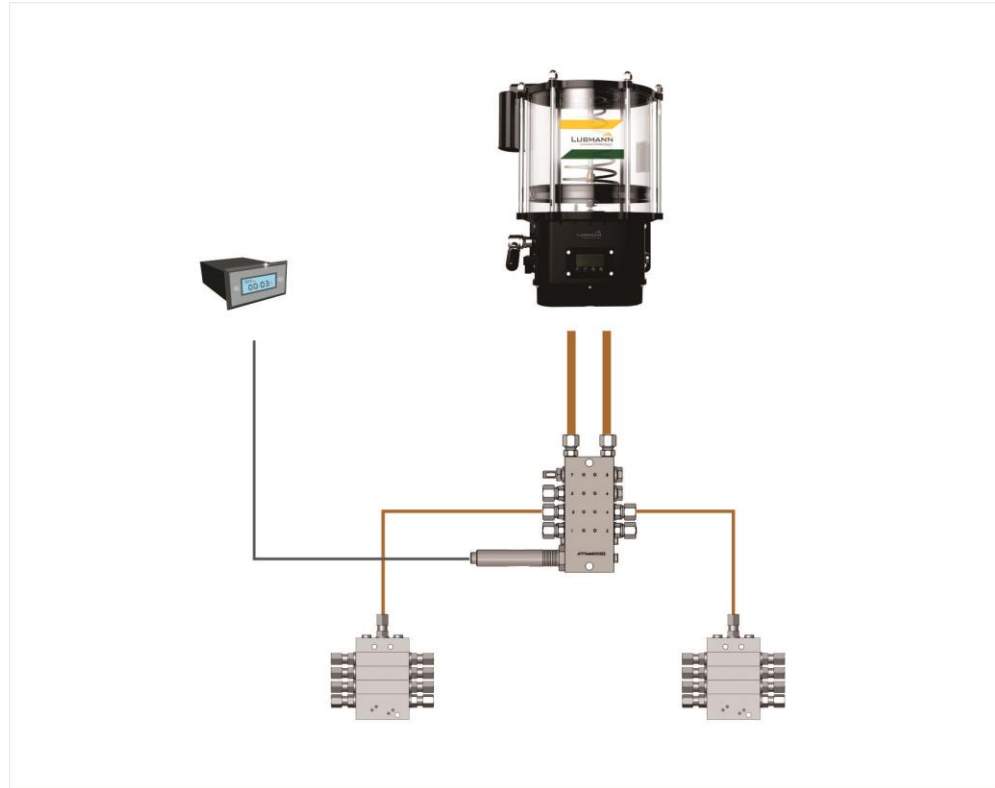
Piston pump: 1 piece (Dual Line, Plunger)  
Dual Line Distributor: X pieces in Series  
Progressive Distributor: optional X pieces  
Monitor: Integrated in Pump/External

#### Optional:

Grease Level Sensor  
Pressure Sensor  
Flowrate Sensor

#### Accessories:

Hoses and Fittings for connecting the whole system



Product	Function Principle	Grease Thickness till	Metering Quantity per Pump Element ml/Min	Reservoir Liter	Operating Max. Pressure in bar	Operating Max. Pressure in psi	Power Supply	Pump Elements
LID	Piston Pump/Spring Mode	Up to 2	12	4/8/10	300 bar	4350	12/24 V DC 220V AC	2

## Pump Unit – LID Serie

### Identification Code

LID



#### Reservoir Size

1=4L  
2=8L  
3=10L

#### Power Supply and Monitor

A=12VDC internal Monitor  
B=12VDC external Monitor  
C=24VDC internal Monitor  
D=24VDC external Monitor  
E=230VAC internal Monitor  
F=230VAC external Monitor  
G=Customized Power Supply with internal Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
K=Prefilled with default NGLI 0  
L=Prefilled with default NGLI 1  
M=Prefilled with default NGLI 2  
N=Prefilled with Customized Lubricant

#### Pump Elements (2)

P=12ml/Min  
Q=Customized Special Flowrate

#### Type of Electrical-Magnet Valve

T=Electrical-Magnet Valve with grease return  
U=Electrical-Magnet Valve without grease return

#### Additional Functions

0=Without any additional Function  
7=With Pressure Lost Warning  
8=With Grease Level Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

*For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.*

## Description and Technical Data – LID Serie



### Product description

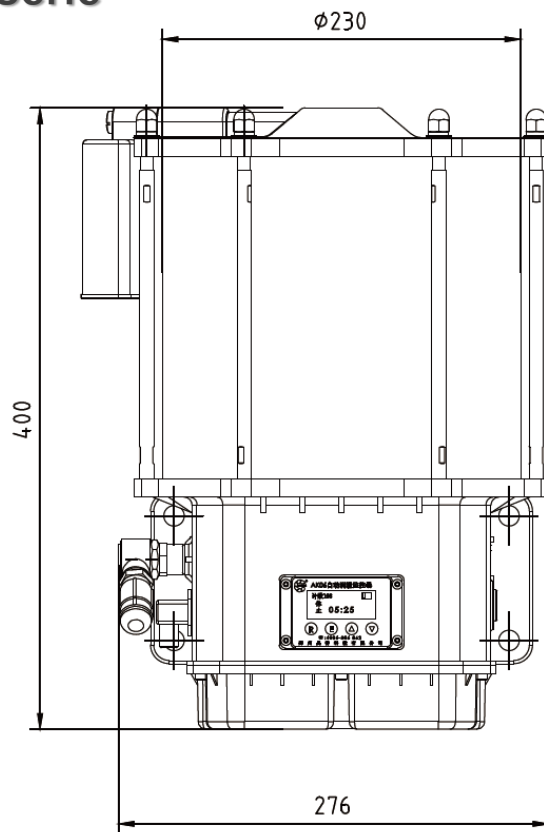
The LID Serie high-pressure pump can be used as a centralized lubrication pump in large-sized dual line systems. It can drive 2 elements. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LID pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Wind Turbine  
Construction Machinery  
Agricultural Machinery  
Mining Machinery  
Heavy Metal Industry



### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	12 ml/Min
<b>Outlets:</b>	2
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	300 bar/4350 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	4L-402mm 8L-507mm 10L-571mm
<b>Width</b>	276mm
<b>Depth</b>	230mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Overview of Single Line System (Grease)

The Single Line centralized lubrication system connects all levels of distributor (main block, secondary blocks) in turn by lubricating pump, conveys the grease to each lubricating point in series, and lubricates the friction pair.

### Components

#### Standard:

Piston pump: 1 piece (Single Line, Plunger)

Single Line Distributor: X pieces in Series

Monitor: Integrated in Pump/External

#### Optional:

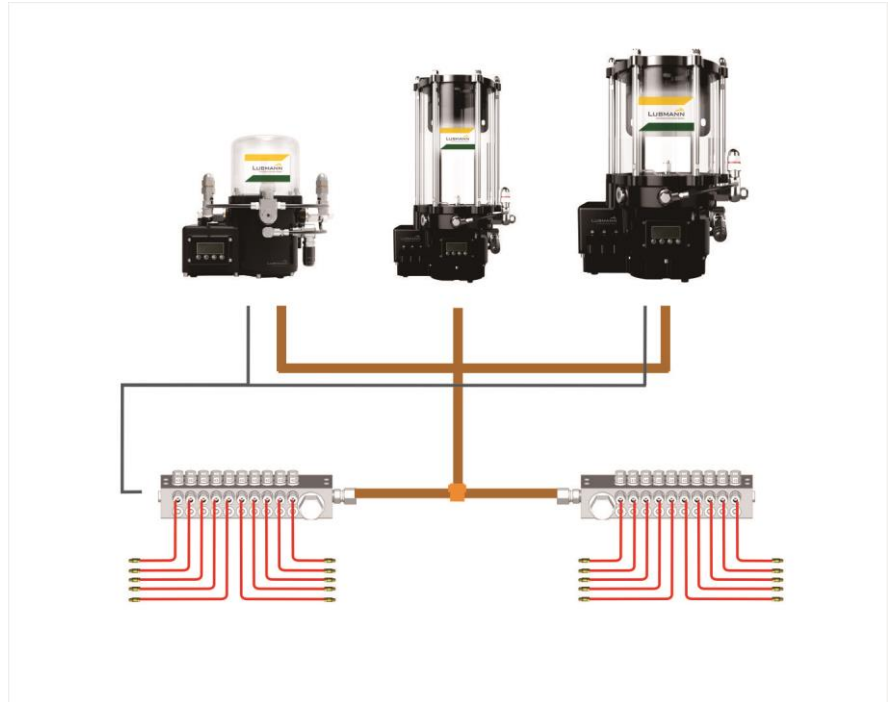
Grease Level Sensor

Pressure Sensor

Flowrate Sensor

#### Accessories:

Hoses and Fittings for connecting the whole system



Product	Function Principle	Grease Thickness till	Metering Quantity per Pump Element	Reservoir	Operating Max. Pressure in bar	Operating Max. Pressure in psi	Power Supply	Max. Pump Elements
			ml/Min	Liter				
LIMS	Piston Pump/Spring Mode	Up to 2	1.5-4.5	2-8	350 bar	5075	12/24 V DC 220V AC	3
LIBS	Piston Pump/Spring Mode	Up to 2	1.5-4.5	4-20	350 bar	5075	12/24 V DC 220V AC	4

## Pump Unit – LIMS Serie

### Identification Code

LIMS



#### Reservoir Size

1=2L  
2=4L  
3=6L  
4=8L

#### Power Supply and Monitor

A=12VDC internal Monitor  
B=12VDC external Monitor  
C=24VDC internal Monitor  
D=24VDC external Monitor  
E=230VAC internal Monitor  
F=230VAC external Monitor  
G=Customized Power Supply with internal Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
K=Prefilled with default NGLI 0  
L=Prefilled with default NGLI 1  
M=Prefilled with default NGLI 2  
N=Prefilled with Customized Lubricant

#### Pump Elements (max. 3)

SSS=without Pump Elements  
XXX=Customized with special PE  
X00=PE on left side of pump  
0X0=PE on mid/front side of pump  
00X=PE on right side of pump  
P=1.5ml/Min  
Q=2.5 ml/Min  
R=4.5ml/Min

For ex. PSR=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, mid without PE

#### Type of Electrical-Magnet Valve

T=Electrical-Magnet Valve with grease return  
U=Electrical-Magnet Valve without grease return

#### Additional Functions

0=Without any additional Function  
7=With Pressure Lost Warning  
8=With Grease Level Warning  
9=With Pressure Lost and Grease Level Warning

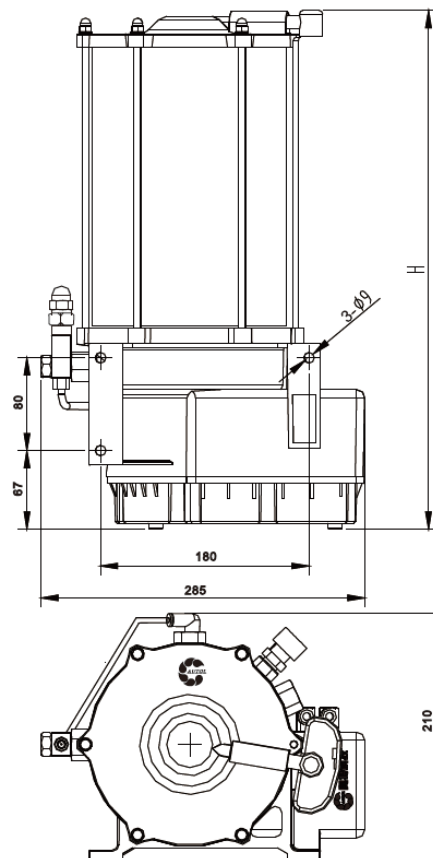
#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

*For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.*



## Description and Technical Data – LIMS Serie



### Product description

The LIMS Serie high-pressure pump can be used as a centralized lubrication pump in middle-sized single line systems. It can drive max. 3 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LIMS pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Wind Turbine

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	3
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	2L-385mm 4L-485mm 6L-585mm 8L-685mm
<b>Width</b>	285mm
<b>Depth</b>	210mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Pump Unit – LIBS Serie

### Identification Code

LIBS



#### Reservoir Size

1=4L  
3=10L  
5=20L  
2=8L  
4=15L

#### Power Supply and Monitor

A=12VDC internal Monitor  
C=24VDC internal Monitor  
E=230VAC internal Monitor  
G=Customized Power Supply with internal Monitor  
B=12VDC external Monitor  
D=24VDC external Monitor  
F=230VAC external Monitor  
H=Customized Power Supply with external Monitor

#### Prefilling

J=Un-prefilled (empty reservoir)  
L=Prefilled with default NGLI 1  
N=Prefilled with Customized Lubricant  
K=Prefilled with default NGLI 0  
M=Prefilled with default NGLI 2

#### Pump Elements (max. 4)

SSSS=without Pump Elements  
X000=PE on left side of pump  
00X0=PE on right side of pump  
P=1.5ml/Min  
R=4.5ml/Min  
XXXX=Customized with special PE  
0X00=PE on mid/front side of pump  
000X=PE on mid/back side of pump  
Q=2.5 ml/Min

For ex. PSRS=PE on left side with 1.5ml/Min and on right side with 4.5ml/Min, both mid/front and back without PE

#### Type of Electrical-Magnet Valve

T=Electrical-Magnet Valve with grease return  
U=Electrical-Magnet Valve without grease return

#### Additional Functions

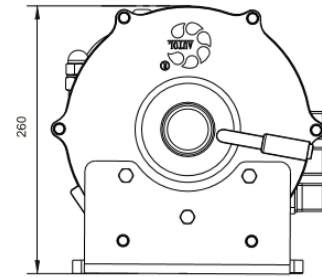
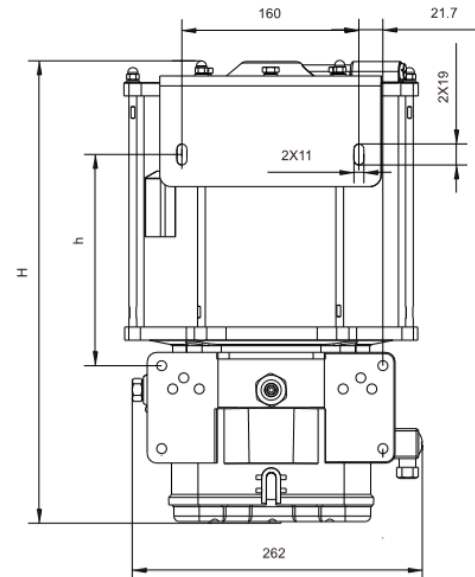
0=Without any additional Function  
8=With Grease Level Warning  
7=With Pressure Lost Warning  
9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann  
Z=Customized Setting based on Requirement

**For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.**

## Description and Technical Data – LIBS Seri



### Product description

The LIBS Serie high-pressure pump can be used as a centralized lubrication pump in large-sized single line systems. It can drive max. 4 elements, which are available in varying sizes for optimum adjustability. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LIBS pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Wind Turbine

### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	1.5–4,5 ml/Min
<b>Outlets:</b>	4
<b>Lubricant:</b>	Grease up to NLGI 2
<b>Operating Pressure:</b>	350 bar/5075 psi
<b>Operating Temperature:</b>	–40 to +70 °C
<b>Protection Class:</b>	IP 66
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	4L-418mm 8L-523mm 10L-576mm 15L-771mm 20L-848mm
<b>Width</b>	262mm
<b>Depth</b>	260mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Overview of Single Line System (Oil/Fluid Grease)

Grease pump delivers grease alternatively into each lube points through progressive distributors.

### Components

#### Standard:

Piston pump: 1 piece (Single Line, Gear)

Pressurized Single Line Distributor:

X pieces in Series

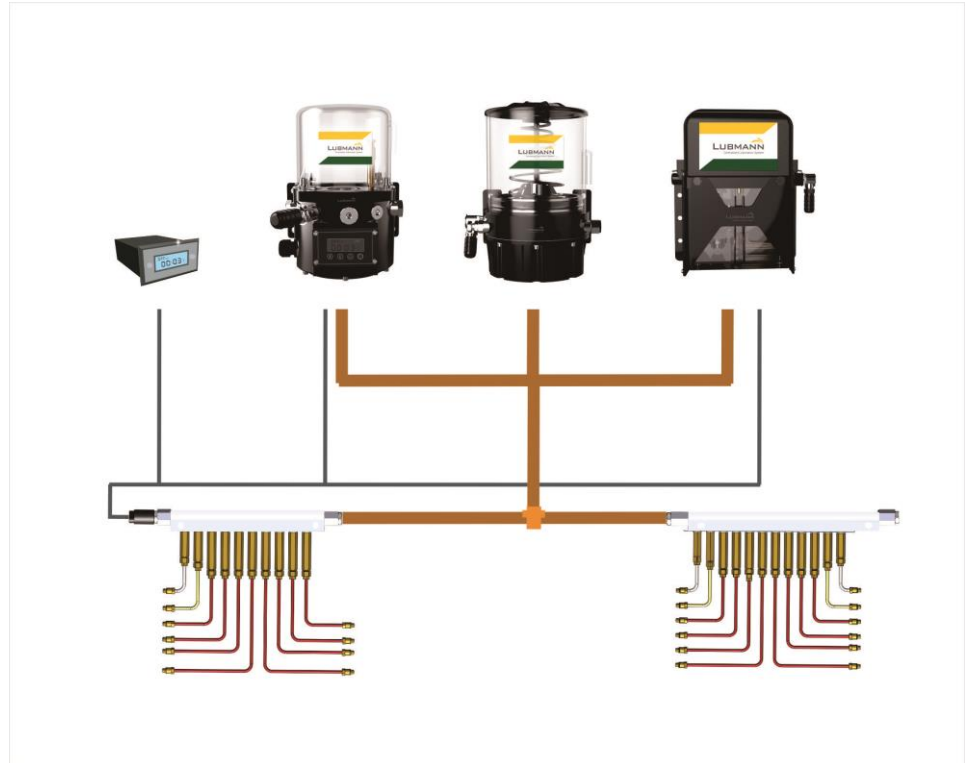
#### Optional:

Grease Level Sensor

Pressure Sensor

Flowrate Sensor

Monitor: Optional/External



#### Accessories:

Hoses and Fittings for connecting the whole system

Product	Function Principle	Grease Thickness till	Metering Quantity per Pump Element	Reservoir	Operating Max. Pressure	Operating Max. Pressure	Power Supply	Max. Pump Elements
			ml/Min		in bar	in psi		
LFS-1	Gear Pump/Paddle Mode	Up to 0	90	1	40 bar	751	12/24 V DC 220V AC	1
LFS-2	Gear Pump/Paddle Mode	Up to 0	55	2	63 bar	923	12/24 V DC 220V AC	1
LFS-3	Gear Pump/Spring Mode	Up to 0	120	2.8	40 bar	751	12/24 V DC 220V AC	1

## Pump Unit – LFS Serie

### Identification Code

LFS-

x

-

x

-

x

-

x

-

x

#### Reservoir Size

1=LFS-1

2=LFS-2

3=LFS-3

#### Power Supply and Monitor

A=12VDC without Monitor

B=12VDC external Monitor

C=24VDC without Monitor

D=24VDC external Monitor

E=230VAC without Monitor

F=230VAC external Monitor

G=Customized Power Supply without Monitor

H=Customized Power Supply with external Monitor

P=12VDC with internal Monitor (Only pickable by LFS-1)

Q=24VDC with internal Monitor (Only pickable by LFS-1)

R=230VAC with internal Monitor (Only pickable by LFS-1)

#### Prefilling

J=Un-prefilled (empty reservoir)

K=Prefilled with default NGLI 0

N=Prefilled with Customized Lubricant

#### Additional Functions

0=Without any additional Function

7=With Pressure Lost Warning

8=With Grease Level Warning

9=With Pressure Lost and Grease Level Warning

#### Parameter Presetting

Y=Default Setting by Lubmann

Z=Customized Setting based on Requirement

*For the pump components like pump element, safety valve, refill coupling, fixing part and sensors please check the following pages.*

## Description and Technical Data – LFS-1 Serie



### Product description

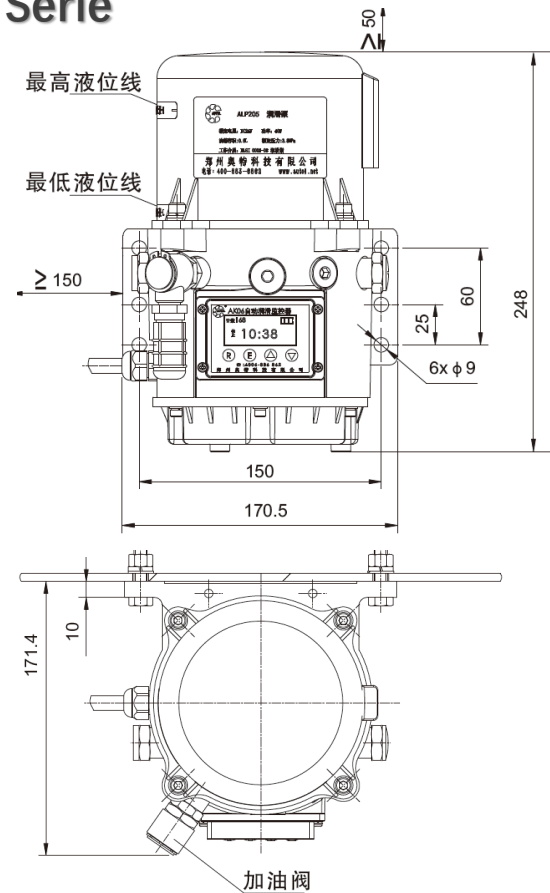
The LFS-1 Serie lubrication pump can be used as a centralized lubrication pump in small-sized pressurized single line systems. It can drive 1 element. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LFS-1 pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

