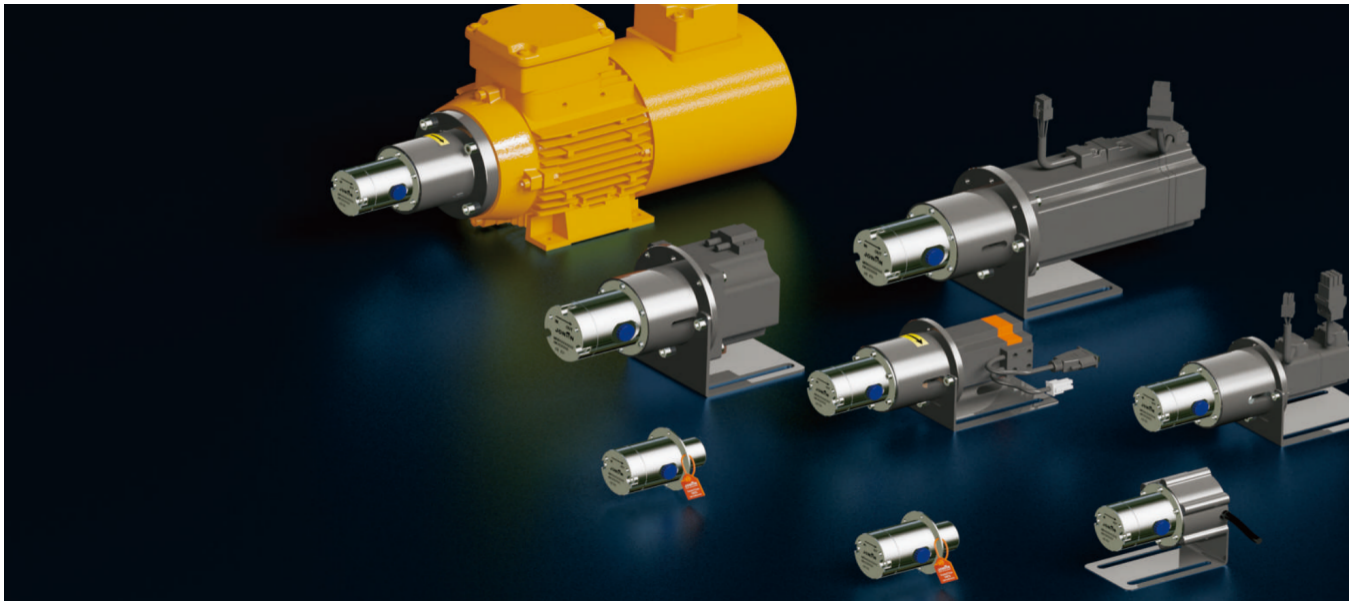


## MR 系列精密级磁力齿轮泵操作手册

MR Series Precision Magnetic Gear Pump Operation Manual



请妥善保管此手册。

Please safekeep this manual.

请确保先阅读此产品的使用说明，再按照其中的要求安装及使用此产品。

Be sure to read the instructions of this product first, and then follow the instructions to install and use this product.

本手册适用于：**MR 系列精密级微型磁力齿轮泵**

This manual is applied to: MR Series Precision Magnetic Gear Pumps

版本号：2024

Version No.: 2024

# Certificate

Standard **ISO 9001:2015**

Certificate Registr. No. **01 100 2132430**

Certificate Holder:



**Jonsn (Ganzhou) Fluid Technology Co., Ltd**  
Unified Social Credit Code: 91360700MA39AKRB1L  
Registration Address: Workshop 2 (Floor 2), No. 6 Jingsan Road,  
Economic Technological Development Zone, Ganzhou City,  
341000 Jiangxi, P. R. China  
Operation Address: same as above

Scope: Design, Development, Manufacturing and Sales of Gear Pumps

Proof has been furnished by means of an audit that the requirements of ISO 9001:2015 are met.

Validity: The certificate is valid from 2022-03-31 until 2025-03-30.  
It remains valid subject to satisfactory surveillance audits.  
First certification 2022  
This certificate information can be searched on CNCA official website <http://www.cnca.gov.cn>

2022-04-01

TÜV Rheinland Cert GmbH  
Am Grauen Stein · 51105 Köln

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Development Area, Beijing (Yizhuang group in high-end industrial area of Beijing Pilot Free  
Trade Zone), 100176, P. R. China

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# 警告告誡注意

## Warning and Note



**警告：**表示可能会引起人身伤害或设备损坏及其他安全事故。

Warning: indicates that could cause personal injury or damage to equipment and other accidents etc.



**告誡：**必须认真遵守，以免损坏设备。

Caution: must be observed to avoid damage to the device.

3

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### 1. 声明 / Statement

任何人在使用、安装、维护、维修 MR 系列齿轮泵时，必须完整阅读本手册。

Anyone to use, install, maintain, repair MR series gear pump, must read this manual entirely.



收到设备，投入使用前，请检查包装是否完好，齿轮泵是否有损坏，同时核对清单，任何配件的缺失，可能引起使用问题或安全问题。制造商不承担因此引起的设备损坏和人身伤害的责任。

Upon receipt of equipment and before putting into use, check if the packaging is intact or not, the gear pump damage or not, while checking the list, any missing parts, can cause use problems or security issues. The manufacturer assumes no responsibility for equipment damage and personal injury caused.

使用者有责任遵守本手册提到的安全要求，同时使用者必须遵循相关法律，法规对安全的要求。制造商不承担违反此类要求而引起的设备损坏和人身伤害的责任。

Users are responsible for complying with the safety requirements mentioned in this manual, while the user must follow the relevant laws and regulations on safety requirements. Manufacturer is not responsible for violation of these requirements caused equipment damage and personal injury liability.

本设备只适用于订货时的使用条件，如果变更使用条件，必须经过制造商或制造商授权的代理商认可，才能投入使用。

This device is designed for conditions of use when ordering, if conditions change, you must get the approval from the manufacturer or the agent authorized by the manufacturer, it can be put into use.

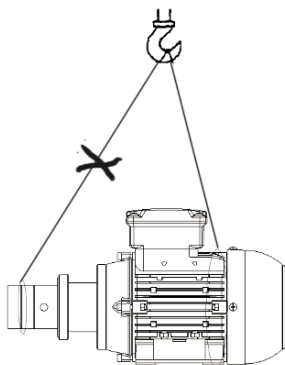
本设备只适用于本手册规定的使用条件和使用范围，任何超范围使用所导致的设备损坏或人员伤亡，制造商不对此承担责任。

This equipment is only suitable for the use conditions and scope of this manual, any use of equipment beyond the scope resulting equipment damage or personal injury, the manufacturer doesn't have to bear the responsibility.

## 2. 注意事项 / Attention

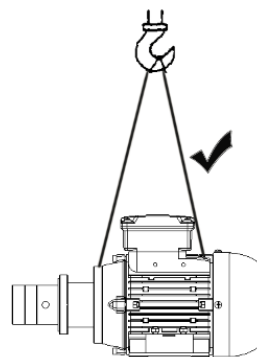
### 2.1 搬运

搬运泵和电机时，双手应抱紧电机主体整体搬运，不可以一手抱泵头，一手抱电机，这样容易把泵头压板拉变形，容易导致泵体泄漏。



### 2.1 TRANSPORT

When carrying the pump and motor, hands should hold the motor body whole carrying, not one hand holding pump head, one hand holding motor, it is easy to pull the pump head plate deformation, cause pump leakage.



4

### 2.2 安装

2.2.1 泵的安装 - 将泵的安装位置尽可能的靠近液体源，出入口管线尺寸不能小于泵接口尺寸，并尽量缩短长度。如果入口管线必须很长，请加大管径。尽量减少泵入口的阀门，弯管的数量。

### 2.2 INSTALLATION

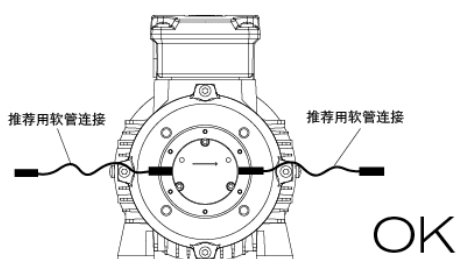
2.2.1 Pump installation - the pump is installed as close as possible to the liquid source, inlet and outlet pipeline size can't be smaller than the pump connection size, and try to shorten the length. If the inlet line must be very long, please increase the diameter. Minimize the pump inlet valve, the number of bends.

2.2.2 Piping Installation - Use a thread sealant or a Teflon sealant as a seal for the pipe connection.

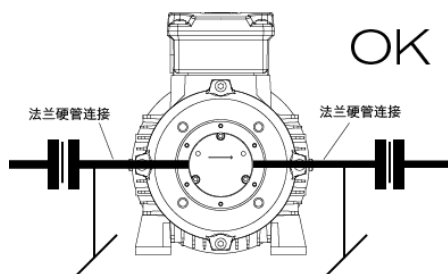
Don't damage the pump head during installation, don't affect the pump centering. When tightening the thread with a wrench, hold the pump head with your hand. Due to the small size of the pump, the inlet and outlet pipeline priority to use hose connection to reduce the pipeline power attached to the pump body, the pipe stress or tension too large is easy to pull the pump plate deformation, easily lead to pump leakage. When the pipe is connected with a flanged pipe, the pipe must be fitted with a support bracket fixed, center alignment, to ensure that when tightening the matching flange, will not pull the pump side of the pipeline, as far as possible to eliminate the pipeline deformation by stress, below is the installation instruction:



2.2.2 管道安装 - 使用螺纹密封胶或特氟龙密封带作为管道联结的密封，在安装过程中不要损坏泵头，不要影响泵的对中。在用扳手紧螺纹的时候，要用手握住泵头。由于泵体体积较小，进出口管道优先使用软管连接，减小管道力量附加到泵体上，管道应力或拉力过大容易将泵体压板拉伸变形，容易导致泵体泄漏。当进出口管路是带法兰硬管连接时，管道上需装好支撑管架固定，中心对准，要确保配对法兰拧紧时不会把泵头侧的管路拉动，尽可能消除管道应力变形，以下为安装示意图：







2.3 过滤器 - 在泵的入口应该安装 25 $\mu$ m 或精度更高的过滤器。

### 3.运行

3.1 磁力驱动环 - 磁力驱动可以让泵达到零泄漏的要求, 它也能够对系统的过压和颗粒的进入提供保护。当内外磁环在极端外力的作用下发生错位, 就会发生脱转现象。

3.2 泵堵转时, 电机可能会继续运转, 但泵将停止运行。

3.3 要恢复运转, 请将电机完全停止再启动。

3.4 如果继续堵转, 请检查系统是否超压。如果系统压力正常, 必须拆开泵体检查是否有外部颗粒进入泵体, 造成齿轮堵转。清理完内部部件后, 重新组装泵组。在重新启动前, 请转动电机风扇的叶片, 此时泵和电机应该平稳无阻碍的旋转。

3.5 操作压力 - 过大的进出口压力差会使磁力联轴脱转, 系统压力会有波动, 并发出震动噪音。

3.6 输送有粘度物料 - 粘度过大转速又很高会使磁力联轴器脱转, 请按选型时提供的转速运行。

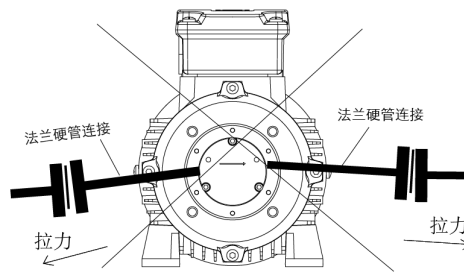
3.7 输送高温物料 - 泵出厂前齿轮和滑动轴承留有安全膨胀间隙, 因此输送时请将泵加热至需要的温度, 否则泵在常温下会出现, 内泄漏过大、压力有波动。

3.8 自吸 - 泵具有自吸功能, 但在启动前确认齿轮被泵送的液体润湿过。

3.9 干转 - 干转会导致泵的永久损坏, 请确认泵在运转时泵腔内有液体。

4.0 反转 - 泵应该顺时针旋转, 短时间的反转是可以接受的, 但长时间连续的反转会缩短泵的寿命。

4.1 工程塑料齿轮泵 - 严禁用于含二氯甲烷、四氢呋喃、丁基锂、二甲基乙酰胺的溶剂及物料输送或清洗, 输送以上物料会使我们的工程塑料齿轮和轴套发生溶胀卡死。



2.3 Filter - at the inlet of the pump should be installed 25 $\mu$ m or higher precision filter.

### 3.RUN

3.1 Magnetic drive ring - magnetic drive lets pump achieve zero leakage requirements, it also can provide protection for overvoltage to system and particle entering. When the internal and external magnetic loop occur dislocation under the extreme force, the decoupling phenomenon occurs.

