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Sumitomo Drive Technologies



Hansen P4

Powerful solutions for the mixer industry
搅拌行业的强大解决方案



COMPLETE AND POWERFUL SOLUTIONS FOR THE MIXER INDUSTRY

Investing in high quality drive components is important. Mixers work at the heart of the process. Frequently they have to be able to operate continuously and under extreme arduous conditions. Thus unit downtime can have consequences on plant profitability far in excess of the original equipment cost.

Hansen Transmissions has a long history of solid partnerships with suppliers and end-users in the mixer industry.

Thousands of Hansen drives are installed worldwide, and the versatility and durability of these units is well documented.

They can be found working reliably under the most severe conditions, in chemical industries, biotechnology, hydrometallurgy, energy, food processing, pulp and paper, etc.

m i x e r i n d u

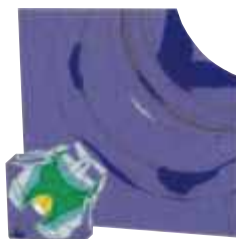
■ MATCHING THE DRIVE TO THE APPLICATION

The basic design of a mixer consists of an impeller, a shaft and a drive unit mounted on the mixer tank. The interdependence between these items causes the design process to be interactive to arrive at the optimum. Mixing all kind of products and available in an almost infinite variety of sizes, shapes and designs, mixers do share a few characteristics. This implies that certain factors must be carefully considered in the selection of the drive unit:

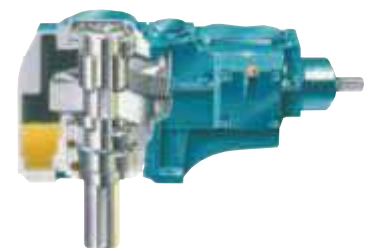
- Magnitude of normal operation torque and peak torque requirements.
- Magnitude of overhung loads on the low speed shaft.

- Length of the mixer shaft.
- Nature of the mixed medium.
- Composition of the vapour or dust produced during the mixing action. Many such applications give off flammable, toxic, or corrosive vapour and dust.

Our application engineering capabilities allow customisation of the drive unit, using a maximum of standard components. The extended bearing span, a wide selection of bearing configurations and different centring options have now been integrated to provide optimal and powerful solutions.



Stress simulation on the integrated extended bearing span of a vertical Hansen P4 gear unit.



A powerful combination of a spherical roller bearing with tapered roller bearings provides extremely high thrust load and bending moment capacity.



■ A PORTFOLIO OF OPTIONS WITHIN THE STANDARD RANGE

As a component of the mixer design, the gear unit performs several functions. In addition to reducing speed and increase torque, it must also provide support for mixer shaft and impeller and the associated mixer forces. This means that the gear unit cannot be selected on the basis of the output torque alone. Bearing loads and shaft deflections resulting from the mixer action are in addition to those already present from the torsional loads. Gear housing design, low speed shaft and bearings are therefore rated to carry large bending moments and thrust loads imposed by the mixing forces. Different executions for mounting and centring of the drive group on the mixer tank are possible.



Smooth and direct transition of forces to the mounting feet.

WHY HANSEN?

- *Hansen matches the drive to the application and offers proven reliability under the most severe conditions.*
- *Carburised and ground gearing of both bevel and helical gears excels in strength, torque capacity, surface durability and low noise performance*
- *Large overhung load capacity of the gear unit.*
- *A wide range of bearing and flange configurations meet any application requirement, while still providing a cost effective solution.*
- *Bearings and shafts are dimensioned to go the distance, ensuring long bearing life under heavy loads.*
- *Extended bearing housing combining the effects of an increased shaft diameter and extra space to mount larger bearings, and adds rigidity and stability to the mixer drive under load.*
- *A wide range of mounting and centring possibilities.*
- *Increased diameter of the low speed shaft: the allowable bending moment on the low speed shaft increases.*
- *Continuous oil circulation through the bearings ensures a long, trouble-free working life for the gear unit.*
- *Hansen's unique Oil-Lock™ and Oil-Guard™ systems offer a maintenance-free sealing on high-speed shaft extensions as a standard.*
- *The drywell, available on all models, prevents oil leakage on vertical down shafts.*
- *The internal construction of the gear unit housing allows for simple and complete oil drainage.*
- *The larger units can be easily inspected and serviced on the spot, thanks to covers above the oil level.*
- *One-stop-shopping for complete drive package solutions.*
- *In-depth engineering support and complete documentation before and after the order.*
- *Hansen's global service capability significantly reduces downtime.*



应用于搅拌行业 强大和完善的 解决方案

在工艺过程中，搅拌器起到核心作用。对高质量传动部件进行投资是值得的。搅拌器一般要在极端恶劣的条件下连续运行。因此，装置停产时间对原始设备成本和工厂收益率具有重要影响。

汉森国际公司与搅拌器工业的供应商及最终用户之间建立了长期可靠的合作关系。在全世界范围内安装了数千个Hansen传动装置，而且这些装置的多功能性和耐用性有着完整记录。在化学工业、生物化学、冶金、能源、食品加工、纸浆造纸工业等领域，汉森产品皆可在最为恶劣的条件下，可靠运行。

搅 拌

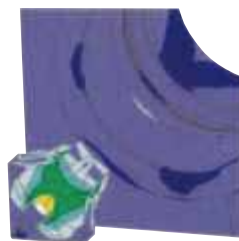
■ 传动装置和应用相结合

搅拌器的基本设计包括叶轮器、轴和安装在混合容器上的传动装置。这些部件之间的相互作用关系使得设计过程交互影响，从而优化设计过程。虽然混和物的多样性，尺寸、形状和设计的多种多样，但搅拌器确实具有几个共性。这意味着在选择传动装置时，必须仔细考虑以下因素：

- 正常运行扭矩值和峰值扭矩要求。
- 低速轴上悬向载荷的量级。
- 搅拌轴的长度

- 混合介质的特性。
- 在混合过程中产生的蒸气和粉尘的混合物。许多此类应用释放易燃、有毒或腐蚀性蒸气和粉尘。

最大限度使用标准部件的同时，我们有能力实现传动装置的用户量身定制。目前，延展的轴承跨距、各种轴承配置选择和不同的对中选型为用户提供优化高效的解决方案。



垂直型Hansen P4齿轮装置的集成延展轴承跨距的应力模拟。

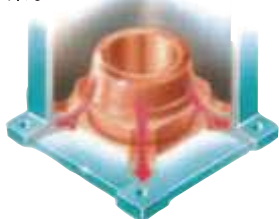


滚柱轴承与锥形滚柱轴承的强大组合可提供极高的推力载荷和弯矩能力。



■ 标准系列范围内的选型组合

作为搅拌器设计中的部件之一，齿轮装置具有几种功能，除降低速度和提高扭矩之外，还必须为搅拌轴和搅拌叶轮提供支撑和相关混合力。这意味着齿轮装置不能仅仅依据输出扭矩进行选择。除了常规的混和扭力载荷外，搅拌器在操作工艺过程中会增加轴承载荷和轴变形。因此，减速机体设计、低速轴和轴承的额定值均设定成可承受混合力施加的大弯曲力矩和推力载荷。混合容器上的传动组可选择不同安装和对中方案。



受力向支撑底座平稳、直接的传递。

为什么选择汉森？

- 汉森将传动装置与具体应用相匹配，汉森产品在异常恶劣条件下具有经过实践验证的可靠性。
- 斜齿轮和螺旋伞齿轮经过渗碳和磨削的齿轮传动部分在刚度、强度、扭矩范围、表面耐磨性和低噪音性能方面表现出色。
- 减速机具有高悬向承载能力。
- 各种轴承和法兰配置可满足所有应用要求，同时仍可提供具有成本效益的解决方案。
- 轴承和轴经过尺寸优化，可长期使用，确保在重载下的轴承使用寿命。
- 加长的轴承座使轴直径增大，且空间更多，可安装更大的轴承，并提高负载条件下搅拌器传动的刚度和稳定性。
- 各种安装和对中方案，可供选择。
- 增大的低速轴直径：增加了低速轴上许用弯矩。
- 通过轴承的连续油循环可确保齿轮装置长期无故障的运行。
- 作为标准配置，Hansen独特的Oil-Lock和Oil-Guard系统实现了高速轴伸上免维护的密封。
- 在所有型号上的干井设计可杜绝垂直轴发生漏油。
- 独特的箱体内部结构可实现简易而彻底的油排放。
- 检查孔位于油位上方，易于对大型装置进行现场检修和维护。
- 一站式采购即可获得完整的传动系统解决方案。
- 订购前后的全面技术支持和完整的技术文档。
- 汉森全球服务能力可显著降低停产时间。

Section A

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汉森P4

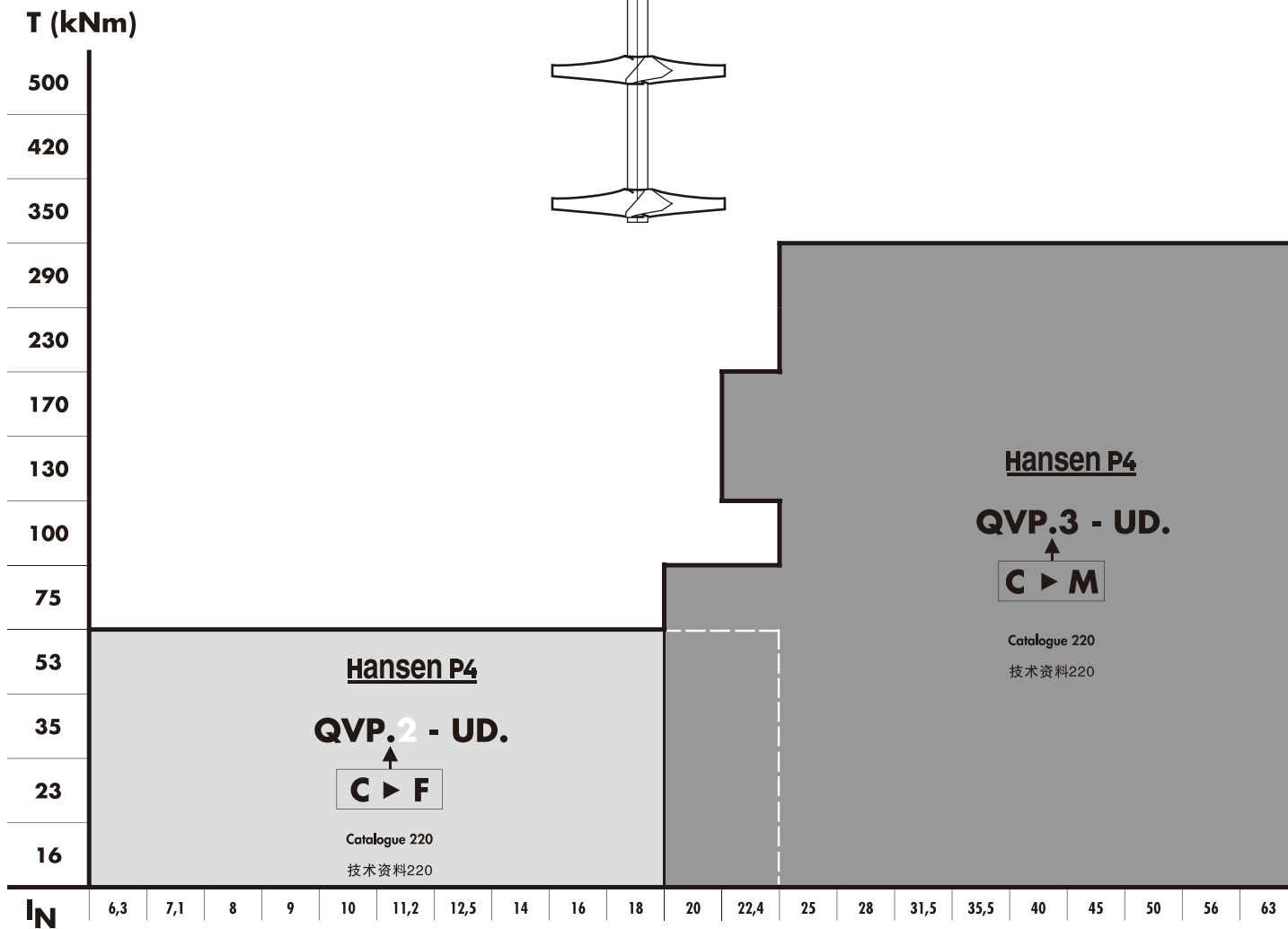
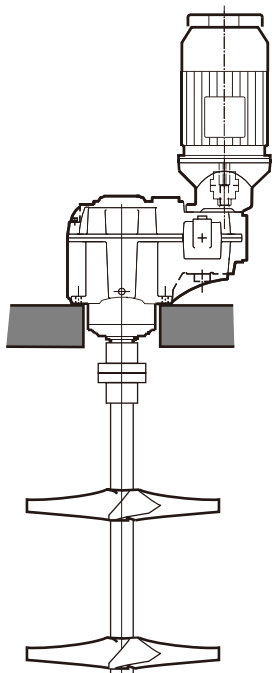
C8-C52

Hansen P4

Standardized gear units for mixer drives	搅拌器驱动装置的标准减速机	
Programme Selection	产品选型	

Parallel shafts 平行轴

I_N : 6,3 ▶ 63



T (kNm): nominal torque at low speed shaft

T (kNm): 低速轴标称扭矩

I_N : nominal ratio

I_N : 标称速比 (rpm)

Hansen P4

Standardized gear
units for
mixer drives

搅拌器驱动装置
的标准减速机

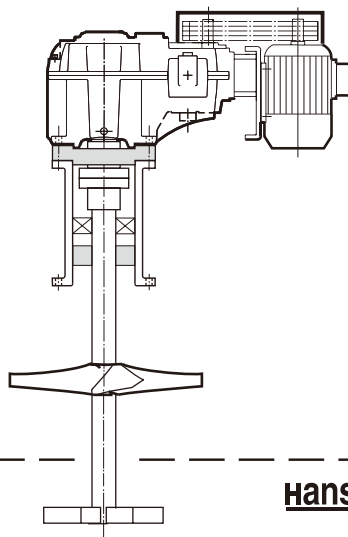
Programme
Selection

产品选型

Parallel shafts

平行轴

$I_N: 71 \triangleright 630$



Hansen P4

QVP.. - UD.

Refer to Hansen
咨询汉森传动

N \triangleright Q

T (kNm)

500

420

350

290

230

170

130

100

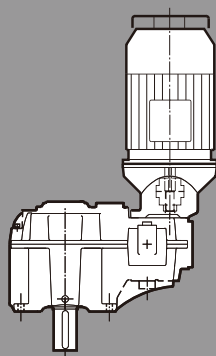
75

53

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23

16



Hansen P4

QVP.. - UD.

C \triangleright M

Catalogue 220
技术资料220

71 80 90 100 112 125 140 160 180 200 224 250 280 315 355 400 450 500 560 630 I_N

**T (kNm): nominal torque
at low speed shaft**

T (kNm): 低速轴标称扭矩

I_N : nominal ratio

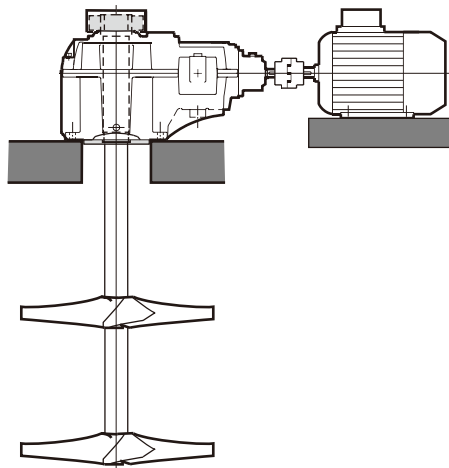
I_N : 标称速比 (rpm)

Hansen P4

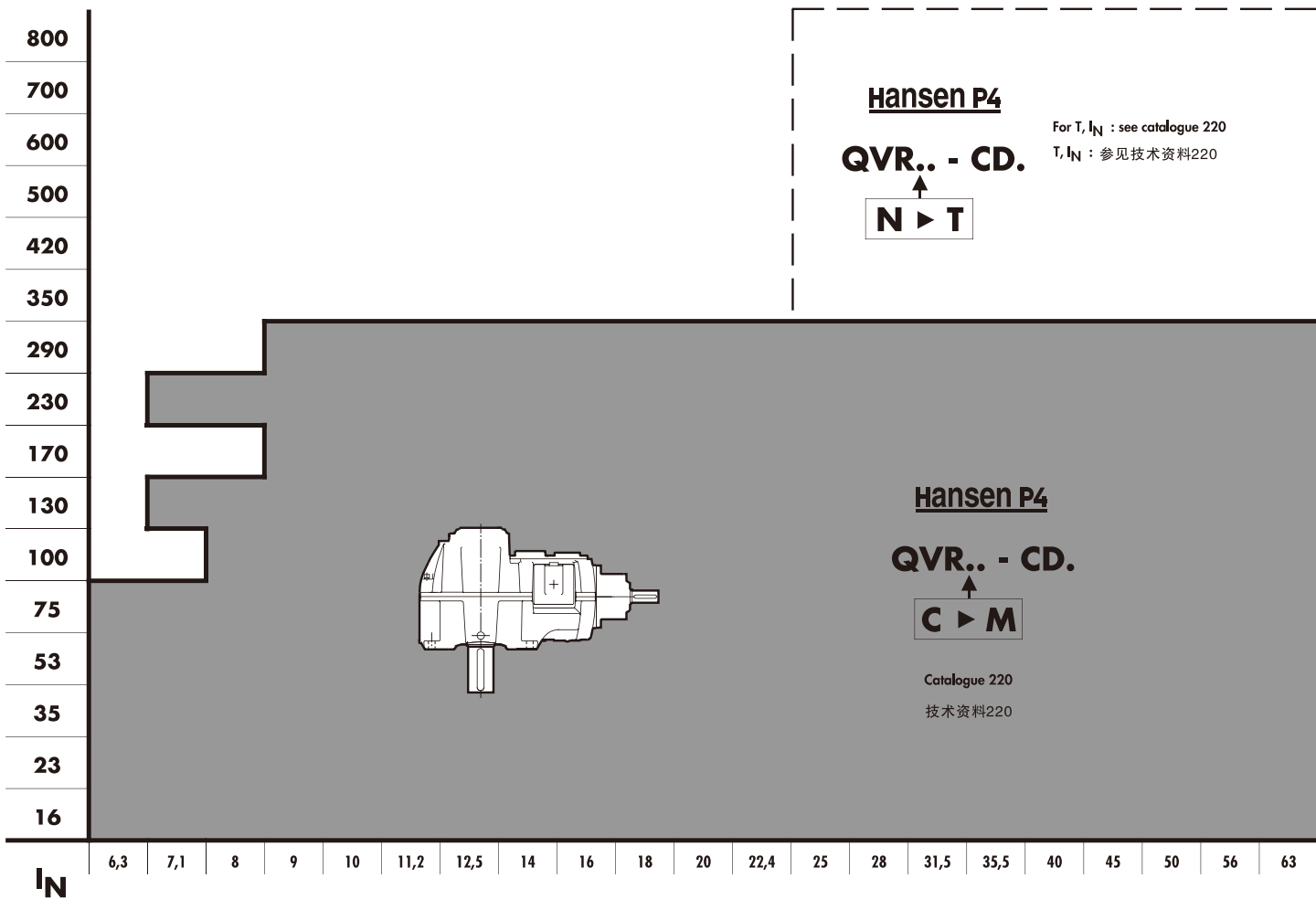
Standardized gear units for mixer drives	搅拌机驱动装置的标准减速机	
Programme Selection	产品选型	

Right-angle shafts 正交轴

$I_N: 6,3 \triangleright 63$



T (kNm)



T (kNm): nominal torque at low speed shaft

T (kNm): 低速轴标称扭矩

I_N : nominal ratio

I_N : 标称速比 (rpm)

Hansen P4

Standardized gear units for mixer drives

搅拌器驱动装置的标准减速机

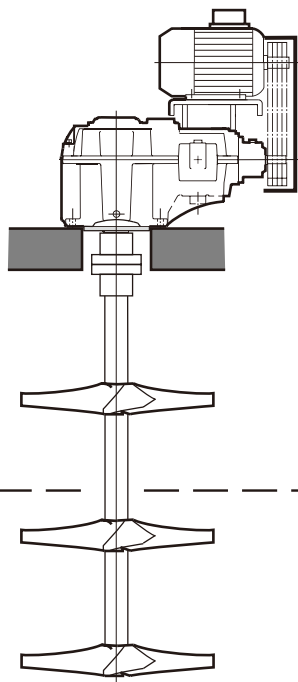
Programme Selection

产品选型

Right-angle shafts

正交轴

$I_N: 71 \triangleright 500$

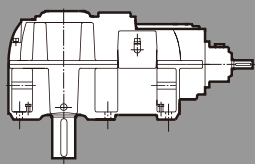


Hansen P4
QVR.. - CD.
 $N \triangleright T$

For T, I_N : see catalogue 220
 T, I_N : 参见技术资料220

T (kNm)

- 800
- 700
- 600
- 500
- 420
- 350
- 290
- 230
- 170
- 130
- 100
- 75
- 53
- 35
- 23
- 15



Hansen P4
QVR.. - CD.
 $C \triangleright M$

Catalogue 220
 技术资料220

- 71
- 80
- 90
- 100
- 112
- 125
- 140
- 160
- 180
- 200
- 224
- 250
- 280
- 315
- 355
- 400
- 450
- 500
- 560
- 630

I_N

T (kNm): nominal torque at low speed shaft

T (kNm): 低速轴标称扭矩

I_N : nominal ratio

I_N : 标称速比 (rpm)

DESCRIPTION

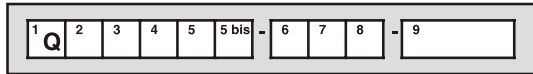
HANSEN P4 GEAR UNITS FOR MIXER DRIVES

The gear unit

Power ratings

For the mechanical and thermal power ratings we refer to the Hansen P4 catalogue no 220.

Coding

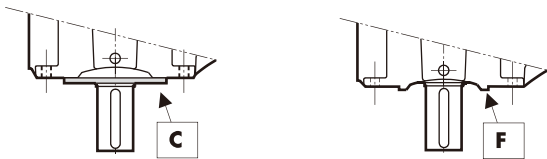


Type

- 1 : Series **Q : Hansen P4**
- 2 : **V** : Vertical low speed shaft
- 3 : **P** : Parallel shafts
- R** : Right-angle shafts
- 4 : Size: C, ..., M
- 5 : Number of stages: 2, 3, 4

Centering on low speed shaft

- 5 bis : **no code** : no centering
- C** : flange at low speed shaft cover
- F** : spigot at fixation feet of the gear unit
- B** : bottom entry gear unit
- D** : bottom entry gear unit with spigot



Shaft arrangement

- 6 : High speed shaft extension: **C** : right-angle
- U** : up
- 7 : Low speed shaft extension: **D** : down
- U** : up



- 8 : Low speed shaft type: **R** : normal solid shaft for mixers
- E** : reinforced solid shaft
- L** : extended bearing housing
- D** : shrink disc hollow shaft
- K** : keyway hollow shaft

Ratio

- 9 : Nominal ratio

Basic components

Helical and spiral bevel gears

Designed and rated in accordance with AGMA, ISO and Hansen KNOW HOW for maximum load capacity, minimum losses and quiet operation.

All geared components are manufactured from alloy steel, gas carburized, hardened and precision ground.

Low speed shafts

The low speed shafts are in solid and hollow version.

Hollow low speed shaft with keyway or shrink disc connection.

Extended shafts or shafts with rifle bore are available upon request.

For all executions, input and output shafts are located in the same vertical plane.

Solid low speed shaft extension with normal or large shaft diameter.

The low speed shaft is designed to allow considerable overhung loads.

Permissible overhung loads on low speed shaft: see pages B.

Bearings

Heavy duty roller bearings of the tapered, cylindrical or spherical roller type.

Calculated in compliance with AGMA, ISO and methods of renowned bearing manufacturers.

The bearings are selected to allow considerable overhung loads.

Extended bearing span available.

Permissible overhung loads on low speed shaft: see pages B.

Housings, bearing housings and covers

Made from grey pearlitic cast iron.

Machined on NC machine-tools.

Designed to ensure strength and rigidity.

Unused tapped holes are plugged.

Horizontal split housing.

Systems

Lubrication

Lubricants: mineral oils are normally used. Lubricants should always contain adequate EP-additives (refer to Service Manual).

Pump lubrication is standard.

A **flow switch** can be provided to check the oil flow to the gear unit. This switch can trigger an alarm signal when the oil supply is inadequate. The gear unit has to be stopped at once and the cause of the interruption of the oil supply has to be removed.

The gear unit housing acts as a large sump.

Grease points are centralised.

Checking of the oil level is done by means of the gear unit dipstick (always in the plugged position).

An **oil level switch**, to control the oil level in the gear unit, can be provided. This switch can trigger an alarm signal when the oil bath falls beneath a specified limit.

Specifications for electric instrumentation in hazardous locations: refer to Hansen

Cooling

Heat generated in the gear unit due to losses, can be dissipated by:

- natural cooling through the housing.
- additional fan cooling. Depending on the gear unit type, a shaft driven axial fan or an electrically driven axial fan can be incorporated
- Characteristics of electrically driven fans: standard 3 phase, 50 Hz, 400 V ± 10%, Insulation class: IP 55.
- cooling coil: standardised cooling coils are available.
- forced cooling: standardised cooling groups are available

Specifications for electric motors and instrumentations in hazardous locations: refer to Hansen.

Sealing

- Static: • Generalized use of sealing compound
- Inspection cover on the gear unit: O-ring

- Rotary: • High speed shaft:
 - Oil Lock™: - dual purpose labyrinth
 - maintenance free
 - oil return to sump
- Low speed shaft: - dust lip oil seal
- integrated drywell for solid shafts
- double oil seal for hollow shafts
- V-seal between cover and coupling at low speed shaft as an option: see page

Motors

Foot mounted or flange mounted motors may be used depending on the drive configuration, see pages A2 - A5.

An adjustable motor base on top of the gear unit is possible. Refer to Hansen.

The motor data on the dimensional drawings are based on the selection of standard IEC motor range. For more information on motors, refer to motor catalogue.

DESCRIPTION

HANSEN P4 GEAR UNITS FOR MIXER DRIVES

Use of two speed motors: when changing speed with two speed motors, the gear unit has to be slowed down below the low speed, before energising the slow speed winding.

Shipping conditions

Inspection prior to shipment

- Test run: all gear units are tested under no load
- Conformity Check

Lubricants

- Hansen P4 gear units are shipped without oil.
- Grease lubrication points are factory filled

For information relating to **storage, handling, installation, start-up and maintenance**, refer to the service manual which is supplied together with each gear unit.

Protection

Standard protection systems

- outer surface of housing: All units are standard provided with **basic epoxy painting** for indoor installation. A **humidity resistant painting** is provided for outdoor installation. Bolts and nuts are "standard black". On request: stainless steel bolts for fixation of motor on lantern housing.
- inner surface of housing: oil resistant paint
- inner components: sprayed with rust preventing oil before shipping
- shaft extension: greased and protected with waxed waterproof paper before shipping.

Aggressive environment

Hansen can offer additional protection systems such as:

- **high resistant painting**
- QPQ-protection of low speed shaft extension
- Maintenance procedure for long periods of standstill

Explanation of protection systems

Paint systems

• Basic epoxy painting

A two-component primer with excellent oil resistance and good adherence properties overcoated by a two-component high built epoxy coating with excellent corrosion protection properties in a dry environment.

Total average dry film thickness : 100 µm

• Humidity resistant painting for outdoor installation

A two-component high built epoxy paint is applied on top of the basic painting.

Total average dry film thickness: 80 µm + 100 µm = 180 µm

• High resistant painting

A two-component polyurethan paint applied on top of the humidity resistant paint.

Total average dry film thickness: 30 µm + 180 µm = 210 µm

Output shaft extension: QPQ anti-corrosion process as an alternative to stainless steel execution.

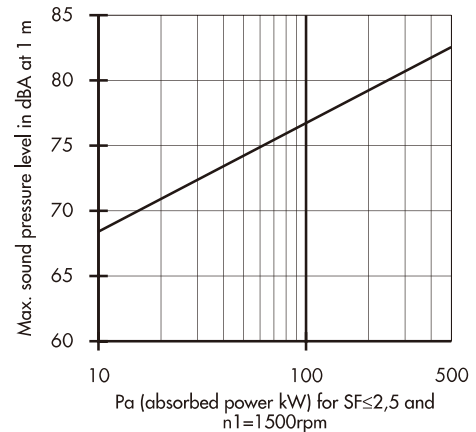
The Quench-Polish-Quench diffusion process is a salt-bath nitriding process consisting of quenching, surface smoothing and subsequent quenching.

The result is a wear resistant protective coat with a thickness of 10 to 20 µm.

Proven corrosion resistance of over 200 hours (salt spray test according to DIN 50021) favourably compares with a typical 62 hour corrosion resistance offered by a normal protective chrome coating and even with hard chromium protection (immersion test according to DIN 50905/4).

Sound pressure level

The chart shows the maximum sound pressure level at 1 meter, with 90% probability for Hansen P4 gear units at 1500 rpm input speed. Certified sound pressure level on request



Specifications for the applications

Instrumentation and options

- Heaters: electrical heating devices for low temperature start-up are available for Hansen P4 gear units
- Integrated drywell at vertical low speed shaft assures 100% oil tightness
- To accommodate specific overhung load conditions, different heavy duty bearing arrangements are available. Permissible overhung load at the low speed shaft: see pages B.

Selection

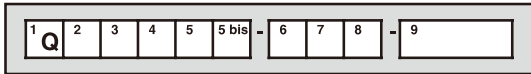
Refer to catalogue no 220 for selection of Hansen P4 gear units

减速机

额定功率

关于机械功率和额定热功率，请参考220号技术资料。

编码

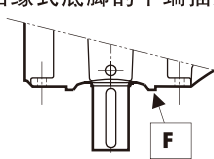
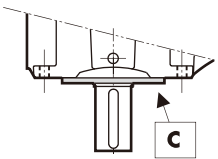


型号

- Q: 汉森P4**
- 1: 系列 **V: 垂直低速轴**
- 2: **P: 平行轴**
- 3: **R: 正交轴**
- 4: 规格: C, …… , M
- 5: 级数: 2, 3, 4

低速轴上对中

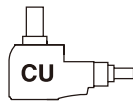
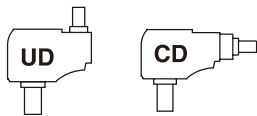
- 5 bis:**
- 无代码:** 无对中要求
- C:** 低速轴端盖上的法兰联接
- F:** 带定位凸缘的底脚联接
- B:** 下端插入式减速机
- D:** 带凸缘式底脚的下端插入式减速机



轴布置型式

- 6: 高速轴出轴方向
- 7: 低速轴出轴方向

- C:** 直角
- U:** 上
- D:** 下
- U:** 上



8: 低速轴类型

- R:** 搅拌器的一般实心轴
- E:** 加固的实心轴
- L:** 延长的轴承箱体
- D:** 收缩盘式空心轴
- K:** 键槽式空心轴

速比

- 9: 标称速比

零部件

斜齿轮及螺旋伞齿轮

设计和额定值符合AGMA、ISO标准和汉森专门技术，可实现最大负荷能力，最小损耗以及最低噪音水平。

所有齿轮传动部件都采用合金钢，经过气态渗碳处理和精确研磨。

低速轴:

低速轴有实心轴和空心轴两种。

空心低速轴采用键槽或收缩盘连接。如有需要，可提供延长轴或带油道孔的轴。各种形式中，输入轴和输出轴位于同一个垂直平面中。

实心低速轴延长部分，具有普通或较大的轴直径低速轴的设计可承受相当大的悬垂负荷。

低速轴上允许的悬垂负荷：参见B页。

轴承

锥型、圆柱型及球型轴承均可承载重负。

按照AGMA、ISO及知名轴承生产商标准计算。

轴承允许相当大的悬垂负荷。

可提供延长的轴承跨度。

低速轴上允许的悬垂负荷：参见B页。

箱体，法兰式电机座及端盖

采用灰珠光铸铁。

采用NC加工中心制造。

设计保证强度和刚度。

不使用的螺纹孔都螺塞安装。

水平分割式箱体。

系统

润滑

润滑剂，通常使用矿物油。润滑剂需要含有充足的EP添加剂（参阅服务手册）。

泵润滑装置是标准配置。

可提供一个流量开关，以检查减速机的油流。如果供油不充分，该开关能够触发报警信号。减速机必须立即停止运行，同时迅速清除阻碍油流的因素。

减速机箱体起到大油池的作用。

集中加脂润滑点。

通过减速机的油标尺（必须处于塞紧状态）检查油位。

可以提供一个油位开关以控制减速机内的油位。如果油浴降到某设定限值之下，该开关可以触发报警信号。

危险地点电气仪表的技术参数：请咨询汉森

冷却

由于运行产生的热量可以通过以下方式散热：

- 箱体的自然冷却
- 附加风扇冷却。依据减速机的类型，可以装配轴驱动轴流式风扇或电力驱动轴流式风扇
电子驱动风扇的特征：标准3相，50Hz，400V ± 10%
绝缘等级：IP55。
- 冷却盘管：可提供标准化的冷却盘管。
- 强制冷却：可提供标准化的冷却组件。

危险地点的电机和电气仪表的技术参数：请咨询汉森。

密封

- 静态密封：• 通常使用密封化合物
• 减速机检查盖：O型圈

转动密封：• 高速轴

- Oil Lock™ –两用密封式密封
- 免维护
- 到油池的回油管

• 低速轴：

- 油封唇防尘密封
- 实心轴的集成式干井
- 空心轴的双重油封
- 端盖和低速轴联轴器之间的V型密封件，作为选装配置：

电机

根据驱动装置的配置，可以使用底脚安装或法兰安装的电机，请参阅第A2–A5页。

可以将可调电机基座置于减速顶部。请咨询汉森。

尺寸图上的电机数据以所选择的标准的IEC电机系列为基础。更多电机信息请参考电机手册。

用于搅拌器驱动装置的汉森P4减速机

双速电机的使用：利用双速电机变速时，在通电低速绕组前必须将减速机转速降低到低速之下。

运输条件**装货前检查**

- 试运行：空载检测
- 符合性检查

润滑剂

- 汉森P4减速机无油装运
- 出厂时所有润滑点已加注润滑脂。

有关储存、运输、安装、启动以及维护的信息请参阅随减速机提供的维修手册。

保护**标准保护**

-箱体的外表面：对于室内安装，所有装置都采用标准的基本环氧漆喷涂。

-而对于室外安装，采用了防潮漆。

-螺栓和螺母是“标准黑色”。

-如有需要：可用不锈钢螺栓，连接电机和法兰式电机座。

-箱体内部表面：防油漆

-内部部件：发货前使用防锈机油喷涂

-轴延长部分：发货胶加注润滑脂并用防水蜡纸保护。

苛环境

汉森还可以提供以下附加的保护系统：

- 高抗性涂漆
- 低速轴延长部分的QPQ保护
- 长期停机期间的保养程序

保护系统说明**漆系统****· 基本环氧涂漆**

二合一环氧树脂底漆，具有极佳的抗油性和优秀的粘着特性，由一种双组分厚膜环氧覆层覆盖，该覆层在干燥环境中具有极佳的腐蚀保护特性。

干燥膜层总平均厚度：100 μm

· 用于室外安装的防潮漆

基础漆上涂双组分厚膜环氧漆。

干燥膜层总平均厚度：80 μm+100 μm=180 μm

· 高抗性涂漆

防潮漆上施涂双组分聚氨酯漆。

干燥膜层总平均厚度：30 μm+180 μm=210 μm

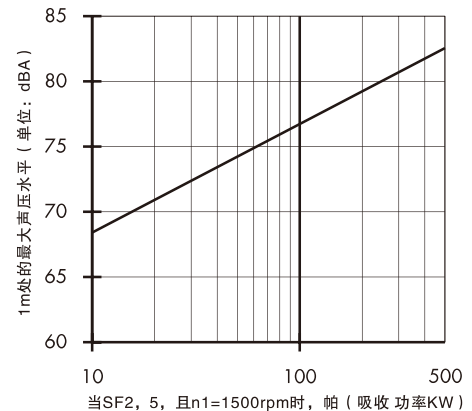
输出轴加长：QPQ防腐处理可以替代不锈钢使用。

淬火—磨光—淬火渗氮处理是一种盐浴渗氮处理，包含淬火、表面打磨、以及后继淬火。这样可以形成一个防磨损保护层，厚度为10到20 μm。

其防腐效果超过200小时（依据DIN50021的喷盐测试），常规铬保护覆层甚至硬质铬保护防腐效果为62小时（依据DIN50905/4的浸渍测试）。

声压水平

图表显示最大声压水平为1米，在1500rpm输入速度时，汉森P4减速机在此声压水平的可能性为90%。如需要，可提供经认证的声压水平的配置。

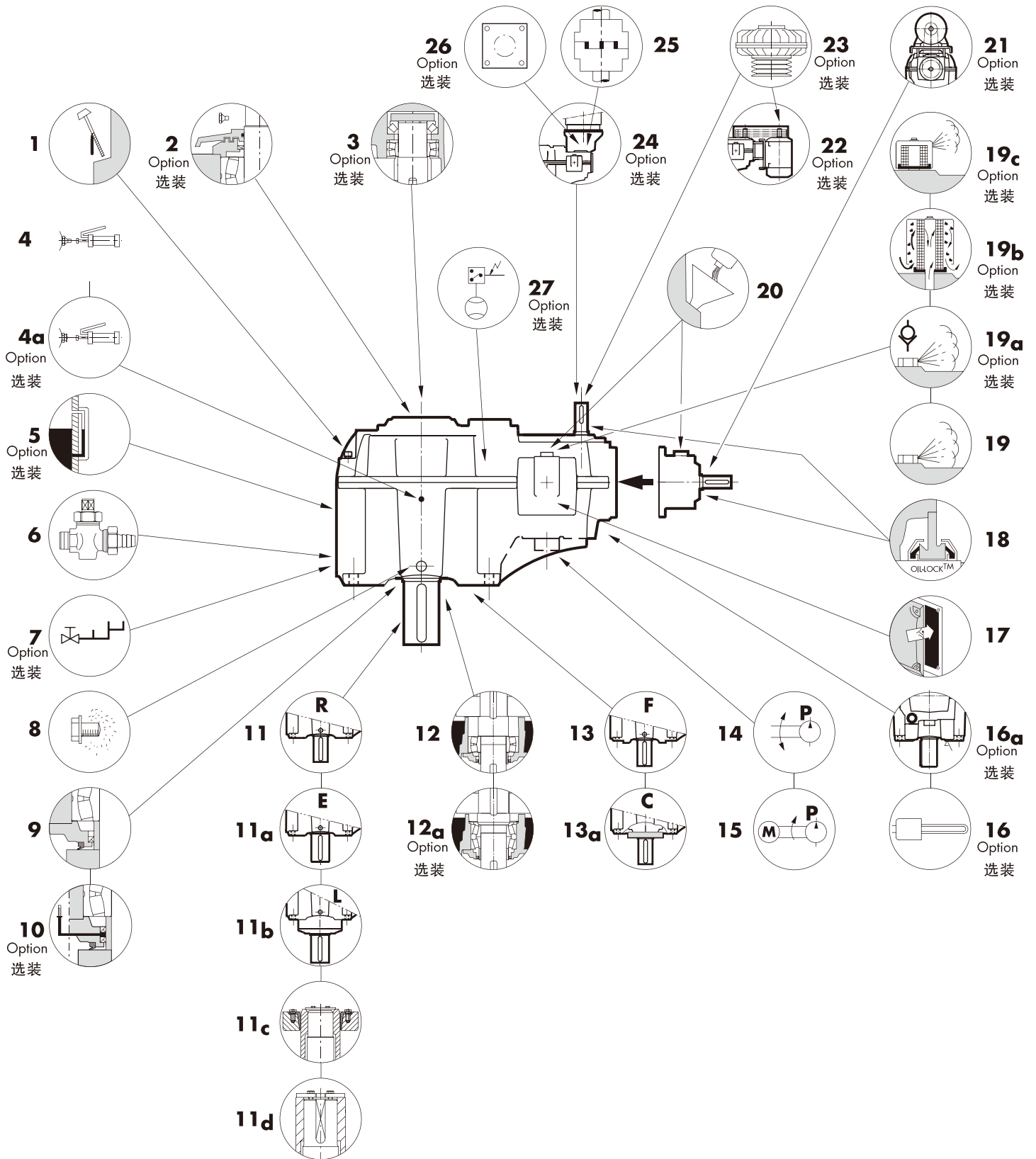
**应用情况的技术参数**

仪表和选择配置

- 加热器：汉森P4齿轮箱可配备低温起动的电加热装置。
- 垂直低速轴上的集成式干井可保证100%油密封
- 为适应特定的悬垂负荷条件，提供了不同的重度作业轴承装置。低速轴处的允许悬垂负荷：参见B页。

选择

选择汉森P4减速机，请参考220号技术资料。



mark option required with

需要的选装配置请画

<p>1 dipstick</p> <p>2 <input type="checkbox"/> labyrinth seal with O-ring Bottom entry only</p> <p>3 <input type="checkbox"/> spherical roller thrust bearing</p> <p>4 grease point according to DIN 71412 or</p> <p>4a <input type="checkbox"/> grease point according to DIN 3404</p> <p>5 <input type="checkbox"/> oil level glass</p> <p>6 drain cock with hose coupling</p> <p>7 <input type="checkbox"/> condensation water drain Bottom entry only</p> <p>8 magnetic plug</p> <p>9 <input type="checkbox"/> V-seal between shaft cover and coupling</p> <p>10 oil leakage detector for oil seals</p> <p>11 normal solid shaft or</p> <p>11a reinforced solid shaft or</p> <p>11b extended bearing housing or</p> <p>11c shrink disc hollow shaft or</p> <p>11d keyway hollow shaft</p> <p>12 spherical roller bearings and inte- grated drywell on low speed shaft or</p> <p>12a <input type="checkbox"/> heavy duty bearings to take very high overhung loads, available for size C -> F; drywell on low speed shaft</p> <p>13 spigot at fixation feet of the gear unit or</p> <p>13a flange at low speed shaft cover</p> <p>14 pump lubrication</p> <p>15 motorpump lubrication for two stages right-angle gear units sizes G -> M; refer to Hansen</p> <p>16 <input type="checkbox"/> heater or</p> <p>16a <input type="checkbox"/> machining allowing fitting of heater by customer</p> <p>17 gear unit inspection cover</p> <p>18 Oil-Lock™ seal</p> <p>19 breather plug or</p> <p>19a <input type="checkbox"/> anti-humidity breather plug or</p> <p>19b <input type="checkbox"/> anti-humidity breather filter or</p> <p>19c <input type="checkbox"/> dust-proof breather plug</p> <p>20 oil filler plug</p> <p>21 <input type="checkbox"/> M4 adjustable motor base</p> <p>22 <input type="checkbox"/> M2 adjustable motor base</p> <p>23 <input type="checkbox"/> hydrodynamic coupling with V-belt pulley; vertical mounting</p> <p>24 <input type="checkbox"/> gear unit with lantern housing</p> <p>25 standard elastic block-type coupling</p> <p>26 <input type="checkbox"/> inspection cover for coupling</p> <p>27 <input type="checkbox"/> flow switch (provided for sizes G to M as standard)</p>	<p>1 油标尺</p> <p>2 <input type="checkbox"/> 带O型圈的迷宫式密封</p> <p>3 <input type="checkbox"/> 球型滚柱止推轴承</p> <p>4 加脂润滑点 (DIN71412)</p> <p>4a <input type="checkbox"/> 加脂润滑点 (DIN3404)</p> <p>5 <input type="checkbox"/> 油位观测窗</p> <p>6 外接软管放油开关</p> <p>7 <input type="checkbox"/> 冷凝水排放 只适用于下端插入式</p> <p>8 磁性阀塞</p> <p>9 <input type="checkbox"/> 轴端盖和联轴器之间的V型密封</p> <p>10 油封的漏油检测器</p> <p>11 常规实心轴</p> <p>11a 加固实心轴</p> <p>11b 延长的轴承箱体</p> <p>11c 收缩盘空心轴</p> <p>11d 键槽式空心轴</p> <p>12 低速轴上的球形滚动轴承和集成式干井, 或</p> <p>12a <input type="checkbox"/> 承受很高悬垂负荷的重度作业轴承, 用于规格C->F; 低速轴上的集成干井。</p> <p>13 带定位凸缘底脚的减速机或</p> <p>13a 低速轴端盖的法兰联接</p> <p>14 泵润滑</p> <p>15 规格G->M的两极正交减速机的 电机泵润滑; 请咨询汉森</p> <p>16 <input type="checkbox"/> 加热器</p> <p>16a <input type="checkbox"/> 机械加工允许客户安装加热器</p> <p>17 减速机检查端盖</p> <p>18 Oil-Lock™ 密封</p> <p>19 通气阀塞</p> <p>19a <input type="checkbox"/> 防潮通气阀塞</p> <p>19b <input type="checkbox"/> 配有防潮滤清器的通气阀塞</p> <p>19c <input type="checkbox"/> 防尘通气阀塞</p> <p>20 加油孔阀塞</p> <p>21 <input type="checkbox"/> M4 可调电机座</p> <p>22 <input type="checkbox"/> M2 可调电机座</p> <p>23 <input type="checkbox"/> 液力联轴器带有V型皮带的皮带轮, 立式安装</p> <p>24 <input type="checkbox"/> 带灯笼式箱体的减速机</p> <p>25 标准弹性块联轴器</p> <p>26 <input type="checkbox"/> 联轴器检查盖</p> <p>27 <input type="checkbox"/> 流量开关 (作为标准配置提供给G至M规格)</p>
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DESCRIPTION

COUPLING RANGE FOR MIXER DRIVES

SHAFTS CONNECTION GEAR UNIT - MIXER

Rigid couplings

The large rigidity of the coupling allows the extension of the gear unit output shaft without the need of an intermediate bearing block. It is particularly suited for vertical applications such as mixers and agitators.