Commercial Vehicle  
Food Line, Beverage Line  
Machine Tool



### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	90 ml/Min
<b>Outlets:</b>	1
<b>Lubricant:</b>	Grease up to NLGI 0
<b>Operating Pressure:</b>	40 bar/751 psi
<b>Operating Temperature:</b>	-40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	248mm
<b>Width</b>	171mm
<b>Depth</b>	171mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling



## Description and Technical Data – LFS-2 Serie



### Product description

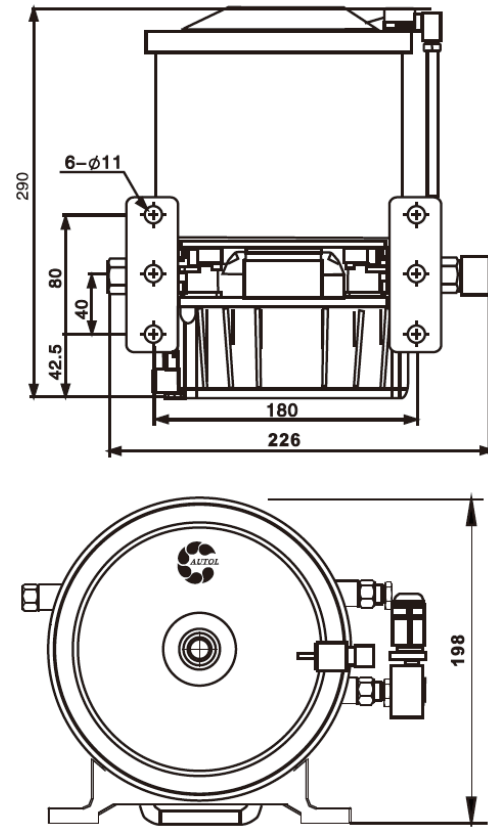
The LFS-2 Serie lubrication pump can be used as a centralized lubrication pump in small-sized pressurized single line systems. It can drive 1 element. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LFS-2 pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

### Applications

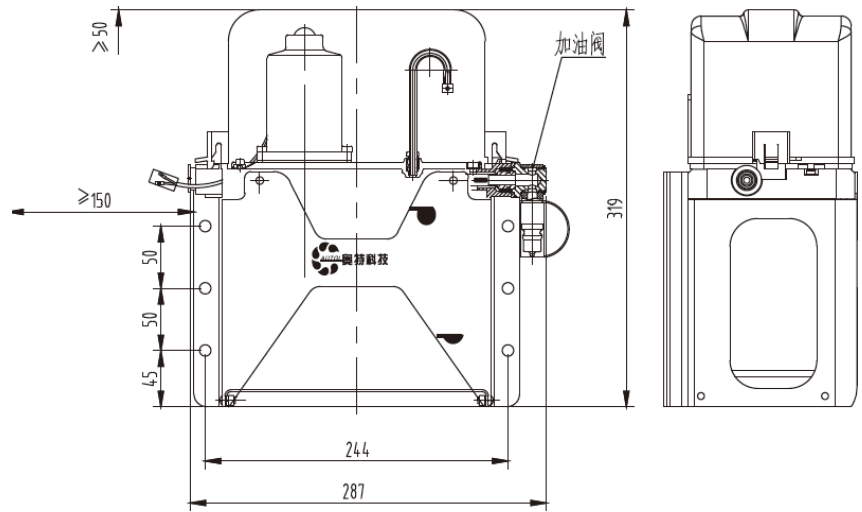
Commercial Vehicle  
Food Line, Beverage Line  
Machine Tool



### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	55 ml/Min
<b>Outlets:</b>	1
<b>Lubricant:</b>	Grease up to NLGI 0
<b>Operating Pressure:</b>	63 bar/923 psi
<b>Operating Temperature:</b>	-40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	290mm
<b>Width</b>	226mm
<b>Depth</b>	198mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

## Description and Technical Data – LFS-3 Serie



### Product description

The LFS-3 Serie lubrication pump can be used as a centralized lubrication pump in small-sized pressurized single line systems. It can drive 1 element. The pump's drive and eccentric shaft design, high-efficiency worm gear, minimal number of parts and multi-range motor provide several advantages. LFS-3 pumps are available with a three-phase flange mount and multi-range motor or with a free shaft end for use with other motors. Various gear ratios and reservoir sizes with or without level control are offered.

### Features and benefits

Durable, versatile and reliable pump series  
Designed for continual lubrication of machines  
systems operating in harsh environments  
Broad range of output options  
Modular design and easy maintenance

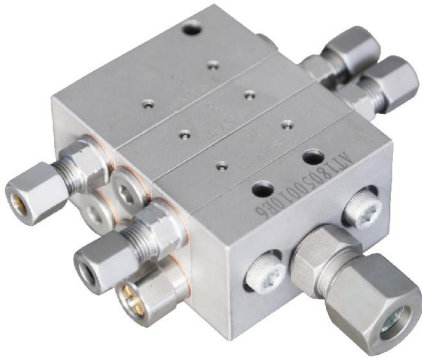
### Applications

Commercial Vehicle  
Food Line, Beverage Line  
Machine Tool

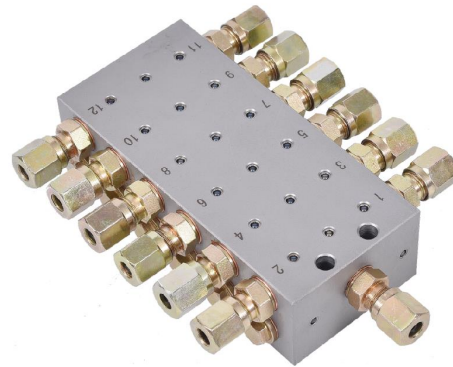
### Technical data

<b>Function principle:</b>	electrically operated piston pump
<b>Metering quantity Grease:</b>	120 ml/Min
<b>Outlets:</b>	1
<b>Lubricant:</b>	Grease up to NLGI 0
<b>Operating Pressure:</b>	40 bar/751 psi
<b>Operating Temperature:</b>	-40 to +70 °C
<b>Protection Class:</b>	IP 65
<b>Line Connection:</b>	G1/4
<b>Electrical Connection:</b>	12 or 24V DC/220V AC
<b>Dimensions :</b>	
<b>Height</b>	319mm
<b>Width</b>	287mm
<b>Depth</b>	177mm
<b>Mounting Position:</b>	Vertical
<b>Options:</b>	Pressure Sensor Grease Level Sensor Main Switch Refill Coupling

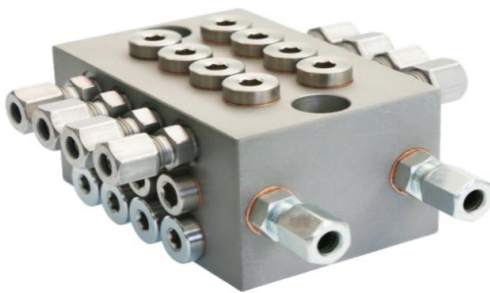
# Automatic Lubrication System – Metering Unit



**Progressive VPKA/VPKB**



**Progressive SSV/SSVA/SSVD**



**Dual Line DLA/DLB**



**Single Line LR-SLA**



## Overview Metering Unit

### Progressive Metering (Grease)

Product	Function Principle	Grease Thickness	Displacement	Outlets	Max. Input Pressure	Max. Output Pressure	Min. Start Pressure	Connection Inlet	Connection Outlet
		till	ml/cy		in bar	in bar	In bar		
LR-SSV	Block Metering Device	Up to 2	0.2	6-20	350 bar	200 bar	20 bar	M10*1	M10*1
LR-SSVA	Block Metering Device	Up to 2	0.2	6-20	350 bar	200 bar	20 bar	M10*1	M10*1
LR-SSVD	Block Metering Device	Up to 2	0.2	6-20	350 bar	200 bar	20 bar	M10*1	M10*1
LR-VPKA	Sectional Metering Device	Up to 2	0.08-0.32	6-18	300 bar	200 bar	20 bar	M10*1	M10*1
LR-VPKB	Sectional Metering Device	Up to 2	0.08-1.60	6-18	300 bar	200 bar	20 bar	M10*1	M10*1

### Dual Line Metering (Grease)

Product	Function Principle	Grease Thickness	Displacement	Outlets	Max. Input Pressure	Max. Output Pressure	Min. Start Pressure	Connection Inlet	Connection Outlet
		till	ml/cy		in bar	in bar	In bar		
LI-DLA	Sectional Metering Device	Up to 2	0.1-1.0	2-14	250 bar	250 bar	35 bar	M10*1	M10*1

### Single Line Metering (Oil/Fluid Grease/Grease)

Product	Function Principle	Grease Thickness	Displacement	Outlets	Max. Input Pressure	Max. Output Pressure	Min. Start Pressure	Connection Inlet	Connection Outlet
		till	ml/cy		in bar	in bar	In bar		
LR-SLA	Block Metering Device	Up to 2	0.2-0.6	6-16	250 bar	200 bar	70 bar	M10*1	M10*1
LRK-SLA	Rack Metering Device	Up to 0	0.13-0.4	4-20	63 bar	-	-	-	-

*For the distributor components like indicator rod, inlet fitting, outlet fitting, pressure sensor, fixing plate and external joint fitting please check the following pages.*

## Ordering Codes – Metering Unit

### Progressive Metering (Grease) For Ordering Codes of LR-VPKA/VPKB please check on Page X

Outlets	LR-SSV	LR-SSVA	LR-SSVD	LR-SSV with Indicator Rod	LR-SSVA with Indicator Rod	LR-SSVD with Indicator Rod	LR-SSV with Hall (Pressure) Sensor	LR-SSVA with Hall (Pressure) Sensor	LR-SSVD with Hall (Pressure) Sensor
6	LR-SSV6	LR-SSVA6	LR-SSVD6	LR-SSV6-I	LR-SSVA6-I	LR-SSVD6-I	LR-SSV6-H	LR-SSVA6-H	LR-SSVD6-H
8	LR-SSV8	LR-SSVA8	LR-SSVD8	LR-SSV8-I	LR-SSVA8-I	LR-SSVD8-I	LR-SSV8-H	LR-SSVA8-H	LR-SSVD8-H
10	LR-SSV10	LR-SSVA10	LR-SSVD10	LR-SSV10-I	LR-SSVA10-I	LR-SSVD10-I	LR-SSV10-H	LR-SSVA10-H	LR-SSVD10-H
12	LR-SSV12	LR-SSVA12	LR-SSVD12	LR-SSV12-I	LR-SSVA12-I	LR-SSVD12-I	LR-SSV12-H	LR-SSVA12-H	LR-SSVD12-H
14	LR-SSV14	LR-SSVA14	LR-SSVD14	LR-SSV14-I	LR-SSVA14-I	LR-SSVD14-I	LR-SSV14-H	LR-SSVA14-H	LR-SSVD14-H
16	LR-SSV16	LR-SSVA16	LR-SSVD16	LR-SSV16-I	LR-SSVA16-I	LR-SSVD16-I	LR-SSV16-H	LR-SSVA16-H	LR-SSVD16-H
18	LR-SSV18	LR-SSVA18	LR-SSVD18	LR-SSV18-I	LR-SSVA18-I	LR-SSVD18-I	LR-SSV18-H	LR-SSVA18-H	LR-SSVD18-H
20	LR-SSV20	LR-SSVA20	LR-SSVD20	LR-SSV20-I	LR-SSVA20-I	LR-SSVD20-I	LR-SSV20-H	LR-SSVA20-H	LR-SSVD20-H

### Single Line Metering (Oil/Fluid Grease/Grease)

Outlets	LR-SLA	LR-SLA with Pressure Sensor	Outlets	LRK-SLA	LRK-SLA with Pressure Sensor
4	LR-SLA4	LR-SLA4-P	4	LRK-SLA4	LRK-SLA4-P
6	LR-SLA6	LR-SLA6-P	6	LRK-SLA6	LRK-SLA6-P
8	LR-SLA8	LR-SLA8-P	8	LRK-SLA8	LRK-SLA8-P
10	LR-SLA10	LR-SLA10-P	10	LRK-SLA10	LRK-SLA10-P
12	LR-SLA12	LR-SLA12-P	12	LRK-SLA12	LRK-SLA12-P
14	LR-SLA14	LR-SLA14-P	14	LRK-SLA14	LRK-SLA14-P
16	LR-SLA16	LR-SLA16-P	16	LRK-SLA16	LRK-SLA16-P
			18	LRK-SLA18	LRK-SLA18-P
			20	LRK-SLA20	LRK-SLA20-P

### Dual Line Metering (Grease) For Ordering Codes of LI-DLA please check on Page 37

*For the distributor components like indicator rod, inlet fitting, outlet fitting, pressure sensor, fixing plate and external joint fitting please check the following pages.*



## Ordering Codes – Metering Unit

### Progressive Metering (Grease) – LR VPKA/VPKB (Ordering Codes)

Identification Code		LR-VPK	X	-	X	-	X	-	XXX	-	X	-	X
<b>Block Type</b>													
A=VPKA Type	B=VPKB Type												
<b>Number of Middle piece</b>													
3=2 middle pieces	4=3 middle pieces												
5=4 middle pieces	6=5 middle pieces												
7=6 middle pieces	8=7 middle pieces												
Min. 2 and Max. 7 middle pieces													
<b>Number of non-blinded Outlets</b>													
0= no blinded Outlets	X=Number of non-blinded Outlets												
X <= ((Number of Middle piece+1)*2)													
<b>Type of all Middle Pieces</b>													
8=Piece 8 (0.08 ml/cy per Outlet)	16=Piece 16 (0.16 ml/cy per Outlet)												
24=Piece 24 (0.24 ml/cy per Outlet)	32=Piece 32 (0.32 ml/cy per Outlet)												
64=Piece 64 (0.64 ml/cy per Outlet)	96=Piece 96 (0.96 ml/cy per Outlet)												
128=Piece 128 (1.28 ml/cy per Outlet)	160=Piece 160 (1.60 ml/cy per Outlet)												
L= section has been merged and grease comes out from <b>Left-Side</b>													
R= section has been merged and grease comes out from <b>Right-Side</b>													
AR= section has not been merged, grease comes out from <b>Both Sides</b> , on Right-Side the outlet of the section has been connected with the Right-outlet of the next section by an external 2 to 1 outlet connector ( <b>PMU-VPKO21</b> )													
AL= section has not been merged, grease comes out from <b>Both Sides</b> , on Left-Side the outlet of the section has been connected with the Left-outlet of the next section by an external 2 to 1 outlet connector ( <b>PMU-VPKO21</b> )													
ARL= section has not been merged, grease comes out from <b>Both Sides</b> , the outlets on both sides of the section have been connected with the corresponding outlets of the next section by 2 external 2 to 1 outlet connectors ( <b>PMU-VPKO21</b> ), and the next section must <b>not be merged</b>													
BR= section has not been merged, grease comes out from <b>Both Sides</b> , on Right-Side the outlet of the section has been connected with the Right-outlet of the next section by an external 2 to 0 outlet connector ( <b>PMU-VPKO20</b> ), and the next section <b>must be merged, and keeps the grease comes out from Left-Side of the section</b>													
BL= section has not been merged, grease comes out from <b>Both Sides</b> , on Left-Side the outlet of the section has been connected with the Left-outlet of the next section by an external 2 to 0 outlet connector ( <b>PMU-VPKO20</b> ), and the next section <b>must be merged, and keeps the grease comes out from Right-Side of the section</b>													
For ex. 8-8L-32AL-16AR-16=5 middle pieces, the sequence of the middle piece from Top piece to bottom piece is 1(8-8) 2(16-0) 3(0-32) 4(64-0) 5(16-32)													
Only VPKB has piece with flowrate 64/96/128/160													
<b>Type of bottom Piece</b>													
C=Piece 8 (0.08 ml/cy per Outlet)	D=Piece 16 (0.16 ml/cy per Outlet)												
E=Piece 24 (0.24 ml/cy per Outlet)													
L=section has been merged and grease comes out from Left Side													
R=section has been merged and grease comes out from Right Side													
Only Piece 8,16,24 can be chosen as the bottom Piece.													
<b>Additional Functions</b>													
N=Without any additional Function	P=With Indicator Rod												
Q=With Hall Sensor	M=With Indicator Rod and Hall Sensor												

**For the distributor components like indicator rod, inlet fitting, outlet fitting, pressure sensor, fixing plate and external joint fitting please check the following pages.**



## Ordering Codes – Metering Unit

### Dual Line Metering (Grease) – LI DLA (Ordering Codes)

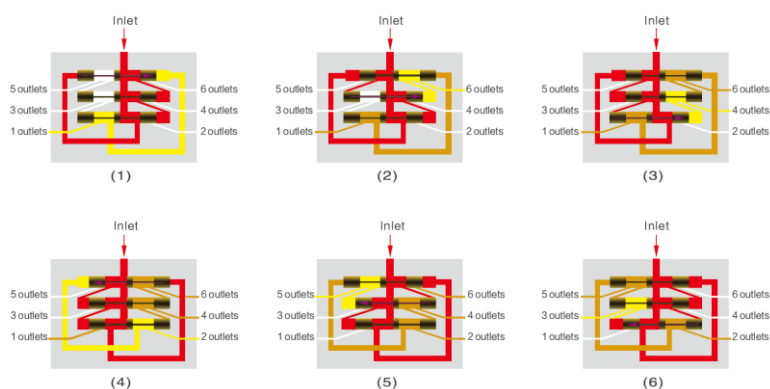
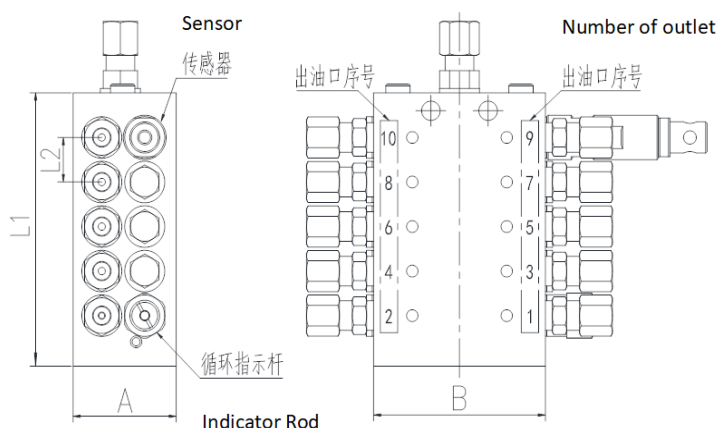
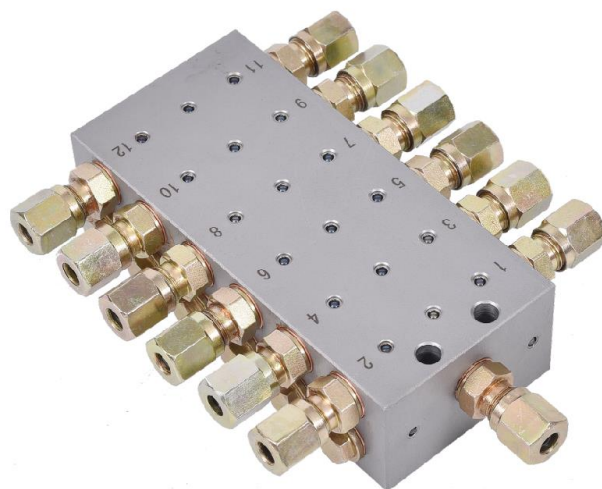
Identification Code		LI- DLA	X	-	X	-	XXX	-	X	-	X
Number of Middle piece											
1=1 middle piece	2=2 middle pieces										
3=3 middle pieces	4=4 middle pieces										
5=5 middle pieces	6=6 middle pieces										
7=7 middle pieces	Min. 1 and Max. 7										
Number of blinded Outlets											
0= no blinded Outlets	X=Number of blinded Outlets										
X <= (Number of Middle piece*2)											
Type of all Middle Pieces											
10=Piece 10 (0.10 ml/cy per Outlet)	20=Piece 20 (0.20 ml/cy per Outlet)										
40=Piece 40 (0.40 ml/cy per Outlet)	60=Piece 60 (0.60 ml/cy per Outlet)										
80=Piece 80 (0.80 ml/cy per Outlet)	100=Piece 100 (1.00 ml/cy per Outlet)										
AR= section has not been merged, grease comes out from <b>Both Sides</b> , on Right-Side the outlet of the section has been connected with the Right-outlet of the next section by an external 2 to 1 outlet connector ( <b>DMU-DLO21</b> )											
AL= section has not been merged, grease comes out from <b>Both Sides</b> , on Left-Side the outlet of the section has been connected with the Left-outlet of the next section by an external 2 to 1 outlet connector ( <b>DMU-DLO21</b> )											
For ex. 10-10-80AL-20-20=5 middle pieces, the sequence of the middle piece from Top piece to bottom piece is 1(10-10) 2(10-10) 3(0-80) 4(100-20) 5(20-20)											
Internal Merge of Bottom Piece											
L=pre merged	M=no Merging										
Additional Functions											
N=Without any additional Function	P=With Indicator Rod										
Q=With Hall Sensor	R=With Indicator Rod and Hall Sensor										

*For the distributor components like indicator rod, inlet fitting, outlet fitting, pressure sensor, fixing plate and external joint fitting please check the following pages.*

## Progressive Metering (Grease) – LR SSV/SSVA

LR SSV/SSVA type metering device is a compact single block progressive piston-type metering device. For direct mount of fittings with no need of any sealing in-between. Specially designed for small output needs, small spaces due to its small dimensions and short distances. Available with pin indicator for visual system monitoring.

