KPM
德 国 康 普 曼®

Value in Cooperation

60多年专注于动力传动系统
解决方案和用户服务

Planetary Gear Box
行星减速机

M2C
Made to Customer
为用户专业订制

www.kpmdrive.com
所有产品系列样本可直接在网站下载

Company profile

KPM Antriebstechnik is a manufacturing group with German technology. With more than 60 year experience in research, development, innovation and system design, KPM maintains a leading position in designing and manufacturing of power transmission products.

KPM Strengths:

- Designing all gear box with the most advanced material and heat treatment. KPM uses the highest quality bearing and seals according to German DIN standard.
- All gears are calculated, designed, stimulated and analyzed by sophisticated KISSSOFT and KIMOS.
- KPM has patent protected CAVEX® worm gearing.
- We can produce and provide Made to Costumer (M2C) and system solutions of power transmission.
- We offer highly flexible couplings manufactured with state of the art rubber vulcanization and two-mass torsional vibration calculation.

In the last six years in China, KPM has becomes the standard of high quality, high stability and high performance.

Planetary gear box catalogue

The catalogue presents the range of planetary gear box used in industrial and mobile applications of modular design and combines high performance with compact size. The many years experience by KPM planetary gear box testified high quality and reliability, simple installation and maintenance.

Main features:

- Aprogressive selection of sizes from 1000Nm to 450000Nm nominal torque.
- KL coaxial versions with up to 4 gear stages for ratios from 3.5 to 2000.
- KR right angle versions with up to 5 gear stages for ratios from 10 to 3000.
- Output versions: flanged gear box with female shaft, or shaft mounted with shrink disk or coupling; flanged gear box with male shaft; foot mounted version.
- Input with high speed shaft, suitable to electric and hydraulic motors, and multiple disc brake options.

Our products have been successfully applied in :
Transport, lifting, construction, agriculture, ship, ports and concrete conveying pump, truck crane and aerial work platform.

Our planetary speed reducer is also widely used in following industries: Sheet metal processing, metallurgy, plastic, sewage treatment, chemical, energy, mining and others.

公司简介

德国KPM传动是一家具有60多年研发、创新和领先设计的制造联合体，能够为用户提供专业机械动力传动的系统解决方案，始终处于该行业的领先地位。

我们的优势：

- 减速机的DIN标准设计及选材、先进的热处理技术、世界顶级品牌轴承和密封件。
- 行星轮系经过先进软件系统（KISSSOFT&KIMOS)进行齿形计算、设计、模拟、分析和验证。
- 具有专利技术的尼曼齿形蜗轮蜗杆CAVEX®的制造及运用。
- 为用户专业订制的M2C提供减速机和动力传动系统方案。
- 高弹联轴器的橡胶硫化制造工艺及多质点扭振计算。

走入中国6年来，KPM品牌已成为行业高质量、高稳定性以及高性价比的标志。

行星齿轮减速机概述

本样本列出了德国KPM传动在工业及移动工况上使用的行星减速机系列。这里集合了紧凑、高性能模块化设计的全系列减速机。多年来的商业成功证实了产品的优良、可靠、简易安装和维护。KPM的行星减速机保证了各种工况的适宜运行和低噪音。

此系统的主要特点为：

- 不断增大的机型，额定扭矩从1000Nm到450000Nm。
- KL直线型直到4级传动，速比从3.5到2000。
- KR直角型直到5级传动，速比从10到3000。
- 输出形式：内孔输出的带法兰减速机，带锁紧盘的轴安装减速机或直接联轴。实心轴的带法兰减速机，地脚安装等。
- 输入形式：高速输入轴，电动，液压马达的接盘；多碟制动器等多种输入、输出选择和标准附件。

我们的产品被成功应用于：
运输、起重、建筑、农业、船舶、港口以及混凝土输送泵、汽车起重机和高空作业台等。

我们的行星减速机还被广泛应用于下列行业：
钣金加工、冶金、污水处理、塑料工业、化工、能源、采矿等。

Commonly used symbols and units
常用符号和单位

Symbol 符号	Unit 单位	Description 说明
F_{r2}	[N]	Radial load on output shaft 输出轴径向负载
F_{a2}	[N]	Axial load on output shaft 输出轴轴向负载
F_{r1}	[N]	Radial load on input shaft 输入轴径向负载
F_{a1}	[N]	Axial load on input shaft 输入轴轴向负载
f_s	-	Load factor 载荷系数
i_e	-	Effective reduction ratio 有效减速比
K_f	-	Output life correction factor 输出寿命修正系数
L_{min}	[mm]	Torque arm length 扭矩臂长度
Mt_{max}	[Nm]	Shrink disc torque 锁紧扭矩
T_f	[Nm]	Static braking torque 静态制动扭矩
T_1	[Nm]	Input torque 输入扭矩
T_2	[Nm]	Output torque 输出扭矩
T_{eq}	[Nm]	Equivalent torque 等效扭矩
T_{ISO}	[Nm]	ISO limit torque ISO极限扭矩
T_{cont}	[Nm]	Continuous torque 持续扭矩
T_{max}	[Nm]	Maximum torque 最大扭矩
T_{imp}	[Nm]	Impact torque 冲击扭矩
T_M	[Nm]	Maximum load torque 最大负载扭矩
T_b	[Nm]	Static braking torque 静态制动扭矩
n_1	[RPM]	Input speed 输入速度
n_2	[RPM]	output speed 输出速度
n_{1max}	[RPM]	Maximum input speed 最大输入速度
n_{2max}	[RPM]	Maximum output speed 最大输出速度
$n_1.h$	[RPM.h]	Input speed and time indicator 输入持续时间指标
$n_2.h$	[RPM.h]	Output speed and time indicator 输出持续时间指标
h	[h]	Hour 小时
h_i	-	Percentage of time 时间百分率
P_1	[KW]	Input power 输入功率
P_2	[KW]	Output power 输出功率
P_d	[KW]	Power loss 损耗功率
P_t	[KW]	Thermal power 热功率
Q	[$l.min^{-1}$]	Oil flow 油液流量
V	[cm^3]	Displacement 排量
X	[mm]	Distance 作用距离
η_m	-	Mechanical efficiency 机械效率
η_v	-	Volumetric efficiency 容积效率
η_t	-	Total efficiency 总效率
p	[bar]	Pressure 压力
p_b	[bar]	Maximum pressure 最大压力
p_{max}	[bar]	Total release of pressure 总释放压力

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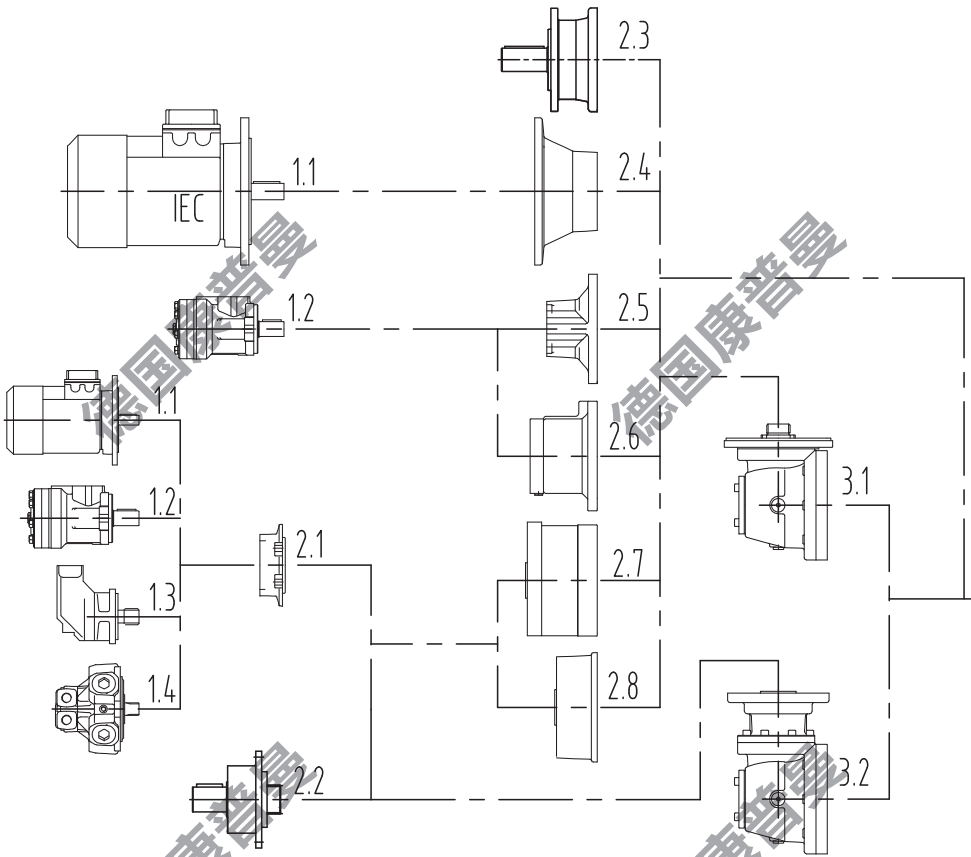
1 DESCRIPTION OF GEAR BOX
结构组合图



1、Motors / 马达

1.1-Electric motor
电机

1.2-Orbit motor
摆线马达

1.3-Axial piston motor
轴向柱塞马达

1.4-Radial piston motor
径向柱塞马达

2、Inputs/输入端

2.1-motor coupling
马达接盘

2.2-Standard input-shaft connection
标准输入轴

2.3-Input shaft
输入轴

2.4-Electric motor coupling
电机法兰

2.5-Orbit motor flange
摆线马达法兰

2.6-Orbit motor static brake interface
摆线马达接口静态制动器

2.7-Standard input static brake
标准输入接口静态制动器

2.8-Standard input connections
标准输入接口

3、Reduction gear units / 齿轮减速单元

3.1-Bevel gear shaft directly enter
锥齿轮直接轴输入

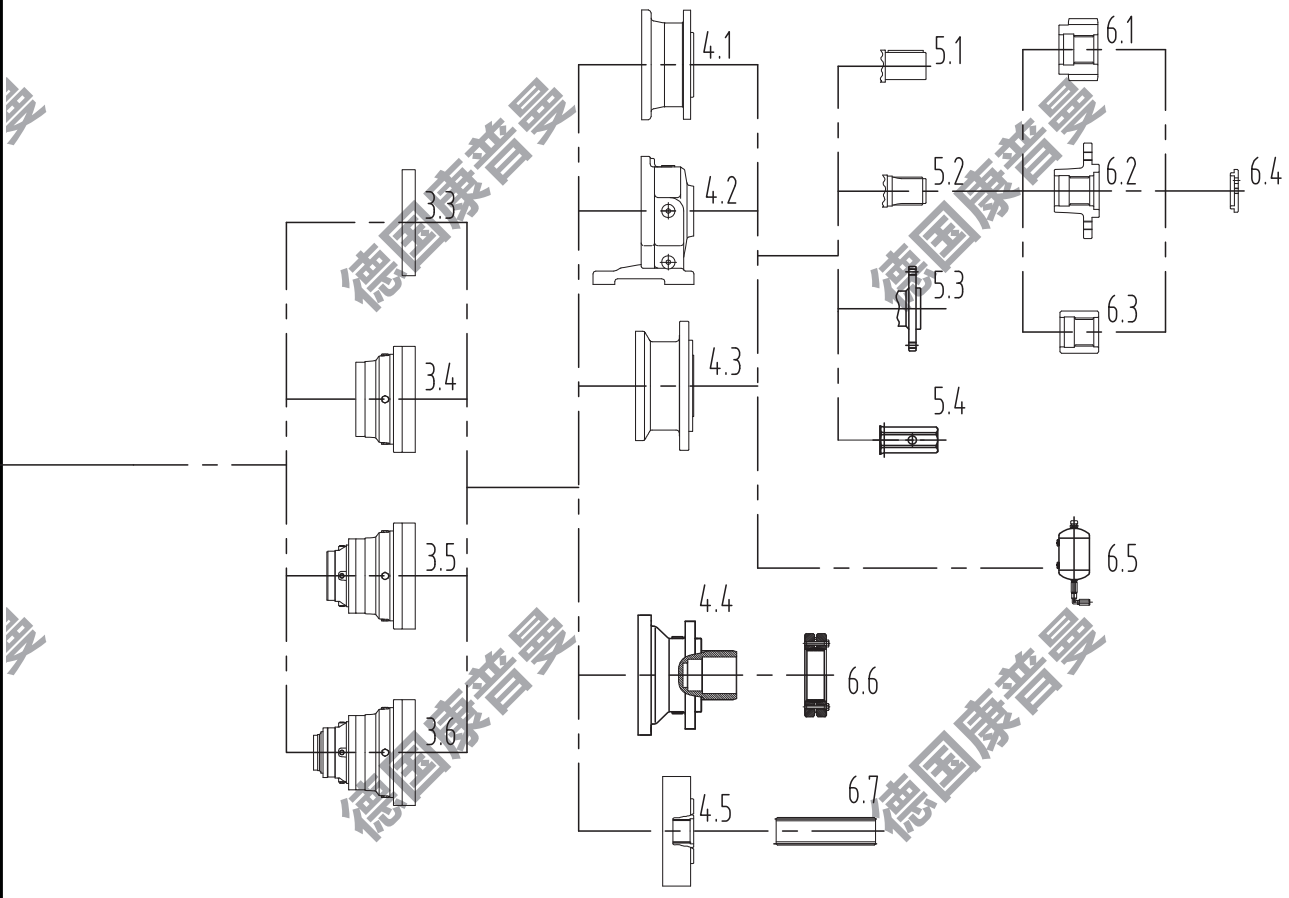
3.2-Bevel gear flange connection
锥齿轮法兰连接

3.3-Single-stage planetary reduction unit
单级行星减速单元

3.4-Two-stage planetary reduction unit
两级行星减速单元

3.5-Three-stage planetary reduction unit
三级行星减速单元

3.6-Four-stage planetary reduction unit
四级行星减速单元



4、Outputs / 输出端

4.1-"S"Output
"S"法兰输出

4.2-"B"Output
"B"底脚输出

4.3-"SA"Output
"SA"加强法兰输出

4.4-"SD" flange hollow shaft outputs
"SD"法兰空心轴输出

4.5-"H" flange hollow spline output
"H"法兰空心花键输出

5、Output shaft / 输出轴

5.1-Solid keyed shaft
平键输出轴

5.2-Splined male shaft
外花键输出轴

5.3-Flange output shaft
法兰盘输出轴

5.4-Hexagon shaft
六角输出轴

6、Accessaries / 附件

6.1-Pinion
输出小齿轮

6.2-Drive flange
法兰盘

6.3-Splined bush
外圆衬套

6.4-Pressing plate
压板

6.5-Oil storage tanks
储油罐

6.6-Friction shrink disc
胀紧盘

6.7-DIN spindle shaft
DIN花键接轴

2 ORDER NUMBER
订货编号

KL		2	050	H		21	ME	IEC132	B3	BF

Accessaries / 附件

G FL BS

EP BF TS

Installation methods / 安装方式

Motor models / 马达型号

Inputs / 输入端

IS ME MO KPB2 KPB5 IC

Reduction ratio / 减速比

A-Enhanced / 加强型

Outputs / 输出端

SI SP H

Size / 规格尺寸

015、025、050、070、100、160、260、330、400、500.....

No Of Reductions / 减速级

1-2-3-4-5

B-Foot installation type (Ellipsis as flange straight form)
底脚安装形式 (省略为法兰直联形式)

Version / 传动类型

KL-Linear / 直线型

KR-Right angle / 直角型

3 TECHNICAL DESCRIPTION

3.1 Reduction ratio i_{eff}

This is the ratio between input and output speed.
Contact KPM Antriebstechnik for the availability of more ratios.

3.2 Nominal power P_2 [KW]

This is the combination of the torque value relevant to 10000h operation at the output speed. In case the nominal power value in the application exceeds the relevant gear box thermal rating, an additional auxiliary oil cooling system must be added.

3.3 Nominal torque T_N[Nm]

This torque determines the size of gear box and corresponds to the limit torque according to ISO.(D.P.6336) of the strongest ratio of each size.

3.4 Max. torque T_{2MAX}[Nm]

Max. permissible output torque, as peak or for short period of time. Involving frequent starts or reversals, also the max. operational torque must be opportunely limited according to the fatigue resistance of the gears or shafts.

3.5 Output torque T_2[Nm]

The output torque is referred. 10000 hours of operation, calculated according to ISO.(D.P.6336).
This value is for gear box with inline and right-angle versions according to the different input speeds.

3.6 Thermal rating P_T[KW]

The permitted power that can be transmitted continuously relevant to the max. permissible temperatures for the gear box.

技术描述

3.1 速比 i_{eff}

它是减速机输入与输出转速的比值。
若有更多速比需求，请联系KPM公司。

3.2 额定功率 P_2 [KW]

减速机一定输出转速和扭矩下运转10000h时的一个综合值在某些工况中，当减速机的额定功率大于热功率时，须提供辅助冷却回路。

3.3 额定扭矩 T_N[Nm]

定义减速机机型的常规扭矩值。根据ISO(D.P.6336)对应每个型号的最强速比的限定扭矩值。

3.4 最大扭矩 T_{2MAX}[Nm]

作为峰值，或短期的最大允许扭矩。
对含有多次起动及反转的驱动类型的最大值。
工作扭矩须受限于齿或轴的疲劳强度。

3.5 输出扭矩 T_2[Nm]

根据ISO(DP6336)标准，10000小时运转状态下计算出的减速机输出扭矩。
这里给出了不同输入转速下使用系数为1时直线型、垂直型减速机的输出扭矩值。

3.6 热功率 P_T[KW]

减速机能够连续运转的功率，在给定的运转条件下，对应于减速机的最大允许温度。

3.6 Thermal Rating P_T [KW]

The thermal ratings of the gear box are given in the tables summarizing the technical performance of the various reduction stages.

The values refer to a continuous use of the gear box:

- With splash lubrication and horizontally mounted
- At a gear box input speed of 1500min
- At an ambient temperature of 20℃
- For a max. oil temperature of 80℃
- In the an open space

3.6.1 K-Factor

If the ambient temperature is different to 20℃, the gear box thermal rating can be adjusted to the specific application by K factor.

Hours of work per day	Ambient temperature[℃]				
	10°	20°	30°	40°	50°
10	1.15	1	0.85	0.7	0.6
8	1.25	1.1	1	0.85	0.7
6	1.4	1.25	1.1	1	0.85
4	1.6	1.4	1.25	1.1	1
2	1.8	1.6	1.4	1.25	1.1

3.6.2 U factor

If the input speed is different to 1500rpm, the thermal rating can be adjusted to be specific situation by U factor

	n_1[rpm]			
	1750	1500	1000	500
U	0.94	1	1.05	1.1

3.6.3 T factor

If the gear box is located in a confined space or outdoors, the thermal rating can be modified by T factor.

	Small space	Large space	Outdoors
T	0.70	1.00	1.35

In the most general case the adequate thermal rating of the gear box will be:

$$P_{T1} = P \cdot K \cdot U \cdot T$$

The thermal rating must be higher than the power P to be transmitted in all operating cycle conditions. For selecting the circuits, see the Chapter: Lubrication.

$$P < P_{T1}$$

3.6 热功率 P_T [KW]

表中给出了不同级数的减速机的热功率，也总结了其技术性能。

此值基于减速机连续运转：

- 溅油润滑、水平安装
- 输入1500min^{-1}
- 环境温度20℃
- 最高油温80℃（VG150粘度）
- 在空旷的环境使用。

3.6.1 K系数：

对于减速机间隙工作或环境异于20℃，热功率值可借助于K系数来调整。

3.6.2 U系数：

若输入转速异于1500rpm，热功率可借U系数调整。

3.6.3 T 系数

若减速机位于紧凑或室外空间，热功率可借T系数调整。

这样通常情况下：

在所有的工作状态下，热功率都须大于额定功率；若热功率小于额定功率，即使为工作状态中的一部分，也要求附加强冷回路。

3.7 Torque

3.7.1 T_{iso}= Limit torque:

In continuous operation, according to the ISO DP633 gear and safety factor for the 1, calculated by the reducer torque transmission. The working life of the torque corresponding to the deceleration, which is equivalent to the $5X10^6$ duty cycle under extreme conditions. This torque does not mean that sustained life, but it can be used to quickly select the maximum size of the reducer.

3.7.2 T_{cont}= Continuous torque:

In continuous operation, the torque transmitted. Reducer output speed "n" RPM, T_{cont} to ensure the continued life of the reducer for the "h" the continued the torque T_{cont} to functional form $n_2 \cdot h$.

3.7.3 T_{eq}= Equivalent torque:

T_{eq}=A constant torque value, which determines the duty cycle caused by the same duration. $T_{21}...T_{2n}$, gear box the known duration of h_i hours output speed n_{2i} transmit torque. Torque calculation equation is as follows:

$$T_{eq}=\sqrt[6.61]{\frac{n_{21}\cdot h_1}{n_2\cdot h}\cdot T_{21}^{6.61}+...+\frac{n_{2n}\cdot h_n}{n_2\cdot h}\cdot T_{2n}^{6.61}}$$

Among

$$n_2\cdot h=\sum_{i=1}^{n} n_{2i}\cdot h_i$$

3.7.4 T_{imp}= Impact torque:

The maximum torque can transmited in a short time.

3.8 Efficiency

η_m= Mechanical efficiency: the ratio of output power to input power; generally it is considered as equal to 0.97-0.98 in each reduction level, used to compensate for the loss of the reducer; it depends on various factors, such as speed, torque, reduction ratio, work location and lubrication.

3.9 Speed

n_1= Input speed: the input speed of gear box.

n_{2max}= The maximum output speed: the maximum output speed: of the continuous operation of the reducer; match with the duty cycle, at or near maximum speed.

3.7 扭矩

3.7.1 T_{iso}= 极根扭矩:

在连续运转中，根据ISODP633中的齿轮和安全系数为1时，计算得到的减速机传递扭矩。该扭矩对应的减速机工作寿命，相当于极端条件下$5X10^6$工作周期。这个扭矩不代表持续寿命，但它用于快速选择最大尺寸的减速机。

3.7.2 T_{cont}= 持续扭矩:

在连续运转中，减速机的可传递扭矩。在减速机输出转速为"n"RPM时，T_{cont}保证了减速机持续寿命为"h"持续扭矩T_{cont} 以$n_2 \cdot h$的函数形式表示。

3.7.3 T_{eq}= 等效扭矩:

T_{eq}=表明了恒定扭矩的值，它决定了工作周期导致的相同持续时间。如所知的$T_{21}...T_{2n}$齿轮箱在持续时间h_i小时内以输出速度n_{2i}来传递扭矩。扭矩计算等式如下:

$$T_{eq}=\sqrt[6.61]{\frac{n_{21}\cdot h_1}{n_2\cdot h}\cdot T_{21}^{6.61}+...+\frac{n_{2n}\cdot h_n}{n_2\cdot h}\cdot T_{2n}^{6.61}}$$

其中:

$$n_2\cdot h=\sum_{i=1}^{n} n_{2i}\cdot h_i$$

3.7.4 T_{imp}= 冲击扭矩:

减速机在短时间内能传递的扭矩的最大值。

3.8 效率

η_m=机械效率：输出功率与输入功率的比值；一般它被认为在每个减速级中等于0.97-0.98，用来弥补减速机的损耗；它取决于各种因素，如速度、扭矩、减速比、工作位置和润滑。

3.9 速度

n_1=输入速度：减速机的输入速度。

n_{2max}=最大输出速度：持续运转的减速机的最大输出速度；与工作周期相匹配，能达到或接近的最大转速。

3.10 Life factor

Factor resulting by multiplying angular speed at input (n_1) or output (n_2) by actual operating working hours(h), break times excluded.

$$Fn_1=(n_1 \cdot h)$$
$$Fn_2=(n_2 \cdot h)$$

Life factor is directly proportional to gear box rpm during the whole duty time.

3.10 使用寿命

3.10.1 n_2 · h= 输出持续时间指标：

输出速度和持续时间(小时为单位)的乘积，不含停机时间。

$$Fn_1=(n_1 \cdot h)$$
$$Fn_2=(n_2 \cdot h)$$

寿命和减速机运转转速成正比。

4 SERVICE FACTOR

4.1 Application factor K_A

The application factor is defined by the type of prime motor and driven machine. This is the experience of the various applications and the variations of load, transmission impacts and uncertainly relative to the variation of parameters involved in the transmission of power.

If any special technical requirement, please consult KPM Antriebstechnik.

The following table gives several application factors:

4 服务系数

4.1 工况系数 K_A：

此系数由工作机和原动机的类型来定义。此值由不同工况的历史经验并考虑负载的变化及传输的冲击，参数变化等不定因素而定出的实验数据。此中的原动机通常为电机或液压马达这样的标准驱动，工作机的类型对定义K_A起到了决定性的作用。它乘以额定扭矩(或功率)后得到一参考值，来和样本值比较。

对于特殊类别的原动机，及设定寿命不同于10000小时，请和KPM公司联系。

下表给出了一些工况参数值：

Angetriebene Maschine K_A 工作机	
Cranes 起重机	
Dry dock 干坞	
Main Hoist 主提升	2.5
Auxiliary hoist 辅助提升	2.5
Continuous screw operation 连续螺旋运转	1.75
Intermittent screw operation 间隙螺旋运转	1.75
Industrial Duty 工业负载	
Main 主	2.5
Auxiliary 辅	2.5
Main log 主木	1.75
Slab 厚板	1.75
Transfer 传送	1.25
Debarking drums 起货卷扬	1.75
Planer feed 给料	1.25

Angetriebene Maschine K_A 工作机	
Cable reel 卷轴	1.25
Conveyors 输送机	1.25
Cutter head drives 切割头驱动	2
Screen drives 筛驱动	1.75
Stackers 塔式	1.25
Winches 卷扬机	1.25
Elevators 升降机	
Bucket 斗轮	1.25
Escalators 扶梯	1
Extruders 挤出机	
General 一般	1.5
Plastics 塑料	
Variable speed drive 变速驱动	1.5
Fixed speed drive 定速驱动	1.75

Angetriebene Maschine K_A 工作机	
Rubber 橡胶	
Slitters 切机	1.25
Feeders 给料机	
Apron 板式	1.25
Belt 皮带	1.25
Boom Hoist 吊杆提升	2.5
Slewing Drive 回转	2.5
Traction 索引	3
Container 集装箱	
Agitators / Mixer 搅拌机	
Pure liquids 纯液体	1
Liquid and solids 固液体	1.25
Liquid-variable density 变粘度液体	1.25
Dredges 挖泥	

Angetriebene Maschine 工作机	KA
Worm conveyor 蜗轮输送机	1
Uniformly loaded or fed 规则加载或给料	1
Not uniform fed 不规则给料	1.25
Reciprocating or shaker 直线往复或摇动	1.25
Hoists 起升	
Heavy duty 重载	1.75
Medium duty 中型负载	1.25
Skip hoist 翻斗提升	1.25
Laundry 洗涤	
Tumblers 滚筒	1.25
Washers 洗涤器	1.5
Food industry 食品工业	
Cereal cooker 谷类加工	1
Dough mixer 生面搅拌	1.25
Meat grinders 碎肉	1.25
Plastic industry 塑料工业	
Batch mixers 间隙搅拌	1.75
Continuous mixers 连续搅拌	1.5
Calenders 抛光机	1.5
Rubber industry 橡胶工业	

Angetriebene Maschine 工作机	KA
Sand muller 粉沙机	1.25
Conveyors-general pourpose 输送机	
Bridge 桥	3
Trolley Travel 小车行走	3
Crusher 破碎机	
Stone or ore 石头或矿石	1.75
Mills.rotary type 旋转磨机	
Cement Kilns 水泥窑	1.5
Dryers & coolers 干燥和冷却	1.5
Agitator(mixer) 搅拌	1.5
Screw 螺旋	1.25
Lumber industry 伐木	
Conveyors-burner 锯屑输送	1.25
Main or heavy duty 中或重载	1.5
Vibrating 振动	2
Size press 压型	1.25
Super calender 超级抛光机	1.25
Thickener(AC motor) 稠化（交流电机）	1.5
Thckener(DC motor) 稠化（直流电机）	1.25
Transfers-chain 传送--链	1.5

Angetriebene Maschine 工作机	KA
Metal mills 冶金厂	
Reversing 转炉	2
Slab pushers 厚板推送	1.5
Shears 剪床	2
Wire drawing 拖绳	1.25
Wire Winding machine 卷绳机	1.5
Metal strip processing machinery 金属处理机	
Coilers & uncoilers 卷绳或放绳	1
Edge trimmers 修棱	1.25
Flatteners 平整机	1.25
Pinch rolls 箍筒机	1.25
Scrap choppers 碎片切割	1.25
Shears 飞剪	2
Scum breakers 碎渣机	1.5
Slow or rapid mixers 快/慢搅拌	1.5
Thickeners 稠化	1.5
Vacuum filters 真空过滤	1.5
Agitator for pure liquors 纯液体搅拌	1.25
Chipper 切	2
Chip feeder 切机给料	1.5

Angetriebene Maschine 工作机	K_A
Coating rolls 着色筒	1.25
Conveyor 输送	
Chip.bark.chemical 碎片剥离	1.25
Log(including slab) 伐木（含厚板）	2
Dryers 干燥机	
Paper machine 纸机	1.25
Conveyor type 输送机型	1.5
Screen 筛	
Washer(AC motor) 洗涤（交流电机）	1.5
Washer(DC motor) 洗涤（直流电机）	1.25
Clay working machine 土工作业	
Brick press 压砖	1.75

Angetriebene Maschine 工作机	K_A
Briquette machine 煤机	1.75
Compactors 压机	2
Sewage disposal equipment 污水处理设备	
Bar screens 格珊	1.25
Air washing 气洗	1
Rotary-stone or gravel 旋转-石或砂砾	1.25
Sugar industry 制糖业	
Beet slicer 甜菜切片	2
Cane knives 茎切刀	1.5
Mills(low speed end) 磨机（低速端）	1.75

C_S factor

This factor covers the number of starts per hour of gear box.

系数 C_S：

此系数考虑了一定时间内的起停次数。

	Starts per hour			
	1-5	6-25	26-100	101-200
Cs	1	1.05	1.15	1.25

Temperature [℃]

The ideal operating temperature is between 45℃ cand 70℃. If any other temperature is required, please contact KPM Antriebstechnik. See chapter: Lubrication.

温度[℃]

理想的运转温度是45℃至70℃，短时间可达80℃。让温度处于可控的最佳系统是使用附加的冷却系统。在低温(低于-15℃)或高温(80℃之上)须使用特殊油封、材料、油品。此特殊情况请事先沟通KPM公司并见润滑系统章节。

5 VERIFICATION

5.1 Gear Box output options

Each reducer, according to the ISO 0281 standard and sustained life L10 corresponding to $n_2 \cdot h = 100{,}000$ dynamic radial load torque given in the parameter list of the reducer.

Refer to different life dynamic radial load can be got from the table and adjusted by k_f factor.

Note the ultimate axial load, should not exceed the allowable range.

5.2 Output torque

Output torque must always be less than T_{max}. If equipped with a brake on the gear box or motor, you must ensure that the braking torque does not exceed the maximum torque of the gear box, of course, braking force should multiplied by 1.1. In considering the actual braking torque efficiency of the gear box must be cared.

5.3 Input speed

Should not exceed the maximum input speed of the gear box.

5 论证

5.1 减速机的输出选择

对每个减速机而言，根据ISO 0281标准与持续寿命L10相对应的$n_2 \cdot h=100000$条件下，动态径向负载扭矩均在各减速机参数表中给出。

对不同的持续寿命来说，适用的动态径向负载可以通过表中所示的值和修正系数K_f的乘积来获得。

注意最终的轴向负载，必须确定它们不能超过最大的允许值范围。

5.2 输出扭矩

输出扭矩必须永远小于T_{max}。如果在减速机或马达上装有制动器，必须确保制动扭矩不超过减速机最大扭矩，当然制动器本身制动力须乘以1.1。在考虑实际的制动扭矩时，也必须注意减速机的效率。

5.3 输入速度

不得超过减速机的最大输入速度。

6 MOTOR SELECTION METHOD

6.1 Hydraulic drive

If you know the pressure of the hydraulic circuit (motor pressure difference may be from), the torque T_1, the input speed of n_1, hydraulic motors capacity must be greater than or equal to:

$$V = \frac{20 \cdot \pi \cdot T_1}{P \cdot \eta_m}$$

Where η_m is mechanical efficiency of the motor.

Flow is:

$$Q = \frac{V \cdot n_1}{1000 \cdot \eta_v}$$

Where η_v is volumetric efficiency of the motor. Please use the following table as a guide when choosing the hydraulic motor.

6 马达选择方法

6.1 液压驱动

如果知道液压回路压力（应就是马达的工作压力）、扭矩T_1、减速机所需的输入速度n_1，那么液压马达的容量一定大于等于：

$$V = \frac{20 \cdot \pi \cdot T_1}{P \cdot \eta_m}$$

其中η_m是马达的机械效率。

必须的供给流量是：

$$Q = \frac{V \cdot n_1}{1000 \cdot \eta_v}$$

其中η_v为马达的容积效率。在选择液压马达时请用下表作为指导。

The average efficiency of the hydraulic motor 液压马达的平均效率						
Use 使用	Light 轻型		Medium-sized 中型		Heavy 重型	
Pressure(bar) 压力（bar）	<175		75-200		200-450	
Motor type 马达类型	orbit motor 摆线马达	Gear Motor 齿轮马达	Radial piston motor 径向柱塞马达	Axial piston motors 轴向柱塞马达	Cam motor 凸轮马达	Shaft piston motors 轴身柱塞马达
Speed[rpm] 转速[rpm]	<700	<3000	<500	<4000	<200	<4000
η_m	0.80	0.85	0.90	0.92	0.90	0.92
η_v	0.90	0.87	0.96	0.96	0.95	0.96

6.2 Motor drive

With continuous load S1, we know (the CEI 2-3/IEC34-1 standard) know that the mechanical efficiency of the reducer η_m torque T_1 and the output speed n_2, then the actual power of the electric motor must be greater than:

$$P = \frac{T_2 \cdot n_2}{9550 \cdot \eta_m}$$

Load classification for different loads must be determined corresponding to the (CEI 2-3/IEC34-1 standard); In such cases, we recommend to contact KPM in order to make better choices.

