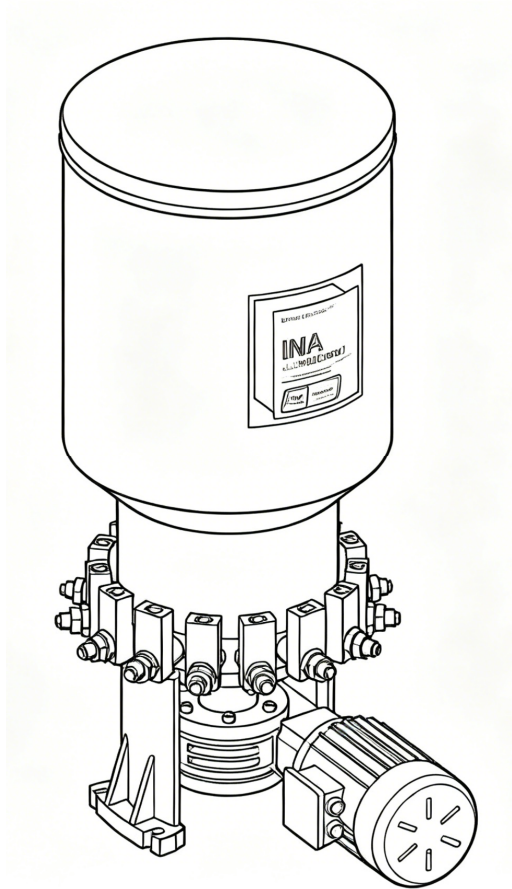


MultiExpert™ 领英系列 多线润滑泵操作手册



上海毅那机械科技有限公司

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安全

本装置仅可由熟悉本使用说明的人员进行安装、维护与维修作业。

设备闲置不用时，务必切断所有动力源（电力、气源或液压源）。

本设备会产生高压。操作设备时须极度谨慎，若零部件松动或破裂发生介质泄漏，高压流体可穿透皮肤进入人体。一旦发现有流体渗入皮肤，必须立即就医，切勿将伤情当作普通割伤处理，并需如实告知接诊医生侵入体内的流体类型。

凡未按本说明书规定进行违规使用，将自动丧失保修及追索赔偿权利。

- 严禁违规使用、超压运行、私自改装零部件，禁止使用不相容的化学介质、流体，以及磨损或损坏的零部件。
- 不得超过设备额定最大工作压力，也不得超过系统中最低额定值部件的工作压力。
- 务必阅读并遵循制造商关于流体相容性、防护服装及防护用具使用的相关建议。
- 若未遵守上述要求，可能造成人身伤害和、或设备损坏。
- 必须严格遵守国家法律法规及各项安全防事故管理规定。

安全警示用语释义

须知

本项内容着重提供实用提示与建议，同时说明相关注意事项，用以防止财产损失，并保障设备高效、无故障平稳运行。

注意

表示若忽视防护措施，将可能引发出现轻微人身伤害的危险状况。

警告

表示若忽视防护措施，将可能引发造成严重人身伤害的危险情形。

危险

表示若忽视防护措施，会导致造成死亡或重伤的危险状况。

警告

未阅读并完全理解安全警示及操作说明前，严禁操作本设备。



未遵守安全警示和操作说明，可能导致严重人身伤害。

注意

未佩戴个人防护装备，严禁操作设备。

必须佩戴护目镜。根据工况佩戴防尘口罩、防滑安全鞋、安全帽、听力防护用品等防护装备，可有效降低人身伤害风险。

未按要求执行，可能造成轻微人身伤害。



警告

严禁超过设备标定的最大工作压力，亦不得超过系统中额定等级最低部件的工作压力。



本设备会产生极高油脂压力，操作时务必格外谨慎。

若未遵守本要求，可能造成轻微人身伤害。

警告

严禁使用本设备输送、转运或存放危险物质及混合物。



通用须知

- 在工程机械、道路车辆、通用机械、机床等工业设备上安装作业时，必须遵守当地安全防事故规程及相关设备操作与维护说明书。
- 安全防护装置
 - ◇ 严禁因安装润滑系统而擅自改动任何安全防护装置，不得永久拆除设备及设施原有防护装置（如防护栏、防护罩、安全锁等）。
 - ◇ 仅可在安装润滑系统时，按作业要求并获得相关许可后，临时拆除安全防护装置；润滑系统安装完毕后，须立即恢复原有安全防护装置。
- 润滑系统须远离热源，不得在允许工作温度范围以外（高温或低温环境）放置和使用。
- 必须使用原厂配件或授权合规配件。
- 系统可能处于带压状态，进行维护、调节及相关作业前，必须先释放系统压力。
- 务必使用洁净润滑脂。
- 本系统为自动运行，但强烈建议用户每两周定期检查一次，确保润滑脂能够正常输送至各润滑点。