The nominal discharge of each cycle is 0.2 mL/cy for the uncombined outlet, in which the nominal displacement of 0.15 mL/cy; for each cycle of the indicator rod corresponds to the combined outlet, and the displacement of each cycle is the sum of the output of the combined outlet. The allowable deviation of all outlet discharge is  $\pm 10\%$ .



### Dimensions (excluding Inlet/Outlet Fittings)

Outlets	A (mm)	B (mm)	L1 (mm)	L2 (mm)	L3 (mm)
6			62		
8			77		
10			92		
12	36	60	107	15	20
14			122		
16			137		
18			152		
20			167		

**More details for the distributor accessories like input/output fitting, closure plug and pressure sensor please check the following pages.**

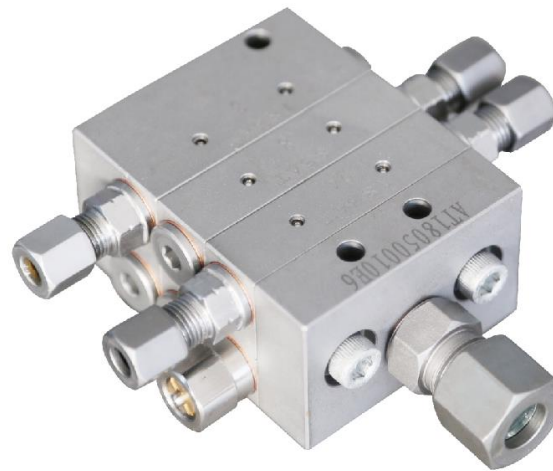
### Technical data

Function principle:	Block metering device
Outlets:	6-20
Lubricant:	Grease up to NLGI 2
Input Pressure:	350 bar
Connection Input:	M10×1
Output Pressure:	200 bar
Connection Output:	M10×1
Start Pressure:	20 bar
Displacement:	0.2 mL/cy
Working Temperature:	-25 to +70 °C
Material:	Steel
Surface treatment (Coating):	Zn-Ni plated (free of Cr-VI)

## Progressive Metering (Grease) – LR VPKA/VPKB

The Progressive VPKA/VPKB type metering device is a sectional metering device. Its metering sections cover a metering volume per outlet and cycle of 0,08 ml to 1,60 ml. All sections (inlet, intermediate, end) are tightened via tie rods. The delivery ducts are sealed by porting plates in-between the segments. A minimum of three intermediate sections is necessary.

For each cycle of the indicator rod corresponds to the combined outlet, and the displacement of each cycle is the sum of the output of the combined outlet. The allowable deviation of all outlet discharge is  $\pm 10\%$ .

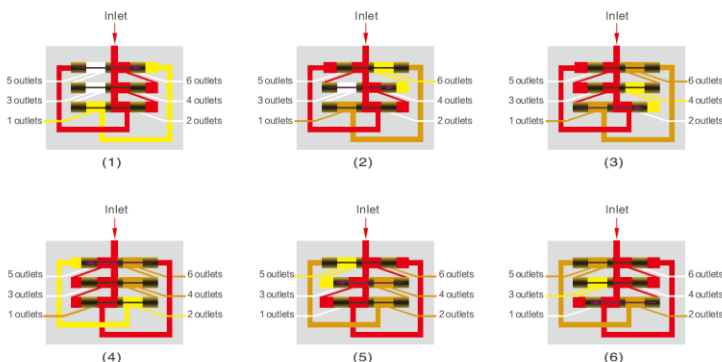
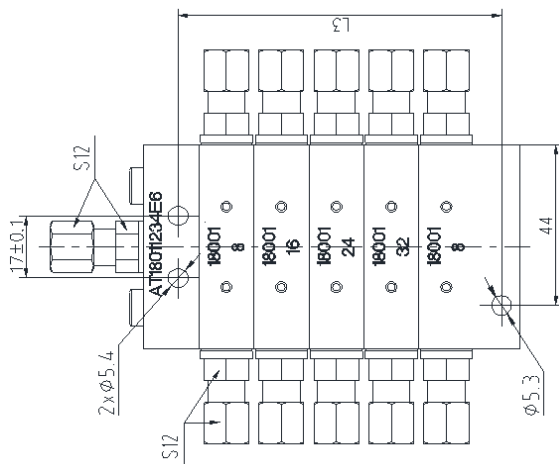


**Dimensions** (excluding Inlet and Outlet Fittings)

Outlets	Width (mm)	Depth (mm)	L1 (mm)	L2 (mm)	L3 (mm)
6	56	36	71	15	57.2
8			86		72.0
10			101		86.7
12			116		101.5
14			131		116.2
16			146		131.0

## Technical data

Function principle:	Block metering device
Outlets:	6-18
Lubricant:	Grease up to NLGI 2
Input Pressure:	300 bar
Connection Input:	M10×1
Output Pressure:	200 bar
Connection Output:	M10×1
Start Pressure:	20 bar
Displacement:	0.08 – 1.60ml/cy
Working Temperature:	-25 to +70 °C
Material:	Steel
Surface treatment (Coating):	Zn-Ni plated (free of Cr-VI)

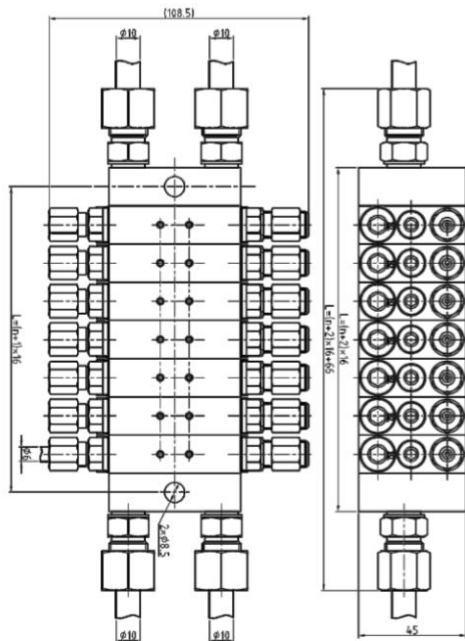
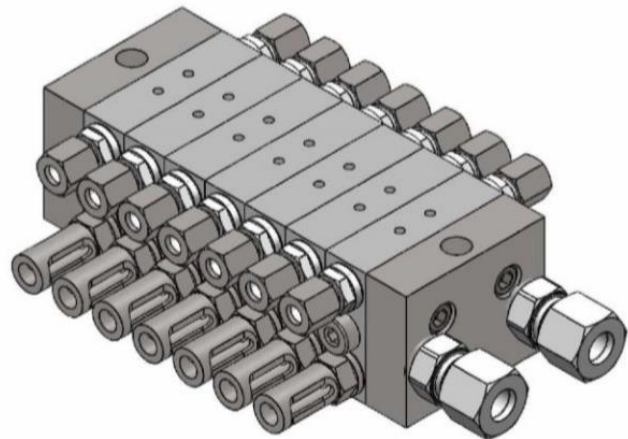


**More details for the distributor accessories like input/output fitting, closure plug and pressure sensor please check the following pages from x to x in this catalogue.**

## Dual Line Metering (Grease) LI-DLA

The Dual Line LI-DLA type metering device is a sectional metering device. Its metering sections cover a metering volume per outlet and cycle of 0,10 ml to 1,00 ml. All sections (inlet, intermediate, end) are tightened via tie rods. The delivery ducts are sealed by porting plates in-between the segments. A minimum of ONE intermediate sections is possible.

For each cycle of the indicator rod corresponds to the combined outlet, and the displacement of each cycle is the sum of the output of the combined outlet. The allowable deviation of all outlet discharge is  $\pm 10\%$ .

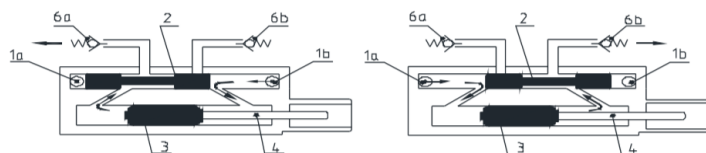


### Dimensions (excluding Inlet and Outlet Fittings)

Outlets	A (mm)	B (mm)	L1 (mm)	L2 (mm)
2	45	60	64	48
4			96	80
6			128	112
8			160	144
10			192	176
12			224	208
14			256	240

### Technical data

Function principle:	Block metering device
Outlets:	2-14
Lubricant:	Grease up to NLGI 2
Input Pressure:	250 bar
Connection Input:	M10×1
Output Pressure:	250 bar
Connection Output:	M10×1
Start Pressure:	20 bar
Displacement:	0.1/0.2/0.4/0.6/0.8/1.0 ml/cy
Working Temperature:	-25 to +70 °C
Material:	Steel
Surface treatment (Coating):	Zn-Ni plated (free of Cr-VI)



**More details for the distributor accessories like input/output fitting, closure plug and pressure sensor please check the following pages from x to x in this catalogue.**

## Single Line Metering (Grease) LR-SLA

The Single Line LR-SLA type metering device is a block metering device. Its metering sections cover a metering volume per outlet and cycle of 0,20 ml to 0,60 ml. For direct mount of fittings with no need of any sealing in-between. Specially designed for small output needs, small spaces due to its small dimensions and short distances. Available with pin indicator for visual system monitoring.

For each cycle of the indicator rod corresponds to the combined outlet, and the displacement of each cycle is the sum of the output of the combined outlet. The allowable deviation of all outlet discharge is  $\pm 10\%$ .

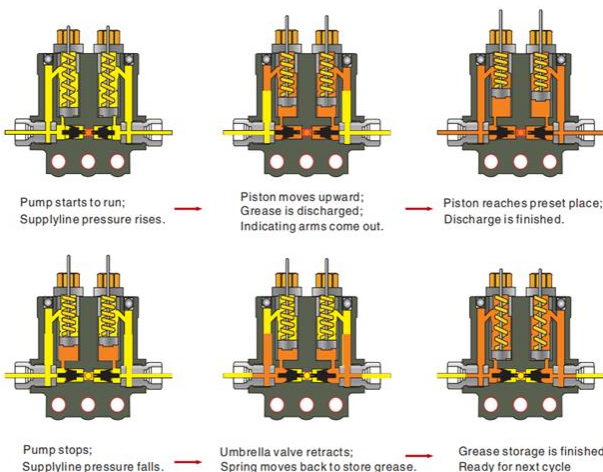
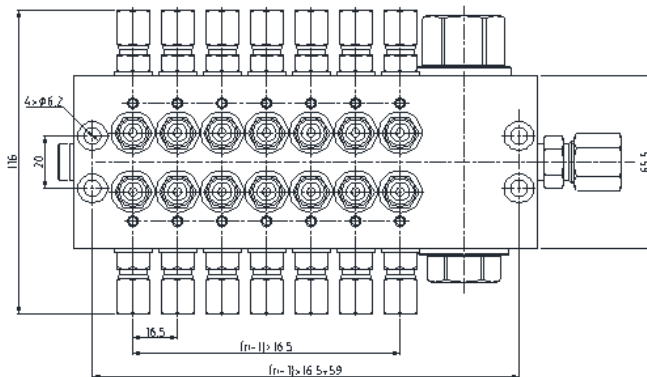


### Dimensions (excluding Inlet and Outlet Fittings)

Outlets	Width (mm)	Depth (mm)	L1 (mm)	L2 (mm)	L3 (mm)
4	65.5	67.8	91.5	16.5	75.5
6			108.0		92.0
8			124.5		108.5
10			141.0		125.0
12			157.5		141.5
14			174.0		158.0

### Technical data

Function principle:	Block metering device
Outlets:	4-14
Lubricant:	Grease up to NLGI 2
Input Pressure:	250 bar
Connection Input:	M10×1
Output Pressure:	200 bar
Connection Output:	M10×1
Start Pressure:	70 bar
Displacement:	0.2/0.4/0.6 ml/cy
Working Temperature:	-25 to +70 °C
Material:	Steel
Surface treatment (Coating):	Zn-Ni plated (free of Cr-VI)

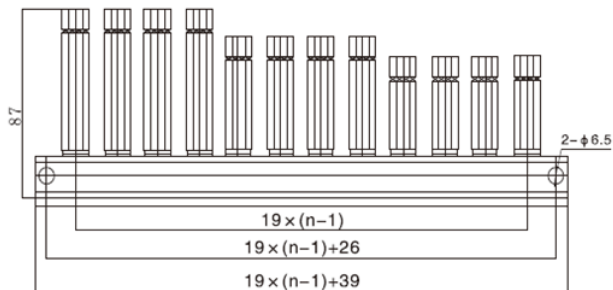


**More details for the distributor accessories like input/output fitting, closure plug and pressure sensor please check the following pages from x to x in this catalogue.**



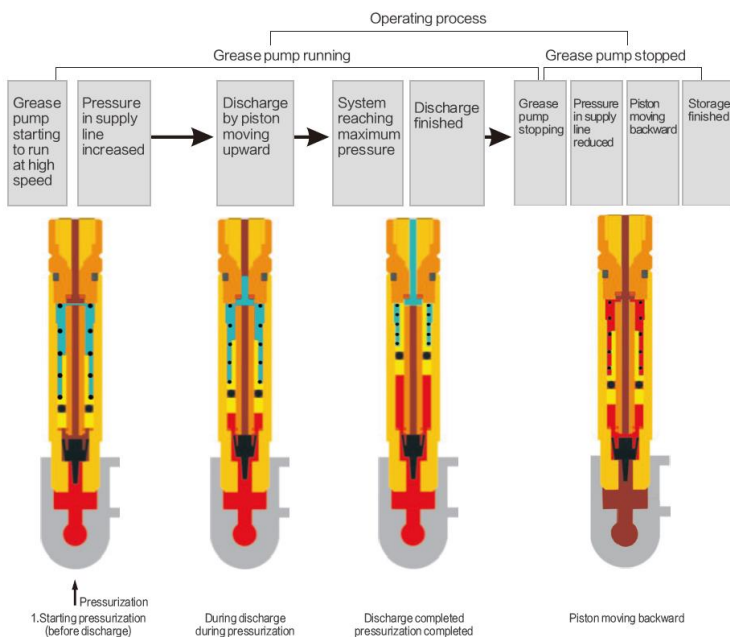
## Single Line Metering (Oil/Fluid Grease) LRK-SLA

The pressurized single line LRK-SLA type metering device is a rack type metering device. Its metering sections cover a metering volume per outlet and cycle of 0,13 ml to 0,40 ml. According to the needs of the greasing points, the volume of the outlet fitting can be amounted very easily.



### Dimensions

Outlets	Max. Height (mm)	Depth (mm)	Width W1 (mm)	Width W2 (mm)
4	87	22	83	96
6			121	134
8			159	172
10			197	210
12			235	248
14			273	286
16			311	324
18			349	362
20			387	400



### Technical data

Function principle:	Rack metering device
Outlets:	4-20
Lubricant:	Grease up to NLGI 0
Input Pressure:	63 bar
Displacement:	0.13/0.2/0.4 ml/cy
Working Temperature:	-40 to +70 °C
Material:	Steel/Copper
Surface treatment (Coating):	Zn-Ni plated (free of Cr-VI)

*More details for the distributor accessories like input/output fitting, closure plug and pressure sensor please check the following pages from x to x in this catalogue.*



# Automatic Lubrication System - Accessories



**Hoses and Fittings**

**Fixing Parts – Clamps**

**Pressure Gauges/Refill Couplings**

**Pump Elements**

**Safety Valves**

**Brackets for Pumps and Metering Units**

**Other Accessories for Metering Units**

## Accessories – Hoses and Fittings

### Hose for Grease (High Pressure Resin)

Ordering Codes	Description	D (mm)	D1 (mm)	With/Without Grease	Max. Length per Bunch (m)	Min. Length per Order (m)
/	HHPR08F	8,6	4,0	Filled with Grease NLGI 2.	50	20
3020300080	HHPR08E	8,6	4,0	Empty	50	20
/	HHPR10F	10	6,5	Filled with Grease NLGI 2.	50	20
3020300100	HHPR10E	10	6,5	Empty	50	20
/	HHPR14F	14.3	7.9	Filled with Grease NLGI 2.	50	20
3020300120	HHPR14E	14.3	7.9	Empty	50	20



### Hose for Oil/Fluid Grease (Nylon, No Oil/Grease prefilled)

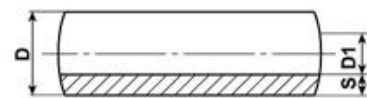
Ordering Codes	Description	D (mm)	S (mm)	Color	Max. Length per Bunch (m)	Min. Length per Order (m)
3020300290	HNL04W	4	0.75	White	100	20
3020300300	HNL04R	4	0.75	Red	100	20
3020300310	HNL04Y	4	0.75	Yellow	100	20
5050000089	HNL06B	6	1.5	Black	100	20
3020300440	HNL06B	10	1.5	Black	100	20



*For ordering code 5050000089, 3020300440 can be used with grease NLGI 2 as secondary hose from distributor outlets to grease points as well.*

### Hose for Grease (Steel)

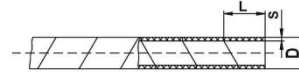
Ordering Codes	Description	D (mm)	S (mm)	With/Without Grease	Max. Length per Bunch (m)	Min. Length per Order (m)
/	HS10F	10	1	Filled with Grease NLGI 2.	5	2
3070200030	HS10E	10	1	Empty	5	2
/	HS06F	6	1	Filled with Grease NLGI 2.	5	2
3070200190	HS06E	6	1	Empty	5	2



## Accessories – Hoses and Fittings

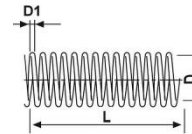
### Protective Spiral Hose for Grease (Plastic)

Ordering Codes	Description	D (mm)	S (mm)	L (mm)	Color	Max. Length per Bunch (m)	Min. Length per Order (m)
3020300170	HPA11	11	1.5	10	Black	50	20
3020300190	HPA06	6	1.5	10	Black	50	20



### Protective Spiral Hose for Grease (Metal)

Ordering Codes	Description	D (mm)	D1 (mm)	Material	Max. Length per Bunch (m)	Min. Length per Order (m)
/	HPB13	13	1.5	Stainless Steel	25	20
5050000339	HPB10	10.6	1.2	Stainless Steel	25	20



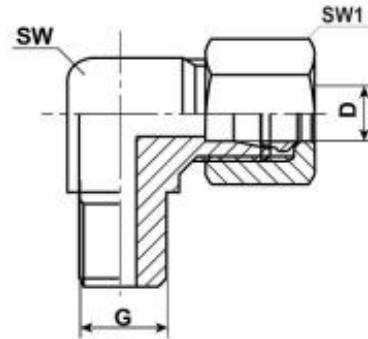
### Protective Spiral Hose for Oil/Fluid Grease (Plastic)

Ordering Codes	Description	D (mm)	S (mm)	Material	Color	Max. Length per Bunch (m)	Min. Length per Order (m)
3020300370	HPC10	10	1.8	PA	Black	50	20
3020300820	HPC12	12	1.8	PA	Black	50	20
3020300250	HPC16	16	1.8	PA	Black	50	20



## Accessories - Hoses and Fittings

### Elbow Screw Fittings for Greasing Points



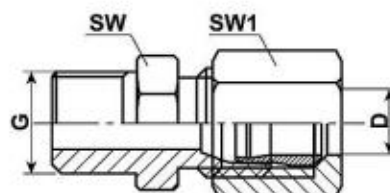
Ordering Codes	Description	Pressure	D	G	SW	SW1	Material	Surface Treatment
3050100600	F1-ESF06-R8	LL	6	R 1/8	11	11	Steel	Zn-Ni galvanized
3050100590	F1-ESF06-N8	LL	6	NPT 1/8	11	11	Steel	Zn-Ni galvanized
5000000100	F1-ESF06-M8	LL	6	M8*1	11	11	Steel	Zn-Ni galvanized
3050100620	F1-ESF06-M10	LL	6	M10*1	12	12	Steel	Zn-Ni galvanized
3050100760	F1-ESF06-M12	L	6	M12*1.5	17	17	Steel	Zn-Ni galvanized
3050100820	F1-ESF06-R4	L	6	R 1/4	14	14	Steel	Zn-Ni galvanized
3050100810	F1-ESF06-N4	L	6	NPT 1/4	14	14	Steel	Zn-Ni galvanized
3050100920	F1-ESF10-N8	L	10	NPT 1/8	14	14	Steel	Zn-Ni galvanized
3050100910	F1-ESF10-M10	L	10	M10*1	14	14	Steel	Zn-Ni galvanized
3050100190	F1-ESF10-M12	L	10	M12*1.5	16	16	Steel	Zn-Ni galvanized
/	F2-ESF06-N8	LL	6	NPT 1/8	11	11	Stainless Steel	Pickled, deactivated, polished
5050000209	F2-ESF06-M8	LL	6	M8*1	11	11	Stainless Steel	Pickled, deactivated, polished
/	F2-ESF06-M10	LL	6	M10*1	12	12	Stainless Steel	Pickled, deactivated, polished
/	F2-ESF06-M12	L	6	M12*1.5	12	12	Stainless Steel	Pickled, deactivated, polished
/	F2-ESF10-N8	L	10	NPT 1/8	14	14	Stainless Steel	Pickled, deactivated, polished
/	F2-ESF10-M12	L	10	M12*1.5	16	16	Stainless Steel	Pickled, deactivated, polished