6.2 电机驱动

在持续的S1负载中(CEI 2-3/IEC34-1标准)知道减速机的机械效率η_m、扭矩T_1和输出速度n_2，那么电机的实际功率一定大于：

$$P = \frac{T_2 \cdot n_2}{9550 \cdot \eta_m}$$

对于不同的负载必须确定对应于(CEI2-3/IEC34-1标准)的载荷分类；在这类情况下，建议与KPM联系，以便做更好的选择。

7 BRAKE CHOOSE

- Brake torque calculated on pilot pressure 0 bar.
Effective torque decreased in back pressure circuit should be calculation as following:

Effective torque = static torque X (opening pressure - back pressure) / opening pressure

- The brake torque must greater than or equal to the motor torque:

$$T_f \geq T_1$$

- The brake torque multiplied by the ratio and divided by the gear box mechanical efficiency must greater than or equal to the output torque:

$$T_f \cdot i_e / \eta_m \geq T_2$$

- Brake torque multiplied by the ratio and divided by the output mechanical efficiency, must not exceed 90% of the the gear box impact output torque:

$$T_f \cdot i_e / \eta_m < 0.9 T_{2imp}$$

Brake lubrication
- Gear box oil does not provide brake lubrication, so it must be injected (about 0.08L) viscosity index of ISO VG32 mineral oil, or other suitable lubricating oil.

7 制动器选择

必须考虑下列参数：
- 制动扭矩以先导压力0bar时计算为准；在液压回路中背压情况下，有效扭矩值的减少如下所示：

有效扭矩 = 静态扭矩X（开启压力-背压）/开启压力

- 制动器扭矩必须大于或等于马达扭矩：

$$T_f \geq T_1$$

- 制动器扭矩乘以减速比再除以齿轮箱的输出机械效率，必须大于或等于输出扭矩：

$$T_f \cdot i_e / \eta_m \geq T_2$$

- 制动器扭矩乘以减速比再除以减速机的输出机械效率，必须不超过90%的减速机瞬时冲击输出扭矩：

$$T_f \cdot i_e / \eta_m < 0.9 T_{2imp}$$

制动器润滑
- 齿轮箱油液不提供制动器的润滑，因此必须注入（大约0.08升）粘度指标为ISO VG32的矿物油，或者换用其它合适的润滑油。

8 SHIPMENT CONDITION

The gear box are painted externally "red" or unpainted unless specified in the contract, special painting is required for particular aggressive conditions.

8 供货条件

除了合同上特别指明减速机出厂时外部涂红色油漆或不喷漆。若要用于特殊环境中，则需要特种漆。减速机外部的工作部件，如空心、实心的轴端，支持架，止口面等，须用防氧化油保护，减速机体内的零件已涂有防锈漆，运动件由防氧化油保护。除非合同上特别指定；减速机供货时不带润滑油。KPM的产品根据要求用盒子或托盘包装。除非合同中特别指明，KPM的产品用适合一般工业环境的材料包装。

9 STORAGE CONDITION

Protect the shafts with anticorrosive protection liquids if storing. Store in a dry place with temperature between 0℃ and +20℃ Keep the packages away dirt, dust and damp.

9 存储条件

若产品储存，则须对露外部件进行防腐保护。应保存在0℃至20℃的干燥环境中。存储应远离脏、灰及潮湿环境。

10 INSTALLATION

The gear box must be carefully installed by well trained mechanic.
The structures for fixing gear box must be rigid, perfectly flat machined unpainted support surfaces. Normal with driven shaft, and with centering to tolerame H8 The contact surfaces must be duly and perfectly greased.
The gear box must be carefully aligned with the driven shaft. For fixing, use screws of class min.10.9 with tightening at 75% yielding.
During assembly, violent axial impacts must absolutely be avoided since they could damage the internal bearings In order to avoid misalignment, we recommend to use coupling connecting gear box and motor.

10 安装

减速机须由经过培训的技工小心安装。
安装的结构必须稳固，平整未喷漆的支撑表面，通常对被驱动轴和止口面公差为H8。接触面须准时完好地涂脂。减速机须和被驱动轴仔细对中，特别是内孔花键输出轴，记住，不能承受任何外力。
固定，请使用至少10.9级的螺栓，并预紧到75%。安装时，轴向冲击严格禁止，因为这可能损坏内部轴承。
安装在平键输出轴上的控制件须根据“输出结构”的参数来使用。连接减速机和马达时，我们建议使用联轴器来弥补不对中。
当使用的机械元件不能弥补不对中时，请在安装时特别小心马达和减速机的对中。

11 LUBRICATION

KPM Antriebstechnik gear box are supplied without lubricant. Therefore, correct filling is important.

Fundamental characteristics of the oils

- Additives
- Viscosity at working conditions

The oil must lubricate the bearings and the gears and all components inside the box.

Additives:

In addition to the normal antifoaming and antioxidant additives, it is important to use lubricating oils with additives that provide EP (extreme pressure) and anti-wear properties, according to DIN51517-3CLP.

Viscosity:

Nominal viscosity is referred to a temperature of 40℃. but rapidly decreases with an increase in temperature. if the operating temperature is between 50℃ and 70℃, a nominal viscosity can be chosen according to the following guide table ,choosing the highest viscosity if the highest temperature is foreseen.

$N_{2[rpm]}$	50℃	70℃
n2>20	VG 150	VG 220
20>n2>5	VG 220	VG 320
5>n2	VG 320	VG 460

Types of oils

The oils available generally belong to three big families.

1) Mineral oils
2) Poly-Alpha-Olefin synthetic oils (PAO)
3) Poly-Glycol synthetic oils (PG)

The choice of lubricants

Gear box with lower load and temperature , discontinuous operating cycle can be lubricated with mineral oil.

In cases of heavy use, when the gear box are very loaded and in a continuous way, it is recommended to use polyalphaolefin synthetic lubricants (PAO). poly-Glycol oils (PG) are used strictly in the applications with heavy sliding between contacts.

11 润滑

KPM减速机出厂时都不带润滑油，因此使用者在运转机器前必须正确注入润滑油。

选油时须考虑的重要性能：

油的基本特征

- 一般运转条件下的粘度
- 添加剂

在不同的动作条件下，油必须润滑轴承，齿轮及同一箱体中运转的所有元件：

添加剂：

除了一般的防泡化和防氧添加剂，根据DIN515173CLP标准，合理使用耐压和防腐损添加剂是很重要的。因此，转速越慢，越要使用耐压越强特性的润滑油(关系齿轮的SHC)。请记住，强压的损坏将造成油品化学成分的改变。

粘度：

通常粘度是指40℃时的运动粘度。温度升高、粘度迅速下降。

油的类型

市场上的油一般分为三类

1）矿物油
2）聚α烯烃合成油 (PAO)
3）聚乙二醇合成油 (PG)。

润滑油的选择

使用的工况决定选择。减速机无特别的负载，非连续工作时，无大的温升范围，一般采用矿物油。若减速机重载且连续运转，温升较大，推荐用PAO。PG严格地限定使用在接触面有重压滑动的场合，如蜗杆。不同油品不能混用，但都不能与水混合，故须特别小心。这种现象是十分危险的，因它不易被发觉，但能十分迅速地降低油的润滑性能。

Oil change

Oil change the oil first after 100-150 hous operattion. subseguadly, change the oil every 2000-4000 hours. depanding on applibution. Alternatively change oil once a year, check the oil level everymonth and top up as necenary.

润滑油的更换

齿轮箱在初始运转150小时后须更换一次润滑油，然后根据齿轮箱工作状况，在运转2000或4000小时后换油，且至少每年更换一次。为了方便排空齿轮箱润滑油，我们建议润滑油在温热时进行更换；在灌注新油前须清洗干净齿轮箱内部。不同的润滑油不能混合在一起，特别是矿物油和合成油。在齿轮箱运行一段时间后，必须定期检查润滑油位，如有必要请加满润滑油。

Lubricating Oil Temperature

Recommended operating temperature -15℃ - +40℃

润滑油油温

标准齿轮箱推荐的运行温度为-15℃ - +40℃

12 INDICATIONS OF OIL LEVEL WITHOUT AUXILIARY COOLING SYSTEM

Horizontal mounting

Position of oil level

With horizontal mounting of the gear box, the normal level for guaranteeing correct lubrication is at the centre line, Fig. D. It's easy to check oil level with a transparent oil tube.

For applications with very low output speed (n_2<5rpm), it is recommended to fix the level at a value higher than 50 to 100mm, Fig.

If the output speed is extremely low (n_2<1rpm), or if no use for long time is foreseen,it is advisable to fill the entire box. In this case a special auxiliary tank must be provided. For any further technical support, please contact KPM Antriebstechnik.

12 不带辅助冷却系统的油位图

水平安装

油位

对于水平安装的减速机，保证正确润滑的正常油位在中心线，(见D部分图)。对特低输出转速(n_2<5rpm),建议油位高出(中心线)50至100mm(见D部分图)。用一个透明的油(见D部分图)可以很容易地检查油位。

若输出速度特别低（n_2<1rpm)或停用时间长，建议注满整箱。这时，须加膨胀油杯。如需技术支持，请联系KPM公司。

13 SELECTING THE REDUCTION GEARS

To choose a gear box, a given application and data is necessary.

- input speed n_1 [$min4^{-1}$];
- required out speed n_{2r} [$min4^{-1}$];
- required out torque T_{2r} [Nm];
- the duration required h_r [h];
- the service factor K_A, calculated on the basis of the application and conditions of use.

With these data, selection ratio required:

$$i_r = \frac{n_1}{n_{2r}}$$

the corrected output torque:

$$T_{2c} = T_{2r} \cdot K_A$$

and the duration factor:

$$f_{h\cdot 2} = n_{2r} \cdot h_r$$

Choose a gear size from the nominal torque table that has a nominal torque greater than T_{2c}.

Then, from the technical table (at the beginning of the size wanted) select a reduction ratio i near to ir make sure that the transmissible output torque T_{2c} is greater than T_{2c} mean while check the $n_2 \cdot h$ related greater than or equal to the calculated f_{h2}.

Example

You want to choose a linear reduction gear that works under following conditions:

- input speed n_1 = 1000 min^{-1}
- required out speed n_{2r} = 6.3 min^{-1}
- required out torque T_{2r} = 3000 Nm
- the duration required h_r 10000 h
- service factor K_A = 1.25

13 产品选型

减速机的选型，一些给定的参数是必须的：

- 输入转速 n_1 [min^1]；
- 理论输出转速 n_{2r} [min^1]；
- 理论输出扭矩 T_{2r} [Nm]；
- 理论适用寿命 h_r [h]；
- 工况系数 K_A，由减速机的型号和使用环境决定。

根据这些参数，我们可以确定理论的减速比：

$$i_r = \frac{n_1}{n_{2r}}$$

修正后的输出扭矩：

$$T_{2c} = T_{2r} \cdot K_A$$

以及使用寿命参数：

$$f_{h\cdot 2} = n_{2r} \cdot h_r$$

从选型样本中选择减速机系列，使所选系列的减速机额定扭矩T_{2n}大于上述计算的修正后的输出扭矩T_{2c}。然后从选型样本的参数表内选择减速比i，使所选的速比接近需要的理论速比i_r，同时必须确保在使用寿命参数$n_2 \cdot h$大于或等于计算值$f_{h\cdot 2}$的情况下，该速比对应的持续传递扭矩T_{cont}大于修正后的输出扭矩T_{2c}。

选型示例

如果您想选择一款直线型的减速机，其使用条件如下：

- 输入转速 n_1 =1000min^1
- 理论输出转速 n_{2r} =6.3 min^1
- 理论输出扭矩 T_{2r} =3000Nm
- 理论使用寿命 h_r 10000h
- 工况系数 K_A =1.25

The reduction ratio required is :

$$i_r = \frac{n_1}{n_{2r}} = \frac{1000}{6.3} = 158.73;$$

while the corrected torque is:

$$T_{2c} = T_{2r} \cdot K_A = 3000X1.25 = 3750\ Nm$$

and the duration factor is equivalent to:

$$f_{h\cdot 2} = n_{2r} \cdot h_r = 6.3X10000 = 63000$$

From the nominal torque table select a reduction gear size which has a nominal torque T_{2n} greater than T_{2c}. In this case the suitable size is 050.

In the techincal table of the 050 size, there is a triple stage linear reduction gear (L_3) with a 160.00 ratio, close to required, in the column relative $n_2 \cdot h = 100000 > f_{h\cdot 2}$. You can read the value of the applicable torque T_2 which is 4836 Nm.

则理论减速比为:

$$i_r = \frac{n_1}{n_{2r}} = \frac{1000}{6.3} = 158.73;$$

修正后的输出扭矩为:

$$T_{2c} = T_{2r} \cdot K_A = 3000X1.25 = 3750\ Nm$$

使用寿命参数为:

$$f_{h\cdot 2} = n_{2r} \cdot h_r = 6.3X10000 = 63000$$

从选型样本中选择减速机系列，使所选系列的减速机额定扭矩T_{2n}大于上述计算出的修正后的输出扭矩T_{2c}。本例中适合选用 050 系列。

在050系列减速机的技术参数表中，有一款减速比为160.00的直线型三级减速机(L_3)，其速比最接近需要的理论速比；同时在使用寿命$n_2 \cdot h = 100000 > f_{h\cdot 2}$的情况下，该速比对应的持续传递扭矩$T_{cont}$大于修正后的输出扭矩$T_{2c}$。从参数表中您可以读出所选减速机适用的扭矩为4836Nm。

14 RATIO TABLE

You can read the value of the applicable torque T_2 which is 4836 Nm.

14 速比表

从参数表中您可以读出所选减速机适用的扭矩为4836Nm。

KL050 **T_2=5000 Nm**

	i	T_{cont} [Nm]						Pt	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
L1	3.50	4834	4577	4423	4320	3857	3137	11	3100	
	4.13	5969	5660	5454	5351	3808	3087	11	3100	
	4.57	5394	5115	4929	4836	3441	2790	11	3100	1140
	5.17	4768	4521	4357	4275	3042	2466	11	3100	1140
	6.00	4108	3896	3754	3683	2621	2125	11	3100	610
	7.25	3400	3224	3107	3048	2169	1759	11	3100	
L2	14.03	5646	5646	5454	5351	3808	3087	9	4000	520
	18.27	5969	5660	5454	5351	3808	3087	9	4000	430
	20.24	5394	5115	4929	4836	3441	2790	9	4000	340
	22.88	4768	4521	4357	4275	3042	2466	9	4000	250
	24.50	4260	4260	3728	3621	2876	2343	9	4000	250
	29.97	4768	4521	4357	4275	3042	2466	9	4000	250
	36.17	4768	4521	4357	4275	3042	2466	9	4000	160
	41.14	4326	4326	3785	3677	2920	2379	9	4000	160
	46.50	4768	4521	4357	4275	3042	2466	9	4000	160
	54.00	4108	3896	3754	3683	2621	2125	9	4000	160
→ L3	52.85	5394	5115	4929	4836	3441	2790	7.5	4000	160
	77.50	4834	4577	4423	4320	3857	3137	7.5	4000	160
	89.90	4834	4577	4423	4320	3857	3137	7.5	4000	160
	103.13	5969	5660	5454	5351	3808	3087	7.5	4000	160
	114.29	5394	5115	4929	4836	3441	2790	7.5	4000	160
	138.77	5969	5660	5454	5351	3808	3087	7.5	4000	160
	153.78	5394	5115	4929	4836	3441	2790	7.5	4000	160
	160.00	5394	5115	4929	4836	3441	2790	7.5	4000	160
	167.48	6052	6052	5296	5144	4085	3329	7.5	4000	160
	173.81	4768	4521	4357	4275	3042	2466	7.5	4000	160
	185.60	5394	5115	4929	4836	3441	2790	7.5	4000	160
	202.13	5027	5027	4398	4273	3393	2765	7.5	4000	160
	220.50	4260	4260	3728	3621	2876	2343	7.5	4000	160
	253.17	4768	4521	4357	4275	3042	2466	7.5	4000	160
	288.00	5394	5115	4929	4836	3441	2790	7.5	4000	160
	325.50	4768	4521	4357	4275	3042	2466	7.5	4000	160
L4	360.24	5646	5646	5454	5351	3808	3087	6	4000	160
	400.09	4108	3896	3754	3683	2621	2125	9	4000	160
	456.70	5969	5660	5454	5351	3808	3087	6	4000	160
	499.13	5969	5660	5454	5351	3808	3087	6	4000	160
	563.87	5394	5115	4929	4836	3441	2790	6	4000	160
	639.38	5969	5660	5454	5351	3808	3087	6	4000	160
	721.88	5969	5660	5454	5351	3808	3087	6	4000	160
	821.33	5394	5115	4929	4836	3441	2790	6	4000	160
	891.94	5394	5115	4929	4836	3441	2790	6	4000	160
	1010.63	5969	5660	5454	5351	3808	3087	6	4000	160
	1172.33	5969	5660	5380	5157	3808	3087	6	4000	160
	1275.43	5394	5115	4929	4836	3441	2790	6	4000	160
	1568.00	5394	5115	4867	4728	3441	2790	6	4000	160
	1851.43	5394	5115	4929	4836	3441	2790	6	4000	160
	2016.00	5394	5115	4867	4728	3441	2790	6	4000	160
	2278.50	4768	4521	4357	4275	3042	2466	6	4000	160
	2592.00	5394	5115	4867	4728	3441	2790	6	4000	160
	2929.50	4768	4521	4357	4275	3042	2466	6	4000	160

Since this value is greater than torque T_{2c} the reduction gear box selected is suitable for working at the conditions required.

由于该值大于扭矩T_{2c}，所以选用的减速机是符合条件需求的。

Pag C .1

KL 015

	i_e	T_{iso}
1	3.40	1300
	3.67	1400
	4.43	1700
	5.00	1400
	5.80	1250
	7.00	1500
	9.00	800
2	12.47	1300
	18.33	1400
	22.14	1700
	25.69	1750
	31.00	1780
	33.64	1250
	39.86	1750
	45.00	1400
	52.20	1200
	63.00	1000
3	51.19	1300
	62.33	1300
	77.98	1400
	86.85	1700
	105.40	1300
	128.43	1700
	145.00	1400
	175.00	1400
	195.11	1200
	217.00	1700
	245.00	1400
	284.20	1200
	302.76	1200
4	255.97	1300
	263.68	1400
	276.05	1300
	296.93	1300
	320.22	1300
	333.41	1300
	359.56	1400
	404.60	1300
	443.67	1600
	460.75	1600
	553.57	1300
	616.73	1600
	765.00	1300
	948.60	1300
	1023.00	1400
	1258.60	1784
	1340.79	1784
	1588.59	1784
	1722.60	1400
	2080.54	1784

Pag C .9

KL 025

	i_e	T_{iso}
1	3.50	2100
	4.13	2600
	4.57	2400
	5.17	2100
	6.00	1800
	7.25	1500
2	12.84	2900
	18.27	2600
	20.25	2400
	22.88	2100
	24.50	2100
	29.97	2100
	36.17	2100
	41.14	2400
	46.50	2100
	54.00	1800
3	52.85	2400
	77.50	2100
	89.90	2100
	103.13	2600
	114.29	2400
	138.77	2600
	153.78	2400
	160.00	2400
	167.48	2600
	173.81	2100
	185.60	2400
	202.13	2600
	220.50	2100
	253.17	2100
	288.00	2400
	325.50	2100
4	360.24	2600
	400.09	1800
	456.70	2600
	499.13	2600
	563.87	2400
	639.38	2600
	721.88	2600
	821.33	2400
	891.94	2400
	1010.63	2600
	1172.33	2600
	1275.43	2400
	1568.00	2400
	1851.43	2400
	2016.00	2400
	2278.50	2100
	2592.00	2400
	2929.50	2100

Pag C .18

KL 050

	i_e	T_{iso}
1	3.50	4300
	4.13	5300
	4.57	4800
	5.17	4200
	6.00	3600
	7.25	3000
2	14.03	5300
	18.27	5300
	20.24	4800
	22.88	4200
	24.50	3600
	29.97	4200
	36.17	4200
	41.14	3600
	46.50	4200
	54.00	3600
3	52.85	4800
	77.50	4300
	89.90	4300
	103.13	5300
	114.29	4800
	138.77	5300
	153.78	4800
	160.00	4800
	167.48	5100
	173.81	4200
	185.60	4800
	202.13	4200
	220.50	3600
	253.17	4200
	288.00	4800
	325.50	4200
4	360.24	5300
	400.09	5200
	456.70	5200
	499.13	5200
	563.87	5800
	639.38	5300
	721.88	5300
	821.33	5800
	891.94	4700
	1010.63	5300
	1172.33	5100
	1275.43	4800
	1568.00	4700
	1851.43	4800
	2016.00	4700
	2278.50	4200
	2592.00	4700
	2929.50	4200

Pag C .27

KL 070

	i_e	T_{iso}
1	3.50	7700
	4.13	9500
	5.17	7600
	6.00	6500
	7.25	5400
2	12.25	7500
	14.44	7700
	17.02	9500
	18.08	7400
	21.31	8800
	25.38	5300
	27.43	8600
	31.00	7600
	37.46	7600
	43.50	6500
3	44.92	7500
	49.00	7500
	54.25	7500
	63.94	7700
	75.36	9500
	80.08	7700
	90.75	7600
	109.37	9500
	132.00	9500
	143.55	7600
	149.19	8800
	165.33	8600
	186.86	7600
	192.00	8400
	212.57	8600
	222.75	7600
	246.86	8400
	269.16	6200
	279.00	7600
	337.13	7600
4	184.45	7500
	276.30	9500
	319.69	7700
	354.29	7700
	400.27	7700
	464.00	7700
	505.31	7700
	634.35	9500
	792.45	8000
	909.56	7700
	1062.86	8600
	1157.33	8600
	1488.00	8600
	1692.74	8600
	1913.14	8600

Pag C .36

KL 100

	i_e	T_{iso}
1	3.50	10500
	3.78	11400
	4.13	10400
	5.17	8300
	6.00	7200
2	12.25	10500
	14.44	10500
	17.02	10400
	18.08	10500
	21.31	10400
	25.38	10500
	27.43	9400
	31.00	8300
	37.46	8300
	43.50	7200
3	44.92	10500
	49.00	10500
	54.25	10500
	63.94	10500
	75.36	10400
	80.08	10500
	90.38	11400
	109.37	10400
	132.00	10400
	143.55	10400
	149.19	10400
	158.67	11400
	175.67	11400
	186.86	8300
	192.00	9400
	212.57	9400
	246.86	9400
	269.16	10400
	279.00	8300
	337.13	8300
4	184.45	10500
	276.30	10400
	319.69	10500
	354.29	10500
	400.27	10500
	462.78	10500
	505.31	10500
	545.42	10400
	634.35	10400
	792.45	11400
	909.56	10500
	1062.86	9400
	1157.33	9400
	1488.00	9400
	1913.14	9400

Pag C .44

KL 160

	i_e	T_{iso}
1	3.72	15000
	4.09	16500
	4.58	14700
	5.25	12800
	6.23	10800
2	13.02	15000
	14.32	16500
	16.88	16500
	18.70	16500
	21.14	16500
	21.81	10800
	27.47	14700
	33.20	13900
	38.06	12800
	45.17	10800
3	44.27	15000
	56.21	15000
	71.59	16500
	80.44	14700
	89.00	15000
	93.51	16500
	109.55	14700
	121.41	14700
	147.95	16500
	157.33	12800
	165.61	14700
	171.82	15000
	189.88	12800
	207.61	12400
	220.50	12800
	232.38	13900
	247.26	14700
	298.78	13900
	342.56	12800
4	216.19	16500
	256.06	15000
	281.33	15000
	311.77	15000
	358.88	16500
	401.63	16500
	463.50	14700
	506.39	15000
	567.68	16500
	654.55	16500
	711.03	16500
	801.01	15000
	906.19	13700
	1003.28	15000
	1103.32	16500
	1234.94	14700
	1331.59	16500
	1415.93	12800
	1543.50	12800
	1644.30	12800
	1730.84	14700
	1944.00	12800
	2091.43	13900
	2225.37	14700

Pag C .52

KL 260

	ie	Tiso
1	3.69	23600
	4.04	26600
	4.50	23900
	5.12	21000
	6.00	17900
2	14.15	26600
	16.68	26600
	21.11	21000
	26.44	21000
	30.71	21000
	32.63	23900
	37.10	21000
	43.50	17900
3	45.23	23600
	53.31	23600
	59.08	23600
	64.97	23900
	76.25	26600
	86.18	26600
	95.50	26600
	106.29	23900
	114.46	23600
	125.35	26600
	138.31	23600
	149.14	23900
	158.65	21000
	168.56	23900
	184.24	21000
	195.75	23900
	222.62	21000
	236.53	23900
	269.00	21000
4	295.69	23600
	304.70	26600
	350.18	26600
	403.83	23600
	499.82	26600
	550.85	23600
	603.24	26600
	655.85	19600
	700.53	26600
	755.57	26600
	801.23	23600
	877.43	26600
	900.69	26600
	998.16	26600
	1110.86	23900
	1206.11	26600
	1342.29	23900
	1526.52	21000
	1725.29	21000
	2003.56	21000

Pag C .58

KL 330

	ie	Tiso
1	3.69	36400
	4.04	39900
	4.50	35800
	5.12	31400
	6.00	26800
2	14.15	39900
	16.68	39900
	21.11	38200
	26.44	31400
	30.71	31400
3	45.23	36400
	53.31	36400
	59.08	36400
	63.77	36400
	73.12	39900
	86.18	39900
	95.50	38200
	106.29	35800
	114.46	30800
	125.35	33800
	138.31	30800
	148.50	26800
	158.65	31400
	168.56	35800
	184.24	31400
	195.75	32400
	222.62	31400
4	210.97	36400
	219.97	38200
	245.03	30800
	319.16	36400
	350.18	38200
	403.83	34900
	450.74	35800
	499.82	39900
	550.85	36400
	603.23	39900
	710.30	33800
	795.43	31400
	900.68	39900
	998.16	38200
	1110.86	35800
	1231.24	35800
	1341.89	35800
	1517.06	35800
	1725.29	30500
	2003.56	31400

Pag C .65

KL 400

	ie	Tiso
1	4.18	40100
	4.89	34300
	6.00	28000
2	19.15	40100
	21.95	40100
	25.67	34300
	27.47	28000
	31.50	28000
	37.38	28000
3	54.45	40100
	64.17	40100
	70.57	40100
	78.99	40100
	87.54	40100
	92.34	34300
	102.34	34300
	113.43	40100
	124.03	40100
	138.83	40100
	145.00	34300
	159.17	40100
	186.08	34300
	220.85	34300
4	185.12	40100
	218.18	40100
	239.93	40100
	272.24	40100
	296.80	40100
	332.23	34300
	372.19	40100
	421.26	40100
	458.12	40100
	507.70	40100
	552.91	40100
	599.33	34300
	653.37	40100
	716.35	34300
	804.23	40100
	928.28	34300
	1078.00	34300
	1249.43	40100
	1432.53	40100
	1674.75	34300
	1987.62	34300

Pag C .72

KL 500

	ie	Tiso
1	4.04	53200
	4.50	47700
	5.12	42000
	6.00	35800
2	16.54	53200
	18.51	53200
	21.23	52000
	25.19	43800
	28.04	47700
	31.89	42000
	37.39	35800
3	52.65	53200
	64.80	53200
	75.62	53200
	95.66	53200
	111.09	53200
	121.07	42000
	134.23	53200
	140.60	42000
	153.91	52000
	171.28	47700
	182.66	43800
	194.79	42000
	203.28	47700
	231.18	42000
4	302.18	53200
	334.88	53200
	382.64	53200
	438.59	53200
	450.75	53200
	490.91	53200
	592.48	53200
	644.32	53200
	738.74	52000
	839.48	50300
	891.59	52000
	971.71	42000
	1045.72	47700
	1089.66	42000
	1189.25	42000
	1275.75	47700
	1385.14	52000
	1422.95	47700
	1541.53	47700
	1753.11	42000
	2080.62	42000

Pag C .80

KL 600

	ie	Tiso
1	4.18	68500
	4.89	58500
2	15.44	68500
	18.82	68500
	19.77	58500
	22.00	58500
	25.02	58500
	29.33	58500
3	97.23	68500
	110.57	68500
	128.41	68500
	143.32	58500
	150.12	58500
	155.16	68500
	181.39	58500
	212.67	58500
4	244.13	68500
	399.38	68500
	451.38	68500
	502.34	68500
	560.42	68500
	603.43	58500
	655.17	58500
	704.90	68500
	801.65	68500
	900.71	58500
	937.19	58500
	1088.35	58500
	1315.09	58500
	1541.83	58500

Pag C .88

KL 850

	ie	Tiso
1	4.18	79500
	4.89	68000
2	15.44	79500
	16.91	79500
	18.82	79500
	21.40	79500
	25.02	68000
	29.33	68000
3	97.23	79500
	110.57	79500
	128.41	79500
	143.32	68000
	150.12	68000
	155.16	79500
	181.39	68000
	212.67	68000
4	244.13	79500
	399.38	79500
	451.38	79500
	502.34	79500
	560.42	79500
	603.43	68000
	655.17	68000
	704.90	79500
	801.65	79500
	900.71	68000
	937.19	68000
	1088.35	68000
	1315.09	68000
	1541.83	68000

Pag C .97		
KL 1050		
	i_e	T_{iso}
1	4.09	92200
	5.25	71800
2	16.54	92200
	18.41	92200
	20.94	92200
	24.55	92200
	31.50	71800
3	57.90	92200
	68.23	92200
	95.11	92200
	125.61	92200
	138.82	71800
	189.00	71800
4	218.08	92200
	243.41	92200
	294.55	92200
	352.54	92200
	401.99	71800
	453.71	92200
	504.94	92200
	570.68	92200
	649.01	92200
	706.55	71800
	800.80	92200
	1168.74	71800

Pag C .106		
KL 1350		
	i_e	T_{iso}
1	3.83	110900
	4.40	96500
2	18.40	96500
	21.51	96500
	23.00	107200
	26.40	96500
3	65.58	110900
	73.40	110900
	80.02	96500
	84.16	110900
	96.60	96500
	112.93	96500
	120.88	96500
	134.03	96500
	164.49	96500
4	256.91	110900
	287.58	110900
	335.55	110900
	406.31	96500
	443.37	110900
	504.95	110900
	579.60	96500
	677.60	96500
	713.32	110900
	846.58	110900
	971.72	96500

Pag C .114		
KL 1800		
	i_e	T_{iso}
1	4.09	128600
	5.25	100100
2	16.54	128600
	18.41	128600
	20.94	128600
	26.87	100100
	31.50	100100
3	61.53	128600
	67.67	128600
	75.31	128600
	84.29	128600
	103.07	128600
	114.70	128600
	123.03	114800
	130.45	128600
	141.06	100100
	152.94	128600
	167.41	100100
	196.27	100100
4	281.30	114800
	317.93	114800
	398.67	128600
	454.07	114800
	505.77	128600
	558.92	114800
	629.61	128600
	738.15	114800
	831.60	128600
	891.93	114800
	945.74	128600
	1108.79	128600
	1213.69	100100

Pag C .122		
KL 2250		
	i_e	T_{iso}
1	3.83	183100
	4.40	159300
2	16.03	183100
	18.74	183100
	21.51	159300
3	59.19	183100
	69.20	183100
	75.78	183100
	82.04	183100
	95.91	183100
	110.09	159300
	129.07	159300
4	226.86	183100
	244.15	183100
	277.99	157700
	312.58	183100
	353.85	157700
	391.52	183100
	454.11	159300
	506.00	183100
	549.39	183100
	611.42	183100
	701.80	159300
	815.22	183100
	935.73	159300

Pag C .130		
KL 2700		
	i_e	T_{iso}
1	4.18	204500
	4.89	174800
2	17.49	204500
	20.44	204500
	23.90	174800
3	64.57	204500
	78.69	204500
	89.50	204500
	96.64	174800
	104.63	204500
	122.32	174800
	143.41	174800
4	225.99	204500
	275.43	204500
	322.00	204500
	395.26	204500
	426.39	204500
	536.97	204500
	633.78	204500
	733.91	174800
	860.44	174800

Pag C .139		
KL 3500		
	i_e	T_{iso}
1	3.83	373600
	4.40	325200
2	15.68	316000
	18.00	325200
	23.10	316000
3	57.90	353100
	70.57	353100
	80.25	315300
	90.56	275100
	102.99	275100
	118.22	316000
	138.60	316000
4	202.66	353100
	239.55	353100
	261.56	353100
	291.09	353100
	360.47	275100
	408.00	325200
	467.91	275100
	571.73	315300
	648.00	325200
	709.31	316000
	831.60	316000

Pag C .147		
KL 4500		
	ie	Tiso
1	3.83	317100
	4.40	276000
2	14.69	317100
	16.87	317100
	19.36	276000
3	61.45	316200
	71.84	317100
	94.65	276000
	101.20	316200
	116.16	276000
4	228.59	317100
	281.37	317100
	322.61	317100
	370.30	317100
	513.78	317100
	589.74	276000
	630.55	317100
	723.76	276000

Pag C .2		
KR 015		
	ie	Tiso
2	10.46	1300
	11.28	1400
	13.63	1700
	15.13	1700
	17.08	1400
	19.82	1200
	22.15	1200
	26.73	1000
	30.75	800
	34.36	800
3	35.57	1300
	38.36	1300
	41.37	1400
	46.33	1300
	51.45	1300
	57.49	1300
	62.64	1400
	68.13	1700
	75.65	1700
	84.55	1700
	89.23	1400
	99.08	1400
	118.36	1700
	124.92	1200
	133.64	1400
	138.72	1200
	150.50	1400
	155.02	1200
	171.82	1400
	193.85	1000
4	120.94	1300
	134.29	1300
	144.82	1300
	174.91	1300
	205.17	1300
	245.70	1400
	282.05	1400
	303.38	1300
	321.78	1400
	363.31	1400
	406.58	1300
	458.05	1400
	517.42	1300
	588.92	1400
	653.95	1400
	709.50	1400
	789.25	1400
	858.46	1700
	953.25	1700
	1065.27	1700
	1199.70	1700