合规润滑剂

- 润滑脂稠度等级为 NLGI 2 及以下。
- 若需选用不符合上述要求的润滑剂，或无法确定所选润滑剂中的特殊添加剂是否会对润滑部件产生影响，请咨询厂家。

运输与储存

- MultiExpert 领英系列润滑泵站按相关国际标准进行销售与包装，符合危险品公路、铁路、航空及海运的国际设计运输要求。
- 包装完好的润滑泵站在搬运、运输过程中须轻拿轻放，避免造成不必要的损坏。
- 润滑泵站可存放于 $-20\text{ }^{\circ}\text{C} \sim +70\text{ }^{\circ}\text{C}$ 的干燥环境中。

免责声明

对于因下列情形造成的损坏，我方不承担任何直接、间接及连带责任与相关义务：

- 因润滑脂缺失造成的损坏。
- 因选用不合规润滑脂造成的损坏。
- 因安装、使用非授权配件造成的损坏。
- 因擅自改装润滑系统部件造成的损坏。

- 因未按规范工况使用设备造成的损坏。
- 因安装错误或管路连接不当造成的损坏。
- 因电气接线错误造成的损坏。
- 因程序设置错误造成的损坏。
- 因故障排查及处理操作失误造成的损坏。

概述

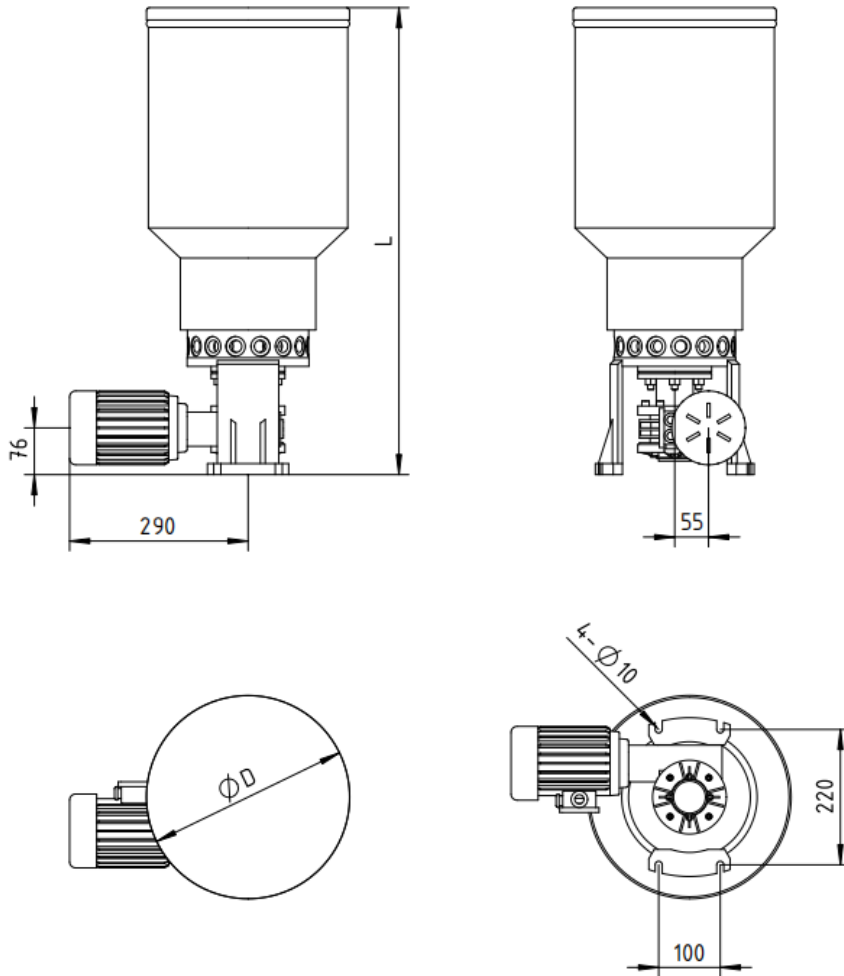
MultiExpert 领英系列电动润滑泵适用于工程机械、道路车辆、通用机械、冶金设备及其他工业设备。适用润滑剂最高为 NLGI 2 润滑脂。单台润滑泵最多可同时安装 15 个泵芯，组成 15 路独立润滑回路。

本泵站主要由油箱、交流减速电机总成、可调泵芯、及其他附件组成。电机驱动泵内部偏心轮，推动泵芯柱塞做往复运动，将润滑脂从油箱泵出，输送至分配器或润滑点。泵芯为可调泵芯，易于调节。

技术参数

工作电压	AC 380V/50 Hz
额定功率	0.37 kW
电源连接	电缆线连接
防护等级	IP 55
泵芯安装口	15 出口, M22x1.5
工作压力	最高 350 bar
油箱容积	10, 30 L
补油口	顶盖加油
润滑剂	NLGI 0, 1, 2
工作温度	-20 °C ~ +70 °C
安装方式	竖直安装