The rigid coupling is especially designed for vertical applications which require a rigid link between the low speed shaft of the gear unit and the driven machine.

The standard coupling version consists of two identical hubs made either of steel or nodular cast-iron depending on the coupling size.

For the axial fixation of the hubs, the tapped hole of the gear unit's shaft end is used.

The two hubs are bolted together by means of standard bolts and screws complying with the EN 24010 and DIN 980 V.

Elastic pin type couplings

The elastic pin type coupling consists of two halves, one of which carries steel driving pins. Synthetic rubber bushes are vulcanized to brass sleeves mounted freely on the driving pins. This allows them to rotate freely and move slightly lengthwise. The stress exerted onto the bearings is thus significantly reduced.

A unique scalloped barrel shape of the bushes guarantees a uniform distribution of loads even in case of misalignment. This ensures increased durability of both bushes and pins.

The elastic pin type coupling transmits torque and absorbs overloads in all circumstances whilst assuring a long life.

Flexible gear type couplings

The flexible gear type coupling is a coupling of large torsional rigidity. This compact all-metal coupling is capable of absorbing important shock loads.

The applied torque is transmitted from one hub to the other via a connecting sleeve.

The teeth on the hub and sleeve have been precision-machined on high-performance machines.

The clearance between the teeth is reduced as much as possible, while providing the required coupling flexibility. With the severe machining tolerances, compression is distributed evenly over the whole toothing.

The flexible gear type coupling is lubricated with grease. The gap between the two hubs forms a grease chamber. When the coupling is in operation, the centrifugal force pushes the grease automatically between the teeth.

The flexible gear type coupling covers by a large variety of arrangements.

Especially the arrangement provided with a steel plate mounted on a thrust bearing or ball bearing is suitable for vertical shaft applications.

Features

- easy replacement
- high capability to cushion bending, torsional and thrust loads
- fail-safe
- wide temperature range
- suitable for operation in aggressive environment

Features

- strong
- flexible elements are loaded in compression
- fail-safe design
- capacity to withstand high overloads
- bushes designed for long life

Features

- crowned tooth face
- compact design
- flexible coupling
- high torsional rigidity
- high shock-load capacity
- capable to accommodate various misalignments
- wide torque range

DESCRIPTION

COUPLINGS AND V-BELT DRIVES FOR MIXER DRIVES

SHAFTS CONNECTION MOTOR - GEAR UNIT

Elastic block type coupling

The symmetrical block type coupling is characterized by a simple and compact design.

Its flexible elements are loaded in compression only.

The coupling is capable of handling significant overloads and transmitting torque under all conditions.

The block type coupling consists of two identical coupling halves made of grey lamellar cast iron.

Each coupling half comprises a number of claws which fit in the recesses provided in the other half, but which are separated by the high quality flexible **Perbunan** elements. Depending on the coupling size, either several individual elements or a single circular element is used.

Fluid couplings

The hydrodynamic coupling lets the motor start under light load conditions

The coupling is capable of absorbing possible shock loads and protects the driven machine against continuous light overload.

The hydrodynamic coupling consists of two main elements: an impeller and a runner, both equipped with radial vanes.

The impeller (pump), which is directly driven by the motor, transforms the mechanical energy into hydrodynamic energy in the oil. This energy is used to drive the rotor (turbine) which is connected to the gear unit.

Results:

- the driving shaft torque is always equal to the driven shaft torque
- the speed of the driven element is always slightly lower than the speed of the driving element (difference is called slip)
- the amount of slip is dependant upon the speed, the torque transmitted and the quantity of oil in the coupling
- the power loss is equal to the percentage of slip (2 - 6 %)
- the hydrodynamic coupling is suited for both directions of rotation.

V-belt drives

V-belt pulleys for use with both wedge (narrow) conform to ISO 4184 and classical V-belt. Section groove according to ISO 4183 - 1980. Material: fine grain cast iron.

Pulleys with taper bushes .

Features

- compact
- simple
- fail-safe
- heavy overload capacity
- torsional elasticity and shock damping

Features

- no load start for the motor
 - low starting current
 - no stalling
- protection for the machine
 - protection against a continuous light overload
 - smooth acceleration
 - shock dampening
- max. starting torque 200% of nominal torque (150% with delay chamber)
- arrangement with pin type coupling
- arrangement with V-belt pulley
other arrangements available.

Features

- large range of ratios
- easy mounting and dismounting of pulleys

说明

搅拌器驱动装置的联轴器 系列轴连接减速机-搅拌器

刚性联轴器

联轴器的刚性大，无需中间轴承块，即可延长减速机输出轴。它特别适用于立式应用情况，如搅拌器的搅动机。

刚性联轴器是为要求在减速机低轴速轴和被驱动机械之间有刚性连结的立式应用情况特别设计的。

标准联轴器版本由两个相同的轂组成，根据联轴器规格这两个轂由刚或球墨铸铁制成。

对于轂轴向固定，使用减速机轴端的螺纹孔。

用符合EN24010和DIN980V的标准螺栓和螺钉把两个轂栓结在一起。

弹性销栓型联轴器

弹性销栓型联轴器由两半组成，其中一个承载钢驱动销栓。合成橡胶衬套经过硫化，与铜套筒相连，后者自由地安装在驱动销栓上。这使得它们可自由转动，并稍微纵向移动。因而施加在轴承上的应力大大减小了。

一个独特扇贝形的衬套保证了即使在未对正的情况下，也能使负荷均匀分布。这确保衬套和销栓的耐用性都得以提高。

弹性销栓型联轴器在所有情况下传送扭力和吸收过载，同时确保了较长的工作寿命。

柔性齿轮式联轴器

柔性齿轮式联轴器是一个大扭转刚性的联轴器。这个紧凑的全金属联轴器节能吸收较大的冲击负荷。

施加的扭力通过一个连结套筒从一个轂传送到另一个轂。

轂上的轮齿和套筒在高性能机械上经过精确的机加工。

轮齿间的间隙被尽可能减小，同时又提供了所需的联轴器灵活性。由于有严格的机加公差，压力被均匀地分配到整个齿圈上。

柔性齿轮式联轴器采用润滑脂润滑。两轂之间的间隙形成一个润滑脂腔。当联轴器工作时，离心力推动润滑脂自动进入轮齿隙。

柔性齿轮式联轴器具有很多布置型式。

尤其是安装在止推轴承或滚珠轴承上的钢板的联轴器布置型式适用于立轴的应用情况。

特性

- 容易更换
- 具有减小弯曲、扭转负荷和轴向负荷的高性能
- 故障保险功能
- 温度范围广
- 适于腐蚀性环境下工作

特性

- 强大
- 柔性部件压缩承载
- 故障保险设计
- 承受高过载的能力
- 衬套设计使工作寿命较长

特性

- 冠形齿面
- 紧凑设计
- 柔性联轴器
- 高扭转刚性
- 高冲击负荷能力
- 能适应各种未对正情况
- 转矩范围广

说明

搅拌器驱动装置的联轴器和V型皮带驱动装置

电机-减速机

弹性块式联轴器

对称块式联轴器具有设计简单紧凑的特点。

其柔性部件只采用压缩承载。

在所有情况下，这个联轴器能承受巨大的过载，并传递扭矩。

对称块式联轴器由两个灰铸铁制成的相同的半联轴器组成。

每个半联轴器带有许多爪具，这些爪具装配在另外半个联轴器提供的凹槽里，并用优质的柔性丁苯橡胶弹性块分隔。根据联轴器规格，使用几个单个弹性块或一个圆型弹性块元件。

液压联轴器

液力联轴器使电机在轻负荷条件下起动

联轴器能吸收可能的冲击负荷，保护被驱动的机器免受连续轻度过载的影响。液力联轴器主要由两个元件组成：一个叶轮和一个转子，两者都装配有径向叶片。

叶轮（泵），由电机直接驱动，将机械能转化为机油中的液力能。液力能被用来驱动与减速机相连的转子（涡轮）。

结果：

驱动轴转矩总是等于被驱动轴转矩。

被驱动元件的速度总是略低于驱动元件的速度（这个差值被称作打滑）

打滑量取决于速度、传送的转矩和联轴节中机油的量。

功率损耗等于打滑量的（2-6%）

液力联轴器适合于两个方向的转动。

V形皮带驱动装置

V形皮带皮带轮，与符合ISC 4184的楔（槽）皮带和典型的V型带配合使用。符合ISO4183-1980的截面槽。材料：细粉铸铁。节锥形衬套的皮带轮。

特性

- 紧凑
- 简单
- 故障保险功能
- 大过载承受能力
- 扭力弹性和减振

特性

- 电机的无负荷起动
- 低起动电流
- 无失速
- 保护机械
- 保护免受连续轻度过载的影响
- 平滑加速
- 减振
- 最大起动转矩为标称转矩的200%（如果带延迟室，为150%）
- 与销栓型联轴节配置
- 与V形皮带皮带轮配置可提供其它布置型式。

特性

- 速比范围广
- 易于装卸

REQUEST FOR QUOTATION MIXER DRIVES

Ref :

Date :

Name :

Signature :

1. APPLICATION

- Mixer: top entry
bottom entry

2. LOAD PARAMETERS

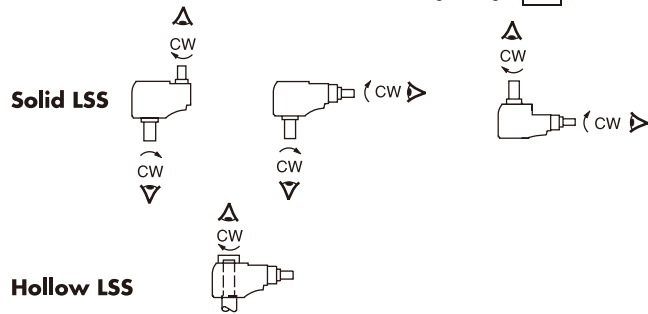
Motor power $P_m =$ kW at min^{-1}
Absorbed power $P_a =$ kW
 Absorbed torque $T_a =$ kNm
Running time in h/day ≤ 3 ≤ 10 > 10
 Peak torque in excess of 200% $T_a =$ %
 Number of starts-stops/per 10 hours :

3. SPEED

One constant speed **two constant speeds**
Variable speed
High speed shaft (HSS) n_1 : variable : $\leq \text{min}^{-1} \leq$
 constant : min^{-1}
 direction of rotation : CW CCW
Low speed shaft (LSS) n_2 : $\leq \text{min}^{-1} \leq$
 direction of rotation : CW CCW

Gear unit shaft configuration :

Parallel
Right-angle



4. PRIME MOVER

Electric motor
 Internal combustion engine: single cylinder
 multi cylinder

5. CONNECTION MOTOR/GEAR UNIT

Flexible coupling
 Hydrodynamic coupling
 V-belt drive:
 pulley diameter: motor: mm/gear unit: mm
 belt section:
 number of belts:
 Other:

6. CONNECTION GEAR UNIT/APPLICATION

Solid shaft :
 coupling
Hollow shaft : keyway
 shrink disc
 Gear unit with torque arm Y N

7. OVERHUNG LOAD ON LOW SPEED SHAFT

Radial load
 - Distance from application point to gear unit shaft shoulder = mm
 - Operating conditions:
 - Radial force **Fr**(kN)
 - Bending moment **Mb**(kNm) in shaft shoulder

	average load continuous operation	maximum load normal operation	exceptional load
Fr (kN) =	<input type="text"/>	<input type="text"/>	<input type="text"/>
Mb (kNm) =	<input type="text"/>	<input type="text"/>	<input type="text"/>

Thrust load

Weight of rotor and coupling = kN
 Hydrodynamic thrust load towards gear unit = + kN
 away from gear unit = - kN
 Hydrostatic thrust load towards gear unit = + kN
 away from gear unit = - kN
 Pressure load towards gear unit = + kN

8. MIXED MEDIUM

Liquids constant density
 variable density
 Liquids and solids
 Air or gaz injection Y N

9. INSTALLATION PARAMETERS

Ambient temperature ($^{\circ}\text{C}$) min: max:
Location : small enclosure indoor outdoor
 Direct sun exposure Y N
 Extended periods of standstill (≥ 1 month) Y N
 Max. noise power: dBA
 Max. noise pressure: dBA at m
 Atmosphere: humid
 dusty
 aggressive, to specify
Electric installation AC 3 Ph V Hz
 Main power supply
 Auxiliary power supply
 Protection requirement:
 Insulation:

REQUEST FOR QUOTATION MIXER DRIVES

Ref : Date : Name : Signature :

Hazardous location

Motor protection EEx d EEx de
 EEx e Ex N MEx
 Dust ignition Protection IP65
 Specify Temperature Class "T"
 Specify Zone and Group Zone ... Group I II
 Gear unit control equipment protection EEx i other
 Max. motor noise power: dBA
 Max. motor noise pressure: dBA at m

If additional cooling is required, what is not allowed:

Fan
 Oil to air cooler
 Cooling coil
 Oil to water cooler
 Availability of water Y N
 if aggressive, specify

10. OPTIONAL SPECIFICATIONS

Options to be indicated on pages A10-A11
Motor mount IEC frame:
 (if not IEC, add dimensional drawing)
Shafts inch
 extended shaft end: indicate on sketch of application
Corrosion protection (see page A7)
 bolts: stainless steel for lantern housing only
Painting (see page A7)
 humidity resistant painting
 high resistant painting
Not allowable materials Al
 Cu
 Other

11. SHIPMENT

Transport by
 vessel
 train
 truck

12. SKETCH OF APPLICATION

with indication of mixer shaft bearing arrangement

TOP VIEW	
SIDE VIEW	
please indicate tilt angles if $\geq 5/1000$	

Other data available in :

13. OTHER



SELECTION MIXER DRIVES

Procedure

Reference Data

S
E
L
E
C
T
I
O
N

SELECTION DATA
P_m, P_a, n_{HSS}, n_{LSS}, i_N, Shaft configuration

↓

SERVICE FACTOR

For applications covered by this catalogue

Mixers / agitators

- Pure liquids
- Liquids and solids
- Liquids variable density

SF min					
3h / 24h		10h / 24h		24h / 24h	
on P _a	on P _m	on P _a	on P _m	on P _a	on P _m
1	1	1,15	1	1,25	1,25
1,15	1	1,25	1,25	1,6	1,5
1,15	1	1,25	1,25	1,7	1,5

$$P \geq \begin{matrix} \text{Motor Power } P_m \\ \text{Absorbed Power } P_a \end{matrix} \times \text{SFmin}$$

and

$$T \text{ (kNm)} = \frac{P \text{ (kW)} \times 9,550}{n_{LSS} \text{ (min}^{-1}\text{)}}$$

↓

PROGRAMME SELECTION

Hansen P4

V-belt drive

Coupling

refer to pages B1-B2 : "Request for quotation of mixer drives"

The service factors SFmin are empirical values based on AGMA specifications and our experience. They apply for "State of the art" designed driven machines and normal operating conditions. Refer to Hansen for special designed applications or special operating conditions.

refer to pages A2 - A5

refer to catalogue no 220

refer to Hansen

refer to Hansen

C
H
E
C
K

↓

Bending moment and thrust load

M_b: ... kNm
F_x: ... kN
 Check with M_{bN} : M_b ≤ M_{bN}
 Check with F_{xN} : F_x ≤ F_{xN}
 Pay attention to direction of F_x !

Thermal rating:

Bending moment M_{bN} and thrust load F_{xN}
 Refer to the pages B4 - B5 / B11 - B26
 For higher values: refer to Hansen

refer to catalogue no 220

SELECTION HANSEN P4 OVERHUNG LOADS ON SOLID LOW SPEED SHAFT

General

All listed overhung loads are minimum values considering the worst case combination of direction of rotation and direction of thrust load. When the latter are well defined, then higher permissible overhung loads may result from detailed calculation.

All listed overhung loads consider absorbed power = 1/1,6 x rated mechanical power of the gear unit; for actual service factors SF > 1,6 or SF < 1,6, higher, respectively lower overhung loads may be obtained.

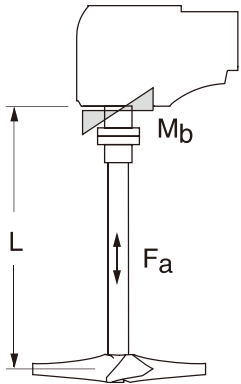
Detailed calculation based upon specific load conditions can be made by Hansen upon simple request. Please return data sheet "Request for quotation" pages B1-B2.

For extreme thrust loads, additional thrust bearings can be installed; refer to Hansen.

TYPES

Two types of tables are presented, linked to typical mixer shaft arrangements:

Table TYPE ①



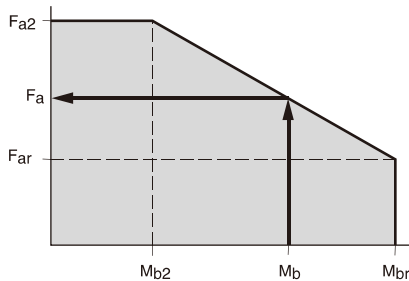
The mixer shaft is mounted directly on the low speed shaft of the gear unit, no outboard bearings on the mixer shaft itself are provided.

Listed overhung loads consider L = Lmin; for distances L > Lmin or L < Lmin, higher, respectively lower overhung loads may be obtained.

The table lists rated bending moments Mbr and simultaneously acting permissible thrust loads Far for average overhung load in continuous operation.

The table also lists a second reference bending moment Mb2 and corresponding permissible thrust load Fa2.

For bending moments in between Mb2 and Mbr, linear interpolation of corresponding permissible thrust values should be applied.



Use values in shaded area only

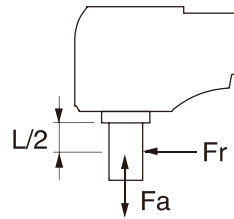
For low speed shaft type E, only bending moments Mbr and Mbs are listed; all thrust loads to be taken by additional thrust bearing. For detailed calculations, refer to Hansen.

Each table also lists permissible bending moment Mbs and thrust load Fas for maximum load during normal operation. Exceptional peak bending moments 2 Mbs are permissible.

How to use table TYPE ①

- check maximum bending moment in normal operation < Mbs
- check maximum thrust load in normal operation < Fas
- check exceptional peak bending moment < 2 Mbs
- check average overhung load in continuous operation with listed values for actual n2 and required bearing life. Both values Mb and corresponding Fa may be applied simultaneously.

Table TYPE ②



The mixer shaft is provided with a separate bearing arrangement. Overhung loads are referred to the middle of the gear unit's LSS extension.

This table gives rated radial loads Frr and rated thrust loads Far. Both rated loads must not act simultaneously and must be checked separately to ensure they are superior or equal to the average overhung loads in continuous operation. The average - radial Fr and axial Fa - overhung loads may act simultaneously at the low speed shaft of the gear unit if

$$\frac{F_a}{F_{ar}} + \frac{F_r}{F_{rr}} \leq 1$$

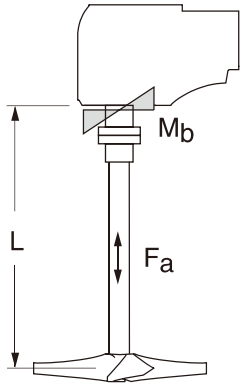
Each table also gives permissible radial load Frs and thrust load Fas. Both loads must be superior or equal to the maximum overhung loads during normal operation. Occasional peak overhung loads (< 2Frs) are permissible.

How to use table TYPE ②

- check maximum radial overhung load in normal operation < Frs
- check maximum thrust load in normal operation < Fas
- check exceptional peak radial load < 2Frs
- check average overhung load in continuous operation Fa and Fr with listed values for actual n2 and required bearing life.
- check:

$$\frac{F_a}{F_{ar}} + \frac{F_r}{F_{rr}} \leq 1$$

1. Table TYPE ①



Selected gear unit **QVRH3-CDL-56**

$n_2 = 27 \text{ min}^{-1}$

SF on absorbed power = 1,6

required bearing life 50000 hrs

$L = 6000 \text{ mm}$

specified overhung load

	average load continuous operation	maximum load normal operation	exceptional peak load
M_b (kNm)	80 (1)	130 (2)	240 (3)
F_a (kN)	70 (4)	120 (5)	140 (6)

ref. page B16

check : $L = 6000 \text{ mm} > L_{min} = 3900 \text{ m}$ OK

check : $130 \text{ kNm (2)} < M_{bs} = 145 \text{ kNm}$ OK

check : $120 \text{ kN (5)} < F_{as} = 309 \text{ kN}$ OK

check : $240 \text{ kNm (3)} < 2 M_{bs} = 290 \text{ kNm}$ OK

check : $M_b = 80 \text{ kNm (1)} < M_{br} = 145 \text{ kNm}$ OK

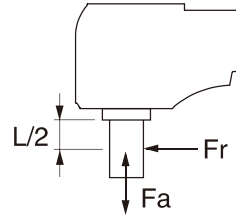
corresponding permissible thrust load $F_a =$

$$F_a = F_{ar} + (F_{a2} - F_{ar}) \frac{(M_{br} - M_b)}{(M_{br} - M_b2)}$$

$$= 160 + (195 - 160) \frac{(145 - 80)}{(145 - 36)} = 181 \text{ kN}$$

check : $70 \text{ kN (4)} < F_a = 181 \text{ kN}$ OK

2. Table TYPE ②



Selected gear unit **QVPF3-UDR-28**

$n_2 = 54 \text{ min}^{-1}$

SF on absorbed power = 1,6

required bearing life 50000 hrs

specified overhung load

	average load continuous operation	maximum load normal operation	exceptional peak load
F_r (kN)	40 (1)	60 (2)	100 (3)
F_a (kN)	45 (4)	70 (5)	90 (6)

* first check with standard bearing arrangement
ref. page B22

check : $60 \text{ kN (2)} < F_{rs} = 127 \text{ kN}$ OK

check : $70 \text{ kN (5)} < F_{as} = 133 \text{ kN}$ OK

check : $100 \text{ kN (3)} < 2F_{rs} = 254 \text{ kN}$ OK

check : $40 \text{ kN (1)} < F_{rr} = 100 \text{ kN}$ OK

check :

$$\frac{F_a (4)}{F_{ar}} + \frac{F_r (1)}{F_{rr}} = \frac{45}{33} + \frac{40}{100} > 1 \quad \text{not OK}$$

* check with double taper roller bearing arrangement
ref. page B26

check : $60 \text{ kN (2)} < F_{rs} = 114 \text{ kN}$ OK

check : $70 \text{ kN (5)} < F_{as} = 133 \text{ kN}$ OK

check : $100 \text{ kN (3)} < 2F_{rs} = 228 \text{ kN}$ OK

check : $40 \text{ kN (1)} < F_{rr} = 114 \text{ kN}$ OK

check :

$$\frac{F_a (4)}{F_{ar}} + \frac{F_r (1)}{F_{rr}} = \frac{45}{79} + \frac{40}{114} = 0,92 < 1 \quad \text{OK}$$

报价需求

搅拌机驱动装置

参照: 日期: 名称: 签名:

1.应用

-搅拌机: 上端插入式
底端插入式



2.负荷参数

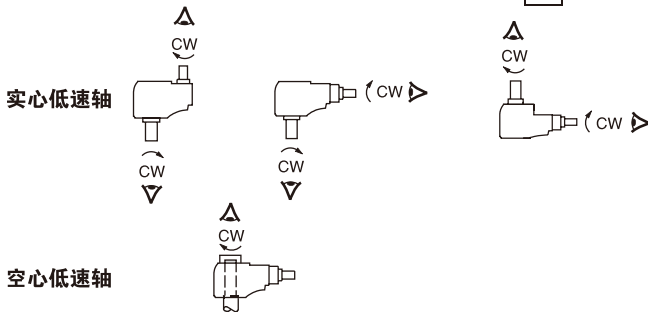
电机功率 $P_m =$ kW at min^{-1}
 吸收功率 $P_a =$ kW
 吸收扭矩 $T_a =$ kNm
 运行时间 小时/天 ≤ 3 ≤ 10 > 10
 峰值扭矩超过200% T_a = %
 每10小时启动/停止次数:

3.转速

单一恒速 双恒速
 变速
 高速轴 (HSS) n_1 : 变速: $\leq \text{min}^{-1} \leq$
 恒速: min^{-1}
 旋向: CW CCW
 低速轴 (LSS) n_2 : $\leq \text{min}^{-1} \leq$
 旋向: CW CCW

减速机轴配置:

平行轴
正交轴



4.原动机

电动马达
内燃机: 单缸
多缸

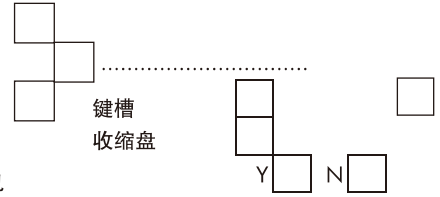
5.电机/减速机

柔性联轴器
液力联轴器
V 形皮带驱动装置:
皮带轮直径: 电机: mm/减速机: mm
皮带截面:
皮带数量:
其它: ...

6.减速机/应用设备连接

实心轴:
联轴器

空心轴:
带扭力臂的减速机



7.低速轴上的悬垂负荷

径向负荷

- 从施力点到减速机轴肩的距离 = mm
 - 工作条件
 - 径向力 F_r (kN)
 - 轴肩处的弯矩 M_b (kNm)

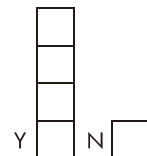
F_r (kN)=	连续工作条件下的平均负荷	正常工作条件下的最大负荷	异常负荷
M_b (kNm)=	<input type="text"/>	<input type="text"/>	<input type="text"/>

推进负荷

转子和联轴节的重量 = kN
 液力轴向负荷 朝向减速机 ==+ kN
 离开减速机 ==- kN
 静液轴向负荷 朝向减速机 ==+ kN
 离开减速机 ==- kN
 压力负荷 朝向减速机 ==+ kN

8.被搅拌的介质

液体稳定密度
可变密度
液体和固体
气体或煤气



9.安装参数

环境温度 (°C)

最小: ... 最大: ...

位置: 狭窄工作环境

室内 室外

直接暴露于阳光下

长期停机时间 (≥ 1 月)

功率噪音最大值:

dBA

压力噪音最大值:

dBA at m

大气:

湿度

粉尘度

侵蚀性请说明

电气安装

AC 3 Ph V Hz

主电源

.....

辅助电源

.....

保护需求

.....

绝缘:

.....

报价需求 搅拌机驱动装置

参照: 日期: 名称: 签名:

危险区域使用

电机保护

EEx d EEx de
 EEx e Ex N MEx

粉尘点火

保护等级IP65

评定温度等级“T”

.....

评定区域和组

区域 ... 组 I II

减速机控制设备保护

EEx i

电机功率噪声最大值

dBA

电机压力噪声最大值

dBA m

如果需要额外的冷却,

可以加装:

风扇
 油-空气冷却器
 冷却盘管
 油-水冷却器
 有水 Y N

如果条件苛刻, 请注明

10. 可选参数规格

选装

请参阅A10-A11页

电机 IEC框架:

(如果采用IEC, 请附加维量图)

轴 英寸

加长轴端: 在应用草图上标示

防腐蚀 (见A9页)

螺栓: 不锈钢仅用于法兰式电机座连接

涂漆 (见A9页)

防潮涂漆

高抗性涂漆

禁用材料

Al

Cu

其它

11. 出货

运输方式

海运

铁路运输

公路运输

12. 应用草图

带搅拌机轴承结构说明

顶视图	
侧视图	
≥5/1000时请标示倾斜角度	

其它可用数据:

13. 其它:

选择 搅拌器驱动装置

程序

选型数据

$P_m, P_a, \eta_{HSS}, \eta_{LSS}, i_N$, 轴配置

服务系数

SF min					
3h / 24h		10h / 24h		24h / 24h	
on Pa	on Pm	on Pa	on Pm	on Pa	on Pm
1	1	1,15	1	1,25	1,25
1,15	1	1,25	1,25	1,6	1,5
1,15	1	1,25	1,25	1,7	1,5

对于本手册包括的应用

搅拌器/搅动机

- 纯净液体
- 液体和固体
- 不同密度的液体

$$P \geq \begin{matrix} \text{电机功率 } P_m & \times & SF_{min} \\ \text{和} & & \\ \text{吸入功率 } P_a & \times & SF_{min} \end{matrix}$$

$$T \text{ (kNm)} = \frac{P \text{ (kW)} \times 9,550}{\eta_{LSS} \text{ (min}^{-1}\text{)}}$$

程序选择

Hansen P4

V形皮带驱动装

联轴器

参考数据

参见B6-B7页：“搅拌器驱动装置询价单”

服务系数SFmin是基于AGMA技术参数及汉森多年来实践经验值。它们适用于设计最新的被驱动机械和正常的工作条件。请咨询汉森，了解特殊设计应用或特殊工作条件。

参见A2-A5页

参见220号技术资料

请咨询汉森

请咨询汉森

选
型

检
查

变矩和轴向负荷

M_b : ... kNm

F_x : ... kN

通过 M_{bN} : $M_b \leq M_{bN}$

通过 F_{xN} 检查: $F_x \leq F_{xN}$

注意 F_x 的方向热功率:

弯矩 M_{bN} 和轴向负荷 F_{xN}
请参见B9-B26页
对于更高值: 请咨询汉森

热功率

参见220号技术资料。

选择 汉森P4 实心低速轴上的悬垂负荷

概述

所有列出的悬垂负荷是考虑到最差的旋转方向负荷方向条件后的最小值。当旋转方向和轴向负荷方向界定清楚后，通过详细的计算可得出更高的允许悬垂负荷。

所有列出的悬垂负荷假定吸收功率=1/1,6×的减速机额定机械功率；对于实际服务系数SF>1,6或SF<1,6，服务系数越大，可得到悬垂负荷相应越低。

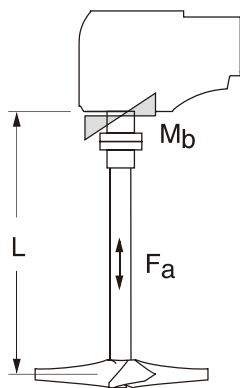
只要得到请求，汉森可对基于具体负荷条件做出详细计算。请返回B6–B7页的“询价单”数据表。

对于极端轴向负荷，可安装额外的止推轴承；请咨询汉森。

类型

展示了两类表格，与典型的搅拌器轴布置型式有关：

表格类型①



搅拌器轴直接安装在减速机的低速轴上，在搅拌器轴本身上面不提供外置轴承。

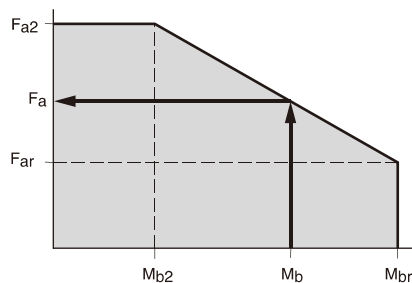
所列悬垂负荷假定

$L=L_{min}$ ；对于距离 $L>L_{min}$ 或 $L<L_{min}$ ，数值越大，可得到的悬垂负荷相应越低。

此表列出了额定弯矩Mbr和连续工作条件下平均悬垂负荷的同步服务允许轴向负荷Far。

此表还列出了第二个参考弯矩Mb2和对应的允许轴向负荷Fa2。

对于Mb2和Mbr之间的弯矩，对应的允许轴向负荷应适用线性内插法。



只使用阴影部分的价值

对于低速轴类型E，只列出了弯矩Mbr和Mbs；所有轴向负荷都由附加的止推轴承承担。关于详细的计算，请咨询汉森。

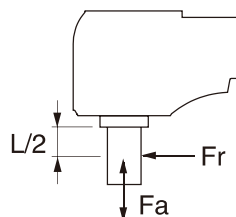
每个表还列出了在最大负荷和正常工作条件下允许的弯矩和轴向负荷。

允许异常弯矩峰值为2Mbs。

如何使用表格类型①

- 检查正常工作条件下的最大弯矩是否小于Mbs
- 检查正常工作条件下的最大轴向负荷是否小于Fas
- 检查异常弯矩峰值是否小于2Mbs
- 用列出的实际n2和要求的轴承工作寿命的值，检查连续工作条件下的平均悬垂负荷。可以同适用Mb和对应的Fa的值。

表格类型②



搅拌器轴与一个单独的轴承装置一起提供。悬垂负荷的是减速机低速轴延长部分的中间。

此表给出了额定径向负荷Frr和额定轴向负荷Far。

两个负荷不得同时作用，而且必须分开检查，以确保它们大于或等连续工作条件下的平均悬垂负荷。

平均径向Fr和轴向Fa—悬垂负荷在齿轮箱的低速轴时可以同时作用，条件是

$$\frac{F_a}{F_{ar}} + \frac{F_r}{F_{rr}} \leq 1$$

每个表还给出了允许径向负荷Frs和轴向负荷Fas。

两个负荷必须大于或等于正常工作期间的最大悬垂负荷。

允许偶然出现悬垂负荷峰值 (<2Frs)。

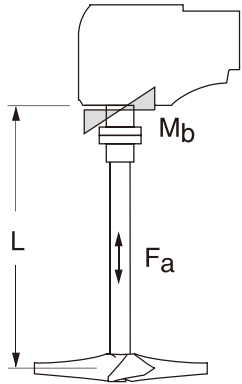
如何使用表格“类型”②

- 检查正常工作条件下最大径向何荷载是否小于Frs
- 检查正常工作条件下的最大轴向负荷是否小于Fas
- 检查异常径向荷载峰值是否小于2Frs
- 用列出的实际n2和要求的轴承工作寿命的值，检查连续工作条件Fa和Fr下的平均悬垂负荷。

• 检查：

$$\frac{F_a}{F_{ar}} + \frac{F_r}{F_{rr}} \leq 1$$

1. 表格类型①



选择的减速机 **QVRH3-CDL-56**

$n_2 = 27 \text{ min}^{-1}$

吸收功率上的SF=1,6

要求的轴承寿命50000小时

$L=6000\text{mm}$

规定的悬垂负荷

	连续工作条件下的平均负荷	正常工作条件下的最大负荷	异常负荷峰值
M_b (kNm)	80 (1)	130 (2)	240 (3)
F_a (kN)	70 (4)	120 (5)	140 (6)

请参考B16页

检查: $L = 6000 \text{ mm} > L_{min} = 3900 \text{ m}$ 满足

检查: $130 \text{ kNm (2)} < M_{bs} = 145 \text{ kNm}$ 满足

检查: $120 \text{ kN (5)} < F_{as} = 309 \text{ kN}$ 满足

检查: $240 \text{ kNm (3)} < 2 M_{bs} = 290 \text{ kNm}$ 满足

$$M_b = 80 \text{ kNm (1)} < M_{br} = 145 \text{ kNm}$$

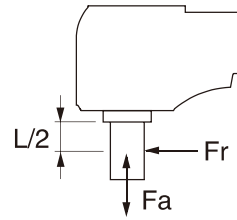
对应的允许轴向负荷 $F_a =$

$$F_a = F_{ar} + (F_{a2} - F_{ar}) \frac{(M_{br} - M_b)}{(M_{br} - M_{b2})}$$

$$= 160 + (195 - 160) \frac{(145 - 80)}{(145 - 36)} = 181 \text{ kN}$$

检查: $70 \text{ kN (4)} < F_a = 181 \text{ kN}$ 满足

2. 表格类型②



选择的减速机 **QVPF3-UDR-28**

$n_2 = 54 \text{ min}^{-1}$

吸收功率上的SF=1,6

要求的轴承寿命50000小时

规定的悬垂负荷

	连续工作条件下的平均负荷	正常工作条件下的最大负荷	异常负荷峰值
F_r (kN)	40 (1)	60 (2)	100 (3)
F_a (kN)	45 (4)	70 (5)	90 (6)

*用标准轴承装置进行首次检查

请参考B22页

检查: $60 \text{ kN (2)} < F_{rs} = 127 \text{ kN}$ 满足

检查: $70 \text{ kN (5)} < F_{as} = 133 \text{ kN}$ 满足

检查: $100 \text{ kN (3)} < 2F_{rs} = 254 \text{ kN}$ 满足

检查: $40 \text{ kN (1)} < F_{rr} = 100 \text{ kN}$ 满足

检查: $\frac{F_a (4)}{F_{ar}} + \frac{F_r (1)}{F_{rr}} = \frac{45}{33} + \frac{40}{100} > 1$ 不满足

*用双圆锥滚动轴承装置检查

请参考B26页

检查: $60 \text{ kN (2)} < F_{rs} = 114 \text{ kN}$ 满足

检查: $70 \text{ kN (5)} < F_{as} = 133 \text{ kN}$ 满足

检查: $100 \text{ kN (3)} < 2F_{rs} = 228 \text{ kN}$ 满足

检查: $40 \text{ kN (1)} < F_{rr} = 114 \text{ kN}$ 满足

检查: $\frac{F_a (4)}{F_{ar}} + \frac{F_r (1)}{F_{rr}} = \frac{45}{79} + \frac{40}{114} = 0,92 < 1$ 满足

Overhung loads - Type 悬垂负荷-类型	LSS * - Type 低速轴*-类型	Bearings 轴承	Shaft arrang. 轴布置	Bearing lifetime 轴承寿命	Page 页码	
<p>TYPE 1</p>	R	Standard 标准	P	50000 h	B12-B13	
				R	50000 h	B14-B15
		Option 选装 	P / R	50000 h	B16	
				P / R	100000 h	B16
	E	Option: thrust bearing 选装: 止推轴承	P / R	50000 h	B18-B19	
	L	Standard 标准	P / R	50000 h	B20-B21	
			100000 h	B20-B21		
<p>TYPE 2</p>	R	Standard 标准	P	50000 h	B22-B23	
				R	50000 h	B24-B25
		Option 选装 	P / R	50000 h	B26	
				100000 h	B26	

All standard bearing arrangements can be provided with an additional thrust bearing if required.