*For all the surface of the fittings is chrome-VI free.*

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## Accessories - Hoses and Fittings

### Straight Screw Fittings for Greasing Points



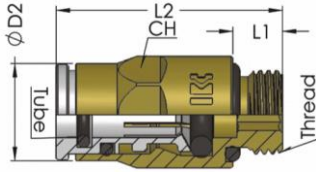
Ordering Codes	Description	Pressure	D	G	SW	SW1	Material	Surface Treatment
3050100670	F1-SSF06-R8	LL	6	R 1/8	12	12	Steel	Zn-Ni galvanized
3050100720	F1-SSF06-N8	LL	6	NPT 1/8	12	12	Steel	Zn-Ni galvanized
3050100690	F1-SSF06-M6	LL	6	M6*1	11	11		
3050100710	F1-SSF06-M8	LL	6	M8*1	11	11	Steel	Zn-Ni galvanized
3050100890	F1-SSF06-M10	LL	6	M10*1	12	12	Steel	Zn-Ni galvanized
3050102290	F1-SSF06-M12	L	6	M12*1	17	17	Steel	Zn-Ni galvanized
3050101050	F1-SSF06-R4	L	6	R 1/4	17	17	Steel	Zn-Ni galvanized
3050101120	F1-SSF06-N4	L	6	NPT 1/4	17	17	Steel	Zn-Ni galvanized
3050102330	F1-SSF10-R8	L	10	R 1/8	17	19	Steel	Zn-Ni galvanized
3050101000	F1-SSF10-N8	L	10	NPT 1/8	17	17	Steel	Zn-Ni galvanized
3050101030	F1-SSF10-M8	L	10	M10*1	17	19	Steel	Zn-Ni galvanized
3050100180	F1-SSF10-M10	L	10	M12*1.5	17	17	Steel	Zn-Ni galvanized
3050100210	F1-SSF10-M12	L	10	M14*1.5	19	19	Steel	Zn-Ni galvanized
5050000183	F1-SSF10-G2	L	10	G 1/2	/	/	Steel	Zn-Ni galvanized
3050102350	F1-SSF10-R2	L	10	R 1/2	/	/	Steel	Zn-Ni galvanized
/	F2-SSF06-R8	LL	6	R 1/8	12	12	Stainless Steel	Pickled, deactivated, polished
3050101620	F2-SSF06-N8	LL	6	NPT 1/8	12	12	Stainless Steel	Pickled, deactivated, polished
3050103980	F2-SSF06-M8	LL	6	M8*1	11	11	Stainless Steel	Pickled, deactivated, polished
2059030220	F2-SSF06-M10	LL	6	M10*1	12	12	Stainless Steel	Pickled, deactivated, polished

*For all the surface of the fittings is chrome-VI free.*

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## Accessories - Hoses and Fittings

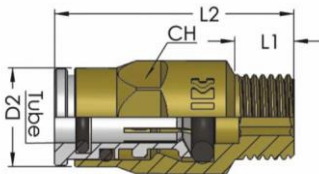
### Straight Quick Connect Fittings for Greasing Points (High Pressure)



Ordering Codes	Description	Thread	Tube	D2	CH	Max. Pressure
/	F-SQCF06-M8HP	M8*1			12	30Mpa
	F-SQCF06-M10HP	M10*1			12	
	F-SQCF06-G8HP	G 1/8	6	11.7	12	
	F-SQCF06-G4HP	G 1/4			12	
	F-SQCF06-M12HP	M12*1			14	

*Can be used for high pressure application like grease NLGI 2.*

### Straight Quick Connect Fittings for Greasing Points (Low Pressure)



Ordering Codes	Description	Thread	Tube	D2	CH	Max. Pressure	With Check Valve
/	F-SQCF06-M10LPCV	M10*1	6	11.7	12	8Mpa	yes
	F-SQCF06-R8LPCV	R 1/8	6	11.7	12		yes
	F-SQCF06-N8LPCV	NPT 1/8	6	11.7	12		yes
	F-SQCF04-M6LP	M6*0.75	4	8.8	10		no
	F-SQCF04-M8LP	M8*1	4	8.8	10		no
	F-SQCF04-M10LP	M10*1	4	8.8	10		no
	F-SQCF04-S4LP	1/4- 28	4	8.8	10		no
	F-SQCF04-N8LP	NPT 1/8	4	8.8	10		no
	F-SQCF06-M6LP	M6*0.75	6	11.7	12		no
	F-SQCF06-M8LP	M8*1	6	11.7	12		no
	F-SQCF06-M10LP	M10*1	6	11.7	12		no
	F-SQCF06-N8LP	NPT 1/8	6	11.7	12		no
	F-SQCF06-R8LP	R 1/8	6	11.7	12		no

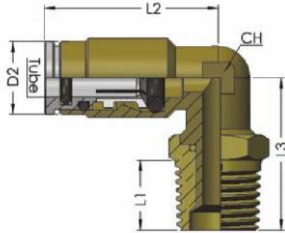
*Can be only used for low pressure application like grease NLGI 0.*





## Accessories - Hoses and Fittings

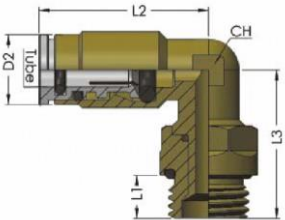
### Elbow Quick Connect Fittings for Greasing Points (High Pressure)



Ordering Codes	Description	Thread	Tube	D2	CH	Max. Pressure
/	F-EQCF06-M8HP	M8*1	6	11.7	10	30Mpa
	F-EQCF06-M10HP	M10*1			10	
	F-EQCF06-G8HP	G 1/8			10	
	F-EQCF06-M12HP	M12*1			10	

*Can be used for high pressure application like grease NLGI 2.*

### Elbow Quick Connect Fittings for Greasing Points (Low Pressure)



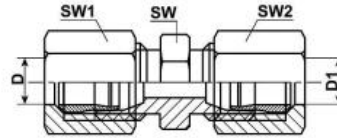
Ordering Codes	Description	Thread	Tube	D2	CH	Max. Pressure	With Check Valve
/	F-EQCF06-M6LPCV	M10*1	4	11.7	9	8Mpa	yes
	F-EQCF06-M8LPCV	R 1/8	4	11.7	9		yes
	F-EQCF06-M10LPCV	NPT 1/8	4	11.7	9		yes
	F-EQCF04-R8LPCV	R 1/8	4	8.8	9		yes
	F-EQCF04-S4LPCV	1/4- 28	4	8.8	9		yes
	F-EQCF04-N8LPCV	NPT 1/8	6	8.8	9		yes
	F-EQCF06-M6LP	M6*0.75	4	8.8	9		no
	F-EQCF06-M8LP	M8*1	4	8.8	9		no
	F-EQCF06-M10LP	M10*1	4	8.8	9		no
	F-EQCF06-R8LP	R 1/8	4	11.7	10		no
	F-EQCF06-M8LP	M8*1	6	11.7	10		no
	F-EQCF06-M10LP	M10*1	6	11.7	10		no
	F-EQCF06-R4LP	R 1/4	6	11.7	10		no

*Can be only used for low pressure application like grease NLGI 0.*



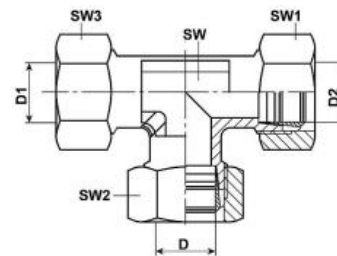
## Accessories - Hoses and Fittings

### Straight Connector



Ordering Codes	Description	Pressure	D	D1	SW	SW1	SW2	Material	Surface Treatment
3050100980	F1-SC06-10	L	6	10	17	12	19	Steel	Zn-Ni galvanized
3050100800	F1-SC06-06	L	6	6	12	12	12	Steel	Zn-Ni galvanized
3050100680	F1-SC10-10	L	10	10	17	19	19	Steel	Zn-Ni galvanized
/	F2-SC06-10	L	6	10	17	12	19	Stainless Steel	Pickled, deactivated, polished
3050104000	F2-SC06-06	L	6	6	12	12	12	Stainless Steel	Pickled, deactivated, polished
3050102810	F2-SC10-10	L	10	10	17	19	19	Stainless Steel	Pickled, deactivated, polished

### Tee Connector



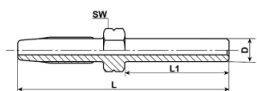
Ordering Codes	Description	Pressure	D=D1=D2	SW	SW1=SW2=SW3	Material	Surface Treatment
3050101160	F1-TC06	L	6	12	14	Steel	Zn-Ni galvanized
3050100770	F1-TC10	L	10	14	19	Steel	Zn-Ni galvanized
3050103440	F2-TC06	L	6	12	14	Stainless Steel	Pickled, deactivated, polished
3050101470	F2-TC10	L	10	14	19	Stainless Steel	Pickled, deactivated, polished

*For all the surface of the fittings is chrome-VI free.*

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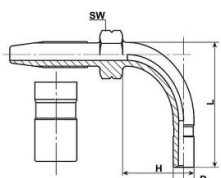
## Accessories - Hoses and Fittings

### Hose Stud Straight (A Type)



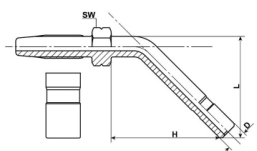
Ordering Codes	Description	Codes in Series	D	L	SW	Material	Surface Treatment
3050101541	<b>F1-HSA5006</b>	AA	6	50	10	Steel	Zn-Ni galvanized
3050101551	<b>F1-HSA6006</b>	AB	6	60	10	Steel	Zn-Ni galvanized
2059020031	<b>F1-HSA7510</b>	AC	10	75	19	Steel	Zn-Ni galvanized
3050102211	<b>F2-HSA5006</b>	AD	6	50	10	Stainless Steel	Pickled, deactivated, polished
3050102220	<b>F2-HSA6006</b>	AE	6	60	10	Stainless Steel	Pickled, deactivated, polished
3050100022	<b>F2-HSA7510</b>	AF	10	75	19	Stainless Steel	Pickled, deactivated, polished

### Hose Stud 90 (B Type)



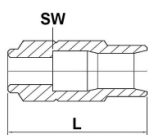
Ordering Codes	Description	Codes in Series	D	L	SW	Material	Surface Treatment
3050101341	<b>F1-HSB2206</b>	BA	6	22	10	Steel	Zn-Ni galvanized
3050101371	<b>F1-HSB3506</b>	BB	6	35	10	Steel	Zn-Ni galvanized
3050103150	<b>F1-HSB4906</b>	BC	6	49	10	Steel	Zn-Ni galvanized
2059020041	<b>F1-HSB3510</b>	BD	10	35	19	Steel	Zn-Ni galvanized
3050103650	<b>F2-HSB2206</b>	BE	6	22	10	Stainless Steel	Pickled, deactivated, polished
3050101381	<b>F2-HSB3506</b>	BF	6	35	10	Stainless Steel	Pickled, deactivated, polished
3050103580	<b>F2-HSB3510</b>	BH	10	35	19	Stainless Steel	Pickled, deactivated, polished

### Hose Stud 45 (C Type)



Ordering Codes	Description	Codes in Series	D	H	SW	Material	Surface Treatment
3050101331	<b>F1-HSC2406</b>	CA	6	35	10	Steel	Zn-Ni galvanized
2059020250	<b>F1-HSC3510</b>	CB	10	54	19	Steel	Zn-Ni galvanized
/	<b>F2-HSC2406</b>	CC	6	35	10	Stainless Steel	Pickled, deactivated, polished
/	<b>F2-HSC3510</b>	CD	10	54	19	Stainless Steel	Pickled, deactivated, polished

### Screw Sleeve



Ordering Codes	Description	D	L	SW	Material	Surface Treatment
3050101941	<b>F1-SS2806</b>	6	28	12	Steel	Zn-Ni galvanized
3050101231	<b>F1-SS4010</b>	10	40	19	Steel	Zn-Ni galvanized
/	<b>F2-SS2806</b>	6	28	12	Stainless Steel	Pickled, deactivated, polished
/	<b>F2-SS4010</b>	10	40	19	Stainless Steel	Pickled, deactivated, polished

*For all the surface of the fittings is chrome-VI free.*

## Accessories - Hoses and Fittings

### Hose and Fittings for Grease (High Pressure)

#### Identification Code

H   x   -   xxxx   -   xx/xx   -   x   -   x  

#### Hose Type

A= Resin outside  $\varnothing$  8.6 mm    B= Resin outside  $\varnothing$  14.3 mm  
C= Steel outside  $\varnothing$  8.6 mm

#### Hose Length

=order length in mm

#### Threaded Joint

=Fitting 1/Fitting 2, Page XX, the Codes in Series of the table –  
Hose Stud Straight/90/45

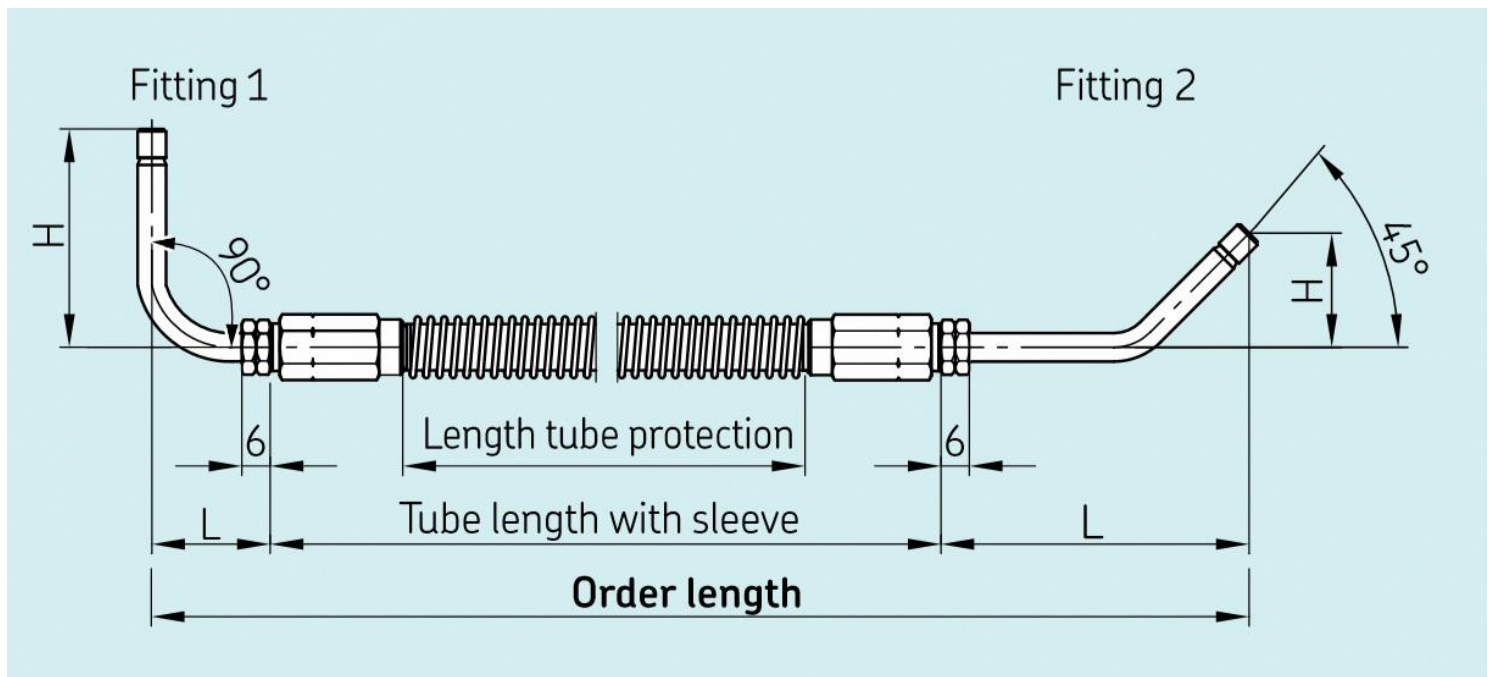
#### Prefilling

D=Un-prefilled                      E=Prefilled with default NGLI 0  
F=Prefilled with default NGLI 1    G=Prefilled with default NGLI 2  
H=Prefilled with Customized Lubricant

#### Hose Protection

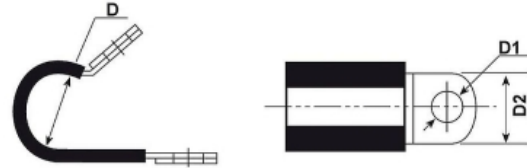
=Page XX, the Description of the table – Protective Spiral  
Hose Plastic (Grease)/Metal

**For Ex. HA-3450-AC/BD-D-HPA11**



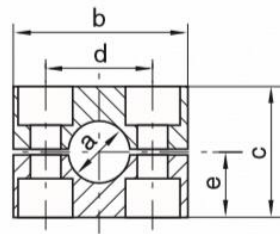
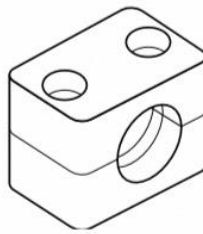
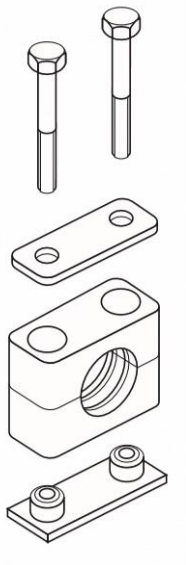
## Accessories – Fixing Parts

### Universal Hose Clamps - A



Ordering Codes	Description	D	D1	Material	Surface Treatment
3049000230	FP-UHCA10	10	6	Metal/Rubber	/
3049000280	FP-UHCA15	15	6	Metal/Rubber	/
3049000320	FP-UHCA18	18	6	Metal/Rubber	/
3049000350	FP-UHCA22	22	6	Metal/Rubber	/

### Clamps for Single Series



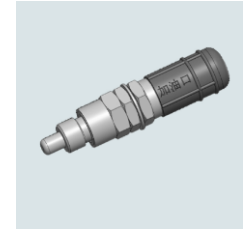
Ordering Codes	Description	a	b	c	d	e	For Hose/Tube (Description by Page XX for Hose High Pressure Resin/Nylon/Steel)	Reference Order Code of Parker
5050000325	FP-CSS06	6	34	27	20	13.5	HS06	RAP3-106
/	FP-CSS08	8	34	27	20	13.5	HHPR08	RAP3-108
/	FP-CSS09	9.5	34	27	20	13.5	HHPR10	RAP3-109.5
5050000569	FP-CSS10	10	34	27	20	13.5	HS10	RAP3-110
/	FP-CSS13	13.5	40	33	26	16.5	HHPR14	RAP3-213.5

*For all the surface of the fittings is chrome-VI free.*

## Accessories – Refilling Couplings/Pressure Gauges

### Straight Refilling Coupling

Ordering Code	Description	For Pump Serie	Feature
2011220670	RC-S-PP	Progressive Pump	Detachable filter, Zink-Nickel surface treatment Straight



### Elbow Refilling Coupling

Ordering Code	Description	For Pump Serie	Feature
2011022120	RC-90-PP	Progressive Pump	Detachable filter, Zink-Nickel surface treatment
2011021460	RC-90-DP	Dual Line Pump	rotatable



### Coupling Socket for Refilling Device Connection

Ordering Code	Description	For Pump Serie	Feature
/	CS-RDC	Progressive/Dual Line/Single Line/Pressurized Single Line Pump	Connect with Electrical Grease Refilling Device (see page xx)



### Transfer Coupling for Manual Greasing Gun (spec. design for ALS)

Ordering Code	Description	For Pump Serie	Feature
/	TC-MGG20	Progressive/Dual Line/Single Line/Pressurized Single Line Pump	Adapter for M20 based on M22
/	TC-MGG22		M22



### Pressure Gauge



Measured pressure values are shown with high precision on display. Pressure peaks are securely captured at a scanning rate of 10 Ms.