3.2 When the pump locking rotor, the motor may continue to run, but the pump will stop running.

3.3 To resume running, please stop the motor completely before restarting.

3.4 If continue stalling, check whether the system overpressure. If the system pressure is normal, the pump must be disassembled to check if outer particles enter the body, resulting in gear stall. Clean internal parts, reassemble the pump. Before restarting, turn the motor fan blades, the pump and motor should be rotate smooth unimpeded.

3.5 Operating pressure - excessive inlet and outlet pressure difference causes the magnetic coupling slip. System pressure will have fluctuations and vibration noise.

3.6 Deliver viscous materials - too high viscosity and high speed will turn off the magnetic coupling, please run as per the selection speed.

3.7 Deliver high temperature materials - before leaving factory the pump gear and sliding bearing have safe expansion gap, so heat the pump to required temperature when delivering, otherwise, the pump will appear excessive leakage and pressure fluctuations at normal temperature.

3.8 Self-suction - pump has self-suction, but confirm the gear wetted by liquid before starting.

3.9 Dry-running - Dry-running will cause permanent damage to the pump, make sure that the pump has liquid when running.

4.0 Reverse - pump should rotate clockwise, short reversal is acceptable, but long continuous reversal will shorten the life of the pump.

4.1 Engineering plastic gear pump - is prohibited for solvent containing dichloromethane, tetrahydrofuran, butyl lithium & dimethylacetamide and material delivering or cleaning, delivering above materials will make plastic gears and bearing sleeve swells stuck.

3.技术参数 / Technical Parameters

|       |                            |   |   |
|-------|----------------------------|---|---|
| 流量范围  | Flow range                 | 0.001 - 64 L/min  |   |
| 入口压力  | Inlet pressure             | -0.98 - 25 bar  |   |
| 压差    | Differential pressure      | 0-25.5 bar 取决于物料粘度  | Depends on material viscosity   |
| 温度    | Temperature                | -40 - 160℃ 其它温度可定制  | Other temperatures can be customized                                      |
| 粘度范围  | Viscosity range            | 0.4-3000cps   |   |
| 最大密度  | Maximum density            | 1.8   |   |
| 电机可配  | Motor can be equipped      | 交流电机、无刷直流、伺服、变频防爆电机                                       | AC motors, Brushless DC, Servo Frequency conversion explosion-proof motor |
| 进出口螺纹 | Import and export thread   | NPT1/8、NPT1/4、NPT3/8、NPT1/2、NPT3/4 or G1/8、G1/4、G3/8、G3/4 |   |
| 非标定制  | Non-standard customization | OEM机械设备配套、伺服系统定制  | OEM mechanical equipment matching servo system customization              |

4.配置编码 / Configuration Code

MR

A

18

S

Z

K

L

F

泵系列号  
Pump serial

排量  
Displacement  
毫升/转 cc/rev  
例如: 18=0.18cc/rev

进出口螺纹  
Import and export thread  
A: NPT 1/8  
B: NPT 1/4  
C: NPT 3/8  
D: NPT 1/2  
E: NPT 3/4  
F: G1 1/4  
其他接口形式定制

泵体材质  
Pump material  
S:316L  
P:PPS  
H:哈氏合金  
(适用于酸性介质)

滑动轴承  
Bearing  
K:PEEK  
F:PTFE

结构形式  
Structure type  
L:进出口180°(标准)  
B:进出口90°  
B: Import and export of 90°

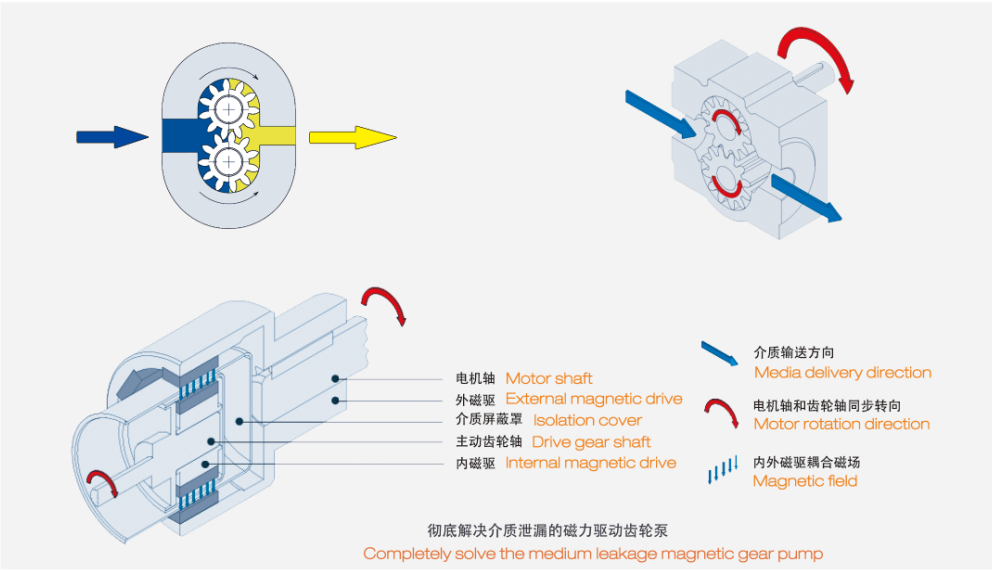
静密封圈  
O-Ring  
F:PTFE  
M:FKM  
E:EPDM  
P:全氟醚  
L:氯丁橡胶

齿轮轴材质  
Gear shaft material  
Z:齿轮PEEK+轴纳米陶瓷(适用于低粘度无磨蚀介质)默认标配  
Z: Gear PEEK + Nano-ceramic shaft (for low viscosity non-abrasive media) Standard  
K:齿轮PEEK+轴316(适用于中性低粘度无磨蚀介质)  
K:GearPEEK+shaft 316(for neutral low viscosity non-abrasive media)  
C:纳米陶瓷(适用于低粘度微细颗粒磨蚀介质)  
C:Nano-ceramic (for low viscosity fine particle abrasive media)  
S:合金(适用于润滑性较好的介质)  
S:Alloy (for medium with better lubricity)

PRECISION GEAR SHAFTS  
精密级 齿轮轴

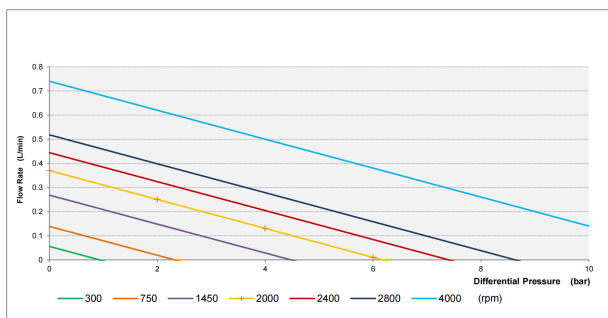
JONSON · 琼森

5.工作原理图 / Working Principle

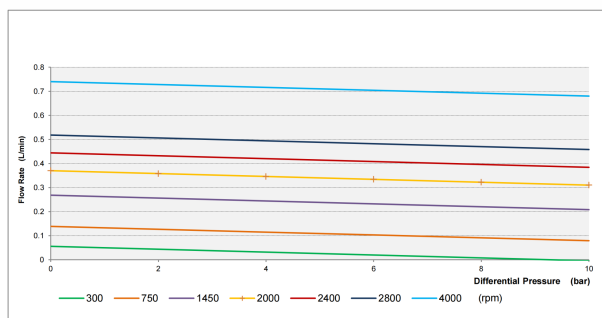


## 6.性能曲线图 / Performance Curve

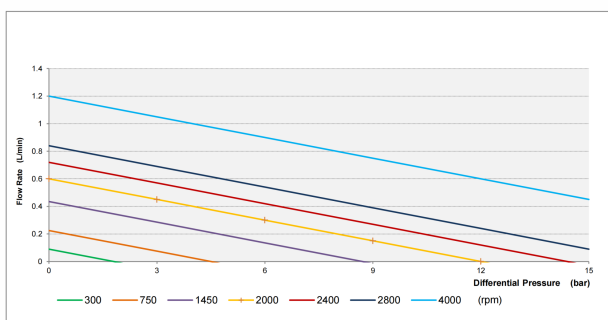
**Pump Head MRA 5/13**  
Measured with water 1 mPas & 40°C



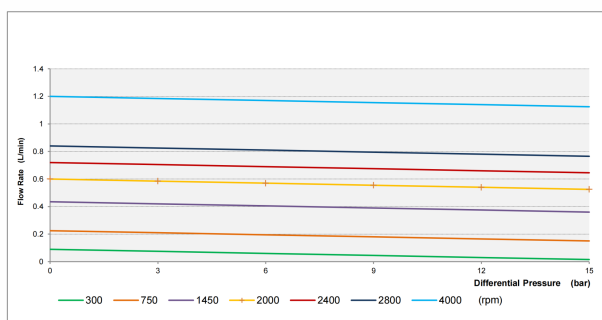
**Pump Head MRA 5/13**  
Measured with oil 100 mPas & 40°C



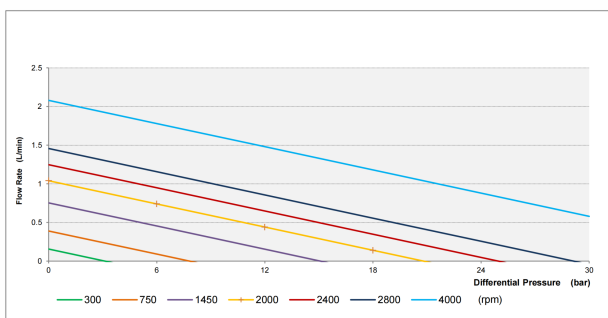
**Pump Head MRA 7/13**  
Measured with water 1 mPas & 40°C



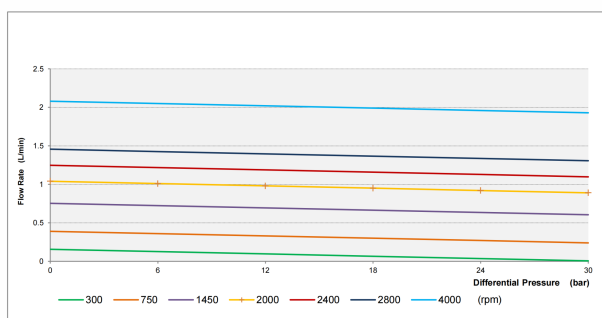
**Pump Head MRA 7/13**  
Measured with oil 100 mPas & 40°C



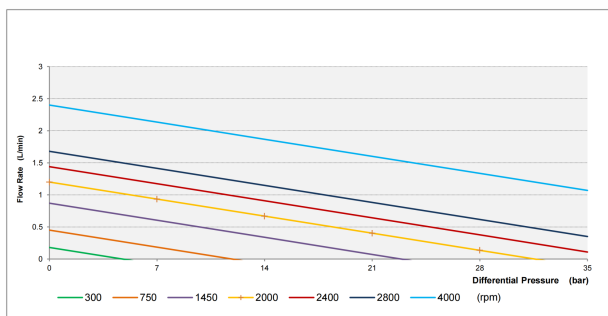
**Pump Head MRA 10/13**  
Measured with water 1 mPas & 40°C



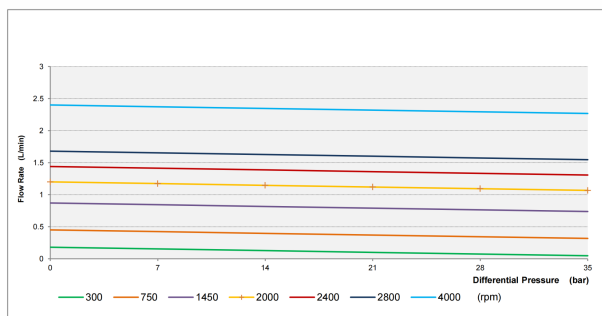
**Pump Head MRA 10/13**  
Measured with oil 100 mPas & 40°C