* LSS : low speed shaft

如果需要，所有标准轴承装置可提供一个附加止推轴承。

*低速轴

**OVERHUNG
LOADS ON
SOLID LOW
SPEED SHAFT**

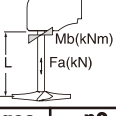
实心低速轴上的
悬垂负荷

**LSS type R
Standard bearing
arrangement**

低速轴类型R
标准轴承布置

Table TYPE 1 表类型1
Parallel shafts 平行轴

//

		TYPE 1 类型 1 Lmin (mm)	LSS bearing life time 低速轴轴承寿命 50000 h									
			C		D		E		F		G	
			1700		1900		2100		2400		2600	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
2	<60	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-
		F _{ar} /F _{a2}	15	20,5	23	27,5	31	38	38	50	-	-
	<75	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-
		F _{ar} /F _{a2}	12,5	18	20	24,5	26,5	34	35	46	-	-
	<90	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-
		F _{ar} /F _{a2}	10	16	18	22,5	25,5	32	33	45	-	-
	<105	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-
		F _{ar} /F _{a2}	8,1	14,5	17	22	24	31	31	43	-	-
<120	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-	
	F _{ar} /F _{a2}	7,4	14	16,5	21	23,5	30	30	42	-	-	
<135	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-	
	F _{ar} /F _{a2}	6,7	13,5	15,5	20,5	22,5	29,5	29	41	-	-	
<150	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	-	-	
	F _{ar} /F _{a2}	6,2	13,5	15	20	22	29	28	40	-	-	
	Mbs	12		14		22		34		-		
	F _{as}	80		80		106		133		-		
3	<15	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	55	14
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	40	54	90	100
	<30	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	55	14
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	40	54	52	67
	<45	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	55	14
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	33	41	34	51
	<60	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	55	14
		F _{ar} /F _{a2}	9,8	15	11,5	15,5	16,5	22,5	24,5	33	19,5	41
<75	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	55	14	
	F _{ar} /F _{a2}	6,4	12,5	8,5	12,5	12,5	18	21	29	14	38	
<90	Mbr/Mb2	-	-	13,5	3,6	21,5	5,7	32	8,5	55	14	
	F _{ar} /F _{a2}	-	-	6,4	10,5	11	17	19,5	27,5	10,5	35	
<105	Mbr/Mb2	-	-	13,5	3,6	21,5	5,7	32	8,5	-	-	
	F _{ar} /F _{a2}	-	-	5,7	9,7	9,9	16	17,5	26	-	-	
	Mbs	12		13,5		21,5		32		55		
	F _{as}	80		80		106		133		160		
4	<15	Mbr/Mb2	-	-	14,5	3,6	23	5,7	34	8,5	57	14
		F _{ar} /F _{a2}	-	-	19,5	25	24	32	48	58	94	115
	<30	Mbr/Mb2	-	-	14,5	3,6	23	5,7	34	8,5	57	14
		F _{ar} /F _{a2}	-	-	19,5	25	24	32	48	58	61	82
	Mbs	-		14,5		23		34		57		
	F _{as}	-		80		106		133		160		

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

**OVERHUNG
LOADS ON
SOLID LOW
SPEED SHAFT**

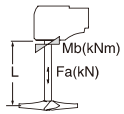
实心低速轴上的
悬垂负荷

**LSS type R
Standard bearing
arrangement**

低速轴类型R
标准轴承布置

Table TYPE 1 表类型1
Parallel shafts 平行轴

//

		TYPE 1 类型 1	LSS bearing life time 低速轴轴承寿命 50000 h									
			H		J		K		L		M	
Stages 级数	n2 (min ⁻¹)	Lmin (mm)	2600		2900		2900		3400		3400	
			rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
2	<60	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<75	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<90	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<105	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
<120	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
<135	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
<150	M _{br} /M _{b2}	-	-	-	-	-	-	-	-	-	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
		M _{bs}	-	-	-	-	-	-	-	-	-	
		F _{as}	-	-	-	-	-	-	-	-	-	
3	<15	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	67	81	115	145	135	175	185	225	77	130
	<30	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	53	67	77	105	86	125	120	160	77	130
	<45	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	36	51	56	83	61	100	94	135	77	130
	<60	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	27,5	43	47	75	52	93	86	125	67	125
	<75	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	22,5	40	43	70	45	88	80	120	58	120
<90	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	19	37	39	67	38	84	74	115	51	115	
<105	M _{br} /M _{b2}	59	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	15,5	35	36	64	34	81	71	110	44	110	
		M _{bs}	59	89	115	145	185					
		F _{as}	160	186	186	226	226					
4	<15	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	73	94	115	145	135	175	185	225	77	130
	<30	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	59	81	77	105	86	125	120	160	77	130
		M _{bs}	67	89	115	145	185					
		F _{as}	160	186	186	226	226					

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

**OVERHUNG
LOADS ON
SOLID LOW
SPEED SHAFT**

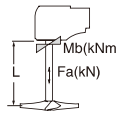
实心低速轴上的
悬垂负荷

**LSS type R
Standard bearing
arrangement**

低速轴类型R
标准轴承布置

Table TYPE 1 表类型1
Right-angle shafts 正交轴



			LSS bearing life time 低速轴轴承寿命 50000 h											
			TYPE 1 类型 1		C		D		E		F		G	
			Lmin (mm)		1700		1900		2100		2400		2600	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2		
2	<60	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14		
		F _{ar} /F _{a2}	15	20,5	23	27,5	31	38	38	50	45	70		
	<75	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14		
		F _{ar} /F _{a2}	12,5	18	20	24,5	26,5	34	35	46	42	67		
	<90	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14		
		F _{ar} /F _{a2}	10	16	18	22,5	25,5	32	33	45	39	64		
	<105	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14		
		F _{ar} /F _{a2}	8,1	14,5	17	22	24	31	31	43	36	62		
<120	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14			
	F _{ar} /F _{a2}	7,4	14	16,5	21	23,5	30	30	42	33	61			
<135	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14			
	F _{ar} /F _{a2}	6,7	13,5	15,5	20,5	22,5	29,5	29	41	31	59			
<150	Mbr/Mb2	12	3,1	14	3,6	22	5,7	34	8,4	57	14			
	F _{ar} /F _{a2}	6,2	13,5	15	20	22	29	28	40	29	58			
	M _{bs}	12		14		22		34		57				
	F _{as}	80		80		106		133		160				
3	<15	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14		
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	40	54	94	115		
	<30	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14		
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	40	54	61	82		
	<45	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14		
		F _{ar} /F _{a2}	13	17,5	15	19	19,5	25,5	33	41	44	65		
	<60	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14		
		F _{ar} /F _{a2}	9,8	15	11,5	15,5	16,5	22,5	24,5	33	35	56		
<75	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14			
	F _{ar} /F _{a2}	6,4	12,5	8,5	12,5	12,5	18	21	29	31	52			
<90	Mbr/Mb2	12	3,1	13,5	3,6	21,5	5,7	32	8,5	57	14			
	F _{ar} /F _{a2}	3,6	10,5	6,4	10,5	11	17	19,5	27,5	29	50			
<105	Mbr/Mb2	-	-	13,5	3,6	21,5	5,7	32	8,5	57	14			
	F _{ar} /F _{a2}	-	-	5,7	9,7	9,9	16	17,5	26	27	48			
	M _{bs}	12		13,5		21,5		32		57				
	F _{as}	80		80		106		133		160				
4	<15	Mbr/Mb2	-	-	14,5	3,6	23	5,7	34	8,5	57	14		
		F _{ar} /F _{a2}	-	-	19,5	25	24	32	48	58	94	115		
	<30	Mbr/Mb2	-	-	14,5	3,6	23	5,7	34	8,5	57	14		
		F _{ar} /F _{a2}	-	-	19,5	25	24	32	48	58	61	82		
	M _{bs}	-		14,5		23		34		57				
	F _{as}	-		80		106		133		160				

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

**OVERHUNG
LOADS ON
SOLID LOW
SPEED SHAFT**

实心低速轴上的
悬垂负荷

**LSS type R
Standard bearing
arrangement**

低速轴类型R
标准轴承布置

Table TYPE 1 表类型1
Right-angle shafts 正交轴



		TYPE 1 类型 1 Lmin (mm)	LSS bearing life time 低速轴轴承寿命 50000 h									
			H		J		K		L		M	
			2600		2900		2900		3400		3400	
Stages 级数	n2 (min⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
2	<60	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	46	72	59	90	71	115	98	140	71	135
	<75	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	43	69	55	86	64	110	92	135	62	130
	<90	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	40	66	52	83	58	105	86	130	55	125
	<105	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	37	64	48	80	54	100	83	125	48	120
<120	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	35	62	44	78	49	99	79	120	43	120	
<135	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	32	61	41	75	46	96	75	120	34	110	
<150	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	30	59	38	74	41	93	69	110	24	105	
		M _{bs}	67		89		115		145		185	
		F _{as}	160		186		186		226		226	
3	<15	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	73	94	115	145	135	175	185	225	77	130
	<30	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	59	81	77	105	86	125	120	160	77	130
	<45	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	43	64	56	83	61	100	94	135	77	130
	<60	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	35	57	47	75	52	93	86	125	67	125
<75	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	32	53	43	70	45	88	80	120	58	120	
<90	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	29	51	39	67	38	84	74	115	51	115	
<105	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45	
	F _{ar} /F _{a2}	27	49	36	64	34	81	71	110	44	110	
		M _{bs}	67		89		115		145		185	
		F _{as}	160		186		186		226		226	
4	<15	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	73	94	115	145	135	175	185	225	77	130
	<30	M _{br} /M _{b2}	67	16,5	89	22	115	28,5	145	36	185	45
		F _{ar} /F _{a2}	59	81	77	105	86	125	120	160	77	130
		M _{bs}	67		89		115		145		185	
		F _{as}	160		186		186		226		226	

All standard bearing arrangements can be provided with an additional thrust bearing if required.

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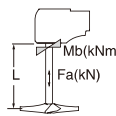
Table TYPE 1

表类型1

Parallel and right-angle shafts

平行轴和正交轴

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		TYPE 1 类型 1	LSS bearing life time				低速轴轴承寿命				50000 h	
			C		D		E		F			
			Lmin (mm)		1700		1900		2100		2400	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2		
3	<15	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	53	59	67	73	94	100	130	133		
	<30	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	37	43	47	52	66	74	91	100		
	<45	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	29	35	37	42	52	60	72	83		
	<60	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	23,5	29,5	30	36	46	54	67	78		
<75	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	21	27	28,5	34	43	51	64	74			
<90	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	19,5	25,5	26,5	32	41	49	61	72			
<105	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	18,5	24,5	25,5	31	39	47	58	69			
		Mbs	11		13		20,5		31			
		Fas	80		80		106		133			
4	<15	Mbr/Mb2	-	-	14,5	3,6	23	5,6	31	7,7		
		Far/Fa2	-	-	72	80	99	110	133	133		
	<30	Mbr/Mb2	-	-	14,5	3,6	23	5,6	31	7,7		
		Far/Fa2	-	-	51	60	71	83	100	115		
		Mbs	-		14,5		23		31			
		Fas	-		80		106		133			
		TYPE 1 类型 1	LSS bearing life time				低速轴轴承寿命				100000 h	
			C		D		E		F			
			Lmin (mm)		1700		1900		2100		2400	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2		
3	<15	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	37	43	47	52	66	74	91	100		
	<30	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	23,5	29,5	30	36	43	51	60	71		
	<45	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	17,5	23	22	27,5	32	40	45	56		
	<60	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7		
		Far/Fa2	13	19	16,5	22	26,5	35	41	52		
<75	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	11	17	15	20,5	24,5	33	38	49			
<90	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	9,9	16	14	19,5	23	31	36	46			
<105	Mbr/Mb2	11	2,7	13	3,5	20,5	5,1	31	7,7			
	Far/Fa2	9,1	15	13	18,5	21,5	29,5	34	45			
		Mbs	11		13		20,5		31			
		Fas	80		80		106		133			
4	<15	Mbr/Mb2	-	-	14,5	3,6	23	5,6	31	7,7		
		Far/Fa2	-	-	51	60	71	83	100	115		
	<30	Mbr/Mb2	-	-	14,5	3,6	23	5,6	31	7,7		
		Far/Fa2	-	-	34	43	48	60	69	83		
		Mbs	-		14,5		23		31			
		Fas	-		80		106		133			

LSS type E

低速轴类型E

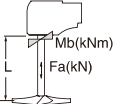
Table TYPE 1

表类型1

Parallel and right-angle shafts

平行轴和正交轴

// - ⊥

		TYPE 1 类型 1	LSS bearing life time 低速轴轴承寿命 50000 h									
			C		D		E		F		G	
			Lmin (mm)		1900		2100		2400		2600	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
3	<15	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<30	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<45	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<60	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
<75	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
<90	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
<105	Mbr/Mb2	-	-	14,5	-	23,5	-	35	-	61	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
		M _{bs}	-	-	14,5	-	23,5	-	35	-	61	-
		F _{as}	-	-	80	-	106	-	133	-	160	-
4	<15	Mbr/Mb2	-	-	23	-	28	-	49	-	89	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<30	Mbr/Mb2	-	-	23	-	28	-	49	-	89	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
		M _{bs}	-	-	23	-	28	-	49	-	89	-
		F _{as}	-	-	80	-	106	-	133	-	160	-

Thrust loads to be taken by thrust bearing : refer to Brook Hansen.

止推轴承承受的载荷：请咨询汉森。

LSS type E

低速轴类型E

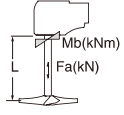
Table TYPE 1

表类型1

Parallel and right-angle shafts

平行轴和正交轴

// - ⊥

		TYPE 1 类型 1	LSS bearing life time 低速轴轴承寿命									
			H		J		K		L		M	
			2600		2900		2900		3400		3400	
Stages 级数	n2 (min ⁻¹)	Lmin (mm)	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
3	<15	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<30	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<45	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<60	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<75	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-
F _{ar} /F _{a2}		-	-	-	-	-	-	-	-	-	-	
<90	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
<105	M _{br} /M _{b2}	79	-	115	-	145	-	185	-	225	-	
	F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-	
		M _{bs}	79		115		145		185		225	
		F _{as}	160		186		186		226		226	
4	<15	M _{br} /M _{b2}	89	-	115	-	145	-	185	-	225	-
		F _{ar} /F _{a2}	-	-	-	-	-	-	-	-	-	-
	<30	M _{br} /M _{b2}	89	-	115	-	145	-	185	-	225	-
F _{ar} /F _{a2}		-	-	-	-	-	-	-	-	-	-	
		M _{bs}	89		115		145		185		225	
		F _{as}	160		186		186		226		226	

Thrust loads to be taken by thrust bearing : refer to Brook Hansen.

止推轴承承受的载荷：请咨询汉森。

LSS type L
Standard bearing
arrangement

低速轴类型L
标准轴布置


Table TYPE 1

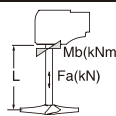
表类型1

Parallel and right-
angle shafts

平行轴和正交轴

// - ⊥

		TYPE 1 类型 1	LSS bearing life time 低速轴轴承寿命									
			C		D		E		F		G	
			Lmin (mm)		2800		3200		3500		3900	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
3	<15	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	40	51	40	71	62	81	170	200
	<30	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	27,5	40	40	59	55	74	120	150
	<45	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	20	32	34	48	41	60	94	125
	<60	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	15	27	27,5	42	35	55	88	115
<75	Mbr/Mb2	-	-	40	10	57	14	89	22	115	28,5	
	F _{ar} /F _{a2}	-	-	13	24,5	25,5	40	33	52	83	110	
<90	Mbr/Mb2	-	-	37	10	57	14	89	22	115	28,5	
	F _{ar} /F _{a2}	-	-	13,5	23,5	24	38	30	50	79	110	
<105	Mbr/Mb2	-	-	35	10	57	14	89	22	115	28,5	
	F _{ar} /F _{a2}	-	-	13	22,5	22,5	37	28,5	48	75	105	
		M _{bs}	-	-	41		57		89		115	
		F _{as}	-	-	73		85		125		312	
4	<15	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	40	51	40	71	62	81	175	210
	<30	Mbr/Mb2	-	-	41	10	57	14	86	22	115	28,5
		F _{ar} /F _{a2}	-	-	29	43	40	63	57	79	125	160
		M _{bs}	-	-	41		57		89		115	
		F _{as}	-	-	73		85		125		312	

		TYPE 1 类型 1	LSS bearing life time 低速轴轴承寿命									
			C		D		E		F		G	
			Lmin (mm)		2800		3200		3500		3900	
Stages 级数	n2 (min ⁻¹)		rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2
3	<15	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	27,5	40	40	59	55	75	120	150
	<30	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	15	27	27	41	32	51	79	110
	<45	Mbr/Mb2	-	-	36	10	57	14	87	22	115	28,5
		F _{ar} /F _{a2}	-	-	10,5	20,5	18	32	21	40	58	88
	<60	Mbr/Mb2	-	-	30	10	50	14	74	22	115	28,5
		F _{ar} /F _{a2}	-	-	9	16,5	15,5	27	20,5	35	53	82
<75	Mbr/Mb2	-	-	25,5	10	43	14	68	22	115	28,5	
	F _{ar} /F _{a2}	-	-	9	14,5	16,5	25,5	20,5	33	49	78	
<90	Mbr/Mb2	-	-	22,5	10	41	14	65	22	100	28,5	
	F _{ar} /F _{a2}	-	-	9,4	13,5	15,5	24	19,5	32	46	75	
<105	Mbr/Mb2	-	-	21	10	39	14	62	22	98	28,5	
	F _{ar} /F _{a2}	-	-	9,1	13	15,5	23	19	30	45	72	
		M _{bs}	-	-	41		57		89		115	
		F _{as}	-	-	73		85		125		312	
4	<15	Mbr/Mb2	-	-	41	10	57	14	89	22	115	28,5
		F _{ar} /F _{a2}	-	-	29	42	40	63	57	79	125	160
	<30	Mbr/Mb2	-	-	36	10	57	14	86	22	115	28,5
		F _{ar} /F _{a2}	-	-	18,5	29,5	28,5	45	35	56	84	115
		M _{bs}	-	-	41		57		89		115	
		F _{as}	-	-	73		85		125		312	

LSS type L
Standard bearing
arrangement

低速轴类型L
标准轴布置

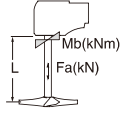
Table TYPE 1

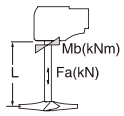
表类型1

Parallel and right-
angle shafts

平行轴和正交轴

// - ⊥

		TYPE 1 类型 1	LSS bearing life time						低速轴轴承寿命					
			H		J		K		L		M			
			3900		4400		4400		4900		4900			
Stages 级数	n2 (min ⁻¹)	Lmin (mm)	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2		
3	<15	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	220	260	120	165	275	330	310	380	410	480		
	<30	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	160	195	120	165	195	255	225	290	295	370		
	<45	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	130	170	120	165	170	225	195	260	270	340		
	<60	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	120	160	115	160	155	215	185	250	250	330		
<75	Mbr/Mb2	145	36	180	45	225	56	270	61	320	81			
	Far/Fa2	115	155	110	155	150	205	175	240	240	320			
<90	Mbr/Mb2	145	36	175	45	215	56	270	61	310	81			
	Far/Fa2	110	150	110	150	145	200	170	230	240	310			
<105	Mbr/Mb2	145	36	165	45	205	56	270	61	300	81			
	Far/Fa2	105	145	105	145	145	195	160	225	230	295			
		Mbs	145		185		225		270		330			
		Fas	309		398		392		497		495			
4	<15	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	220	260	120	165	275	330	310	380	410	480		
	<30	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	160	205	120	165	195	255	225	285	295	370		
		Mbs	145		185		225		270		330			
		Fas	309		398		392		497		495			

		TYPE 1 类型 1	LSS bearing life time						低速轴轴承寿命					
			H		J		K		L		M			
			3900		4400		4400		4900		4900			
Stages 级数	n2 (min ⁻¹)	Lmin (mm)	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2	rated r	ref 2		
3	<15	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	160	195	150	195	195	255	225	285	295	370		
	<30	Mbr/Mb2	145	36	180	45	215	56	270	61	295	81		
		Far/Fa2	105	145	100	145	135	190	150	215	215	280		
	<45	Mbr/Mb2	130	36	135	45	160	56	215	61	235	81		
		Far/Fa2	90	125	95	125	130	165	140	195	215	260		
	<60	Mbr/Mb2	120	36	110	45	145	56	190	61	210	81		
		Far/Fa2	88	115	95	115	130	160	140	185	205	245		
<75	Mbr/Mb2	115	36	100	45	135	56	180	61	195	81			
	Far/Fa2	85	110	94	110	125	150	135	175	205	235			
<90	Mbr/Mb2	110	36	92	45	125	56	165	61	180	81			
	Far/Fa2	83	105	93	105	125	145	135	170	200	230			
<105	Mbr/Mb2	105	36	85	45	120	56	150	61	170	81			
	Far/Fa2	81	105	92	105	125	140	135	165	195	220			
		Mbs	145		185		225		270		330			
		Fas	309		398		392		497		495			
4	<15	Mbr/Mb2	145	36	185	45	225	56	270	61	330	81		
		Far/Fa2	160	205	120	165	195	255	225	290	295	370		
	<30	Mbr/Mb2	130	36	180	45	215	56	270	61	295	81		
		Far/Fa2	120	155	100	145	135	190	150	215	215	280		
		Mbs	145		185		225		270		330			
		Fas	309		398		392		497		495			

**LSS type R
Standard bearing
arrangement**

**低速轴类型R
标准轴布置**

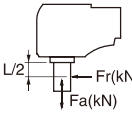
Table TYPE 2

表类型2

Parallel shafts

平行轴

//

		TYPE 2 类型 2 L/2 (mm)	LSS bearing life time 低速轴轴承寿命 50000 h									
			C		D		E		F		G	
			105	105	125	150	175					
Stages 级数	n2 (min ⁻¹)	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	
2	<60	21	53	28,5	72	39	100	51	125	-	-	
	<75	18,5	48	25	67	34	91	48	120	-	-	
	<90	16,5	44	23	63	33	88	46	115	-	-	
	<105	15,5	41	22,5	61	32	86	44	110	-	-	
	<120	15	40	21,5	60	31	84	43	110	-	-	
	<135	14,5	39	21	58	30	82	42	105	-	-	
	<150	14	38	20,5	57	29,5	81	41	105	-	-	
	F _{as}	80		80		106		133		-		
	F _{rs}	68		72		100		127		-		
3	<15	20,5	68	20	61	26	81	49	125	105	185	
	<30	20,5	63	20	61	26	81	49	125	69	155	
	<45	19	52	20	61	26	81	41	120	52	125	
	<60	15,5	44	16	54	23	75	33	100	43	110	
	<75	13	39	13	47	19	66	30	94	39	100	
	<90	11	35	11	42	17,5	63	28	90	37	97	
	<105	9,8	32	10	40	16,5	60	26,5	86	35	93	
	F _{as}	80		80		106		133		160		
	F _{rs}	68		72		100		127		185		
4	<15	-	-	25,5	70	34	93	60	127	120	200	
	<30	-	-	25,5	70	34	93	60	127	85	175	
		F _{as}	-		80		106		133		160	
	F _{rs}	-		72		100		127		185		

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

LSS type R
Standard bearing
arrangement

低速轴类型R
标准轴布置

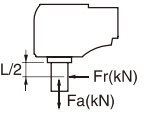
Table TYPE 2

表类型2

Parallel shafts

平行轴

//

	TYPE 2 类型 2	LSS bearing life time 低速轴轴承寿命										
		L/2 (mm)	H		J		K		L		M	
			175	175	175	175	205	205	205	205	235	235
Stages 级数	n2 (min ⁻¹)	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	
2	<60	-	-	-	-	-	-	-	-	-	-	
	<75	-	-	-	-	-	-	-	-	-	-	
	<90	-	-	-	-	-	-	-	-	-	-	
	<105	-	-	-	-	-	-	-	-	-	-	
	<120	-	-	-	-	-	-	-	-	-	-	
	<135	-	-	-	-	-	-	-	-	-	-	
	<150	-	-	-	-	-	-	-	-	-	-	
	F _{as} F _{rs}	-	-	-	-	-	-	-	-	-	-	
3	<15	83	197	145	278	180	325	226	400	135	295	
	<30	69	180	110	235	130	265	165	350	135	295	
	<45	53	145	87	200	105	225	140	310	135	295	
	<60	45	130	78	185	98	215	130	290	130	290	
	<75	42	125	74	175	93	205	125	280	125	280	
	<90	39	120	71	170	89	200	120	270	120	270	
	<105	37	115	68	165	86	190	115	265	115	260	
	F _{as} F _{rs}	160 197	186 278	186 325	226 400	226 463						
4	<15	97	216	145	278	180	325	226	400	135	295	
	<30	84	200	110	235	130	265	165	350	135	295	
	F _{as} F _{rs}	160 216	186 278	186 325	226 400	226 463						

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

LSS type R
Standard bearing
arrangement

低速轴类型R
标准轴布置

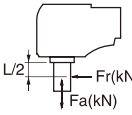
Table TYPE 2

表类型2

Right-angle shafts

正交轴



		TYPE 2 类型 2	LSS bearing life time 低速轴轴承寿命 50000 h										
			L/2 (mm)	C		D		E		F		G	
				Far	Frr	Far	Frr	Far	Frr	Far	Frr	Far	Frr
Stages 级数	n2 (min ⁻¹)		105		105		125		150		175		
2	<60		21	53	28,5	72	39	100	51	125	74	145	
	<75		18,5	48	25	67	34	91	48	120	70	140	
	<90		16,5	44	23	63	33	88	46	115	68	135	
	<105		15,5	41	22,5	61	32	86	44	110	66	130	
	<120		15	40	21,5	60	31	84	43	110	64	130	
	<135		14,5	39	21	58	30	82	42	105	63	125	
	<150		14	38	20,5	57	29,5	81	41	105	61	125	
		F _{as} F _{rs}		80 68		80 72		106 100		133 127		160 185	
3	<15		20,5	68	20	61	26	81	49	125	105	185	
	<30		20,5	63	20	61	26	81	49	125	85	175	
	<45		19	52	20	61	26	81	41	120	68	150	
	<60		15,5	44	16	54	23	75	33	100	59	135	
	<75		13	39	13	47	19	66	30	94	55	125	
	<90		11	35	11	42	17,5	63	28	90	53	125	
	<105		9,8	32	10	40	16,5	60	26,5	86	51	120	
		F _{as} F _{rs}		80 68		80 72		106 100		133 127		160 185	
4	<15		-	-	25,5	70	34	93	60	127	120	185	
	<30		-	-	25,5	70	34	93	60	135	85	175	
		F _{as} F _{rs}		- -		80 72		106 100		133 127		160 185	

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

LSS type R
Standard bearing
arrangement

低速轴类型R
标准轴布置

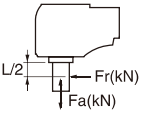
Table TYPE 2

表类型2

Right-angle shafts

正交轴



		TYPE 2 类型 2	LSS bearing life time				低速轴轴承寿命				50000 h	
			H		J		K		L		M	
		L/2 (mm)	175		175		205		205		235	
Stages 级数	n2 (min ⁻¹)		F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}
2	<60		76	170	95	200	125	235	145	310	145	300
	<75		73	160	90	190	120	225	140	295	140	290
	<90		70	160	87	185	120	220	135	285	135	280
	<105		68	155	84	180	115	215	130	280	130	275
	<120		66	150	82	180	110	210	130	275	125	270
	<135		65	150	80	175	110	205	125	270	120	260
	<150		63	145	78	170	105	200	120	255	115	245
		F _{as}	160		186		186		226		226	
		F _{rs}	216		278		329		400		475	
3	<15		83	216	145	278	180	325	226	400	135	295
	<30		83	200	110	235	130	265	165	350	135	295
	<45		67	170	87	200	105	225	140	310	135	295
	<60		60	155	78	185	98	215	130	290	130	290
	<75		56	150	74	175	93	205	125	280	125	280
	<90		54	145	71	170	89	200	120	270	120	270
	<105		52	140	68	165	86	190	115	265	115	260
		F _{as}	160		186		186		226		226	
		F _{rs}	216		278		325		400		463	
4	<15		97	216	145	278	180	325	226	400	135	295
	<30		84	200	110	235	130	265	165	350	135	295
			F _{as}	160		186		186		226		226
		F _{rs}	216		278		325		400		463	

All standard bearing arrangements can be provided with an additional thrust bearing if required.

如果需要，所有标准轴承装置可提供一个附加止推轴承。

LSS type R
Double taper roller
bearing

低速轴类型R
双锥型滚球轴承

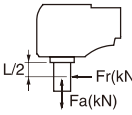
Table TYPE 2

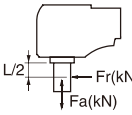
表类型2

Parallel and right-
angle shafts

平行轴和正交轴

// - ⊥

		TYPE 2 类型 2		LSS bearing life time				低速轴轴承寿命		50000 h	
				C		D		E		F	
				L/2 (mm)		105		105		125	
Stages 级数	n2 (min ⁻¹)	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}		
3	<15	59	60	73	64	105	89	133	114		
	<30	44	60	53	64	75	89	105	114		
	<45	36	60	43	64	61	89	84	114		
	<60	31	58	36	64	55	89	79	114		
	<75	27,5	54	34	64	52	89	75	114		
	<90	26,5	52	33	64	50	89	73	114		
	<105	25,5	50	32	64	48	89	70	114		
	F _{as}	80		80		106		133			
	F _{rs}	60		65		89		114			
4	<15			81	65	115	89	133	114		
	<30			61	65	85	89	115	114		
		F _{as}			80		106		133		
	F _{rs}			65		89		114			

		TYPE 2 类型 2		LSS bearing life time				低速轴轴承寿命		100000 h	
				C		D		E		F	
				L/2 (mm)		105		105		125	
Stages 级数	n2 (min ⁻¹)	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}	F _{ar}	F _{rr}		
3	<15	44	60	53	64	75	89	105	114		
	<30	31	58	36	64	52	89	72	114		
	<45	24	48	28	60	41	89	57	114		
	<60	20	42	23	51	36	83	53	110		
	<75	17,5	38	21	49	34	80	50	105		
	<90	16,5	36	20	46	32	77	47	100		
	<105	16	35	19	45	31	75	46	97		
	F _{as}	80		80		106		133			
	F _{rs}	60		65		89		114			
4	<15	-	-	61	65	85	89	115	114		
	<30	-	-	44	65	62	89	85	114		
		F _{as}	-		80		106		133		
	F _{rs}	-		65		89		114			

CONTENTS

- Standardized gear units with parallel shafts	
• Solid low speed shaft	C2
• Hollow low speed shaft	C3
- Standardized motor-reducers with parallel shafts	
• Solid low speed shaft	C4
• Hollow low speed shaft	C5
- Standardized gear units with right angle shafts	
• Solid low speed shaft	C6
• Hollow low speed shaft	C7
- Mounting pad	
• Dimensions	C44
- Centering flange at low speed shaft	
• Dimensions	C45/C46
- Spigot at fixation feet	
• Dimensions	C47/C48
- Bottom entry gear unit with spigot	
• Dimensions	C49
- Available space for removal of dipstick and magnetic plug	
• Dimensions	C50
- Vertical hollow low speed shaft with shrink disc connection	
• Dimensions	C51
- Vertical hollow low speed shaft with keyway connection	
• Dimensions	C52

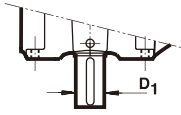
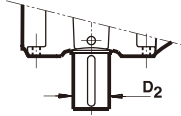
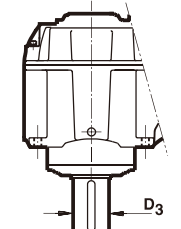
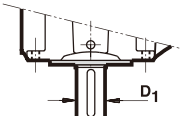
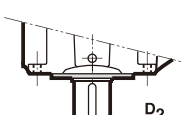
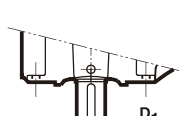
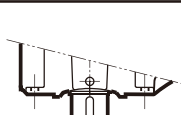
- 平行轴标准减速机	
· 实心低速轴	C2
· 空心低速轴	C3
- 平行轴电机-减速机	
· 实心低速轴	C4
· 空心低速轴	C5
- 正交轴标准减速机	
· 实心低速轴	C6
· 空心低速轴	C7
- 安装垫片	
· 尺寸	C44
- 定位凸缘	
· 尺寸	C45/C46
- 带底脚的定位凸缘	
· 尺寸	C47/C48
- 带定位凸缘的下端插入式减速机	
· 尺寸	C49
- 油标尺和磁性通气阀塞	
· 尺寸	C50
带收缩盘接头的立式空心低速轴	
· 尺寸	C51
带键槽接头的立式空心低速轴	
· 尺寸	C52

PRODUCT RANGE

DIMENSIONAL DRAWINGS

产品范围

尺寸图

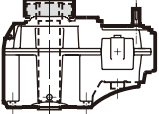
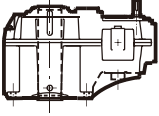
Code 编码	1 Q	2 V	3 P	4 Size 规格	5 5bis (*)	-	6	7	8		Pag. 页码	Centering* 对中要求	
Gear unit with solid vertical low speed shaft 立式安装实心轴输出减速机 QV P	C ▶ F	2 st.	*				U	D	R		C8		
	C ▶ M	3 st.	*				U	D	R		C12-C14		
	D ▶ M	4 st.	*				U	D	R		C18-C20		
	C ▶ M	3 st.	*				U	D	E		$D_2 > D_1$	C12-C14	
	C ▶ M	4 st.	*				U	D	E		$(D_2/D_1)^3=1,5$	C18-C20	
	D ▶ M	3 st.	*				U	D	L		$D_3 > D_1$	C22-C23	
	D ▶ M	4 st.	*				U	D	L		$(D_3/D_1)^3=3$	C25-C26	
	C ▶ F	2 st.	C				U	D	R			C8	C45
	C ▶ M	3 st.	C				U	D	R		C12-C14	C45	
	D ▶ M	4 st.	C				U	D	R		C18-C20	C45	
	D ▶ M	3 st.	C				U	D	E		$D_2 > D_1$	C12-C14	C45
	D ▶ M	4 st.	C				U	D	E		$(D_2/D_1)^3=1,5$	C18-C20	C45
	C ▶ F	2 st.	F				U	D	R			C8	C47-48
	C ▶ M	3 st.	F				U	D	R		C12-C14	C47-48	
	D ▶ M	4 st.	F				U	D	R		C18-C20	C47-48	
	C ▶ M	3 st.	F				U	D	E		$D_2 > D_1$	C12-C14	C47-48
	D ▶ M	4 st.	F				U	D	E		$(D_2/D_1)^3=1,5$	C18-C20	C47-48

Size N▶T: refer to Hansen

规格 ▶ T: 洽询汉森

(*): no code: no centering
 C: flange (QV...C)
 F: spigot (QV...F)

(*): 无编码: 无对中要求
 C: 法兰盘连接(QV...C)
 F: 凸缘底脚连接(QV...F)

Code 编码	1 Q	2 V	3 P	4 Size 规格	5 5 bis (*)	6	7	8 (* *)	Pag. 页码	Hollow shaft 空心轴 * *	Centering 对中要求 *	
Gear unit with vertical hollow low speed shaft 立式安装空心轴输出减速机	P Shrink disc connection 紧缩盘连接 			C ▶ F 2 st.		U	D	D	C9	C51		
				C ▶ M 3 st.		U	D	D	C13-C15	C51		
				D ▶ M 4 st.		U	D	D	C19-C21	C51		
				C ▶ F 2 st.		U	D	D	C9	C51	C46	
				C ▶ M 3 st. C		U	D	D	C13-C15	C51	C46	
				D ▶ M 4 st.		U	D	D	C19-C21	C51	C46	
				C ▶ F 2 st.					C9	C51	C47-48	
				C ▶ M 3 st. F		U	D	D	C13-C15	C51	C47-48	
				D ▶ M 4 st.					C19-C21	C51	C47-48	
	P Hollow shaft with keyway 带键槽的空心轴 				C ▶ F 2 st.					C9	C52	
					C ▶ M 3 st.		U	D	K	C13-C15	C52	
					D ▶ M 4 st.					C19-C21	C52	
					C ▶ F 2 st.					C9	C52	C46
					C ▶ M 3 st. C		U	D	K	C13-C15	C52	C46
					D ▶ M 4 st.					C19-C21	C52	C46
					C ▶ F 2 st.					C9	C52	C47-48
					C ▶ M 3 st. F		U	D	K	C13-C15	C52	C47-48
					D ▶ M 4 st.					C19-C21	C52	C47-48

(*): no code: no centering

C: flange (QV...C)

F: spigot (QV...F)

(* *): ..D: shrink disc

..K: keyed connection

(*): 无编码: 无对中要求

C: 法兰盘连接(QV...C)

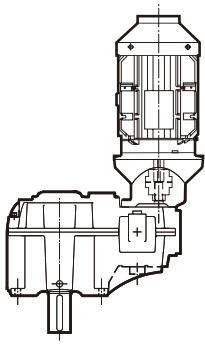
F: 凸缘底脚连接(QV...F)

(* *): ..D: 紧缩盘连接

..K: 键连接

PRODUCT RANGE

产品范围

Code 编码	1 Q	2 V	3 P 规格	4 Size	5 5bis (*)	6	7	8	Pag. 页码	Centering* 对中要求	
<p>Motor-reducer with solid vertical low speed shaft</p> <p>立式安装实心轴输出带电机减速机</p> <p>QV P</p> 				C ▶ F 2 st.		U	D	R	C10		
				C ▶ H 3 st.		U	D	R	C16		
				D ▶ H 3 st.		U	D	E	C16	$D_2 > D_1$ $(D_2/D_1)^3=1,5$	
				D ▶ H 3 st.		U	D	L	C22	$D_3 > D_1$ $(D_3/D_1)^3=3$	
				C ▶ F 2 st. C		U	D	R	C10	C45	
				C ▶ H 3 st. C		U	D	R	C16	C45	
				D ▶ H 3 st. C		U	D	E	C16	C45	
				C ▶ F 2 st. F		U	D	R	C10	C47-48	
				C ▶ H 3 st. F		U	D	R	C16	C47-48	
				D ▶ H 3 st. F		U	D	E	C16	C47-48	
	Size N ▶ T: refer to Hansen				规格 ▶ T: 洽询汉森						

(*): no code: no centering
C: flange (QV...C)
F: spigot (QV...F)

(*): 无编码: 无对中要求
C: 法兰盘连接(QV...C)
F: 凸缘底脚连接(QV...F)

										Pag. 页码			
Code 编码	1 Q	2 V	3 P	4 Size 规格	5 5bis (*)	6	7	8 (**)		P	Hollow shaft 空心轴 **	Centering 对中要求 *	
<p>Motor-reducer with vertical hollow low speed shaft</p> <p>立式安装空心轴输出带电机减速机</p>	<p>QV</p>	<p>V</p>	<p>P</p>	C ▶ H 3 st.		U	D	D		Shrink disc connection	C17	C51	
				C ▶ H 3 st. C		U	D	D		紧缩盘连接	C17	C51	C46
				C ▶ H 3 st. F		U	D	D			C17	C51	C47-48
				C ▶ F 2 st.		U	D	K			C11	C52	
				C ▶ H 3 st.		U	D	K			C17	C52	
				C ▶ F 2 st. C		U	D	K		Hollow shaft with keyway	C11	C52	C46
				C ▶ H 3 st. C		U	D	K		带键槽的空心轴	C17	C52	C46
				C ▶ F 2 st. F		U	D	K			C11	C52	C47-48
				C ▶ H 3 st. F		U	D	K			C17	C52	C47-48

(*): no code: no centering

C: flange (QV...C)

F: spigot (QV...F)

(**): ..D: shrink disc

..K: keyed connection

(*): 无编码: 无对中要求

C: 法兰盘连接(QV...C)

F: 凸缘底脚连接(QV...F)

(**): ..D: 紧缩盘连接

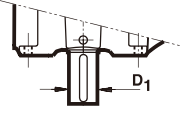
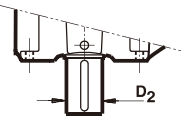
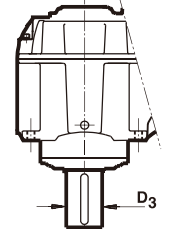
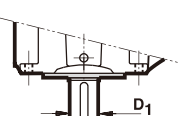
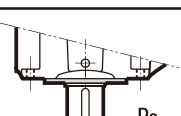
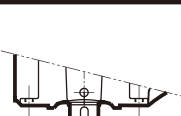
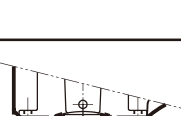
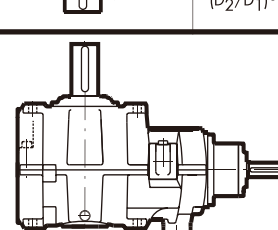
..K: 键连接

PRODUCT RANGE

DIMENSIONAL DRAWINGS

产品范围

尺寸图

Code 编码	1 Q	2 V	3 R	4 Size 规格	5 5bis (*)	-	6	7	8	Pag. 页码	Centering* 对中要求			
Gear unit with solid vertical low speed shaft 立式安装实心轴输出减速机 QV R	C ▶ M	2 st.	*				C	D	R		C27-29			
	C ▶ M	3 st.	*				C	D	R		C31-33			
	D ▶ M	4 st.	*				C	D	R		C35-37			
	C ▶ M	3 st.	*				C	D	E		$D_2 > D_1$	C31-33		
	D ▶ M	4 st.	*				C	D	E		$(D_2/D_1)^{3=1,5}$	C35-37		
	D ▶ M	3 st.	*				C	D	L		$D_3 > D_1$	C39-40		
	D ▶ M	4 st.	*				C	D	L		$(D_3/D_1)^{3=3}$	C41-42		
	C ▶ M	2 st.	C					C	D	R		C27-29	C45	
	C ▶ M	3 st.	C					C	D	R		C31-33	C45	
	D ▶ M	4 st.	C					C	D	R		C35-37	C45	
	C ▶ M	3 st.	C					C	D	E		$D_2 > D_1$	C31-33	C45
	D ▶ M	4 st.	C					C	D	E		$(D_2/D_1)^{3=1,5}$	C35-37	C45
	C ▶ M	2 st.	F					C	D	R		C27-29	C47-48	
	C ▶ M	3 st.	F					C	D	R		C31-33	C47-48	
	D ▶ M	4 st.	F					C	D	R		C35-37	C47-48	
	C ▶ M	3 st.	F					C	D	E		$D_2 > D_1$	C31-33	C47-48
	D ▶ M	4 st.	F					C	D	E		$(D_2/D_1)^{3=1,5}$	C35-37	C47-48
	D - F	2 st.	B					C	U	N		C43		
			D									C49		

Size N ▶ T: refer to Hansen

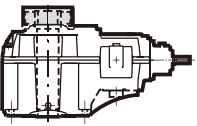
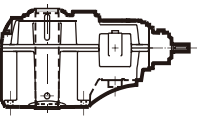
规格 ▶ T: 洽询汉森

(*): no code: no centering
 C: flange (QV...C)
 F: spigot (QV...F)
 B: bottom entry gear unit (QV...B)

D: bottom entry gear unit with spigot (QV...D)

(*): 无编码: 无对中要求
 C: 法兰盘连接(QV...C)
 F: 凸缘底脚连接(QV...F)
 B: 下端插入式减速机

D: 带定位凸缘的下端插入式减速机

Code 编码	1 Q	2 V	3 R	4 Size 规格	5 5 bis (*)	6	7	8 (* *)	Pag. 页码	Hollow shaft 空心轴 * *	Centering 对中要求 *	
Gear unit with vertical hollow low speed shaft 立式安装空心轴输出减速机	R 	Shrink disc connection 紧缩盘连接	C ▶ F 2 st.	C ▶ M 3 st.	D ▶ M 4 st.	C	D	D	C28	C51		
			C ▶ M 3 st.	C ▶ F 2 st. C	C ▶ M 3 st. C	D ▶ M 4 st. C	C	D	D	C32-34	C51	
			D ▶ M 4 st.	C ▶ F 2 st. C	C ▶ M 3 st. C	D ▶ M 4 st. C	C	D	D	C36-38	C51	
			C ▶ F 2 st. F	C ▶ M 3 st. F	D ▶ M 4 st. F	C	D	D	C28	C51	C46	
			C ▶ M 3 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	D	C32-34	C51	C46	
			D ▶ M 4 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	D	C36-38	C51	C46	
			C ▶ F 2 st. F	C ▶ M 3 st. F	D ▶ M 4 st. F	C	D	D	C28	C51	C47-48	
			C ▶ M 3 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	D	C32-34	C51	C47-48	
			D ▶ M 4 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	D	C36-38	C51	C47-48	
	R 	Hollow shaft with keyway 带键槽的空心轴	C ▶ F 2 st.	C ▶ M 3 st.	D ▶ M 4 st.	C	D	K	C28	C52		
			C ▶ M 3 st. C	C ▶ F 2 st. C	C ▶ M 3 st. C	D ▶ M 4 st. C	C	D	K	C32-34	C52	
			D ▶ M 4 st.	C ▶ F 2 st. C	C ▶ M 3 st. C	D ▶ M 4 st. C	C	D	K	C36-38	C52	
			C ▶ F 2 st. C	C ▶ M 3 st. C	D ▶ M 4 st. C	C	D	K	C28	C52	C46	
			C ▶ M 3 st. C	C ▶ F 2 st. C	C ▶ M 3 st. C	C	D	K	C32-34	C52	C46	
			D ▶ M 4 st. C	C ▶ F 2 st. C	C ▶ M 3 st. C	C	D	K	C36-38	C52	C46	
			C ▶ F 2 st. F	C ▶ M 3 st. F	D ▶ M 4 st. F	C	D	K	C28	C52	C47-48	
			C ▶ M 3 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	K	C32-34	C52	C47-48	
			D ▶ M 4 st. F	C ▶ F 2 st. F	C ▶ M 3 st. F	C	D	K	C36-38	C52	C47-48	

(*): no code: no centering

C: flange (QV...C)

F: spigot (QV...F)

(* *): ..D: shrink disc

..K: keyed connection

(*): 无编码: 无对中要求

C: 法兰盘连接(QV...C)

F: 凸缘底脚连接(QV...F)