润滑泵外形尺寸

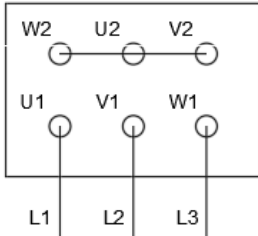


型号	油箱 (L)	L (mm)	$\varnothing D$ (mm)
MEP1510 ...	10	480	220
MEP1530 ...	30	800	330

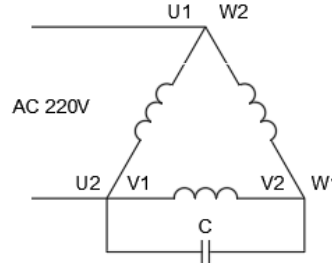
电机接线

MultiExpert 领英润滑泵电机有两种电气连接方法：Y型连接和Δ型连接。

■ 380V Y型接线

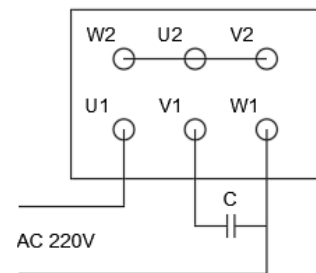
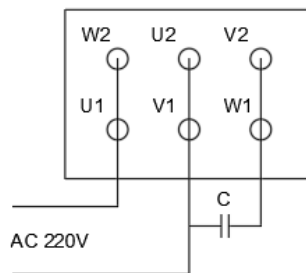


■ 220V Δ型接线



危险

该设备必须接地，以减小静电火花和电击危险。电火花或静电火花可能导致气体点燃或爆炸。不正确的接地可导致触电。接地为电流提供逃逸通路。

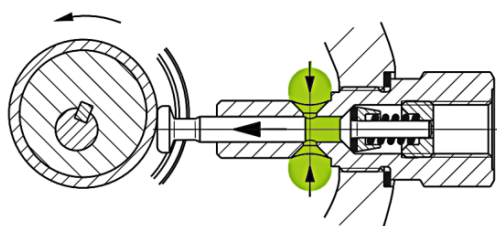


泵芯

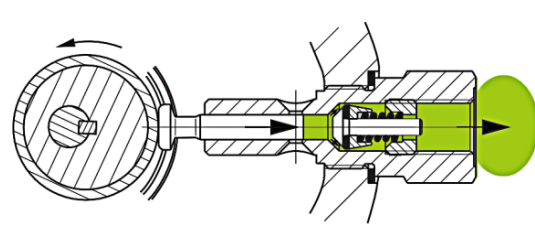
MultiExpert 润滑泵最多可同时安装 15 个 IBY-7A 可调泵芯。每组泵芯均可连接分配器，构成一路独立润滑油路。不用的闲置接口可用螺塞封堵。泵芯结构形式为搭扣拖曳式。泵芯型号如下：

泵芯	型号	类型	驱动方式	排量 (cm ³ / str)	安装螺纹	出口螺纹
	IBY - 7A	可调排量	搭扣拖曳	0.06-0.23	M22x1.5	G 1/4

■ 泵芯工作原理



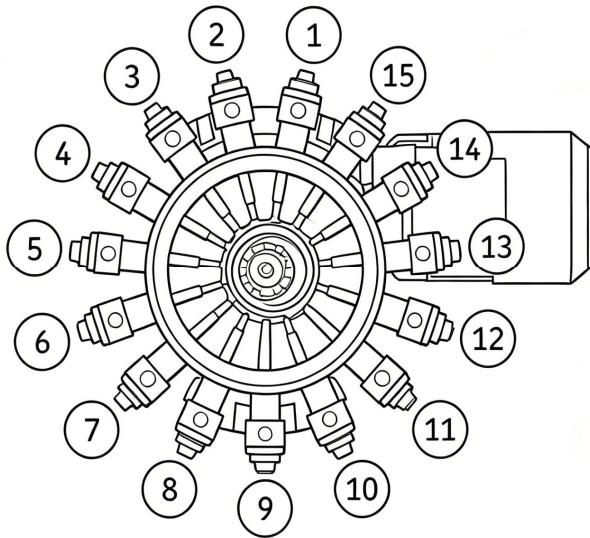
抽油阶段



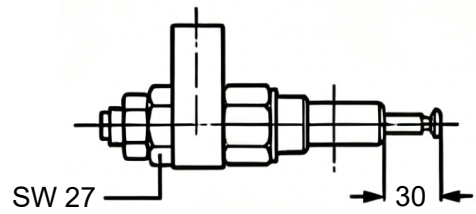
出油阶段

■ 泵芯安装

有关泵芯的安装位号，请参见下图。

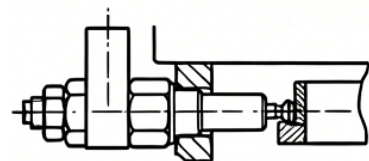
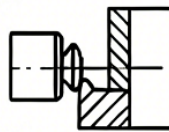
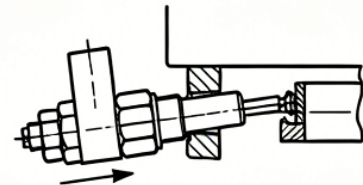
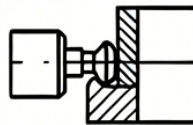