**Pump Head MRA 12/13**  
Measured with water 1 mPas & 40°C

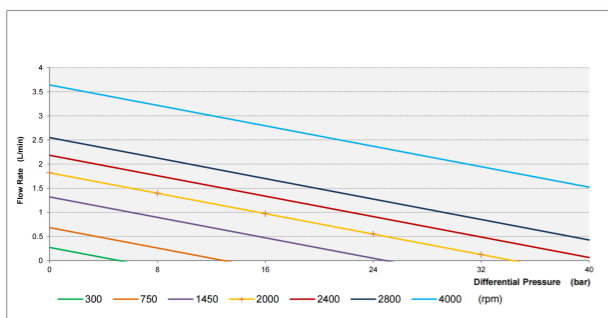


**Pump Head MRA 12/13**  
Measured with oil 100 mPas & 40°C

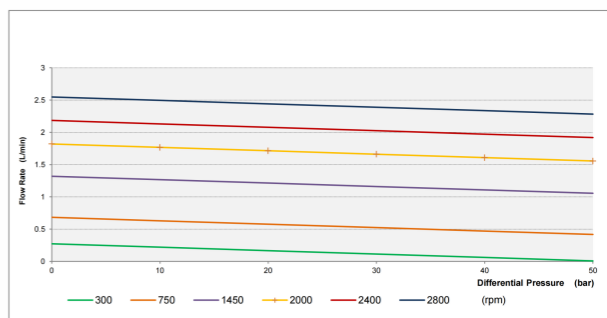


7

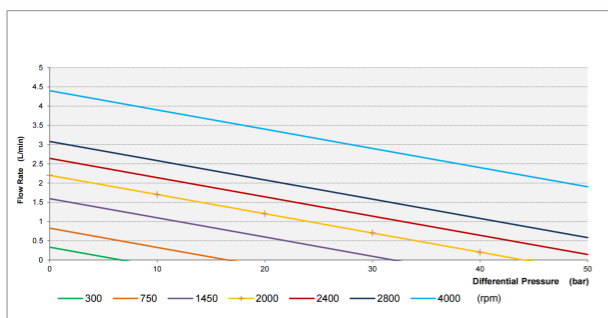
**Pump Head MRB 10/16**  
Measured with water 1 mPas & 40°C



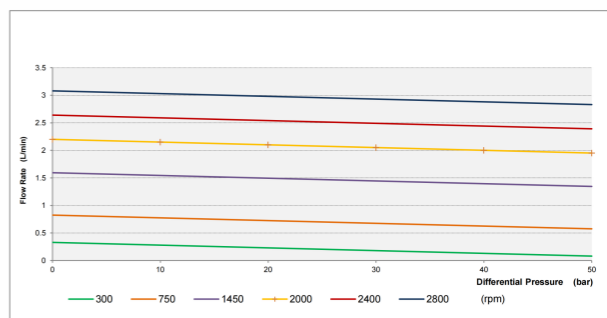
**Pump Head MRB 10/16**  
Measured with oil 100 mPas & 40°C



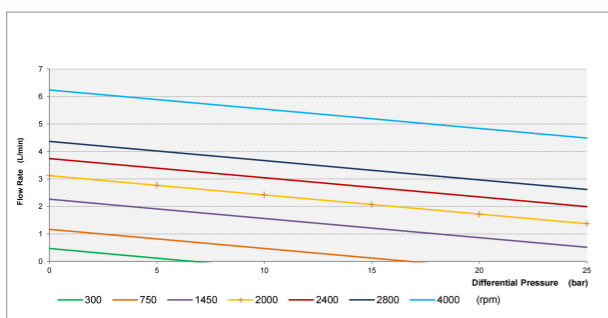
**Pump Head MRB 12/16**  
Measured with water 1 mPas & 40°C



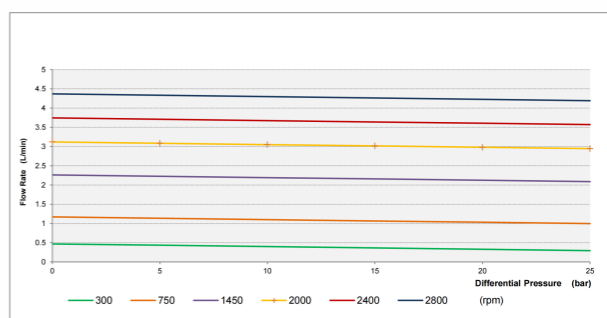
**Pump Head MRB 12/16**  
Measured with oil 100 mPas & 40°C



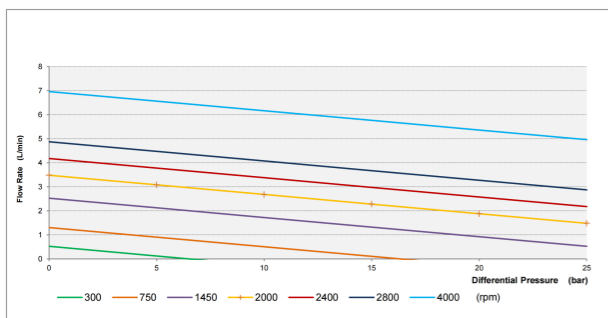
**Pump Head MRB 17/16**  
Measured with water 1 mPas & 40°C



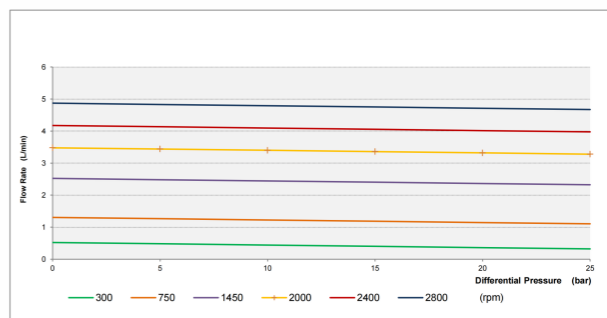
**Pump Head MRB 17/16**  
Measured with oil 100 mPas & 40°C



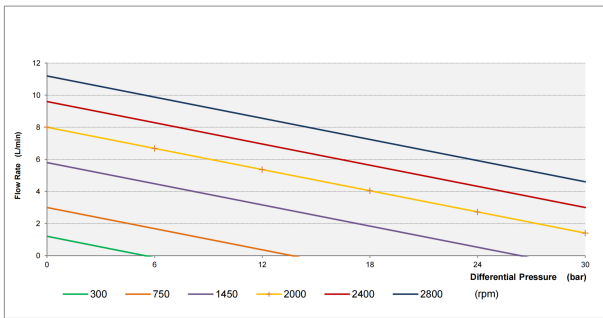
**Pump Head MRB 19/16**  
Measured with water 1 mPas & 40°C



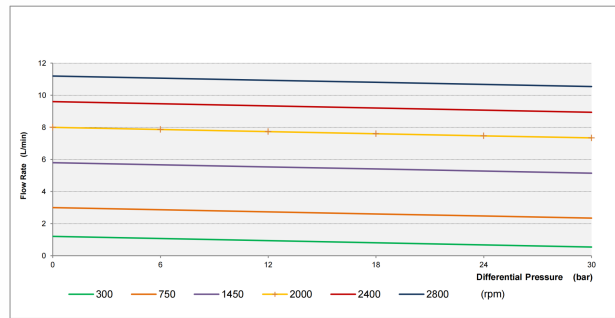
**Pump Head MRB 19/16**  
Measured with oil 100 mPas & 40°C



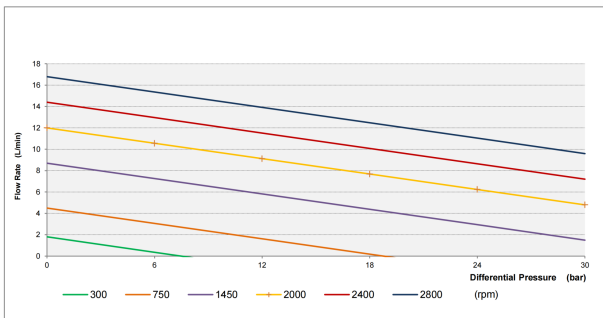
**Pump Head MRC 8/37**  
Measured with water 1 mPas & 40°C



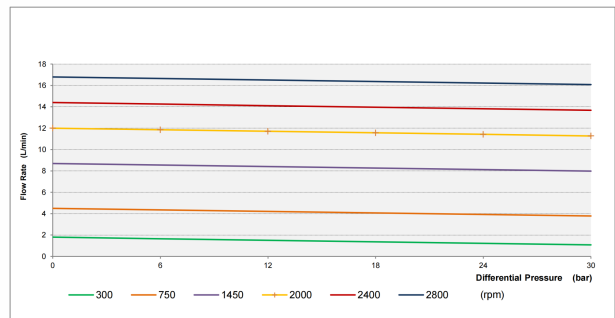
**Pump Head MRC 8/37**  
Measured with oil 100 mPas & 40°C



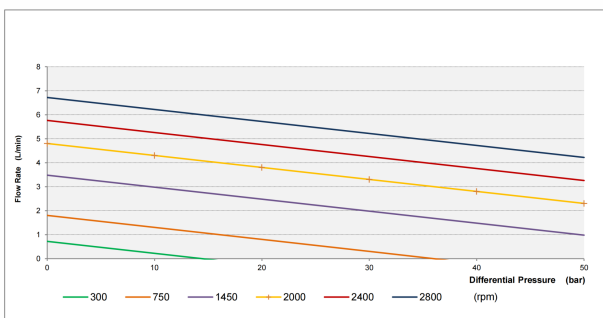
**Pump Head MRC 12/37**  
Measured with water 1 mPas & 40°C



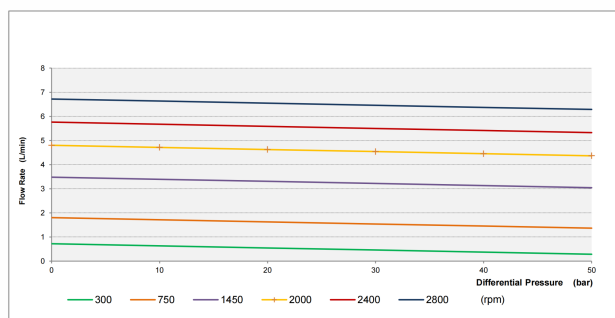
**Pump Head MRC 12/37**  
Measured with oil 100 mPas & 40°C



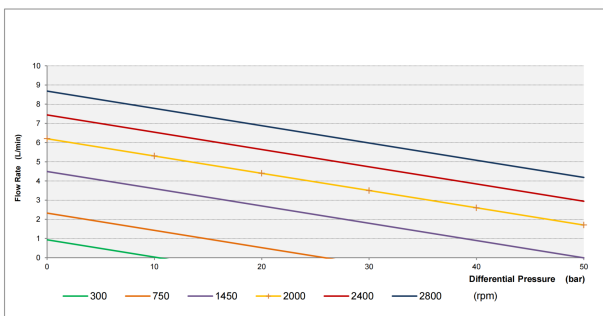
**Pump Head MRC 15/22**  
Measured with water 1 mPas & 40°C



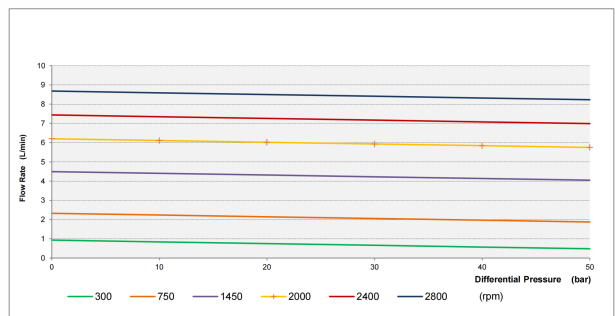
**Pump Head MRC 15/22**  
Measured with oil 100 mPas & 40°C



**Pump Head MRC 20/22**  
Measured with water 1 mPas & 40°C

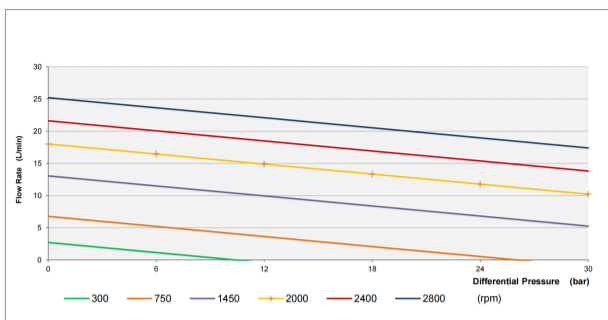


**Pump Head MRC 20/22**  
Measured with oil 100 mPas & 40°C

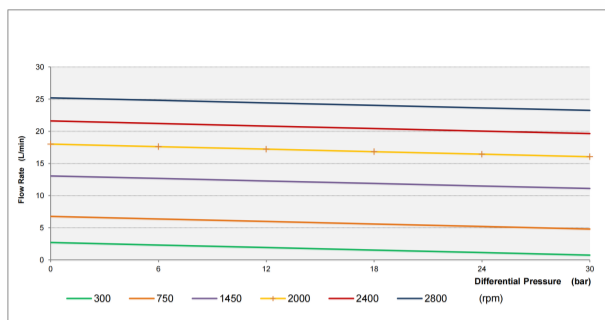




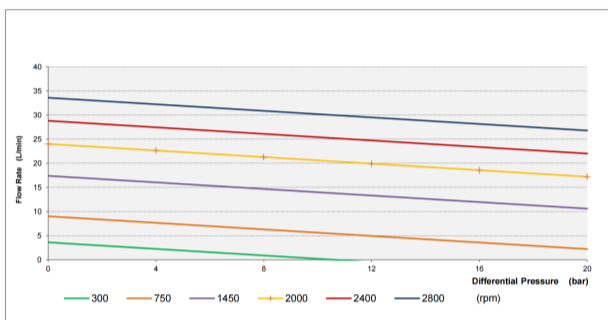
**Pump Head MRE 18/37**  
Measured with water 1 mPas & 40°C