(* *): ..D: 紧缩盘连接

..K: 键连接

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Two stages

减速机
垂直低速轴
平行轴
规格
两级

Q
V
P
C ▶ F
2

For mixer drives

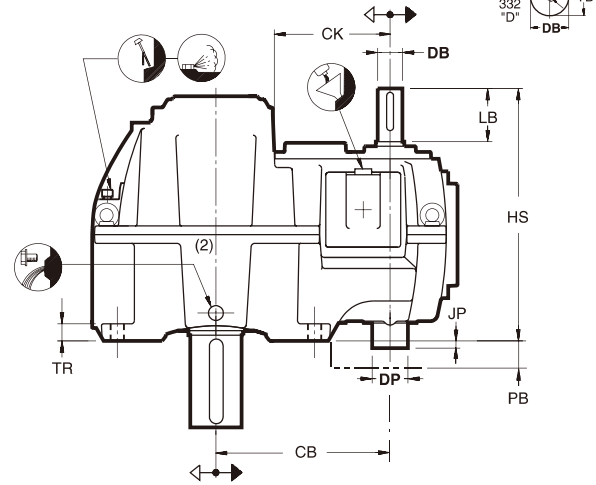
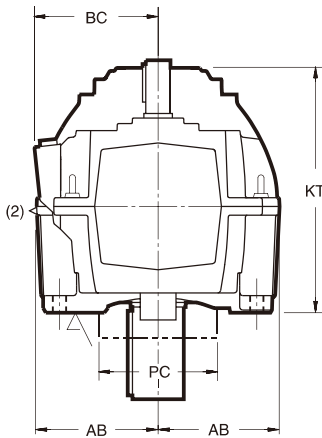
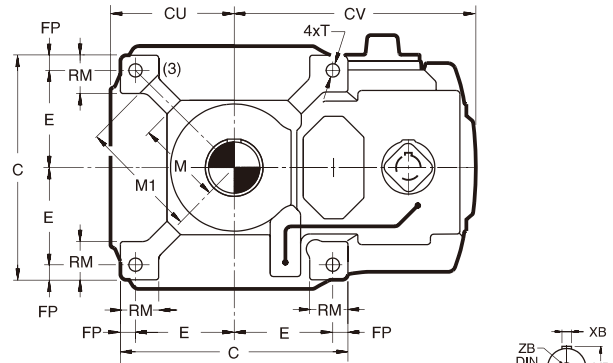
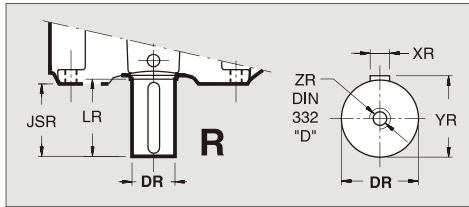
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

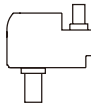
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDR



Shaft arrangements
(front view)

轴布置
(俯视图)

- (1) Space for pump removal
- (2) Grease lubrication point
- (3) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CB	CK	CU	CV	E	FP	HS	JSR	KT	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVPC2	255	280	470	345	233	260	487	200	35	520	204	491	165	225	95	28	38	360	31
QVPD2	285	290	530	397	265	290	553	225	40	605	207	557	195	260	95	35	40	520	37
QVPE2	320	335	600	459	305	326	637	260	40	665	245	630	225	310	105	35	45	790	58
QVPF2	365	372	690	525	345	370	720	295	50	735	293	678	265	340	135	42	52	1110	85

- (1) 卸除泵所需空间
- (2) 加脂润滑点
- (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										Pump - 泵			
	Solid - 实心 R					DB	LB	XB	YB	ZB	DP (1)	JP	PB (1)	PC (1)
	DR-m6	LR	XR	YR	ZR									
QVPC2	110	210	28	116	M24	48k6	110	14	51,5	M16	110	29	75	110
QVPD2	120	210	32	127	M24	58m6	140	16	62	M20	110	19	65	110
QVPE2	140	250	36	148	M30	65m6	140	18	69	M20	145	-1	50	145
QVPF2	160	300	40	169	M30	75m6	140	20	79,5	M20	145	6	60	145

Hansen P4

97QU-VP220002 B

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Two stages

减速机
垂直低速轴
平行轴
规格
两级

Q
V
P
C ▶ F
2

For mixer drives

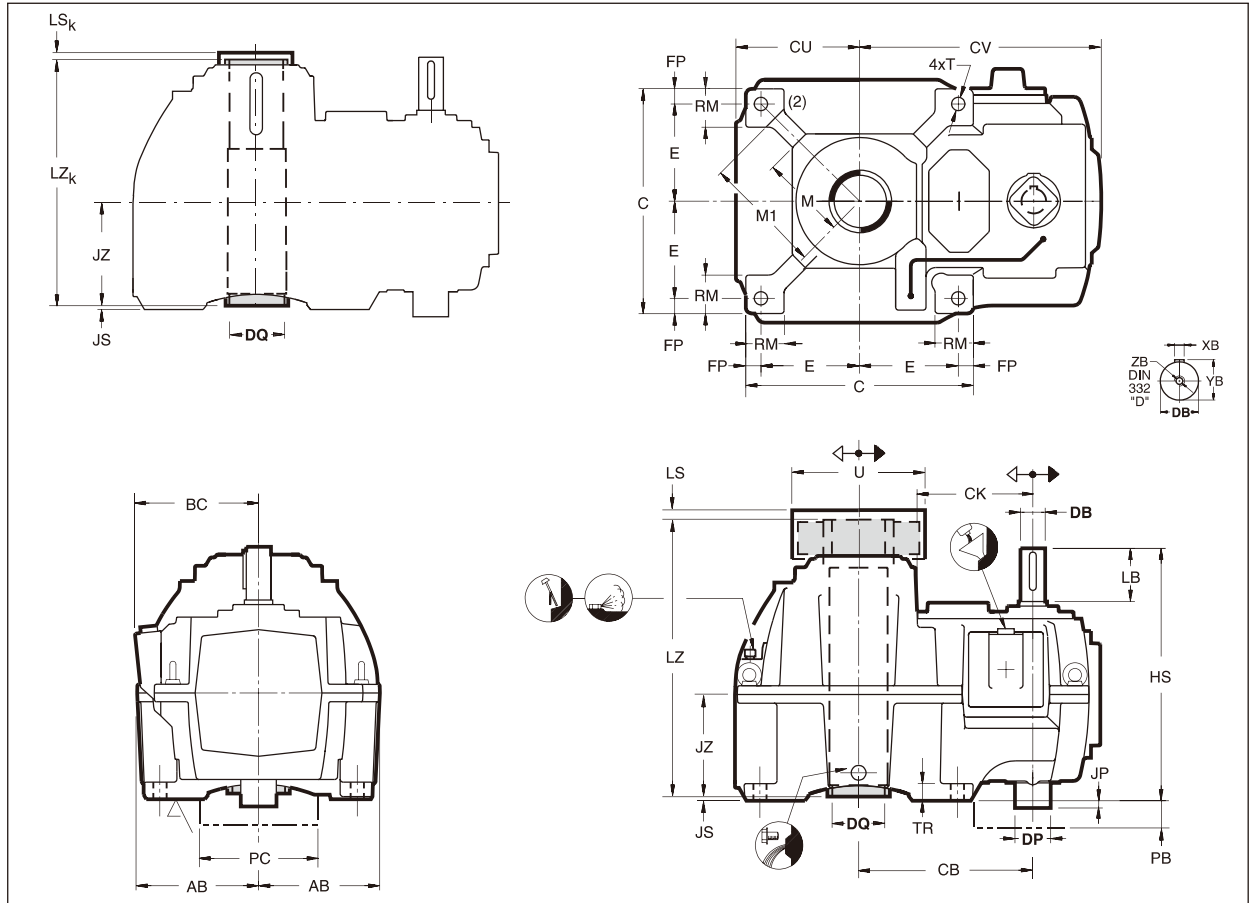
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDD

UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) Space for pump removal
(2) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CB	CK	CU	CV	E	FP	HS	JS	JZ	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVPC2	255	280	470	345	233	260	487	200	35	520	6	209	165	225	95	28	38	360	31
QVPD2	285	290	530	397	265	290	553	225	40	605	8	237	195	260	95	35	40	520	37
QVPE2	320	335	600	459	305	326	637	260	40	665	15	265	225	310	105	35	45	790	58
QVPF2	365	372	690	525	345	370	720	295	50	735	22	298	265	340	135	42	52	1110	85

(1) 卸除泵所需空间
(2) 最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											Pump - 泵			
	Hollow - 空心						DB	LB	XB	YB	ZB	DP (1)	JP	PB (1)	PC (1)
	DQ	LS	LS _k	LZ	LZ _k	U max									
QVPC2	115	30	40	577	493	250	48k6	110	14	51,5	M16	110	29	75	110
QVPD2	130	30	40	650	554	310	58m6	140	16	62	M20	110	19	65	110
QVPE2	150	30	40	738	620	340	65m6	140	18	69	M20	145	-1	50	145
QVPF2	170	30	40	821	683	390	75m6	140	20	79,5	M20	145	6	60	145

Hansen P4

97QU-VP2RK002 A

mm

Motor-reducer

Vertical L.S.S.

Parallel shafts

Size

Two stages

电机-减速机

垂直低速轴

平行轴

规格

两级

Q

V

P

C ▶ F

2

For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

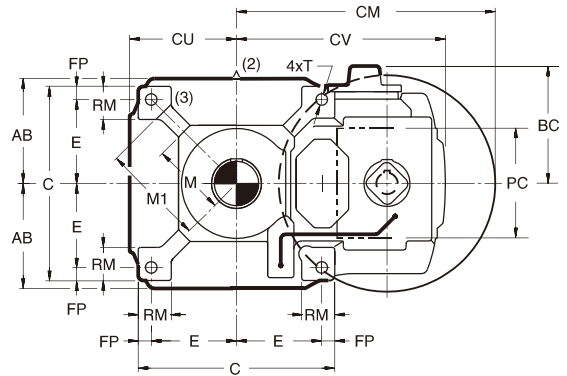
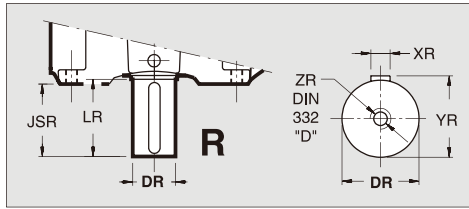
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸

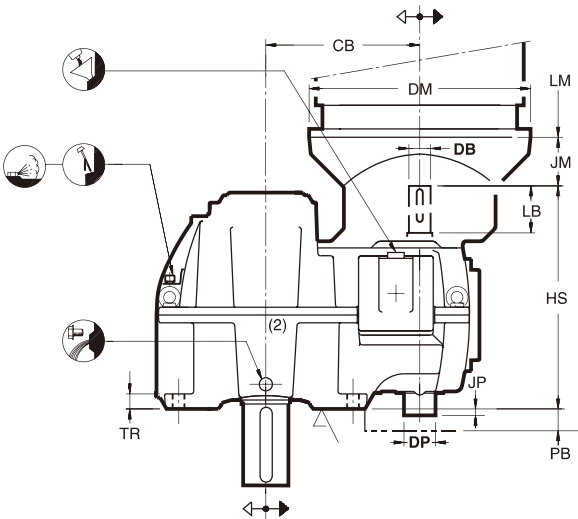
Option lantern housing

选用电机法兰式联接

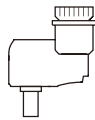


Bottom view

俯视图



UDR



Shaft arrangements (front view)

轴布置 (俯视图)

- (1) Space for pump removal
- (2) Grease lubrication point
- (3) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CB	CU	CV	E	FP	HS	JSR	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVPC2	255	280	470	345	260	487	200	35	520	204	165	225	95	28	38	410	31
QVPD2	285	290	530	397	290	553	225	40	605	207	195	260	95	35	40	590	37
QVPE2	320	335	600	459	326	637	260	40	665	245	225	310	105	35	45	880	58
QVPF2	365	372	690	525	370	720	295	50	735	293	265	340	135	42	52	1200	85

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										Pump - 泵			
	Solid - 实心 R					DB	LB	XB	YB	ZB	DP (1)	JP	PB (1)	PC (1)
	DR-m6	LR	XR	YR	ZR									
QVPC2	110	210	28	116	M24	48k6	110	14	51,5	M16	110	29	75	110
QVPD2	120	210	32	127	M24	58m6	140	16	62	M20	110	19	65	110
QVPE2	140	250	36	148	M30	65m6	140	18	69	M20	145	-1	50	145
QVPF2	160	300	40	169	M30	75m6	140	20	79,5	M20	145	6	60	145

- (1) 卸除泵所需空间
- (2) 加脂润滑点
- (3) 最小的固定衬垫尺寸 参见C44页

MOTOR - 电机		Hansen P4 汉森 P4								Coupling 联轴器				
IEC CEI V1	DM	QVPC2		QVPD2		QVPE2		QVPF2						
		CM	JM	CM	JM	CM	JM	CM	JM					
225	450	570	145											Refer to Hansen 洽询汉森
250	550	620	145	672	145	734	145							
280	550	620	145	672	145	734	145							
315	660	675	175	727	175	789	175	855	175					
355	800					859	215	925	215					

Hansen P4

97QU-VP2KK002 B

mm

Motor-reducer
Vertical L.S.S.
Parallel shafts
Size
Two stages

电机-减速机
垂直低速轴
平行轴
规格
两级

Q
V
P
C ▶ F
2

For mixer drives

搅拌器驱动装置

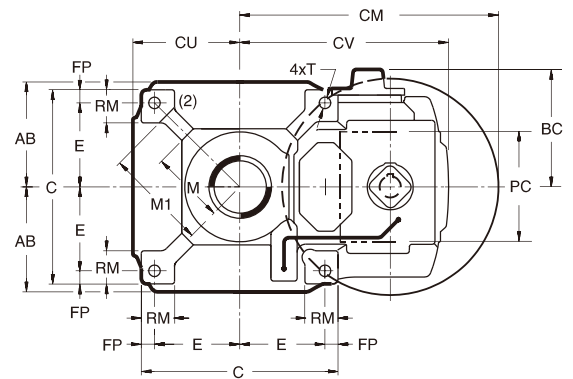
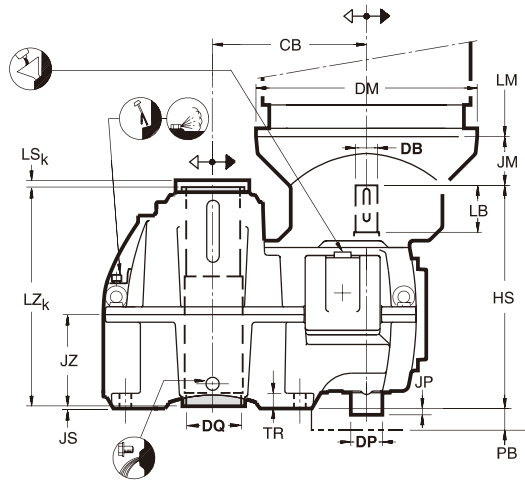
The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸

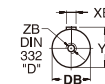
Option lantern housing

选用电机法兰式联接

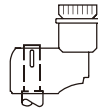


Bottom view

仰视图



UDK



Shaft arrangements (front view)

轴布置 (俯视图)

(1) Standard for gear units sizes G and H
(2) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CB	CU	CV	E	FP	HS	JS	JZ	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVPC2	255	280	470	345	260	487	200	35	520	6	209	165	225	95	28	38	410	31
QVPD2	285	290	530	397	290	553	225	40	605	8	237	195	260	95	35	40	590	37
QVPE2	320	335	600	459	326	637	260	40	665	15	265	225	310	105	35	45	880	58
QVPF2	365	372	690	525	370	720	295	50	735	22	298	265	340	135	42	52	1200	85

(1) 卸除泵所需空间
(2) 最小的固定衬垫尺寸 参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"									Pump - 泵			
	Hollow - 空心			DB	LB	XB	YB	ZB	DP (1)	JP	PB (1)	PC (1)	
	DQ	LS _k	LZ _k										
QVPC2	115	40	493	48k6	110	14	51,5	M16	110	29	75	110	
QVPD2	130	40	554	58m6	140	16	62	M20	110	19	65	110	
QVPE2	150	40	620	65m6	140	18	69	M20	145	-1	50	145	
QVPF2	170	40	683	75m6	140	20	79,5	M20	145	6	60	145	

MOTOR - 电机		Hansen P4 汉森 P4								Coupling 联轴器
IEC CEI V1	DM	QVPC2		QVPD2		QVPE2		QVPF2		
		CM	JM	CM	JM	CM	JM	CM	JM	
225	450	570	145							Refer to Hansen 洽询汉森
250	550	620	145	672	145	734	145			
280	550	620	145	672	145	734	145			
315	660	675	175	727	175	789	175	855	175	
355	800					859	215	925	215	

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Three stages

减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
C ▶ H
3

For mixer drives

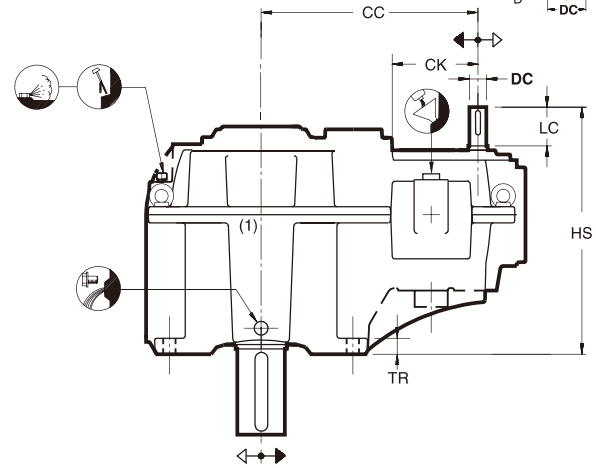
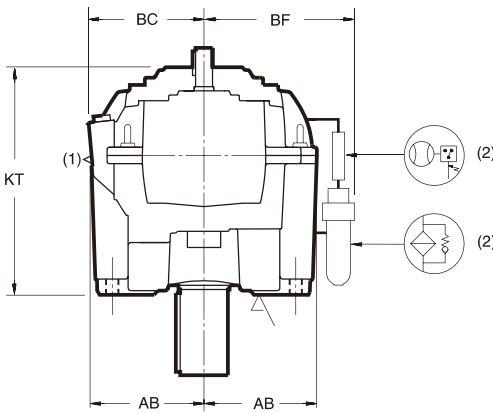
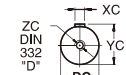
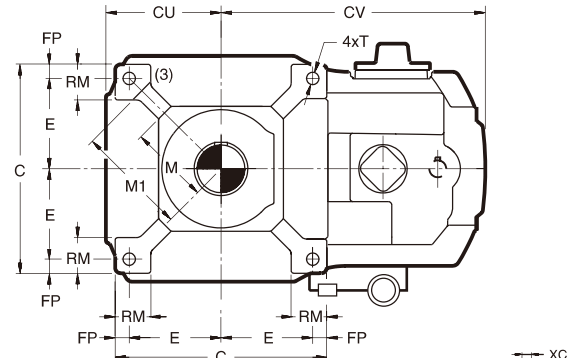
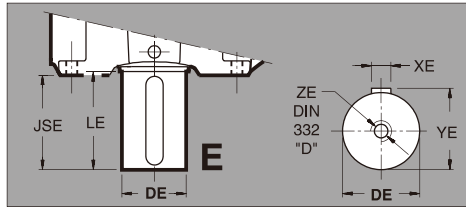
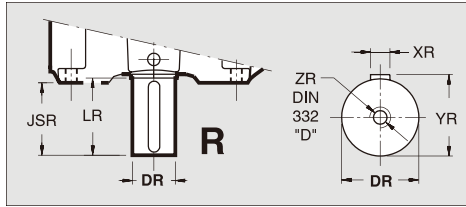
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

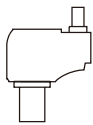
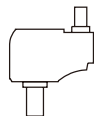
用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDR

UDE



Shaft arrangements
(front view)

轴布置
(俯视图)

- (1) Grease lubrication point
- (2) Standard for gear units sizes G and H
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 对于规格G和H的减速机是标准的
- (3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CC	CK	CU	CV	E	FP	HS	JSR	JSE	KT	M	M1 (3)	RM	T	TR	kg	Litres 公升
QVPC3	255	280	-	470	454	173	260	565	200	35	562	204	-	477	165	225	95	28	38	390	22
QVPD3	285	290	-	530	523	200	290	660	225	40	618	207	247	540	195	260	95	35	40	560	33
QVPE3	320	332	-	600	607	234	326	749	260	40	680	245	245	612	225	310	105	35	45	860	45
QVPF3	365	372	-	690	696	265	370	852	295	50	790	293	293	703	265	340	135	42	52	1230	70
QVPG3	450	455	490	860	800	304	455	983	375	55	815	345	345	767	330	425	150	48	65	1800	98
QVPH3	450	455	490	860	872	304	455	1055	375	55	815	345	345	767	330	425	150	48	65	1900	106

Type 类型	Shafts Keys - 轴键 ISO/R773-1969				
	DC	LC	XC	YC	ZC
QVPC3	38k6	110	10	41	M12
QVPD3	42k6	110	12	45	M16
QVPE3	48k6	110	14	51,5	M16
QVPF3	58m6	140	16	62	M20
QVPG3	65m6	140	18	69	M20
QVPH3	65m6	140	18	69	M20

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"									
	Solid - 实心 R					Solid - 实心 E				
	DR-m6	LR	XR	YR	ZR	DE-m6	LE	XE	YE	ZE
QVPC3	110	210	28	116	M24	-	-	-	-	-
QVPD3	120	210	32	127	M24	140	250	36	148	M30
QVPE3	140	250	36	148	M30	150	250	36	158	M30
QVPF3	160	300	40	169	M30	180	300	45	190	M30
QVPG3	190	350	45	200	M30	220	350	50	231	M30
QVPH3	200	350	45	210	M30	220	350	50	231	M30

Hansen P4

97QU-VP320002 B

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Three stages

减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
C ▶ H
3

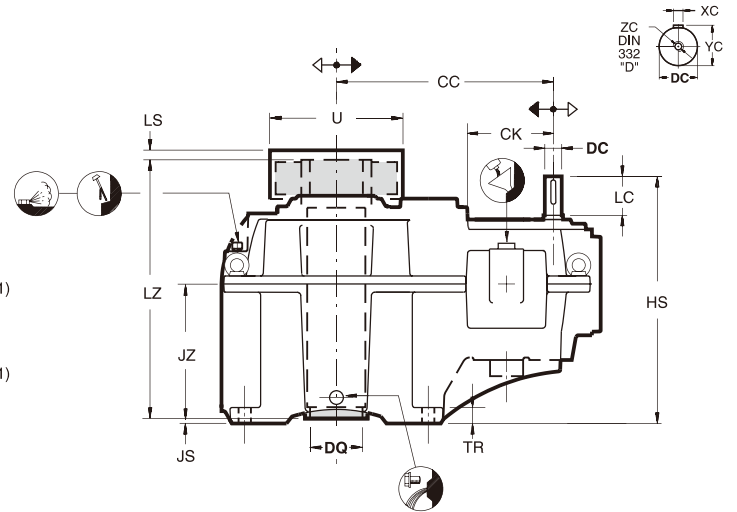
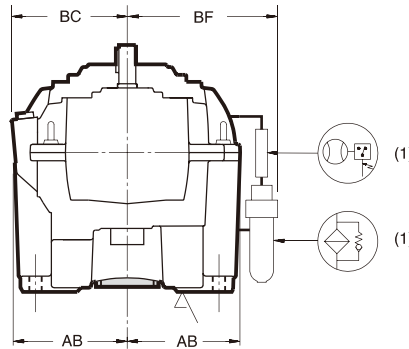
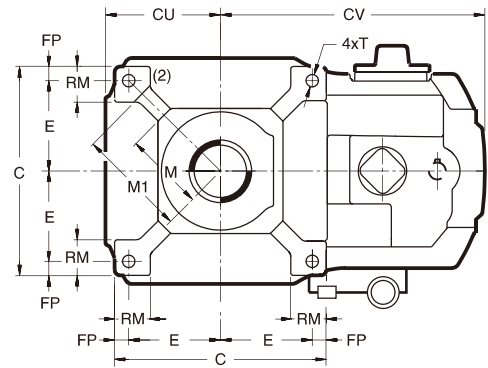
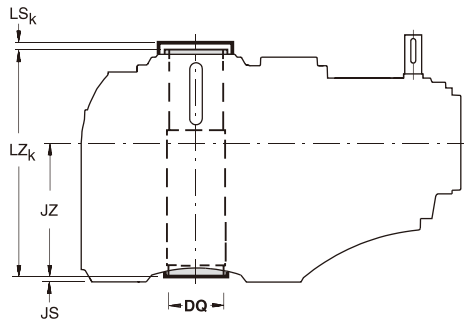
For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

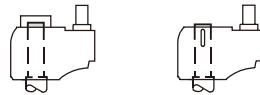
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



UDD

UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) Standard for gear units sizes G and H
(2) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	BF	C	CC	CK	CU	CV	E	FP	HS	JS	JZ	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVPC3	255	280	-	470	454	173	260	565	200	35	562	6	284	165	225	95	28	38	390	22
QVPD3	285	290	-	530	523	200	290	660	225	40	618	8	322	195	260	95	35	40	560	33
QVPE3	320	332	-	600	607	234	326	749	260	40	680	15	360	225	310	105	35	45	860	45
QVPF3	365	372	-	690	696	265	370	852	295	50	790	22	408	265	340	135	42	52	1230	70
QVPG3	450	455	490	860	800	304	455	983	375	55	815	25	405	330	425	150	48	65	1800	98
QVPH3	450	455	490	860	872	304	455	1055	375	55	815	20	410	330	425	150	48	65	1900	106

(1) 卸除泵所需空间
(2) 最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	Hollow - 空心						DC	LC	XC	YC	ZC
DQ	LS	LS _k	LZ	LZ _k	U max						
QVPC3	115	30	40	577	493	250	38k6	110	10	41	M12
QVPD3	130	30	40	650	554	310	42k6	110	12	45	M16
QVPE3	150	30	40	738	620	340	48k6	110	14	51,5	M16
QVPF3	170	30	40	821	683	390	58m6	140	16	62	M20
QVPG3	190	30	50	886	744	425	65m6	140	18	69	M20
QVPH3	210	40	55	908	754	450	65m6	140	18	69	M20

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel shafts	平行轴	P
Size	规格	J ▶ M
Three stages	三级	3

For mixer drives

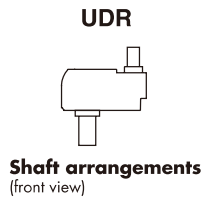
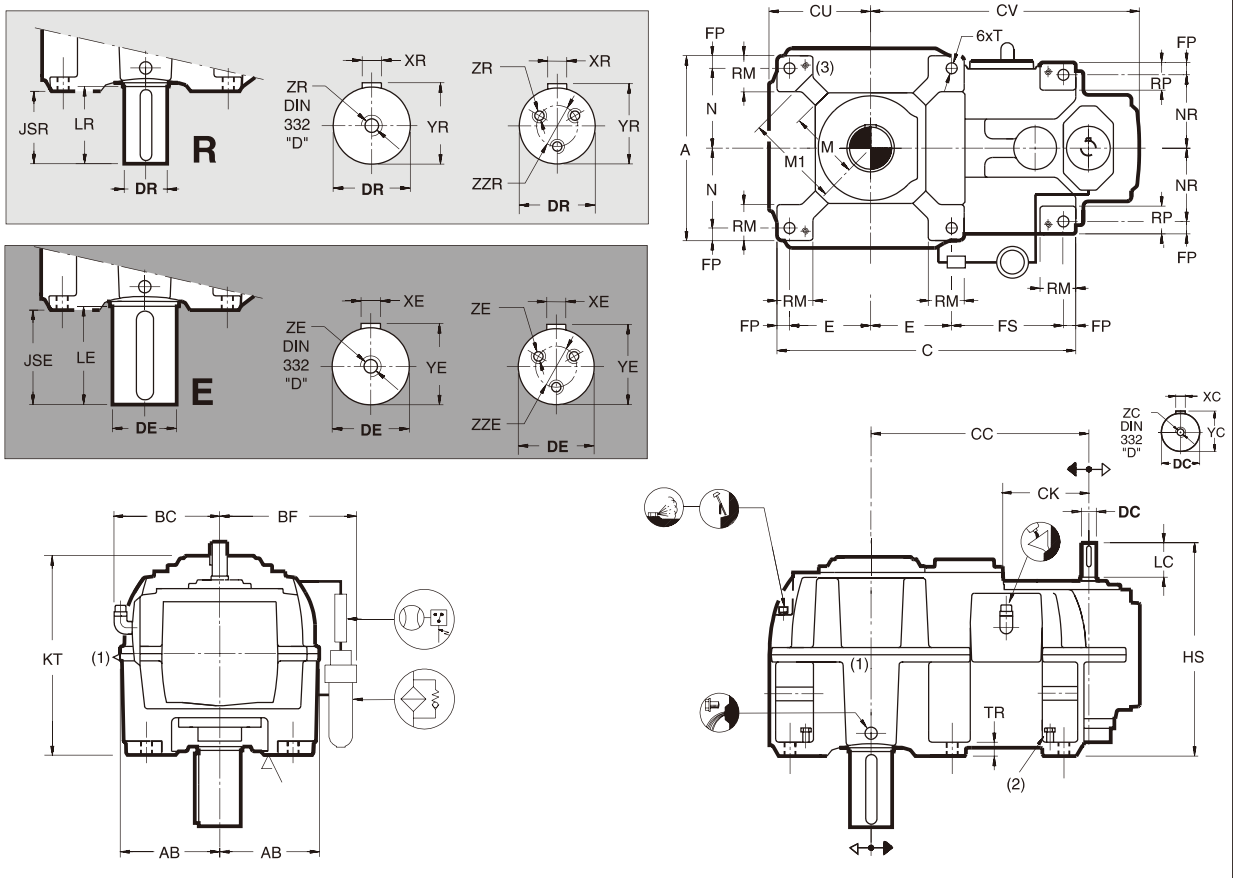
搅拌机驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



轴布置 (俯视图)

(1) Grease lubrication point
(2) 4x jacking screw
(3) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
(2) 4x 起升螺栓
(3) 最小的固定衬垫尺寸 参见C44页

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	E	FP	FS	HS	JSR	JSE	KT	M	M1 (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ3	1010	525	555	635	1380	942	351	540	1137	410	55	450	865	342	402	864	390	500	450	385	160	140	48	70	2900	260
QVPK3	1010	525	555	635	1380	1020	351	540	1223	410	55	450	865	402	402	864	390	500	450	385	160	140	48	70	3300	270
QVPL3	1240	640	665	750	1650	1110	399	655	1340	510	60	510	1010	400	460	1024	410	600	560	490	175	155	56	80	5100	430
QVPM3	1240	640	665	750	1650	1208	399	655	1438	510	60	510	1010	460	460	1024	410	600	560	490	175	155	56	80	5600	430

Type 类型	Shafts Keys - 轴键 ISO/R773-1969				
	DC-m6	LC	XC	YC	ZC
QVPJ3	75	140	20	79,5	M20
QVPK3	75	140	20	79,5	M20
QVPL3	85	170	22	90	M20
QVPM3	85	170	22	90	M20

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											
	Solid - 实心 R						Solid - 实心 E					
	DR-m6	LR	XR	YR	ZR	ZZR	DE-m6	LE	XE	YE	ZE	ZZE
QVPJ3	220	350	50	231	M30	-	240	410	56	252	M30	-
QVPK3	240	410	56	252	M30	-	260	410	56	272	3 x M24	140
QVPL3	260	410	56	272	3 x M24	140	280	470	63	292	3 x M24	140
QVPM3	280	470	63	292	3 x M24	140	300	470	70	314	3 x M24	140

Hansen P4

97QU-VP320012 B

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Three stages

减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
J ▶ M
3

For mixer drives

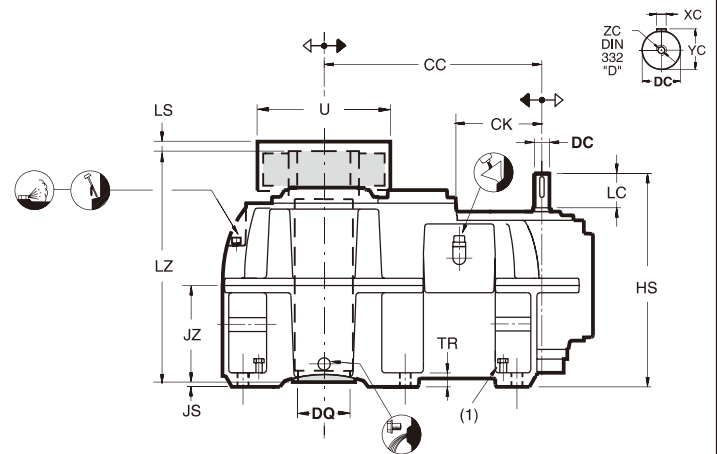
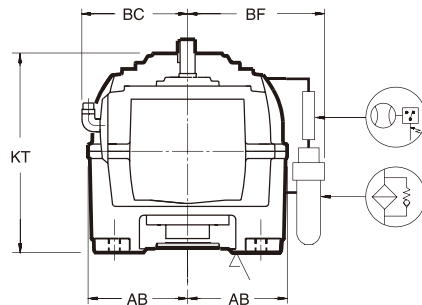
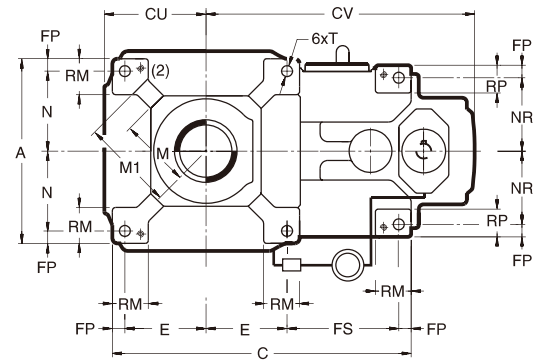
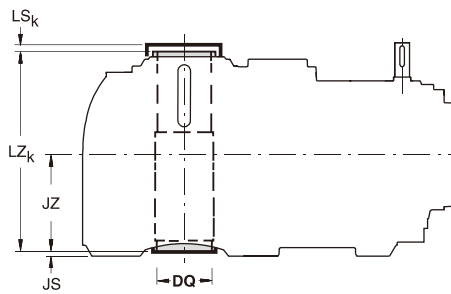
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDD

UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) 4x jacking screw
(2) Minimum mounting pad surface, see page C44

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	E	FP	FS	HS	JS	JZ	KT	M	M ₁ (2)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ3	1010	525	555	635	1380	942	351	540	1137	410	55	450	865	23	427	864	390	500	450	385	160	140	48	70	2900	260
QVPK3	1010	525	555	635	1380	1020	351	540	1223	410	55	450	865	23	427	864	390	500	450	385	160	140	48	70	3300	270
QVPL3	1240	640	665	750	1650	1110	399	655	1340	510	60	510	1010	20	505	1024	410	600	560	490	175	155	56	80	5100	430
QVPM3	1240	640	665	750	1650	1208	399	655	1438	510	60	510	1010	20	505	1024	410	600	560	490	175	155	56	80	5600	430

(1) 4x 起升螺栓
(2) 最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	Hollow - 空心						DC-m6	LC	XC	YC	ZC
	DQ	LS	LS _k	LZ	LZ _k	U max					
QVPJ3	230	40	55	1014	847	480	75	140	20	79,5	M20
QVPK3	260	40	55	1024	847	540	75	140	20	79,5	M20
QVPL3	280	40	65	1181	989	595	85	170	22	90	M20
QVPM3	300	40	65	1188	989	615	85	170	22	90	M20

Motor-reducer
Vertical L.S.S.
Parallel shafts
Size
Three stages

电机 - 减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
C ▶ H
3

For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

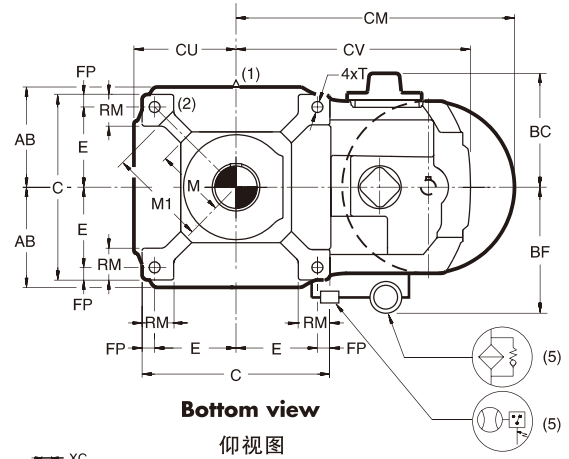
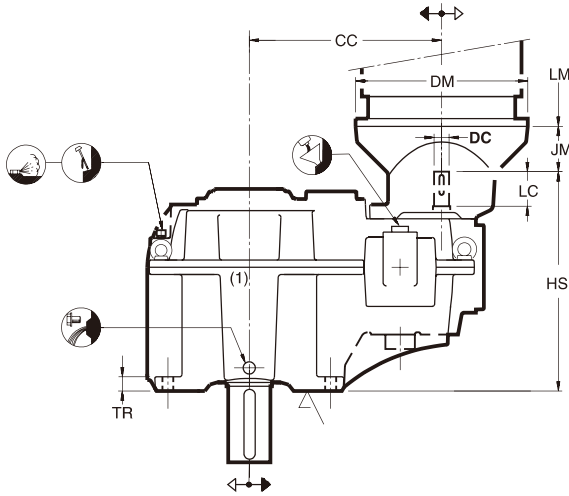
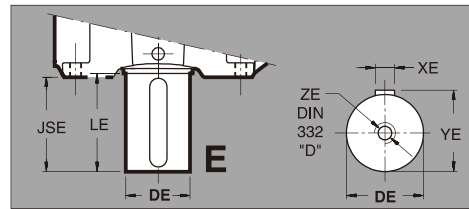
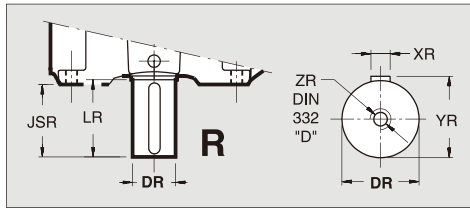
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸

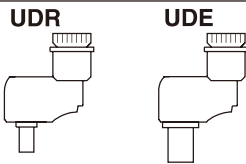
Option lantern housing

选用电机法兰式联接



Bottom view

仰视图



Shaft arrangements (front view)

轴布置 (俯视图)

Type 类型	AB	BC	BF	C	CC	CU	CV	E	FP	HS	JSR	JSE	M	M1 (2)	RM	T	TR	kg	Litres 公升
QVPC3	255	280	-	470	454	260	565	200	35	562	204	-	165	225	95	28	38	425	22
QVPD3	285	290	-	530	523	290	660	225	40	618	207	247	195	260	95	35	40	600	33
QVPE3	320	332	-	600	607	326	749	260	40	680	245	245	225	310	105	35	45	910	45
QVPF3	365	372	-	690	696	370	852	295	50	790	293	293	265	340	135	42	52	1300	70
QVPG3	450	455	490	860	800	455	983	375	55	815	345	345	330	425	150	48	65	1900	98
QVPH3	450	455	490	860	872	455	1055	375	55	815	345	345	330	425	150	48	65	2050	106

(1) Grease lubrication point
(2) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
(2) 最小的固定衬垫尺寸 参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"														
	Solid - 实心 R					Solid - 实心 E									
	DR-m6	LR	XR	YR	ZR	DE-m6	LE	XE	YE	ZE	DC	LC	XC	YC	ZC
QVPC3	110	210	28	116	M24	-	-	-	-	-	38k6	110	10	41	M12
QVPD3	120	210	32	127	M24	140	250	36	148	M30	42k6	110	12	45	M16
QVPE3	140	250	36	148	M30	150	250	36	158	M30	48k6	110	14	51,5	M16
QVPF3	160	300	40	169	M30	180	300	45	190	M30	58m6	140	16	62	M20
QVPG3	190	350	45	200	M30	220	350	50	231	M30	65m6	140	18	69	M20
QVPH3	200	350	45	210	M30	220	350	50	231	M30	65m6	140	18	69	M20

MOTOR - 电机		Hansen P4 汉森 P4												Coupling 联轴器			
IEC CEI V1	DM	QVPC3		QVPD3		QVPE3		QVPF3		QVPG3		QVPH3					
		CM	JM	CM	JM	CM	JM	CM	JM	CM	JM	CM	JM				
160	350	629	115	698	115	782	115										
180	350	629	115	698	115	782	115										
200	400	654	115	723	115	807	115										
225	450	679	145	748	145	832	145	921	145	1025	145	1097	145				
250	550	729	145	798	145	882	145	971	145	1075	145	1147	145				
280	550	729	145	798	145	882	145	971	145	1075	145	1147	145				
315	660					937	175	1026	175	1130	175	1202	175				
355	800									1200	215	1272	215				

Refer to Hansen 洽询汉森

Hansen P4

97QU-VP32K002 B

mm

Motor-reducer
Vertical L.S.S.
Parallel shafts
Size
Three stages

电机 - 减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
C ▶ H
3

For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

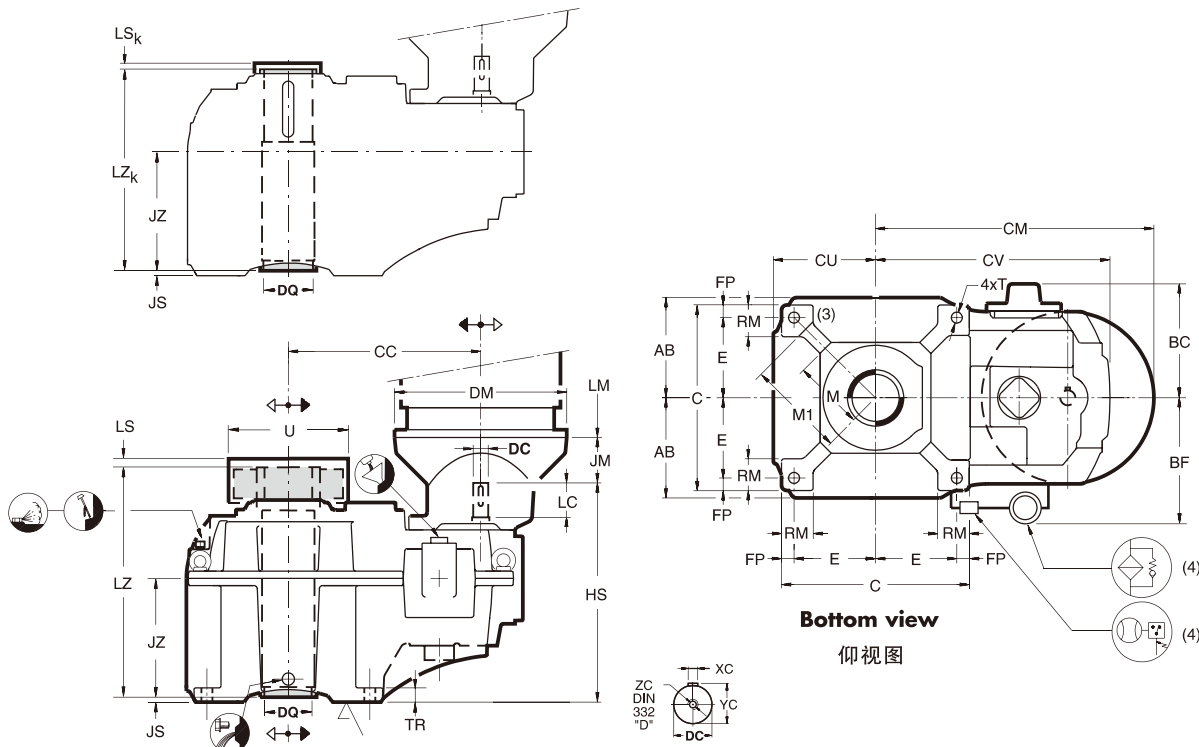
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸

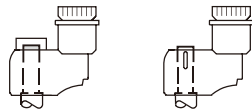
Option lantern housing

选用电机法兰式联接



UDD

UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

Type 类型	AB	BC	BF	C	CC	CU	CV	E	FP	HS	JS	JZ	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVPC3	255	280	-	470	454	260	565	200	35	562	6	284	165	225	95	28	38	425	22
QVPD3	285	290	-	530	523	290	660	225	40	618	8	322	195	260	95	35	40	600	33
QVPE3	320	332	-	600	607	326	749	260	40	680	15	360	225	310	105	35	45	910	45
QVPF3	365	372	-	690	696	370	852	295	50	790	22	408	265	340	135	42	52	1300	70
QVPG3	450	455	490	860	800	455	983	375	55	815	25	405	330	425	150	48	65	1900	98
QVPH3	450	455	490	860	872	455	1055	375	55	815	20	410	330	425	150	48	65	2050	106