1. 切断润滑泵电源。
2. 拧下泵芯安装口的螺堵。
3. 将活塞从泵芯中拉出约 30 mm。
4. 将泵芯倾斜地从泵芯安装口插入，然后将其笔直悬挂在拖曳轮的槽口中。

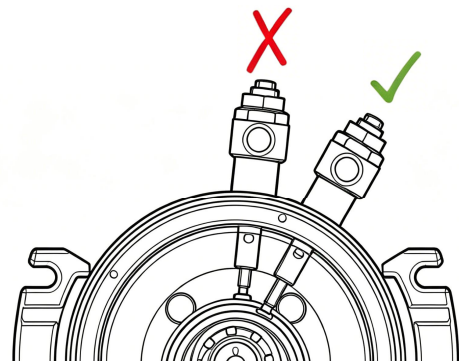


警告

为了防止损坏泵，确保将每个泵芯正确地安置在拖曳轮的槽口中。



5. 用扭矩扳手拧紧泵芯。拧紧扭矩为 35 Nm。
6. 如果油脂桶是空的，从顶部检查泵芯在拖曳轮槽口中的位置。
7. 开启泵，并通过观察泵芯柱塞的运动来确认泵芯是否正常工作。
8. 等到润滑脂从泵芯出口溢出，关闭泵。
9. 安装润滑管路和安全阀。



■ **泵芯调节**

泵芯的输出排量也可以在运行期间进行修改。

1. 松开锁紧螺母。
2. 转动泵芯调节螺栓来调节流量。⤴ 为调低排量。⤵ 为调高排量。
3. 流量调节后，重新拧紧锁紧螺母。拧紧扭矩为 12 Nm。

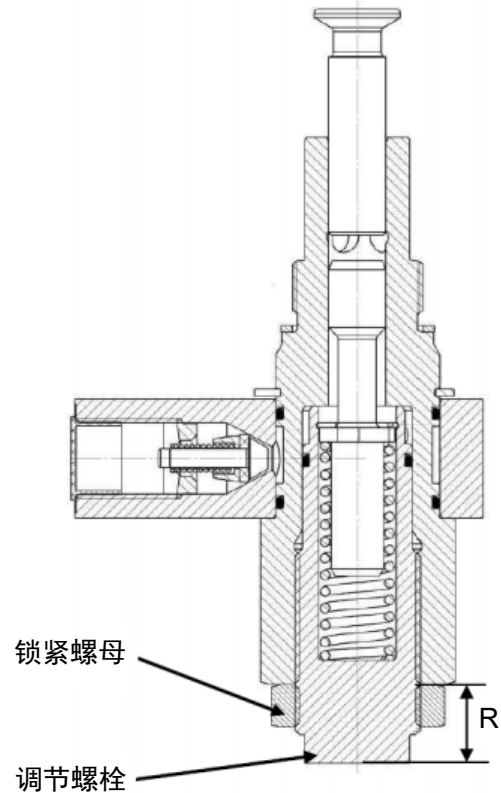
R 的设置

长度 R 表示百分比排量设置。排量每毫米减少约 10%。

注意

泵芯出厂时已设置为最小排量，以改善吸入性能（泵芯中的最小空气空间）。调试后，必须将泵芯设置为所需的排量。

R	排量%
22.5 mm	100 %
21 mm	75 %
19.5 mm	50 %
18 mm	25 %



故障排查

故障	可能原因	排除方法
泵不工作	没有供电	检查电源及熔断器，排查故障或更换新熔断器。 检查从熔断器至润滑泵电源插头之间的线路。
	电机故障	检查电机供电线路，必要时更换电机。
泵工作但不出油	油箱空了	向油箱加注润滑脂，启动油泵，直至润滑点有油脂流出。 <i>备注：油泵需运行 10-20 分钟才能达到设定排量（与环境温度及润滑脂型号有关）。</i>
	润滑剂含有气泡	松开溢流阀出油口接头或主油管，启动附加润滑周期，待润滑脂流出无气泡后，重新拧紧接头。 <i>备注：使用快插接头时，高压软管在带压状态下难以从安全阀上拆卸；需先松开安全阀的堵头或应急油嘴进行泄压。</i>

	润滑油脂选用不当	更换符合规格要求的润滑脂。
	泵芯吸油口堵塞	拆下泵芯，清除内部杂物污物。
	泵芯磨损	更换泵芯。
	泵芯单向阀损坏或卡滞	更换泵芯。

声明：

未经许可，不得全部或部分引用、复制本说明书中的内容。我们已尽可能确保该说明书中的内容准确无误。对未经我司认可、使用本说明书中提及的任何技术和相关产品，我司不承担由此带来的任何直接、间接和连带责任。