Pag C .10		
KR 025		
	ie	Tiso
2	10.77	2100
	12.69	2600
	14.07	2400
	15.62	2400
	19.73	2100
	22.91	1800
	25.80	1800
	27.68	1500
	31.18	1500
3	36.62	2100
	39.49	2100
	53.10	2400
	56.21	2600
	62.29	2400
	69.17	2400
	73.62	2600
	77.30	2400
	81.58	2400
	87.27	2400
	91.35	2600
	98.64	2100
	114.42	2100
	123.57	2100
	143.08	2100
	166.15	1800
	184.50	1800
4	124.49	2100
	134.26	2100
	144.79	2100
	154.48	2100
	201.22	2100
	245.00	2100
	307.16	2100
	358.19	2100
	402.28	2100
	451.76	2900
	506.28	2100
	620.81	2600
	708.75	2600
	887.91	2600
	1026.10	2400
	1099.64	2400
	1159.71	2100

Pag C .19		
KR 050		
	ie	Tiso
2	10.77	4300
	12.69	5300
	14.07	4800
	15.62	4800
	17.65	4200
	19.73	4200
	22.91	3600
	25.80	3600
	27.68	3000
	31.18	3000
3	36.62	4300
	39.49	4300
	53.10	4800
	56.21	5300
	62.29	4800
	69.17	4800
	73.62	5300
	77.30	4800
	81.58	4800
	87.27	4800
	91.35	5300
	98.64	4200
	114.42	4200
	123.57	4200
	143.08	4200
	166.15	3600
	184.50	3600
4	124.49	4300
	134.26	4300
	144.79	4300
	154.48	4300
	201.22	4300
	269.23	4300
	306.93	4300
	370.71	4300
	451.76	5400
	506.23	5800
	620.81	5300
	708.75	5300
	815.31	3900
	1026.10	4800
	1099.64	4700
	1159.71	4200

Pag C .28		
KR 070		
	ie	Tiso
2	10.77	4500
	12.69	5300
	14.09	5900
	17.65	6750
	19.73	6650
	22.91	6500
	25.80	6550
	27.68	5400
	31.18	5400
3	37.69	7500
	44.42	7700
	52.36	9500
	58.02	9500
	72.67	8600
	80.70	8600
	90.18	8600
	104.73	8400
	113.24	6900
	126.55	6900
	143.02	7600
	166.09	6550
	187.05	6550
4	142.30	7500
	153.47	7500
	207.14	7500
	257.65	7700
	308.92	7400
	354.33	7700
	400.46	7700
	422.34	8800
	454.78	9500
	504.00	9500
	589.06	8600
	631.27	8600
	732.38	8800
	828.55	7600
	914.06	8600
	1.19.14	6900
	1138.91	6900

Pag C .37		
KR 100		
	ie	Tiso
2	10.77	4500
	11.62	4800
	12.69	5300
	17.65	6700
	19.73	6600
	25.80	7200
3	37.69	10500
	40.68	10500
	44.42	10500
	47.95	1140
	52.36	10400
	58.02	10400
	72.67	9400
	80.70	9400
	90.18	9400
	104.73	9400
	143.02	8300
	166.09	7200
	187.05	7200
4	142.30	10500
	153.47	10500
	171.65	10500
	180.70	10500
	235.33	11400
	252.42	11400
	308.81	11400
	354.33	10500
	400.46	10500
	422.34	10400
	454.78	10400
	504.00	10400
	589.06	9400
	631.27	9400
	670.73	11400
	732.38	10400
	828.55	8300
	914.06	9400

Pag C .46

KR 160

	ie	Tiso
2	11.73	6500
	12.90	7200
	14.44	8000
	16.03	8100
	18.38	9300
	20.52	9200
	21.81	10800
	24.36	10800
	28.04	10800
3	40.06	15000
	47.22	15000
	51.92	16500
	57.54	16500
	65.03	16500
	72.79	14700
	80.70	16500
	90.33	14700
	103.57	12800
	113.42	13900
	130.05	12800
	145.33	12800
	172.48	10800
4	166.33	16500
	209.10	15000
	261.63	15000
	322.16	16500
	356.13	16500
	458.66	12800
	499.83	16500
	559.46	14700
	600.70	12800
	655.14	14700
	754.77	15000
	844.82	14700
	915.56	14700
	1020.82	13900
	1140.78	13900

Pag C .53

KR 260

	ie	Tiso
2	11.64	10900
	12.75	11900
	14.19	13300
	16.14	15100
	17.91	15500
	18.92	17700
	21.00	17900
	23.45	17600
	27.00	17900
3	39.76	16700
	46.86	19700
	51.32	21600
	64.28	26600
	79.44	23900
	88.77	23900
	94.48	21000
	104.91	21000
	117.24	21000
	126.77	21000
	141.67	21000
	166.09	17900
	187.05	17900
4	139.17	23600
	164.02	23600
	193.31	23600
	214.23	23600
	234.61	26600
	281.18	23600
	300.46	23600
	326.30	26600
	364.65	26600
	405.82	23900
	457.03	23900
	511.68	26600
	569.45	23900
	600.96	26600
	651.29	26600
	703.44	21000
	756.33	26600
	792.21	21000
	849.99	21000
	903.12	23900
	957.26	21000
	1027.08	21000
	1204.16	17900

Pag C .59

KR 330

	ie	Tiso
2	11.65	47400
	12.75	24300
	14.19	27100
	16.14	30800
	17.91	31400
	18.92	26800
	21.00	26800
	23.45	26800
	27.00	26800
3	39.76	16700
	42.92	18000
	46.86	19700
	51.32	21600
	64.28	27000
	79.44	30500
	88.77	30000
	94.48	31400
	104.91	31400
	117.24	31400
4	139.17	36400
	164.02	36400
	193.31	36400
	214.23	36400
	234.61	39900
	281.18	36400
	300.46	36400
	326.30	38200
	364.65	38200
	405.82	35800
	457.03	35800
	507.52	38200
	600.96	29100
	651.29	33800
	703.44	31400
	756.33	29100
	792.21	31400
	849.99	31400
	957.26	31400

Pag C .66

KR 400

	ie	Tiso
2	13.19	25200
	14.64	26000
	15.42	29400
	17.11	30400
	18.92	28000
	21.00	28000
	23.45	28000
	27.00	28000
3	60.39	33700
	67.02	34200
	76.84	29200
	80.95	34300
	85.82	38700
	89.83	34300
	96.07	34300
	106.62	34300
	119.08	34300
	137.08	34300
	168.23	28000
4	167.53	40100
	197.45	40100
	247.31	40100
	301.99	40100
	353.51	40100
	405.31	40100
	450.07	40100
	502.96	40100
	554.52	34300
	607.74	40100
	662.20	34300
	710.50	34300
	800.16	34300
	949.64	34300
	1034.87	28000
	1165.47	28000

Pag C .73

KR 500

	ie	Tiso
3	58.39	32600
	66.95	37400
	74.30	37900
	80.55	36300
	84.74	42000
	94.04	42000
	100.57	42000
	109.60	47700
	124.65	42000
	143.49	42000
	168.23	35800
4	235.92	53200
	258.36	48600
	294.34	53200
	365.25	47700
	406.49	47700
	457.78	47700
	510.41	47700
	562.89	42000
	615.51	42000
	665.53	42000
	711.32	42000
	789.86	42000
	882.69	42000
	994.07	42000
	1034.87	35800
	1165.47	35800

Pag C .81

KR 600

	ie	Tiso
3	59.35	55700
	67.50	63400
	74.90	65000
	83.66	63100
	87.57	58500
	97.80	58500
	114.67	58500
	132.00	58500
4	250.90	58500
	265.22	68500
	299.16	68500
	371.23	68500
	405.25	58500
	461.90	58500
	512.90	58500
	573.18	58500
	619.76	58500
	667.18	68500
	779.99	58500
	914.47	58500

Pag C .89		
KR 850		
	ie	Tiso
3	59.35	55700
	67.50	63400
	74.90	65000
	83.66	63100
	87.57	68000
	97.80	68000
	114.67	68000
	132.00	68000
4	250.90	68000
	265.22	79500
	299.16	79500
	371.23	79500
	405.25	68000
	461.90	68000
	512.90	68000
	573.18	68000
	619.76	68000
	667.18	79500
	779.99	68000
	914.47	68000
5	1163.35	79500
	1314.45	68000
	1364.54	79500
	1415.03	79500
	1518.60	79500
	1617.05	79500
	1664.11	79500
	1717.32	79500
	1868.09	68000
	2200.50	79500
	2620.24	68000

Pag C .98		
KR 1050		
	ie	Tiso
3	58.06	92200
	66.03	92200
	81.84	92200
	105.03	71800
	123.14	71800
	141.75	71800
4	209.95	71800
	233.65	92200
	259.45	92200
	305.38	92200
	363.16	92200
	408.99	92200
	465.12	92200
	503.18	92200
	562.31	92200
	721.64	71800
	812.70	71800
5	804.23	92200
	858.80	92200
	959.77	92200
	1065.75	92200
	1103.12	92200
	1207.21	92200
	1325.46	92200
	1445.52	92200
	1521.49	92200
	1660.17	92200
	1755.94	92200
	1876.33	92200
	2204.98	92200
	2403.14	92200
	2813.78	71800

Pag C .107		
KR 1350		
	ie	Tiso
3	50.56	96500
	56.11	99700
	59.11	112900
	65.59	110900
	75.29	96500
	84.09	96500
	103.50	107200
4	208.71	106500
	265.42	110900
	286.93	110900
	300.35	110900
	344.36	110900
	384.61	110900
	442.75	110900
	508.20	96500
	603.14	96500
	740.22	96500
5	832.34	110900
	922.43	110900
	1024.27	110900
	1146.47	110900
	1248.78	110900
	1338.18	110900
	1412.60	96500
	2016.97	110900
	2213.97	110900
	2236.00	99200
	2839.88	96500
	3067.27	110900
	3232.39	110900
	3320.54	96500

Pag C .115		
KR 1800		
	ie	Tiso
3	66.03	126200
	82.84	114900
	94.21	128600
	105.03	100100
	123.14	100100
	141.75	100100
4	265.10	128600
	303.95	128600
	349.82	114800
	401.46	128600
	456.56	128600
	509.93	128600
	553.61	114800
	654.41	100100
	753.33	100100
	883.21	100100
5	781.01	114800
	865.54	114800
	955.86	128600
	1126.48	128600
	1255.41	114800
	1457.89	114800
	1622.49	114800
	1784.27	128600
	1981.28	128600
	2214.11	128600
	2493.51	128600
	2707.33	128600
	2818.40	114800
	3012.99	128600
	3174.06	114800

Pag C .123		
KR 2250		
	ie	Tiso
4	227.51	183100
	258.73	183100
	302.48	183100
	347.20	159300
	379.50	183100
	407.06	159300
	431.59	183100
	451.73	159300
	504.53	159300
	580.80	159300
5	698.04	183100
	776.85	183100
	862.63	183100
	915.58	183100
	1016.67	183100
	1146.78	183100
	1273.41	183100
	1423.05	183100
	1609.20	183100
	1701.18	183100
	1943.33	159300
	2150.57	159300
	2429.45	159300
	2654.92	183110
	2840.23	159300
	3047.39	159300
	3197.09	159300
	3431.94	159300

Pag C .131		
KR 2700		
	ie	Tiso
4	247.49	204500
	282.25	204500
	313.23	204500
	366.20	204500
	409.00	204500
	434.90	174800
	470.82	204500
	501.93	174800
	560.59	174800
	645.33	174800
5	958.11	204500
	1109.10	204500
	1239.43	204500
	1302.00	204500
	1422.75	204500
	1552.42	204500
	1663.31	204500
	1765.50	204500
	1931.58	204500
	2064.01	204500
	2258.67	174800
	2514.67	204500
	2896.28	204500
	3029.92	174800
	3199.09	174800
	3552.32	174800

Pag C .140		
KR 3500		
	ie	Tiso
4	222.56	282400
	275.86	353100
	313.72	353100
	361.14	353100
	437.12	316000
	472.02	275100
	541.08	316000
	623.70	316000
5	804.81	338400
	994.57	353100
	1111.45	353100
	1275.83	353100
	1392.12	353100
	1500.46	316000
	1700.63	325200
	1901.81	275100
	2229.23	275100
	2427.55	353100

Pag C .148		
KR 4500		
	ie	Tiso
4	222.45	317100
	260.06	317100
	288.61	317100
	308.58	317100
	322.34	317100
	371.07	317100
	454.08	276000
5	800.07	317100
	910.03	284000
	1017.46	317100
	1129.13	317100
	1320.05	317100
	1411.71	317100
	1515.19	317100
	1722.95	317100
	1948.10	317100
	2236.08	276000
	2533.18	276000

KL015 **T_2=1500 Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.40	1367	1367	1367	1300	1300	1075	7.5	4000	430	
	3.67	1476	1476	1476	1400	1400	1160	7.5	4000	430	
	4.43	1923	1923	1816	1784	1298	1058	7.5	4000	520	
	5.00	1704	1704	1491	1448	1150	937	7.5	4000	520	
	5.08	1469	1469	1285	1249	992	808	7.5	4000	340	
	7.00	1217	1217	1065	1035	822	669	7.5	4000	250	
	9.00	947	947	828	805	639	521	7.5	4000	160	
L2	12.47	1367	1367	1367	1300	1300	1075	7.5	4000	160	
	18.33	1476	1476	1476	1400	1400	1160	7.5	4000	160	
	22.14	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	25.69	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	31.00	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	33.64	1469	1469	1285	1249	992	808	7.5	4000	160	
	39.86	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	45.00	1704	1704	1491	1448	1150	937	7.5	4000	160	
	52.20	1469	1469	1285	1249	992	808	7.5	4000	160	
	63.00	1217	1217	1065	1035	822	669	7.5	4000	160	
L3	51.19	1367	1367	1367	1300	1300	1075	7.5	4000	160	
	62.33	1367	1367	1367	1300	1300	1075	7.5	4000	160	
	77.98	1476	1476	1476	1400	1400	1160	7.5	4000	160	
	86.85	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	105.40	1367	1367	1367	1300	1300	1075	7.5	4000	160	
	128.43	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	145.00	1704	1704	1491	1448	1150	937	7.5	4000	160	
	175.00	1704	1704	1491	1448	1150	937	7.5	4000	160	
	195.11	1469	1469	1285	1249	992	808	7.5	4000	160	
	217.00	1923	1923	1816	1784	1298	1058	7.5	4000	160	
	245.00	1704	1704	1491	1448	1150	937	7.5	4000	160	
	284.20	1469	1469	1285	1249	992	808	7.5	4000	160	
	302.76	1469	1469	1285	1249	992	808	7.5	4000	160	
L4	255.97	1367	1367	1367	1300	1300	1075	6	4000	160	
	263.68	1476	1476	1476	1400	1400	1160	6	4000	160	
	276.05	1367	1367	1367	1300	1300	1075	6	4000	160	
	296.93	1367	1367	1367	1300	1300	1075	6	4000	160	
	320.22	1367	1367	1367	1300	1300	1075	6	4000	160	
	333.41	1367	1367	1367	1300	1300	1075	6	4000	160	
	359.56	1476	1476	1476	1400	1400	1160	6	4000	160	
	404.60	1367	1367	1367	1300	1300	1075	6	4000	160	
	443.67	1476	1476	1476	1600	1400	1160	6	4000	160	
	460.75	1367	1367	1367	1600	1300	1075	6	4000	160	
	553.57	1923	1923	1816	1300	1298	1058	6	4000	160	
	616.73	1476	1476	1476	1600	1400	1160	6	4000	160	
	765.00	1367	1367	1367	1300	1300	1075	6	4000	160	
	948.60	1367	1367	1367	1300	1300	1075	6	4000	160	
	1023.00	1476	1476	1476	1400	1400	1160	6	4000	160	
	1258.60	1923	1923	1816	1784	1298	1058	6	4000	160	
	1340.79	1923	1923	1816	1784	1298	1058	6	4000	160	
	1588.59	1923	1923	1816	1784	1298	1058	6	4000	160	
	1722.60	1476	1476	1476	1400	1400	1160	6	4000	160	
	2080.54	1923	1923	1716	1784	1298	1058	6	4000	160	

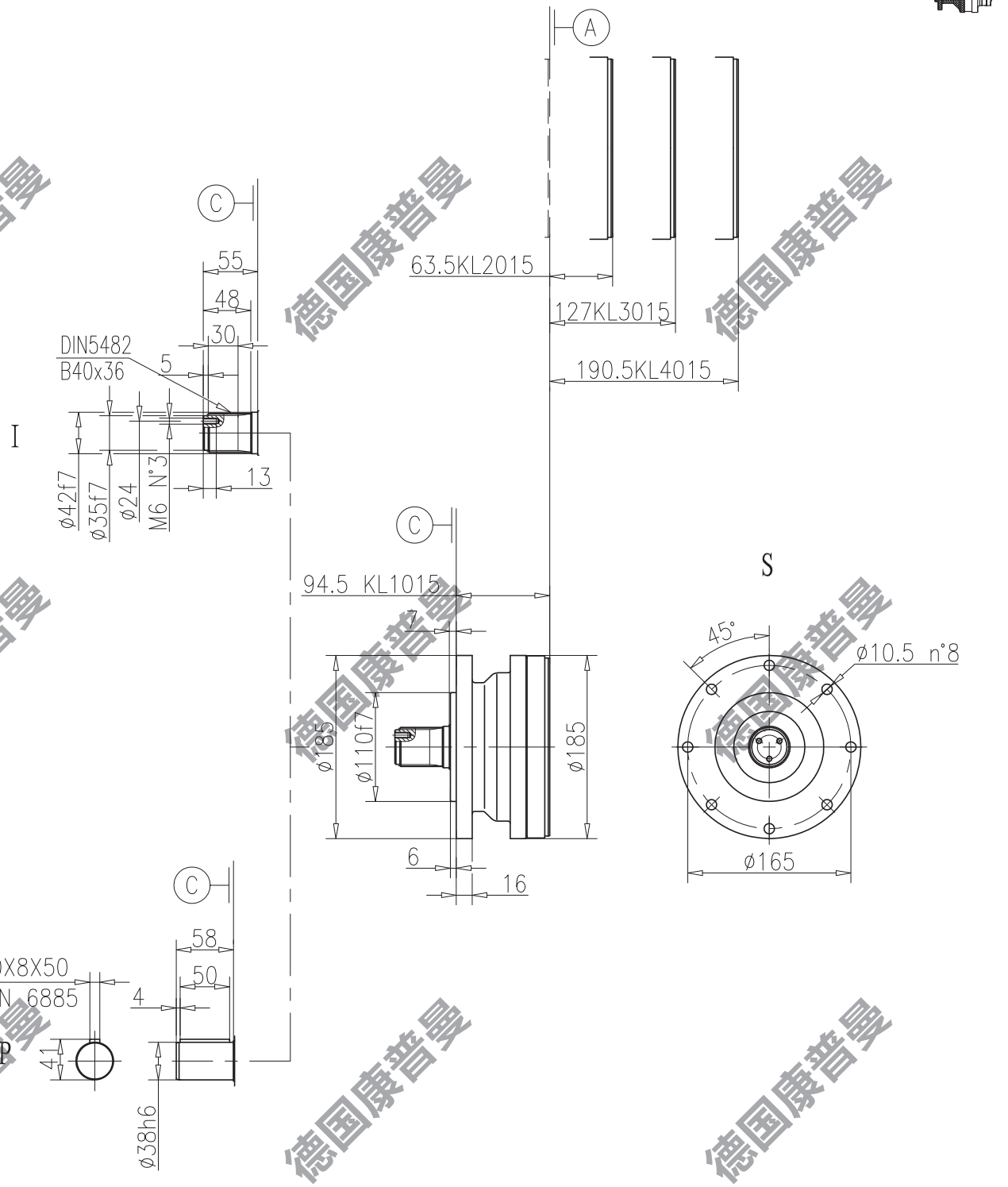
$$T_{2max}=1.2 \cdot T_{n2}(n2 \cdot h=10000)$$

T_2=1500 Nm **KR015**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R2	10.46	1367	1367	1367	1300	1300	1075	12	4000	160
	11.28	1476	1476	1476	1400	1400	1160	12	4000	160
	13.63	1923	1923	1816	1784	1298	1058	12	4000	160
	15.13	1923	1923	1816	1784	1298	1058	12	4000	160
	17.08	1704	1704	1491	1448	1150	937	12	4000	160
	19.82	1469	1469	1285	1249	992	808	12	4000	160
	22.15	1469	1469	1285	1249	992	808	12	4000	160
	26.73	1217	1217	1065	1035	822	669	12	4000	160
	30.75	947	947	828	805	639	521	12	4000	160
	34.36	947	947	828	805	639	521	12	4000	160
R3	35.57	1367	1367	1367	1300	1300	1075	12	4000	160
	38.36	1367	1367	1367	1300	1300	1075	12	4000	160
	41.37	1476	1476	1467	1400	1400	1160	12	4000	160
	46.33	1367	1367	1367	1300	1300	1075	12	4000	160
	51.45	1367	1367	1367	1300	1300	1075	12	4000	160
	57.49	1367	1367	1367	1300	1300	1075	12	4000	160
	62.64	1476	1476	1476	1400	1400	1160	12	4000	160
	68.13	1923	1923	1816	1784	1298	1058	12	4000	160
	75.65	1923	1923	1816	1784	1298	1058	12	4000	160
	84.55	1923	1923	1816	1784	1298	1058	12	4000	160
	89.23	1704	1704	1491	1448	1150	937	12	4000	160
	99.08	1704	1704	1491	1448	1150	937	12	4000	160
	118.36	1923	1923	1816	1784	1298	1058	12	4000	160
	124.92	1469	1469	1285	1249	992	808	12	4000	160
	133.64	1704	1704	1491	1448	1150	937	12	4000	160
	138.72	1469	1469	1285	1249	992	808	12	4000	160
	150.50	1704	1704	1491	1448	1150	937	12	4000	160
	155.02	1469	1469	1285	1249	992	808	12	4000	160
	171.82	1704	1704	1491	1448	1150	937	12	4000	160
	193.85	1217	1217	1065	1035	822	669	12	4000	160
R4	120.94	1367	1367	1367	1300	1300	1075	10	4000	160
	134.29	1367	1367	1367	1300	1300	1075	10	4000	160
	144.82	1367	1367	1367	1300	1300	1075	10	4000	160
	174.91	1367	1367	1367	1300	1300	1075	10	4000	160
	205.17	1367	1367	1367	1300	1300	1075	10	4000	160
	245.70	1476	1476	1476	1400	1400	1160	10	4000	160
	282.05	1476	1476	1476	1400	1400	1160	10	4000	160
	303.38	1367	1367	1367	1300	1300	1075	10	4000	160
	321.78	1476	1476	1476	1400	1400	1160	10	4000	160
	363.31	1476	1476	1476	1400	1400	1160	10	4000	160
	406.58	1367	1367	1367	1300	1300	1075	10	4000	160
	458.08	1476	1476	1476	1400	1400	1160	10	4000	160
	517.42	1367	1367	1367	1300	1300	1075	10	4000	160
	588.92	1476	1476	1476	1400	1400	1160	10	4000	160
	653.95	1476	1476	1476	1400	1400	1160	10	4000	160
	709.50	1476	1476	1476	1400	1400	1160	10	4000	160
	789.25	1476	1476	1476	1400	1400	1160	10	4000	160
	858.46	1923	1923	1816	1784	1298	1058	10	4000	160
	953.25	1923	1923	1816	1784	1298	1058	10	4000	160
	1065.27	1923	1923	1816	1784	1298	1058	10	4000	160
	1199.70	1923	1923	1816	1784	1298	1058	10	4000	160

$$T_{2max}=1.2 \cdot T_{n2}(_{n2 \cdot h}=10000)$$

KL015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127KL3015
190.5KL4015
C
55
48
30
DIN5482
B40x36
5
I
ø42f7
ø35f7
ø24
M6 N°3
13
C
94.5 KL1015
ø185
ø110f7
ø185
6
16
S
45°
ø10.5 n°8
ø165
C
58
50
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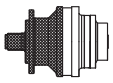
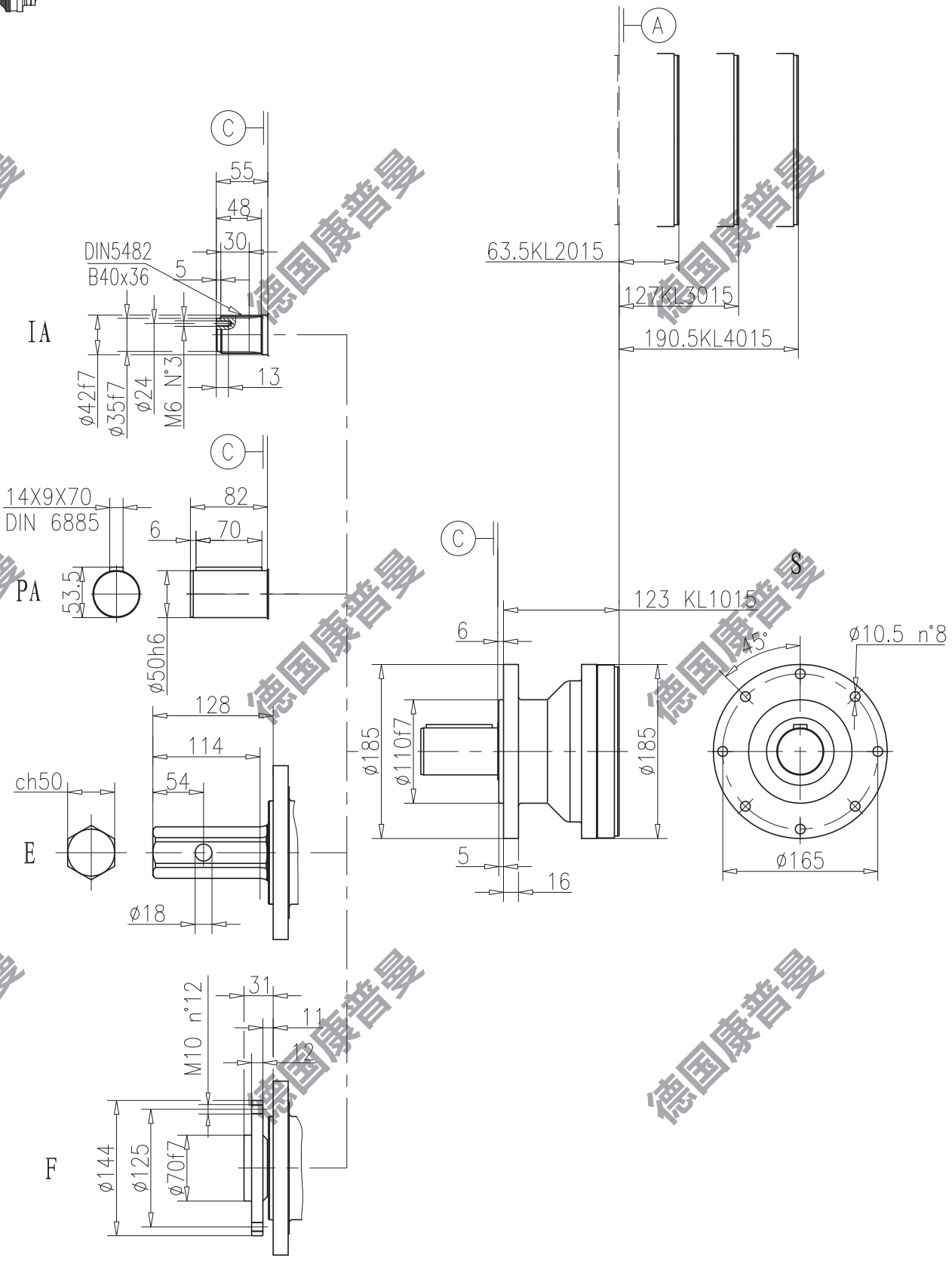
DIN 6885
4
P
41
ø38h6

KL015

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190.5KL4015
C
55
48
30
DIN5482
B40x36
5
IA
ø42f7
ø35f7
ø24
M6 N°3
13
C
14X9X70
DIN 6885
82
6
70
PA
53.5
ø50h6
C
123 KL1015
S
6
45°
ø10.5 n°8
ø185
ø110f7
ø185
5
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ø165
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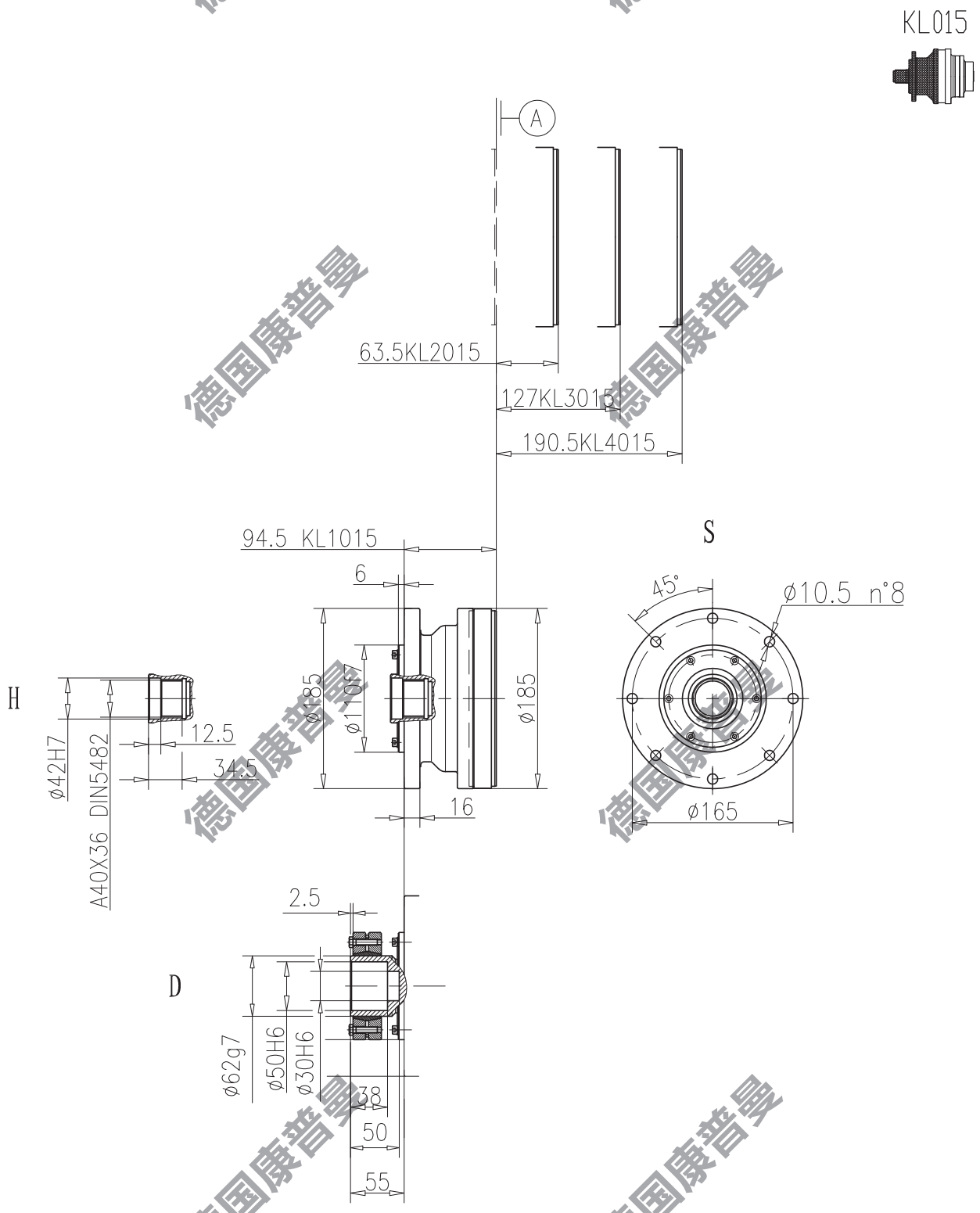
M10 n°12
11
12
ø144
ø125
ø70f7
F