(1) Max. dimensions depending on motor execution and motor power

(2) Minimum mounting pad surface, see page C44

(1)最大尺寸根据电机尺寸及型号而定
(2)最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	Hollow - 空心						DC	LC	XC	YC	ZC
	DQ	LS	LS _k	LZ	LZ _k	U max					
QVPC3	115	30	40	577	493	250	38k6	110	10	41	M12
QVPD3	130	30	40	650	554	310	42k6	110	12	45	M16
QVPE3	150	30	40	738	620	340	48k6	110	14	51,5	M16
QVPF3	170	30	40	821	683	390	58m6	140	16	62	M20
QVPG3	190	30	50	886	744	425	65m6	140	18	69	M20
QVPH3	210	40	55	908	754	450	65m6	140	18	69	M20

MOTOR - 电机		Hansen P4 汉森 P4												Coupling 联轴器
IEC CEI V1	DM	QVPC3		QVPD3		QVPE3		QVPF3		QVPG3		QVPH3		
		CM	JM	CM	JM	CM	JM	CM	JM	CM	JM	CM	JM	
160	350	629	115	698	115	782	115							
180	350	629	115	698	115	782	115							
200	400	654	115	723	115	807	115							
225	450	679	145	748	145	832	145	921	145	1025	145	1097	145	
250	550	729	145	798	145	882	145	971	145	1075	145	1147	145	
280	550	729	145	798	145	882	145	971	145	1075	145	1147	145	
315	660					937	175	1026	175	1130	175	1202	175	
355	800									1200	215	1272	215	

Refer to Hansen
洽询汉森

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Four stages

减速机
垂直低速轴
平行轴
规格
四级

Q
V
P
D ▶ H
4

For mixer drives

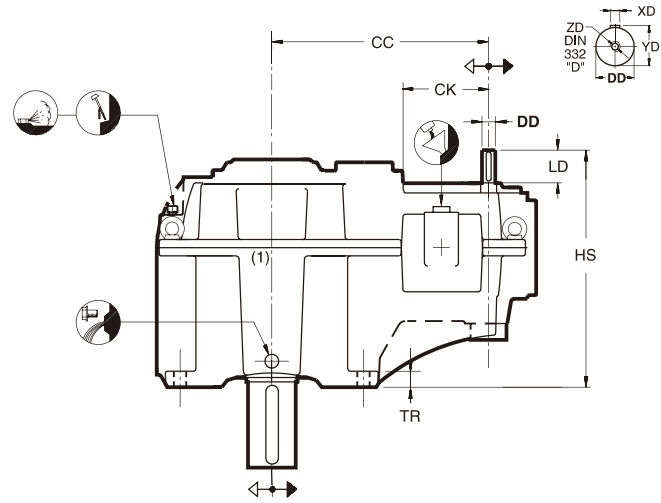
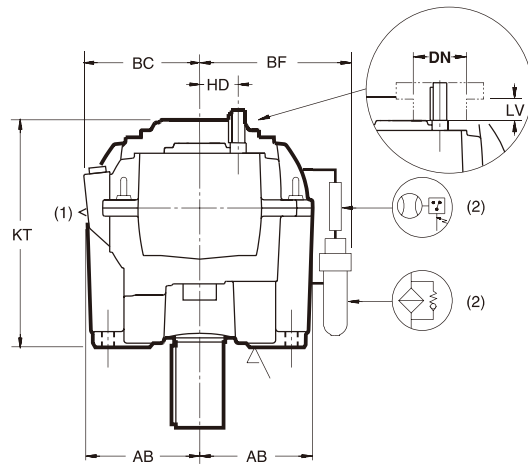
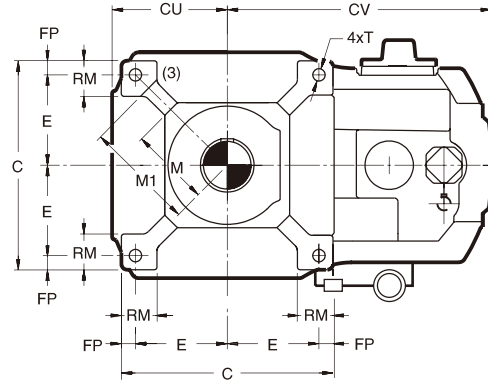
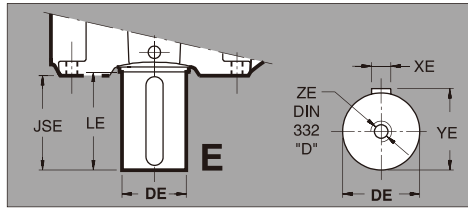
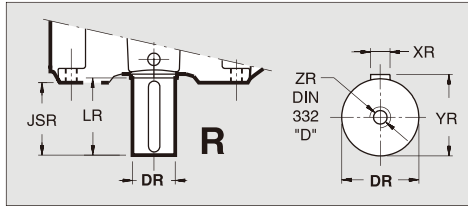
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

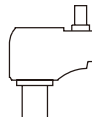
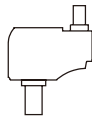
用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDR

UDE



Shaft arrangements
(front view)

轴布置
(俯视图)

- (1) Grease lubrication point
- (2) Standard for gear units sizes G and H
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 对于规格G和H的减速机是标准的
- (3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CC	CK	CU	CV	E	FP	HD	HS	JSR	JSE	KT	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVPD4	285	290	-	530	523	200	290	660	225	40	109	602	207	247	540	195	260	95	35	40	570	33
QVPE4	320	332	-	600	607	234	326	749	260	40	109	647	245	245	612	225	310	105	35	45	870	50
QVPF4	365	372	-	690	696	265	370	852	295	50	126	718	293	293	703	265	340	135	42	52	1250	67
QVPG4	450	455	490	860	800	304	455	983	375	55	148	735	345	345	767	330	425	150	48	65	1830	102
QVPH4	450	455	490	860	872	304	455	1055	375	55	148	735	345	345	767	330	425	150	48	65	1930	125

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"						
	DD-k6	DN max	LD	LV min	XD	YD	ZD
QVPD4	38	-	82	-	10	41	M12
QVPE4	38	-	82	-	10	41	M12
QVPF4	42	120	82	9	12	45	M16
QVPG4	48	155	82	10	14	51,5	M16
QVPH4	48	155	82	10	14	51,5	M16

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"									
	Solid - 实心 R					Solid - 实心 E				
	DR-m6	LR	XR	YR	ZR	DE-m6	LE	XE	YE	ZE
QVPD4	120	210	32	127	M24	140	250	36	148	M30
QVPE4	140	250	36	148	M30	150	250	36	158	M30
QVPF4	160	300	40	169	M30	180	300	45	190	M30
QVPG4	190	350	45	200	M30	220	350	50	231	M30
QVPH4	200	350	45	210	M30	220	350	50	231	M30

Hansen P4

97QU-VP420002 B

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Four stages

减速机
垂直低速轴
平行轴
规格
四级

Q
V
P
D ▶ H
4

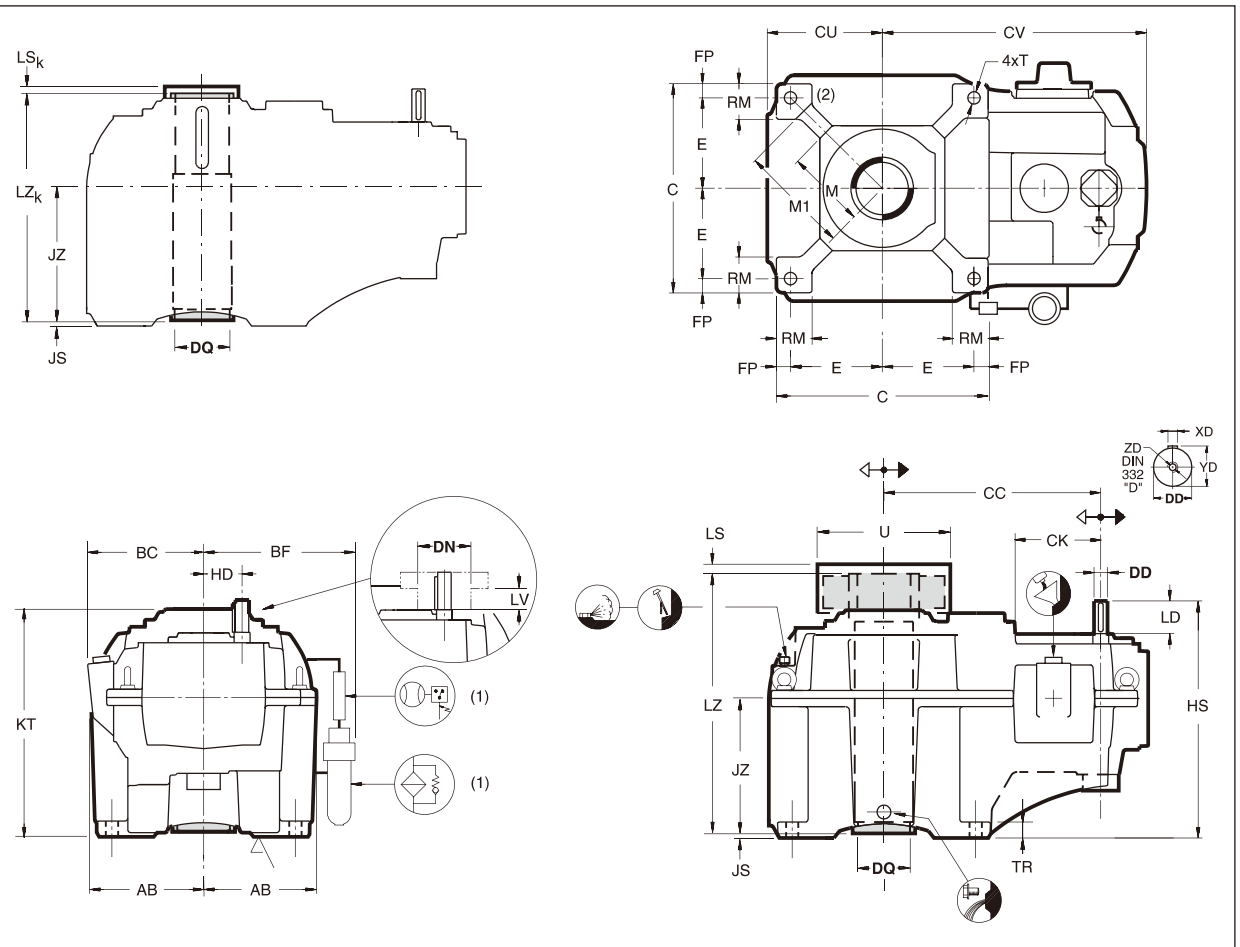
For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



UDD

UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) Standard for gear units sizes G and H
(2) Minimum mounting pad surface, see page C44

Type	AB	BC	BF	C	CC	CK	CU	CV	E	FP	HD	HS	JS	JZ	KT	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVPD4	285	290	-	530	523	200	290	660	225	40	109	602	8	322	540	195	260	95	35	40	570	33
QVPE4	320	332	-	600	607	234	326	749	260	40	109	647	15	360	612	225	310	105	35	45	870	50
QVPF4	365	372	-	690	696	265	370	852	295	50	126	718	22	408	703	265	340	135	42	52	1250	67
QVPG4	450	455	490	860	800	304	455	983	375	55	148	735	25	405	767	330	425	150	48	65	1830	102
QVPH4	450	455	490	860	872	304	455	1055	375	55	148	735	20	410	767	330	425	150	48	65	1930	125

(1)对于规格G和H的减速机是标准的
(2)最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"														
	Hollow - 空心						DD-k6	DN max	LD	LV min	XD	YD	ZD		
	DQ	LS	LS _k	LZ	LZ _k	U max									
QVPD4	130	30	40	650	554	310	38	-	82	-	10	41	M12		
QVPE4	150	30	40	738	620	340	38	-	82	-	10	41	M12		
QVPF4	170	30	40	821	683	390	42	120	82	9	12	45	M16		
QVPG4	190	30	50	886	744	425	48	155	82	10	14	51,5	M16		
QVPH4	210	40	55	908	754	450	48	155	82	10	14	51,5	M16		

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Four stages

减速机
垂直低速轴
平行轴
规格
四级

Q
V
P
J ▶ M
4

For mixer drives

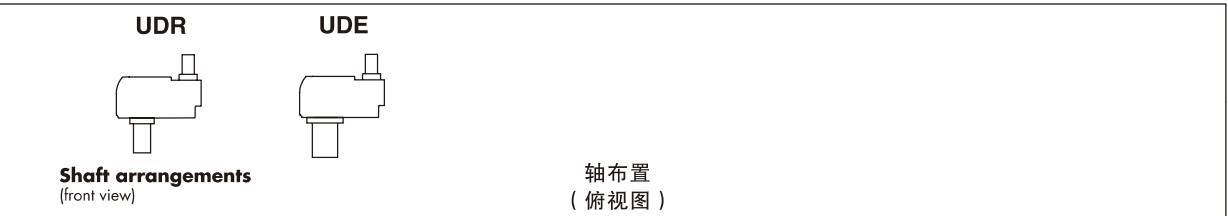
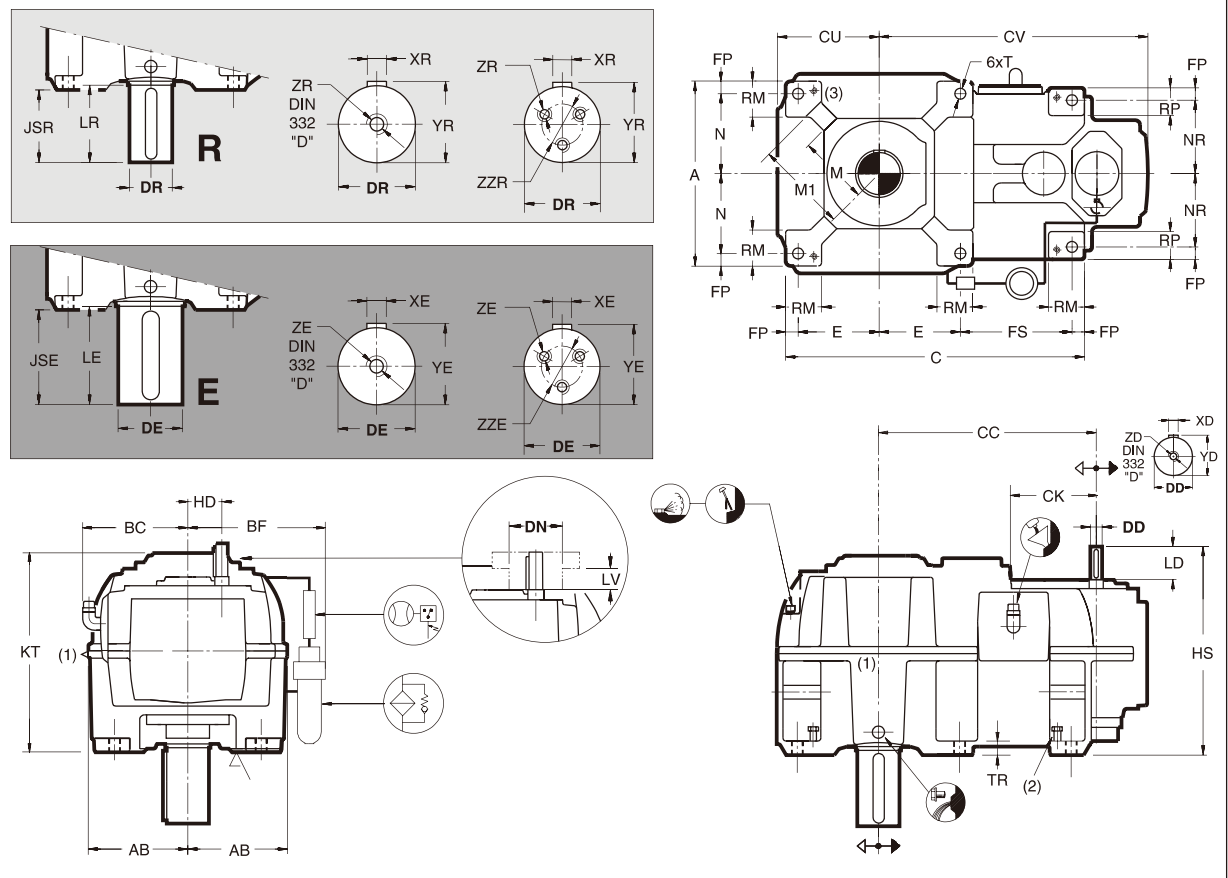
搅拌机驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



(1) Grease lubrication point
 (2) 4x jacking screw
 (3) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
 (2) 4x 起升螺栓
 (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	E	FP	FS	HD	HS	JSR	JSE	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ4	1010	525	555	635	1380	942	351	540	1137	410	55	450	171	810	342	402	864	390	500	450	385	160	140	48	70	3000	305
QVPK4	1010	525	555	635	1380	1020	351	540	1223	410	55	450	171	810	402	402	864	390	500	450	385	160	140	48	70	3400	305
QVPL4	1240	640	665	750	1650	1110	399	655	1340	510	60	510	197	940	400	460	1024	410	600	560	490	175	155	56	80	5200	445
QVPM4	1240	640	665	750	1650	1208	399	655	1438	510	60	510	197	940	460	460	1024	410	600	560	490	175	155	56	80	5700	445

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"						
	DD-m6	DN max	LD	LV min	XD	YD	ZD
QVPJ4	58	175	105	12	16	62	M20
QVPK4	58	175	105	12	16	62	M20
QVPL4	65	-	105	-	18	69	M20
QVPM4	65	-	105	-	18	69	M20

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											
	Solid - 实心 R						Solid - 实心 E					
	DR-m6	LR	XR	YR	ZR	ZZR	DE-m6	LE	XE	YE	ZE	ZZE
QVPJ4	220	350	50	231	M30	-	240	410	56	252	M30	-
QVPK4	240	410	56	252	M30	-	260	410	56	272	3 x M24	140
QVPL4	260	410	56	272	3 x M24	140	280	470	63	292	3 x M24	140
QVPM4	280	470	63	292	3 x M24	140	300	470	70	314	3 x M24	140

Hansen P4

97QU-VP420012 B

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Four stages

减速机
垂直低速轴
平行轴
规格
四级

Q
V
P
J ▶ M
4

For mixer drives

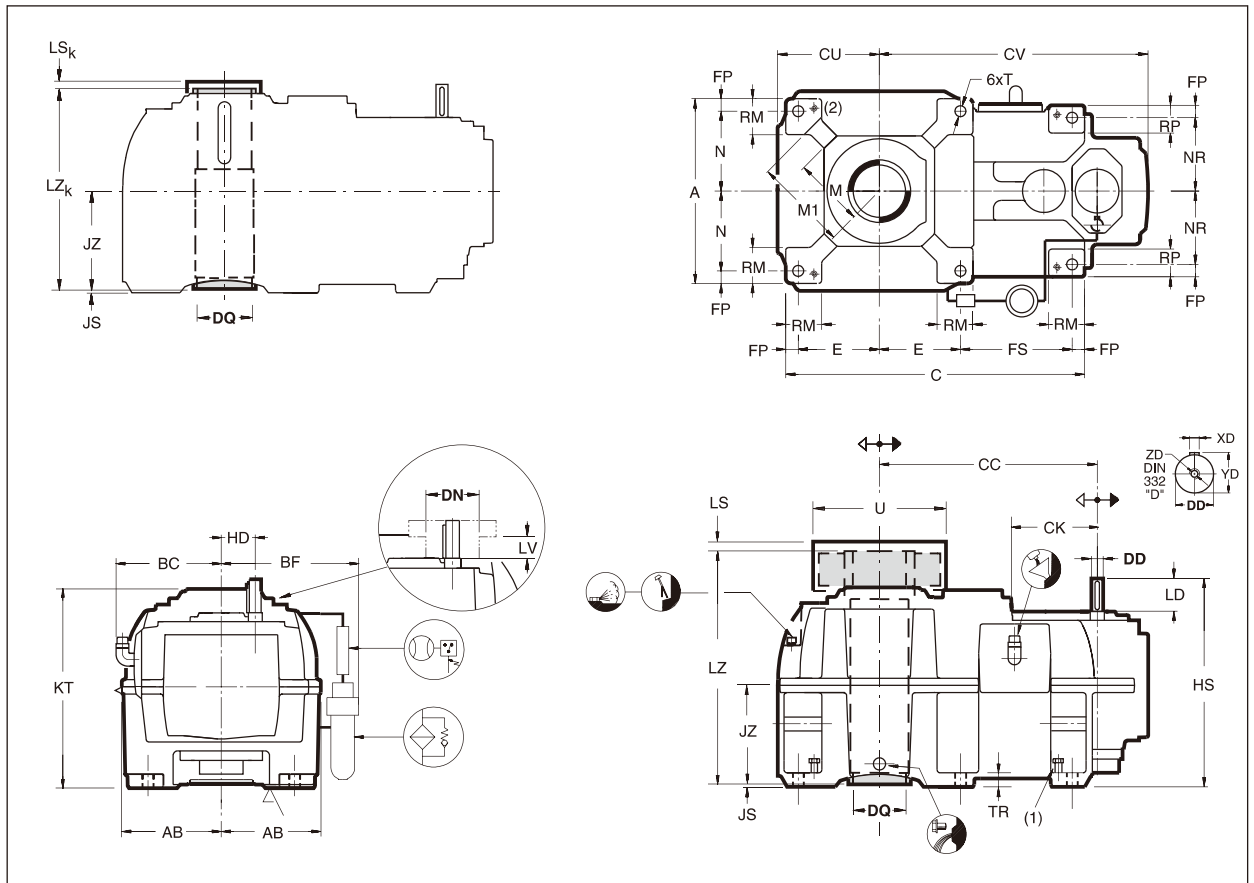
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



UDD



UDK



Shaft arrangements
(front view)

轴布置
(俯视图)

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	E	FP	FS	HD	HS	JS	JZ	KT	M	M ₁ (2)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ4	1010	525	555	635	1380	942	351	540	1137	410	55	450	171	810	23	427	864	390	500	450	385	160	140	48	70	3000	305
QVPK4	1010	525	555	635	1380	1020	351	540	1223	410	55	450	171	810	23	427	864	390	500	450	385	160	140	48	70	3400	305
QVPL4	1240	640	665	750	1650	1110	399	655	1340	510	60	510	197	940	20	505	1024	410	600	560	490	175	155	56	80	5200	445
QVPM4	1240	640	665	750	1650	1208	399	655	1438	510	60	510	197	940	20	505	1024	410	600	560	490	175	155	56	80	5700	445

(1) 4x jacking screw
(2) Minimum mounting pad surface, see page C44

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"												
	Hollow - 空心						DD-m6	DN max	LD	LV min	XD	YD	ZD
	DQ	LS	LS _k	LZ	LZ _k	U max							
QVPJ4	230	40	55	1014	847	480	58	175	105	12	16	62	M20
QVPK4	260	40	55	1024	847	540	58	175	105	12	16	62	M20
QVPL4	280	40	65	1181	989	595	65	-	105	-	18	69	M20
QVPM4	300	40	65	1188	989	615	65	-	105	-	18	69	M20

(1) 4x 起升螺栓
(2) 最小的固定衬垫尺寸
参见C44页

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel shafts	平行轴	P
Size	规格	D ▶ H
Three stages	三级	3

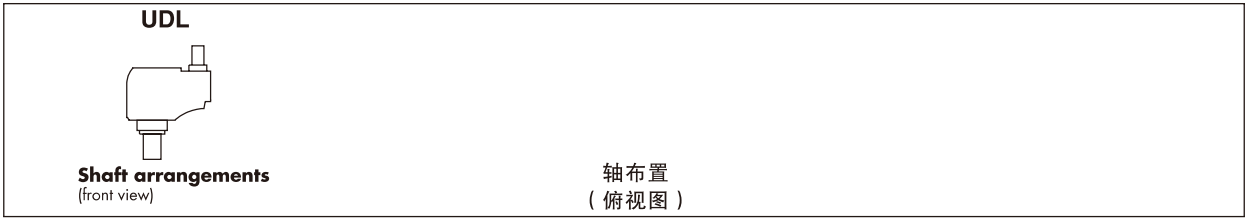
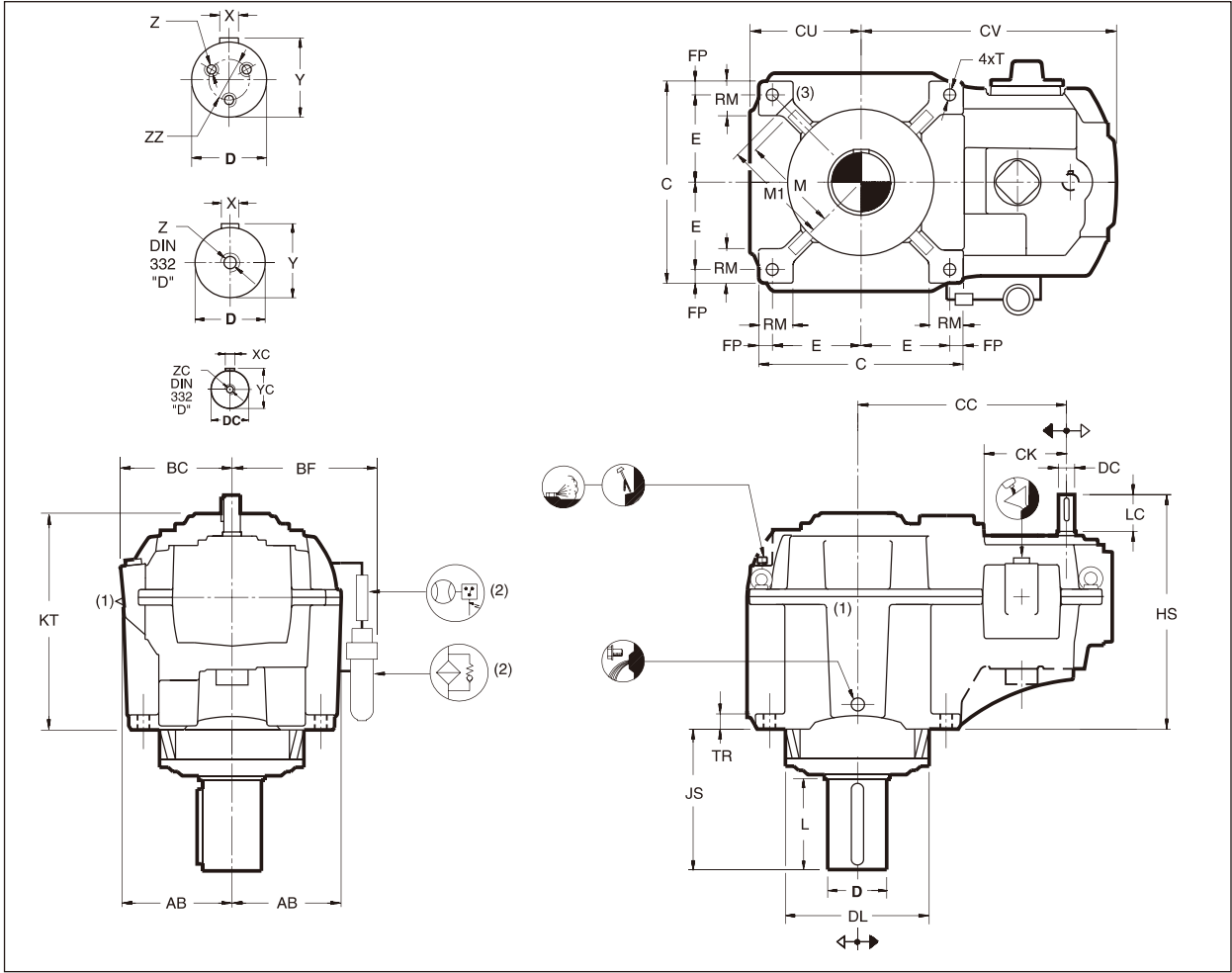
With extended bearing housing 加强轴承箱体型 ..L

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) Grease lubrication point
(2) Standard for gear units sizes G and H
(3) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
(2) 对于规格G和H的减速机是标准的
(3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CC	CK	CU	CV	DL	E	FP	HS	JS	KT	M	M1 (3)	RM	T	TR	kg	Litres 公升
QVPD3	285	290	-	530	523	200	290	660	360	225	40	618	490	540	-	260	95	35	40	740	33
QVPE3	320	332	-	600	607	234	326	749	410	260	40	680	565	612	-	310	105	35	45	1120	45
QVPF3	365	372	-	690	696	265	370	852	480	295	50	790	570	703	-	340	135	42	52	1590	79
QVPG3	450	455	490	860	800	304	455	983	570	375	55	815	675	767	390	425	150	48	65	2390	98
QVPH3	450	455	490	860	872	304	455	1055	570	375	55	815	675	767	390	425	150	48	65	2500	106

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	D-m6	L	X	Y	Z	ZZ	DC	LC	XC	YC	ZC
QVPD3	170	300	40	179	M30	-	42k6	110	12	45	M16
QVPE3	190	350	45	200	M30	-	48k6	110	14	51,5	M16
QVPF3	220	350	50	231	M30	-	58m6	140	16	62	M20
QVPG3	240	410	56	252	3 x M24	140	65m6	140	18	69	M20
QVPH3	260	410	56	272	3 x M24	140	65m6	140	18	69	M20

With extended bearing housing

加强轴承箱体型

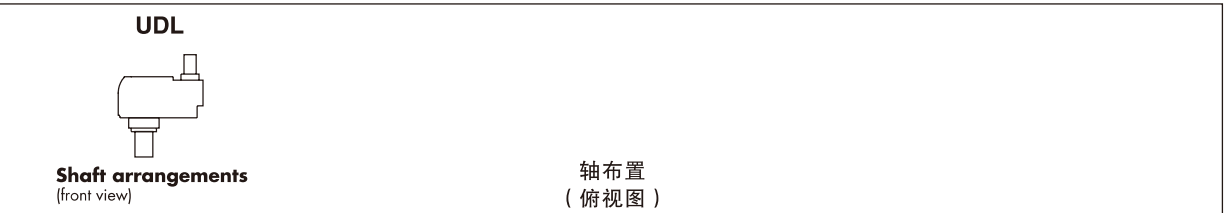
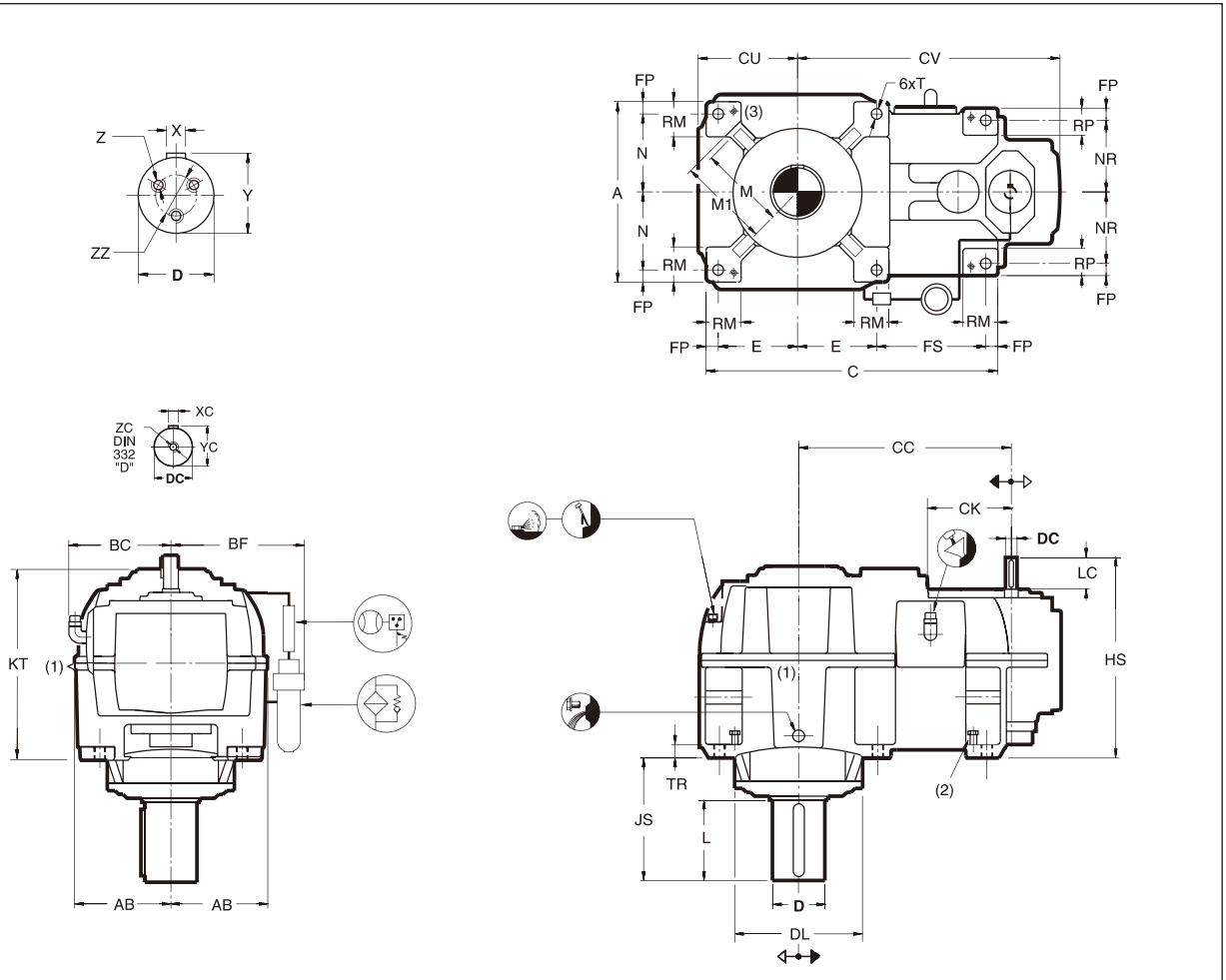
For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) Grease lubrication point
(2) 4x jacking screw
(3) Minimum mounting pad surface, see page C44

轴布置
(俯视图)

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	DL	E	FP	FS	HS	JS	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ3	1010	525	555	635	1380	942	351	540	1137	650	410	55	450	865	765	864	450	500	450	385	160	140	48	70	3760	260
QVPK3	1010	525	555	635	1380	1020	351	540	1223	650	410	55	450	865	765	864	450	500	450	385	160	140	48	70	4160	270
QVPL3	1240	640	665	750	1650	1110	399	655	1340	750	510	60	510	1010	805	1024	505	600	560	490	175	155	56	80	6230	430
QVPM3	1240	640	665	750	1650	1208	399	655	1438	750	510	60	510	1010	845	1024	505	600	560	490	175	155	56	80	6750	430

(1)加脂润滑点
(2)4×起升螺栓
(3)最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	D-m6	L	X	Y	Z	ZZ	DC-m6	LC	XC	YC	ZC
QVPJ3	280	470	63	292	3 × M24	140	75	140	20	79,5	M20
QVPK3	300	470	70	314	3 × M24	140	75	140	20	79,5	M20
QVPL3	320	510	70	334	3 × M24	140	85	170	22	90	M20
QVPM3	340	550	80	355	3 × M24	250	85	170	22	90	M20

Hansen P4

97QU-VP3LK002 A

mm

Motor-reducer
Vertical L.S.S.
Parallel shafts
Size
Three stages

电机 - 减速机
垂直低速轴
平行轴
规格
三级

Q
V
P
D ▶ H
3

With extended bearing housing

加强轴承箱体型

..L

For mixer drives

搅拌器驱动装置

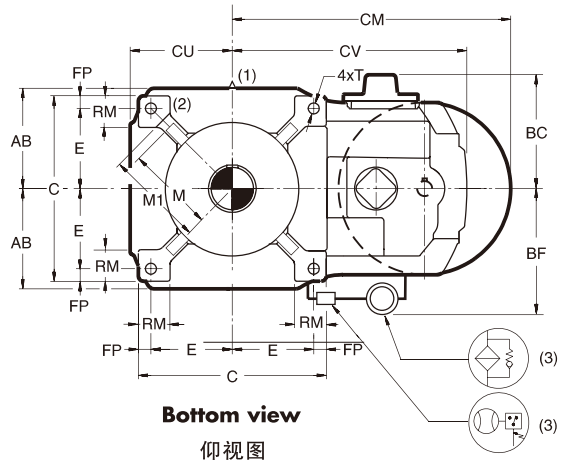
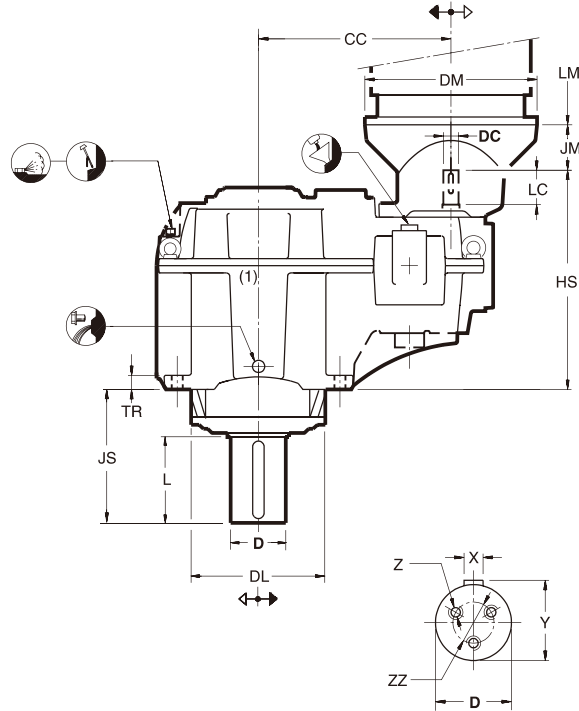
The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸

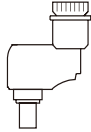
Option lantern housing

选用电机法兰式联接



Bottom view
仰视图

UDL



Shaft arrangements
(front view)

轴布置
(俯视图)

- (1) Grease Lubrication point
- (2) Minimum mounting pad surface, see page C44
- (3) Standard for gear units sizes G and H

Type	AB	BC	BF	C	CC	CU	CV	DL	E	FP	HS	JS	M	M ₁ (2)	RM	T	TR	kg	Litres
QVPD3	285	290	-	530	523	290	660	360	225	40	618	490	-	260	95	35	40	780	33
QVPE3	320	332	-	600	607	326	749	410	260	40	680	565	-	310	105	35	45	1170	45
QVPF3	365	372	-	690	696	370	852	480	295	50	790	570	-	340	135	42	52	1660	79
QVPG3	450	455	490	860	800	455	983	570	375	55	815	675	390	425	150	48	65	2490	98
QVPH3	450	455	490	860	872	455	1055	570	375	55	815	675	390	425	150	48	65	2650	106

- (1) 加脂润滑点
- (2) 最小的固定衬垫尺寸参见C44页
- (3) 对于规格G和H的减速机是标准的

Type	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	D-m6	L	X	Y	Z	ZZ	DC	LC	XC	YC	ZC
QVPD3	170	300	40	179	M30	-	42k6	110	12	45	M16
QVPE3	190	350	45	200	M30	-	48k6	110	14	51,5	M16
QVPF3	220	350	50	231	M30	-	58m6	140	16	62	M20
QVPG3	240	410	56	252	3 x M24	140	65m6	140	18	69	M20
QVPH3	260	410	56	272	3 x M24	140	65m6	140	18	69	M20

MOTOR - 电机		Hansen P4 汉森 P4										Coupling 联轴器
IEC CEI V1	DM	QVPD3		QVPE3		QVPF3		QVPG3		QVPH3		
		CM	JM	CM	JM	CM	JM	CM	JM	CM	JM	
160	350	698	115	782	115							
180	350	698	115	782	115							
200	400	723	115	807	115							
225	450	748	145	832	145	921	145	1025	145	1097	145	
250	550	798	145	882	145	971	145	1075	145	1147	145	
280	550	798	145	882	145	971	145	1075	145	1147	145	
315	660			937	175	1026	175	1130	175	1202	175	
355	800							1200	215	1272	215	

Refer to Hansen
洽询汉森

Hansen P4

97QU-VP4L0002 A

mm

Gear unit
Vertical L.S.S.
Parallel shafts
Size
Four stages

减速机
垂直低速轴
平行轴
规格
四级

Q
V
P
D ▶ H
4

With extended bearing housing

加强轴承箱体型

..L

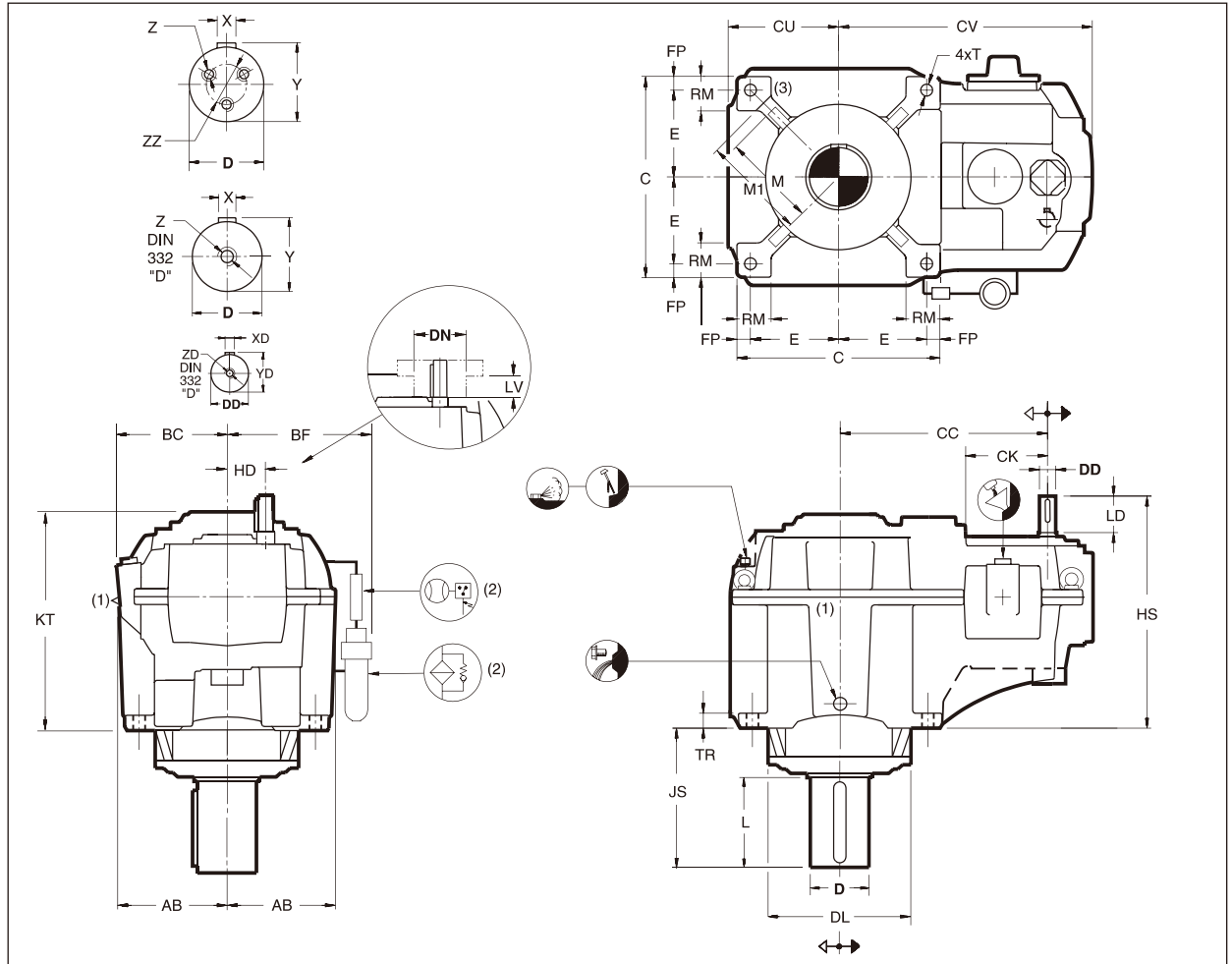
For mixer drives

搅拌器驱动装置

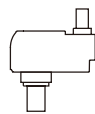
The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