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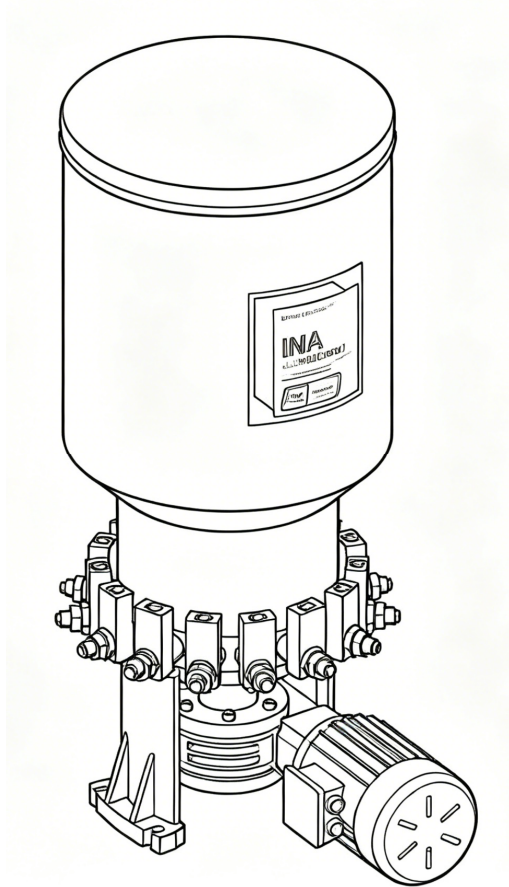
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MultiExpert™ Dual-line Lubrication Pump Unit User Manual



Shanghai INA Machinery Science & Technology Co., Ltd

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Safety

The assembly must be installed, maintained and repaired exclusively by persons familiar with the instructions. Always disconnect power supply (electricity, air or hydraulic) from the equipment when it is not being used. This equipment generates high pressure. Extreme caution should be used when operating this equipment as material leaks from loose or ruptured components can inject fluid through the skin and into the body. If any fluid appears to penetrate the skin, seek attention from a doctor immediately. Do not treat injury as a simple cut. Tell attending doctor exactly what type of fluid was injected. Any other use not in accordance with instructions will result in loss of claim for warranty or liability.

- Do not misuse, over-pressurize, modify parts, use incompatible chemicals, fluids, or use worn and/or damaged parts.
- Do not exceed the stated maximum working pressure of the equipment or of the lowest rated component in your system.
- Always read and follow the manufacturer's recommendations regarding fluid compatibility, and the use of protective clothing and equipment.
- Failure to comply may result in personal injury and/or damage to equipment.
- Strictly follow National laws, regulations, and regulations on accident prevention.

Explanation of signal words for safety

NOTE

Emphasizes useful hints and recommendations as well as information to prevent property damage and ensure efficient trouble-free operation.

CAUTION

Indicates a dangerous situation that can lead to light injury if precautionary measures are ignored.

WARNING


Indicates a dangerous situation that can lead to serious injury if precautionary measures are ignored.

DANGER

Indicates a dangerous situation that can lead to death or serious injury if precautionary measures are ignored.


WARNING

Do not operate equipment without reading and fully understanding safety warnings and instructions. Failure to follow warnings and instructions may result in serious injury.




CAUTION

Do not operate equipment without wearing personal protective gear. Wear eye protection. Protective equipment such as dust mask, non-skid safety shoes, hard hat, or hearing protection used for appropriate conditions will reduce personal injuries. Failure to comply may result in light personal injury.



WARNING

Do not exceed the stated maximum working pressure of the equipment or of the lowest rated component in your system. Use extreme caution when operating equipment as equipment generates very high grease pressure. Failure to comply may result in light personal injury.



WARNING

Do not use this equipment to supply, transport, or store hazardous substances and mixture.



General reminder

- When carrying out installation on industrial equipment such as construction machinery, road vehicles, general machinery, machine tools, etc., the local accident prevention regulations and the relevant operating and maintenance instructions must be observed.
- Safety equipment
 - ✧ Under no circumstances shall any safety equipment be changed due to the installation of lubrication system, and the original safety equipment (such as fence, protective cover, safety lock, etc.) on equipment and facilities shall not be permanently removed.
 - ✧ Safety equipment may only be temporarily removed when lubrication systems are installed, as required and with relevant permission. After the lubrication system is installed, the original safety equipment should be restored immediately.
- Lubrication systems must be kept away from heat sources and must not be placed outside the allowable operating temperature range (e.g. high or low temperature).
- Original parts or licensed parts must be used.
- The system may be under pressure. The pressure must be relieved before starting maintenance, adjustment or related operations.
- Make sure to use clean grease.
- Although the system works automatically, we strongly recommend that users need periodic checks every two weeks to ensure that lubricants are properly distributed to lubrication points.

Approved lubricant

- Lubrication grease viscosity is NLGI 2 or below
- If you need to choose lubricants that do not meet the above conditions or are uncertain about the influence of special additives in the selected lubricants on lubrication parts, please consult factory.