KL015
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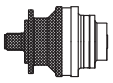
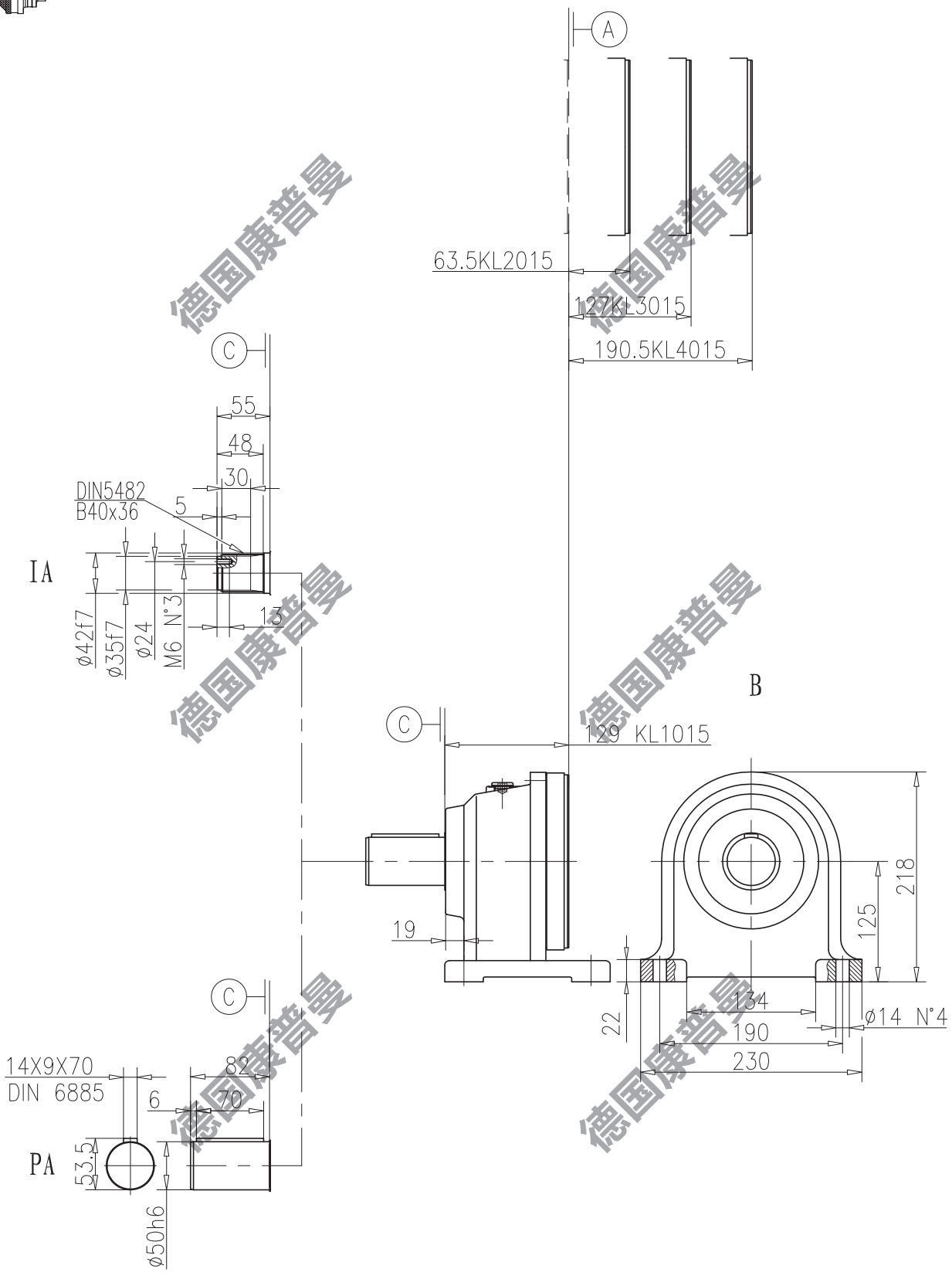
94.5 KL1015
6
S
45°
ø10.5 n°8
H
ø42H7
A40X36 DIN5482
12.5
34.5
ø85
ø107
ø185
16
ø165
2.5
D
ø62g7
ø50H6
ø30H6
38
50
55

KL015

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C
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48
30
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5
IA
ø42f7
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ø24
M6 N°3
13
B
C
129 KL1015
19
218
125
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C
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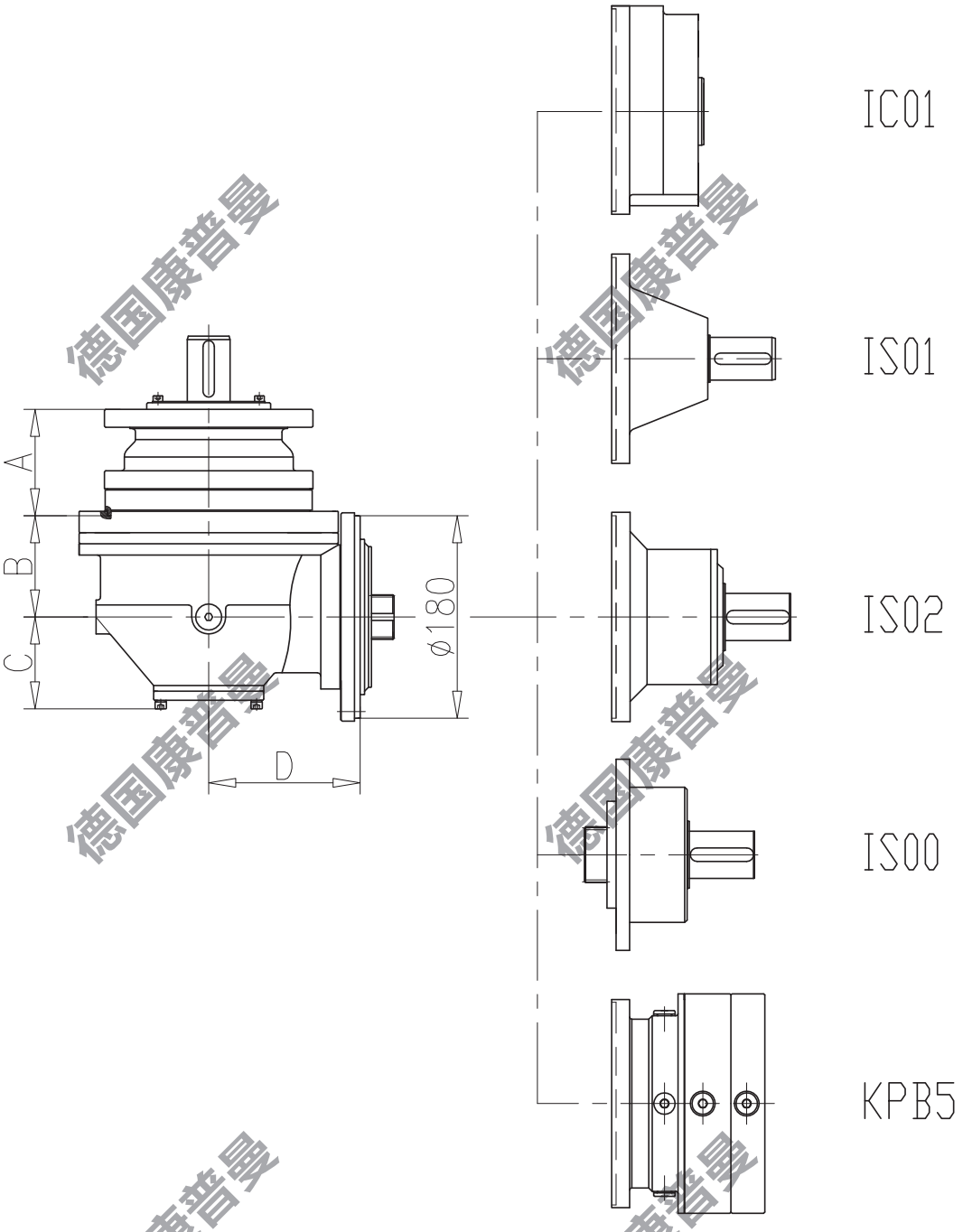
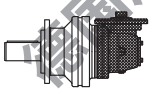
ø50h6

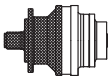
KR015

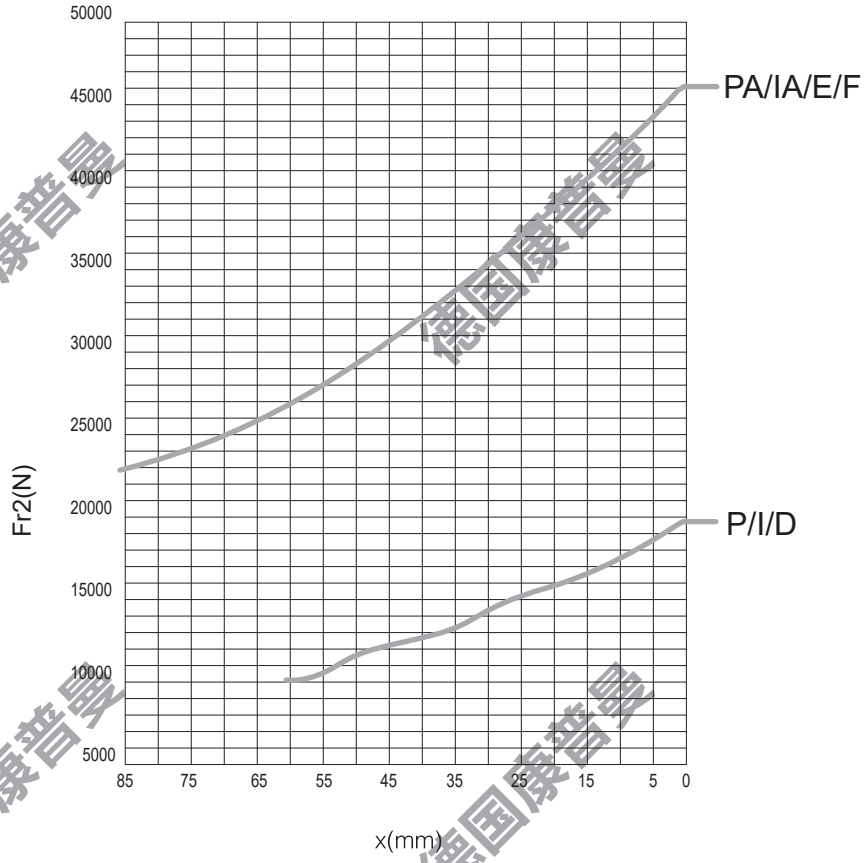


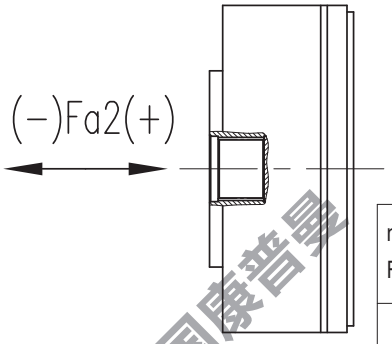


	A						B	C	D
	SP	SI	SPA	SIA	SH	BPA			
KR 2015	94.5	94.5	123	123	94.5	129	90	81.5	134.5
KR 3015	158	158	186.5	186.5	158	192.5	90	81.5	134.5
KR 4015	221.5	221.5	250	250	221.5	256	90	81.5	134.5

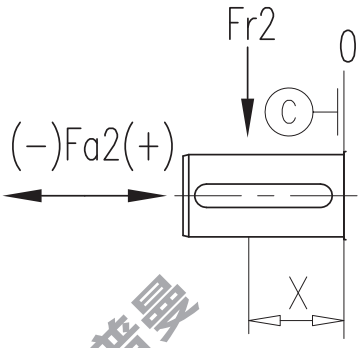
KL015







	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SH	7000	7000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-D	20000	15000
SPA-SIA-BPA-BIA-SD-SE-SF	40000	40000

	n2·h						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL025 **T_2=2500 Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.50	2366	2263	2211	2160	2160	1800	11	3800	875	
	4.13	2984	2830	2727	2676	2212	1801	11	3800	875	
	4.57	2697	2557	2464	2418	1999	1627	11	3800	875	
	5.17	2384	2261	2178	2137	1767	1439	11	3800	700	
	6.00	2054	1948	1877	1842	1523	1240	11	3800	520	
	7.25	1700	1612	1553	1524	1260	1026	11	3800	430	
L2	12.84	3261	3092	2979	2923	2417	1968	9	4000	430	
	18.27	2984	2830	2727	2676	2212	1801	9	4000	250	
	20.25	2697	2557	2464	2418	1999	1627	9	4000	160	
	22.88	2384	2261	2178	2137	1767	1439	9	4000	160	
	24.50	2366	2263	2211	2160	2160	1439	9	4000	160	
	29.97	2384	2261	2178	2137	1767	1800	9	4000	160	
	36.17	2384	2261	2178	2137	1767	1439	9	4000	160	
	41.14	2697	2557	2464	2418	1767	1627	9	4000	160	
	46.50	2384	2261	2178	2137	1999	1439	9	4000	160	
	54.00	2054	1948	1877	1842	1523	1240	9	4000	160	
L3	52.85	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	77.50	2366	2263	2211	2160	2160	1800	7.5	4000	160	
	89.90	2366	2263	2211	2160	2160	1800	7.5	4000	160	
	103.13	2984	2830	2727	2676	2212	1801	7.5	4000	160	
	114.29	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	138.77	2984	2830	2727	2676	2212	1801	7.5	4000	160	
	153.78	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	160.00	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	167.48	2984	2830	2727	2676	2212	1801	7.5	4000	160	
	173.81	2384	2261	2178	2137	1767	1439	7.5	4000	160	
	185.60	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	202.13	2984	2830	2727	2676	2212	1801	7.5	4000	160	
	220.50	2366	2263	2211	2160	2160	1800	7.5	4000	160	
	253.17	2384	2261	2178	2137	1767	1439	7.5	4000	160	
	288.00	2697	2557	2464	2418	1999	1627	7.5	4000	160	
	325.50	2384	2261	2178	2137	1767	1439	7.5	4000	160	
L4	360.24	2984	2830	2727	2676	2212	1801	6	4000	160	
	400.09	2054	1948	1877	1842	1523	1240	6	4000	160	
	456.70	2984	2830	2727	2676	2212	1801	6	4000	160	
	499.13	2984	2830	2727	2676	2212	1801	6	4000	160	
	563.87	2697	2557	2464	2418	1999	1627	6	4000	160	
	639.38	2984	2830	2727	2676	2212	1801	6	4000	160	
	721.88	2984	2830	2727	2676	2212	1801	6	4000	160	
	821.33	2697	2557	2464	2418	1999	1627	6	4000	160	
	891.94	2697	2557	2464	2418	1999	1627	6	4000	160	
	1010.63	2984	2830	2727	2676	2212	1801	6	4000	160	
	1172.33	2984	2830	2727	2676	2212	1801	6	4000	160	
	1275.43	2697	2557	2464	2418	1999	1627	6	4000	160	
	1380.40	3261	3092	2979	2923	2417	1968	6	4000	160	
	1568.00	2697	2557	2464	2418	1999	1627	6	4000	160	
	1851.43	2697	2557	2464	2418	1999	1627	6	4000	160	
	2016.00	2697	2557	2464	2418	1999	1627	6	4000	160	
	2278.50	2384	2261	2178	2137	1767	1439	6	4000	160	
	2592.00	2697	2557	2462	2418	1999	1627	6	4000	160	
	2929.50	2384	2261	2178	2137	1767	1439	6	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2=2500 Nm **KR025**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
R2	10.77	2366	2263	2211	2160	2160	1800	18	3800	430	
	12.69	2984	2830	2727	2676	2212	1801	18	3800	340	
	14.07	2697	2557	2464	2418	1999	1627	18	3800	250	
	15.62	2697	2557	2464	2418	1999	1627	18	3800	160	
	19.73	2384	2261	2178	2173	1767	1439	18	3800	160	
	22.91	2054	1948	1877	1842	1523	1240	18	3800	160	
	25.80	2054	1948	1877	1842	1523	1240	18	3800	160	
	27.68	1700	1612	1553	1524	1260	1026	18	3800	160	
	31.18	1700	1612	1553	1524	1260	1026	18	3800	160	
R3	36.62	2366	2263	2211	2160	2160	1800	14	4000	160	
	39.49	2366	2263	2211	2160	2160	1800	14	4000	160	
	53.01	2697	2557	2464	2418	1999	1627	14	4000	160	
	56.21	2984	2830	2727	2676	2212	1801	14	4000	160	
	62.29	2697	2557	2464	2418	1999	1627	14	4000	160	
	69.17	2697	2557	2464	2418	1999	1627	14	4000	160	
	73.62	2984	2830	2727	2676	2212	1801	14	4000	160	
	77.30	2697	2557	2464	2418	1999	1627	14	4000	160	
	81.58	2697	2557	2464	2418	1999	1627	14	4000	160	
	87.27	2697	2557	2464	2418	1999	1627	14	4000	160	
	91.35	2984	2830	2727	2676	2212	1801	14	4000	160	
	98.64	2384	2261	2178	2137	1767	1439	14	4000	160	
	114.42	2384	2261	2178	2137	1767	1439	14	4000	160	
	123.57	2384	2261	2178	2137	1767	1439	14	4000	160	
	143.08	2384	2261	2178	2137	1767	1439	14	4000	160	
	166.15	2054	1948	1877	1842	1523	1240	14	4000	160	
	184.50	2054	1948	1877	1842	1523	1240	14	4000	160	
R4	124.49	2366	2263	2211	2160	2160	1800	12	4000	160	
	134.26	2366	2263	2211	2160	2160	1800	12	4000	160	
	144.79	2366	2263	2211	2160	2160	1800	12	4000	160	
	154.48	2366	2263	2211	2160	2160	1800	12	4000	160	
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	245.00	2366	2263	2211	2160	2160	1800	12	4000	160	
	307.16	2366	2263	2211	2160	2160	1800	12	4000	160	
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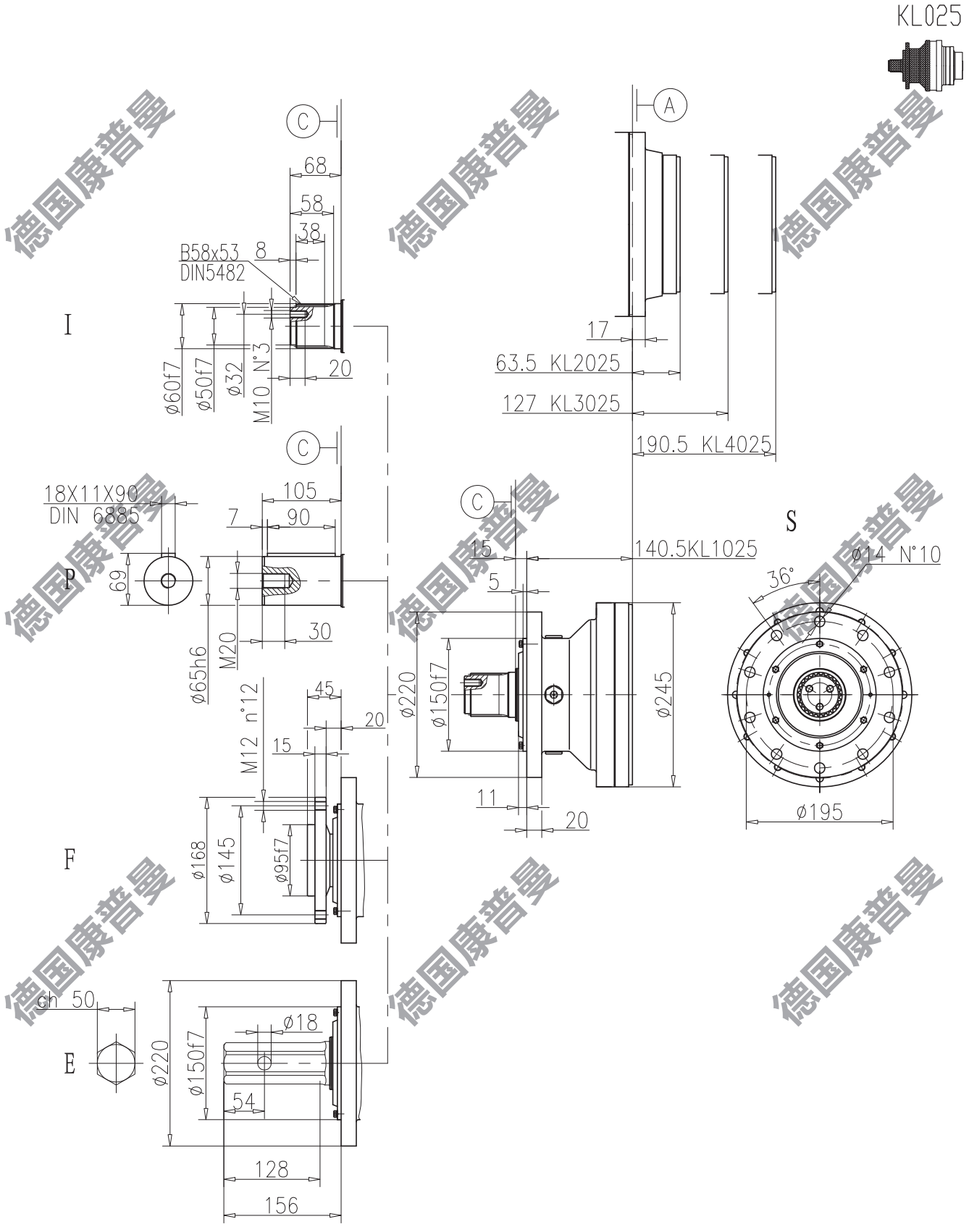
	402.28	3261	3092	2979	2923	2417	1968	12	4000	160	
	451.76	3261	3092	2979	2160	2417	1968	12	4000	160	
	506.28	2366	2263	2211	2676	2160	1800	12	4000	160	
	620.81	2984	2830	2727	2676	2212	1801	12	4000	160	
	708.75	2984	2830	2727	2676	2212	1801	12	4000	160	
	887.91	2984	2830	2727	2676	2212	1801	12	4000	160	
	1026.10	2697	2557	2464	2418	1999	1627	12	4000	160	
	1099.64	2697	2557	2464	2418	1999	1627	12	4000	160	
	1159.71	2384	2261	2178	2137	1767	1439	12	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$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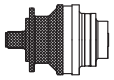
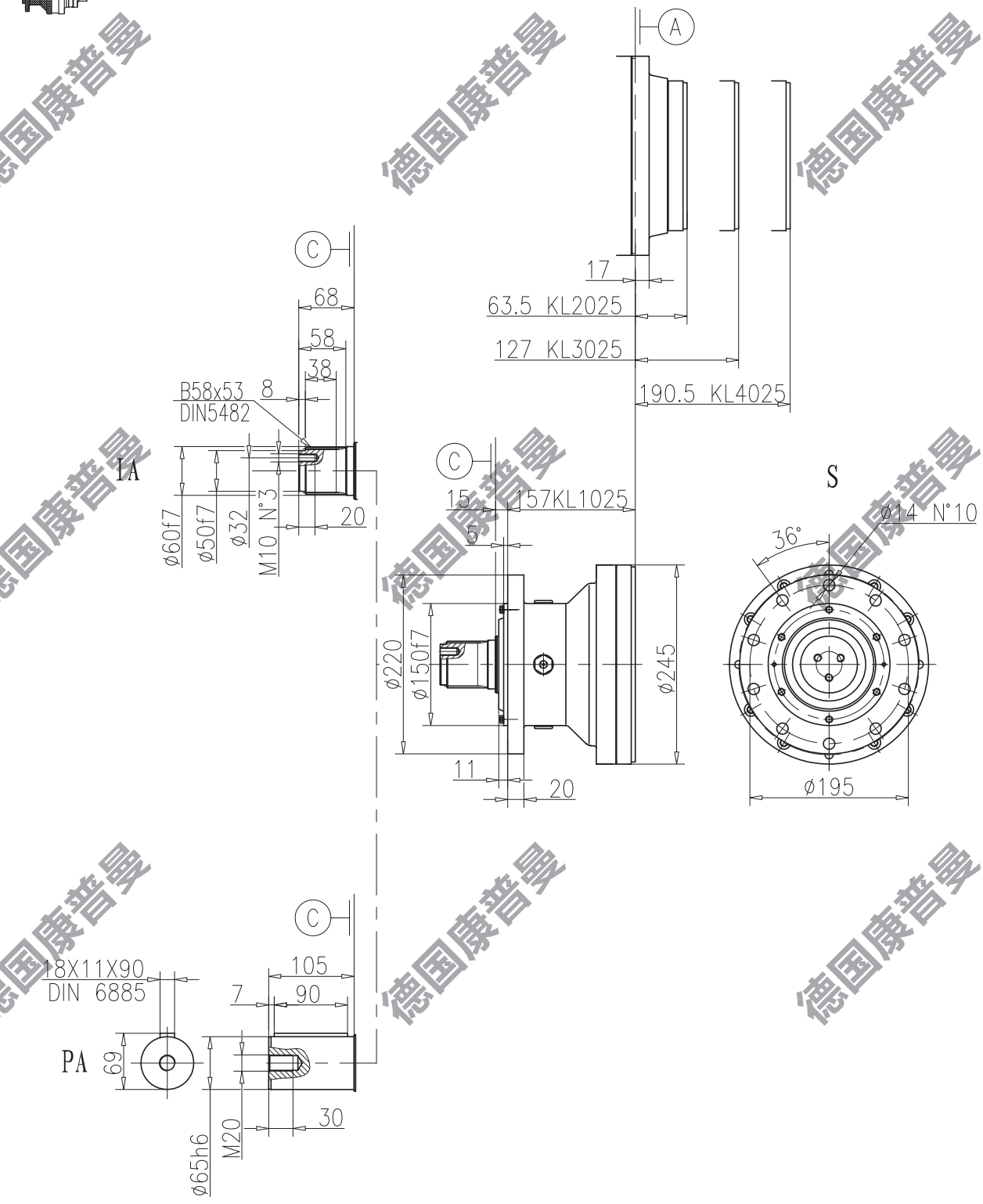
KL025

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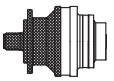

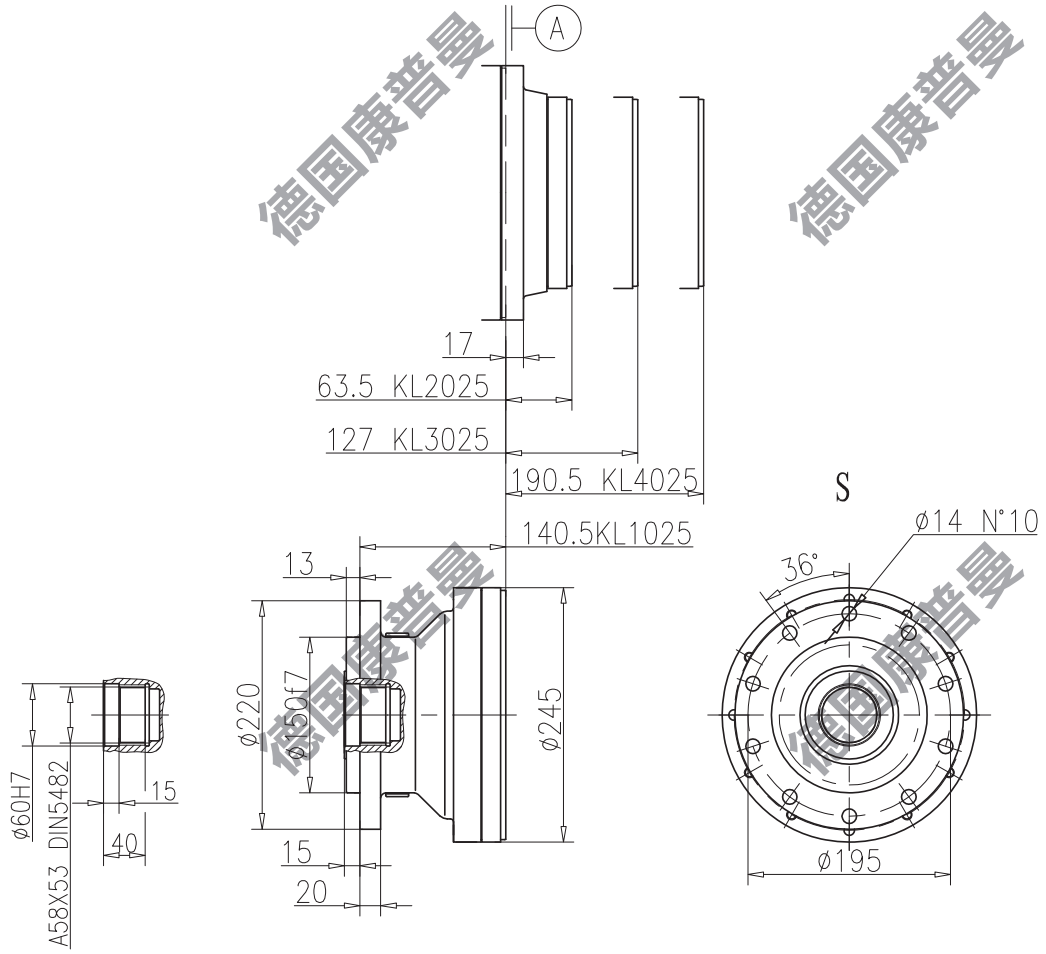
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A58X53 DIN5482
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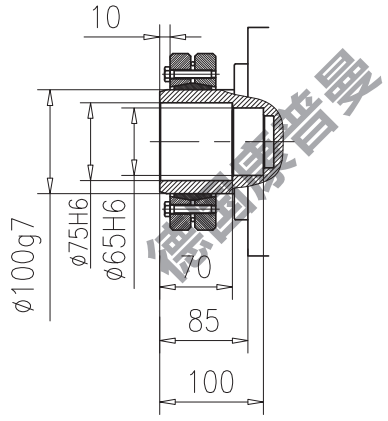
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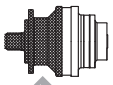