Visible pressure measurement and display

Accuracy  $\pm 0,5\%$  FS

Pressure peaks captured by displaying MIN 0 MPa/MAX 40 MPa reading

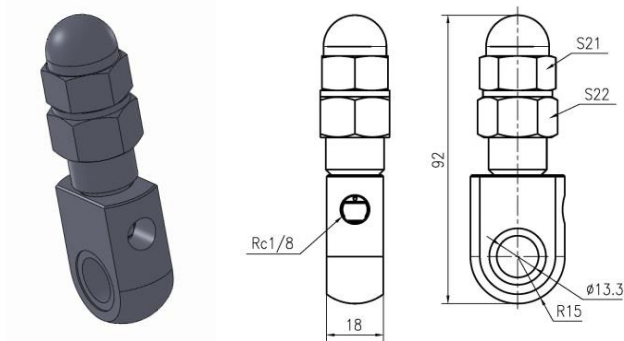
Ordering Code	Description	For Pump Serie	Feature
/	RC-S-PP	Progressive Pump	Detachable filter, Zink-Nickel surface treatment Straight

*For all the surface of the fittings is chrome-VI free.*



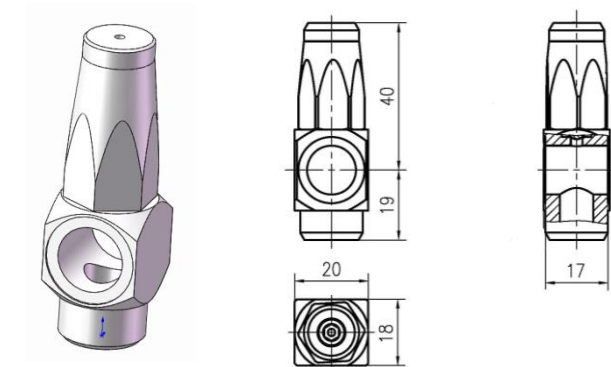
## Accessories – Safety Valves/Pump Element

### Safety Valve Type A



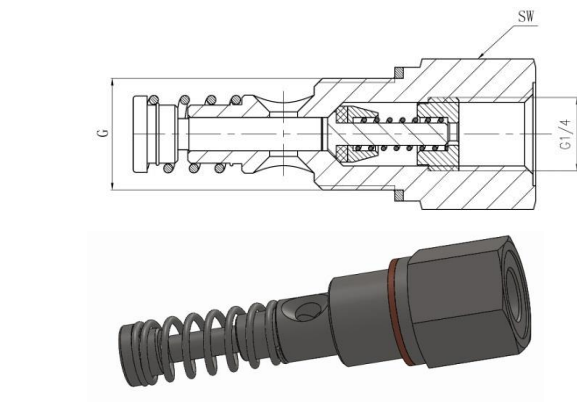
Ordering Codes	Description	For Pump Series
2011202530	<b>SV-A</b> (With Grease backflow/ 1 way)	Elite Pump Serie (LEP) Medium Pump Series (Robust/Infinite)
2011020540	<b>SV-A</b> (With Grease backflow/ 2 ways)	Elite Pump Serie (LEP) Medium Pump Series (Robust/Infinite)

### Safety Valve Type B



Ordering Codes	Description	For Pump Series
2011220530	<b>SV-B</b> (No Grease backflow)	Elite Pump Serie (LEP) Medium Pump Series (Robust/Infinite) Big Pump Series (Robust/Infinite)

### Pump Element

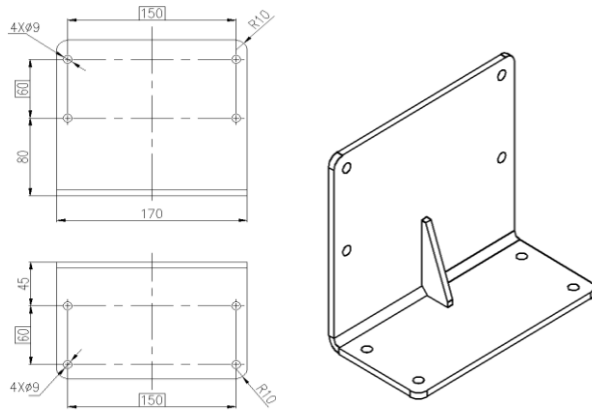


Ordering Codes	Description	Discharge Volume (ml/Min)	For Pump Series
2011020470	<b>PE-A15</b>	1.5	Elite Pump Serie (LEP) Medium Pump Series (Robust/Infinite)
2011020490	<b>PE-A25</b>	2.5	
2011020510	<b>PE-A45</b>	4.5	
2011021730	<b>PE-B15</b>	1.5	Big Pump Series (Robust/Infinite)
2011220450	<b>PE-B25</b>	2.5	
2011021690	<b>PE-B45</b>	4.5	
/	<b>PE-B65</b>	6.5	

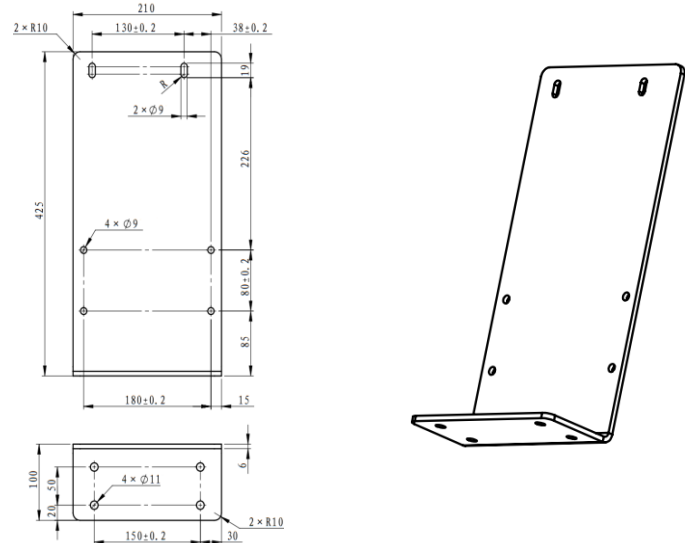
*For all the surface of the fittings is chrome-  
VI free.*

## Accessories – Brackets for Pumps and Meterings

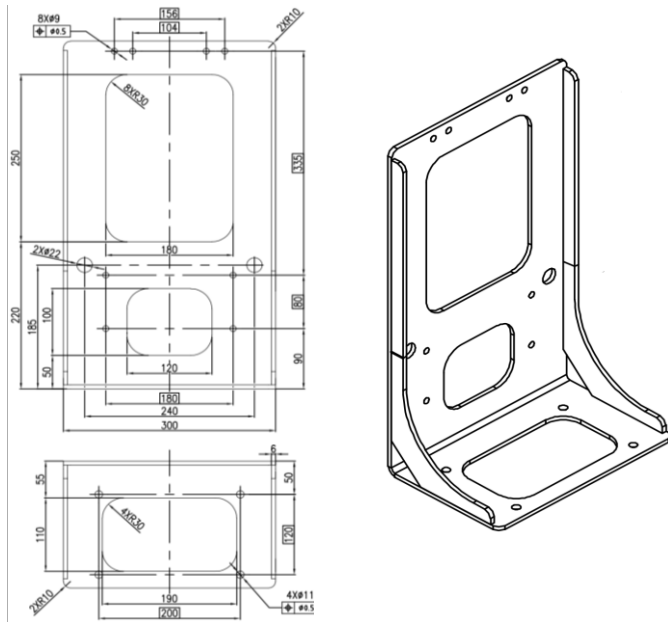
### Bracket for Pumps - Type A



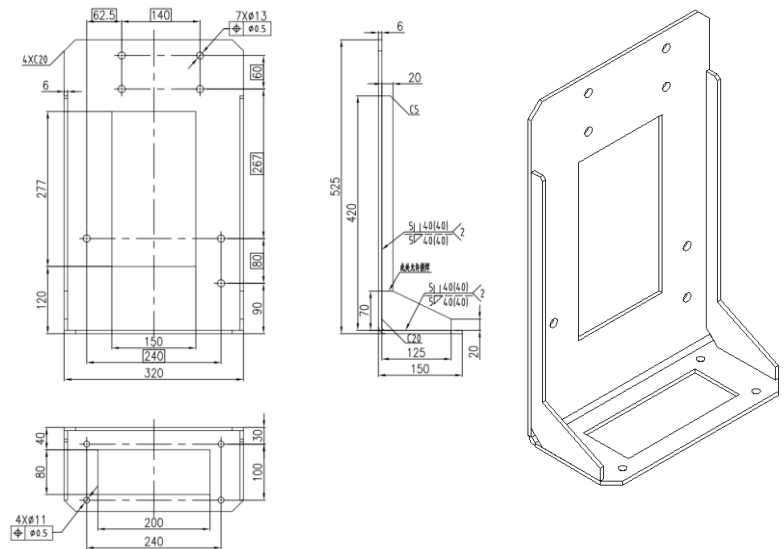
### Bracket for Pumps - Type B



### Bracket for Pumps - Type C



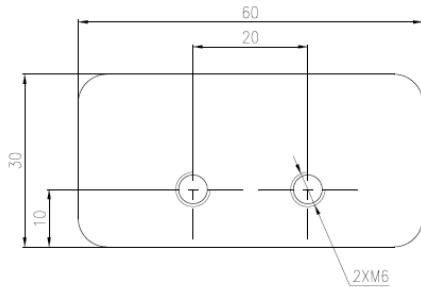
### Bracket for Pumps - Type D



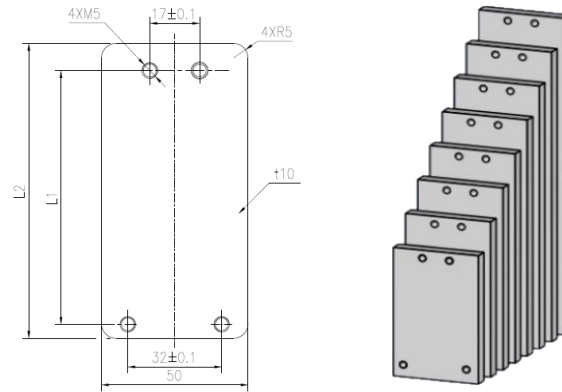
Ordering Codes	Description	Color	For Pump Type	Material
3010102600	BPM-PA	Black	Elite Pump Serie (LEP)	Q345B
5050000498	BPM-PB		Medium Pump Series (Robust/Infinite)	
3010102590	BPM-PC		Big Pump Series (Robust/Infinite 4L)	
3010103110	BPM-PD		Big Pump Series (Robust/Infinite 8-20L)	

## Accessories – Brackets for Pumps and Meterings

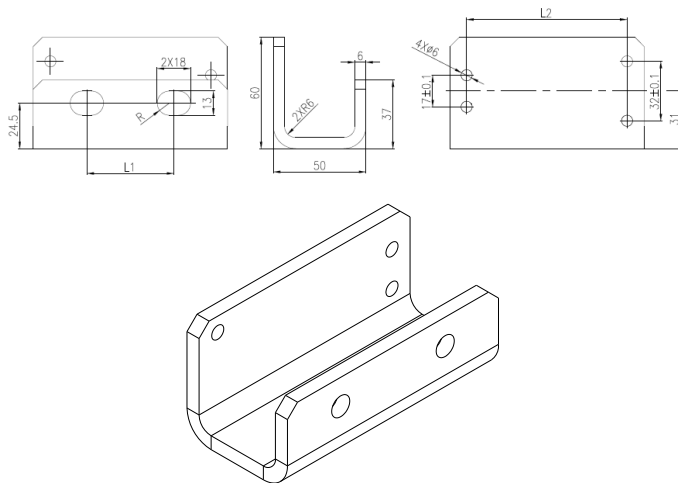
### Bracket for Meterings – SSV/SSVA



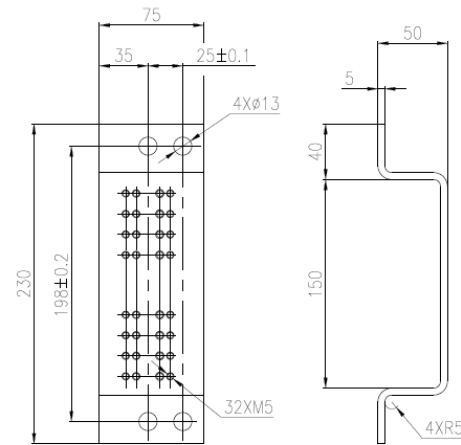
### Bracket for Meterings – VPKA/VPKB – Type A



### Bracket for Meterings – VPKA/VPKB– Type B



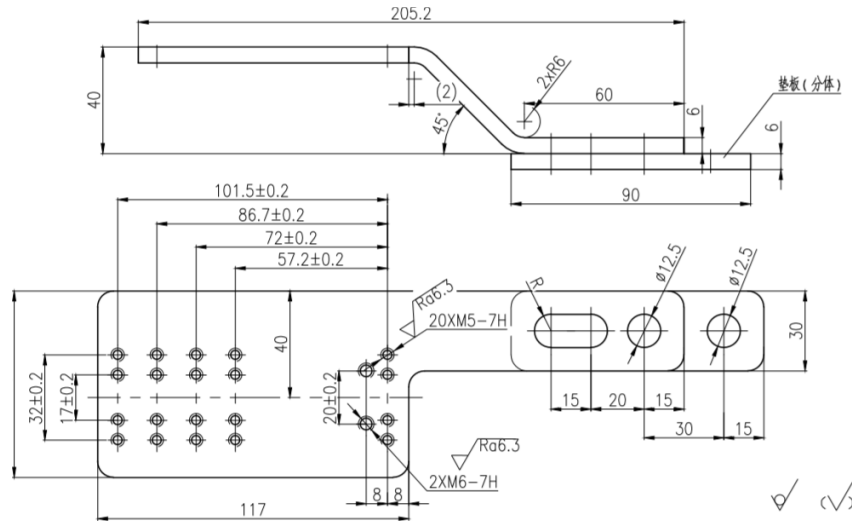
### Bracket for Meterings – VPKA/VPKB– Type C



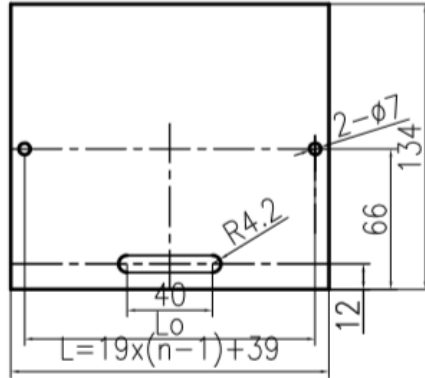
Ordering Codes	Description	Color	L1	L2	For Meterings Type	Material
3010100870	BPM-SSV	Black	30	60	SSV/SSVA	Q345B
3010402660	BPM-VPK3		57	71	VPKA/VPKB-6outlets	
3010402670	BPM-VPK4		72	86	VPKA/VPKB-8outlets	
3010402680	BPM-VPK5		87	100	VPKA/VPKB-10outlets	
3010402690	BPM-VPK6		102	115	VPKA/VPKB-12outlets	
3010402700	BPM-VPK7		116	130	VPKA/VPKB-14outlets	
3010402710	BPM-VPK8		131	145	VPKA/VPKB-16outlets	
3010102831	BPM-VPKB		87	47	VPKA/VPKB General	
3010102621	BPM-VPKC		230	75	VPKA/VPKB General	

## Accessories – Brackets for Pumps and Meterings

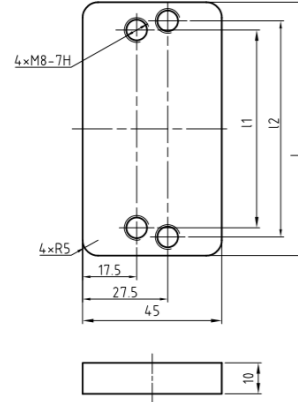
### Bracket for Meterings – SSV/SSVA/SSVD/VPKA/VPKB - Type D



### Bracket for Meterings – LRK-SLA



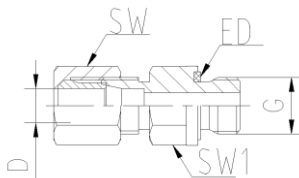
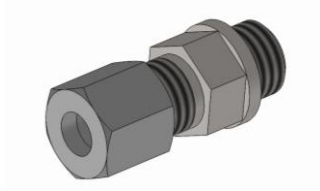
### Bracket for Meterings – LI-DLA



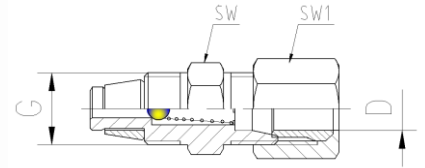
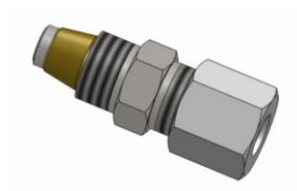
Ordering Codes	Description	Color	L1	L2	For Meterings Type	Material
BPM-PBG			227	32	SSV/SSVA/SSVD - 6-14 outlets general VPKA/VPKB - 6/8/10/12 outlets general	Q345B
BPM-LRKA04		Black	96	83	LRK-SLA-4 outlets	
BPM-LRKA06			134	121	LRK-SLA-4 outlets	
BPM-LRKA08			172	159	LRK-SLA-4 outlets	
BPM-LRKA10			210	197	LRK-SLA-4 outlets	
BPM-LRKA12			248	235	LRK-SLA-4 outlets	
BPM-LRKA14			286	273	LRK-SLA-4 outlets	
BPM-LRKA16			324	311	LRK-SLA-4 outlets	
BPM-LRKA18			362	349	LRK-SLA-4 outlets	
BPM-LRKA20			400	387	LRK-SLA-4 outlets	
BPM-DLA			45	10	LI-DLA general	

## Accessories for Progressive Metering Units

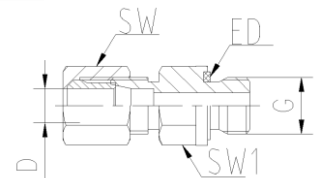
### Inlet Fitting – Type A



### Outlet Fitting – Type A



### Outlet Fitting – Type B



Ordering Codes	Description	Color	D	G	SW	SW1	Pressure	For Meterings Type	Material
3050102101	PMU-IF-A	Grey	6	M10*1	12	12	L	SSV/SSVA/VPKA/VPKB	Steel
3050100670	PMU-OF-A		6	M10*1	11	12	L	SSV/SSVA	Steel
2020430321	PMU-OF-B		6	M10*1	12	12	L	VPKA/VPKB	Steel

### Closure Plug

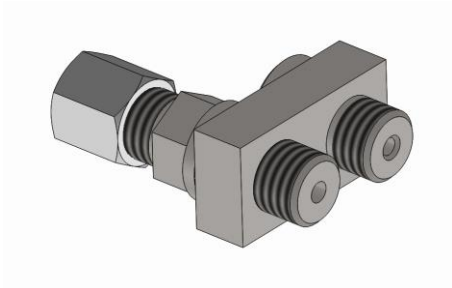


Ordering Codes	Description	Color	D	G	For Meterings Type	Material
3010401940	PMU-CP	Grey	14	M10*1	SSV/SSVA VPKA/VPKB	Steel

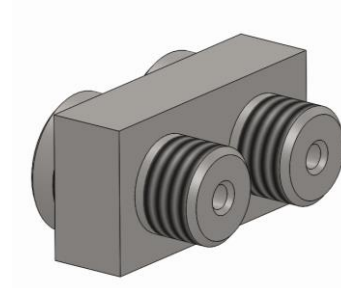
*More details for pressure sensor please check the following pages.*

## Accessories for Progressive Metering Units

### Outlet 2 to 1 External Connector

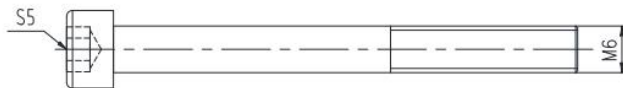


### Outlet 2 to 0 External Connector



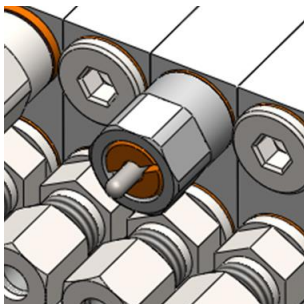
Ordering Codes	Description	Color	D	G	For Meterings Type	Material
/	PMU-VPKO21	Grey	6	M10*1	VPKA/VPKB	Steel
/	PMU-VPKO20		-	M10*1	VPKA/VPKB	Steel

### Screw Bolt for VPKA/VPKB



Ordering Codes	Description	D	L	For Meterings Type
3040103160	PMU-VPK3SB	M6	50	VPKA/VPKB 6 Outlets
3040103170	PMU-VPK4SB		65	VPKA/VPKB 8 Outlets
3040103180	PMU-VPK5SB		80	VPKA/VPKB 10 Outlets
3040103190	PMU-VPK6SB		95	VPKA/VPKB 12 Outlets
3040102940	PMU-VPK7SB		110	VPKA/VPKB 14 Outlets
3040102950	PMU-VPK8SB		125	VPKA/VPKB 16 Outlets