UDL



Shaft arrangements (front view)

轴布置 (俯视图)

(1) Grease lubrication point
(2) Standard for gear units sizes G and H
(3) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
(2) 对于规格G和H的减速机是标准的
(3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CC	CK	CU	CV	DL	E	FP	HD	HS	JS	KT	M	M1 (3)	RM	T	TR	kg	Litres 公升
QVPD4	285	290	-	530	523	200	290	660	360	225	40	109	602	490	540	-	260	95	35	40	750	33
QVPE4	320	332	-	600	607	234	326	749	410	260	40	109	647	565	612	-	310	105	35	45	1130	50
QVPF4	365	372	-	690	696	265	370	852	480	295	50	126	718	570	703	-	340	135	42	52	1610	67
QVPG4	450	455	490	860	800	304	455	983	570	375	55	148	735	675	767	390	425	150	48	65	2420	102
QVPH4	450	455	490	860	872	304	455	1055	570	375	55	148	735	675	767	390	425	150	48	65	2530	125

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"												
	D-m6	L	X	Y	Z	ZZ	DD-k6	DN max	LD	LV min	XD	YD	ZD
QVPD4	170	300	40	179	M30	-	38	-	82	-	10	41	M12
QVPE4	190	350	45	200	M30	-	38	-	82	-	10	41	M12
QVPF4	220	350	50	231	M30	-	42	120	82	9	12	45	M16
QVPG4	240	410	56	252	3 x M24	140	48	155	82	10	14	51,5	M16
QVPH4	260	410	56	272	3 x M24	140	48	155	82	10	14	51,5	M16

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel shafts	平行轴	P
Size	规格	J ▶ M
Four stages	四级	4

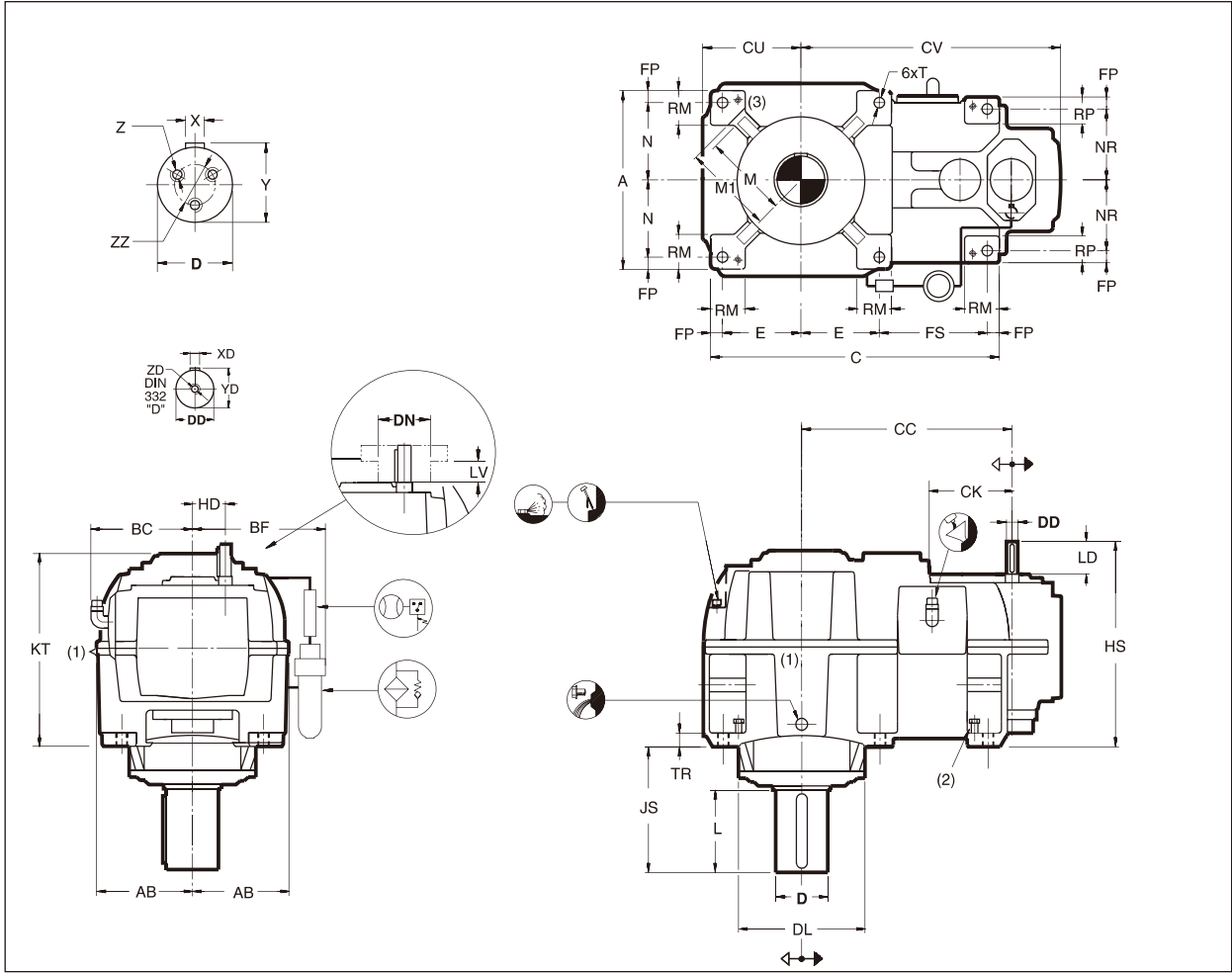
With extended bearing housing 加强轴承箱体型 ..L

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) Grease lubrication point
(2) 4x jacking screw
(3) Minimum mounting pad surface, see page C44

(1)加脂润滑点
(2)4×起升螺栓
(3)最小的固定衬垫尺寸
参见C44页

Type 类型	A	AB	BC	BF	C	CC	CK	CU	CV	DL	E	FP	FS	HD	HS	JS	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVPJ4	1010	525	555	635	1380	942	351	540	1137	650	410	55	450	171	810	765	864	450	500	450	385	160	140	48	70	3860	305
QVPK4	1010	525	555	635	1380	1020	351	540	1223	650	410	55	450	171	810	765	864	450	500	450	385	160	140	48	70	4260	305
QVPL4	1240	640	665	750	1650	1110	399	655	1340	750	510	60	510	197	940	805	1024	505	600	560	490	175	155	56	80	6330	445
QVPM4	1240	640	665	750	1650	1208	399	655	1438	750	510	60	510	197	940	845	1024	505	600	560	490	175	155	56	80	6850	445

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"												
	D-m6	L	X	Y	Z	ZZ	DD-m6	DN max	LD	LV min	XD	YD	ZD
QVPJ4	280	470	63	292	3 × M24	140	58	175	105	12	16	62	M20
QVPK4	300	470	70	314	3 × M24	140	58	175	105	12	16	62	M20
QVPL4	320	510	70	334	3 × M24	140	65	-	105	-	18	69	M20
QVPM4	340	550	80	355	3 × M24	250	65	-	105	-	18	69	M20

Hansen P4

97QU-VR2R0002 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Two stages

减速机
垂直低速轴
正交轴
规格
二级

Q
V
R
C ▶ F
2

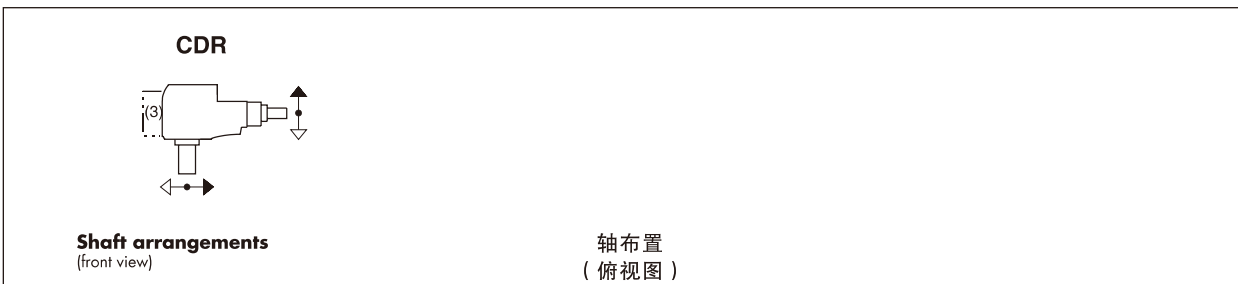
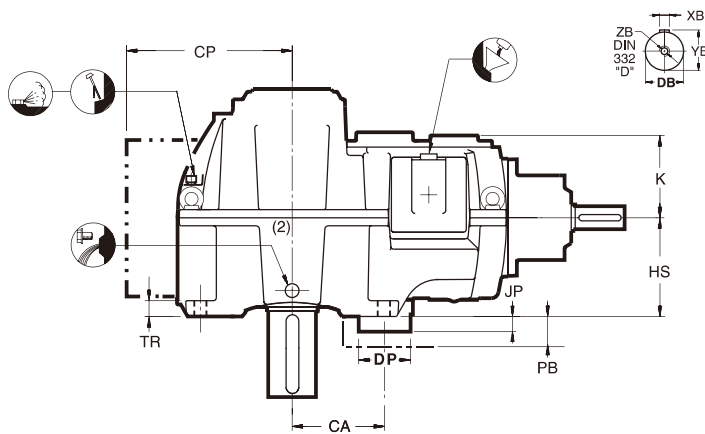
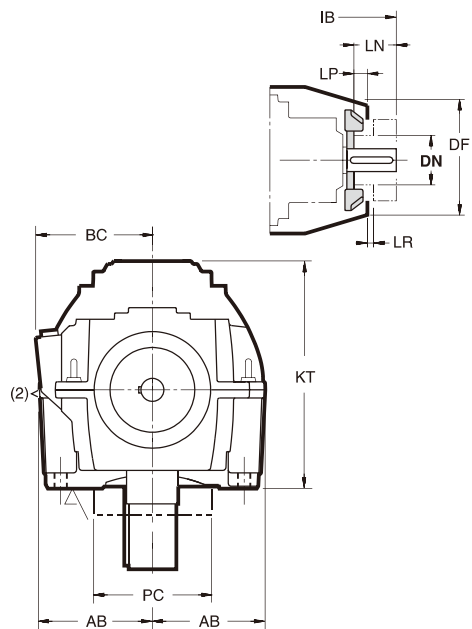
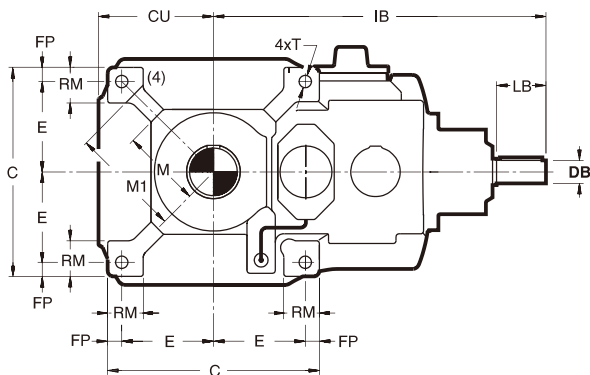
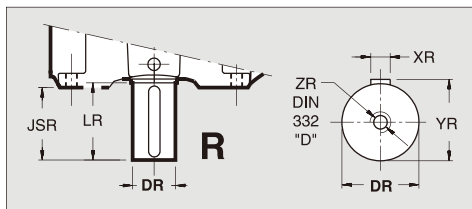
For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



- (1) Space for pump removal
- (2) Grease lubrication point
- (3) For sizes E and F: motor pump at dipstick's side is required. Refer to Hansen.
- (4) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CU	E	FP	HS	IB	JSR	K	KT	M	M ₁ (4)	RM	T	TR	kg	Litres 公升
QVRC2	255	280	470	260	200	35	215	812	204	183	491	165	225	95	28	38	380	22
QVRD2	285	290	530	290	225	40	245	916	207	230	557	195	260	95	35	40	560	29
QVRE2	320	335	600	326	260	40	280	1012	245	237	630	225	310	105	35	45	840	50
QVRF2	365	372	690	370	295	50	320	1119	293	269	678	265	340	135	42	52	1290	75

- (1) 卸除泵所需空间
- (2) 加脂润滑点
- (3) 对于规格E和F的减速机：需要在油标尺一侧安装电机泵的，请洽询汉森
- (4) 最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										Fan- 风扇				Pump - 泵						
	Solid - 实心 R										DF	DN max	LN	LP	LR min	CA	CP	DP(1)	JP	PB(1)	PC(1)
	DR-m6	LR	XR	YR	ZR	DB	LB	XB	YB	ZB											
QVRC2	110	210	28	116	M24	50k6	180	14	53,5	M16	320	160	155	45	20	197	-	145	48	100	145
QVRD2	120	210	32	127	M24	60m6	210	18	64	M20	410	210	185	70	30	226	-	145	41	95	145
QVRE2	140	250	36	148	M30	65m6	210	18	69	M20	410	210	185	70	30	-	(3)	-	-	-	-
QVRF2	160	300	40	169	M30	75m6	210	20	79,5	M20	600	280	185	10	40	-	(3)	-	-	-	-

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Two stages

减速机
垂直低速轴
正交轴
规格
二级

Q
V
R
C ▶ F
2

For mixer drives

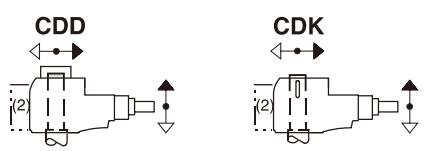
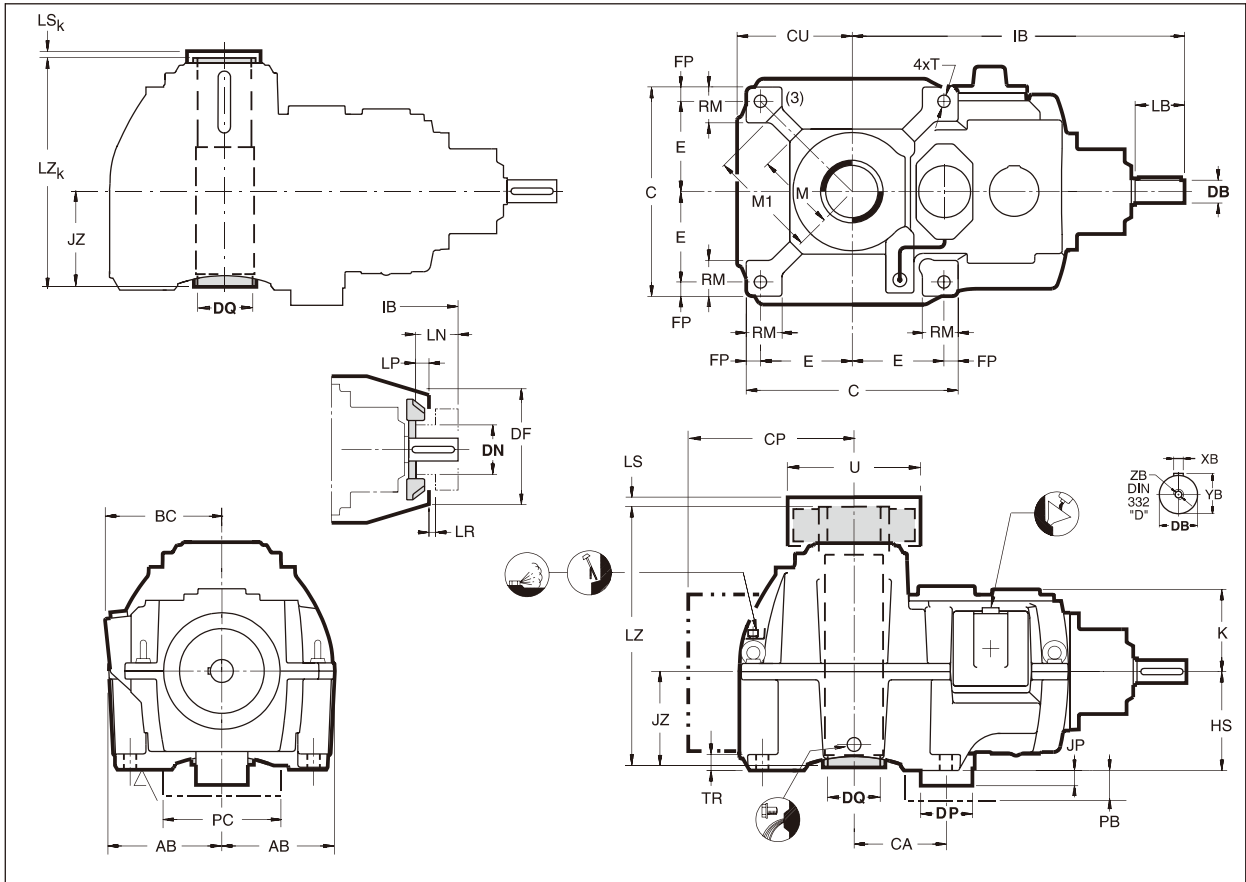
搅拌器驱动装置

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Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) Space for pump removal
(2) For sizes E and F: motor/pump at dipstick's side is required. Refer to Hansen.
(3) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	C	CU	E	FP	HS	IB	JZ	K	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVRC2	255	280	470	260	200	35	215	812	209	183	165	225	95	28	38	380	22
QVRD2	285	290	530	290	225	40	245	916	237	230	195	260	95	35	40	560	29
QVRE2	320	335	600	326	260	40	280	1012	265	237	225	310	105	35	45	840	50
QVRF2	365	372	690	370	295	50	320	1119	298	269	265	340	135	42	52	1290	75

(1) 卸除泵所需空间
(2) 对于规格E和F的减速机：需要在油标尺一侧安装电机泵的，请咨询汉森
(3) 最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											Fan- 风扇					Pump - 泵					
	Hollow - 空心						DB	LB	XB	YB	ZB	DF	DN max	LN	LP	LR min	CA	CP	DP(1)	JP	PB(1)	PC(1)
	DQ	LS	LS _k	LZ	LZ _k	U max																
QVRC2	115	30	40	577	493	250	50k6	180	14	53,5	M16	320	160	155	45	20	197	-	145	48	100	145
QVRD2	130	30	40	650	554	310	60m6	210	18	64	M20	410	210	185	70	30	226	-	145	41	95	145
QVRE2	150	30	40	738	620	340	65m6	210	18	69	M20	410	210	185	70	30	-	(2)	-	-	-	-
QVRF2	170	30	40	821	683	390	75m6	210	20	79,5	M20	600	280	185	10	40	-	(2)	-	-	-	-

Hansen P4

97QU-VR2R0012 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Two stages

减速机
垂直低速轴
正交轴
规格
二级

Q
V
R
G ▶ M
2

For mixer drives

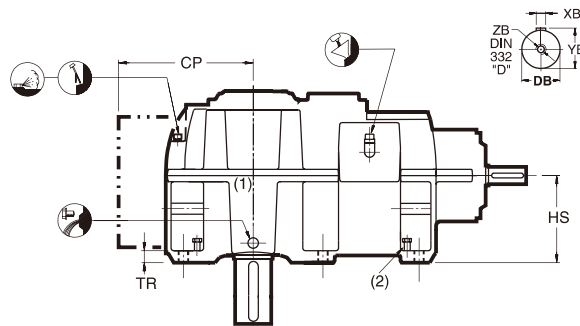
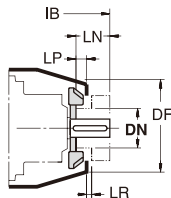
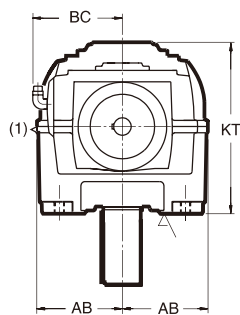
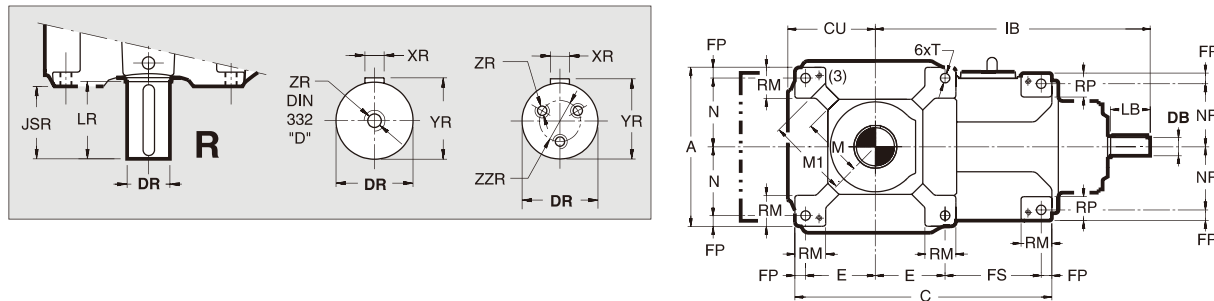
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

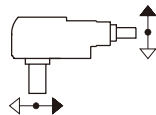
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



CDR



Shaft arrangements (front view)

轴布置 (俯视图)

- (1) Grease lubrication point
- (2) 4x jacking screw
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 4x 起升螺栓
- (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	A	AB	BC	C	CU	E	FP	FS	HS	IB	JSR	KT	M	M1 (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRG2	770	405	435	1120	420	305	50	410	390	1241	345	727	290	360	335	275	140	120	42	60	1700	105
QVRH2	770	435	435	1232	460	345	50	442	390	1313	345	727	310	375	335	275	140	120	42	60	1800	118
QVRJ2	1010	525	555	1380	540	410	55	450	450	1442	342	864	390	500	450	385	160	140	48	70	2700	210
QVRK2	1010	525	555	1380	540	410	55	450	450	1520	402	864	390	500	450	385	160	140	48	70	3100	215
QVRL2	1240	640	665	1650	655	510	60	510	525	1742	400	1024	410	600	560	490	175	155	56	80	4700	275
QVRM2	1240	640	665	1650	655	510	60	510	525	1840	460	1024	410	600	560	490	175	155	56	80	5200	275

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											Fan- 风扇					Motorpump 泵					
	Solid - 实心 R											DF	DN max	LN	LP	LR min	CP					
	DR-m6	LR	XR	YR	ZR	ZZR	DB-m6	LB	XB	YB	ZB											
QVRG2	190	350	45	200	M30	-	100	210	28	106	M24	600	280	185	10	40						
QVRH2	200	350	45	210	M30	-	100	210	28	106	M24	600	280	185	10	40						
QVRJ2	220	350	50	231	M30	-	120	210	32	127	M24	600	280	185	10	40						
QVRK2	240	410	56	252	M30	-	120	210	32	127	M24	600	280	185	10	40						
QVRL2	260	410	56	272	3 x M24	140	140	250	36	148	M30	530	280	225	100	40						
QVRM2	280	470	63	292	3 x M24	140	140	250	36	148	M30	530	280	225	100	40						

Hansen P4

97QU-VR310002 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
C ▶ H
3

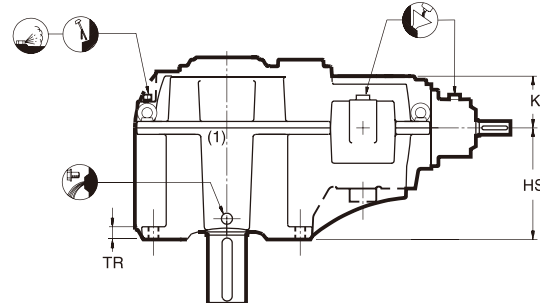
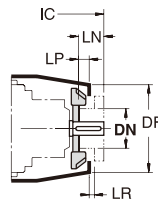
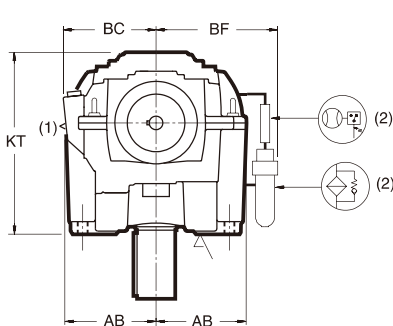
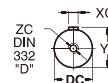
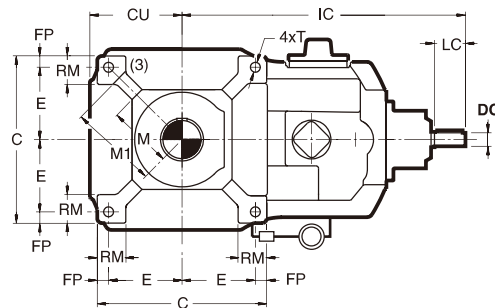
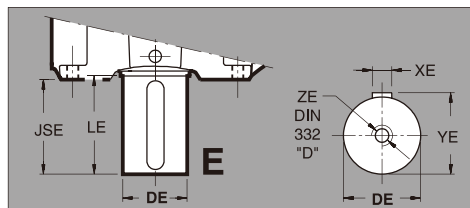
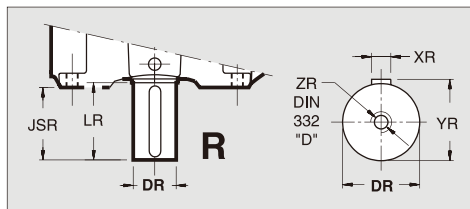
For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

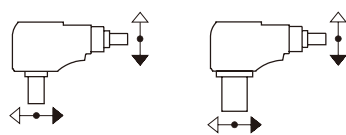
Certified dimensions upon request.

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可按要求提供详细尺寸

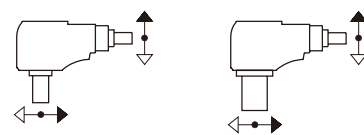


Type 类型 **QVRC3** → **QVRF3**
CDR CDE



Shaft arrangements (front view)

Type 类型 **QVRG3 & QVRH3**
CDR CDE



轴布置 (俯视图)

- (1) Grease lubrication point
- (2) Standard for gear units sizes G and H
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 对于规格G和H的减速机是标准的
- (3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CU	E	FP	HS	IC	JSR	JSE	K	KT	M	M1 (3)	RM	T	TR	kg	Litres 公升
QVRC3	255	280	-	470	260	200	35	290	865	204	-	150	477	165	225	95	28	38	485	23
QVRD3	285	290	-	530	290	225	40	330	992	207	247	166	540	195	260	95	35	40	675	34
QVRE3	320	332	-	600	326	260	40	375	1074	245	245	183	612	225	310	105	35	45	975	49
QVRF3	365	372	-	690	370	295	50	430	1215	293	293	210	703	265	340	135	42	52	1260	70
QVRG3	450	455	490	860	455	375	55	430	1353	345	345	237	767	330	425	150	48	65	1850	110
QVRH3	450	455	490	860	455	375	55	430	1425	345	345	237	767	330	425	150	48	65	1950	120

Type 类型	Shafts Keys - 轴键 ISO/R773-1969					Fan- 风扇				
	DC	LC	XC	YC	ZC	DF	DN max	LN	LP	LR min
QVRC3	35k6	150	10	38	M12	320	160	125	45	20
QVRD3	45k6	180	14	48,5	M16	320	160	155	45	20
QVRE3	50k6	180	14	53,5	M16	320	160	155	45	20
QVRF3	60m6	210	18	64	M20	410	210	185	70	30
QVRG3	65m6	210	18	69	M20	410	210	185	70	30
QVRH3	65m6	210	18	69	M20	410	210	185	70	30

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"									
	Solid - 实心 R					Solid - 实心 E				
	DR-m6	LR	XR	YR	ZR	DE-m6	LE	XE	YE	ZE
QVRC3	110	210	28	116	M24	-	-	-	-	-
QVRD3	120	210	32	127	M24	140	250	36	148	M30
QVRE3	140	250	36	148	M30	150	250	36	158	M30
QVRF3	160	300	40	169	M30	180	300	45	190	M30
QVRG3	190	350	45	200	M30	220	350	50	231	M30
QVRH3	200	350	45	210	M30	220	350	50	231	M30

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
C ▶ H
3

For mixer drives

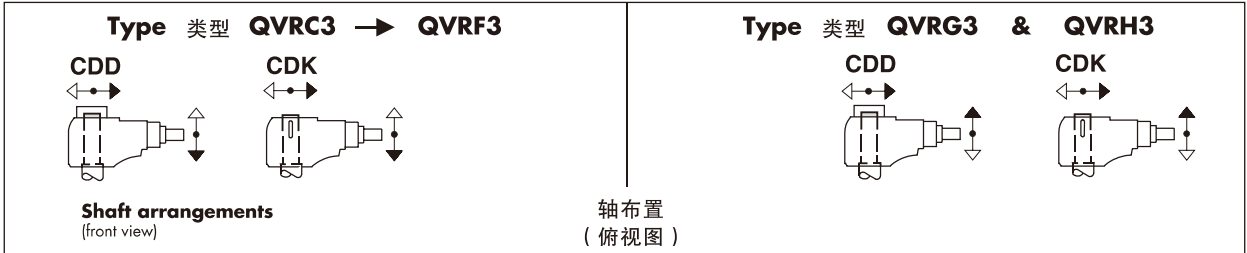
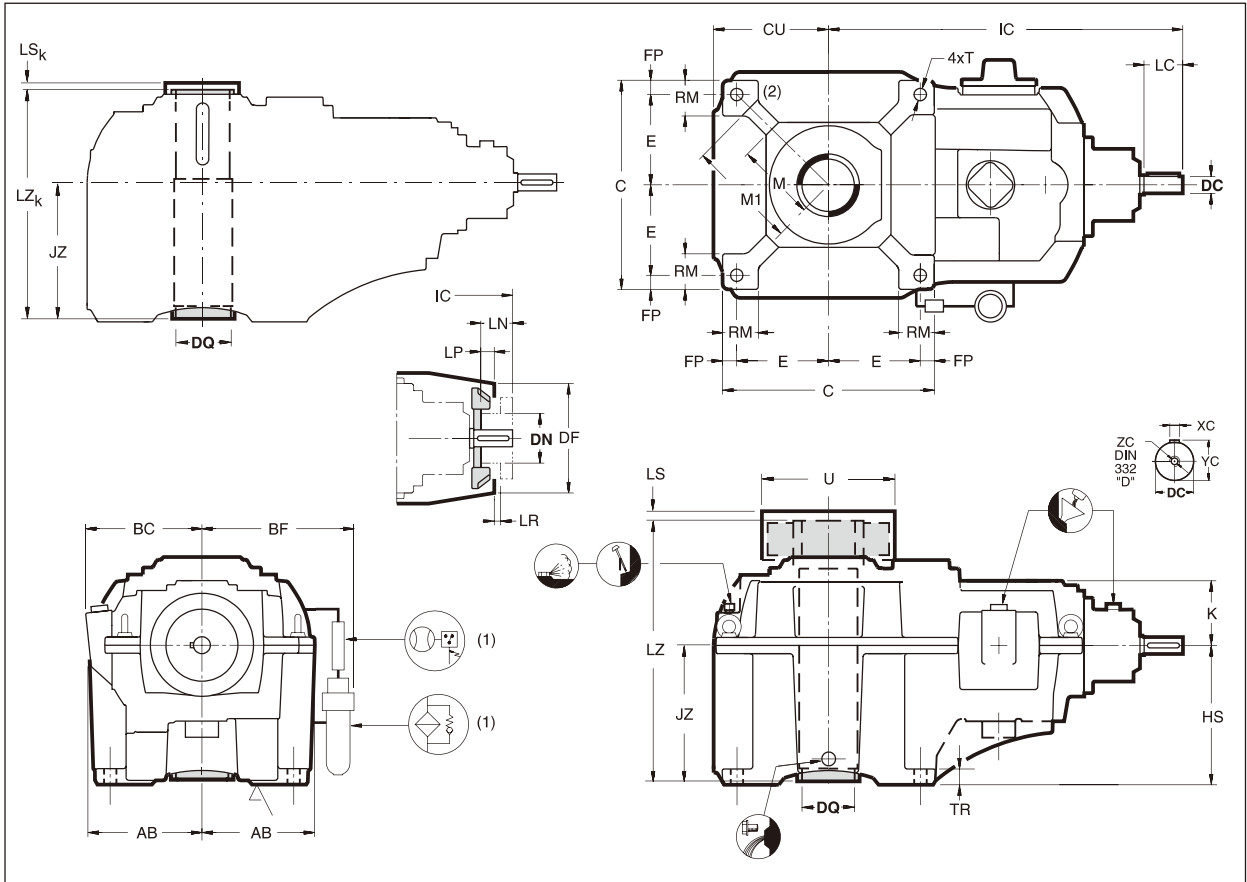
搅拌器驱动装置

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Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



(1) Standard for gear units sizes G and H
(2) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	BF	C	CU	E	FP	HS	IC	JZ	K	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVRC3	255	280	-	470	260	200	35	290	865	284	150	165	225	95	28	38	485	23
QVRD3	285	290	-	530	290	225	40	330	992	322	166	195	260	95	35	40	675	34
QVRE3	320	332	-	600	326	260	40	375	1074	360	183	225	310	105	35	45	975	49
QVRF3	365	372	-	690	370	295	50	430	1215	408	210	265	340	135	42	52	1260	70
QVRG3	450	455	490	860	455	375	55	430	1353	405	237	330	425	150	48	65	1850	110
QVRH3	450	455	490	860	455	375	55	430	1425	410	237	330	425	150	48	65	1950	120

(1)对于规格G和H的减速机是标准的
(2)最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 ISO/R773-1969						Fan- 风扇									
	DQ	LS	LS _k	LZ	LZ _k	U max	DC	LC	XC	YC	ZC	DF	DN max	LN	LP	LR min
QVRC3	115	30	40	577	493	250	35k6	150	10	38	M12	320	160	125	45	20
QVRD3	130	30	40	650	554	310	45k6	180	14	48,5	M16	320	160	155	45	20
QVRE3	150	30	40	738	620	340	50k6	180	14	53,5	M16	320	160	155	45	20
QVRF3	170	30	40	821	683	390	60m6	210	18	64	M20	410	210	185	70	30
QVRG3	190	30	50	886	744	425	65m6	210	18	69	M20	410	210	185	70	30
QVRH3	210	40	55	908	754	450	65m6	210	18	69	M20	410	210	185	70	30

Hansen P4

97QU-VR310012 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
J ▶ M
3

For mixer drives

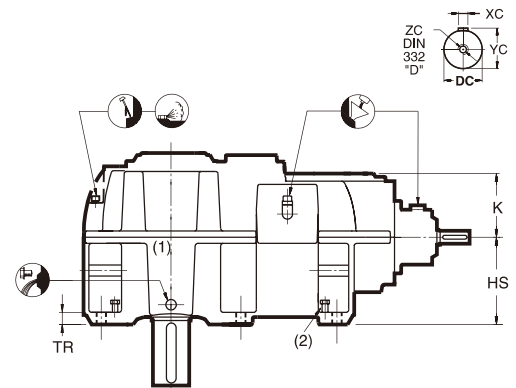
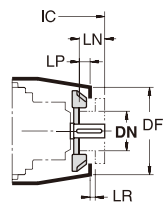
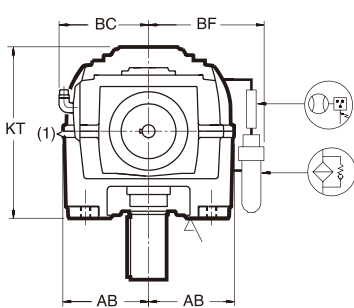
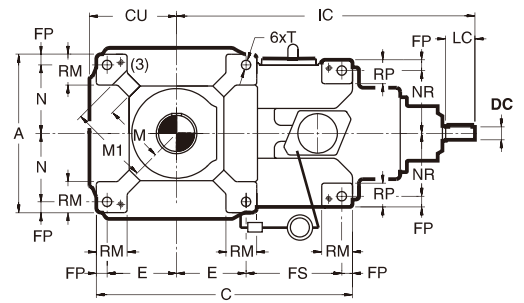
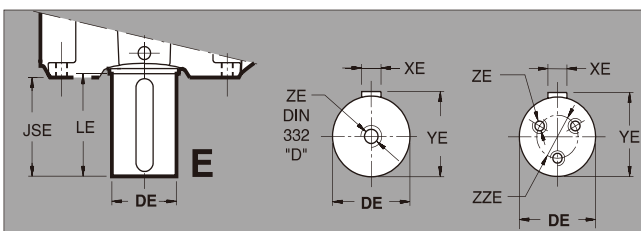
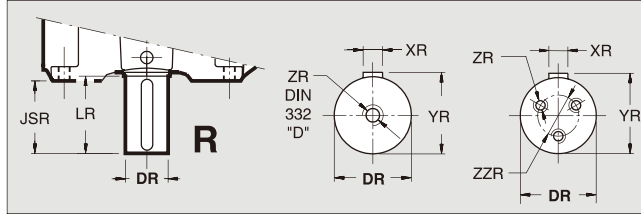
搅拌器驱动装置

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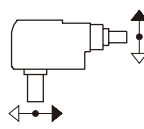
Certified dimensions upon request.