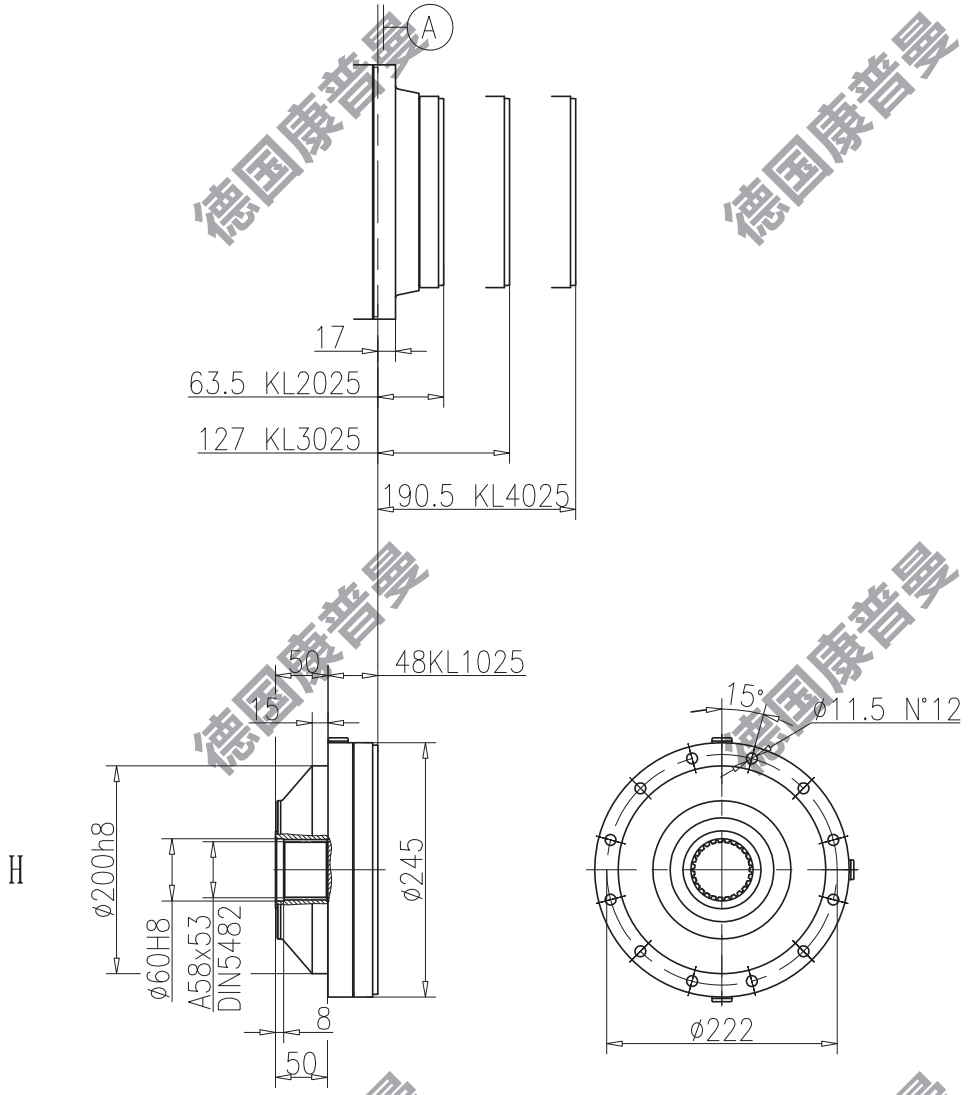
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15°
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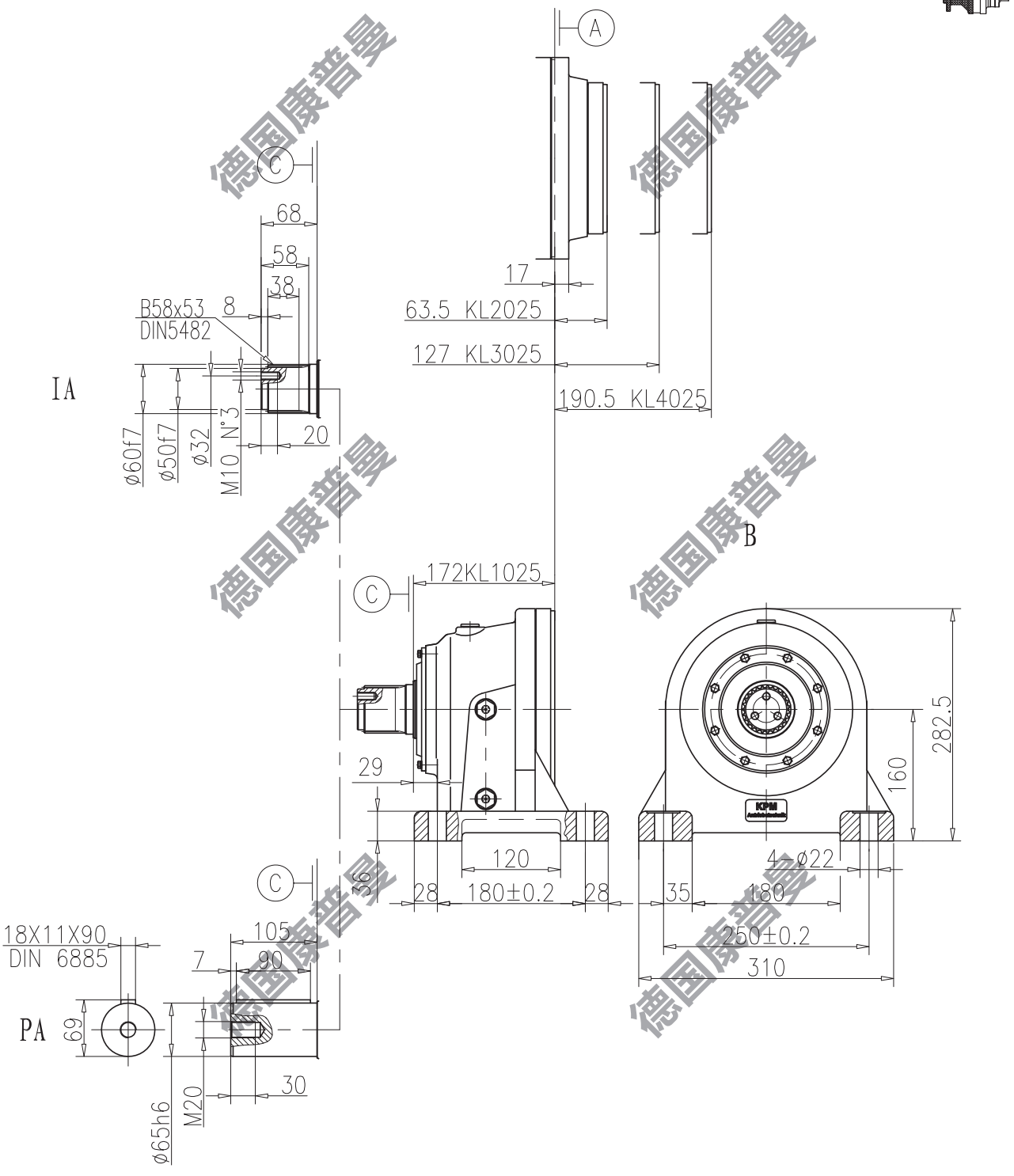
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63.5 KL2025
127 KL3025
190.5 KL4025
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172KL1025
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120
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180±0.2
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39
4 - ø22
35
180
250±0.2
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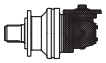
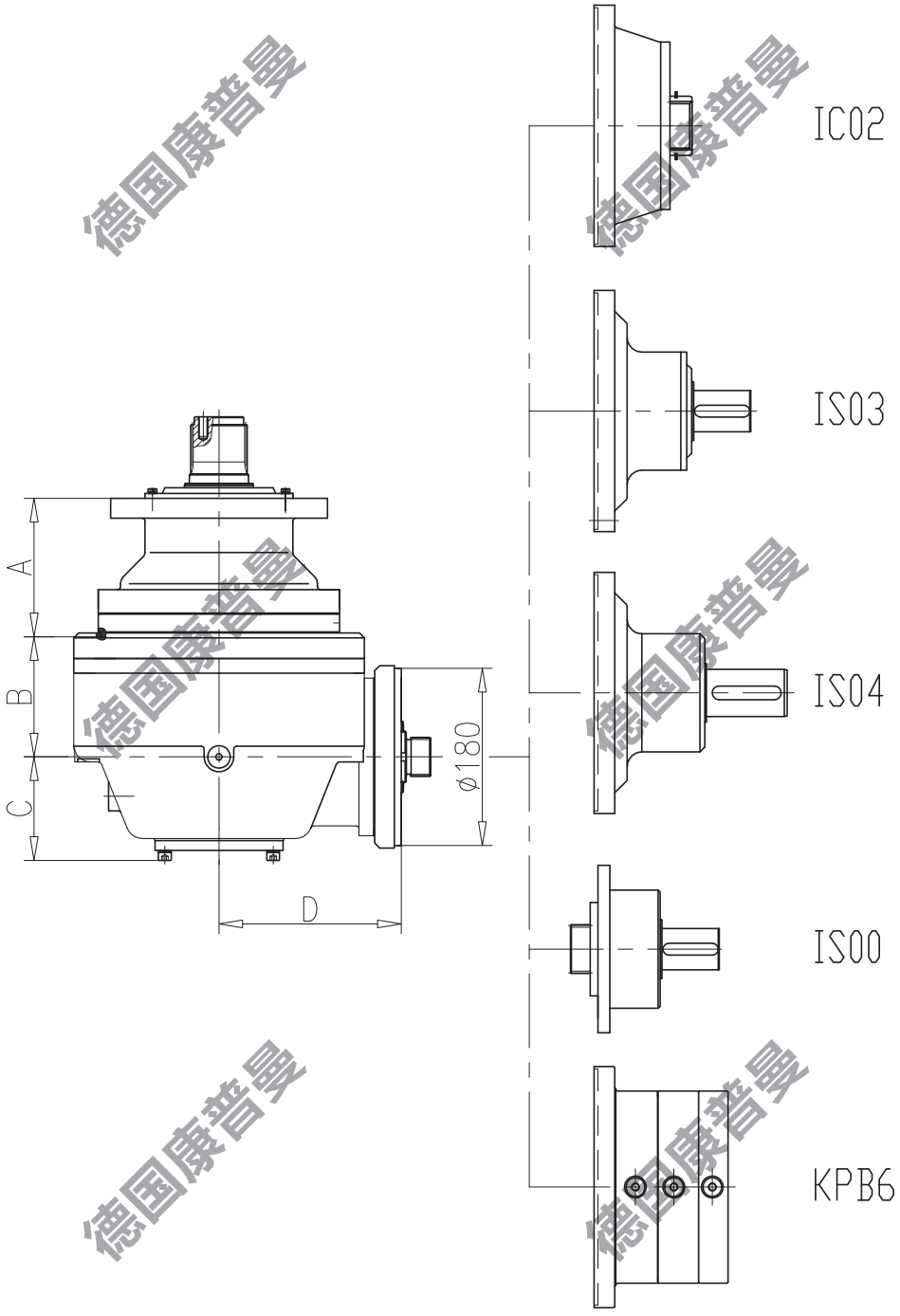
ø65h6

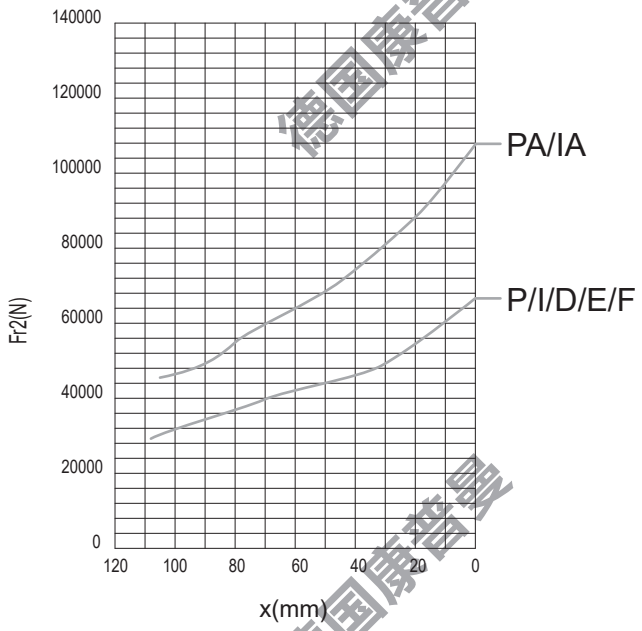
KR025

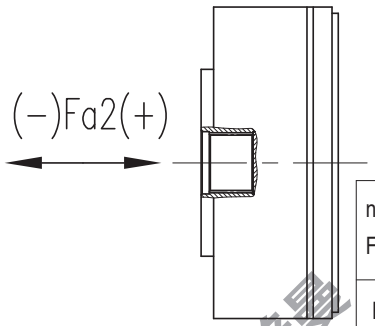




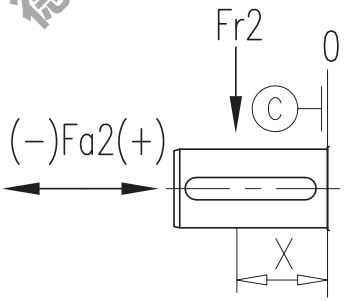
	A						B	C	D
	SP	SI	SPA	SIA	SH	BPA			
KR 2025	140.5	140.5	157	157	48	172	122	105	185
KR 3025	204	204	220.5	220.5	111.5	235.5	90	81.5	134.5
KR 4025	267.5	267.5	284	284	175	299	90	81.5	134.5

KL025





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
H	7000	7000
SH-SD-H	24000	25000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SPA-SIA-BPA-BIA	55000	44000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL050

T_2=5000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.50	4834	4577	4423	4320	3857	3137	11	3100		
	4.13	5969	5660	5454	5351	3808	3087	11	3100		
	4.57	5394	5115	4929	4836	3441	2790	11	3100		
	5.17	4768	4521	4357	4275	3042	2466	11	3100	1140	
	6.00	4108	3896	3754	3683	2621	2125	11	3100	1140	
	7.25	3400	3224	3107	3048	2169	1759	11	3100	610	
L2	14.03	5646	5646	5454	5351	3808	3087	9	4000	520	
	18.27	5969	5660	5454	5351	3808	3087	9	4000	430	
	20.24	5394	5115	4929	4836	3441	2790	9	4000	340	
	22.88	4768	4521	4357	4275	3042	2466	9	4000	250	
	24.50	4260	4260	3728	3621	2876	2343	9	4000	250	
	29.97	4768	4521	4357	4275	3042	2466	9	4000	250	
	36.17	4768	4521	4357	4275	3042	2466	9	4000	160	
	41.14	4326	4326	3785	3677	2920	2379	9	4000	160	
	46.50	4768	4521	4357	4275	3042	2466	9	4000	160	
	54.00	4108	3896	3754	3683	2621	2125	9	4000	160	
L3	52.85	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	77.50	4834	4577	4423	4320	3857	3137	7.5	4000	160	
	89.90	4834	4577	4423	4320	3857	3137	7.5	4000	160	
	103.13	5969	5660	5454	5351	3808	3087	7.5	4000	160	
	114.29	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	138.77	5969	5660	5454	5351	3808	3087	7.5	4000	160	
	153.78	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	160.00	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	167.48	6052	6052	5396	5144	4085	3329	7.5	4000	160	
	173.81	4768	4521	4357	4275	3042	2466	7.5	4000	160	
	185.60	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	202.13	5027	5027	4398	4273	3393	2765	7.5	4000	160	
	220.50	4260	4260	3728	3621	2876	2343	7.5	4000	160	
	253.17	4768	4521	4357	4275	3042	2466	7.5	4000	160	
	288.00	5394	5115	4929	4836	3441	2790	7.5	4000	160	
	325.50	4768	4521	4357	4275	3042	2466	7.5	4000	160	
L4	360.24	5646	5646	5454	5351	3808	3087	6	4000	160	
	400.09	4108	3896	3754	3683	2621	2125	9	4000	160	
	456.70	5969	5660	5454	5351	3808	3087	6	4000	160	
	499.13	5969	5660	5454	5351	3808	3087	6	4000	160	
	563.87	5394	5115	2929	4836	3441	2790	6	4000	160	
	639.38	5969	5660	5454	5351	3808	3087	6	4000	160	
	721.88	5969	5660	5454	5351	3808	3087	6	4000	160	
	821.33	5394	5115	4929	4836	3441	2790	6	4000	160	
	891.94	5394	5115	4929	4836	3441	2790	6	4000	160	
	1010.63	5969	5660	5454	5351	3808	3087	6	4000	160	
	1172.33	5969	5660	5380	5157	3808	3087	6	4000	160	
	1275.43	5394	5115	4929	4836	3441	2790	6	4000	160	
	1568.00	5394	5115	4867	4728	3441	2790	6	4000	160	
	1851.43	5394	5115	4929	4836	3441	2790	6	4000	160	
	2016.00	5394	5115	4867	4728	3441	2790	6	4000	160	
	2278.50	4768	4521	4357	4275	3042	2466	6	4000	160	
	2592.00	5394	5115	4867	4728	3441	2790	6	4000	160	
	2929.50	4768	4521	4357	4275	3042	2466	6	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KR050

T_2=5000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
R2	10.77	4532	4532	4423	4320	3857	3137	18	3800	520	
	12.69	5348	5348	5348	5348	3808	3087	18	3800	520	
	14.07	5394	5115	4929	4836	3441	2790	18	3800	520	
	15.62	5394	5115	4929	4836	3441	2790	18	3800	430	
	17.65	4768	4521	4357	4275	3042	2466	18	3800	340	
	19.73	4768	4521	4357	4275	3042	2466	18	3800	340	
	22.91	4108	3896	3754	3683	2621	2125	18	3800	250	
	25.80	4108	3896	3754	3683	2621	2125	18	3800	250	
	27.68	3400	3224	3107	3048	2169	1759	18	3800	160	
	31.18	3400	3224	3107	3048	2169	1759	18	3800	160	
R3	36.62	4785	4577	4423	4320	3857	3137	14	4000	160	
	39.49	4834	4577	4423	4320	3857	3137	14	4000	160	
	53.10	5394	5115	4929	4836	3441	2790	14	4000	160	
	56.21	5969	5660	5454	5351	3808	3087	14	4000	160	
	62.29	5394	5115	4929	4836	3441	2790	14	4000	160	
	69.17	5394	5115	4929	4836	3441	2790	14	4000	160	
	73.62	5969	5660	5454	5351	3808	3087	14	4000	160	
	77.30	5394	5115	4929	4836	3441	2790	14	4000	160	
	81.58	5394	5115	4929	4836	3441	2790	14	4000	160	
	87.27	5394	5115	4929	4836	3441	2790	12	4000	160	
	91.35	5969	5660	5454	5351	3808	3087	12	4000	160	
	98.64	4768	4521	4357	4275	3042	2466	12	4000	160	
	114.42	4768	4521	4357	4275	3042	2466	12	4000	160	
	123.57	4768	4521	4357	4275	3042	2466	12	4000	160	
	143.08	4768	4521	4357	4275	3042	2466	12	4000	160	
	166.15	4108	3896	3754	3683	2621	2125	12	4000	160	
	184.50	4108	3896	3754	3683	2621	2125	12	4000	160	
R4	124.49	4785	4577	4423	4320	3857	3137	12	4000	160	
	134.26	4785	4577	4423	4320	3857	3137	12	4000	160	
	144.79	4834	4577	4423	4320	3857	3137	12	4000	160	
	154.48	4785	4577	4423	4320	3857	3137	12	4000	160	
	201.22	4785	4577	4423	4320	3857	3137	12	4000	160	
	269.23	4834	4577	4423	4320	3857	3137	12	4000	160	
	306.93	4834	4577	4423	4320	3857	3137	12	4000	160	
	370.71	4834	4577	4423	4320	3857	3137	12	4000	160	
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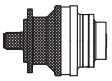
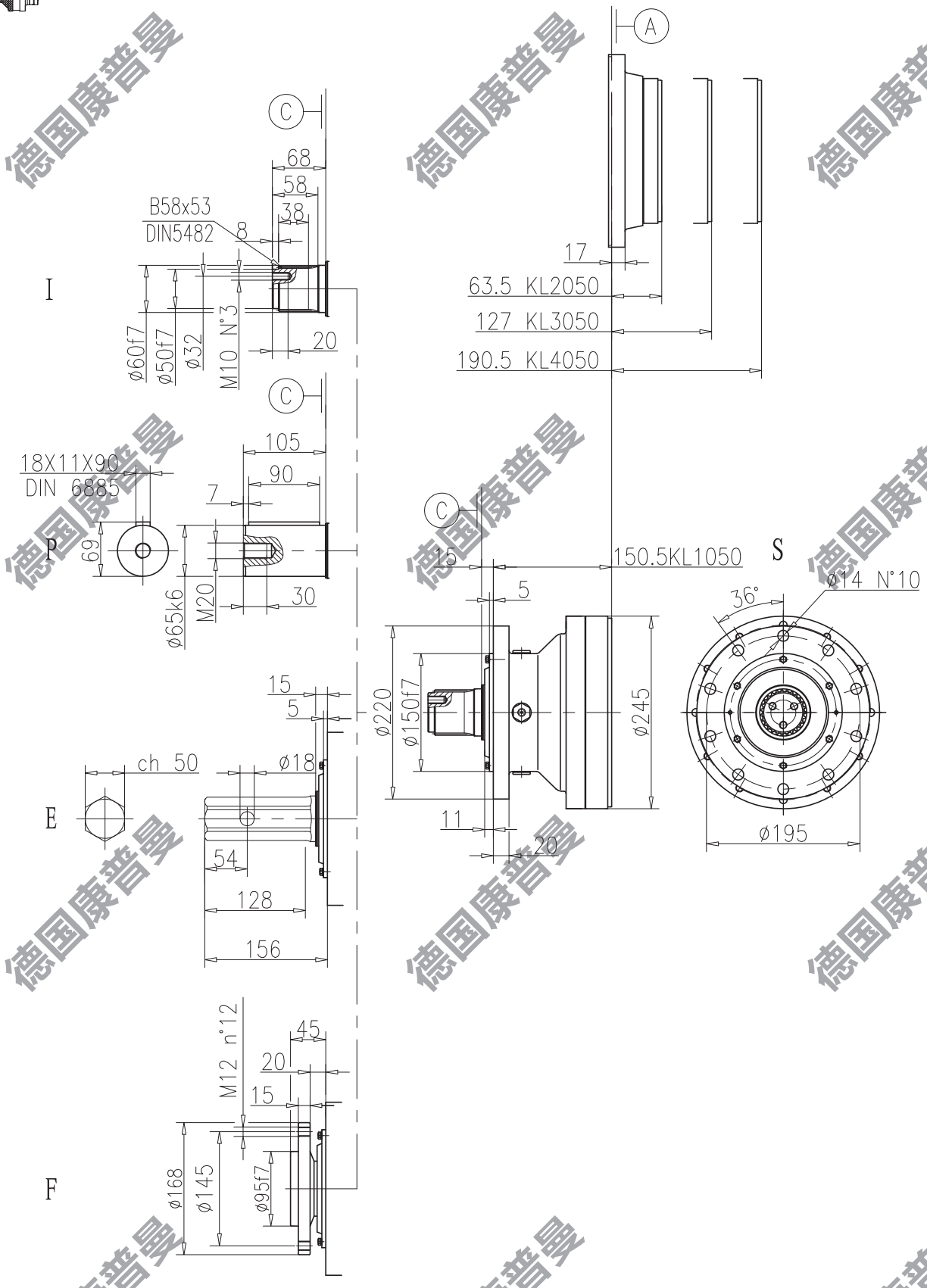
	708.75	5969	5660	5454	5351	3808	3087	12	4000	160	
	815.31	5394	5115	4929	4836	3441	2790	12	4000	160	
	1026.10	5394	5115	4929	4836	3441	2790	12	4000	160	
	1099.64	5394	5115	4867	4728	3441	2790	12	4000	160	
	1159.71	4768	4521	4357	4275	3042	2466	12	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL050

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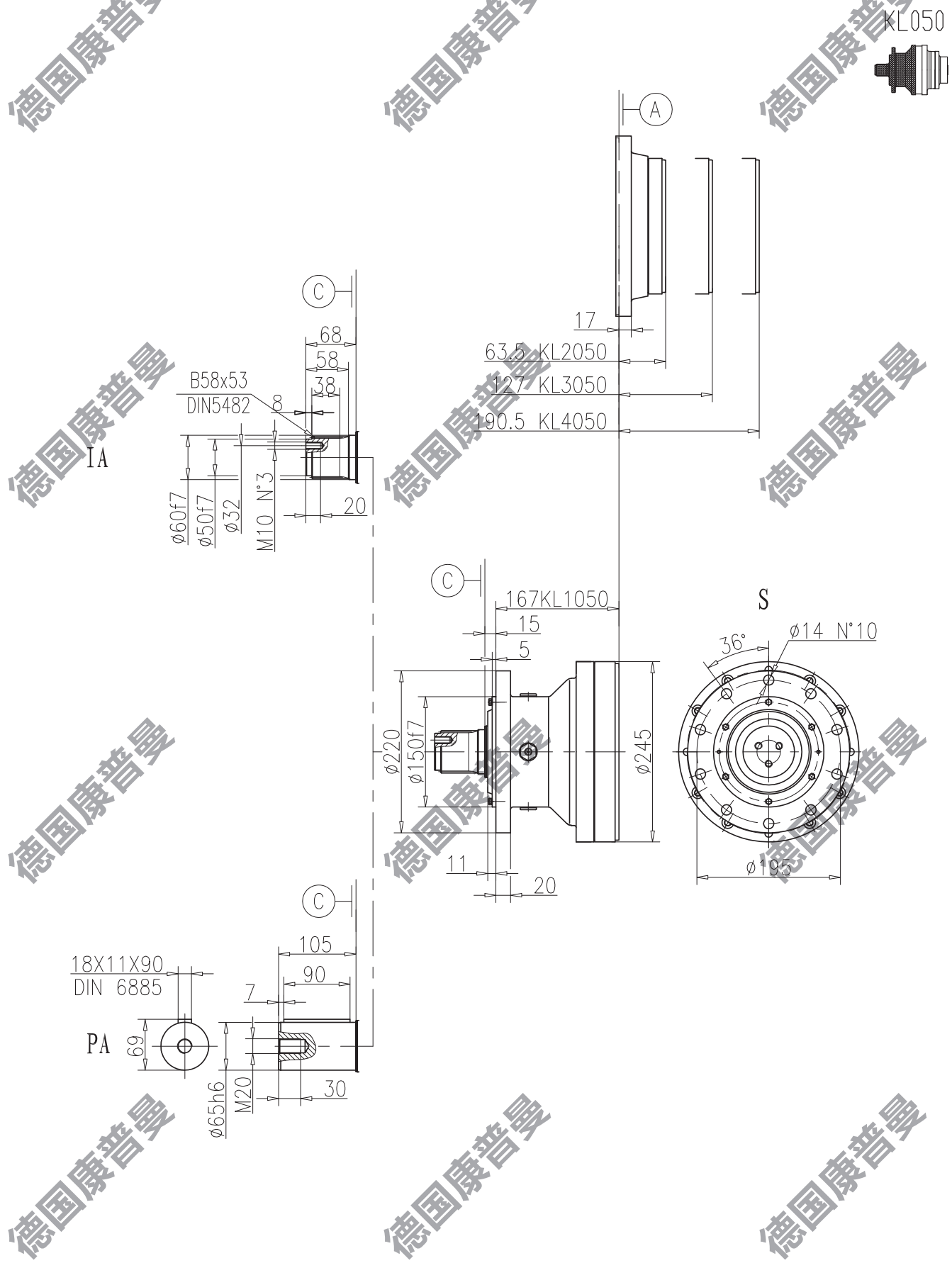
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M10 N°3
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ø245
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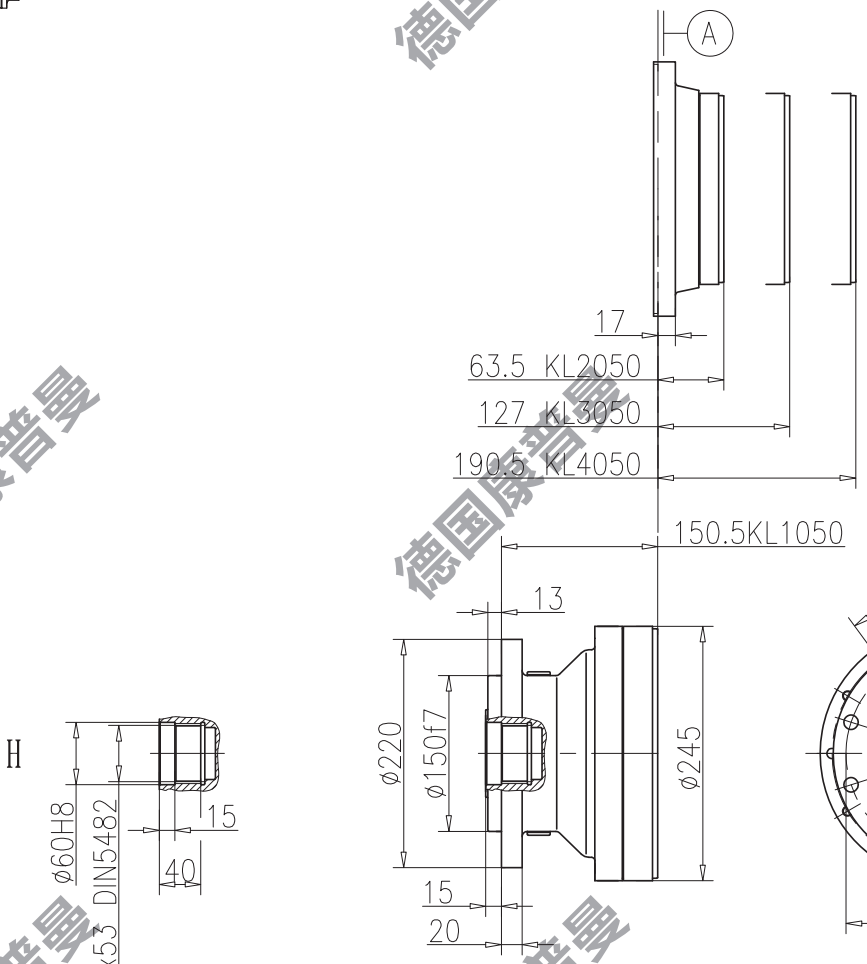
KL050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ø245
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ø60H8
A58x53 DIN5482
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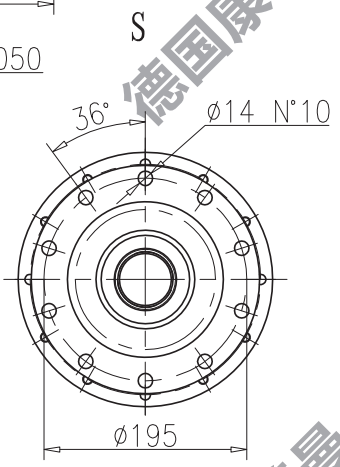
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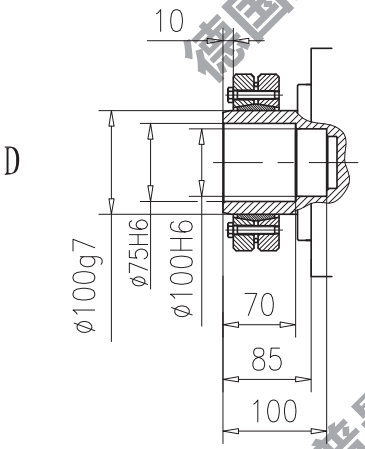
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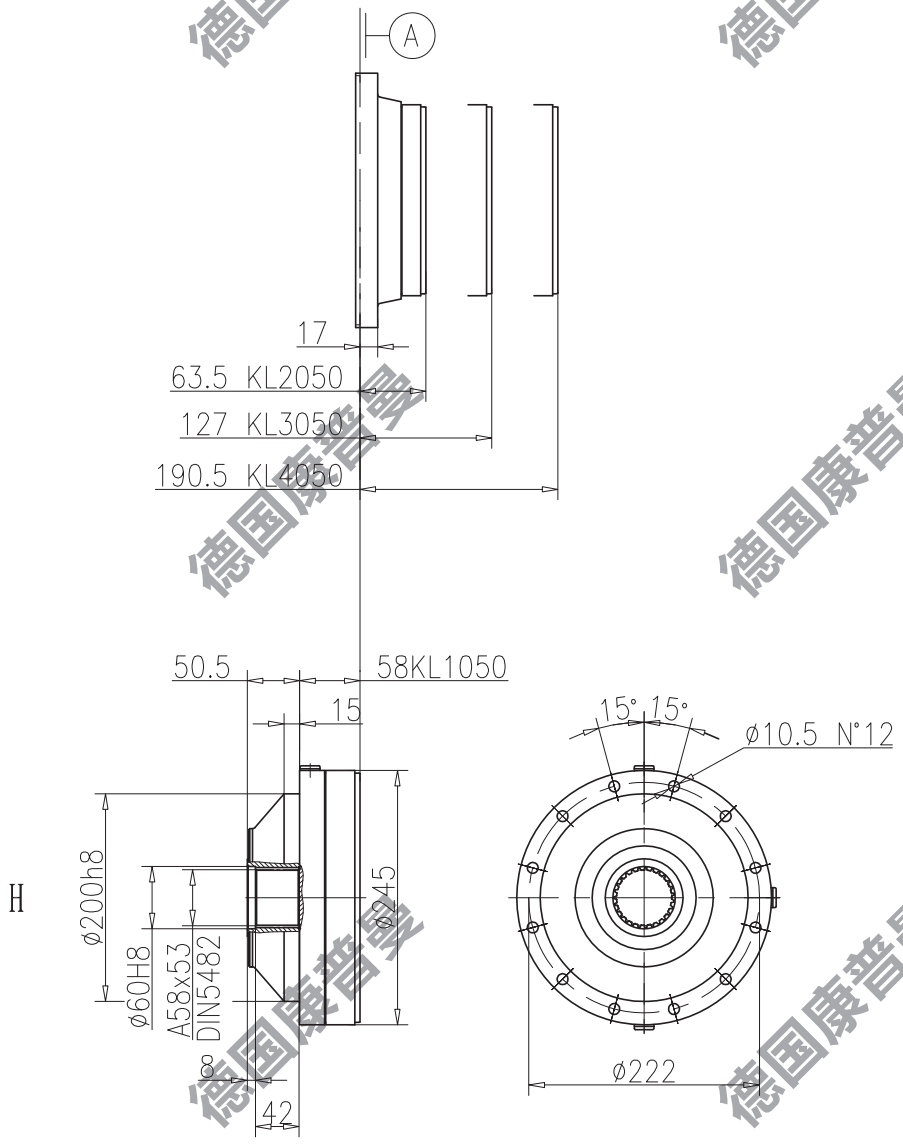
ø100H6
70
85
100

KL050


A
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127 KL3050
190.5 KL4050
50.5
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15° 15°
ø10.5 N°12
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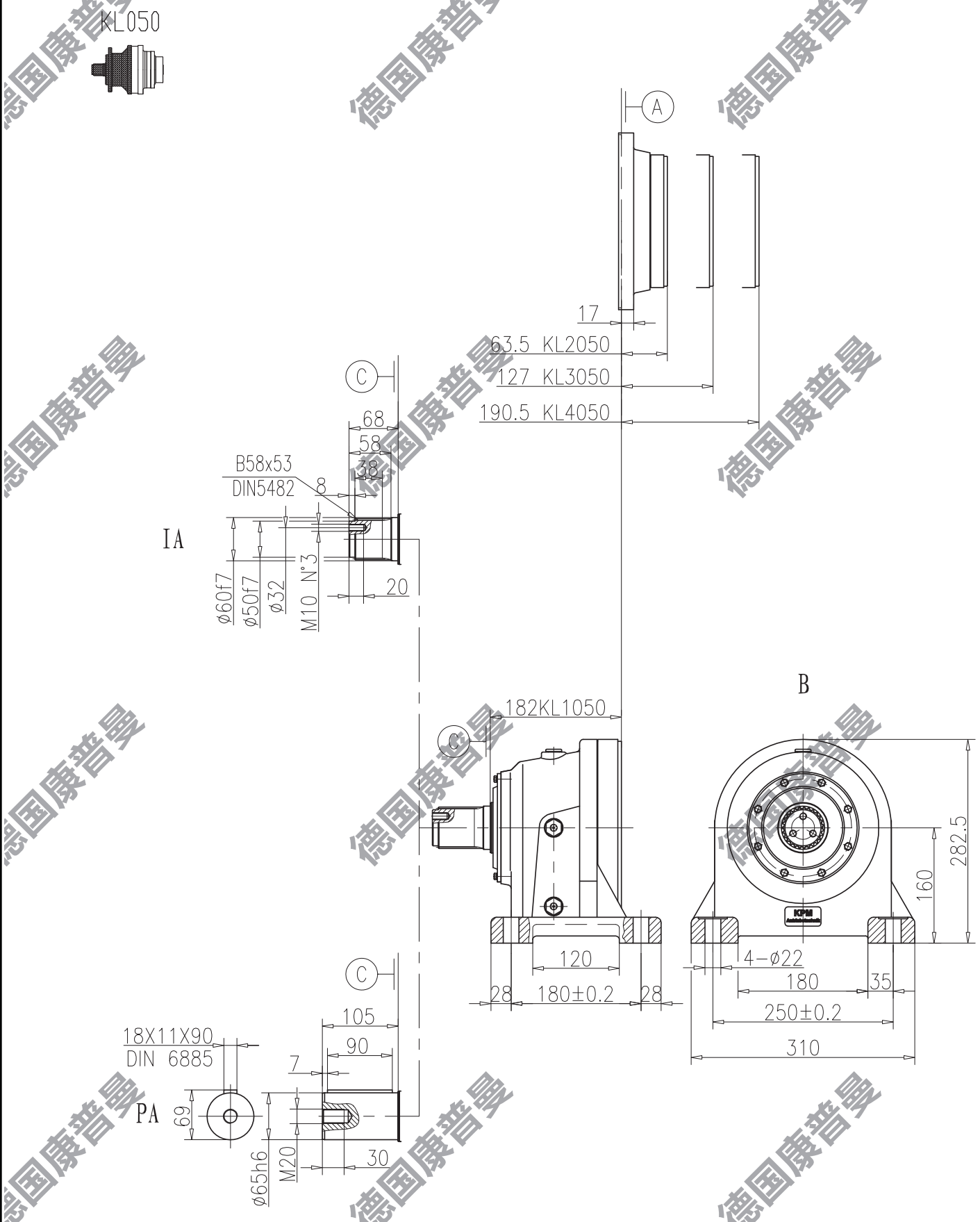
ø200h8
ø60H8
A58x53
DIN5482
ø245
42
ø222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127 KL3050
190.5 KL4050
C
68
58
38
B58x53
DIN5482
8
IA
ø60f7
ø50f7
ø32
M10 N°3
20
182KL1050
B
C
120
28
180±0.2
28
4-ø22
180
35
250±0.2
310
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282.5
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105
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7
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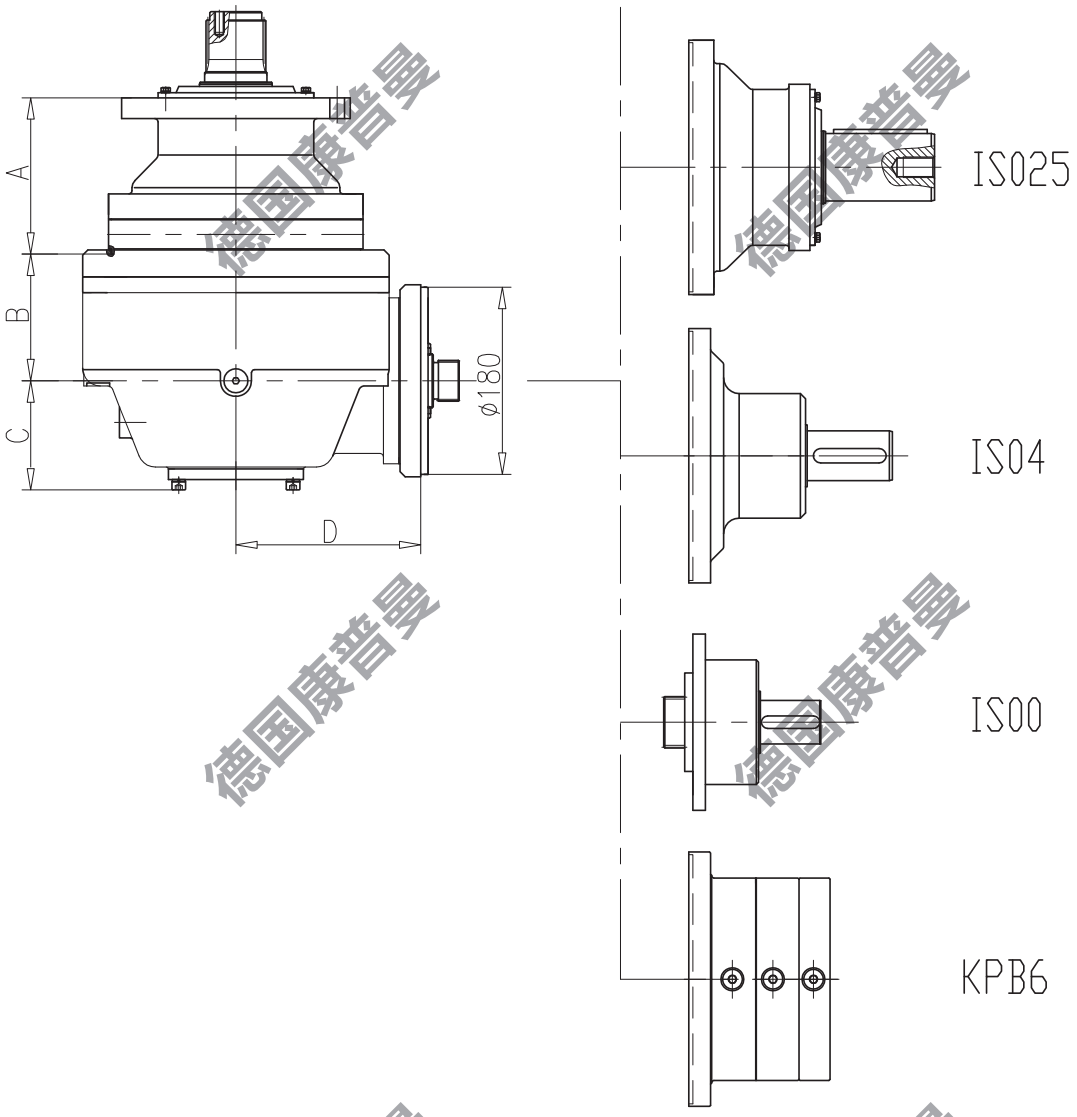
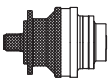
PA
69
ø65h6
M20
30