### Indicator Rod

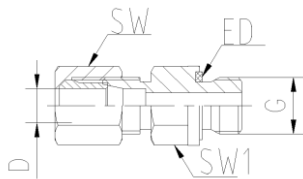
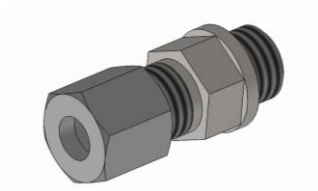


Ordering Codes	Description	For Meterings Type
/	PMU-IR	SSV/SSVA/VPKA/VPKB

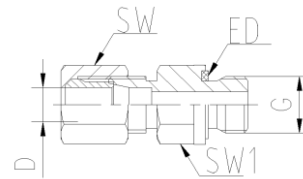
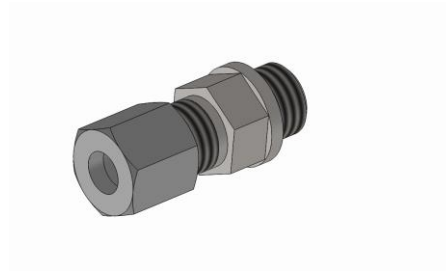


## Accessories for Dual Line Metering Units

### Inlet Fitting

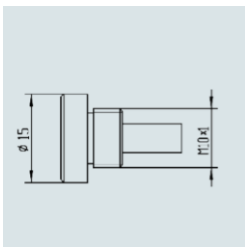


### Outlet Fitting



Ordering Codes	Description	Color	D	G	SW	SW1	Pressure	For Meterings Type	Material
3050100180	DMUIF-A	Grey	10	M10*1	19	17	L	DI-DLA	Steel
3050103070	DMUOF-A		6	M10*1	12	12	LL	DI-DLA	Steel

### Closure Plug (Metering Adjustment Screws)

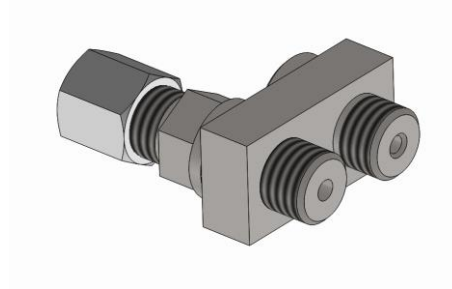


Ordering Codes	Description	Output (ml)	Color	D	G	For Metering's Type	Material
3100402570	DMU-MAS01	0.1	Grey	15	M10*1	DI-DLA	Steel
3100402770	DMU-MAS02	0.2					
3100402780	DMU-MAS04	0.4					
3100402790	DMU-MAS06	0.6					
3100402810	DMU-MAS08	0.8					
3100402760	DMU-MAS10	1.0					

*More details for pressure sensor please check the following pages.*

## Accessories for Dual Line Metering Units

### Outlet 2 to 1 External Connector



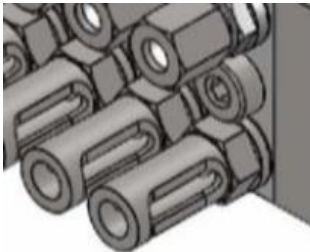
Ordering Codes	Description	Color	D	G	For Meterings Type	Material
/	DMU-DLO21	Grey	6	M10*1	LI-DLA	Steel

### Screw Bolt for LI-DLA



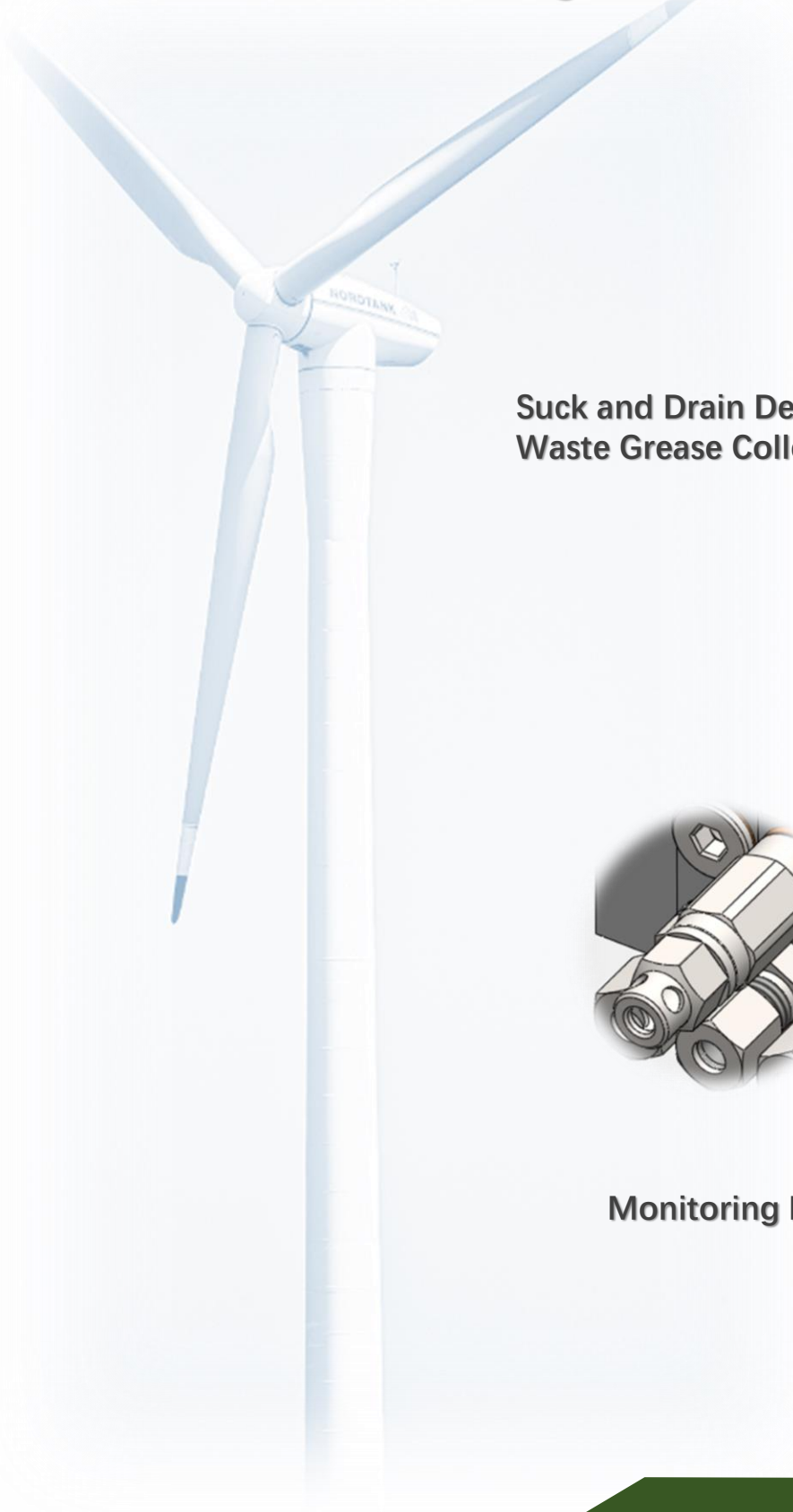
Ordering Codes	Description	For Metering's Type	Length (mm)	Ordering Codes	Description	For Metering's Type	Length (mm)
5050000256	DMU-DLA01-NP	DI-DLB without Pressure Sensor	40	3040102140	DMU-DLA01-WP	DI-DLB with Pressure Sensor	45
5000000483	DMU-DLA02-NP		50	3040103170	DMU-DLA02-WP		65
3040103070	DMU-DLA03-NP		70	3040103180	DMU-DLA03-WP		80
3040103080	DMU-DLA04-NP		85	3040103190	DMU-DLA04-WP		95
3040103090	DMU-DLA05-NP		100	3040102940	DMU-DLA05-WP		110
3040103100	DMU-DLA06-NP		120	3040102950	DMU-DLA06-WP		125
3040103110	DMU-DLA07-NP		135	3040103110	DMU-DLA07-WP		140

### Indicator Rod



Ordering Codes	Description	For Meterings Type
/	DMU-IR	LI-DLA

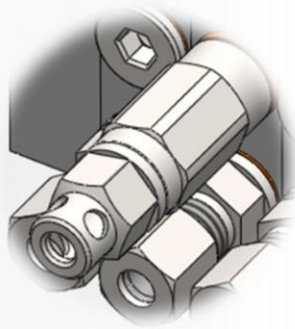
# Sensors & Monitoring Devices



**Suck and Drain Device for  
Waste Grease Collection System**



**Sensors**

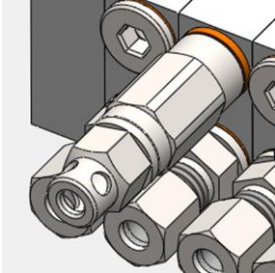


**Monitoring Device**



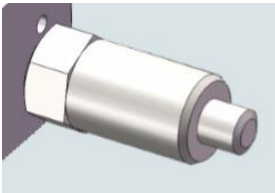
## Overview of Sensor for Grease System

### Hall Sensor (Pressure Sensor for Progressive System)



Ordering Codes	Description	For Metering's Type
2020420030	SGS-HS-PNPC	SSV/SSVA/SSVD/VPKA/VPKB
2020420040	SGS-HS-NPNC	
2020420010	SGS-HS-PNPE	
2020420020	SGS-HS-NPNE	

### Pressure Sensor for Dual Line/Single Line System



Ordering Codes	Description	For Metering's Type
2020620040	SGS-PS	LI-DLA/DLB LR-SLA

### Other Sensors for Grease System

	Ordering Codes	Description	For Pump Type
Temperature Sensor	/	SGS-TS	Progressive Pump, Single Line
Grease Level Sensor	/	SGS-GLS	Pump, Dual Line Pump

## Overview of Sensor for Fluid Grease/Oil System

	Ordering Codes	Description	For Metering's Type	For Pump Type
Temperature Sensor	/	SFGOS-TS	-	Pressurized Single Line Pump
Grease Level Sensor	/	SFGOS-GLS	-	
Pressure Sensor	/	SFGOS-PS	LRK0-SLA	-

## Overview of Monitoring Devices

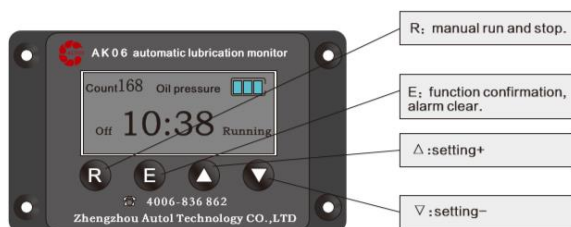
### Integrated Monitoring Device



### External Monitoring Device



	Ordering Codes	Description	For Pump Type
Integrated Monitoring Device	/	IMD-06	Progressive Pump, Single Line Pump, Dual Line Pump
External Monitoring Device	/	EMD-04	Progressive Pump, Single Line Pump, Pressurized Single Line Pump, Dual Line Pump



#### Important information:

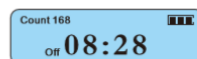
Press and hold both "Δ" and "▽" for 4s and above and press the "E" to enter into the mode of setting. It is automatically locked after exiting the mode of setting. Press briefly the "E" to enter into the setting interface and press briefly in turn the "E" to select the setting items "1P, 2P, 3P and 4P". Confirmed.

- 1P: Press briefly the "Δ" or "▽" to set the off time (1 to 30 h, customizable);
  - 2P: Set the number of pulses to be detected (0 to 99 min, customizable);
  - 3P: Press briefly the "Δ" or "▽" to set the operation time (1 to 60 min, customizable);
  - 4P: Press briefly the "Δ" or "▽" to set the low-temperature standby temperature (-50°C to 0°C);
- Briefly press the "E" to confirm entering into the "OFF" state.

#### Special Attention!

This monitor is designed with function against misoperation:

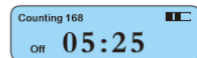
#### 1 Off status



#### 3 Oil quantity pulse detected during operation



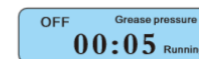
#### 5 Low level early warning status



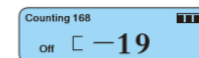
#### 7 Alarm due to lack of grease (Alarm sends and the machine will be shut down after 6 consecutive operations, the alarm will be automatically acknowledged after the tank is fully filled)



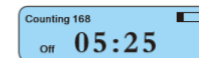
#### 2 Oil quantity pulse not detected during operation



#### 4 Low-temperature standby



#### 6 Low level early warning status



#### 8 Alarm due to insufficient filling (It has no influence on system operation. Fault will be automatically cleared at the time of next normal operation)





# Grease Gun/Grease Refilling Devices



*Manual Greasing Guns*

*Electrical Greasing Guns*

*Pneumatic Greasing Guns*

*Manual Greasing Pumps*

*Electrical Greasing Pumps*

*Pneumatic Greasing Pumps*



## Overview of Grease Gun

Types of Grease Guns (For Greasing points lubrication) Grease guns have three ways in which they can be powered: by hand, air or electricity. Aside from these variations, the handpowered (or manual) grease guns can either be manufactured with a lever or a pistol grip. The benefits to each of these depend primarily on the intended application and the lubrication technician's personal preference. One other major variation to the grease gun is how the grease is to be loaded: by suction fill, cartridge or bulk.



**Manual (Lever) – AMG1000** This is the most common type of grease gun and can supply around 1.28 grams of grease per pump, which is forced through an aperture from hand pumps.



**Manual (Pistol Grip) – AMG2000** This variation of the lever-type grease gun allows for the one-handed pumping method, which is very common. It provides approximately 0.86 grams per pump.



**Pneumatic (Pistol Grip) – APG1000/APG2000** This grease gun uses compressed air directed into the gun by a hose activating a positive displacement with each trigger.



**Battery (Pistol Grip 12/18/24V) – AEG1012/AEG1018/AEG1024** This is a low-voltage, battery-powered grease gun that works comparably to the pneumatic grease gun. It offers the advantage of being cordless.



### New Product

**Manual (Lever) – AMG3000** This is a specially developed Grease Gun for centralized lubrication pump grease refilling. 1-liter Reservoir can be filled in just 2 minutes using the commonly available 500 ml cartridge twice.

It's fundamental that grease is used as a lubricant because it clings to a machine's moving surfaces without easily leaking away like oil. For this reason, the filling and refilling of grease in grease-lubricated machines must be treated differently than that of oil-lubricated machines. Therefore, it is essential that the proper grease gun operation is understood and managed by lubrication technicians for bearing and machine reliability. Simply knowing the signs of overgreasing and undergreasing and how often to reapply can go a long way in extending machinery life.

Grease fittings have several names such as a Zerk fitting, grease nipple or Alemite fitting. This is the lubrication point where the grease connector is attached. The standard hydraulic grease fitting is most commonly used for standard applications. It can be either upright or angled. The button-head fitting is ideal for good coupler engagement when large volumes of grease are being added. A flush-type grease fitting is preferred when space is limited for standard protruding fittings, while the pressure-relief vent fitting helps prevent higher pressures that could lead to damaged seals.

## Overview of Grease Refilling Device



Pneumatic Greasing	Electrical Greasing 12/24/220V	Manual Greasing	Electrical Greasing 12/24V
APP1000	AEP1012/1024/1220T	AMP1000	AEP1012/1024B
High pressure greasing pump is suitable for working environment with gas source.	High pressure greasing pump is suitable for factory or mine environment with 220V power supply.	Manual greasing pump is suitable for environment without gas source or power supply.	High pressure greasing pump is suitable for environment with 12/24V power supply for ex. on mobile device.
<b>Specification:</b>			
Max Pressure: 300-400bar Max Discharge Rate: 0,85L/Min Volume of Reservoir: 12 L Net Weight: 15 Kg	Max Pressure: 400bar Specified Power: 600W Max Discharge Rate: 0,350L/Min Volume of Reservoir: 18 L Motor Position: Top	Max Pressure: 200-250bar Max Discharge Rate: 0,005L/Stroke Volume of Reservoir: 12 L Net Weight: 13,5 Kg	Max Pressure: 400bar Specified Power: 600W Max Discharge Rate: 0,350L/Min Volume of Reservoir: 18 L Motor Position: Bottom
<b>Application:</b>			
Construction, Agriculture, Marine, Food, etc.	Construction, Mining, Metal Industry, Food, etc. Manual	Construction, Agriculture, Mining, Cosmetician Production, etc.	Construction, Agriculture, Wind Turbine, etc.

## Coupling Socket for Refilling Device Connection

Ordering Code	Description	For Pump Serie	Feature
/	CS-RDC	Progressive/Dual Line/Single Line/Pressurized Single Line Pump	Connect with Electrical Grease Refilling Device <i>(see page xx)</i>



## Transfer Coupling for Manual Grease Gun (AMG3000)

Ordering Code	Description	For Pump Serie	Feature
/	TC-MGG20	Progressive/Dual Line/Single Line/ Pressurized Single Line Pump	Adapter for M20 based on M22
/	TC-MGG22		M22



*All greasing pumps has be equiped with a multi functional greasing nipple not only for the greasing pump of AUTOL, but also for other brands and nipples of greasing points as well.*

## Specification for Greasing Device

### Greasing Device Portable

Product Model (Ordering Codes)	Working Principle	Grease	Operating Pressure Max.	Discharge Max.		Reservoir	Attached Accessories
		NLGI	Mpa	ml/Min	ml/Stroke	cc	
AMG1000	Manual	Up to 2	10		2	500	Nipple, Hose
AMG2000	Manual		10		2	500	Nipple, Hose
AMG3000	Manual		10		500 (only for CLS pump)	500	Nipple, Hose
APG1000	Pneumatic		6-8	70		600	Nipple, Hose
APG2000	Pneumatic		6-8	70		400	Nipple, Hose, one rechargeable cartridge
AEG1012	Electrical		45	60		500	Nipple, Hose, Battery
AEG1018	Electrical		57.5	70		500	Nipple, Hose, Battery
AEG1024	Electrical		70	80		500	Nipple, Hose, Battery

### Greasing Device (Pump)

Product Model (Ordering Codes)	Working Principle	Grease	Operating Pressure Max.	Discharge Max.		Reservoir	Attached Accessories
		NLGI	Mpa	ml/Min	ml/Stroke	L	
AMP1000	Manual	Up to 2	20-25		5	16	Nipple, Hose
AMP2000	Manual		20-25		5	12	Nipple, Hose
APP1000	Pneumatic		30-40	850		12	Nipple, Hose
APP2000	Pneumatic		30-40	850		30	Nipple, Hose
AEP1012T	Electrical 12V		40	350		18	Nipple, Hose
AEP1024T	Electrical 24V		40	350		18	Nipple, Hose
AEP1220T	Electrical 220V		40	350		18	Nipple, Hose
AEP1012B	Electrical 12V		40	350		18	Nipple, Hose
AEP1024B	Electrical 24V		40	350		18	Nipple, Hose

# Application for Construction Machinery



## Excavator Application

### Recommended Discharge Rate for Greasing Points for Excavator

Name of Greasing Point	Number of Greasing Points	Required Discharge (ml/Min)
Root of Boom Cylinder	2-3	0.18
Top of Boom Cylinder	2	0.10
Root of Boom	2	0.18
Rotating Bearing	1-3	0.05
Root of Arm Cylinder	1	0.12
Top of Arm Cylinder	1	0.12
Root of Arm	1	0.18
Root of Bucket Cylinder	1	0.08
Top of Bucket Cylinder	1	0.23
Connector of Bucket-Arm	2	1.80
Connector of Bucket-Arm Cylinder (Top)	2	0.28
Connector of Bucket-Arm Cylinder (Bottom)	2	0.28



### Recommended System Configuration for Excavator

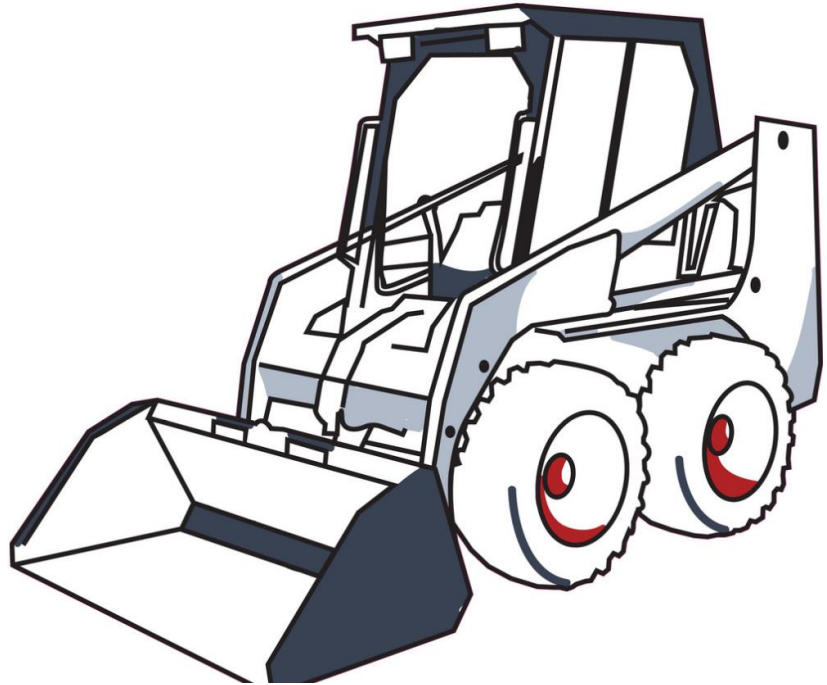
Type of Machine	Ton in KG	No. of Greasing Points	Solutions	Extra Components Recommended
Compact Excavator	From 3,500-6,000	13-17	<b>Compact Solu.:</b> Automatic Electrical Greasing Gun + 2 LR-VPKA Blocks, <b>High Perf.:</b> LEP Serie Pump + 3 LR-VPKA Blocks.	Grease Level Sensor / Indicator Rod
Middle Size Excavator	From 7,000-26,000	17-22	<b>Compact Solu.:</b> LEP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LRMP Serie Pump + 4 LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Large Size Excavator	From 26,000-45,000	19-25	<b>Compact Solu.:</b> LRMP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + 4 Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual Greasing Inlet on Blocks / Manual or Electrical Grease Refilling Device
Huge Size Excavator	Over 45,000	22-28	<b>Compact Solu.:</b> LIMP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + 4 Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual Greasing Inlet on Blocks / Manual or Electrical Grease Refilling Device