Transportation & storage

- MultiExpert series lubrication pump stations are sold and packaged in accordance with relevant international standards, which meet the international design requirements of road transportation,

railway transportation, air transportation and sea transportation of dangerous goods.

- Packed lubrication pump station in the process of transportation and handling, need to be handled with care, to prevent unnecessary damage.
- The lubrication pump station can be stored in a dry space between -20 °C ~ + 70 °C.

Exemption from liability

Do not assume any direct or indirect, joint and several liabilities and obligations for the damage caused by the following circumstances:

- Damage caused by lack of lubrication grease.
- Damage caused by the use of inappropriate lubrication grease.
- Damage caused by installation and use of unauthorized parts.
- Damage caused by unauthorized modifications to lubrication system parts.
- Damage caused by use not in accordance with normal use.
- Damage caused by incorrect installation or piping connections.
- Damage caused by incorrect electrical connections.
- Damage caused by program setup error.
- Damage caused by misoperation of troubleshooting.

Overview

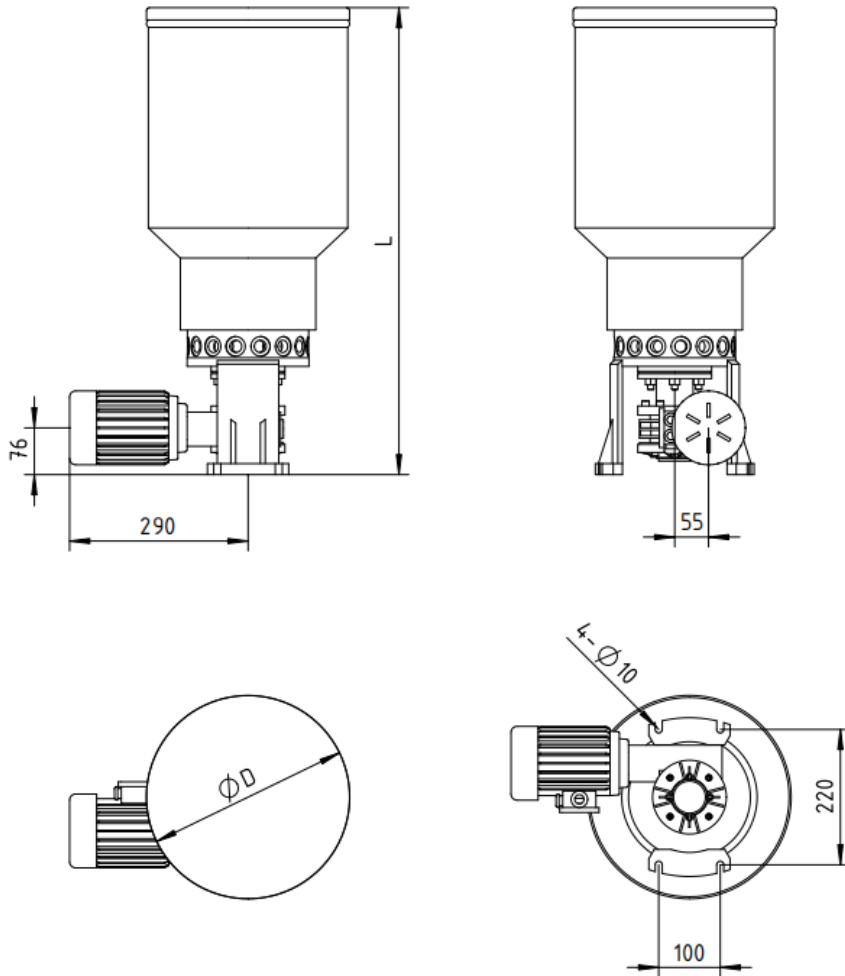
MultiExpert series electric lubrication pumps are applicable to construction machinery, road vehicles, general machinery, metallurgical equipment and other industrial facilities. They work with lubricants up to NLGI Grade 2 grease. A single lubrication pump can be fitted with a maximum of 15 pump elements, forming 15 independent lubrication circuits.

This pump station mainly consists of tank, AC gear motor assembly, adjustable pump element and other accessories. The motor drives the internal eccentric wheel to push the pump element plunger for reciprocating motion, delivering grease from the tank to dividers or lubrication points. The pump elements are adjustable and easy to calibrate.

Technical data

Power Supply	AC 380V/50 Hz
Rated Power	0.37 kW
Power Socket	Wiring connection
IP Class	IP 55
Pump Element Mounting	15 outlets, M22x1.5
Working Pressure	Max. 350 bar
Tank Capacity	10, 30 L
Refilling Port	Top lid
Lubricant	NLGI 0, 1, 2
Working Temperature	-20 °C ~ +70 °C
Mounting	Vertical

Pump dimension

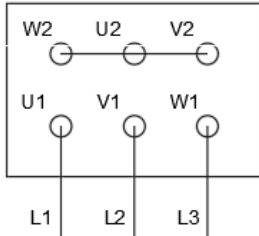


Model	Reservoir (L)	L (mm)	Ø D (mm)
MEP1510 ...	10	480	220
MEP1530 ...	30	800	330

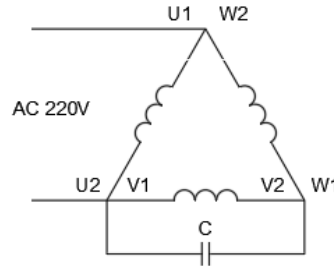
Pump electric connection

The pump motor features two wiring methods: star (Y) connection and delta (Δ) connection.