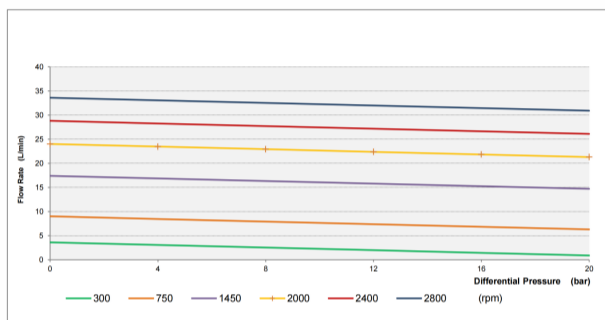
**Pump Head MRE 18/37**  
Measured with oil 100 mPas & 40°C



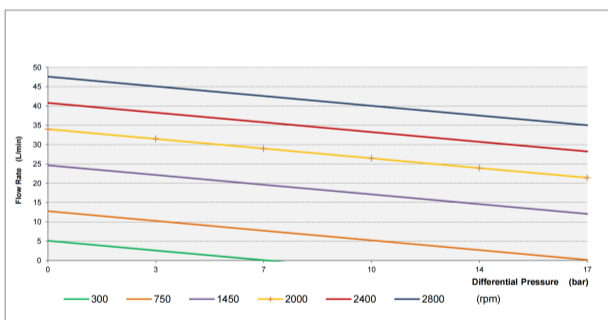
**Pump Head MRE 24/37**  
Measured with water 1 mPas & 40°C



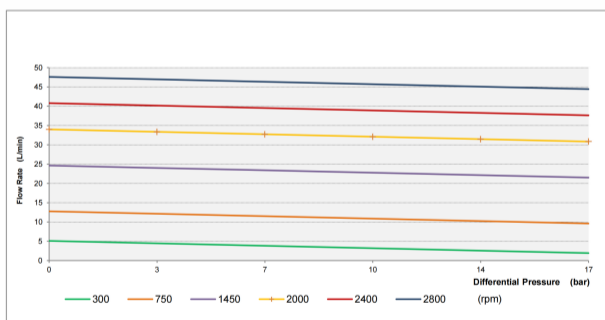
**Pump Head MRE 24/37**  
Measured with oil 100 mPas & 40°C



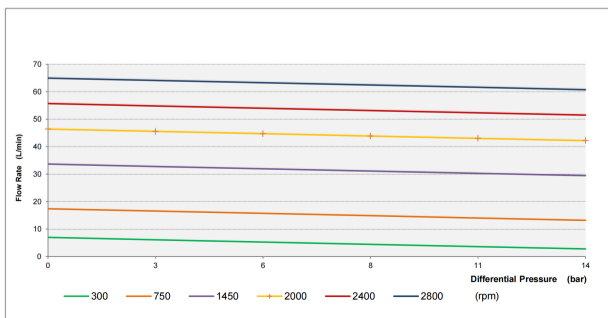
**Pump Head MRE 34/37**  
Measured with water 1 mPas & 40°C



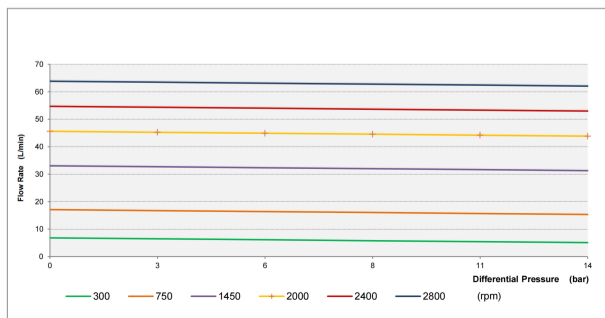
**Pump Head MRE 34/37**  
Measured with oil 100 mPas & 40°C



**Pump Head MRF 34/39**  
Measured with water 1 mPas & 40°C

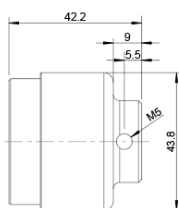
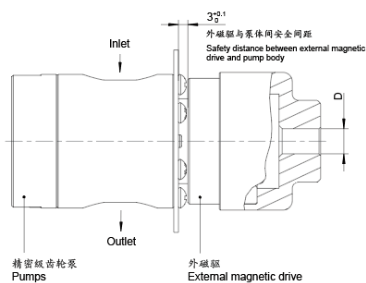
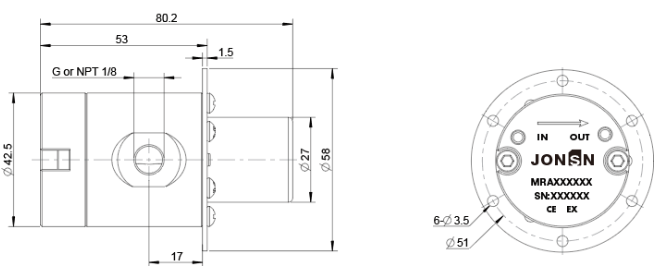


**Pump Head MRF 34/39**  
Measured with oil 100 mPas & 40°C



## 7. 尺寸图/ Dimensional Drawing

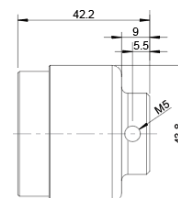
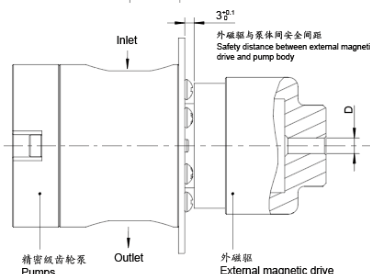
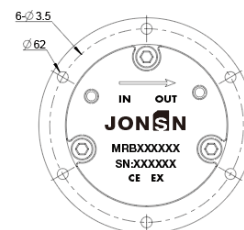
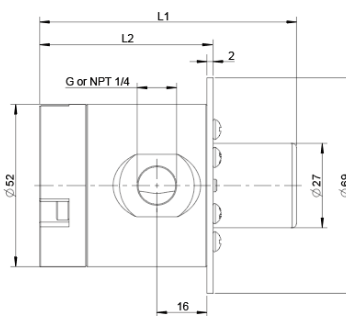
## MRA Gear Pumps



|                 |  |
|-----------------|--|
| Pumps order No. | <p>MRA泵头 外形尺寸统一</p> <p>MRA pumps head uniform dimensions</p> |
| MRA 5/13        |  |
| MRA 7/13        |  |
| MRA 10/13       |  |
| MRA 12/13       |  |

|   |    |
|---|----|
| D | 5  |
|   | 6  |
|   | 8  |
|   | 11 |
|   | 14 |
|   | 19 |

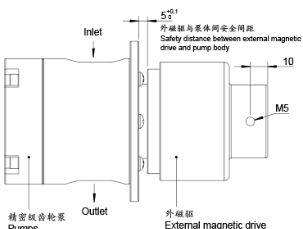
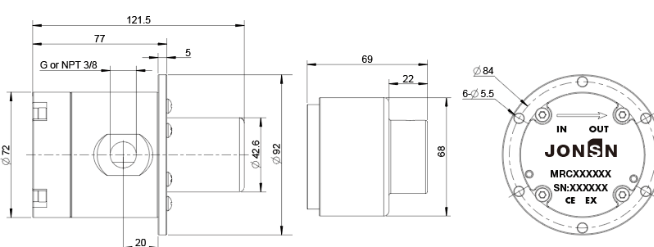
## ➤ MRB Gear Pumps



| Pumps order No. | L1   | L2   |
|-----------------|------|------|
| MRB 10 /16      | 82.2 | 55.5 |
| MRB 12 /16      |      |      |
| MRB 17 /16      | 87.2 | 60.5 |
| MRB 19 /16      |      |      |

|   |    |
|---|----|
| D | 5  |
|   | 6  |
|   | 8  |
|   | 11 |
|   | 14 |
|   | 19 |

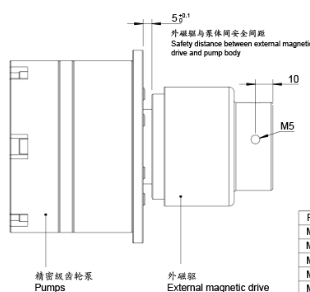
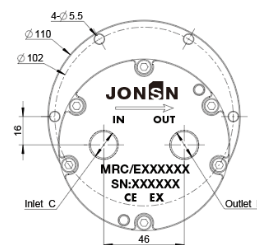
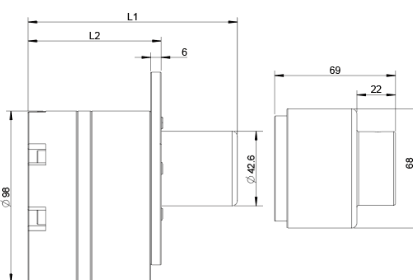
**➤ MRC15/22 MRC20/22 Gear Pumps**



| D  | H    | T |
|----|------|---|
| 14 | 17   | 5 |
| 19 | 22.5 | 6 |
| 24 | 28   | 8 |
| 28 | 32   | 8 |

|                 |  |
|-----------------|--|
| Pumps order No. | 泵头 外形尺寸统一<br>pumps head uniform dimensions |
| MRC 15/22       |  |
| MRC 20/22       |  |

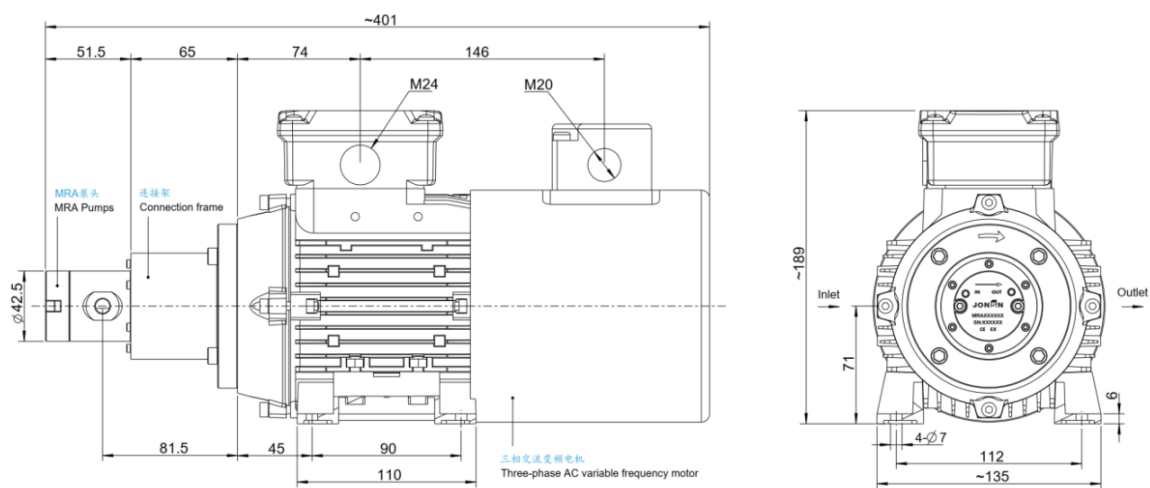
➤ **MRC8/37 MRC12/37**  
**MRE18/37 MRE24/37 MRE34/37**  
**Gear Pumps**