## Wheel Loader Application

### Recommended Discharge Rate for Greasing Points for Wheel Loader

Name of Greasing Point	Number of Greasing Points	Required Discharge (ml/Min)
Back Axel	2	0.28
Middle Steering Top	1	0.38
Middle Steering Cylinder Front	2	0.13
Middle Steering Cylinder Back	2	0.18
Middle Steering Mid	2	0.18
Middle Steering Bottom	2	0.38
Root of Boom	2	0.25
Root of Boom Lift Cylinder	2	0.40
Top of Boom Lift Cylinder	2	0.20
Root of Bucket Cylinder	1	0.14
Top of Bucket Cylinder	1	0.18
Connector of Bucket-Bucket Links	1	0.55
Connector of Bucket Links-Bucket Bellcranks	1	1.40
Middle of Bucket Bellcranks	2	0.40
Connector of Bucket-Boom	2	0.28



### Recommended System Configuration for Wheel Loader

Type of Machine	Ton in KG	No. of Greasing Points	Solutions	Extra Components Recommended
Compact Wheel Loader	From 1,500-3,500	19-22	<b>Compact Solu.:</b> Automatic Electrical Greasing Gun + 2 LR-VPKA Blocks, <b>High Perf.:</b> LEP Serie Pump + 3 LR-VPKA Blocks.	Grease Level Sensor / Indicator Rod
Middle Size Wheel Loader	From 3,500-6,000	19-23	<b>Compact Solu.:</b> LEP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LRMP Serie Pump + 4 LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Large Size Wheel Loader	From 6,000-12,000	19-23	<b>Compact Solu.:</b> LRMP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + 4 Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual Greasing Inlet on Blocks / Manual or Electrical Grease Refilling Device
Huge Size Wheel Loader	Over 12,000	19-25	<b>Compact Solu.:</b> LIBP Serie Pump + 4 LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + 4 Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual Greasing Inlet on Blocks / Manual or Electrical Grease Refilling Device



## Backhoe Application

### Recommended Discharge Rate for Greasing Points for Backhoe

	Name of Greasing Point	Number of Greasing Points	Required Discharge (ml/Min)
Loader Side	Root of Loader Lifter Cylinder	2	Please ask our staffs for more details
	Top of Loader Lifter Cylinder	1	
	Root of Loader Lifter Links	2	
	Top of Loader Lifter Links	2	
	Mid of Loader Lifter Links	2	
	Root of Loader Arm	2	
	Root of Loader Bucket Cylinder	1-2	
	Top of Loader Bucket Cylinder	1-2	
	Middle of Bucket Links	2	
	Connector of Bucket Links-Bucket	2	
	Connector of Bucket Links-Loader Arm	2	
	Connector of Loader Arm-Bucket	2	
Backhoe Side	Swing Cylinder Back	2	
	Swing Cylinder Front	2	
	Stabilizer Arm & Cylinder	2	
	Steering Bottom	1	
	Steering Top	1	
	Root of Backhoe Boom	1	
	Root of Backhoe Boom Cylinder	1	
	Top of Backhoe Boom Cylinder	1	
	Root of Backhoe Arm	1	
	Root of Backhoe Arm Cylinder	1	
	Top of Backhoe Arm Cylinder	1	
	Root of Backhoe Bucket Cylinder	1	



### Recommended System Configuration for Backhoe

Type of Machine	Ton in KG	No. of Greasing Points	Solutions	Extra Components Recommended
Compact Wheel Loader	Under 5,000	33-35	<b>Compact Solu.:</b> Automatic Electrical Greasing Gun + 7 LR-VPKA Blocks, <b>High Perf.:</b> LEP Serie Pump + 7 LR-VPKA Blocks.	Grease Level Sensor / Indicator Rod / Switch for Backhoe-Loader Side
Middle Size Wheel Loader	Over 5,000	33-38	<b>Compact Solu.:</b> LEP Serie Pump + 7 LR-VPKA Blocks. <b>High Perf.:</b> LRMP Serie Pump + 7 LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device / Switch for Backhoe-Loader Side

## Other Applications for Construction Machinery



**Bulldozer**



**Mining Truck**



**Screener**



**Forklift**



**Reach Stacker**



**Crane**

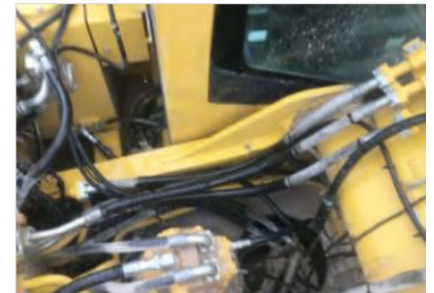
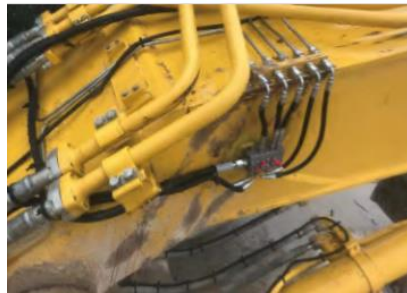
Type of Machine	Solutions	Extra Components Recommended
Bulldozer	<b>Compact Solu.:</b> LRMP Serie Pump+ LR-VPKA Blocks, <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
Mining Truck	<b>Compact Solu.:</b> LFS Serie Pump+ LRK-SLA Blocks, <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Screener	<b>Compact Solu.:</b> LRMP Serie Pump + LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Reach Stacker	<b>Compact Solu.:</b> LRMP Serie Pump + LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
Forklift	<b>Compact Solu.:</b> Automatic Electrical Greasing Gun + LR-VPKA Blocks. <b>High Perf.:</b> LEP Serie Pump + LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
Truck Crane	<b>Compact Solu.:</b> LRMP Serie Pump + LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device



## Show Cases for Construction Machinery Application

### CLS for large size Excavator

Manufacturer: Komatsu  
Equipment: 360 Excavator  
Installation Date: 2017.10  
Lubrication System: Progressive  
Pump: LRMP 6 Liter  
Block: SSVA



### CLS for middle size Wheel Loader

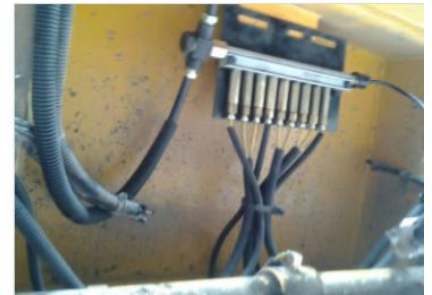
Manufacturer: Doosan  
Equipment: DL503-9C Wheel Loader  
Installation Date: 2017.06  
Lubrication System: Progressive  
Pump: LRMP 2 Liter  
Block: SSVA



## Show Cases for Construction Machinery Application

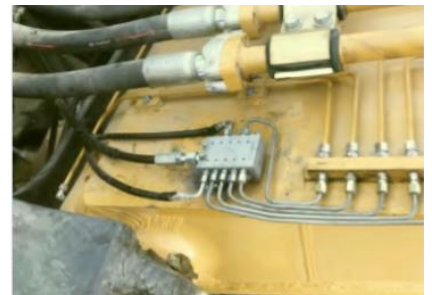
### CLS for Mining Truck

Manufacturer: Ginaf  
Equipment: HD5395 TS  
Installation Date: 2014.04  
Lubrication System: Pressurized Single Line  
Pump: LFS3 (External Monitor)  
Block: LRK-SLA

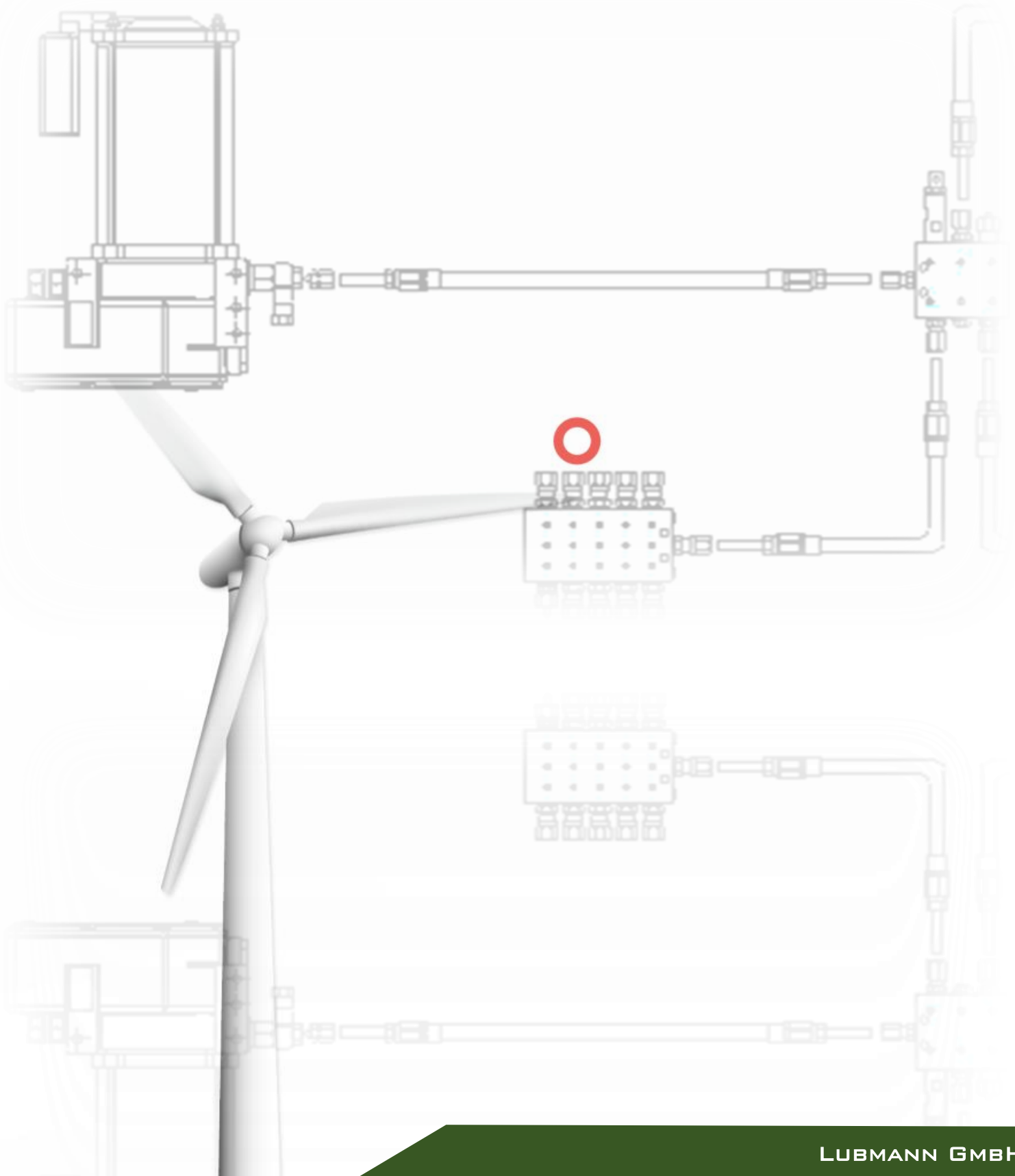


### CLS for huge size Excavator

Manufacturer: Sany  
Equipment: SY750 Excavator  
Installation Date: 2018.03  
Lubrication System: Progressive  
Pump: LIMP 6 Liter  
Block: SSVA



# Application for Windmill





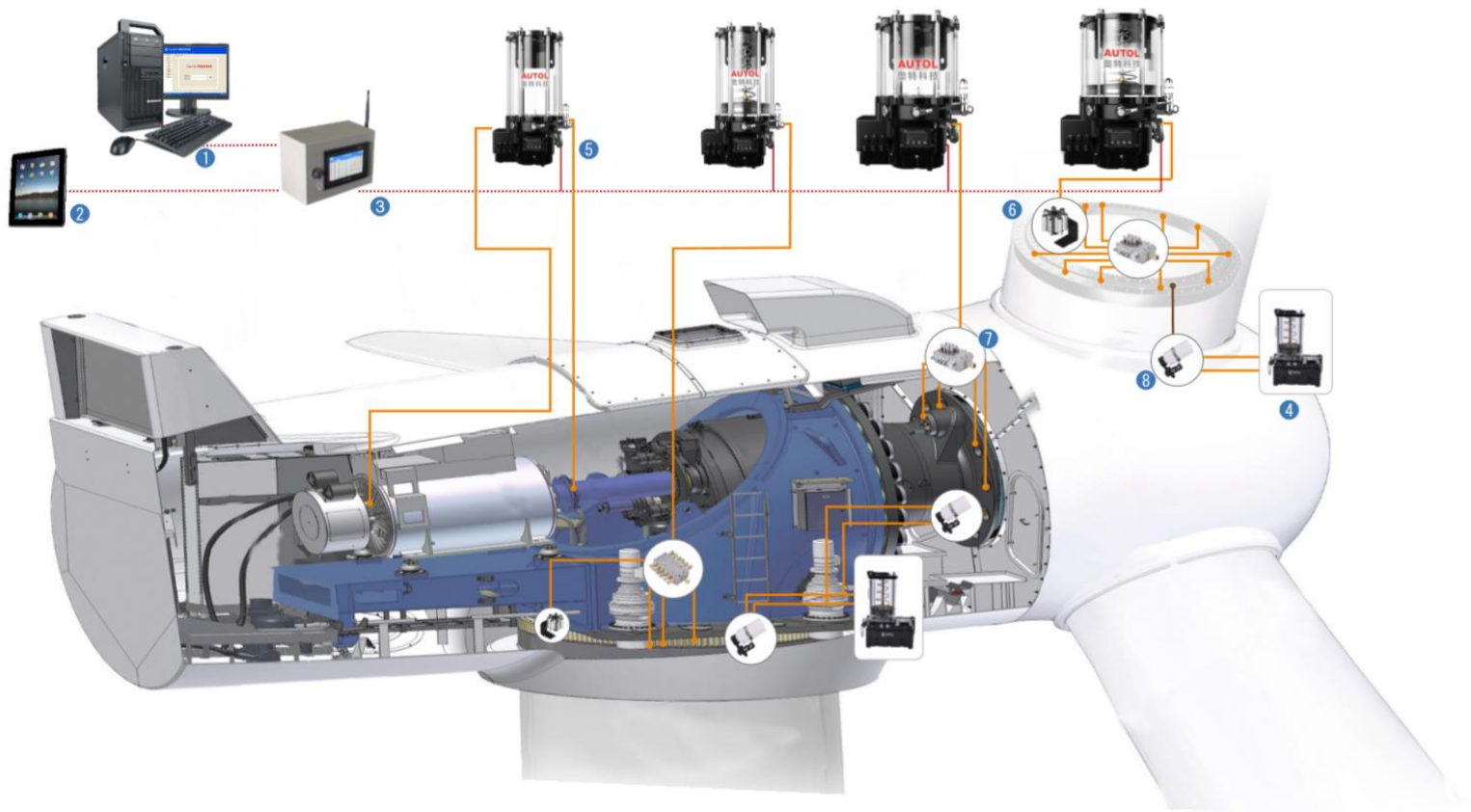
## Overview of Grease Exchange System for Windmill

### Ensuring trouble-free operation, minimizing unexpected downtime

Lubmann CLS for wind turbines are intelligent systems which realize remote, real time, on-line monitoring of lubrication state of bearings through system transmission ports. Autol waste grease collection system (hereinafter, WGCS) can maximize the reliability and stability of bearings and improve the safety of operation staff working in hubs. While getting a more intelligent and controllable lubrication state by WGCS, the bearing damage and electricity loss caused by poor grease drainage are greatly reduced. Thus, Autol CLS and WGCS prolong the service life of bearing and minimize the breakdown frequency and downtime of wind turbines.

### Simplifying maintenance, prolonging maintenance intervals

To get better lubrication effect, the waste grease in bearings should be cleared up timely. At a wind farm in Inner Mongolia, before installing Lubmann patented Suplub-W WGCS, the seals of pitch bearings showed serious grease leakage. After installing WGCS and CLS for nine months, the waste grease sucked out was as much as the fresh grease into bearings. The grease leakage stopped and the environmental pollution was prevented. After installing CLS and WGCS on bearings, better lubrication can be gotten by periodical operation. Intelligent grease lubrication and drainage simplify the maintenance and prolong maintenance intervals.



#### Main Parts

- |  |                            |                     |                                      |
|--|----------------------------|---------------------|--------------------------------------|
| 1. Remote centralized control computer | 2. Mobile control terminal | 3. Main control box | 4. Hydraulic pump                    |
| 5. Grease pump                         | 6. Grease pinion           | 7. Distributor      | 8. Grease suction and discharge unit |



## Suplub-W CLS for Windmill

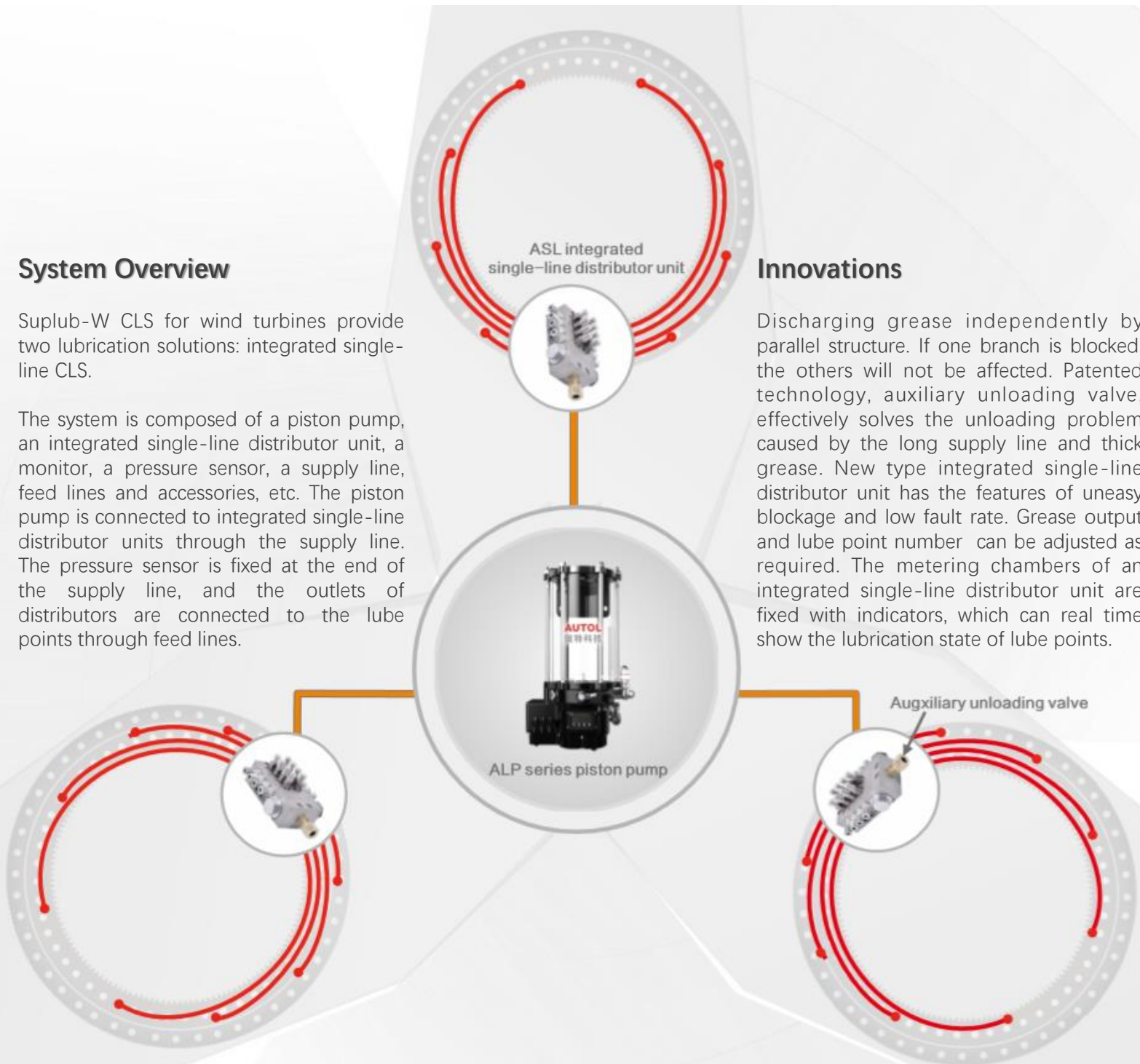
### System Overview

Suplub-W CLS for wind turbines provide two lubrication solutions: integrated single-line CLS.