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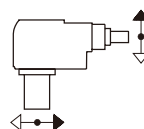
可按要求提供详细尺寸



CDR



CDE



Shaft arrangements (front view)

轴布置 (俯视图)

(1) Grease lubrication point
 (2) 4x jacking screw
 (3) Minimum mounting pad surface, see page C44

Type 类型	A	AB	BC	BF	C	CU	E	FP	FS	HS	IC	JSR	JSE	K	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ3	1010	525	555	635	1380	540	410	55	450	450	1536	342	402	269	864	390	500	450	385	160	140	48	70	3000	230
QVRK3	1010	525	555	635	1380	540	410	55	450	450	1614	402	402	269	864	390	500	450	385	160	140	48	70	3400	230
QVRL3	1240	640	665	750	1650	655	510	60	510	525	1748	400	460	330	1024	410	600	560	490	175	155	56	80	5200	395
QVRM3	1240	640	665	750	1650	655	510	60	510	525	1846	460	460	330	1024	410	600	560	490	175	155	56	80	5700	395

Type 类型	Shafts Keys - 轴键 ISO/R773-1969					Fan- 风扇				
	DC-m6	LC	XC	YC	ZC	DF	DN max	LN	LP	LR min
QVRJ3	75	210	20	79,5	M20	600	280	185	10	40
QVRK3	75	210	20	79,5	M20	600	280	185	10	40
QVRL3	100	210	28	106	M24	600	280	185	10	40
QVRM3	100	210	28	106	M24	600	280	185	10	40

(1) 加脂润滑点
 (2) 4x 起升螺栓
 (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											
	Solid - 实心 R						Solid - 实心 E					
	DR-m6	LR	XR	YR	ZR	ZZR	DE-m6	LE	XE	YE	ZE	ZZE
QVRJ3	220	350	50	231	M30	-	240	410	56	252	M30	-
QVRK3	240	410	56	252	M30	-	260	410	56	272	3 x M24	140
QVRL3	260	410	56	272	3 x M24	140	280	470	63	292	3 x M24	140
QVRM3	280	470	63	292	3 x M24	140	300	470	70	314	3 x M24	140

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
J ▶ M
3

For mixer drives

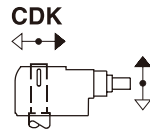
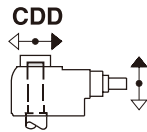
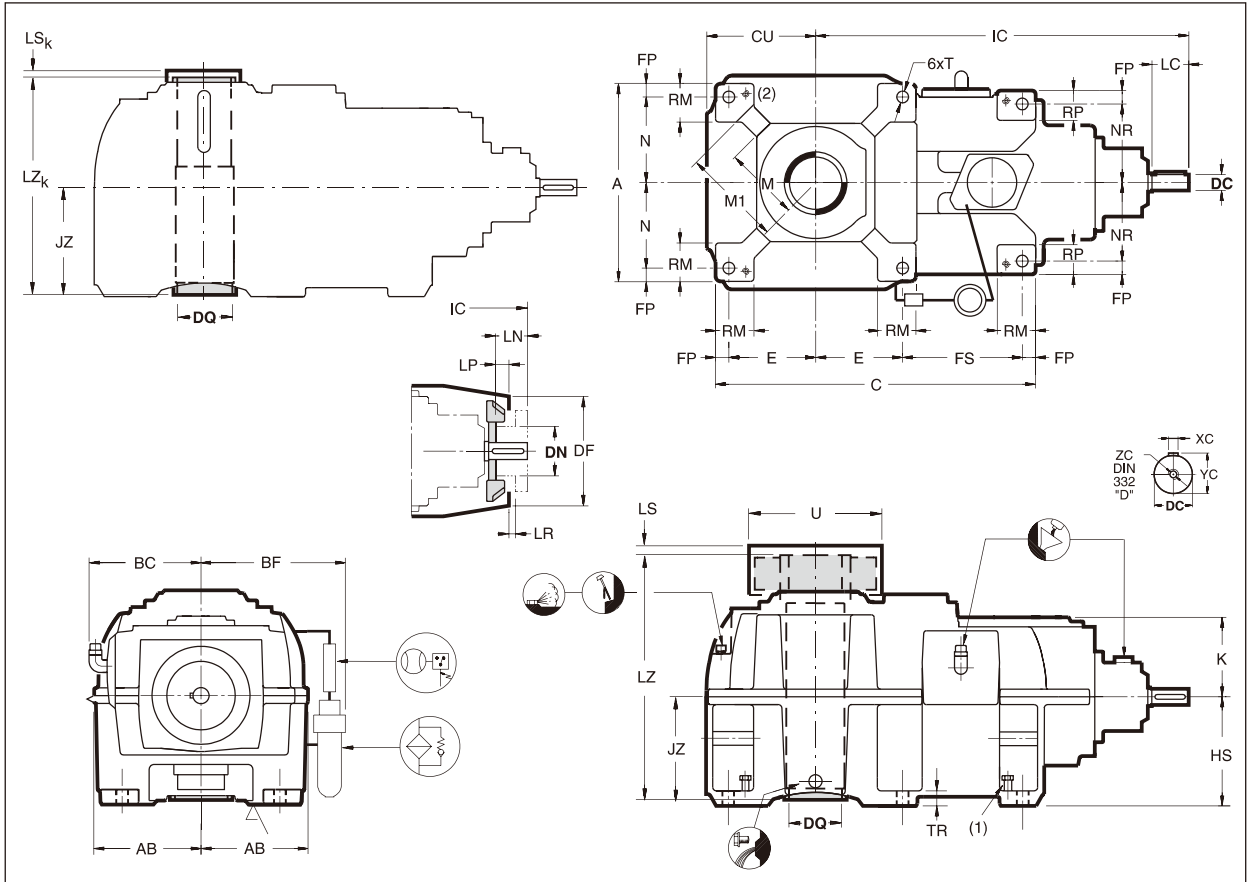
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) 4x jacking screw
(2) Minimum mounting pad surface, see page C44

Type 类型	A	AB	BC	BF	C	CU	E	FP	FS	HS	IC	JZ	K	M	M ₁ (2)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ3	1010	525	555	635	1380	540	410	55	450	450	1536	427	269	390	500	450	385	160	140	48	70	3000	230
QVRK3	1010	525	555	635	1380	540	410	55	450	450	1614	427	269	390	500	450	385	160	140	48	70	3400	230
QVRL3	1240	640	665	750	1650	655	510	60	510	525	1748	505	330	410	600	560	490	175	155	56	80	5200	395
QVRM3	1240	640	665	750	1650	655	510	60	510	525	1846	505	330	410	600	560	490	175	155	56	80	5700	395

(1) 4x 起升螺栓
(2) 最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											Fan- 风扇				
	Hollow - 空心						DC-m6	LC	XC	YC	ZC	DF	DN max	LN	LP	LR min
	DQ	LS	LS _k	LZ	LZ _k	U max										
QVRJ3	230	40	55	1014	847	480	75	210	20	79,5	M20	600	280	185	10	40
QVRK3	260	40	55	1024	847	540	75	210	20	79,5	M20	600	280	185	10	40
QVRL3	280	40	65	1181	989	595	100	210	28	106	M24	600	280	185	10	40
QVRM3	300	40	65	1188	989	615	100	210	28	106	M24	600	280	185	10	40

Hansen P4

97QU-VR410002 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Four stages

减速机
垂直低速轴
正交轴
规格
四级

Q
V
R
D ▶ H
4

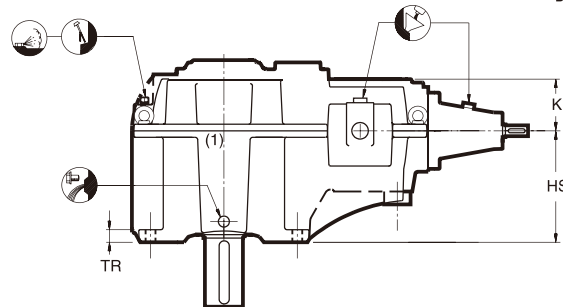
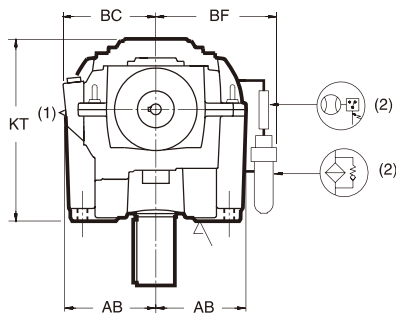
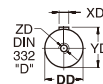
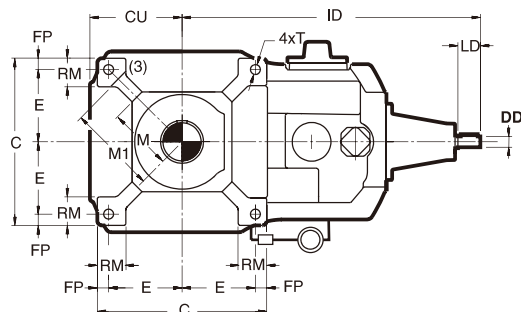
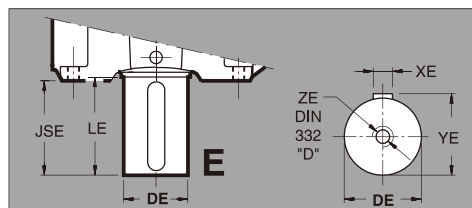
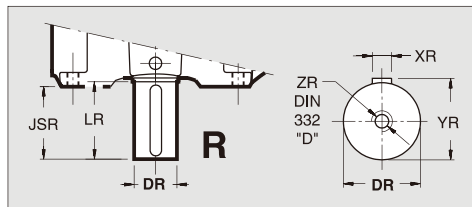
For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

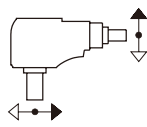
Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

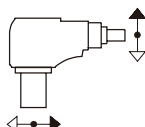
可按要求提供详细尺寸



CDR



CDE



Shaft arrangements (front view)

轴布置 (俯视图)

- (1) Grease lubrication point
- (2) Standard for gear units sizes G and H
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 对于规格G和H的减速机是标准的
- (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	AB	BC	BF	C	CU	E	FP	HS	ID	JSR	JSE	K	KT	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVRD4	285	290	-	530	290	225	40	330	1043	207	247	166	540	195	260	95	35	40	590	33
QVRE4	320	332	-	600	326	260	40	375	1127	245	245	183	612	225	310	105	35	45	900	46
QVRF4	365	372	-	690	370	295	50	430	1291	293	293	210	703	265	340	135	42	52	1280	75
QVRG4	450	455	490	860	455	375	55	430	1415	345	345	237	767	330	425	150	48	65	1880	115
QVRH4	450	455	490	860	455	375	55	430	1487	345	345	237	767	330	425	150	48	65	1980	120

Type 类型	Shafts Keys - 轴键 ISO/R773-1969				
	DD-k6	LD	XD	YD	ZD
QVRD4	35	150	10	38	M12
QVRE4	35	150	10	38	M12
QVRF4	45	180	14	48,5	M16
QVRG4	50	180	14	53,5	M16
QVRH4	50	180	14	53,5	M16

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"									
	Solid - 实心 R					Solid - 实心 E				
	DR-m6	LR	XR	YR	ZR	DE-m6	LE	XE	YE	ZE
QVRD4	120	210	32	127	M24	140	250	36	148	M30
QVRE4	140	250	36	148	M30	150	250	36	158	M30
QVRF4	160	300	40	169	M30	180	300	45	190	M30
QVRG4	190	350	45	200	M30	220	350	50	231	M30
QVRH4	200	350	45	210	M30	220	350	50	231	M30

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Four stages

减速机
垂直低速轴
正交轴
规格
四级

Q
V
R
D ▶ H
4

For mixer drives

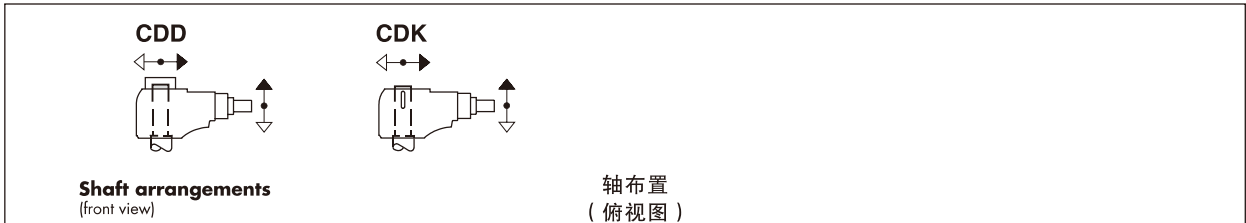
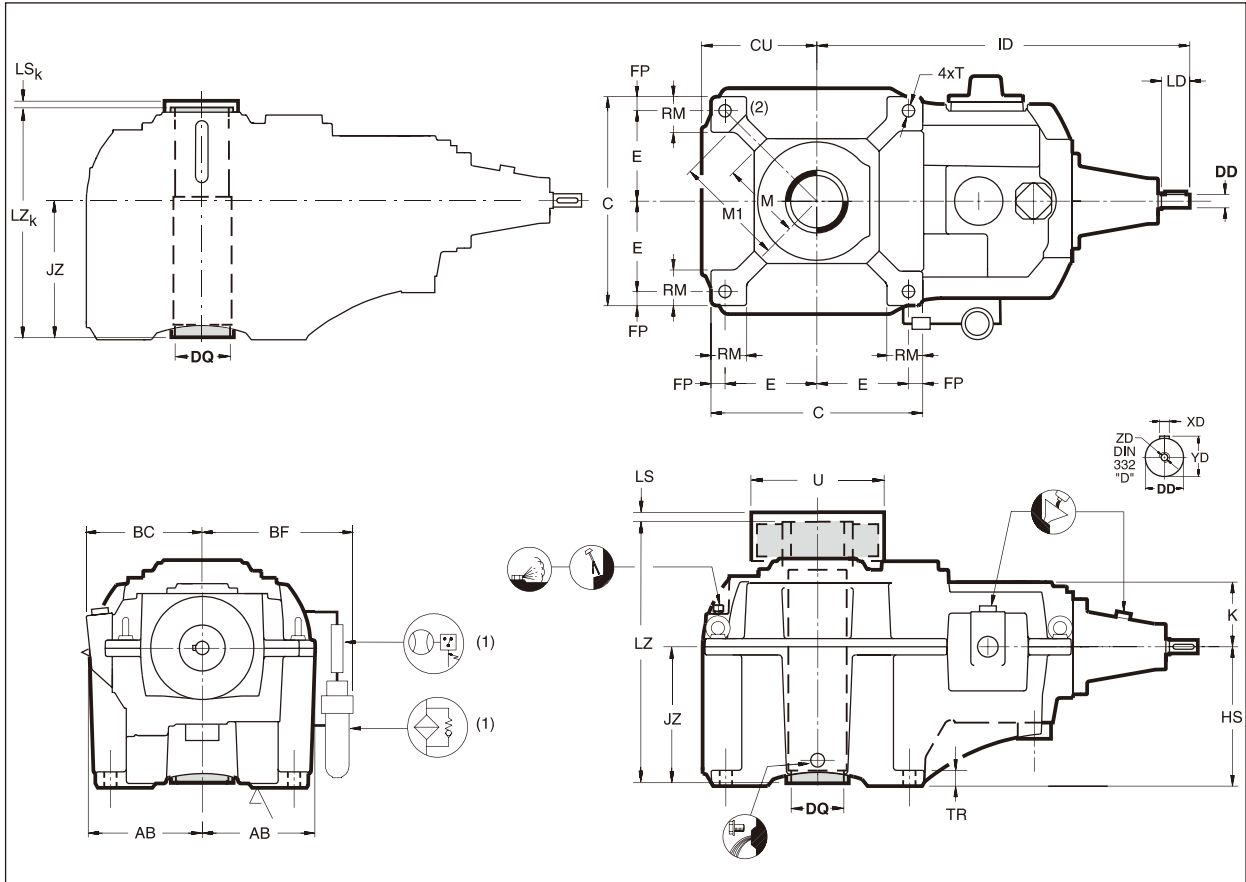
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



(1) Standard for gear units sizes G and H
 (2) Minimum mounting pad surface, see page C44

Type 类型	AB	BC	BF	C	CU	E	FP	HS	ID	JZ	K	M	M ₁ (2)	RM	T	TR	kg	Litres 公升
QVRD4	285	290	-	530	290	225	40	330	1043	322	166	195	260	95	35	40	590	33
QVRE4	320	332	-	600	326	260	40	375	1127	360	183	225	310	105	35	45	900	46
QVRF4	365	372	-	690	370	295	50	430	1291	408	210	265	340	135	42	52	1280	75
QVRG4	450	455	490	860	455	375	55	430	1415	405	237	330	425	150	48	65	1880	115
QVRH4	450	455	490	860	455	375	55	430	1487	410	237	330	425	150	48	65	1980	120

(1) 对于规格G和H的减速机是标准的
 (2) 最小的固定衬垫尺寸参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	Hollow - 空心						DD-k6	LD	XD	YD	ZD
DQ	LS	LSk	LZ	LZk	U max						
QVRD4	130	30	40	650	554	310	35	150	10	38	M12
QVRE4	150	30	40	738	620	340	35	150	10	38	M12
QVRF4	170	30	40	821	683	390	45	180	14	48,5	M16
QVRG4	190	30	50	886	744	425	50	180	14	53,5	M16
QVRH4	210	40	55	908	754	450	50	180	14	53,5	M16

Hansen P4

97QU-VR410012 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Four stages

减速机
垂直低速轴
正交轴
规格
四级

Q
V
R
J ▶ M
4

For mixer drives

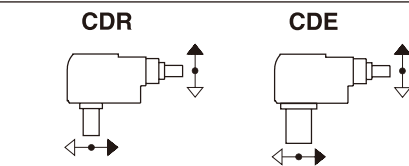
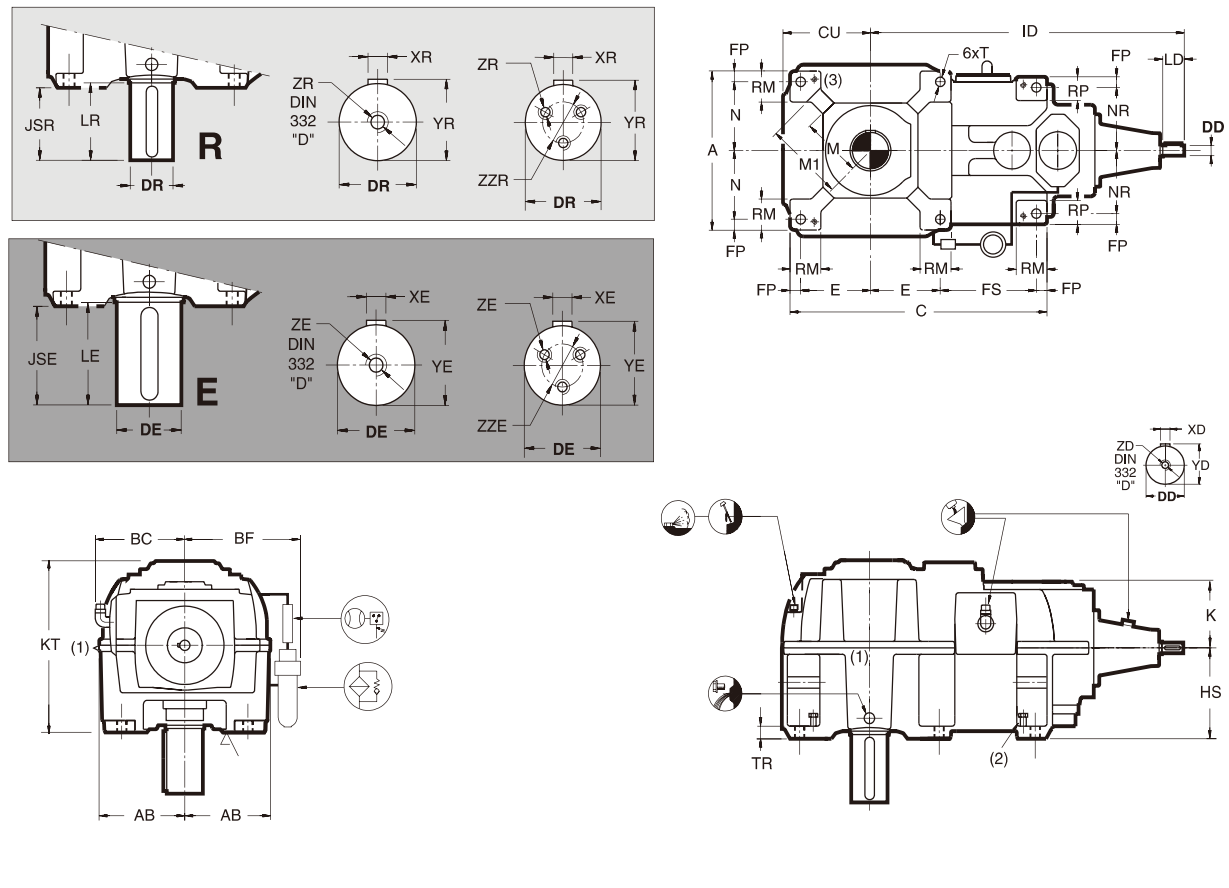
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Shaft arrangements (front view)

轴布置 (俯视图)

- (1) Grease lubrication point
- (2) 4x jacking screw
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 4x 起升螺栓
- (3) 最小的固定衬垫尺寸 参见C44页

Type 类型	A	AB	BC	BF	C	CU	E	FP	FS	HS	ID	JSR	JSE	K	KT	M	M1 (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ4	1010	525	555	635	1380	540	410	55	450	450	1632	342	402	269	864	390	500	450	385	160	140	48	70	3100	220
QVRK4	1010	525	555	635	1380	540	410	55	450	450	1710	402	402	269	864	390	500	450	385	160	140	48	70	3500	220
QVRL4	1240	640	665	750	1650	655	510	60	510	525	1860	400	460	307	1024	410	600	560	490	175	155	56	80	5300	380
QVRM4	1240	640	665	750	1650	655	510	60	510	525	1958	460	460	307	1024	410	600	560	490	175	155	56	80	5800	380

Type 类型	Shafts Keys - 轴键 ISO/R773-1969				
	DD-m6	LD	XD	YD	ZD
QVRJ4	60	210	18	64	M20
QVRK4	60	210	18	64	M20
QVRL4	65	210	18	69	M20
QVRM4	65	210	18	69	M20

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											
	Solid - 实心 R						Solid - 实心 E					
	DR-m6	LR	XR	YR	ZR	ZZR	DE-m6	LE	XE	YE	ZE	ZZE
QVRJ4	220	350	50	231	M30	-	240	410	56	252	M30	-
QVRK4	240	410	56	252	M30	-	260	410	56	272	3 x M24	140
QVRL4	260	410	56	272	3 x M24	140	280	470	63	292	3 x M24	140
QVRM4	280	470	63	292	3 x M24	140	300	470	70	314	3 x M24	140

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Four stages

减速机
垂直低速轴
正交轴
规格
四级

Q
V
R
J ▶ M
4

For mixer drives

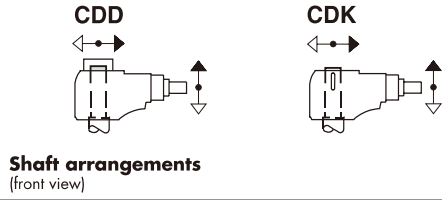
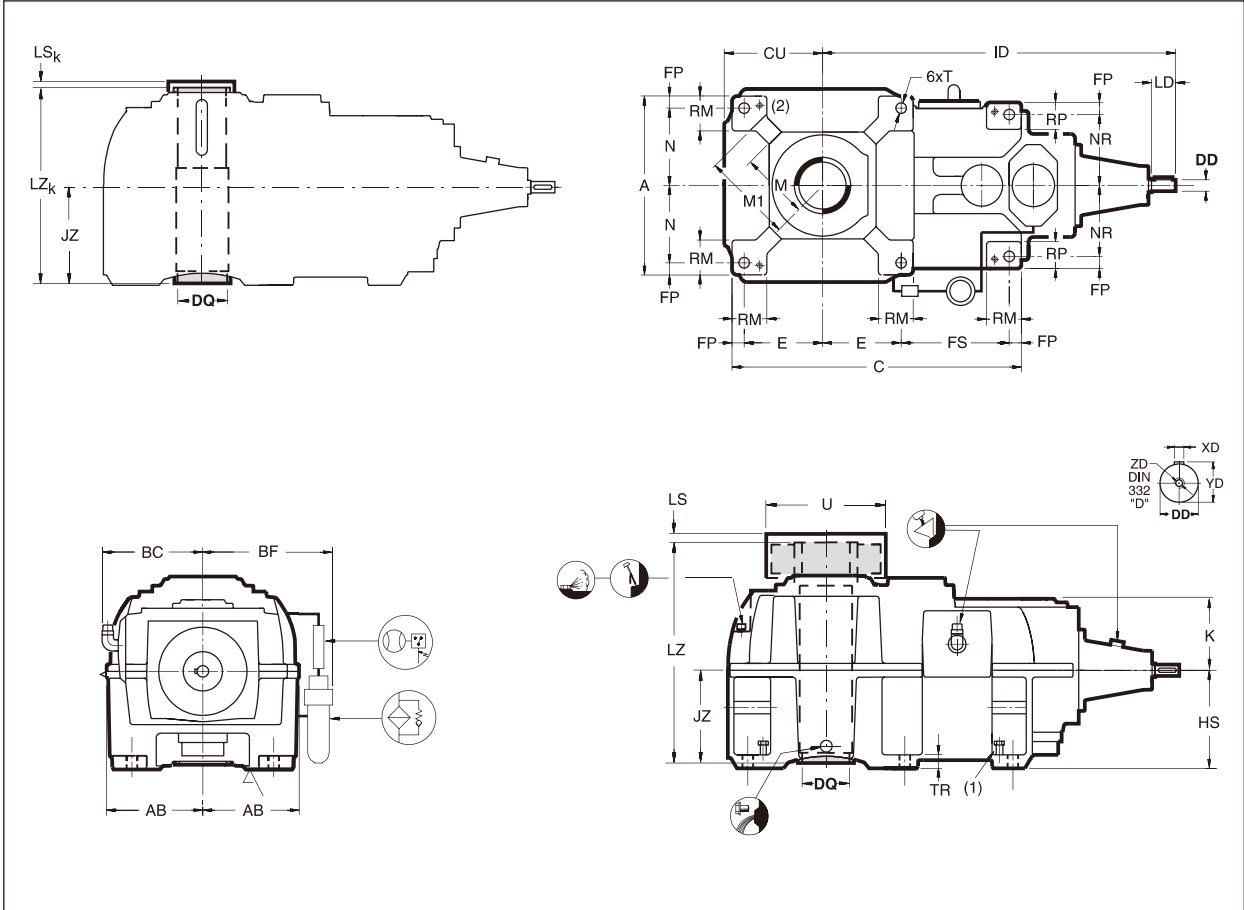
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Shaft arrangements
(front view)

轴布置
(俯视图)

(1) 4x jacking screw
(2) Minimum mounting pad surface, see page C44

Type 类型	A	AB	BC	BF	C	CU	E	FP	FS	HS	ID	JZ	K	M	M ₁ (2)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ4	1010	525	555	635	1380	540	410	55	450	450	1632	427	269	390	500	450	385	160	140	48	70	3100	220
QVRK4	1010	525	555	635	1380	540	410	55	450	450	1710	427	269	390	500	450	385	160	140	48	70	3500	220
QVRL4	1240	640	665	750	1650	655	510	60	510	525	1860	505	307	410	600	560	490	175	155	56	80	5300	380
QVRM4	1240	640	665	750	1650	655	510	60	510	525	1958	505	307	410	600	560	490	175	155	56	80	5800	380

(1) 4x 起升螺栓
(2)最小的固定衬垫尺寸
参见C44页

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	Hollow - 空心						DD-m6	LD	XD	YD	ZD
	DQ	LS	LS _k	LZ	LZ _k	U max					
QVRJ4	230	40	55	1014	847	480	60	210	18	64	M20
QVRK4	260	40	55	1024	847	540	60	210	18	64	M20
QVRL4	280	40	65	1181	989	595	65	210	18	69	M20
QVRM4	300	40	65	1188	989	615	65	210	18	69	M20

Hansen P4

97QU-VR3L0002 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
D ▶ H
3

With extended bearing housing

加强轴承箱体型

..L

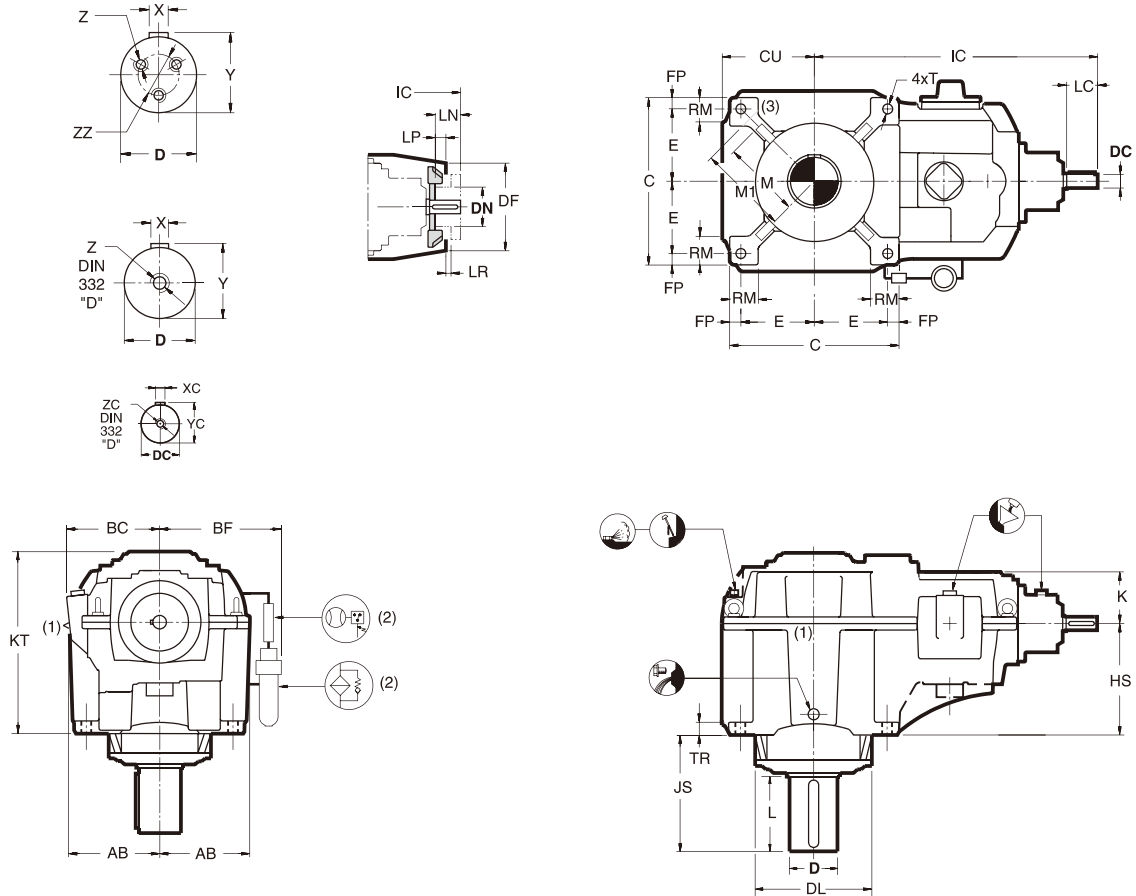
For mixer drives

搅拌器驱动装置

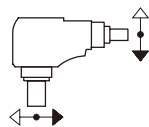
The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸

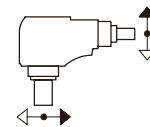


Type 类型 QVRD3 → QVRF3
CDL



Shaft arrangements (front view)

Type 类型 QVRG3 & QVRH3
CDL



轴布置 (俯视图)

- (1) Grease lubrication point
- (2) Standard for gear units sizes G and H
- (3) Minimum mounting pad surface, see page C44

- (1) 加脂润滑点
- (2) 对于规格G和H的减速机是标准的
- (3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CU	DL	E	FP	HS	IC	JS	K	KT	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVRD3	285	290	-	530	290	360	225	40	330	992	490	166	540	-	260	95	35	40	855	34
QVRE3	320	332	-	600	326	410	260	40	375	1074	565	183	612	-	310	105	35	45	1235	49
QVRF3	365	372	-	690	370	480	295	50	430	1215	570	210	703	-	340	135	42	52	1620	70
QVRG3	450	455	490	860	455	570	375	55	430	1353	675	237	767	390	425	150	48	65	2440	110
QVRH3	450	455	490	860	455	570	375	55	430	1425	675	237	767	390	425	150	48	65	2550	120

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"											Fan- 风扇				
	D-m6	L	X	Y	Z	ZZ	DC	LC	XC	YC	ZC	DF	DN max	LN	LP	LR min
QVRD3	170	300	40	179	M30	-	45k6	180	14	48,5	M16	320	160	155	45	20
QVRE3	190	350	45	200	M30	-	50k6	180	14	53,5	M16	320	160	155	45	20
QVRF3	220	350	50	231	M30	-	60m6	210	18	64	M20	410	210	185	70	30
QVRG3	240	410	56	252	3 x M24	140	65m6	210	18	69	M20	410	210	185	70	30
QVRH3	260	410	56	272	3 x M24	140	65m6	210	18	69	M20	410	210	185	70	30

Hansen P4

97QU-VR3L0012 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Three stages

减速机
垂直低速轴
正交轴
规格
三级

Q
V
R
J ▶ M
3

With extended bearing housing

加强轴承箱体型

..L

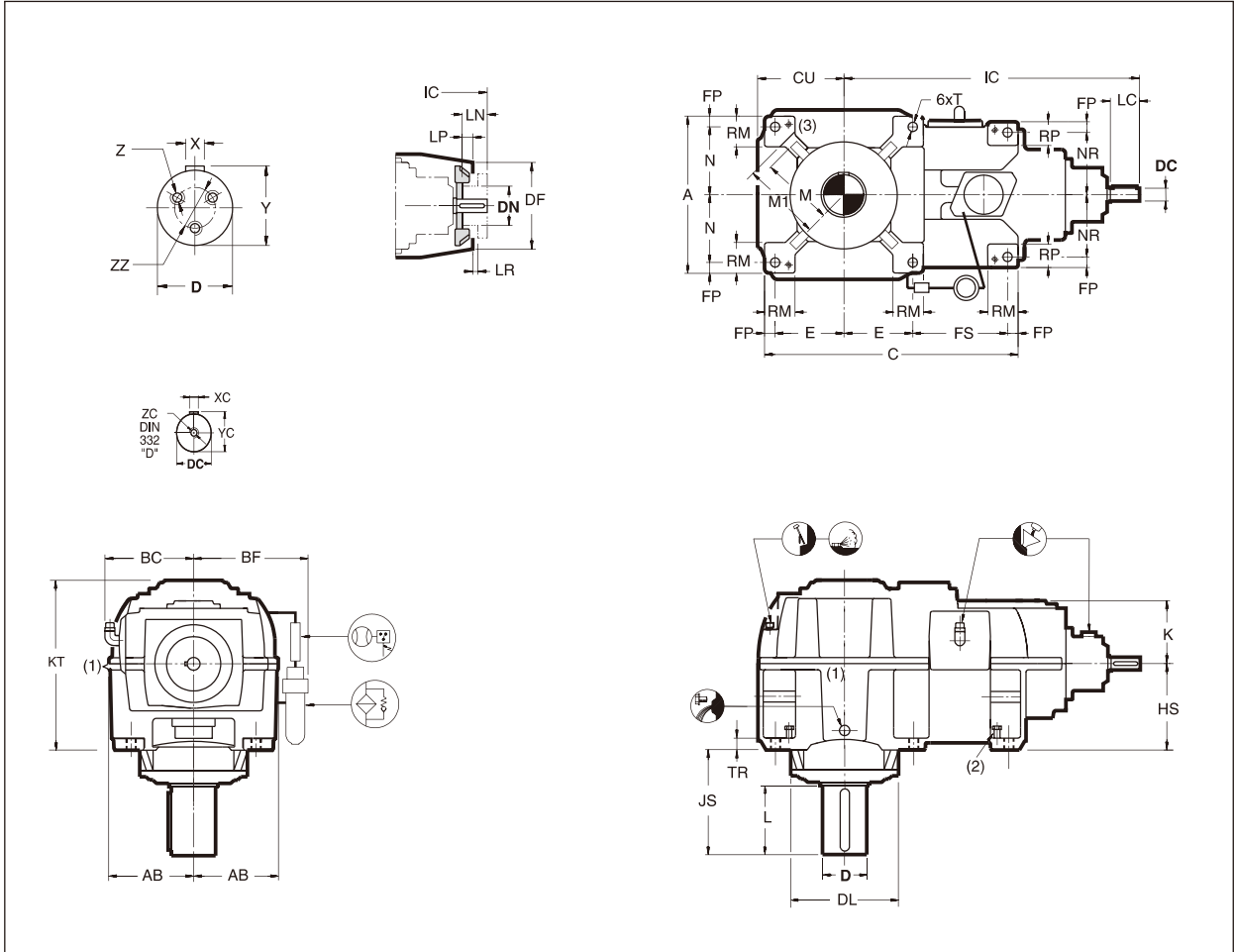
For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) Grease lubrication point
(2) 4x jacking screw
(3) Minimum mounting pad surface, see page C44

Shaft arrangements (front view)

轴布置 (俯视图)

(1)加脂润滑点
(2)4×起升螺栓
(3)最小的固定衬垫尺寸
参见C44页

Type 类型	A	AB	BC	BF	C	CU	DL	E	FP	FS	HS	IC	JS	K	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ3	1010	525	555	635	1380	540	650	410	55	450	450	1536	765	269	864	450	500	450	385	160	140	48	70	3860	230
QVRK3	1010	525	555	635	1380	540	650	410	55	450	450	1614	765	269	864	450	500	450	385	160	140	48	70	4260	230
QVRL3	1240	640	665	750	1650	655	750	510	60	510	525	1748	805	330	1024	505	600	560	490	175	155	56	80	6330	395
QVRM3	1240	640	665	750	1650	655	750	510	60	510	525	1846	845	330	1024	505	600	560	490	175	155	56	80	6850	395

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"												Fan- 风扇				
	D-m6	L	X	Y	Z	ZZ	DC-m6	LC	XC	YC	ZC	DF	DN max	LN	LP	LRmin	
QVRJ3	280	470	63	292	3 x M24	140	75	210	20	79,5	M20	600	280	185	10	40	
QVRK3	300	470	70	314	3 x M24	140	75	210	20	79,5	M20	600	280	185	10	40	
QVRL3	320	510	70	334	3 x M24	140	100	210	28	106	M24	600	280	185	10	40	
QVRM3	340	550	80	355	3 x M24	250	100	210	28	106	M24	600	280	185	10	40	

Hansen P4

97QU-VR4L0002 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Four stages

减速机
垂直低速轴
正交轴
规格
四级

Q
V
R
D ▶ H
4

With extended bearing housing

加强轴承箱体型

..L

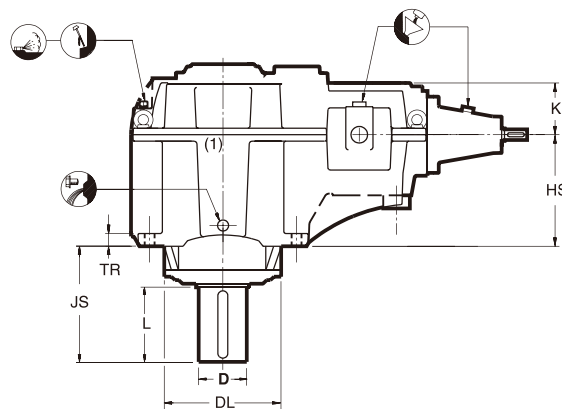
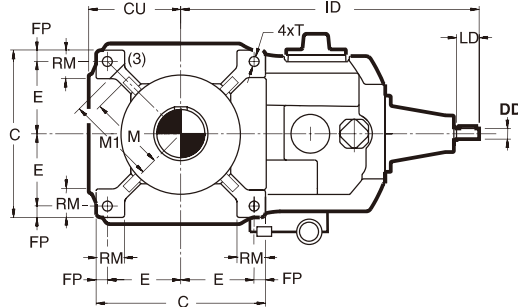
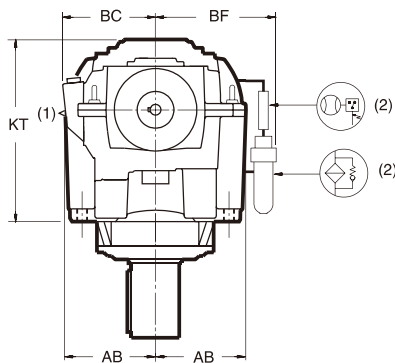
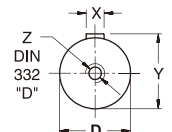
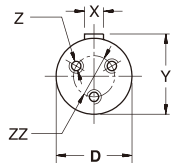
For mixer drives

搅拌器驱动装置

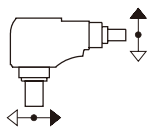
The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



CDL



Shaft arrangements (front view)

轴布置 (俯视图)

(1) Grease lubrication point
(2) Standard for gear units sizes G and H
(3) Minimum mounting pad surface, see page C44

(1) 加脂润滑点
(2) 对于规格G和H的减速机是标准的
(3) 最小的固定衬垫尺寸参见C44页

Type 类型	AB	BC	BF	C	CU	DL	E	FP	HS	ID	JS	K	KT	M	M ₁ (3)	RM	T	TR	kg	Litres 公升
QVRD4	285	290	-	530	290	360	225	40	330	1043	490	166	540	-	260	95	35	40	770	33
QVRE4	320	332	-	600	326	410	260	40	375	1127	565	183	612	-	310	105	35	45	1160	46
QVRF4	365	372	-	690	370	480	295	50	430	1291	570	210	703	-	340	135	42	52	1640	75
QVRG4	450	455	490	860	455	570	375	55	430	1415	675	237	767	390	425	150	48	65	2470	115
QVRH4	450	455	490	860	455	570	375	55	430	1487	675	237	767	390	425	150	48	65	2580	120

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	D-m6	L	X	Y	Z	ZZ	DD-k6	LD	XD	YD	ZD
QVRD4	170	300	40	179	M30	-	35	150	10	38	M12
QVRE4	190	350	45	200	M30	-	35	150	10	38	M12
QVRF4	220	350	50	231	M30	-	45	180	14	48,5	M16
QVRG4	240	410	56	252	3 x M24	140	50	180	14	53,5	M16
QVRH4	260	410	56	272	3 x M24	140	50	180	14	53,5	M16

Hansen P4

97QU-VR4L0012 A

mm

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Right-angle shafts	正交轴	R
Size	规格	J ▶ M
Four stages	三级	4

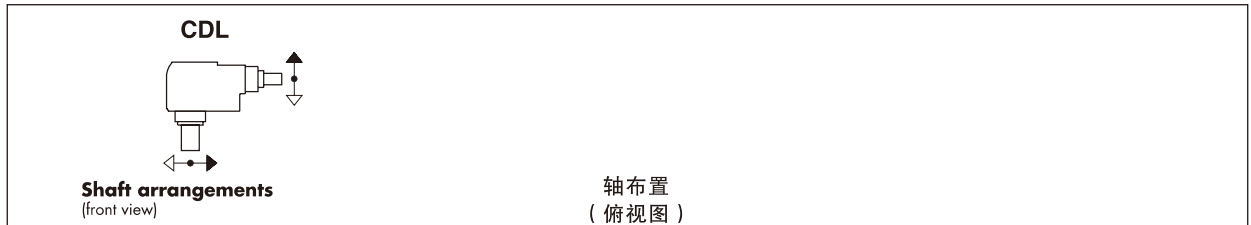
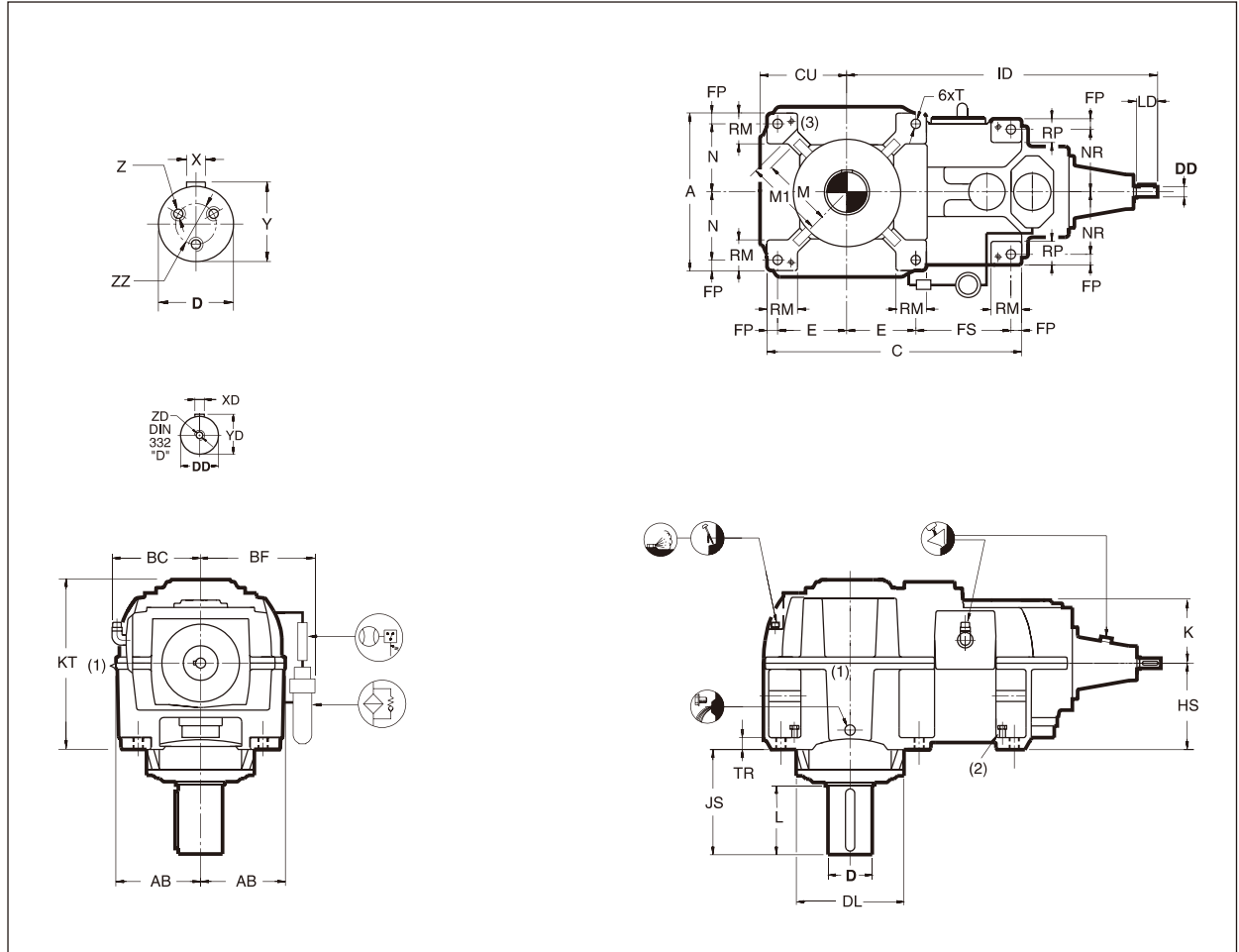
With extended bearing housing **加强轴承箱体型** **..L**

For mixer drives **搅拌器驱动装置**

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) Grease lubrication point
(2) 4x jacking screw
(3) Minimum mounting pad surface, see page C44

(1)加脂润滑点
(2)4×起升螺栓
(3)最小的固定衬垫尺寸
参见C44页

Type 类型	A	AB	BC	BF	C	CU	DL	E	FP	FS	HS	ID	JS	K	KT	M	M ₁ (3)	N	NR	RM	RP	T	TR	kg	Litres 公升
QVRJ4	1010	525	555	635	1380	540	650	410	55	450	450	1632	765	269	864	450	500	450	385	160	140	48	70	3960	220
QVRK4	1010	525	555	635	1380	540	650	410	55	450	450	1710	765	269	864	450	500	450	385	160	140	48	70	4360	220
QVRL4	1240	640	665	750	1650	655	750	510	60	510	525	1860	805	307	1024	505	600	560	490	175	155	56	80	6430	380
QVRM4	1240	640	665	750	1650	655	750	510	60	510	525	1958	845	307	1024	505	600	560	490	175	155	56	80	6950	380

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										
	D-m6	L	X	Y	Z	ZZ	DD-m6	LD	XD	YD	ZD
QVRJ4	280	470	63	292	3 × M24	140	60	210	18	64	M20
QVRK4	300	470	70	314	3 × M24	140	60	210	18	64	M20
QVRL4	320	510	70	334	3 × M24	140	65	210	18	69	M20
QVRM4	340	550	80	355	3 × M24	250	65	210	18	69	M20

Hansen P4

97QU-VR2N1003 A

mm

Gear unit
Vertical L.S.S.
Right-angle shafts
Size
Two stages

减速机
垂直低速轴
正交轴
规格
二级

Q
V
R
D - F
2

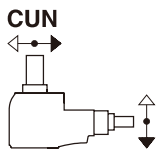
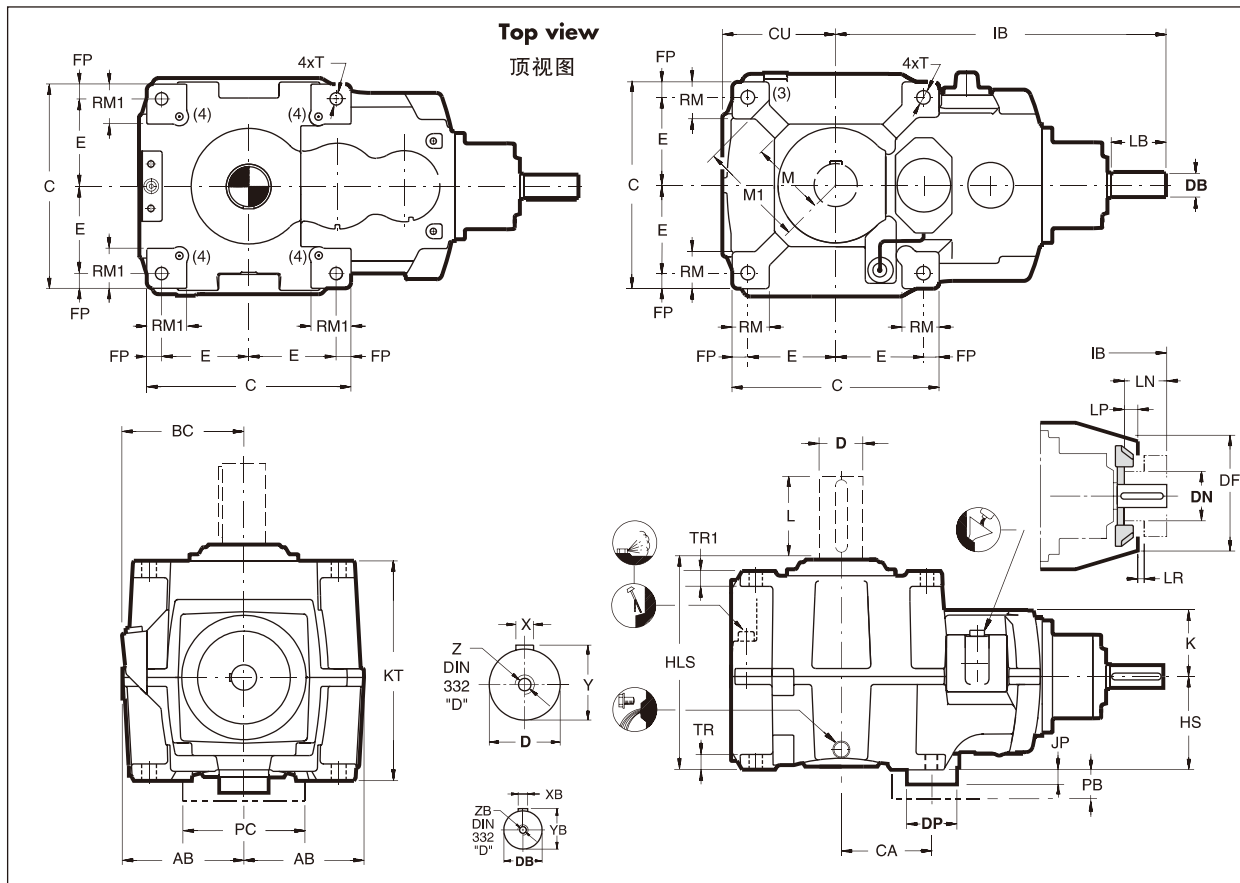
Bottom entry gear unit 下端插入式减速机 B

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



Shaft arrangements (front view)

轴布置 (俯视图)

- (1) Space for pump removal
- (2) Shaft execution according to customer specification.
- (3) Minimum mounting pad surface, see page C44
- (4) dowel pins

Type 类型	AB	BC	C	CU	E	FP	HLS	HS	IB	K	KT	M	M1 (3)	RM	RM1	T	TR	TR1	kg	Litres 公升
QVRD2B	285	290	530	290	225	40	577	245	916	210	522	195	260	95	110	35	40	47	590	29
QVRF2B	365	372	690	370	295	50	715	320	1119	269	635	265	340	135	135	42	52	52	1360	75

- (1) 卸除泵所需空间
- (2) 可根据客户要求确定轴端延长的长度
- (3) 最小的固定衬垫尺寸参见C44页
- (4) ? ? ? ? ? ? ? ?