■ **380V Y connection**

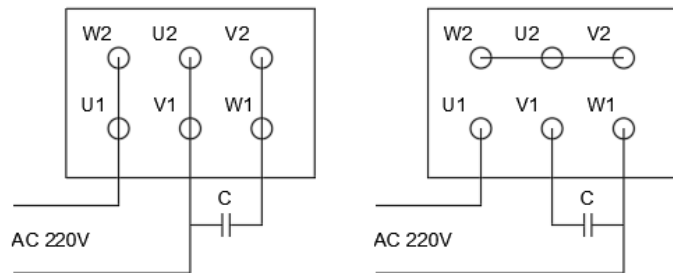


■ **220V Δ connection**



DANGER

This equipment must be grounded to reduce risks of static sparks and electric shock. Electrical or static sparks may ignite flammable gases and cause explosions. Improper grounding can result in electric shock. Grounding provides a discharge path for electric current.



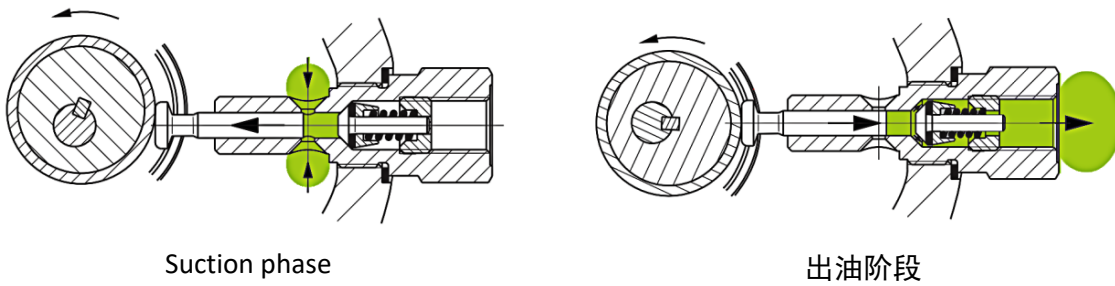
Pump element

The pump can be equipped with IBY-7A adjustable pump elements simultaneously up to 15. Each pump element can be connected to a divider to form an independent lubrication circuit. Unused ports shall be sealed with screw plugs. The pump element adopts a buckle-driven structure.

The models of pump element are listed as follows:

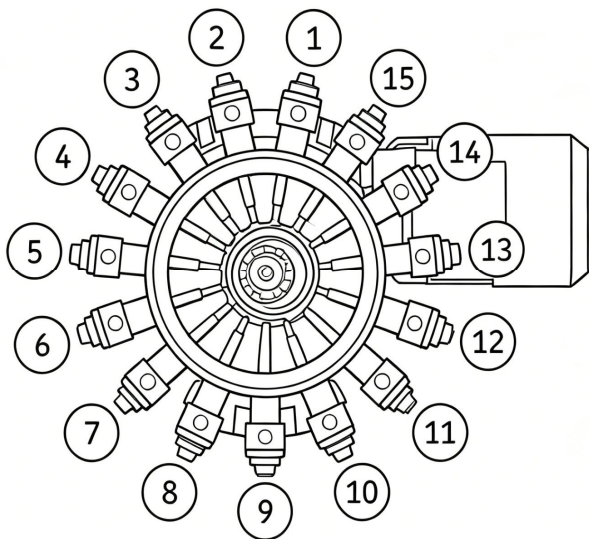
Pump Element	Model	Type	Drive Type	Displacement (cm ³ / str)	Mounting Thread	Outlet Thread
	IBY - 7A	Adjustable	Buckle driven	0.06-0.23	M22x1.5	G 1/4

■ Work principle

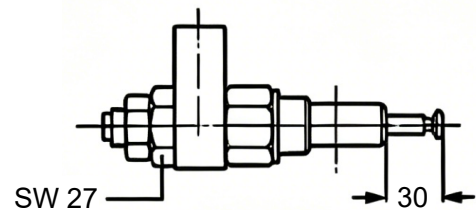


■ Mounting pump element

Regarding mounting position of pump element, please refer to below picture.