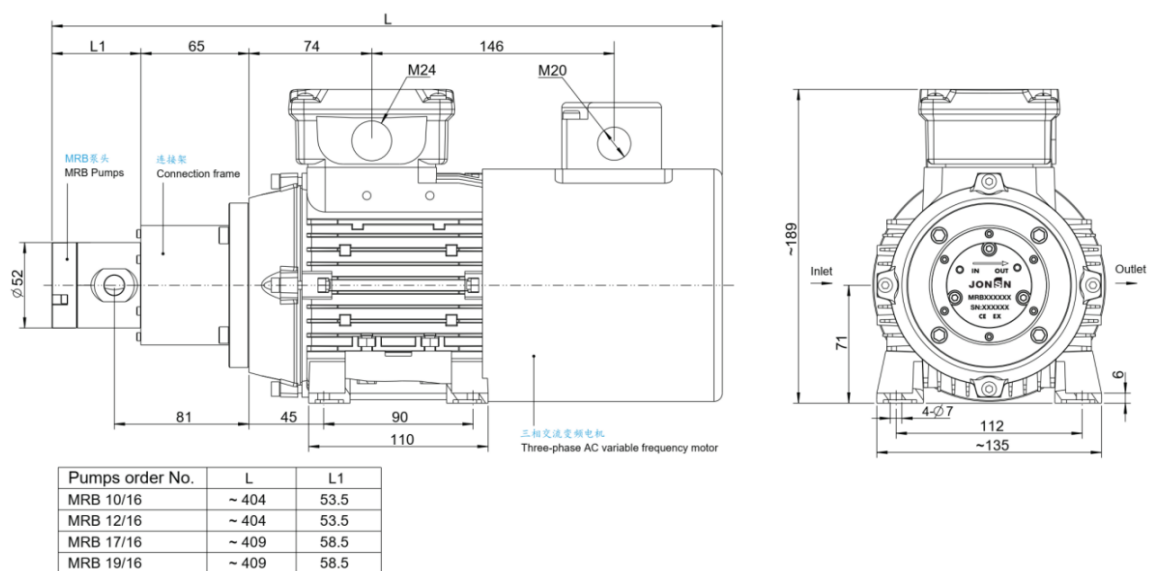
| D  | H    | T |
|----|------|---|
| 14 | 17   | 5 |
| 19 | 22.5 | 6 |
| 24 | 28   | 8 |
| 28 | 32   | 8 |

| Pumps order No. | L1    | L2   | C            | D            |
|-----------------|-------|------|--------------|--------------|
| MRC 8/37        | 119.5 | 75.5 | G or NPT 3/8 | G or NPT 3/8 |
| MRC 12/37       | 119.5 | 75.5 | G or NPT 3/8 | G or NPT 3/8 |
| MRE 18/37       | 141.5 | 98.5 | G or NPT 3/4 | G or NPT 3/4 |
| MRE 24/37       | 141.5 | 98.5 | G or NPT 3/4 | G or NPT 3/4 |
| MRE 34/37       | 141.5 | 98.5 | G or NPT 3/4 | G or NPT 3/4 |

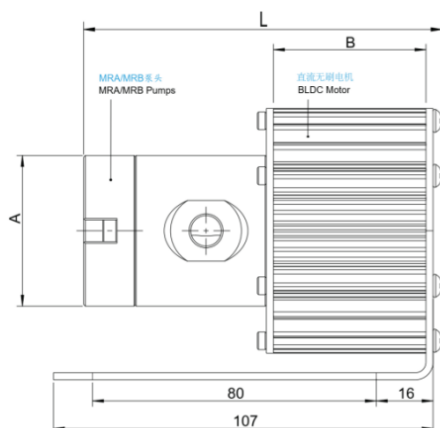
## ➤ MRA Pumps & IEC Motor 0.37Kw 71M B34



## ➤ MRB Pumps & IEC Motor 0.37Kw 71M B34

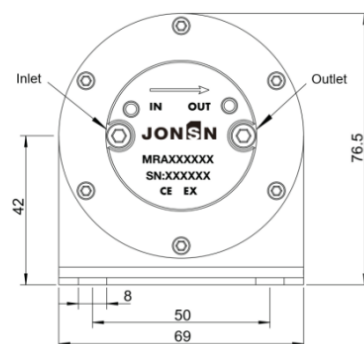


## ➤ MRA/MRB Pumps & BLDC Motor



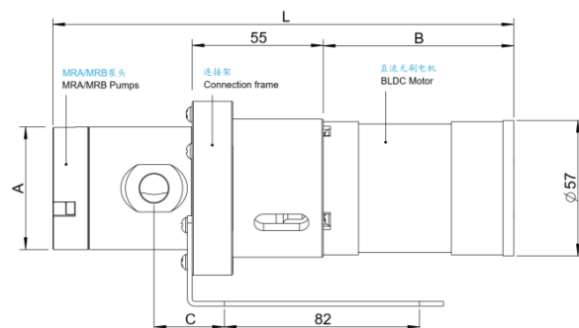
MRA / MRB & BLDC 12V / 24V 40W/70W 150-4000rpm

| Pumps order No.    | A    | B  | L   |
|--------------------|------|----|-----|
| MRA                | 42.5 | 42 | 102 |
| MRB 10/16 MRB12/16 | 52   | 42 | 104 |
| MRB 17/16 MRB19/16 | 52   | 42 | 109 |



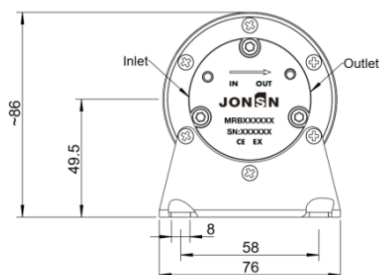
MRA / MRB & BLDC 12V / 24V 100W 150-4000rpm

| Pumps order No.    | A    | B  | L   |
|--------------------|------|----|-----|
| MRA                | 42.5 | 49 | 107 |
| MRB 10/16 MRB12/16 | 52   | 49 | 111 |
| MRB 17/16 MRB19/16 | 52   | 49 | 116 |



MRA / MRB & BLDC 57 24V 120W 150-3000rpm

| Order No.          | A    | B   | C    | L    |
|--------------------|------|-----|------|------|
| MRA                | 42.5 | 118 | 30.5 | ~225 |
| MRB 10/16 MRB12/16 | 52   | 118 | 29.5 | ~227 |
| MRB 17/16 MRB19/16 | 55   | 118 | 29.5 | ~232 |



MRA / MRB & BLDC 24V 150W 150-3000rpm

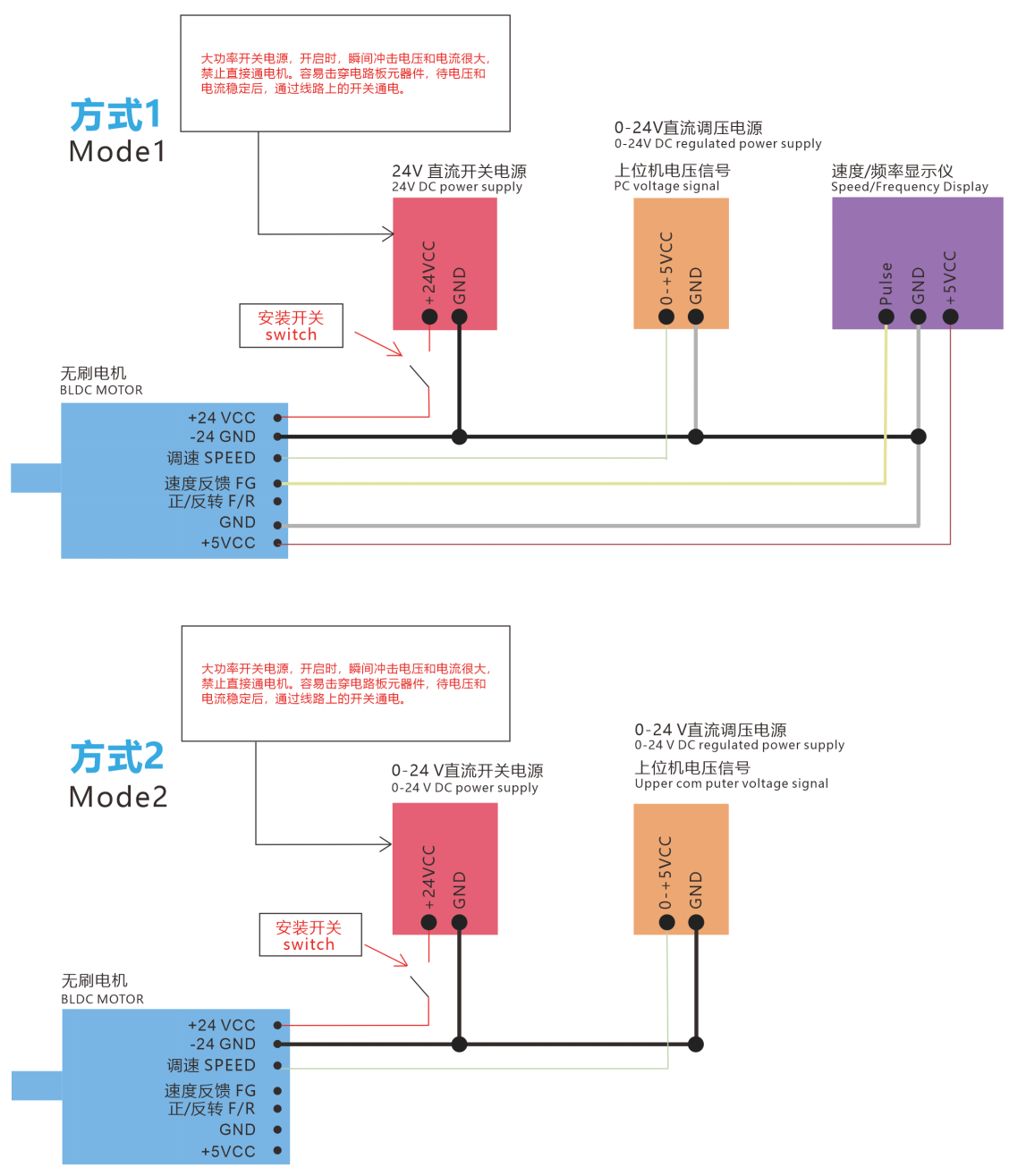
| Order No.          | A    | B   | C    | L    |
|--------------------|------|-----|------|------|
| MRA                | 42.5 | 136 | 30.5 | ~243 |
| MRB 10/16 MRB12/16 | 52   | 136 | 29.5 | ~265 |
| MRB 17/16 MRB19/16 | 55   | 136 | 29.5 | ~250 |

## 无刷电机参数

| 电压     | DC24V               | DC24V   | DC24V   |
|--------|---------------------|---------|---------|
| 功率     | 40W                 | 70W     | 100W    |
| 调速方式   | 模拟量 0-5V/PWM        |         |         |
| 转速调节范围 | 500~4000rpm 其他转速可定制 |         |         |
| 启动电压   | 0.5V                |         |         |
| 绝缘等级   | F级                  |         |         |
| 环境温度   | -40~60℃             |         |         |
| 堵转保护   | 堵转电流 3A             | 堵转电流 3A | 堵转电流 4A |
| 超温保护   | √                   | √       | √       |

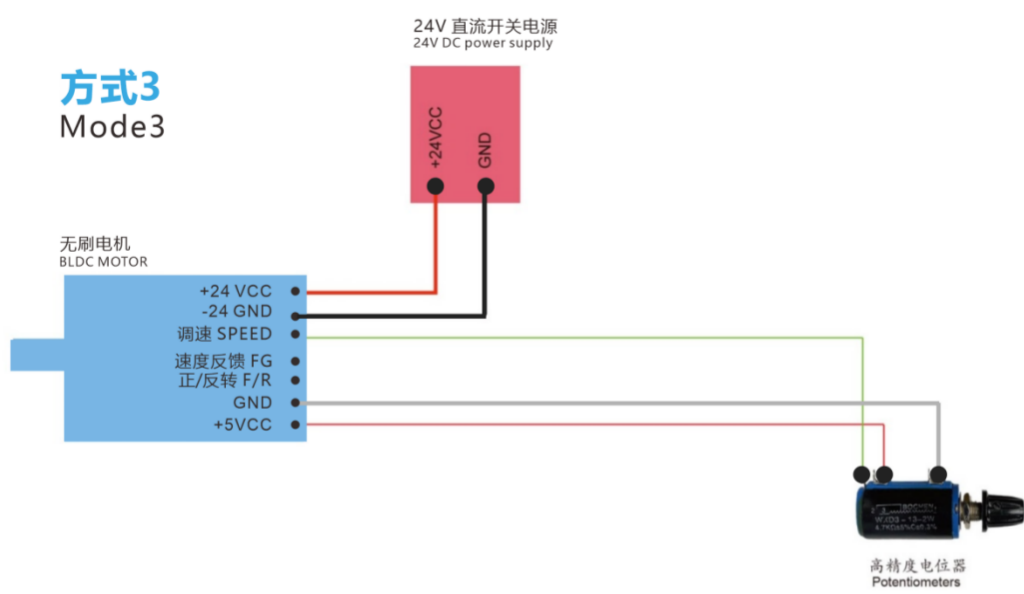
## 电源线定义

|             |   |
|-------------|---|
| • 红线 Vcc+   | 电源 24V+ 输入  |
| • 黑线 GND V- | GND公共端, 24V-, 调速电压 V-, 速度反馈仪表 V-                        |
| • 绿线        | 0-5V+ 或 PWM转速调节信号输入                                     |
| • 黄线        | 转速脉冲信号输出 (电机每转输出 2 个脉冲)                                 |
| • 白线        | 正反转控制线, 默认, 断开正转, 接通 GND 电线接地端线/反转                      |
| • 红色细线      | 5V 输出 (用于电位器旋钮调速方式预留, 当不使用电位器时做好绝缘隔离, 避免碰到其它线路, 导致故障)   |
| • 黑色细线      | GND 公共端 (用于电位器旋钮调速方式预留, 当不使用电位器时做好绝缘隔离, 避免碰到其它线路, 导致故障) |