Type 类型	Shafts Keys - 轴键 DIN 6885-T1 "FormA"										Fan- 风扇				Motorpump - 泵						
	D-m6 (2)		L	X	Y	Z	DB	LB	XB	YB	ZB	DF	DN	LN	LP	LR	CA	DP	JP	PB	PC
	min	max	(2)	(2)	(2)	(2)						max			min		(1)	(1)	(1)	(1)	
QVRD2B	115	150					60m6	210	18	64	M20	410	210	185	70	30	226	145	41	95	145
QVRF2B	155	190					75m6	210	20	79,5	M20	600	280	185	10	40	299	170	38	65	280

Hansen P4

97QU-VX000001 A

mm

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel/right-angle shafts	平行轴/正交轴	P / R
Size	规格	C ▶ M
Gear sets	级数	2 ▶ 4

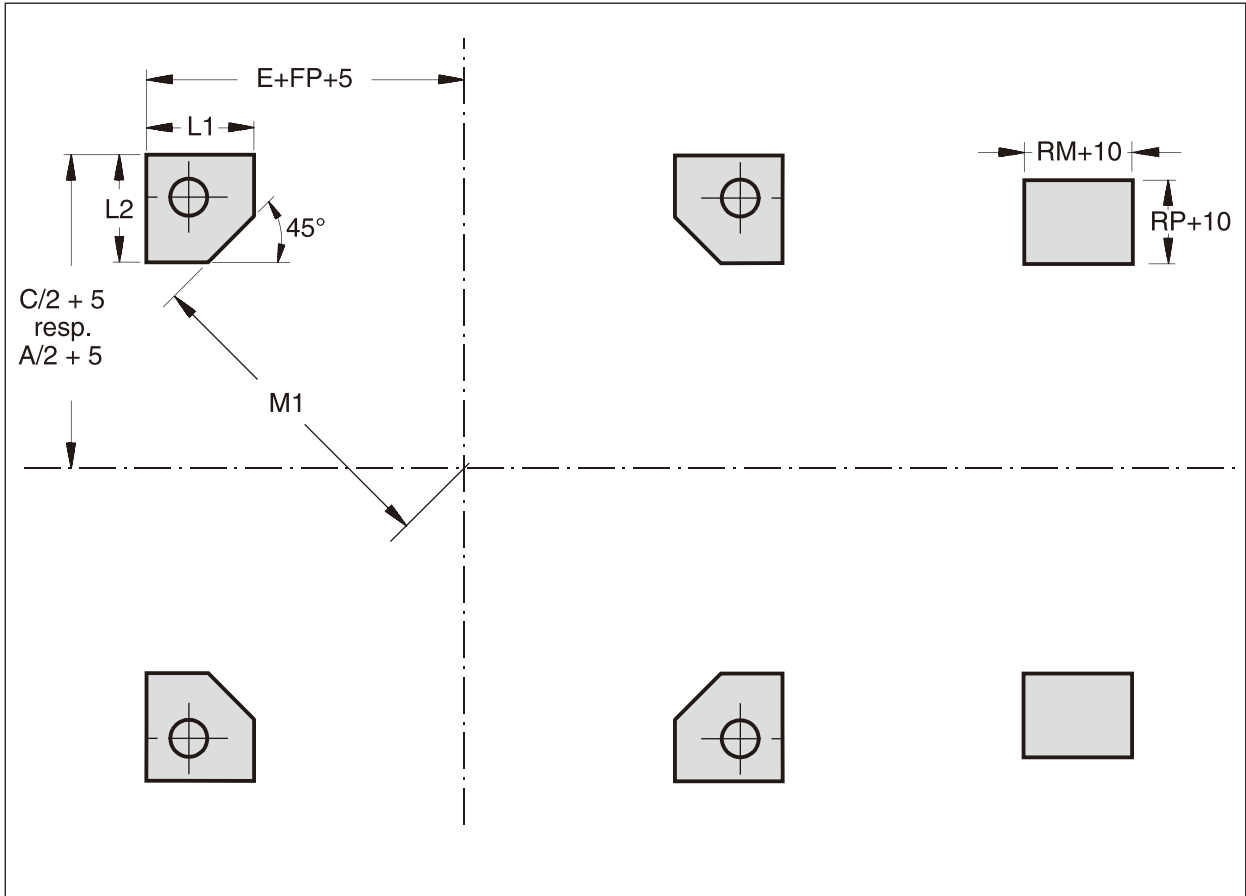
Mounting pad dimensions 固定衬垫尺寸

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



Size - 规格	C	D	E	F	G	G	H	H	J	K	L	M
Number of stages - 级数	2/3/4	2/3/4	2/3/4	2/3/4	2	3/4	2	3/4	2/3/4	2/3/4	2/3/4	2/3/4
M₁	225	260	310	340	360	425	375	425	500	500	600	600
L₁	105	105	115	145	155	160	155	160	170	170	185	185
L₂	105	105	115	145	155	160	155	160	185	185	225	225

Dimensions A, C, E, FP, RM, RP: refer to dimensional drawings

A、C、E、FP、RM、RP的尺寸：参照尺寸图

The Hansen P4 gear units must be installed on supporting structures with sufficient stiffness and provided with mounting pads lying in the same plane (≤ 0.2 mm out of reference plane).

汉森P4减速机必需安装在刚性足够的支撑结构上，并通过固定衬垫使其固定同一平面上（差距 ≤ 0.2 mm）

All gear units must be installed using all feet - 4 or 6 feet. If mounting allows for fixation of 4 feet out of 6 only: refer to Brook Hansen.

所有减速机的安装必须固定所有底脚，4个或6个。如果固定6个中的6个，请咨询汉森。

The recommended mounting pad dimensions are as per drawing and table, see above.

推荐固定衬垫尺寸详见上图。

Hansen P4

97QU-V00N3001 B

mm

Gear unit	减速机
Vertical L.S.S.	垂直低速轴
Parallel/right-angle shafts	平行轴/正交轴
Size	规格
Gear sets	级数

Q
V
P / R
C ▶ M
2 ▶ 4

Flange at low speed shaft cover

低速轴端盖法兰

C

For mixer drives

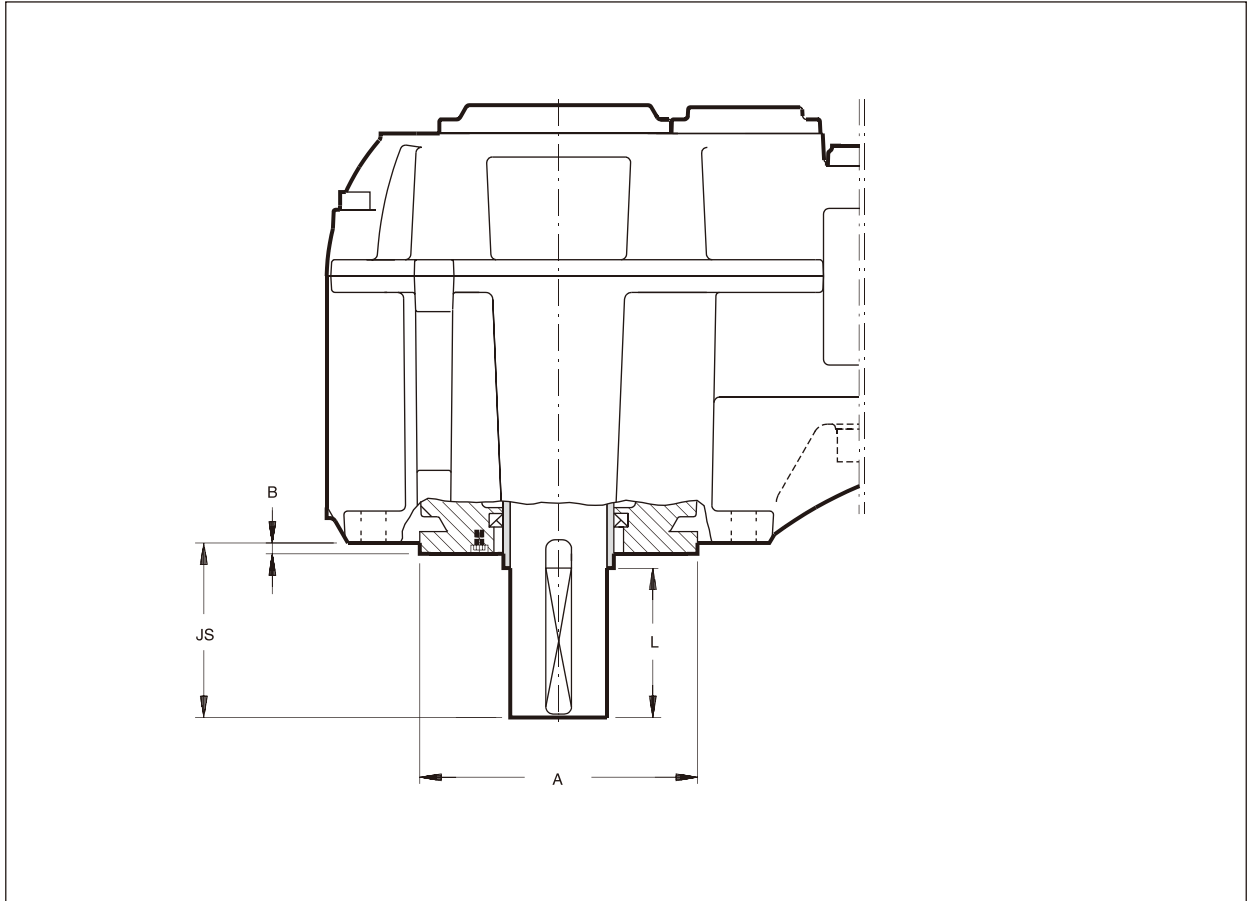
搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Type 类型	øA h9		B	JS		L	
	min.	max.		JSR (1)	JSE (2)	LR (3)	LE (4)
QV.C.C	240	320	6	204	-	194	-
QV.D.C	290	380	6	207	247	196	236
QV.E.C	330	440	6	245	245	234	234
QV.F.C	385	520	6	293	293	282	282
QV.G.C (*)	465	610	10	345	345	330	330
QV.H.C	465	610	10	345	345	330	330
QV.J.C	490	720	10	342	402	327	387
QV.K.C	545	720	10	402	402	387	387
QV.L.C	605	810	10	400	460	385	445
QV.M.C	605	810	10	460	460	445	445
(*) QVRG2C	415	555	10	345	-	330	330

(1) Dimension JSR due to use of shaft **R**
 (2) Dimension JSE due to use of shaft **E**
 (3) Length of normal solid shaft extension **R** for mixers
 (4) Length of enlarged solid shaft extension **E**

(1) JSR尺寸适用于R型输出轴
 (2) JSE尺寸适用于E型输出轴
 (3) R型输出轴伸出长度
 (4) E型输出轴伸出长度

Hansen P4

97QU-V0023001 A

mm

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel/right-angle shafts	平行轴/正交轴	P / R
Size	规格	C ▶ M
Gear sets	级数	2 ▶ 4

Flange at low speed shaft cover 低速轴端盖法兰 C

Hollow low speed shaft 空心低速轴 ..D/K

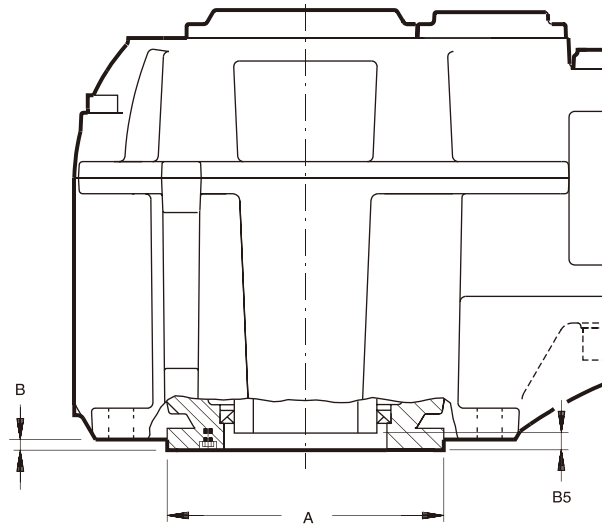
For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Type 类型	øA h9		B	B5
	min.	max.		
QV.C.C	240	320	6	12
QV.D.C	290	380	6	14
QV.E.C	330	440	6	21
QV.F.C	385	520	6	28
QV.G.C (*)	465	610	10	35
QV.H.C	465	610	10	30
QV.J.C	490	720	10	33
QV.K.C	545	720	10	33
QV.L.C	605	810	10	30
QV.M.C	605	810	10	30
(*) QVRG2C	415	555	10	35

Hansen P4

97QU-VP2N2001 A

mm

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Parallel shafts	平行轴	P
Size	规格	C ▶ M
Gear sets	级数	2 ▶ 4

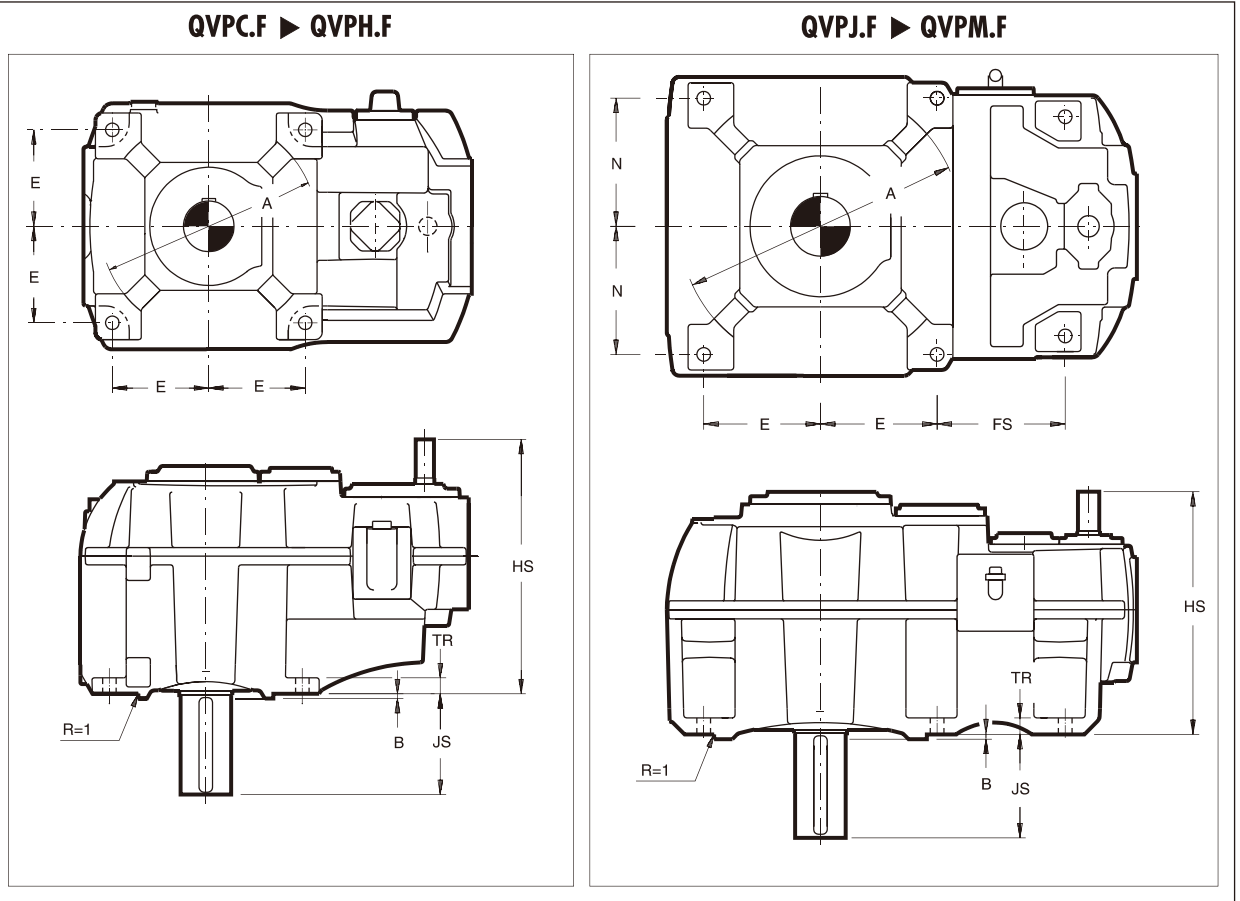
Spigot at fixation feet 带凸缘的底脚安装方式 F

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



- (1) Optionally, a high precision centering (tol. h7) spigot at fixation feet is available
- (2) Dimension JSR due to use of shaft R
- (3) Dimension JSE due to use of shaft E

Type 类型	øA h9 (1)	B	HS			JS		TR
			QVP.2F	QVP.3F	QVP.4F	JSR (2)	JSE (3)	
QVPC.F	450	5	515	557	-	209	-	33
QVPD.F	520	5	600	613	597	212	252	35
QVPE.F	620	5	660	675	642	250	250	40
QVPF.F	680	5	730	785	713	298	298	47
QVPG.F	850	5	-	810	730	350	350	60
QVPH.F	850	5	-	810	730	350	350	60
QVPJ.F	1000	5	-	860	805	347	407	65
QVPK.F	1000	5	-	860	805	407	407	65
QVPL.F	1200	5	-	1005	935	405	465	75
QVPM.F	1200	5	-	1005	935	465	465	75

- (1) 选择带定位凸缘的底脚安装方式，适用于对中精度较高的情况 (tol.h7)
- (2) JSR尺寸适用于R型输出轴
- (3) JSE尺寸适用于E型输出轴

Remark: some other dimensions will also change due to spigot at fixation feet:
 foot: KT: - 5 mm
 JP, PB: + 5 mm

备注：其它尺寸根据定位凸缘的变化不同而改变
 脚: KT: -5mm
 JP: +5mm

Gear unit	减速机	Q
Vertical L.S.S.	垂直低速轴	V
Right-angle shafts	正交轴	R
Size	规格	C ▶ M
Gear sets	级数	2 ▶ 4

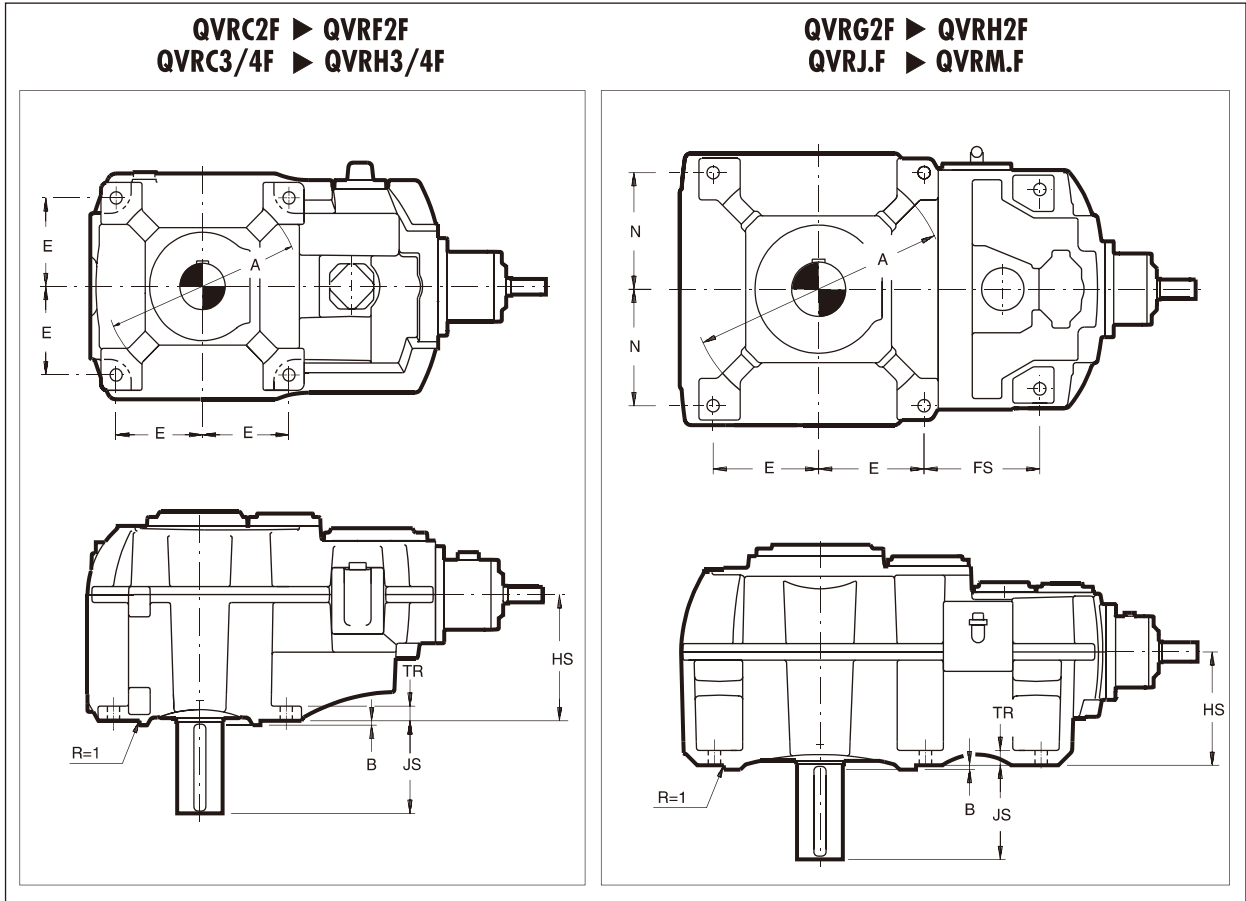
Spigot at fixation feet 带凸缘的底脚安装方式 F

For mixer drives 搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



Type 类型	øA h9 (1)	B	HS		JS		TR
			QVR.2F	QVR.3/4F	JSR (2)	JSE (3)	
QVRC.F	450	5	210	285	209	-	33
QVRD.F	520	5	240	325	212	252	35
QVRE.F	620	5	275	370	250	250	40
QVRF.F	680	5	315	425	298	298	47
QVRG2F	680	5	385	-	350	350	55
QVRG3/4F	850	5	-	425	350	350	60
QVRH2F	730	5	385	-	350	350	55
QVRH3/4F	850	5	-	425	350	350	60
QVRJ2F	860	5	445	-	347	407	65
QVRJ3/4F	1000	5	-	445	347	407	65
QVRK2F	860	5	445	-	407	407	65
QVRK3/4F	1000	5	-	445	407	407	65
QVRL2F	1000	5	520	-	405	465	75
QVRL3/4F	1200	5	-	520	405	465	75
QVRM2F	1070	5	520	-	465	465	75
QVRM3/4F	1200	5	-	520	465	465	75

(1) Optionally, a high precision centering (tol. h7) spigot at fixation feet is available
(2) Dimension JSR due to use of shaft R
(3) Dimension JSE due to use of shaft E

(1)选择带定位凸缘的底脚安装方式, 适用于对中精度较高的情况 (tol.h7)
(2)JSR尺寸适用于R型输出轴
(3)JSE尺寸适用于E型输出轴

Remark: some other dimensions will also change due to spigot at fixation feet: KT : - 5 mm JP, PB : + 5 mm

备注: 其它尺寸根据定位凸缘的变化不同而改变
脚: KT: -5mm JP: +5mm

Hansen P4

97QU-VR2N5001 A

mm

Gear unit	减速机
Vertical L.S.S.	垂直低速轴
Right-angle shafts	正交轴
Size	规格
Gear sets	级数

Q
V
R
D - F
2

Bottom entry gear unit with spigot

带定位凸缘的下端插入式减速机

D

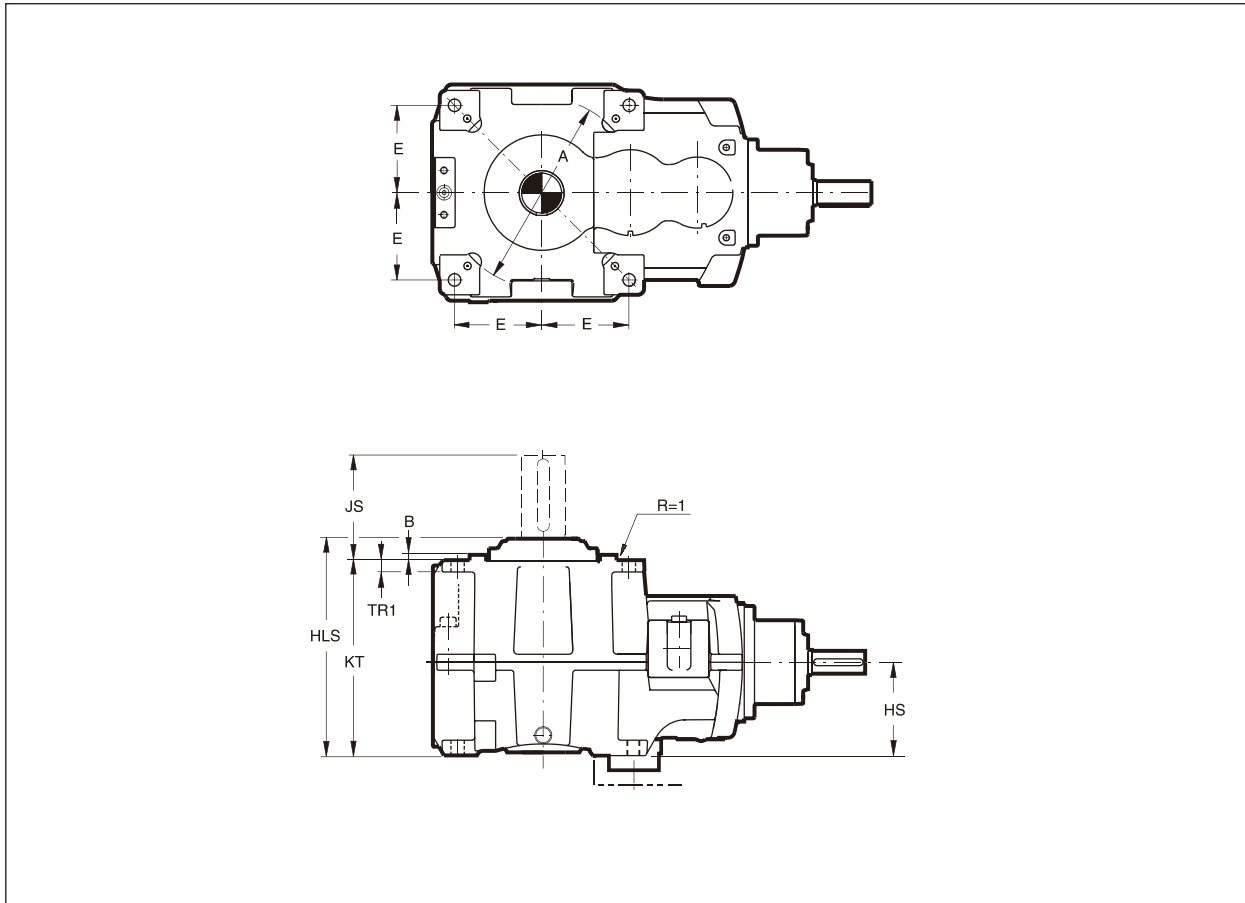
For mixer drives

搅拌器驱动装置

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



Type 类型	$\varnothing A$ h9 (1)	B	E	HLS	HS	JS (2)	KT	TR1
QVRD2D	520	5	225	577	245		517	42
QVRF2D	680	5	295	715	320		630	47

(1) Optionally, a high precision centering (tol. h7) spigot at fixation feet is available
(2) Shaft execution according to customer specification.

(1)选择带定位凸缘的底脚安装方式，适用于对中精度较高的情况 (tol.h7)
(2)可根据客户要求确定轴端延长的长度

Hansen P4

97QU-VX000011 A

mm

Gear unit
Low speed shaft
Parallel/right-angle shafts
Size
Gear sets

减速机
低速轴
平行轴/正交轴
规格
级数

Q
V
P / R
C ▶ M
2 ▶ 4

Available space for removal of dipstick and magnetic plug

卸除油标尺及磁性阀塞所需空间

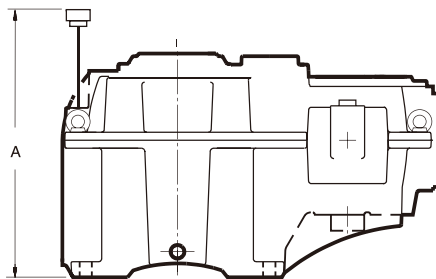
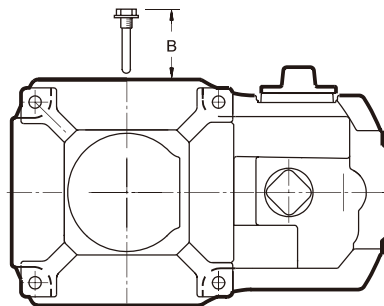
..D

The user is responsible for the provision of **safety guards** and correct installation of all equipment.

Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置

可按要求提供详细尺寸



Size - 规格	A			B
	QV..2	QV..3	QV..4	
C	525	665	-	-
D	565	720	720	-
E	605	785	785	-
F	650	855	855	145
G	785	910	910	170
H	785	910	910	170
J	860	810	815	245
K	860	810	815	245
L	1000	965	950	245
M	1000	965	950	245

Gear unit	减速机
Low speed shaft	低速轴
Parallel/right-angle shafts	平行轴/正交轴
Size	规格
Gear sets	级数

Q
V
P / R
C ▶ M
2 ▶ 4

Hollow low speed shaft
Shrink disc connection

空心低速轴
紧缩盘连接

..D

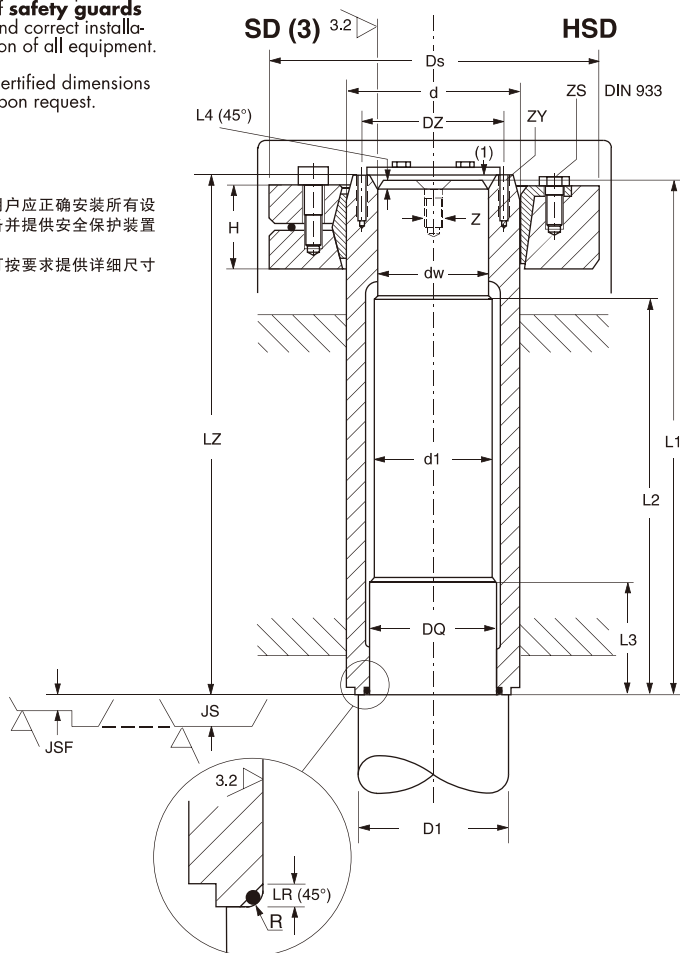
Machine shaft dimensions

机械轴尺寸

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Certified dimensions upon request.

用户应正确安装所有设备并提供安全保护装置
可按要求提供详细尺寸



(1) If a thrust load occurs, which is not taken up by the shoulder on the machine shaft, a thrust washer would need to be provided.

(2) Coding and dimensions of shrink disc type HSD of the make "Stüwe". Equivalent "Schaefer (TAS)" or "Ringfeder" shrink discs may also be used.

(3) SD upon request HSD standard

(4) M24 as per DIN 332 - "Form D"

(5) Minimum yield strength of machine shaft:
 $Re \geq 330 \text{ N/mm}^2$

(6) For QV... and QV...C executions

(7) For QV...F execution

(1)如果出现一个轴向负荷，其没有被机械轴肩承受，则需要提供一个止推垫圈。

(2)"Stüwe"牌收缩盘型HSD的代码和尺寸。

(3)如有需要，按HSD标准。

(4)M24符合DIN332-“表D”

(5)机械轴的最小屈服力：
 $Re \geq 330 \text{ N/mm}^2$

(6)对于QV...和QV...C实行

(7)对于QV...F实行

Type 类型	Shrink disc - 紧缩盘 (2)						Hollow shaft - 空心轴						Machine shaft - 机械轴 (5)									
	HSD	d	Ds	H	ZS	TA Nm	JS (6)	JSF (7)	LZ	LR	ZY	DZ	dw	d1	DQ h7	D1 min	L1	L2	L3	L4	R	Z (4)
QV.C..	HSD140-81x140	140	230	58	M14	193	6	1	577	6	6xM6	127	113h6	114	115	130	574	495	68	3	5	M24
QV.D..	HSD165-81x165	165	290	68	M16	295	8	3	650	6	4xM8	145	128h6	129	130	145	647	555	78	3	5	M24
QV.E..	HSD185-81x185	185	320	85	M16	295	15	10	738	6	4xM10	166	148h6	149	150	165	734	630	93	4	5	M30
QV.F..	HSD220-81x220	220	370	103	M20	570	22	17	821	6	4xM12	195	168g6	169	170	185	817	690	117	4	5	M30
QV.G..	HSD240-81x240	240	405	107	M20	570	25	20	886	6	6xM12	210	185g6	188	190	205	882	755	117	4	5	M30
QV.H..	HSD260-81x260	260	430	119	M20	570	20	15	908	7	6xM12	230	205g6	208	210	230	903	765	126	5	6	M36
QV.J..	HSD280-81x280	280	460	132	M20	570	23	18	1014	7	6xM12	250	225g6	228	230	250	1009	855	141	5	6	M36
QV.K..	HSD320-81x320	320	520	140	M24	980	23	18	1024	7	6xM16	285	255g6	258	260	280	1019	855	151	5	6	M36
QV.L..	HSD340-81x340	340	570	155	M24	980	20	15	1181	7	6xM16	305	275g6	278	280	300	1176	1000	162	5	6	M36
QV.M..	HSD360-81x360	360	590	162	M24	980	20	15	1188	7	6xM16	325	295g6	298	300	320	1183	1000	167	5	6	M36

Hansen P4

97QU-V00K0001 C

mm

Gear unit
Low speed shaft
Parallel/right-angle shafts
Size
Gear sets

减速机
低速轴
平行轴/正交轴
规格
级数

Q
V
P / R
C ▶ M
2 ▶ 4

Hollow low speed shaft
Keyed connection

空心低速轴
键联接

..K

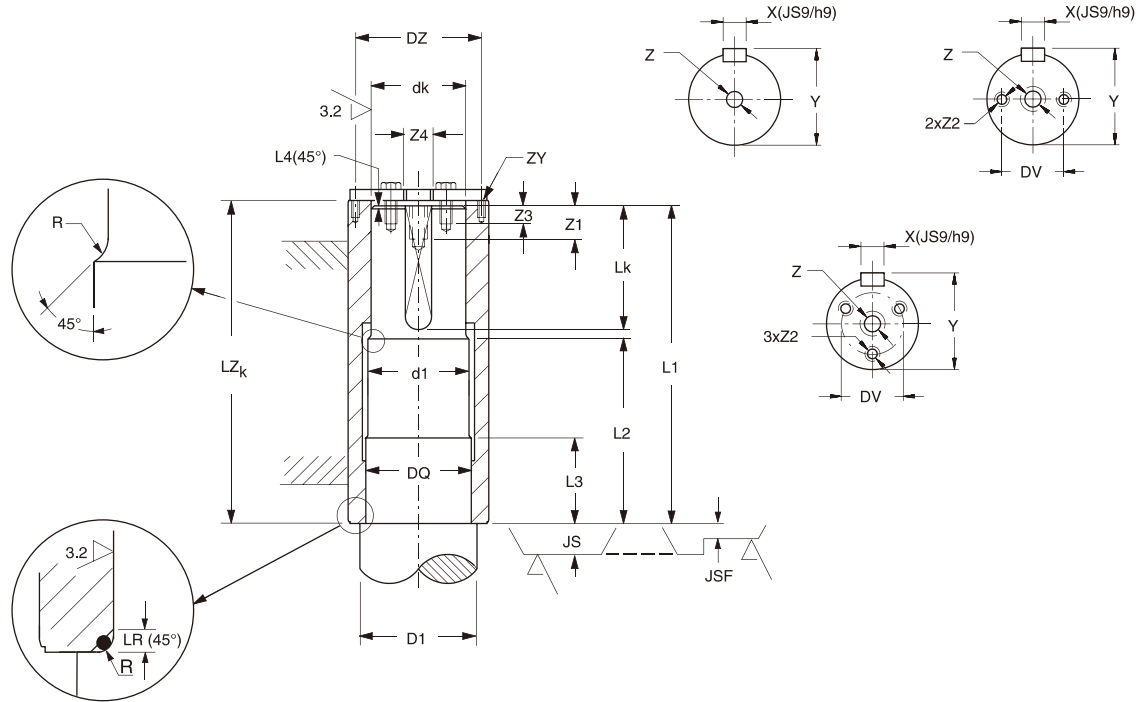
Machine shaft dimensions

机械轴尺寸

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Certified dimensions upon request.

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可按要求提供详细尺寸



Type 类型	Hollow shaft - 空心轴						
	JS (2)	JSF (3)	LZ _k	LR	ZY	DZ	Z4
QV.C..	6	1	493	6	4 x M10	120	M30
QV.D..	8	3	554	6	4 x M12	145	M30
QV.E..	15	10	620	6	4 x M12	165	M36
QV.F..	22	17	683	6	6 x M12	190	M36
QV.G..	25	20	744	6	4 x M16	210	M36
QV.H..	20	15	754	7	4 x M16	230	M42
QV.J..	23	18	847	7	6 x M16	250	M42
QV.K..	23	18	847	7	6 x M16	280	M42
QV.L..	20	15	989	7	6 x M20	300	M42
QV.M..	20	15	989	7	6 x M20	320	M42

(1) Keyways compl. with ISO/R773-1969
(2) For QV... and QV...C executions
(3) For QV...F execution

Type 类型	Machine shaft - 机械轴																
	dk h6	d1	DQ h7	D1 min	L1	L2	L3	L4	Lk	R	Z	Z1	Z2	Z3	DV	X	Y
QV.C..	100	114	115	130	490	323	134	3	145	5	M24	50	-	-	-	28	106
QV.D..	115	129	130	145	551	359	157	3	170	5	M24	50	-	-	-	32	122
QV.E..	135	149	150	165	616	400	178	4	195	5	M30	60	2xM12	25	95	36	143
QV.F..	155	169	170	185	679	428	212	4	230	5	M30	60	2xM16	30	105	40	164
QV.G..	175	188	190	205	740	464	235	4	255	5	M30	60	2xM16	30	125	45	185
QV.H..	195	208	210	230	749	429	279	5	300	6	M36	75	3xM16	30	145	45	205
QV.J..	215	228	230	250	842	502	296	5	320	6	M36	75	3xM16	30	165	50	226
QV.K..	235	258	260	280	842	477	308	5	335	6	M36	75	3xM16	30	185	56	247
QV.L..	255	278	280	300	984	554	374	5	400	6	M36	75	3xM24	35	180	56	267
QV.M..	275	298	300	320	984	484	441	5	470	6	M36	75	3xM24	35	200	63	287

(1) 键槽符合ISO/R773-1969标准
(2) 适用于QV...和QV...C型减速机
(3) 适用于QV...F型减速机类型