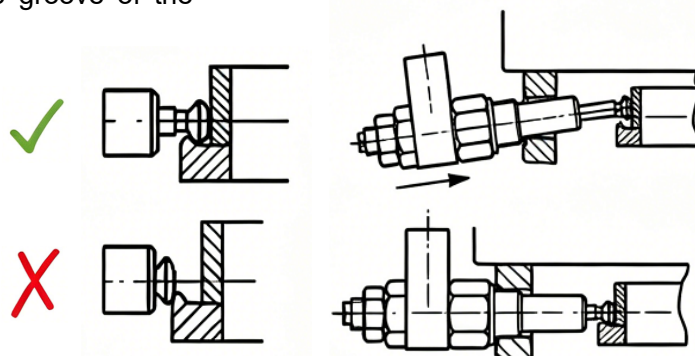


1. Shut off power supply of pump.
2. Screw out the plug of mounting port.
3. Pull the piston out of the pump element by approximately 30 mm.
4. Insert the pump element obliquely into the mounting port, then hang it vertically into the groove of the traction wheel.

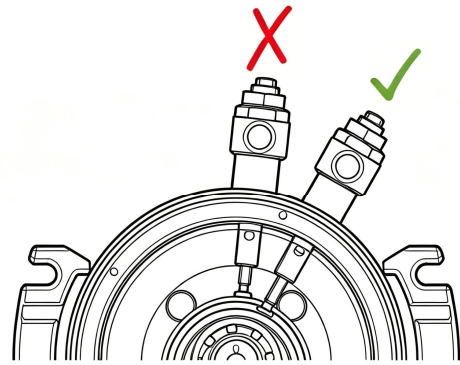


WARNING

To prevent pump damage, ensure each pump element is properly seated in the groove of the traction wheel.



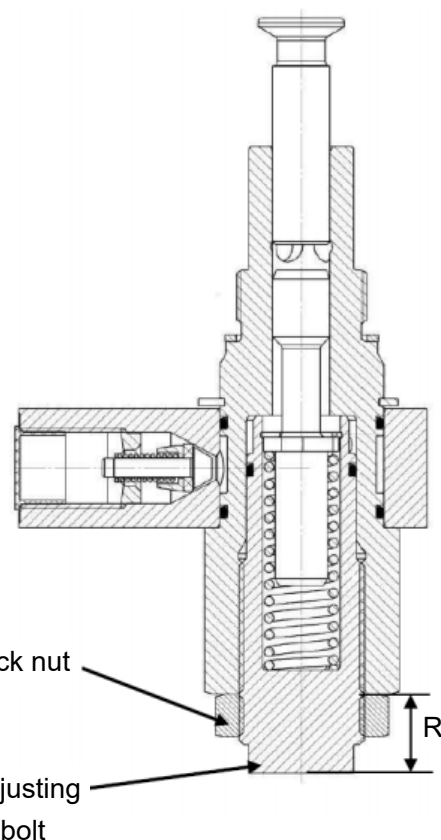
5. Tighten the pump element with a torque wrench.
The tightening torque is 35 Nm.
6. If the grease drum is empty, check the position of the pump element in the groove of the traction wheel from the top.
7. Start the pump and verify its normal operation by observing the movement of the pump element plunger.
8. Stop the pump once grease overflows from the outlet stud of the pump element.
9. Install the pipeline and safety valve.



■ Adjust pump element

The output displacement of the pump element can also be adjusted during operation.

1. Loosen the lock nut.
2. Turn the adjusting bolt to regulate the flow rate.
Turn ↻ to reduce displacement, and turn ↻ to increase displacement.
3. Re-tighten the lock nut after flow adjustment. The tightening torque is 12 Nm.



Setting of R

Dimension R represents the percentage displacement setting. The displacement decreases by approximately 10% per millimeter.

CAUTION

The pump element is factory-set to the min. displacement to optimize suction performance (min. air volume inside). After commissioning, set the required displacement.

R	Dis. %
22.5 mm	100 %
21 mm	75 %
19.5 mm	50 %
18 mm	25 %

Troubleshooting

Malfunction	Possible cause	Corrective action
Pump does not operate	No power supply	Check the power supply and fuse, troubleshoot or replace the new fuse.
		Check the circuit from the fuse to the pump power plug.
	Motor fault	Check the motor power supply and replace the motor if necessary.
Pump is working but no lubricant delivered	Empty reservoir	Fill the reservoir and start the pump until the grease flow out from the lubrication point. <i>Note: It takes 10 ~ 20 minutes for the pump to reach the setting displacement. (Relative to ambient temperature and type of grease)</i>
	Lubricant mixed with air bubbles	Loosen the relief valve outlet connector or main line, start the additional lubrication cycle until no air bubbles emerge from the grease, and then tighten again. <i>Note: When using quick plug-in connector, the high pressure hose is not easy to be removed from the safety valve under pressurized state, so it is necessary to loosen the plug or emergency nozzle of the safety valve to release the pressure.</i>
	Not applicable lubricant	Replace grease that meets the requirements.
	Pump element suction port blocked	Remove the pump element and remove contamination.
	Wear of pump element	Replace the pump element.
	Damage or jamming of check valve in pump element	Replace the pump element.

Statement:

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