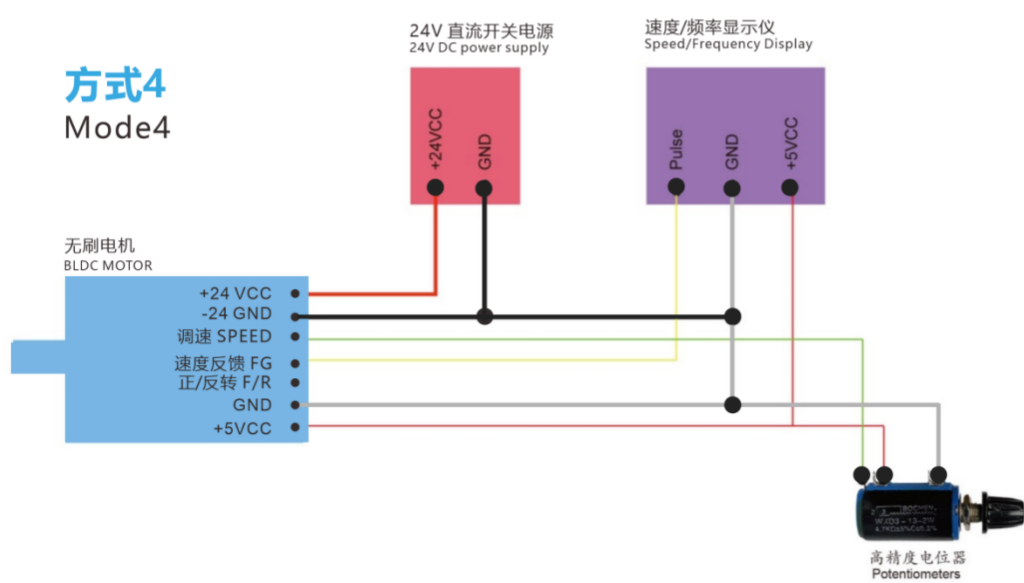




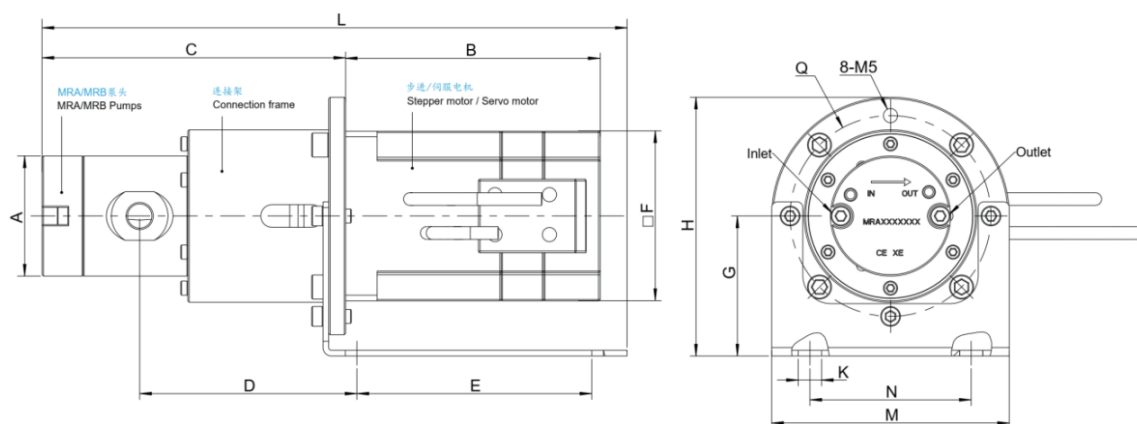
### 方式3 Mode3



### 方式4 Mode4



## ➤ MRA/MRB Pumps & Servo/Stepper Motor



MRA / MRB & Servo motor 220V 100W-400W 0-3000rpm

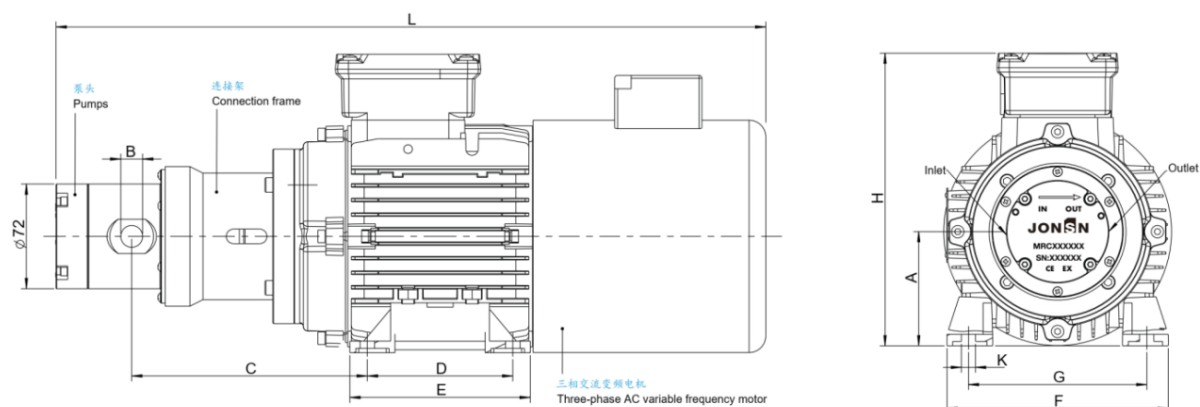
| Pumps order No. | A    | B   | C   | D  | E  | F  | G    | H    | K | L   | M   | N  | Q  |
|-----------------|------|-----|-----|----|----|----|------|------|---|-----|-----|----|----|
| MRA & 100W      | 42.5 | 100 | 111 | 81 | 80 | 40 | 49.5 | ~92  | 8 | 210 | 84  | 57 | 71 |
| MRA & 200W      | 42.5 | 105 | 117 | 86 | 80 | 60 | 49.5 | ~92  | 8 | 209 | 84  | 57 | 71 |
| MRB10/16 & 200W | 52   | 105 | 123 | 80 | 80 | 60 | 72   | ~124 | 8 | 207 | 105 | 80 | 90 |
| MRB12/16 & 200W | 52   | 105 | 123 | 80 | 80 | 60 | 72   | ~124 | 8 | 207 | 105 | 80 | 90 |
| MRB17/16 & 200W | 52   | 105 | 128 | 80 | 80 | 60 | 72   | ~124 | 8 | 212 | 105 | 80 | 90 |
| MRB19/16 & 400W | 52   | 130 | 128 | 80 | 80 | 60 | 72   | ~124 | 8 | 237 | 105 | 80 | 90 |

MRA / MRB & Stepper motor 24V 2N.m 0-1500rpm

| Pumps order No. | A    | B  | C     | D  | E  | F  | G    | H    | K | L     | M   | N  | Q  |
|-----------------|------|----|-------|----|----|----|------|------|---|-------|-----|----|----|
| MRA & ■ 60      | 42.5 | 90 | 106   | 77 | 80 | 60 | 49.5 | ~92  | 8 | 207   | 84  | 57 | 71 |
| MRB10/16 & ■ 60 | 52   | 90 | 108.5 | 70 | 80 | 60 | 72   | ~124 | 8 | 208.5 | 105 | 80 | 90 |
| MRB12/16 & ■ 60 | 52   | 90 | 108.5 | 70 | 80 | 60 | 72   | ~124 | 8 | 208.5 | 105 | 80 | 90 |
| MRB17/16 & ■ 60 | 52   | 90 | 113.5 | 70 | 80 | 60 | 72   | ~124 | 8 | 213.5 | 105 | 80 | 90 |
| MRB19/16 & ■ 60 | 52   | 90 | 113.5 | 70 | 80 | 60 | 72   | ~124 | 8 | 213.5 | 105 | 80 | 90 |

## ➤ MRC15/22 MRC20/22 Pumps

### IEC Motor



Power & 0.75-1.1Kw 2P 80M B34

| Pumps order No.     | A  | B            | C   | D   | E   | F    | G   | H    | L    |
|---------------------|----|--------------|-----|-----|-----|------|-----|------|------|
| MRC 15/22 MRC 20/22 | 80 | G or NPT 3/8 | 162 | 100 | 135 | ~160 | 125 | ~205 | ~488 |

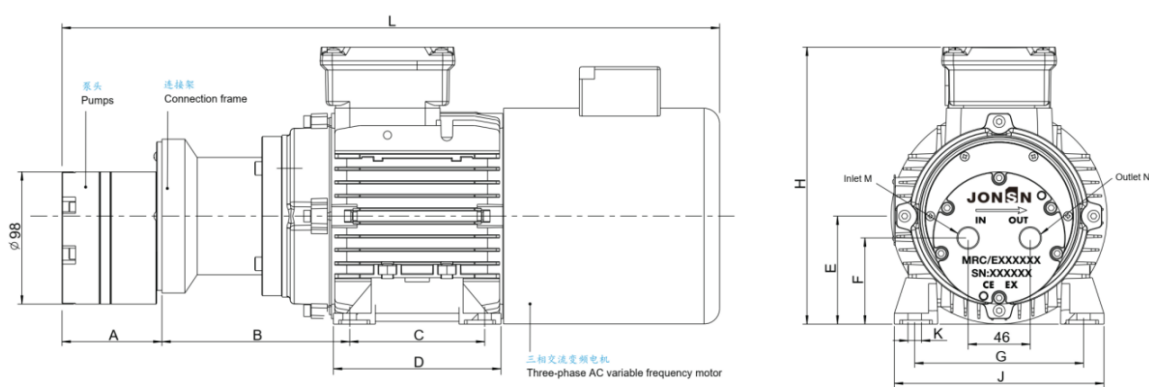
Power & 1.5Kw 2P 90L B34

| Order No.           | A  | B            | C   | D   | E   | F    | G   | H    | L    |
|---------------------|----|--------------|-----|-----|-----|------|-----|------|------|
| MRC 15/22 MRC 20/22 | 90 | G or NPT 3/8 | 178 | 125 | 165 | ~175 | 140 | ~235 | ~535 |

## ➤ MRC8/37 MRC12/37

### MRE18/37 MRE24/37 MRE34/37

### IEC Motor



Power & 0.75-1.1Kw 2P 80M B34

| Pumps order No.              | A  | B   | C   | D   | E  | F  | G   | H     | J     | K                   | L     | M            | N            |
|------------------------------|----|-----|-----|-----|----|----|-----|-------|-------|---------------------|-------|--------------|--------------|
| MRC 8/37 MRC12/37            | 74 | 139 | 100 | 135 | 80 | 64 | 125 | ~ 205 | ~ 160 | 4- $\varnothing$ 10 | ~ 478 | G or NPT 3/8 | G or NPT 3/8 |
| MRE 18/37 MRE 24/37 MRE34/37 | 96 | 139 | 125 | 165 | 90 | 64 | 140 | ~ 235 | ~ 175 | 4- $\varnothing$ 10 | ~ 509 | G or NPT 3/4 | G or NPT 3/4 |

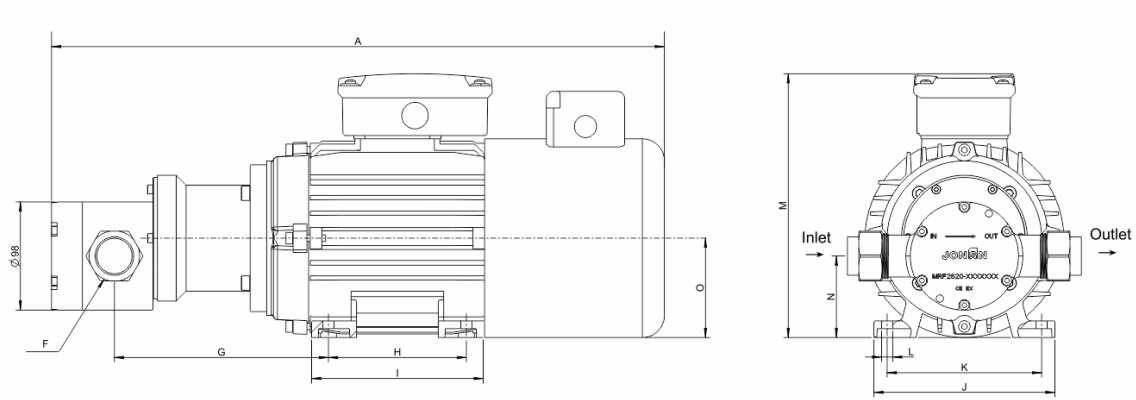
Power & 1.5Kw 2P 90L B34

| Pumps order No.              | A  | B   | C   | D   | E  | F  | G   | H     | J     | K                   | L     | M            | N            |
|------------------------------|----|-----|-----|-----|----|----|-----|-------|-------|---------------------|-------|--------------|--------------|
| MRC 8/37 MRC12/37            | 74 | 155 | 100 | 135 | 80 | 64 | 125 | ~ 205 | ~ 160 | 4- $\varnothing$ 10 | ~ 534 | G or NPT 3/8 | G or NPT 3/8 |
| MRE 18/37 MRE 24/37 MRE34/37 | 96 | 155 | 125 | 165 | 90 | 64 | 140 | ~ 235 | ~ 175 | 4- $\varnothing$ 10 | ~ 555 | G or NPT 3/4 | G or NPT 3/4 |