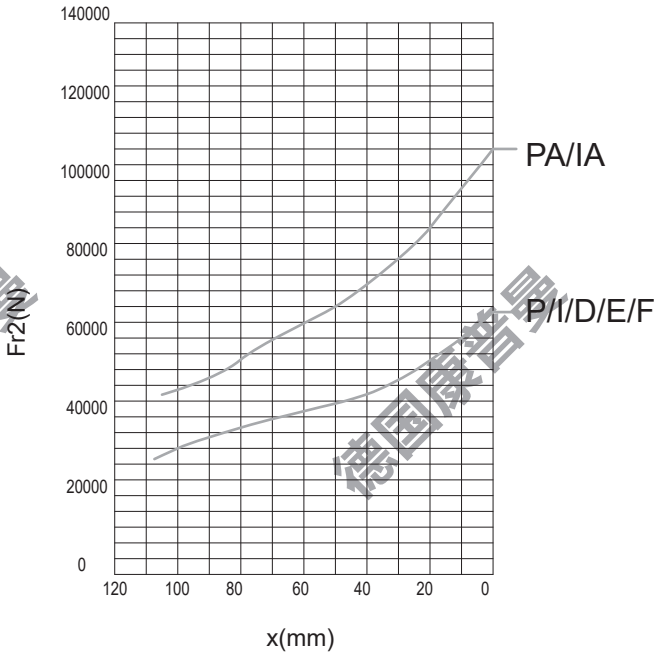
KR050

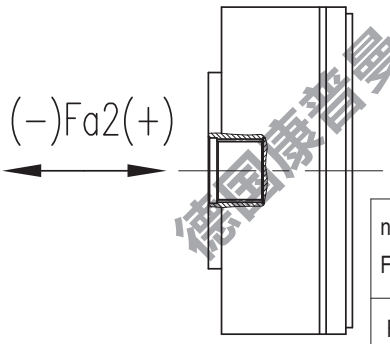


	A						B	C	D
	SP	SI	SH	SPA	SIA	BPA			
KR 2050	150.5	150.5	58	167	167	182	122	105	185
KR 3050	214	214	121.5	230.5	230.5	245.5	90	81.5	134.5
KR 4050	277.5	277.5	185	294	294	309	90	81.5	134.5

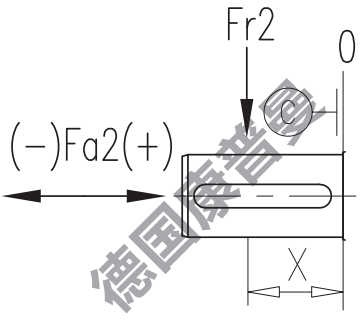
KL050







	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
H	7000	7000
SH-SD-H	24000	25000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SPA-SIA-BPA-BIA	55000	44000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL070

T_2=8500 Nm

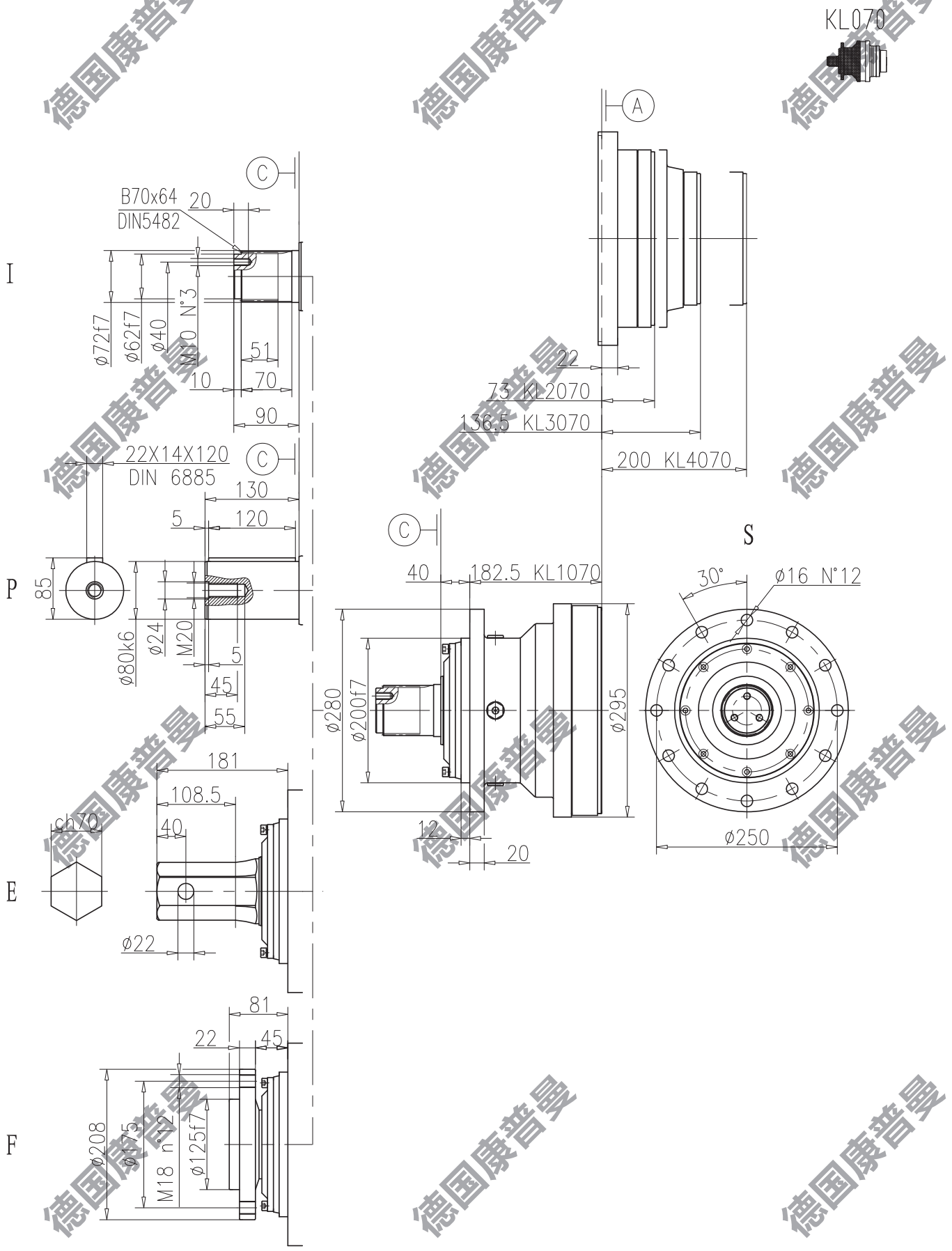
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.50	8496	8126	7920	7714	6246	5054	18	3000		
	4.13	10291	9879	9673	9570	6174	4991	18	3000		
	5.17	8221	7892	7727	7645	4932	3987	18	3000		
	6.00	7083	6800	6658	6588	4250	3435	18	3000		
	7.25	5862	5628	5510	5452	3517	2843	18	3000	1140	
L2	12.25	8280	7920	7740	7560	6246	5054	13	3800	875	
	14.44	8496	8126	7920	7714	6246	5054	13	3800	785	
	17.02	10291	9879	9673	9570	6174	4991	13	3800	700	
	18.08	8344	7912	7625	7481	6186	5035	13	3800	520	
	21.31	9846	9336	8997	8827	6174	4991	13	3800	430	
	25.38	5950	5642	5437	5334	4411	3591	13	3800	430	
	27.43	9279	8908	8723	8630	5568	4501	13	3800	430	
	31.00	8221	7892	7727	7645	4932	3987	13	3800	340	
	37.46	8221	7892	7727	7645	4932	3987	13	3800	340	
	43.50	7083	6800	6658	6588	4250	3435	13	3800	340	
L3	44.92	8280	7920	7740	7560	6246	5054	7.5	4000	250	
	49.00	8280	7920	7740	7560	6246	5054	7.5	4000	250	
	54.25	8280	7920	7740	7560	6246	5054	7.5	4000	250	
	63.94	8496	8126	7920	7714	6246	5054	7.5	4000	160	
	75.36	10291	9879	9673	9570	6174	4991	7.5	4000	160	
	80.08	8496	8126	7920	7714	6246	5054	7.5	4000	160	
	90.75	8484	8045	7752	7606	6174	4991	7.5	4000	160	
	109.37	10291	9879	9673	9570	6174	4991	7.5	4000	160	
	132.00	10291	9879	9673	9570	6174	4991	7.5	4000	160	
	143.55	8484	8045	7752	7606	6174	4991	7.5	4000	160	
	149.19	9846	9336	8997	8827	6174	4991	7.5	4000	160	
	165.33	9279	8908	8723	8630	5568	4501	7.5	4000	160	
	186.86	8221	7892	7727	7645	4932	3987	7.5	4000	160	
	192.00	9279	8908	8578	8416	5568	4501	7.5	4000	160	
	212.57	9279	8908	8723	8630	5568	4501	7.5	4000	160	
	222.75	8484	8045	7752	7606	6174	4991	7.5	4000	160	
	246.86	9279	8908	8578	8416	5568	4501	7.5	4000	160	
	269.16	7021	6658	6416	6295	5205	4237	7.5	4000	160	
	279.00	8221	7892	7727	7645	4932	3987	7.5	4000	160	
	337.13	8221	7892	7727	7645	4932	3987	7.5	4000	160	
L4	184.45	8280	7920	7740	7560	6246	5054	6	4000	160	
	276.30	10291	9879	9673	9570	6174	4991	6	4000	160	
	319.69	8496	8126	7920	7714	6246	5054	6	4000	160	
	354.29	8496	8126	7920	7714	6246	5054	6	4000	160	
	400.00	8496	8126	7920	7714	6246	5054	6	4000	160	
	464.00	8496	8126	7920	7714	6246	5054	6	4000	160	
	505.31	8496	8126	7920	7714	6246	5054	6	4000	160	
	545.42	10291	9879	9673	9570	6174	4991	6	4000	160	
	634.35	10291	9879	9673	9570	6174	4991	6	4000	160	
	792.45	9011	8545	8234	8079	6681	5438	6	4000	160	
	909.56	8496	8126	7920	7714	6246	5054	6	4000	160	
	1062.86	9279	8908	8723	8630	5568	4501	6	4000	160	
	1157.33	9279	8908	8723	8630	5568	4501	6	4000	160	
	1488.00	9279	8908	8723	8630	5568	4501	6	4000	160	
	1692.74	9279	8908	8723	8630	5568	4501	6	4000	160	
	1913.14	9279	8908	8723	8630	5568	4501	6	4000	160	

$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

T_2=8500 Nm **KR070**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R2	10.77	4532	4532	4532	4532	4532	4532	18	3800	520
	12.69	5348	5348	5348	5348	5348	4991	18	3800	520
	14.09	5917	5917	5917	5917	5917	4991	18	3800	520
	17.65	6781	6781	6781	6781	4932	3987	18	3800	520
	19.73	6674	6674	6674	6674	4932	3987	18	3800	430
	22.91	7083	6800	6658	6588	4250	3435	18	3800	430
	25.80	7083	6800	6658	6588	4250	3435	18	3800	340
	27.68	5862	5628	5510	5452	3517	2843	18	3800	340
	31.18	5862	5628	5510	5452	3517	2843	18	3800	250
R3	37.69	8280	7920	7740	7560	6246	5054	14	4000	340
	44.42	8496	8126	7920	7714	6246	5054	14	4000	340
	52.36	10291	9879	9673	9570	6174	4991	14	4000	250
	58.02	10291	9879	9673	9570	6174	4991	14	4000	250
	72.67	9279	8908	8723	8630	5568	4501	14	4000	160
	80.70	9279	8908	8723	8630	5568	4501	14	4000	160
	90.18	9279	8908	8723	8630	5568	4501	14	4000	160
	104.73	9279	8902	8578	8416	5568	4501	14	4000	160
	113.24	7769	7367	7099	6965	5568	4501	14	4000	160
	126.55	7769	7367	7099	6965	5568	4501	14	4000	160
	143.02	8221	7892	7727	7645	4932	3987	14	4000	160
	166.09	7083	6800	6658	6588	4250	3435	14	4000	160
	187.05	7083	6800	6658	6588	4250	3435	14	4000	160
R4	142.30	8280	7920	7740	7560	6246	5054	12	4000	160
	153.47	8280	7920	7740	7560	6246	5054	12	4000	160
	207.14	8280	7920	7740	7560	6246	5054	12	4000	160
	257.65	8496	8126	7920	7714	6246	5054	12	4000	160
	308.92	8344	7912	7625	7481	6186	5035	12	4000	160
	354.33	8496	8126	7920	7714	6246	5054	12	4000	160
	400.46	8344	7912	7625	7481	6186	5035	12	4000	160
	422.34	9846	9336	8997	8827	6174	4991	12	4000	160
	454.78	10291	9879	9673	9570	6174	4991	12	4000	160
	504.00	10291	9879	9673	9570	6174	4991	12	4000	160
	589.06	9279	8908	8723	8630	5568	4501	12	4000	160
	631.27	9279	8908	8723	8630	5568	4501	12	4000	160
	732.38	9846	9336	8997	8827	6174	4991	12	4000	160
	828.55	8221	7892	7727	7645	4932	3987	12	4000	160
	914.06	9279	8908	8723	8630	5568	4501	12	4000	160
	1019.14	7769	7367	7099	6965	5568	4501	12	4000	160
	1138.91	7769	7367	7099	6965	5568	4501	12	4000	160

$$T_{2max}=1.2 \cdot T_{n2}(n_2 \cdot h=10000)$$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I
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ø62f7
ø40
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51
10
70
90
22X14X120
DIN 6885
130
5
120
P
85
ø80k6
ø24
M20
5
45
55
22
73 KL2070
136.5 KL3070
200 KL4070
40
182.5 KL1070
S
30°
ø16 N°12
ø280
ø200f7
ø295
12
20
ø250
181
108.5
40
ch70
E
ø22
81
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45
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ø208
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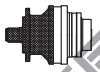
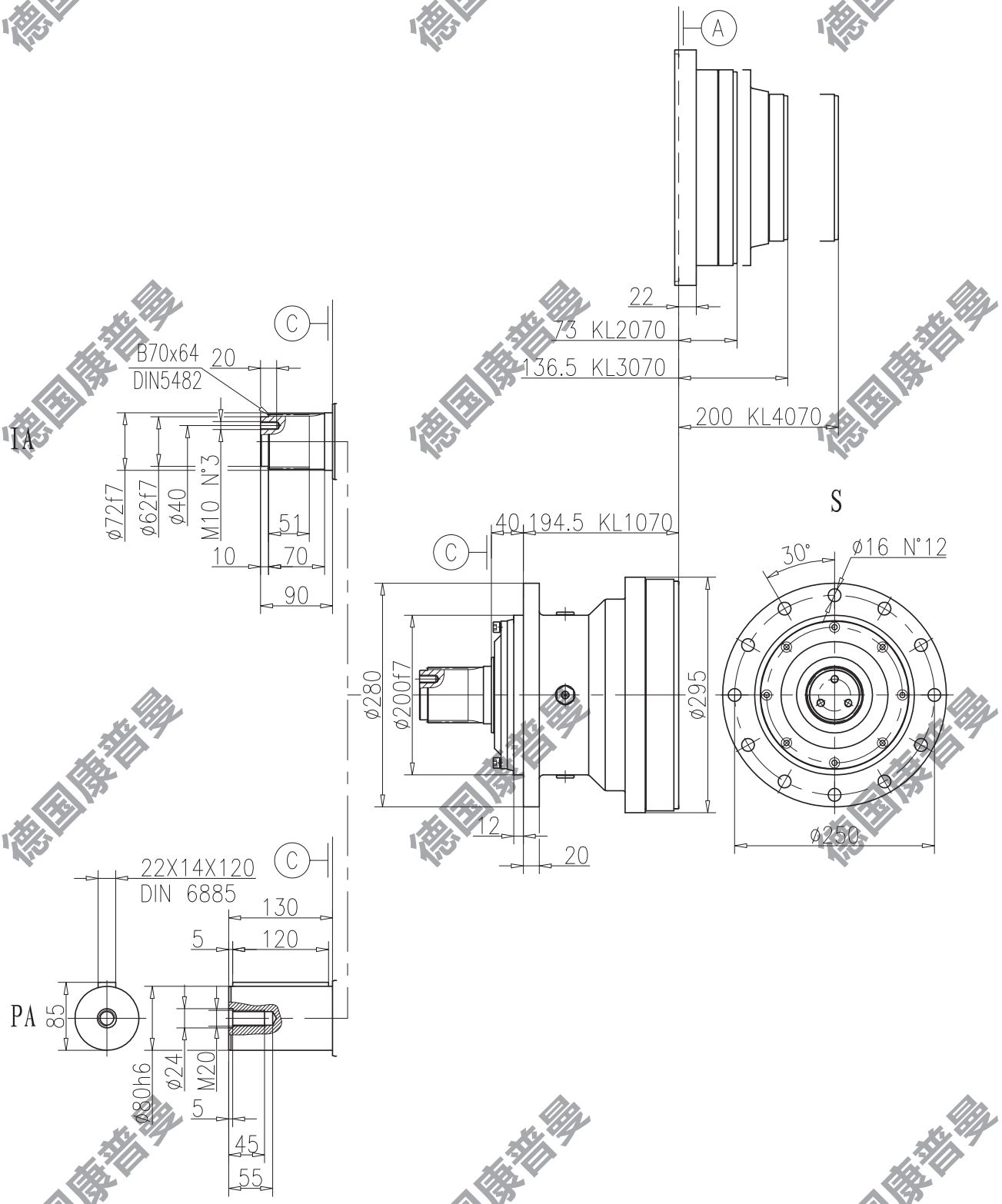
M18 n°12
ø125f7

KL070

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22
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136.5 KL3070
200 KL4070
C
B70x64
DIN5482
20
IA
ø72f7
ø62f7
ø40
M10 N°3
51
10
70
90
40
194.5 KL1070
S
30°
ø16 N°12
ø280
ø200f7
ø295
12
20
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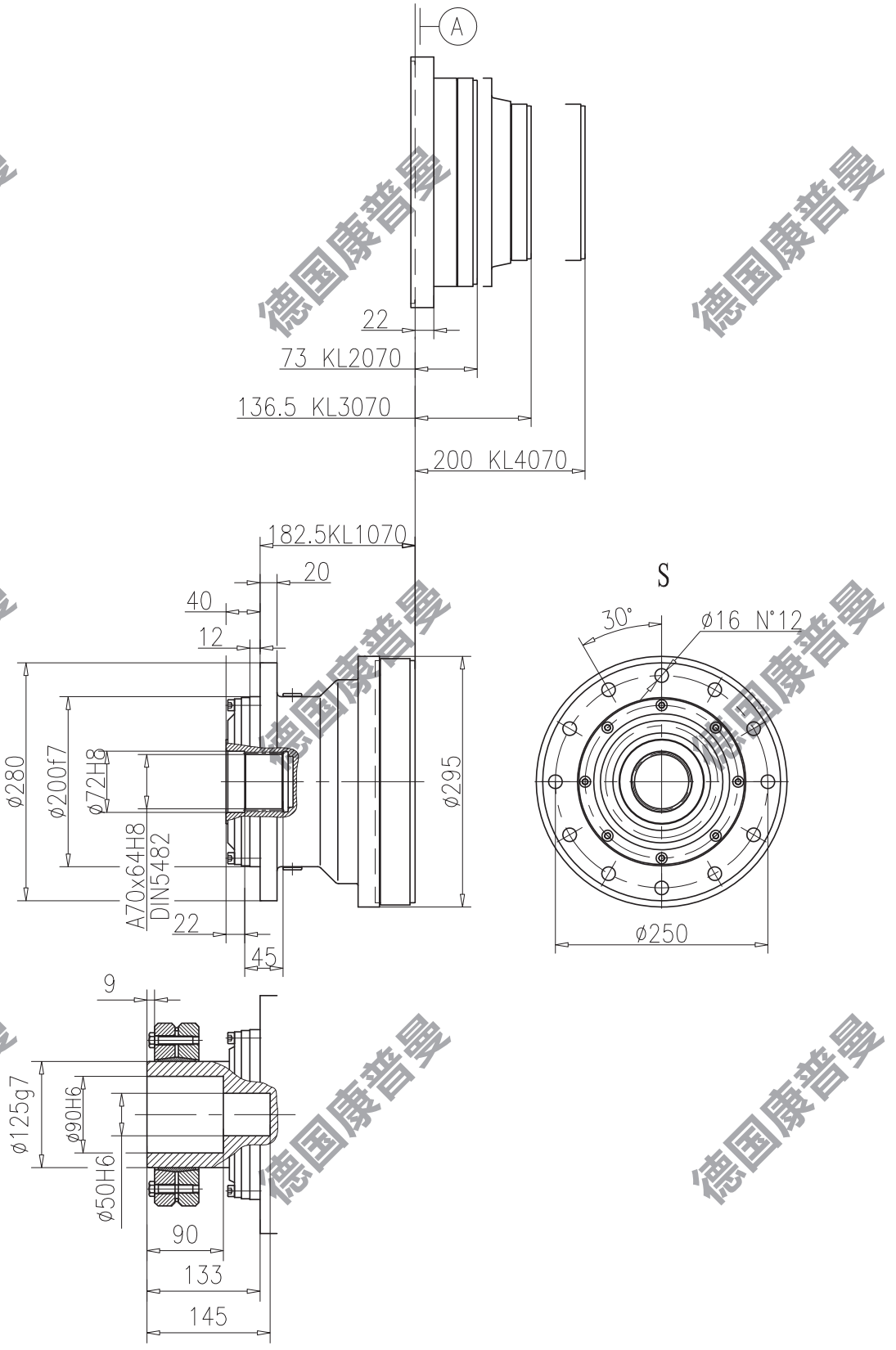
130
5
120
PA
85
ø80h6
ø24
M20
5
45
55

KL070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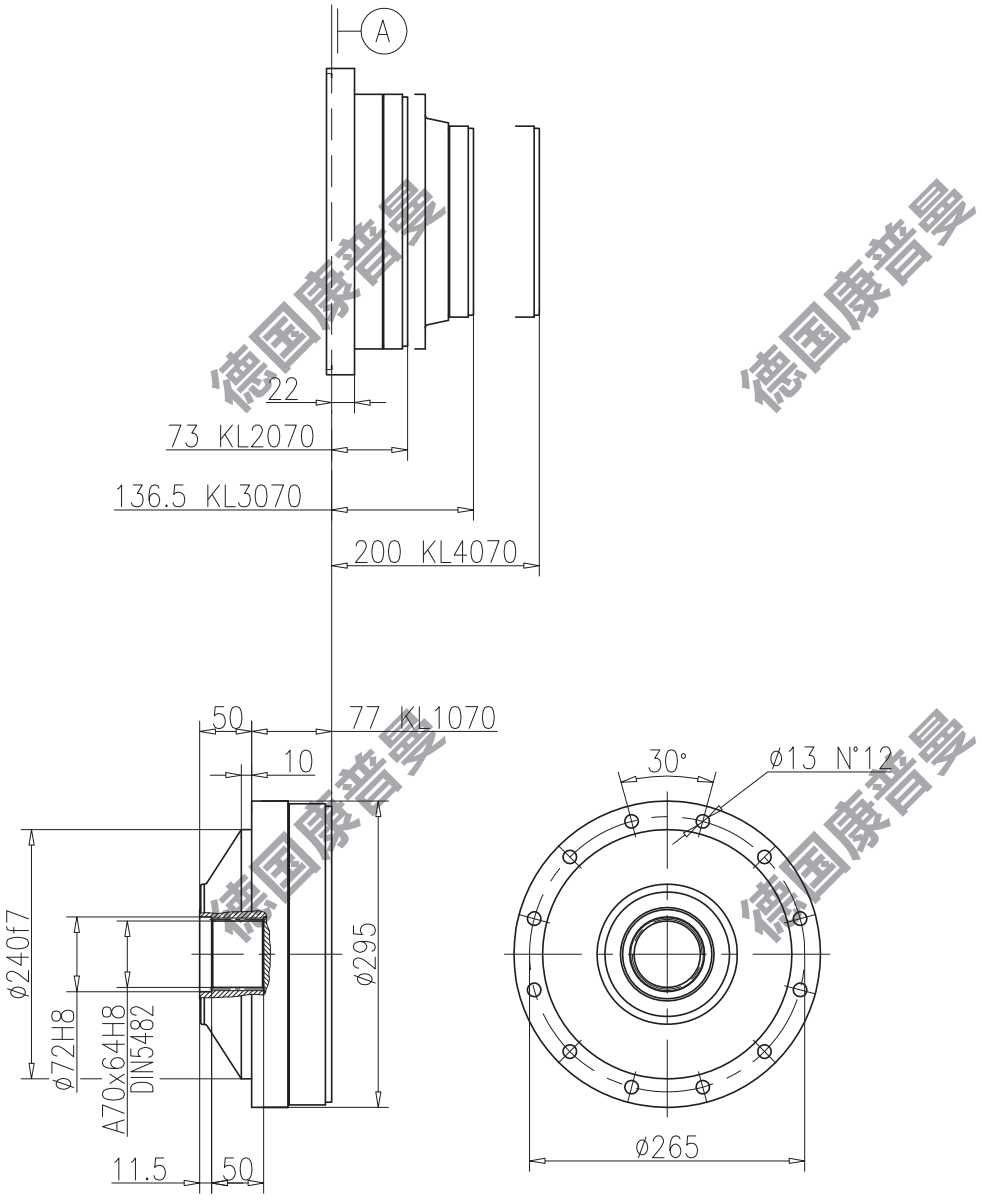
22
73 KL2070
136.5 KL3070
200 KL4070
182.5KL1070
20
40
12
H
ø280
ø200f7
ø72H8
A70x64H8
DIN5482
22
45
ø295
S
30°
ø16 N°12
ø250
9
D
ø125g7
ø90H6
ø50H6
90
133
145

KL070


A
22
73 KL2070
136.5 KL3070
200 KL4070
50
77 KL1070
10
30°
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H
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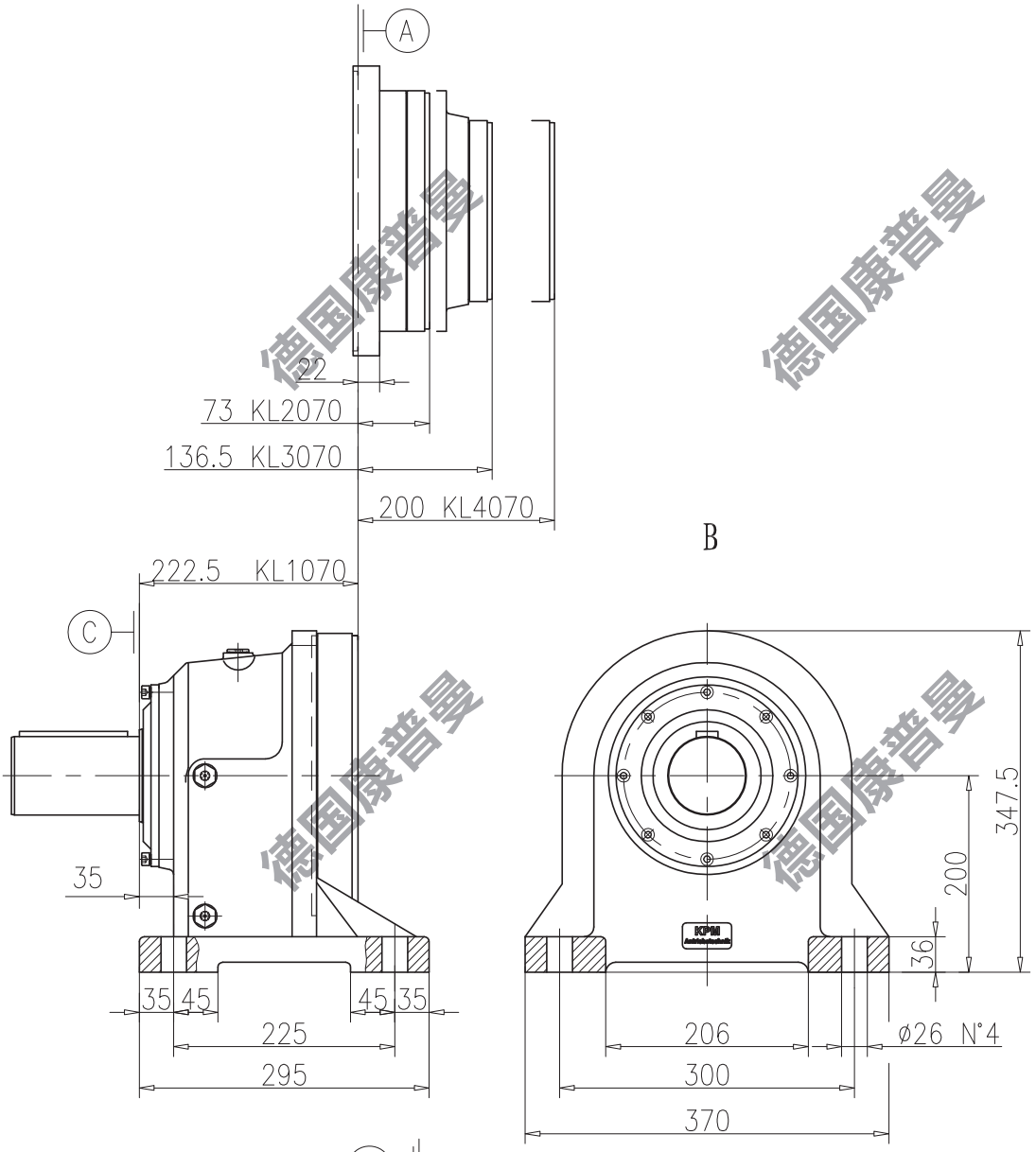
50
ø265