The system is composed of a piston pump, an integrated single-line distributor unit, a monitor, a pressure sensor, a supply line, feed lines and accessories, etc. The piston pump is connected to integrated single-line distributor units through the supply line. The pressure sensor is fixed at the end of the supply line, and the outlets of distributors are connected to the lube points through feed lines.

### Innovations

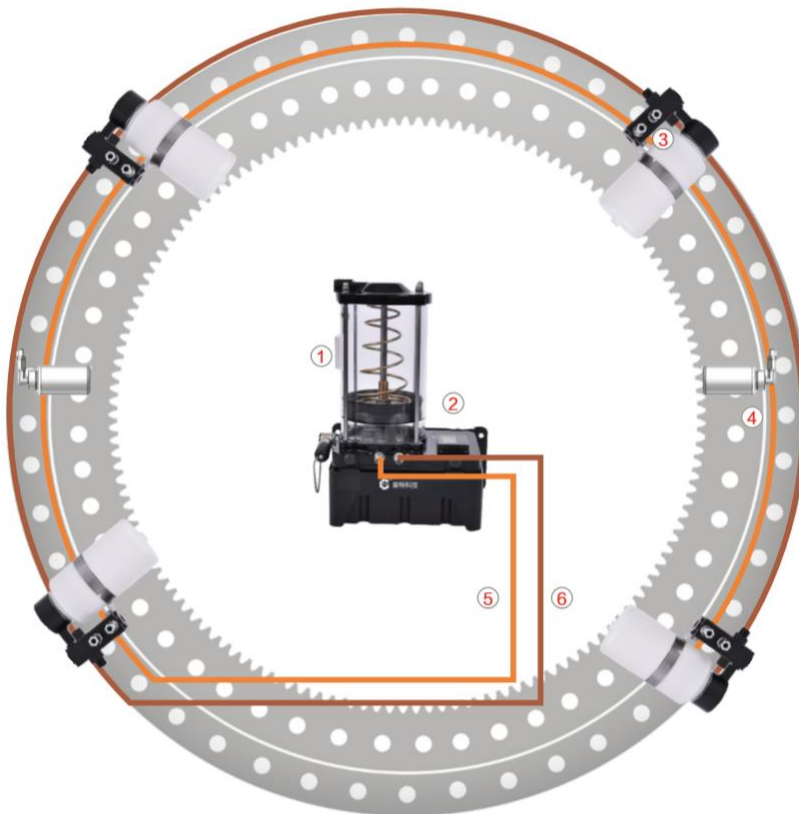
Discharging grease independently by parallel structure. If one branch is blocked, the others will not be affected. Patented technology, auxiliary unloading valve, effectively solves the unloading problem caused by the long supply line and thick grease. New type integrated single-line distributor unit has the features of uneasy blockage and low fault rate. Grease output and lube point number can be adjusted as required. The metering chambers of an integrated single-line distributor unit are fixed with indicators, which can real time show the lubrication state of lube points.



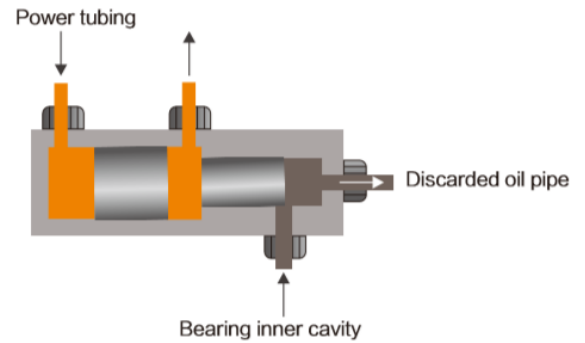
## Suplub-W WGCS for Windmill

### System Overview

A Suplub-W WGCS is mainly composed of a hydraulic pump, a reversing valve, a grease suction and discharge unit, a waste grease collector, a monitor, sensors and accessories, etc.



1. Hydraulic pump
2. Monitor
3. Grease suction and discharge unit
4. Waste grease inspection bottle
5. Hydraulic power pipe A
6. Hydraulic power pipe B



Grease suction and discharge unit

### System Features

Clearing up the waste grease timely is beneficial to the heat dissipation of bearings and reduces bearing friction and wear largely. Relieving high grease pressure in bearings makes the bearing cavities smooth and ensures fresh grease can be easily discharged into bearings. Ensuring the tight sealing of bearings, preventing environmental pollution caused by grease leakage. Matched with CLS, the serious blockage inside bearings is effectively resolved. The proper amount of grease inside is beneficial to forming and maintaining the grease film. Thus, the service life of bearings is prolonged greatly. Reducing mechanical friction strength, decreasing fault rate, saving maintenance cost, and enhancing the efficiency and productivity of wind turbines.

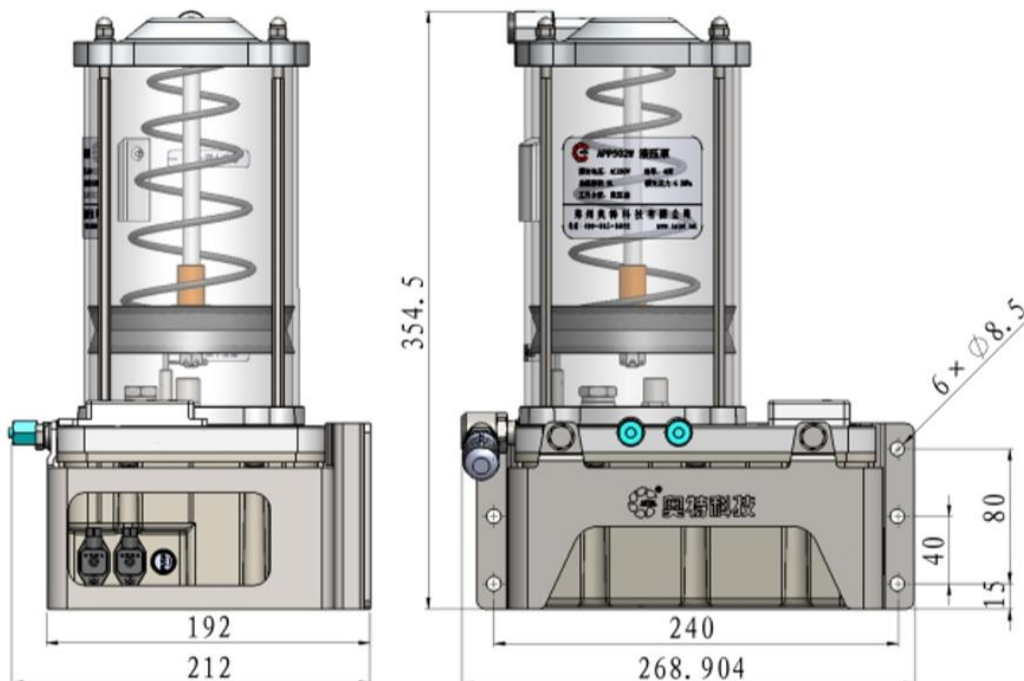
## Main Components for WGCS

Waste Grease Collection System consists of power pump, LWC series grease suction-discharging device and relevant accessories. The power pump provides system with hydraulic power according to time preset, and grease suction discharging device accomplishes suction and collection of waste oils under the push of hydraulic oil.

### Waste Grease Collection Pump

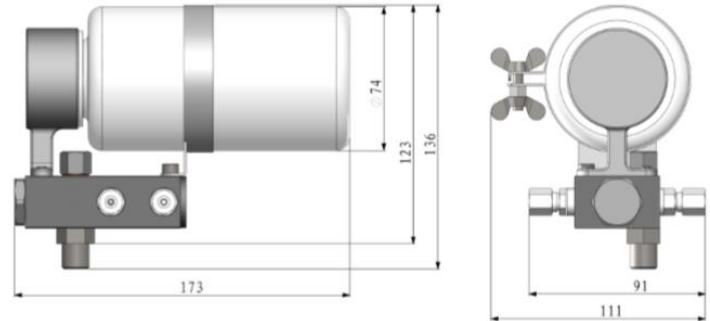


<b>Ordering Code:</b>	LWCP
<b>Description:</b>	Built-in monitor
Control mode	
Power Supply:	AC230V/ DC24V
Rated Power:	40W
Max. Working Current:	≤0.3A (AC230V); ≤2.5A(DC24V)
Rated Pressure:	5 Mpa
Grease Discharging Time:	(1-99) Min/adjustable
Grease Suction Time:	(1-99) Min/adjustable
Off Time:	(1-30) Hrs/adjustable
Display Mode:	LED dynamic display: counting, off time, grease discharging time, grease suction time, temperature, liquid level, fault code etc.
Reservoir Capacity:	2L
Working Temperature:	-40°C ~ 70°C
Survival Temperature:	-45°C ~ 80°C
Protection Class:	IP65



## Main Components for WGCS

### Suck and Drain Device with Bottle

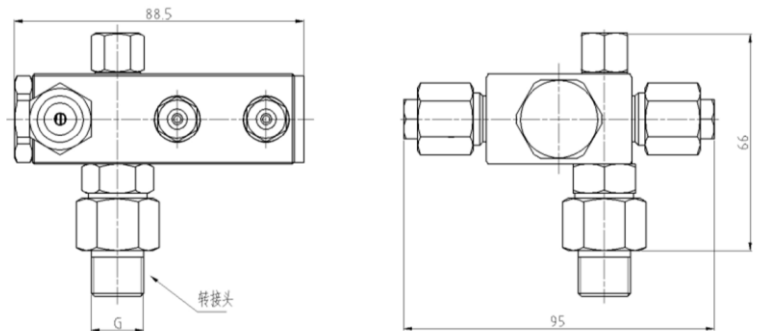


**Ordering Code:**

**Description:**

Drive Mode:	LWC-SDDA
Pressure of Suction Process:	Hydraulic oil drive
Pressure of Drain Process:	-0.6 to -0.8 atm
Grease Discharging Volume:	12 Mpa
Working Temperature:	1.35ml/cy
Survival Temperature:	-40°C ~ 70°C
	-45°C ~ 80°C

### Suck and Drain Device without Bottle



**Ordering Code:**

**Description:**

Rated Power:	LWC-Sddb
Max. Working Current:	40W
Rated Pressure:	≤0.3A (AC230V); ≤2.5A(DC24V)
Grease Discharging Time:	5 Mpa
Grease Suction Time:	(1-99) Min/adjustable
Off Time:	(1-99) Min/adjustable
	(1-30) Hrs/adjustable

## Overview of Equipment Health Management System

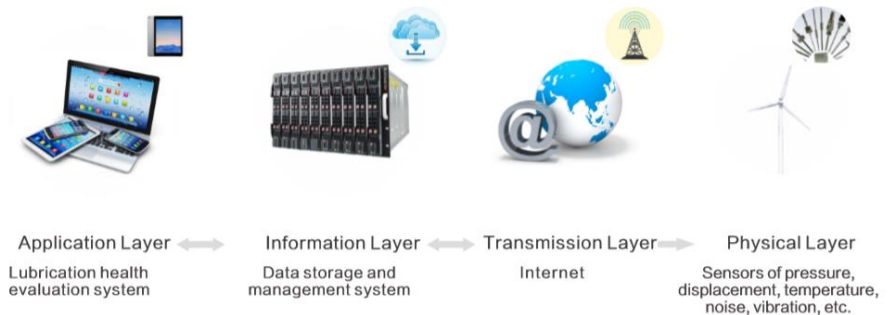
The system consists of centralized lubrication system server, wireless receiver-transmitter, Web client, centralized lubrication system, SMS service, and smart mobile phone client.

1. It supports mobile phone SMS inquiry function to know lubrication conditions at lube points whenever and wherever possible.
2. The Web client allows for checking operating conditions of the whole lubrication system, user management, lubrication parameters, and lubrication report.
3. Application of modern networking technology to network the distributed lube points. The personnel responsible for management and maintenance may know the lubrication operating conditions whenever possible.
4. The wireless remote monitoring system allows for checking lube points information on faults, without troubleshooting point by point, with less labor intensity of maintenance personnel.
5. The level information of every set of lubrication system and the operating condition of every distributor may be checked in a timely manner.
6. With the wireless remote monitoring system, the lubrication parameters of lube points can be set and checked.

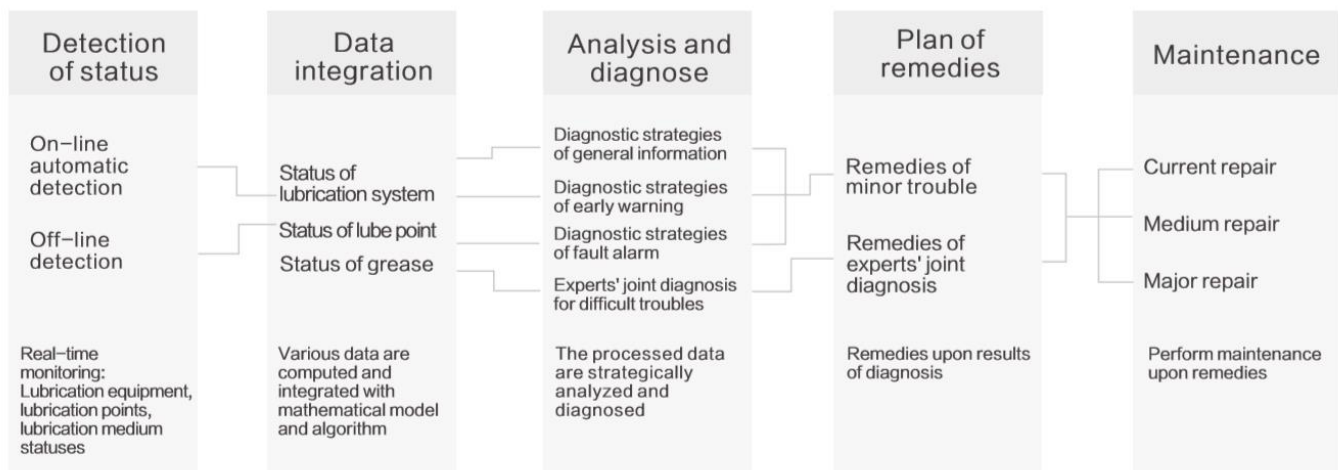
### Wireless Remote Monitoring System



### Equipment Health Management System



## Health Management Business Mode



**Note: It is active when the mobile phone signal (3G/4G) is available under fibre-optical network conditions.**



## General Application for Windmill

Type of Bearing	Solutions		Extra Components Recommended
	CLS	WGCS	
Yaw Bearing	<b>Compact Solu.:</b> LIMP Serie Pump + LR-SSVA Blocks <b>High Perf.:</b> LIBS Serie Pump + LR-SLA Blocks/LIMP Serie Pump + LR-SSVA Blocks for Pinions.	<b>Compact Solu.:</b> - <b>High Perf.:</b> LWCP Pump + LWC-SDDA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Pitch Bearing	<b>Compact Solu.:</b> LIMP Serie Pump + LR-SSVA Blocks <b>High Perf.:</b> LIBS Serie Pump + LR-SLA Blocks/LIMP Serie Pump + LR-SSVA Blocks for Pinions.	<b>Compact Solu.:</b> - <b>High Perf.:</b> LWCP Pump + LWC-SDDA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Main Bearing	<b>Compact Solu.:</b> LIMP Serie Pump + LR-SSVA Blocks, <b>High Perf.:</b> LIMS Serie Pump + LR-SLA Blocks.	<b>Compact Solu.:</b> - <b>High Perf.:</b> LWCP Pump + LWC-SDDA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Generator	<b>Compact Solu.:</b> LIMP Serie Pump + LR-SSVA Blocks, <b>High Perf.:</b> LIMS Serie Pump + LR-SLA Blocks.	<b>Compact Solu.:</b> - <b>High Perf.:</b> LWCP Pump + LWC-SDDA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device

## Show Cases for Windmill Application

### CLS and WGCS of Pitch Bearing

Manufacturer: Mingyang Electric  
 Wind turbine: MY1.5SE  
 Installation Date: 2016.10  
 Project for: Pitch Bearing (CLS+WGCS)





## Show Cases for Windmill Application

### CLS and WGCS of Pitch Bearing

Manufacturer: Gold Wind

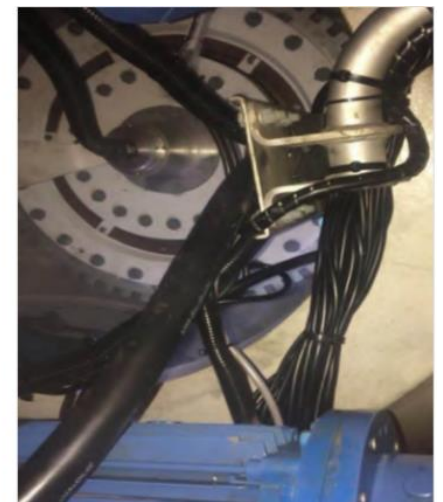
Wind turbine: 1.5 MW

Installation Date: 2018.07

Project for: Pitch Bearing (CLS+WGCS)



- ① The location of pump
- ② The location of Power pump
- ③ The location of monitor
- ④ The location of distributor
- ⑤ The location of tube and wire harness
- ⑥ Suction & Discharge Device
- ⑦ Waste grease collection
- ⑧ Lube points



# Application for Commercial Vehicle



## Overview of Commercial Vehicle Application





## Application for Commercial Vehicle



**Garbage Compression Vehicle**



**Concrete Mixer**



**Knuckle Boom Crane**



**Trailer**



**CityBus**



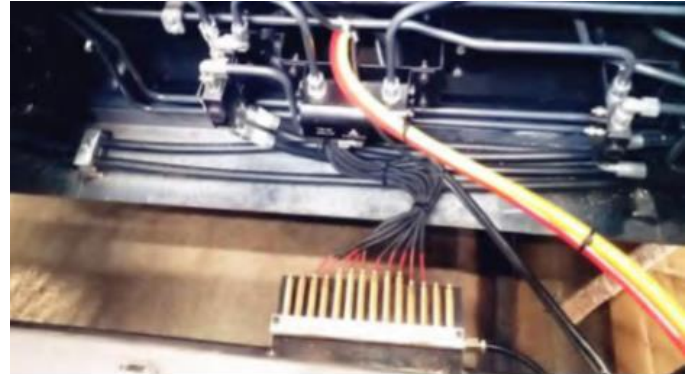
**Coach**

Type of Bearing	Remarks	Extra Components Recommended
Garbage Compression Vehicle	<b>Compact Solu.:</b> LFS Serie Pump+ LRK-SLA Blocks, <b>High Perf.:</b> LRMP Serie Pump + LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
Concrete Mixer	<b>Compact Solu.:</b> LFS Serie Pump+ LRK-SLA Blocks, <b>High Perf.:</b> LRMP Serie Pump + LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
Knuckle Boom Crane	<b>Compact Solu.:</b> LRMP Serie Pump + LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod / Manual or Electrical Grease Refilling Device
Trailer	<b>Compact Solu.:</b> LRMP Serie Pump + LR-VPKA Blocks. <b>High Perf.:</b> LID Serie Pump + Mixed Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod
CityBus/Coach	<b>Compact Solu.:</b> LFS Serie Pump+ LRK-SLA Blocks, <b>High Perf.:</b> LRMP Serie Pump + LR-VPKA Blocks.	Grease Level Sensor / Pressure Sensor / Indicator Rod

## Show Cases for Commercial Vehicle Application

### CLS for Trailer

Manufacturer: FAW/BQ FOTON  
Equipment: /  
Installation Date: 2018.06  
Lubrication System: Pressurized Single Line System  
Pump: LFS2  
Block: LRK-SLA



### CLS for Garbage Compression Vehicle

Manufacturer: Yutong  
Wind turbine: YT-GCV  
Installation Date: 2017.06  
Lubrication System: Single Line System  
Pump: LIMS 2 Liter  
Block: LR-SLA

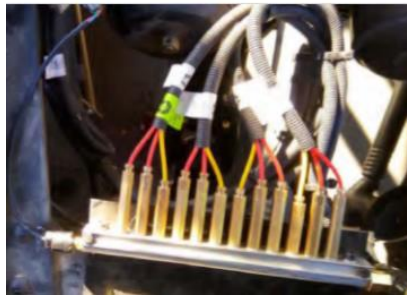




## Show Cases for Commercial Vehicle Application

### CLS for Heavy Duty Truck (Concrete Mixer/Dumper/Mucker/)

Manufacturer: Sunhunk  
Equipment: /  
Installation Date: 2017.02  
Lubrication System: Pressurized Single Line  
Pump: LFS3 (External Monitor)  
Block: LRK-SLA



### CLS for CityBus/Coach

Manufacturer: Yutong  
Wind turbine: YT  
Installation Date: 2017.10  
Lubrication System: Pressurized Single Line  
Pump: LFS3 (External Monitor)  
Block: LRK-SLA







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