Power & 2.2-3Kw 2P 100L B34

| Pumps order No.              | A  | B   | C   | D   | E   | F  | G   | H     | J     | K                   | L     | M            | N            |
|------------------------------|----|-----|-----|-----|-----|----|-----|-------|-------|---------------------|-------|--------------|--------------|
| MRE 18/37 MRE 24/37 MRE34/37 | 96 | 174 | 140 | 180 | 100 | 64 | 160 | ~ 275 | ~ 200 | 4- $\varnothing$ 12 | ~ 584 | G or NPT 3/4 | G or NPT 3/4 |

➤ **MRF34/39**  
**IEC Motor**

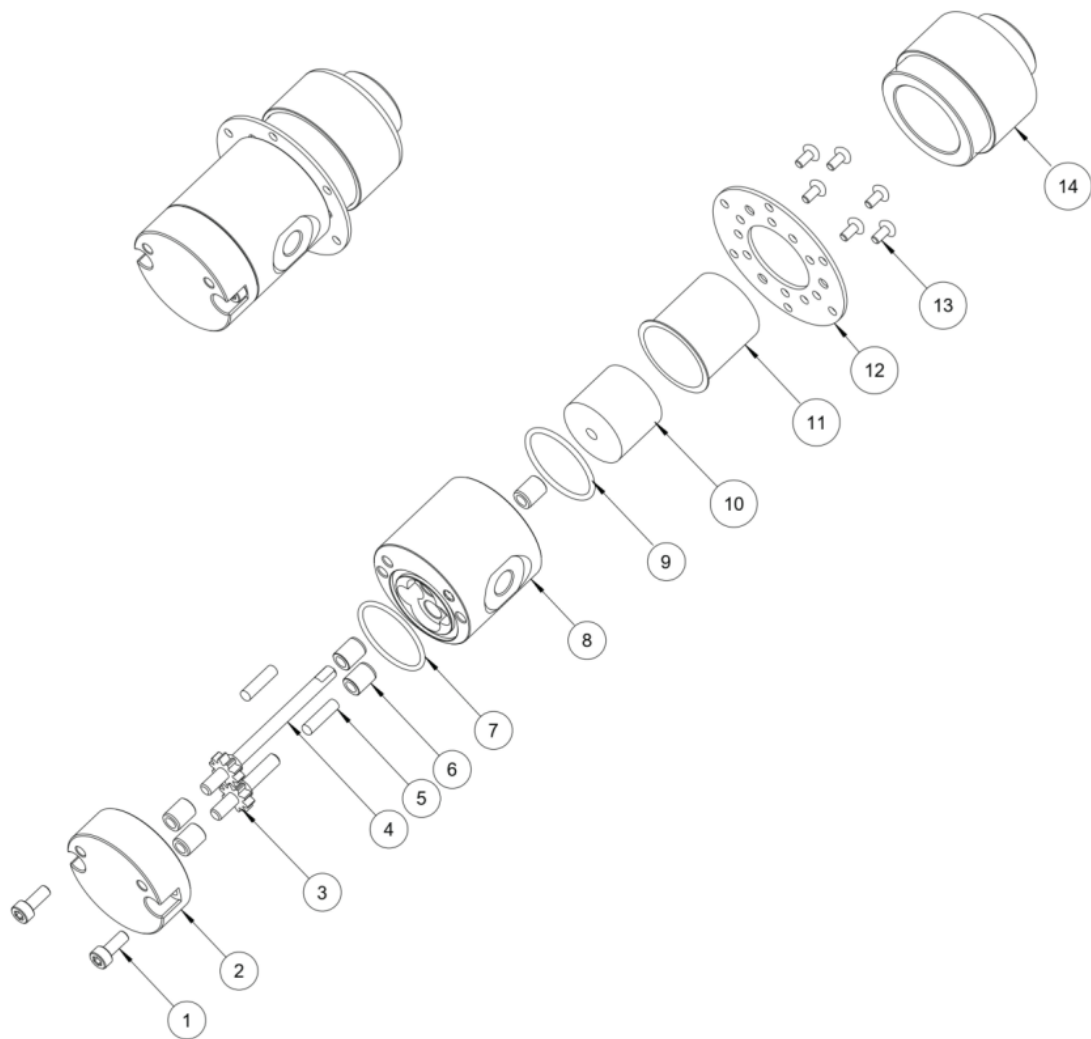


IEC Motor 2.2-3Kw 90L 100L b34

| Pumps order NO. | A    | F        | G   | H   | I   | J   | K   | L     | M    | N    | O   | Q    |
|-----------------|------|----------|-----|-----|-----|-----|-----|-------|------|------|-----|------|
| MRF34/39-90L    | ~556 | 2-G11/4" | 194 | 125 | 156 | 160 | 140 | 4-Φ10 | ~240 | 74   | 90  | ~212 |
| MRF34/39-100L   | ~605 | 2-G11/4" | 211 | 140 | 173 | 188 | 160 | 4-Φ12 | ~275 | 83.8 | 100 | ~212 |

8.分解图/ Exploded View

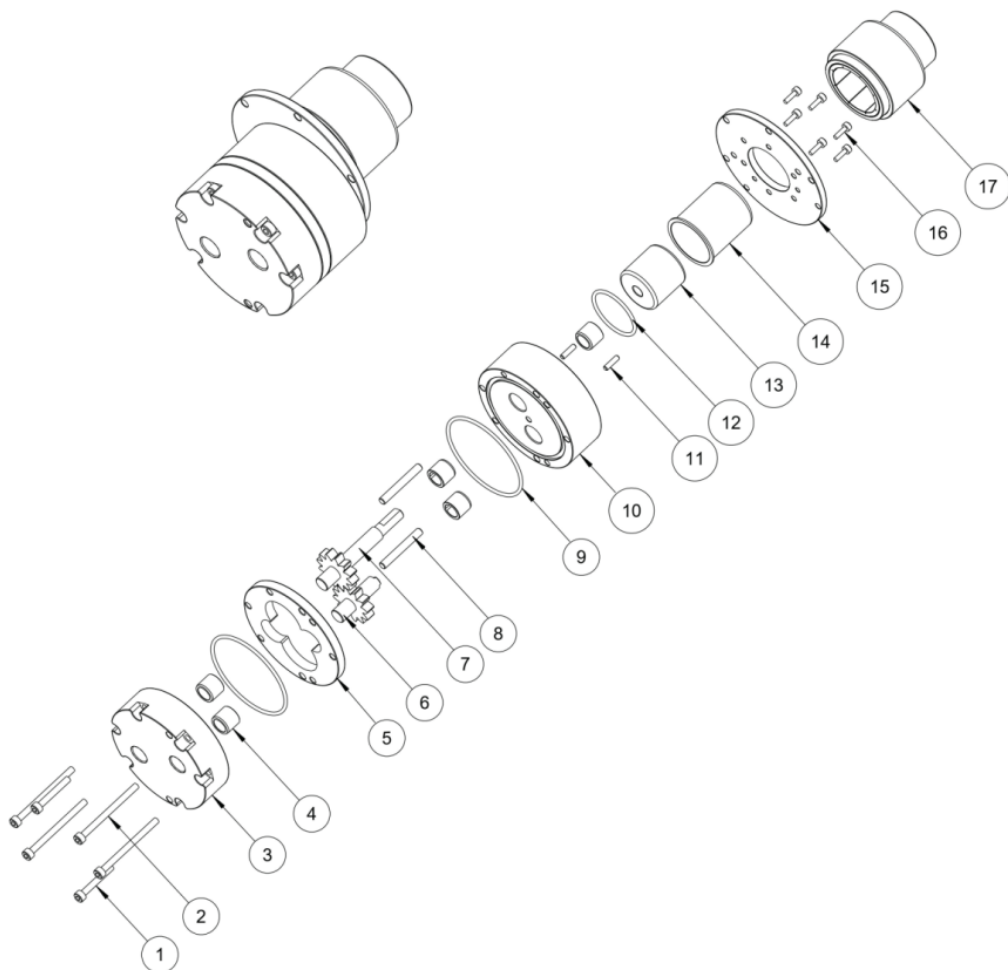
MRA & MRB  
MRC15/22 & MRC20/22



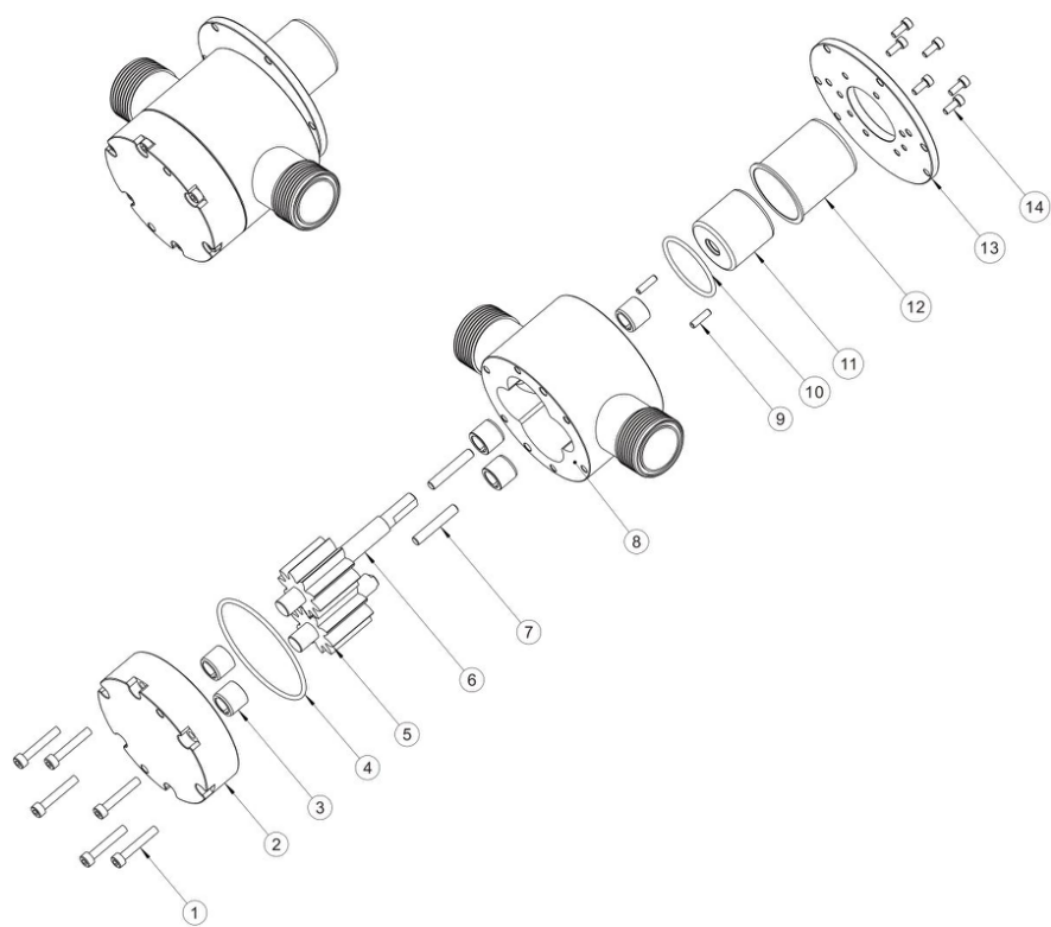
| 序号 / NO. | 零件名 / Part Name               | 数量 / Pcs. | 序号 / NO. | 零件名 / Part Name          | 数量 / Pcs. |
|----------|-------------------------------|-----------|----------|--------------------------|-----------|
| 1        | 内六角螺丝 / Socket Head Cap Screw | 2         | 2        | 泵盖 / Cover               | 1         |
| 3        | 从动齿轮轴 / Idler Gear Shaft      | 1         | 4        | 主动齿轮轴 / Drive Gear Shaft | 1         |
| 5        | 定位销 / pin                     | 2         | 6        | 滑动轴承 / Sleeve Bearing    | 5         |
| 7        | 密封圈 / O-ring                  | 1         | 8        | 主体 / Body                | 1         |
| 9        | 密封圈 / O-ring                  | 1         | 10       | 内磁驱 / Inner mag.drive    | 1         |
| 11       | 屏蔽罩 / Shield                  | 1         | 12       | 压板 / Pressure plate      | 1         |
| 13       | 十字圆头螺丝 / Phillips head screws | 6         | 14       | 外磁驱组件 / Out mag.drive    | 1         |