KL070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136.5 KL3070
200 KL4070
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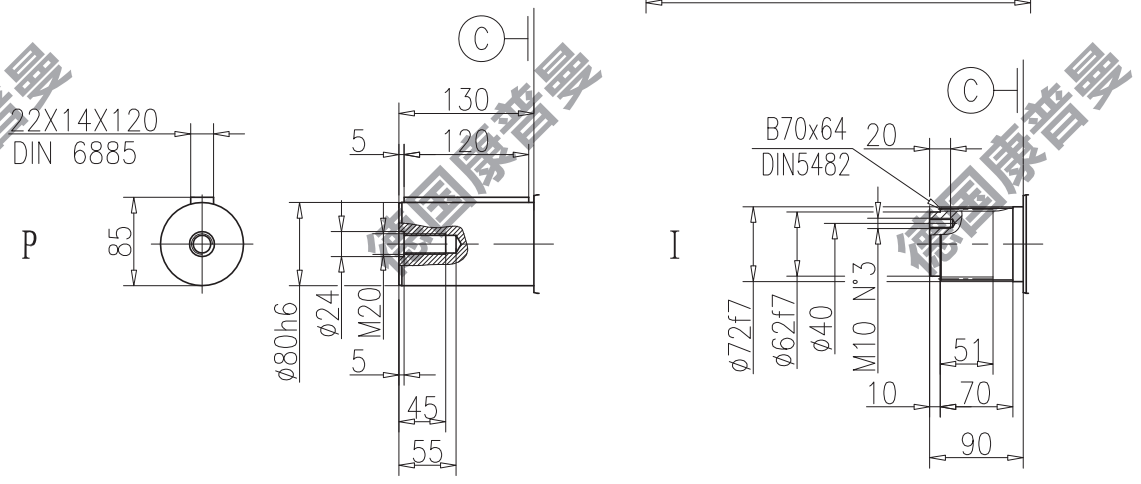
347.5
200
36
206
ø26 N°4
300
370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P
85
130
5
120
ø80h6
ø24
M20
5
45
55
I
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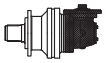
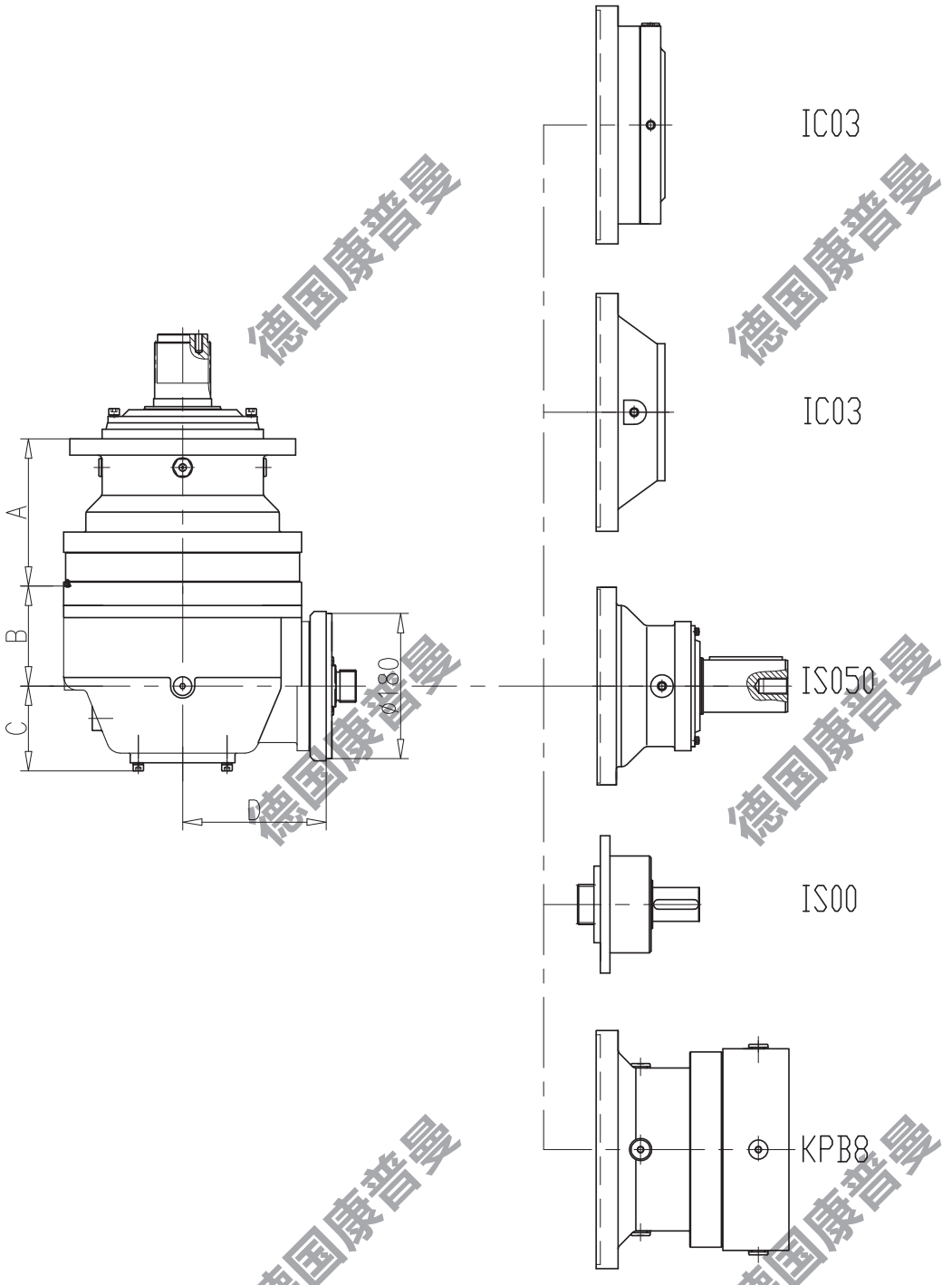
DIN5482
20
ø72f7
ø62f7
ø40
M10 N°3
51
10
70
90

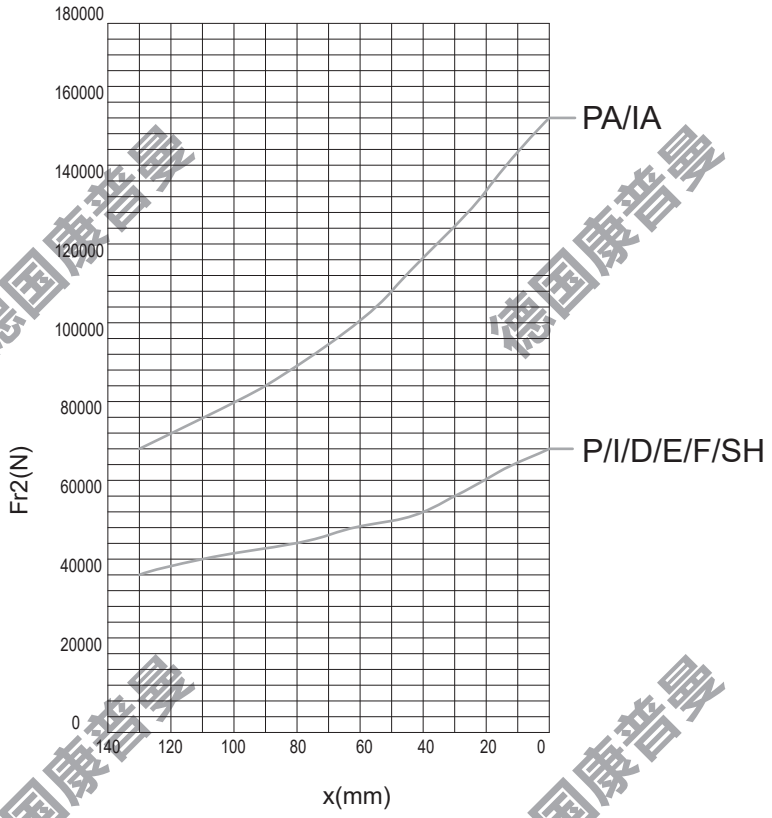
KR070

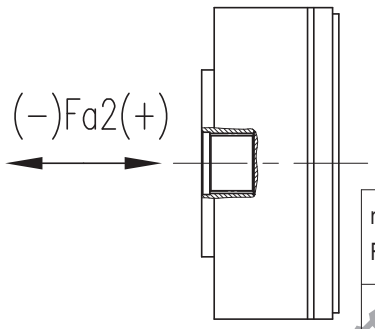




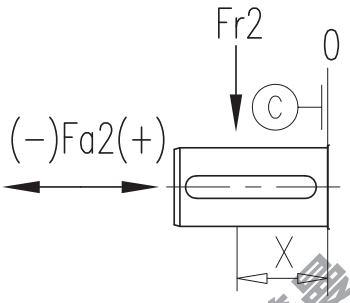
	A											B	C	D
	SP	SI	SE	SF	SD	SH	H	BP	BI	SPA	SIA			
KR 2070	182.5	182.5	182.5	182.5	182.5	182.5	77	222.5	222.5	194.5	194.5	124	105	185
KR 3070	255.5	255.5	255.5	255.5	255.5	255.5	150	295.5	295.5	267.5	267.5	122	105	185
KR 4070	319	319	319	319	319	319	213.5	359	359	331	331	90	81.5	134.5

KL070





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
H	25000	25000
SH-SD	45000	45000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SE-SF	70000	44000
SPA-SIA-BPA-BIA	120000	60000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL100

T_2=10000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
L1	3.50	14833	12912	11628	10596	7350	5970	31	2500	
	3.78	16020	13946	12559	11444	7806	6340	31	2500	
	4.13	14663	12765	11494	10474	7144	5803	31	2500	
	5.17	11713	10197	9182	8367	5707	4636	31	2500	
	6.00	10093	8786	7912	7210	4918	3994	31	2500	
L2	12.25	14833	12912	11628	10596	7350	5970	19.1	3100	
	14.44	14833	12912	11628	10596	7350	5970	19.1	3100	
	17.02	14663	12765	11494	10474	7144	5803	19.1	3100	1140
	18.08	14833	12912	11628	10596	7350	5970	19.1	3100	1050
	21.31	14663	12765	11494	10474	7144	5803	19.1	3100	875
	25.38	11900	11284	10874	10596	7350	5970	19.1	3100	610
	27.43	13251	11536	10388	9466	6457	5244	19.1	3100	610
	31.00	11713	10197	9182	8367	5707	4636	19.1	3100	520
	37.46	11713	10197	9182	8367	5707	4636	19.1	3100	430
	43.50	10093	8786	7912	7210	4918	3994	19.1	3100	340
L3	44.92	14833	12912	11628	10596	7350	5970	13.7	4000	430
	49.00	14833	12912	11628	10596	7350	5970	13.7	4000	430
	54.25	14833	12912	11628	10596	7350	5970	13.7	4000	340
	63.94	14833	12912	11628	10596	7350	5970	13.7	4000	250
	75.36	14663	12765	11494	10474	7144	5803	13.7	4000	250
	80.08	14833	12912	11628	10596	7350	5970	13.7	4000	250
	90.38	16020	13946	12559	11444	7806	6340	13.7	4000	250
	100.17	16020	13946	12559	11444	7806	6340	13.7	4000	250
	109.37	14663	12765	11494	10474	7144	5803	13.7	4000	160
	132.00	14663	12765	11494	10474	7144	5803	13.7	4000	160
	143.55	14663	12765	11494	10474	7144	5803	13.7	4000	160
	149.19	14663	12765	11494	10474	7144	5803	13.7	4000	160
	158.67	15530	13946	12559	11444	7806	6340	13.7	4000	160
	175.67	16020	13946	12559	11444	7806	6340	13.7	4000	160
	186.86	11713	10197	9182	8367	5707	4636	13.7	4000	160
	192.00	13251	11536	10388	9466	6457	5244	13.7	4000	160
	212.57	13251	11536	10388	9466	6457	5244	13.7	4000	160
	246.86	13251	11536	10388	9466	6457	5244	13.7	4000	160
	269.16	14042	12765	11494	10474	7144	5803	13.7	4000	160
	279.00	11713	10197	9182	8367	5707	4636	13.7	4000	160
	337.13	11713	10197	9182	8367	5707	4636	13.7	4000	160
L4	184.45	14833	12912	11628	10596	7350	5970	10.9	4000	160
	276.30	14663	12765	11494	10474	7144	5803	10.9	4000	160
	319.69	14833	12912	11628	10596	7350	5970	10.9	4000	160
	354.29	14833	12912	11628	10596	7350	5970	10.9	4000	160
	400.27	16020	13946	12559	11444	7806	6340	10.9	4000	160
	462.78	14833	12912	11628	10596	7350	5970	10.9	4000	160
	505.31	14833	12912	11628	10596	7350	5970	10.9	4000	160
	545.42	14663	12765	11494	10474	7144	5803	10.9	4000	160
	634.35	14663	12765	11494	10474	7144	5803	10.9	4000	160
	792.45	16020	13946	12559	11444	7806	6340	10.9	4000	160
	909.56	14833	12912	11628	10596	7350	5970	10.9	4000	160
	1062.86	13251	11536	10388	9466	6457	5244	10.9	4000	160
	1157.33	13251	11536	10388	9466	6457	5244	10.9	4000	160
	1488.00	13251	11536	10388	9466	6457	5244	10.9	4000	160
	1913.14	13251	11536	10388	9466	6457	5244	10.9	4000	160

$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

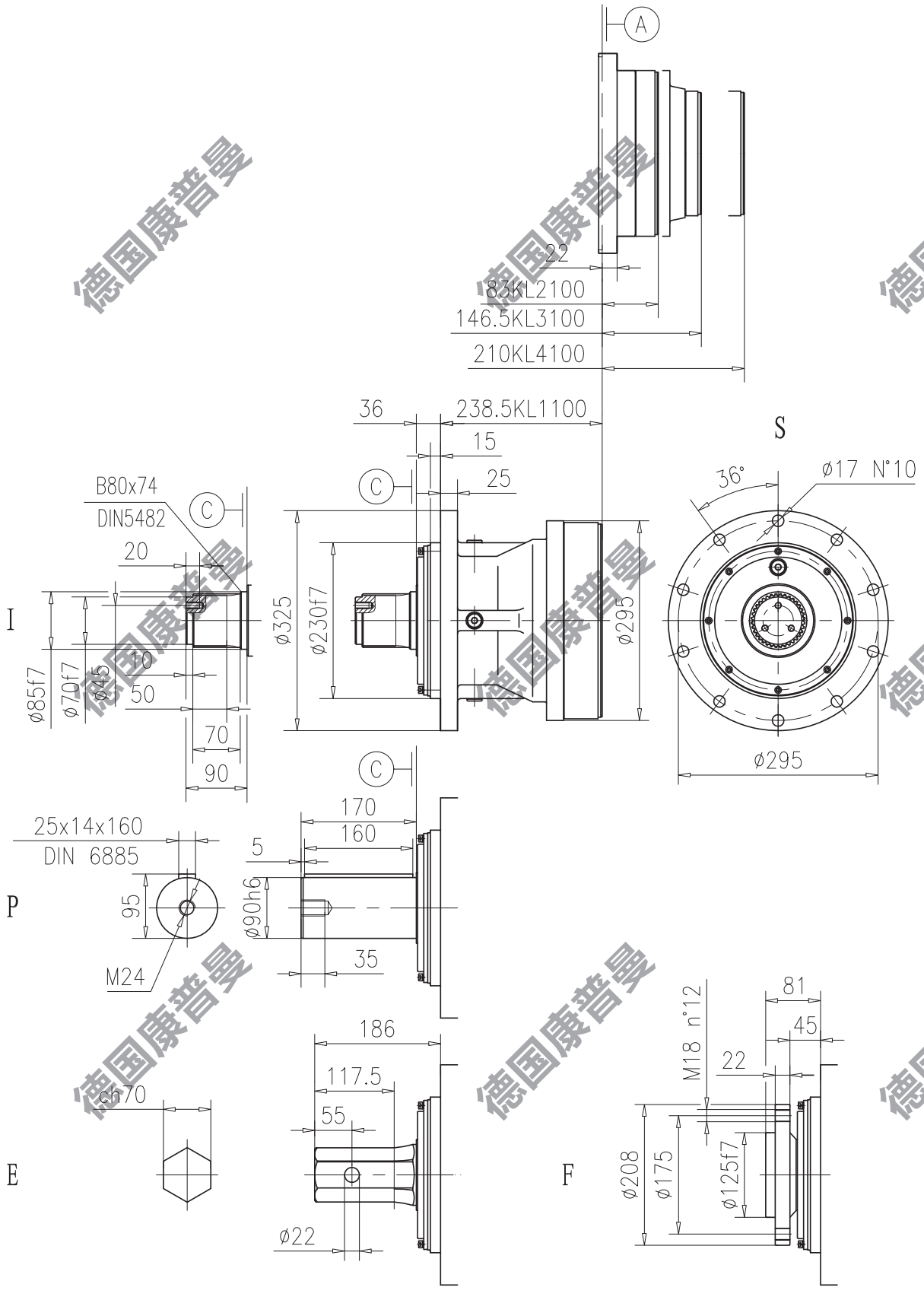
T_2=10000 Nm

KR100

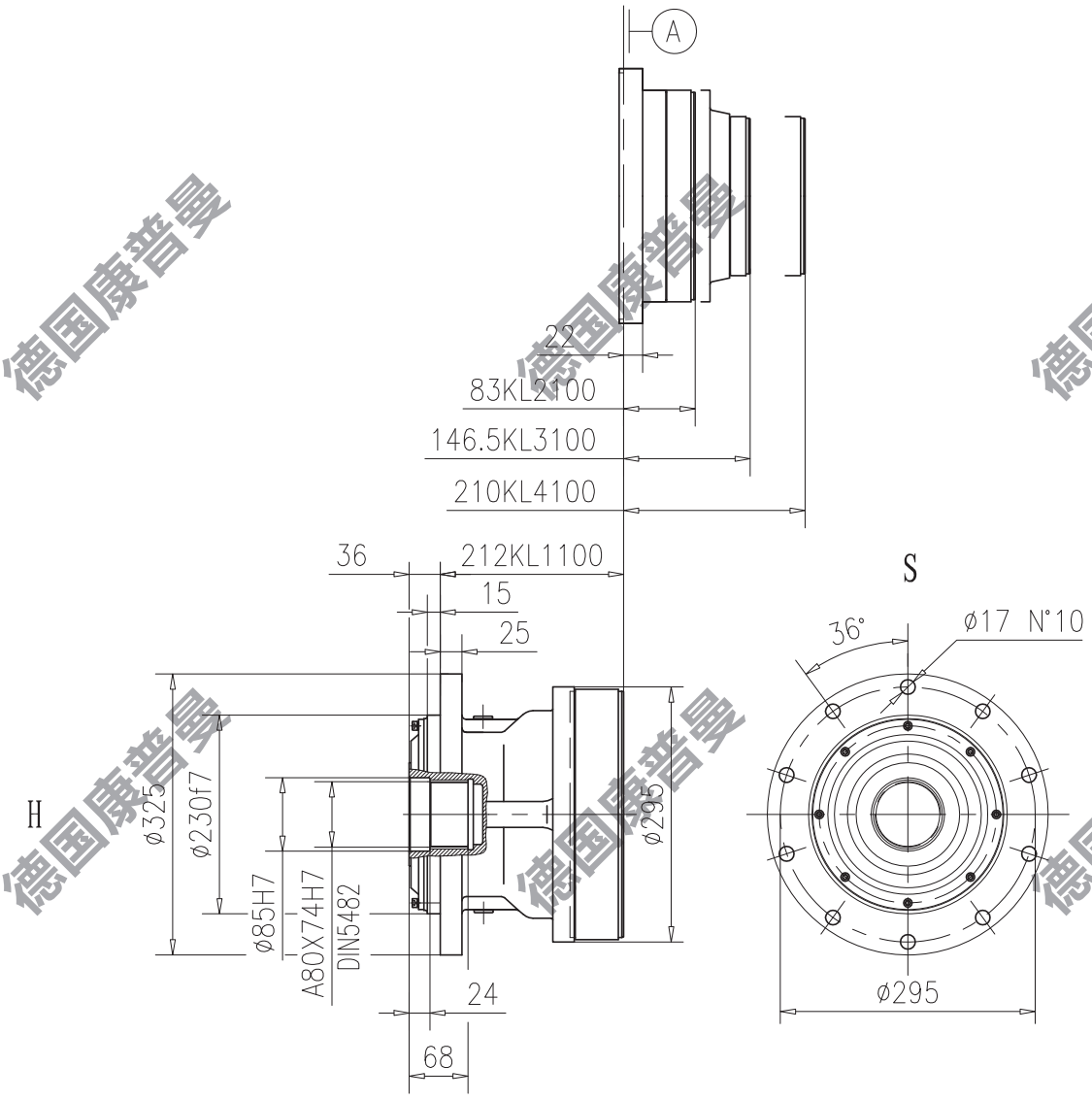
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
R2	10.77	4532	4532	4532	4532	4532	4532	20.5	3500	520	
	11.62	4894	4894	4894	4894	4894	4894	20.5	3500	520	
	12.69	5348	5348	5348	5348	5348	5348	20.5	3500	520	
	17.65	6781	6781	6781	6781	5707	4636	20.5	3500	520	
	19.73	6674	6674	6674	6674	5707	4636	20.5	3500	430	
	25.80	7714	7714	7714	7210	4918	3994	20.5	3500	430	
R3	37.69	14833	12912	11628	10596	7350	5970	11.5	3500	520	
	40.68	14833	12912	11628	10596	7350	5970	11.5	3500	520	
	44.42	14833	12912	11628	10596	7350	5970	11.5	3500	430	
	47.95	16020	13946	12559	11444	7806	6340	11.5	3500	430	
	52.36	14663	12765	11494	10474	7144	5803	11.5	3500	340	
	58.02	14663	12765	11494	10474	7144	5803	11.5	3500	340	
	72.67	13251	11536	10388	9466	6457	5244	11.5	3500	250	
	80.70	13251	11536	10388	9466	6457	5244	11.5	3500	250	
	90.18	13251	11536	10388	9466	6457	5244	11.5	3500	250	
	104.73	13251	11536	10388	9466	6457	5244	11.5	3500	160	
	143.02	11713	10197	9182	8367	5707	4636	11.5	3500	160	
	166.09	10093	8786	7912	7210	4918	3994	11.5	3500	160	
	187.05	10093	8786	7912	7210	4918	3994	11.5	3500	160	
R4	142.30	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	153.47	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	171.65	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	180.70	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	235.33	16020	13946	12559	11444	7806	6340	10.7	3500	160	
	252.42	16020	13946	12559	11444	7806	6340	10.7	3500	160	
	308.81	16020	13946	12559	11444	7806	6340	10.7	3500	160	
	354.33	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	400.46	14833	12912	11628	10596	7350	5970	10.7	3500	160	
	422.34	14663	12765	11494	10474	7144	5803	10.7	3500	160	
	454.78	14663	12765	11494	10474	7144	5803	10.7	3500	160	
	504.00	14663	12765	11494	10474	7144	5803	10.7	3500	160	
	589.06	13251	11536	10388	9466	6457	5244	10.7	3500	160	
	631.27	13251	11536	10388	9466	6457	5244	10.7	3500	160	
	670.73	16020	13946	12559	11444	7806	6340	10.7	3500	160	
	732.38	14663	12765	11494	10474	7144	5803	10.7	3500	160	
	828.55	11713	10197	9182	8367	5707	4636	10.7	3500	160	
	914.06	13251	11536	10388	9466	6457	5244	10.7	3500	160	

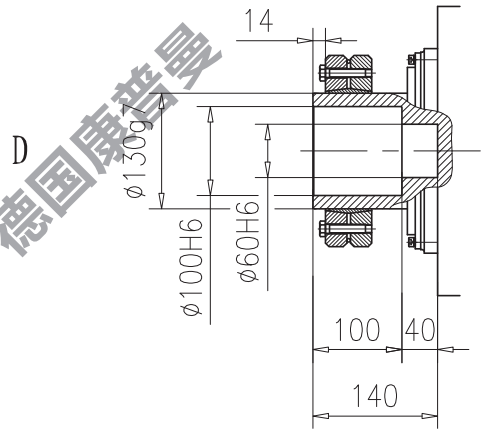
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL100

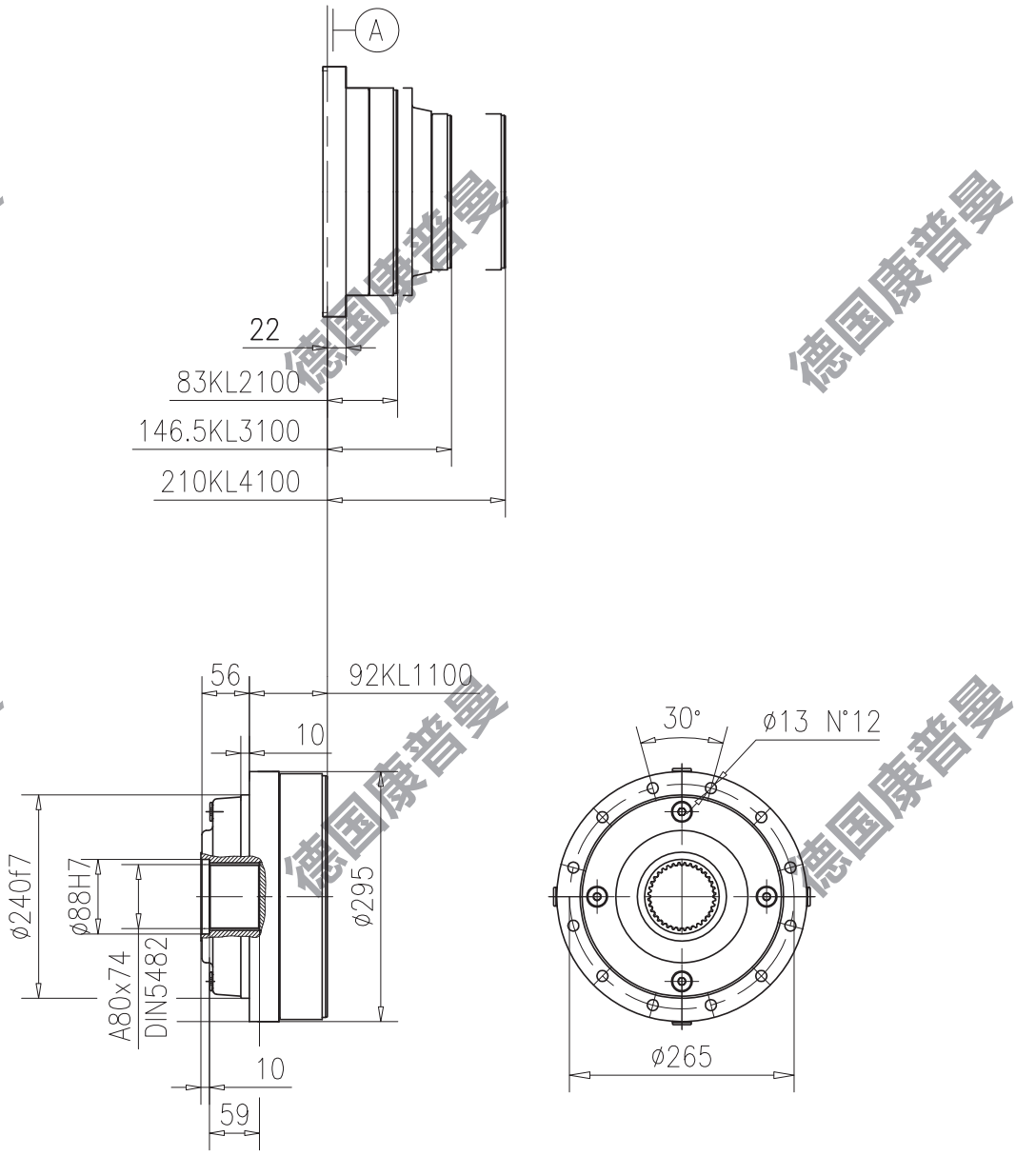

A
22
83KL2100
146.5KL3100
210KL4100
36
238.5KL1100
15
25
C
B80x74
DIN5482
20
10
50
70
90
ø85f7
ø70f7
ø45
ø325
ø230f7
ø295
S
36°
ø17 N°10
ø295
I
P
25x14x160
DIN 6885
95
M24
5
170
160
ø90h6
35
E
ch70
186
117.5
55
ø22
F
M18 n°12
81
45
22
ø208
ø175
ø125f7

KL100

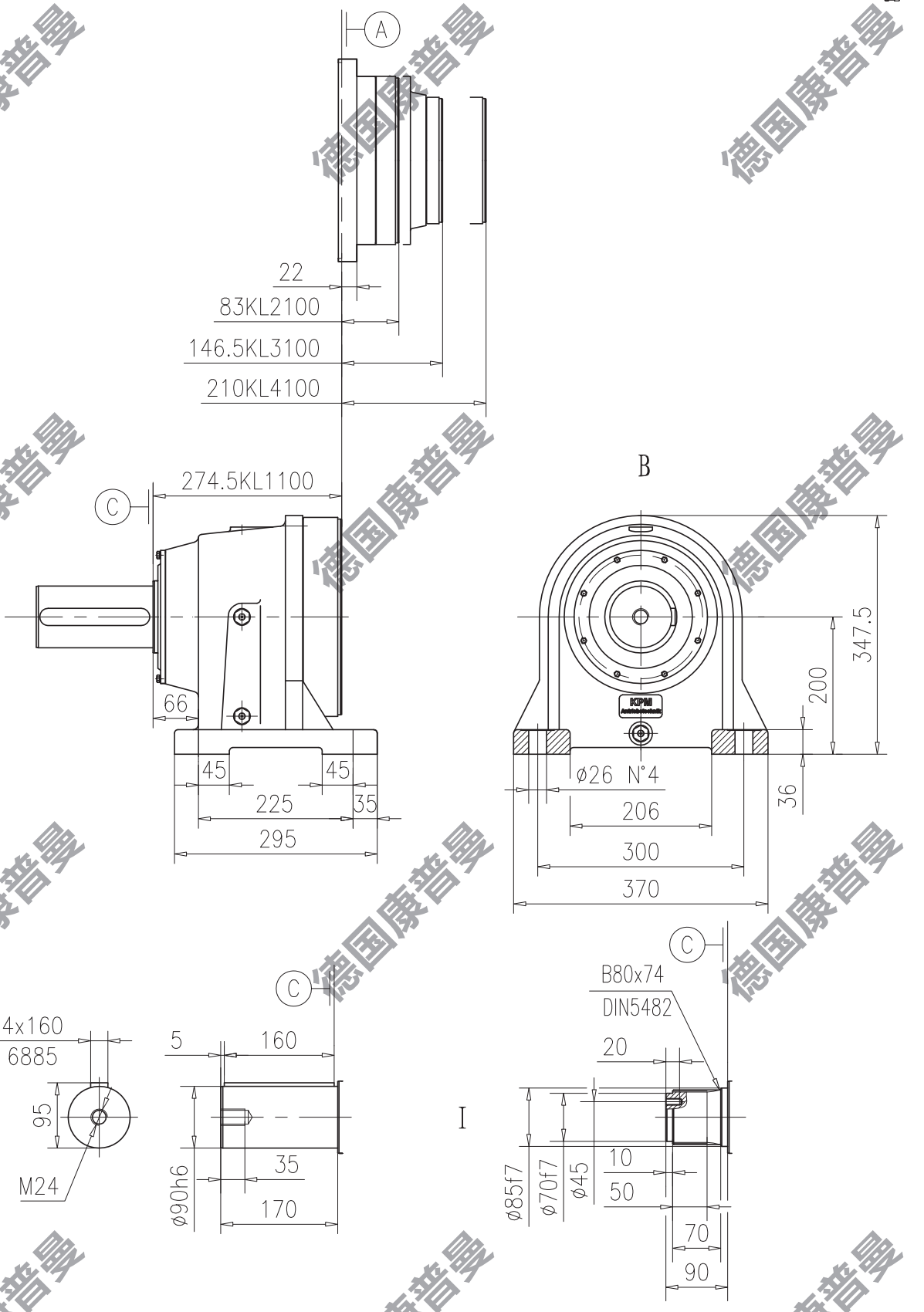

A
22
83KL2100
146.5KL3100
210KL4100
36
212KL1100
15
25
H
ø325
ø230f7
ø85H7
A80X74H7
DIN5482
ø295
24
68
S
36°
ø17 N°10
ø295


D
14
ø130g7
ø100H6
ø60H6
100
40
140

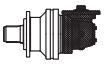
KL100

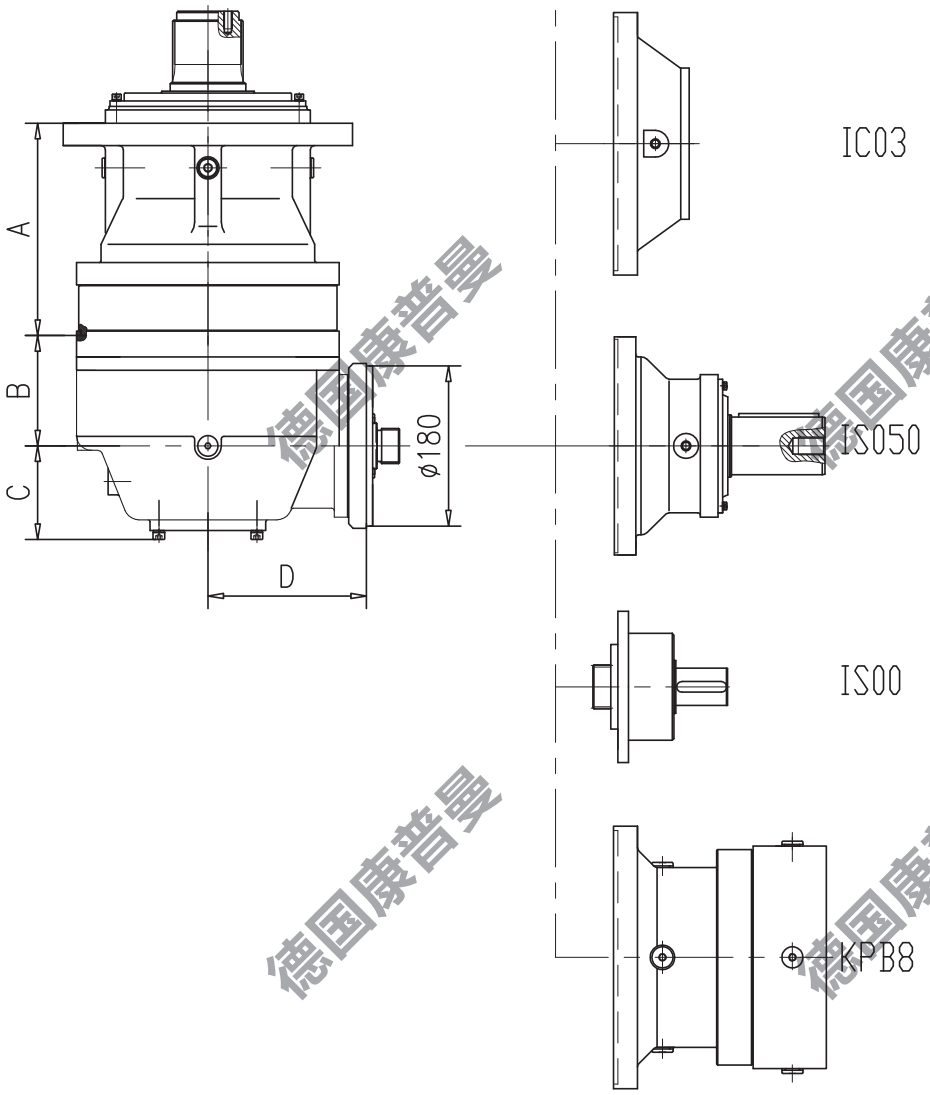

A
22
83KL2100
146.5KL3100
210KL4100
56
92KL1100
10
H
ø240f7
ø88H7
A80x74
DIN5482
ø295
10
59
30°
ø13 N°12
ø265