➤ **MRC8/37 MRC12/37**  
**MRE18/37 MRE24/37 MRE34/37**



| 序号 / NO. | 零件名 / Part Name               | 数量 / Pcs. | 序号 / NO. | 零件名 / Part Name               | 数量 / Pcs. |
|----------|-------------------------------|-----------|----------|-------------------------------|-----------|
| 1        | 内六角螺丝 / Socket Head Cap Screw | 2         | 2        | 内六角螺丝 / Socket Head Cap Screw | 4         |
| 3        | 泵盖 / Cover                    | 1         | 4        | 滑动轴承 / Sleeve Bearing         | 5         |
| 5        | 泵腔 / Pump cavity              | 1         | 6        | 从动齿轮轴 / Idler Gear Shaft      | 1         |
| 7        | 主动齿轮轴 / Drive Gear Shaft      | 1         | 8        | 定位销 / pin                     | 2         |
| 9        | 密封圈 / O-ring                  | 2         | 10       | 主体 / Body                     | 1         |
| 11       | 定位销 / pin                     | 2         | 12       | 密封圈 / O-ring                  | 1         |
| 13       | 内磁驱 / Inner mag.drive         | 1         | 14       | 屏蔽罩 / Shield                  | 1         |
| 15       | 压板 / Pressure plate           | 1         | 16       | 内六角螺丝 / Socket Head Cap Screw | 6         |
| 17       | 外磁驱组件 / Out mag.drive         | 1         |          |                               |           |



| 序号/NO. | 零件名/Part Name               | 数量/Pcs. | 序号/NO. | 零件名/Part Name          | 数量/Pcs. |
|--------|-----------------------------|---------|--------|------------------------|---------|
| 1      | 内六角螺栓/Socket Head Cap Screw | 1       | 2      | 泵盖/Cover               | 1       |
| 3      | 轴套/shaft sleeve             | 5       | 4      | 密封圈/O-ring             | 1       |
| 5      | 从动齿轮轴/Idler Gear Shaft      | 1       | 6      | 主动齿轮轴/Drive Gear Shaft | 1       |
| 7      | 定位销/pin                     | 2       | 8      | 泵体/Body                | 1       |
| 9      | 定位销/pin                     | 2       | 10     | 密封圈/O-ring             | 1       |
| 11     | 内磁驱/Inner mag.drive         | 1       | 12     | 屏蔽罩/ Shield            | 1       |
| 13     | 压板/Pressure plate           | 1       |        |                        |         |

## 9.故障分析/ Malfunction Analysis

| 项目   | 故障           | 新泵故障排查项目   | 旧泵故障排查项目  | 解决方案  |
|------|--------------|--|---|---|
| 关于流量 | 电机正常工作，但没有流量 | 1. 接头密封不好<br>2. 新装管路未清洗，导致焊杂颗粒或密封带进入泵体内，导致齿轮卡死<br>3. 超压或粘度太大，导致内磁驱扁方磨损或主动轴断裂<br>4. 介质高或低温超过选型温度，导致齿轮抱死或齿轮间隙过大<br>5. 泵内部过流件材质被介质腐蚀。 | 1. 内磁驱塑料扁向磨损，导致内磁驱干转<br>2. 过滤器是否堵塞<br>3. 齿轮、泵腔、轴套磨损，内泄漏很大 | 1. 检测系统压力、温度、介质粘度<br>2. 清洗过滤器<br>3. 更换齿轮、内磁驱、轴套备件         |
|      | 流量很小         | 1. 转速太低，<br>2. 管接头密封不好<br>3. 选型不对，选型粘度与实际工作粘度相差太大  |   | 1. 提高转速<br>2. 重新密封<br>3. 粘度大需要更换大泵头，降低转速                  |
|      | 流量变小         |  | 齿轮磨损  | 更换齿轮  |
|      | 流量不稳定        | 1. 入口管径太细<br>2. 电机转速不稳定<br>3. 齿轮运转不顺畅<br>4. 泵入口接头密封不好<br>5. 泵入口过滤器太脏<br>6. 出口压力不稳定<br>7. 工作温度不稳定                                   | 检查齿轮，看看有没有磨损  | 1. 检查管件各处密封性<br>2. 检查齿轮、泵腔、管径<br>3. 清洗过滤器<br>4. 更换齿轮      |
| 关于压力 | 有流量，但没有压力    | 出口压力太小   | 齿轮、泵腔、滑动轴承磨损，内泄漏很大  | 1. 检测系统压力<br>2. 旧泵更换相关易损件                                 |
|      | 压力跳动很利害      | 出口压力太高或管径与流速不匹配  | 齿轮、泵腔磨损   | 检查齿轮、泵腔、管径  |
| 关于气泡 | 出口有气泡        | 1. 接头密封不好<br>2. 入口管太小，流速与管径不匹配<br>3. 入口管路过滤器堵塞   |   | 1. 重新密封<br>2. 检查齿轮、泵腔、管径<br>3. 清洗过滤器                      |
| 关于电机 | 电机有震动        | 1. 安装管路时用力过大或管道应力过大，导致外磁驱与屏蔽罩不对中，外磁驱摩擦屏蔽罩的声音<br>2. 阀门没开，压力太大<br>3. 电机轴承损坏  |   | 1. 管道重新安装，同时管路安装固定支架，减少施加应力<br>2. 开机前，前后阀门打开<br>3. 更换电机轴承 |
|      | 电机不转         | 接线不对   |   | 检查线路  |
|      | 直流电机不转       | 直流电源开关打开瞬间电流过大，烧坏驱动器元器件  | 电机驱动器烧坏   | 更换电机  |
|      | 直流电机忽然停止     | 泵过载，电机温升过高，触发驱动器温控开关   | 泵内有异物、齿轮卡死  | 1. 更换大功率电机<br>2. 清洗泵内齿轮                                   |
| 关于异响 | 压力太高，过载      | 出口管路堵住   |   | 清洗出口管路  |
|      | 齿轮卡死，脱磁      | 异物进入   |   | 前端加过滤器  |
|      | 电机功率不够       | 电机超载，电流过大  |   | 换大功率电机  |
|      | 齿轮间隙过大       |  | 齿轮磨损  | 更换新齿轮   |

| Items                | Malfunction                               | New Pump Troubleshooting Items  | Old Pump Troubleshooting Items   | Solutions   |
|----------------------|---|---|--|---|
| About flowrate       | Motor normal working but without flowrate | 1. Joint sealing not good.<br>2. New pipelines not cleaned, welding slag particle or sealant entering pump body, cause gear jammed.<br>3. Overpressure or high viscosity, cause internal magnetic drive flat abrasion or driving shaft breakage.<br>4. Medium high or low temperature exceed selection temperature, cause gear damaged or large gear gap.<br>5. Inside wetted parts corroded by medium. | 1. Internal magnetic drive plastic flat abrasion, cause magnetic drive dry rotating.<br>2. Filter jammed or not.<br>3. Gear, pump body, shaft sleeve abrasion, internal leakage heavy. | 1. Detecting system pressure, temperature, medium viscosity.<br>2. Clean filter.<br>3. Replace gear, internal magnetic driving, shaft sleeve. |
|                      | Small flowrate                            | 1. Low rotating speed.<br>2. Pipeline joint sealing not good.<br>3. Model selection not right, big difference between selection viscosity with actual working viscosity.  |  | 1. Improve rotating speed.<br>2. Redo sealing.<br>3. Change big pump head and reduce rotating speed.  |
|                      | Flow decreases                            |   | Gear abrasion  | Replace gear  |
|                      | Instable flowrate                         | 1. Inlet pipe size too small.<br>2. Instable motor rotating speed.<br>3. Gear running not smoothly.<br>4. Inlet joint sealing not good.<br>5. Inlet filter dirty.<br>6. Instable outlet pressure.<br>7. Instable working temperature.   | Inspect if gear abrasive or not.   | 1. Inspect pipes sealing.<br>2. Inspect gear, pump body, pipe diameter.<br>3. Clean filter.<br>4. Replace gear.                               |
| About pressure       | Have flowrate but without pressure        | Outlet pressure is too small.   | Gear, pump body, sliding shaft bearing abrasion, heavy internal leakage.   | 1. Detecting system pressure.<br>2. Change vulnerable parts.  |
|                      | Pressure jumps severely                   | Outlet pressure too high or mismatch between pipe diameter and flow speed.  | Gear, pump body abrasion   | Inspect gear, pump body, pipe diameter.   |
| About bubbles        | Outlet has bubbles                        | 1. Joint sealing not good.<br>2. Inlet pipe too small, mismatch between pipe diameter and flow speed.<br>3. Inlet pipe filter jammed.   |  | 1. Redo sealing.<br>2. Inspect gear, pump body, pipe diameter.<br>3. Clean filter.  |
| About motor          | Motor vibration                           | 1. When assemble pipes over stress, cause external magnetic drive not centering with shielding case, then have friction sound.<br>2. Valves not open, overpressure.<br>3. Motor shaft bearing damaged.  |  | 1. Reassemble pipes and fixed bracket to reduce the stress.<br>2. Front & back valves open before start.<br>3. Change motor shaft bearing     |
|                      | Motor doesn't run                         | Wrong connection.   |  | Inspect circuit.  |
|                      | DC motor doesn't run                      | DC motor open overcurrent, driver components burn out.  | Motor driver burn out.   | Change motor.   |
|                      | DC motor stops suddenly                   | Pump overloading, motor temperature rise too high, trigger driver temperature control switch.   | Have foreign matters, gear jammed.   | 1. Change high power motor.<br>2. Clean internal gear.  |
| About abnormal sound | Overpressure                              | Outlet pipe jammed.   |  | Clean outlet pipe.  |
|                      | Gear jammed, trip magnet                  | Foreign matters entering.   |  | Add filter at pump front.   |
|                      | Power shortage                            | Motor overload, overcurrent.  |  | Change high power motor.  |
|                      | Large gear gap                            |   | Gear abrasion  | Replace gear.   |

## MR 系列精密级齿轮泵备品及备件服务

JONSN 琼森致力于做好每一台精密级齿轮泵，用心、专业服务好每一位琼森客户。

泵属于动设备，难免遇到各种极端工况挑战、易损件磨损、过质保期等问题。

为确保您的稳定生产，对于关键工艺控制泵，建议做好一开一备方案，如果因设计空间不够和预算不够，建议购买一套易损备件，作为紧急备用方案。

我们的精密级微型齿轮泵采用两段式模块化设计，更换易损件快捷方便。

您将享有以下服务：

- 质量可靠的原厂易损件备件包
- 高效物流全球配送
- 提供相关技术支持以帮助您选购合适备件（备件咨询）
- 提供专业选型服务（选型咨询）

购买 JONSN 精密级微型齿轮泵备件客户，您需要提供齿轮泵编码（如图示），我们可以根据编码查询出厂时齿轮配合间隙，并进行定制化生产加工，确保一致性。

## MR Precision Gear Pump Repair Kits and Repair Kits Service

JONSN is committed to making every precision gear pump good and serving every JONSN customer attentively and professionally.

Pumps are dynamic equipment and will inevitably encounter challenges in various extreme working conditions, wear and tear of consumable parts, and expired warranty periods. In order to ensure your stable production, for key process control pumps, it is recommended to have a one-start and one-standby plan. If the design space is insufficient or the budget is insufficient, it is recommended to purchase a set of repair kits as an emergency backup plan. Our precision micro gear pump adopts a two-stage modular design, making replacement of repair kits quick and easy. You will enjoy the following services:

- Reliable quality original repair kits for wearing parts
- Efficient logistics and global distribution
- Relevant technical support to help you choose suitable repair kits (repair kits consultation)
- Professional selection services (selection consultation).

JONSN precision micro gear pump spare parts customers, you just need to provide the gear pump code (as shown in the picture). We can check the gear fit clearance at the factory based on the code, and carry out customized production and processing to ensure consistency.



24

### JONSN 原厂易损件备件包:



上海琼森流体设备有限公司 (国内销售)  
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