KL100


A
22
83KL2100
146.5KL3100
210KL4100
274.5KL1100
C
66
45
45
225
35
295
B
347.5
200
KPM
ø26 N°4
206
300
370
36
C
B80x74
DIN5482
20
10
50
70
90
ø85f7
ø70f7
ø45
I
25x14x160
DIN 6885
95
M24
P
C
5
160
35
170
ø90h6

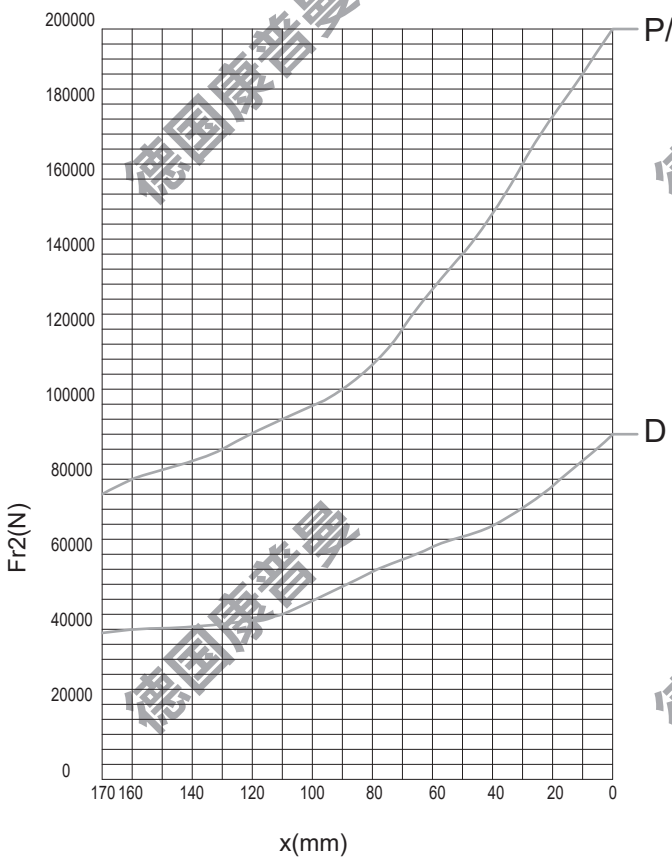
KR100

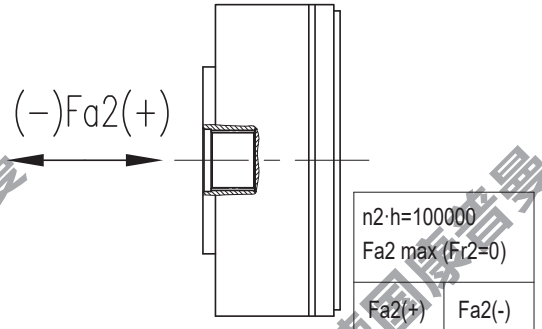




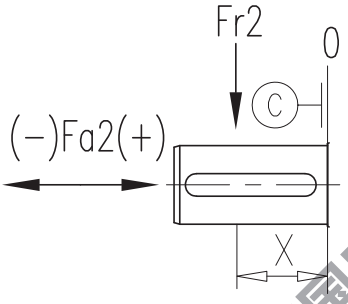
	A									B	C	D
	SP	SI	SE	SF	SD	SH	H	BP	BI			
KR 2100	238.5	238.5	238.5	238.5	212	212	92	274.5	274.5	124	105	185
KR 3100	321.5	321.5	321.5	321.5	295	295	175	357.5	357.5	122	105	185
KR 4100	385	385	385	385	358.5	358.5	238.5	421	421	90	81.5	134.5

KL100





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
H	25000	25000
SH-SD	45000	45000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SE-SF	110000	65000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL160

T_2 = 16000Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$				
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.72	20470	17821	16048	15040	13048	10599	33	2400		
	4.09	22508	19594	17645	16537	14814	12033	33	2400		
	4.58	20100	17498	15757	14768	13229	10745	33	2400		
	5.25	17535	15265	13746	12883	11541	9374	33	2400		
	6.23	14777	12864	11584	10856	9726	7899	33	2400		
L2	13.02	17984	17027	16048	15040	13048	10599	21	3100		
	14.32	19772	18721	17645	16537	14814	12033	21	3100		
	16.88	22508	19594	17645	16537	14814	12033	21	3100		
	18.70	22061	19594	17645	16537	14073	11411	21	3100		
	21.14	19501	18492	17645	16537	12440	10087	21	3100	1140	
	21.81	14777	12864	11584	10856	9726	7899	21	3100	875	
	27.47	18816	17498	15757	14768	12003	9733	21	3100	875	
	33.20	15572	14767	14230	13961	9934	8054	21	3100	610	
	38.06	17535	15265	13746	12883	11387	9233	21	3100	520	
	45.17	14777	12864	11584	10856	9726	7899	21	3100	430	
L3	44.27	17798	17027	16048	15040	13048	10599	16.1	4000	520	
	56.21	20470	17821	16048	15040	13048	10599	16.1	4000	430	
	71.59	19772	18721	17645	16537	14814	12033	16.1	4000	340	
	80.44	20100	17498	15757	14768	13229	10745	16.1	4000	340	
	89.00	20470	17821	16048	15040	13048	10599	16.1	4000	340	
	93.51	22061	19594	17645	16537	14073	11411	16.1	4000	340	
	109.55	20100	17498	15757	14768	13229	10745	16.1	4000	250	
	121.41	20100	17498	15757	14768	13229	10745	16.1	4000	250	
	147.95	19501	18492	17645	16537	12440	10087	16.1	4000	160	
	157.33	17535	15265	13746	12883	11541	9374	16.1	4000	160	
	165.61	20100	17498	15757	14768	13229	10745	16.1	4000	160	
	171.82	16803	15934	15355	15065	10719	8691	16.1	4000	160	
	189.88	17535	15265	13746	12883	11541	9374	16.1	4000	160	
	207.61	13906	13187	12707	12467	8871	7193	16.1	4000	160	
	220.50	17535	15265	13746	12883	11541	9374	16.1	4000	160	
	232.38	15572	14767	14230	13961	9934	8054	16.1	4000	160	
	247.26	18816	17498	15757	14768	12003	9733	16.1	4000	160	
	298.78	15572	14767	14230	13961	9934	8054	16.1	4000	160	
	342.56	17535	15265	13746	12883	11387	9233	16.1	4000	160	
L4	216.19	22061	19594	17645	16537	14073	11411	10.7	4000	160	
	256.06	20065	17821	16048	15040	12800	10379	10.7	4000	160	
	281.33	20470	17821	16048	15040	13048	10599	10.7	4000	160	
	311.77	20065	17821	16048	15040	12800	10379	10.7	4000	160	
	358.88	22508	19594	17645	16537	14814	12033	10.7	4000	160	
	401.63	22508	19594	17645	16537	14814	12033	10.7	4000	160	
	463.50	20100	17498	15757	14768	13229	10745	10.7	4000	160	
	506.39	20470	17821	16048	15040	13048	10599	10.7	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2 = 16000Nm **KL160**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$				
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]	
L4	567.68	22508	19594	17645	16537	14814	12033	10.7	4000	160	
	654.55	22061	19594	17645	16537	14073	11411	10.7	4000	160	
	711.03	19501	18492	17645	16537	12440	10087	10.7	4000	160	
	801.01	20470	17821	16048	15040	13048	10599	10.7	4000	160	
	906.19	15283	14493	13966	13702	9750	7905	10.7	4000	160	
	1003.28	17737	16819	16048	15040	11315	9174	10.7	4000	160	
	1103.32	19501	18492	17645	16537	12440	10087	10.7	4000	160	
	1234.94	20100	17498	15757	14768	13229	10745	10.7	4000	160	
	1331.59	19501	18492	17645	16537	12440	10087	10.7	4000	160	
	1415.93	17535	15265	13746	12883	11541	9374	10.7	4000	160	
	1543.50	17535	15265	13746	12883	11541	9374	10.7	4000	160	
	1644.30	17535	15265	13746	12883	11541	9374	10.7	4000	160	
	1730.84	18816	17498	15757	14768	12003	9733	10.7	4000	160	
	1944.00	17535	15265	13746	12883	11541	9374	10.7	4000	160	
	2091.43	15572	14767	14230	13961	9934	8054	10.7	4000	160	
	2225.37	18816	17498	15757	14768	12003	9733	10.7	4000	160	

$$T_{2max} = 1.2 \cdot T_{n2}(n_2 \cdot h = 10000)$$

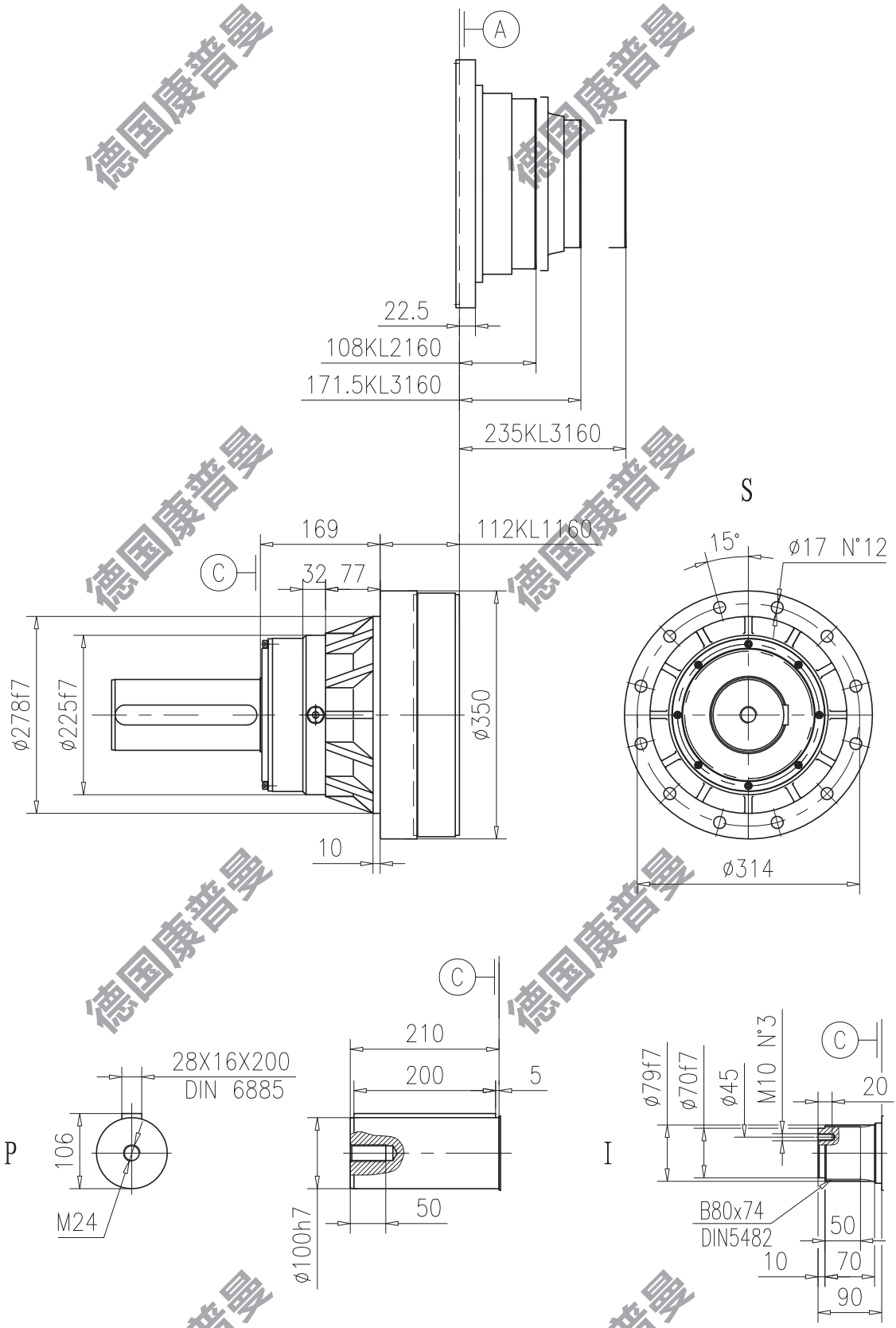
KL160

T_2 = 16000Nm

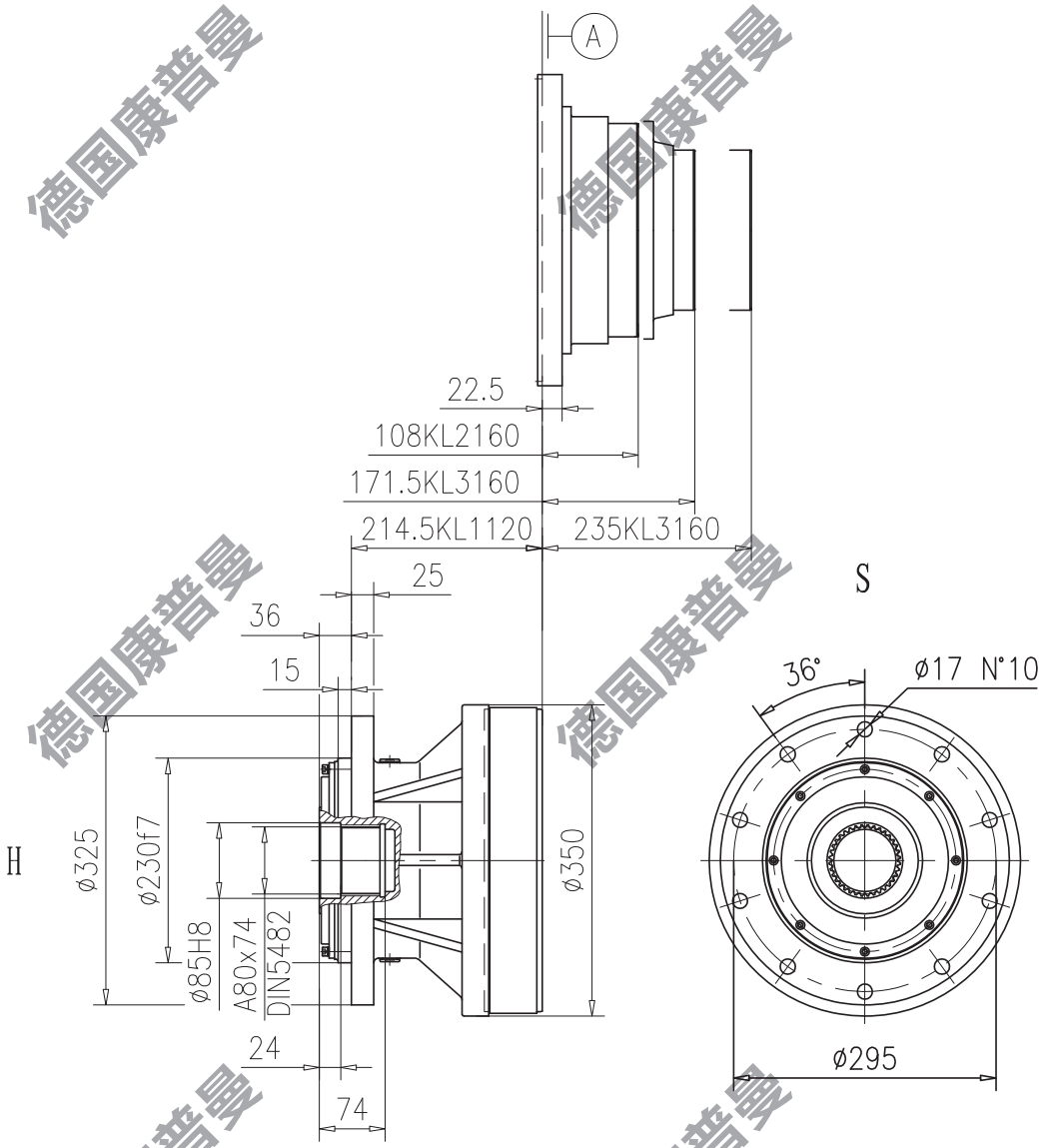
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R2	11.73	6567	6567	6567	6567	6567	6567	20.5	3500	700
	12.90	7220	7220	7220	7220	7220	7220	20.5	3500	700
	14.44	8086	8086	8086	8086	8086	8086	20.5	3500	700
	16.03	8193	8193	8193	8193	8193	8193	20.5	3500	610
	18.38	9391	9391	9391	9391	9391	9374	20.5	3500	610
	20.52	9268	9268	9268	9268	9268	9268	20.5	3500	610
	21.81	11144	11144	11144	10856	9726	7899	20.5	3500	610
	24.36	10998	10998	10998	10856	9726	7899	20.5	3500	610
	28.04	11509	11509	11509	10856	9726	7899	20.5	3500	520
R3	40.06	16858	16858	16048	15040	13048	10599	11.5	3500	520
	47.22	19893	17821	16048	15040	13048	10599	11.5	3500	520
	51.92	21871	19594	17645	16537	14814	12033	11.5	3500	520
	57.54	22061	19594	17645	16537	14073	11411	11.5	3500	520
	65.03	19501	18492	17645	16537	12440	10087	11.5	3500	430
	72.79	20100	17498	15757	14768	13229	10745	11.5	3500	340
	80.70	19501	18492	17645	16537	12440	10087	11.5	3500	340
	90.33	20100	17498	15757	14768	13229	10745	11.5	3500	340
	103.57	17535	15265	13746	12883	11541	9374	11.5	3500	250
	113.42	15572	14767	14230	13961	9934	8054	11.5	3500	250
	130.05	17535	15265	13746	12883	11387	9233	11.5	3500	160
	145.33	17535	15265	13746	12883	11387	9233	11.5	3500	160
	172.48	14777	12864	11584	10856	9726	7899	11.5	3500	160
R4	166.33	19569	18721	17645	16537	14814	12033	10.7	3500	160
	209.10	20470	17821	16048	15040	13048	10599	10.7	3500	160
	261.63	20065	17821	16048	15040	12800	10379	10.7	3500	160
	322.16	22508	19594	17645	16537	14814	12033	10.7	3500	160
	356.13	22061	19594	17645	16537	14073	11411	10.7	3500	160
	458.66	17535	15265	13746	12883	11541	9374	10.7	3500	160
	499.83	22061	19594	17645	16537	14073	11411	10.7	3500	160
	559.46	20100	17498	15757	14768	13229	10745	10.7	3500	160
	600.70	17535	15265	13746	12883	11541	9374	10.7	3500	160
	655.14	20100	17498	15757	14768	13229	10745	10.7	3500	160
	754.77	16803	15934	15355	15065	10719	8691	10.7	3500	160
	844.82	18816	17498	15757	14768	12003	9733	10.7	3500	160
	915.56	20100	17498	15757	14768	13229	10745	10.7	3500	160
	1020.82	15572	14767	14230	13961	9934	8054	10.7	3500	160
	1140.78	15572	14767	14230	13961	9934	8054	10.7	3500	160

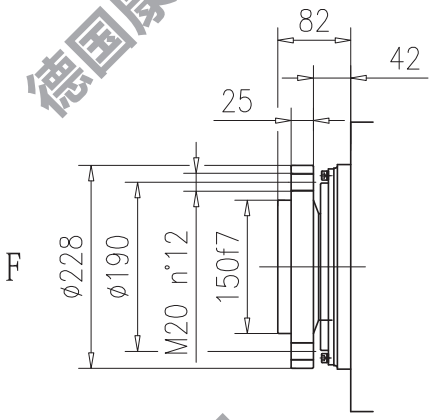
$$T_{2max} = 1.2 \cdot T_{n2}(n_{2 \cdot h} = 10000)$$

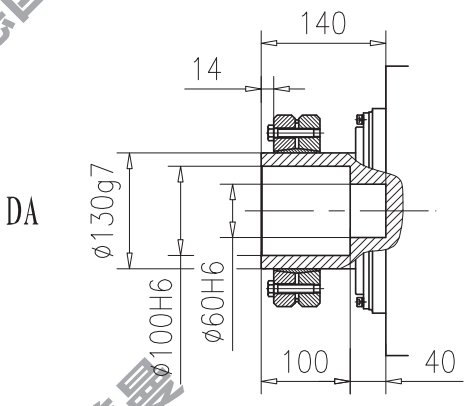
KL160


A
22.5
108KL2160
171.5KL3160
235KL3160
S
169
112KL1160
C
32
77
ø278f7
ø225f7
ø350
10
15°
ø17 N°12
ø314
C
210
200
5
28X16X200
DIN 6885
P
106
M24
50
ø100h7
I
ø79f7
ø70f7
ø45
M10 N°3
C
20
B80x74
DIN5482
50
10
70
90

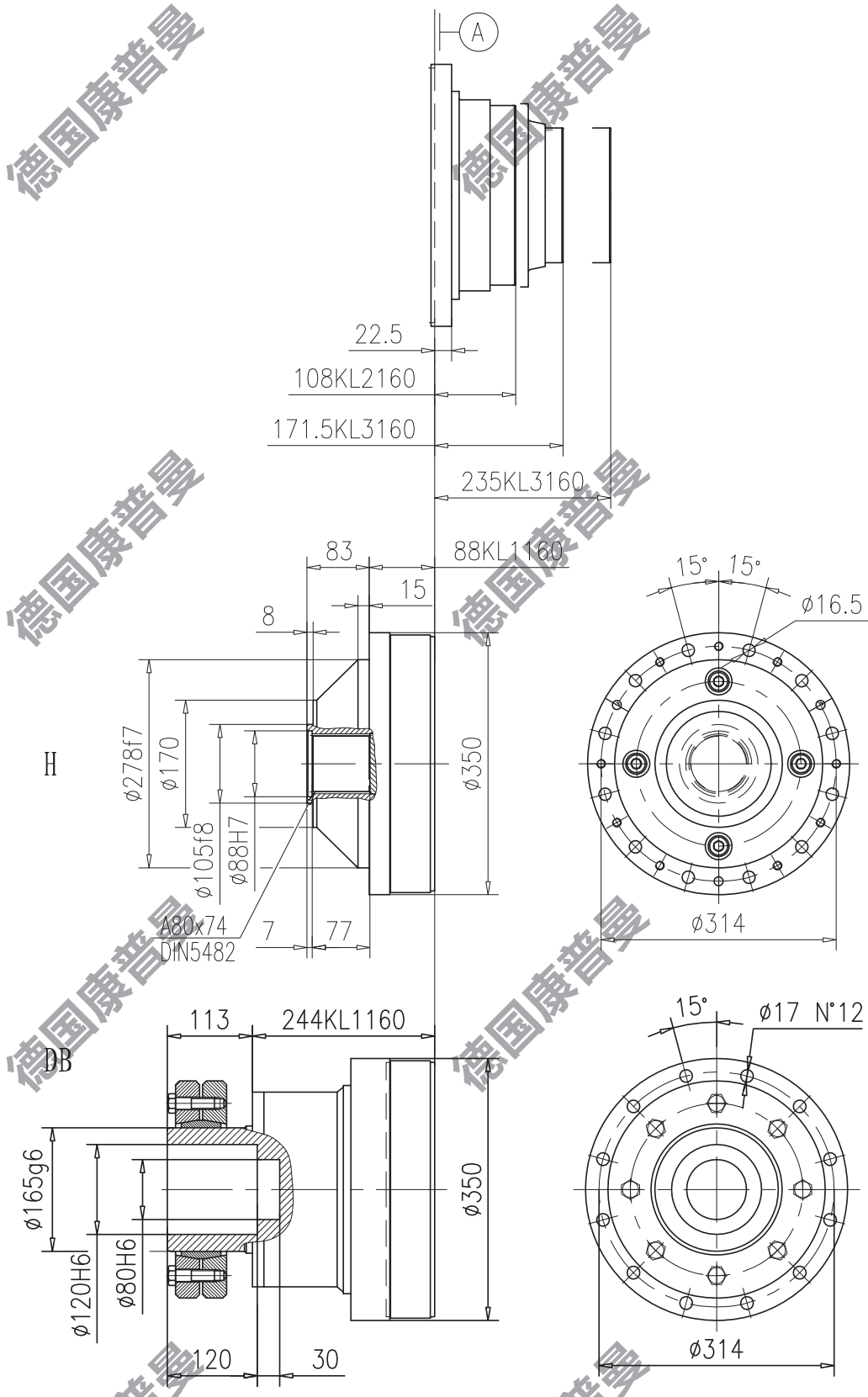
KL160


A
22.5
108KL2160
171.5KL3160
214.5KL1120
235KL3160
25
36
15
H
ø325
ø230f7
ø85H8
A80x74
DIN5482
ø350
24
74
S
36°
ø17 N°10
ø295

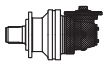

82
42
25
F
ø228
ø190
M20 n°12
150f7

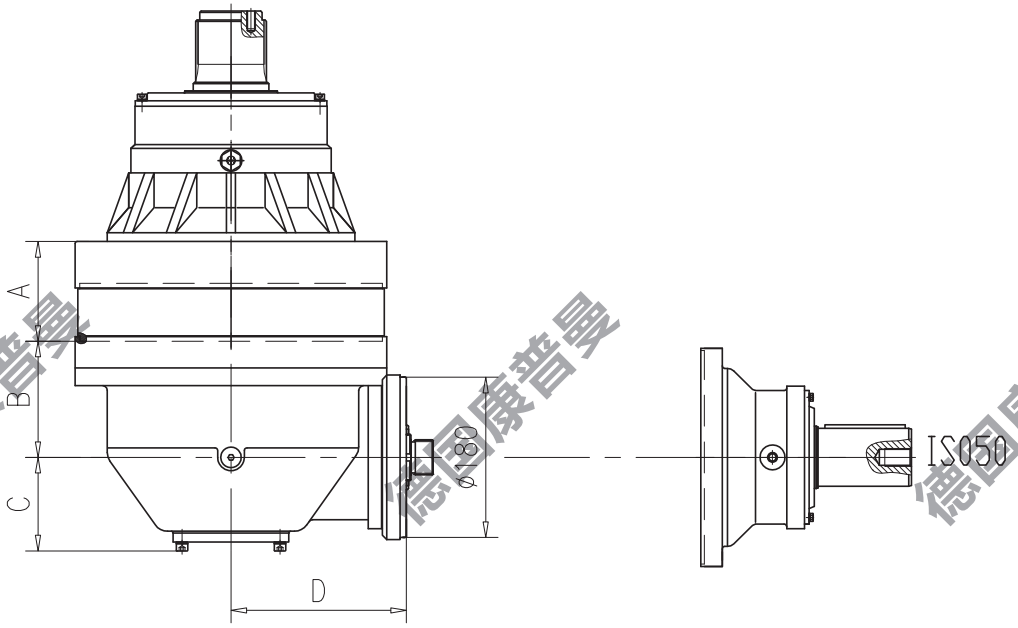

140
14
DA
ø130g7
ø100H6
ø60H6
100
40

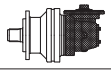
KL160


A
22.5
108KL2160
171.5KL3160
235KL3160
83
88KL1160
15
8
H
ø278f7
ø170
ø105f8
ø88H7
ø350
A80x74
DIN5482
7
77
15°
15°
ø16.5 N°12
ø314
113
244KL1160
DB
ø165g6
ø120H6
ø80H6
ø350
120
30
15°
ø17 N°12
ø314

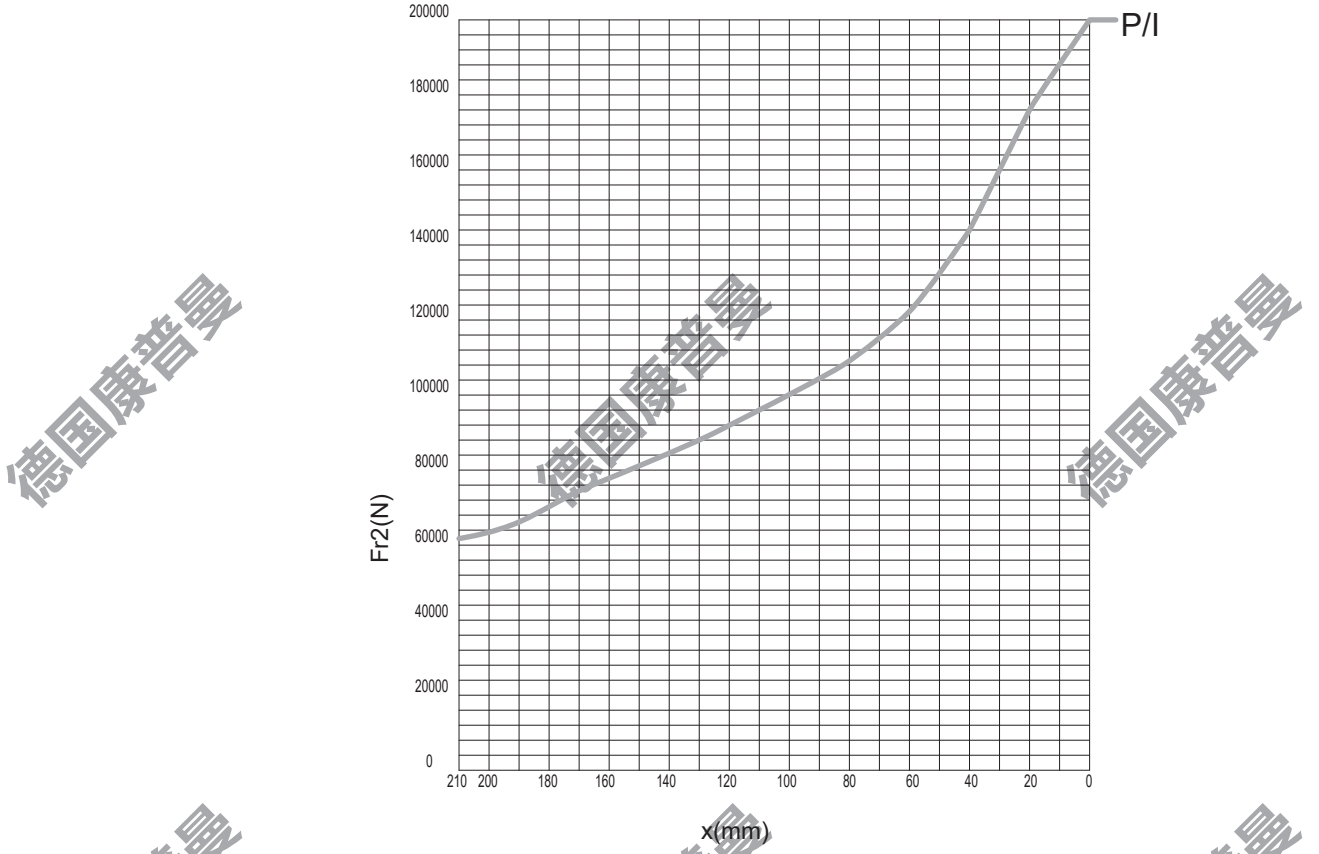
KR160

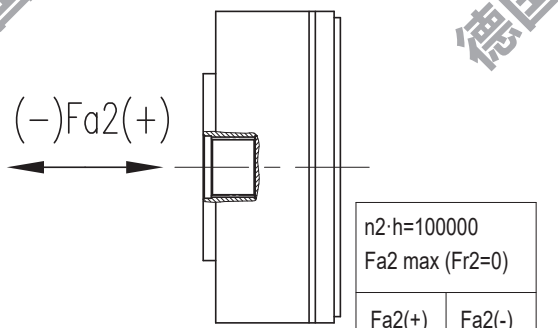




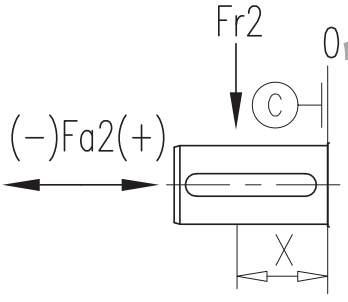


	A								B	C	D
	SP	SI	SE	SDB	SDA	SF	SH	H			
KR 2160	112	112	112	214.5	112	214.5	214.5	88	130.5	105	197
KR 3160	220	220	220	322.5	220	322.5	322.5	196	122	105	185
KR 4160	283.5	283.5	283.5	386	283.5	386	386	259.5	90	81.5	134.5





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
H-D	32700	32700



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	110000	65000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL260 **T_2 = 26000Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.69	33252	33252	29040	23609	14520	11860	35	2200		
	4.04	38335	33007	29499	26640	16504	13385	35	2200		
	4.50	34417	29633	26483	23917	14817	12017	35	2200		
	5.12	30249	26045	23276	21021	13022	10562	35	2200		
	6.00	25813	22225	19863	17938	11113	9013	35	2200		
L2	14.15	34324	32828	29499	26640	16504	13385	22	3000		
	16.68	38335	33007	29499	26640	16504	13385	22	3000		
	21.11	30249	26045	23276	21021	13022	10562	22	3000		
	26.44	30249	26045	23276	21021	13022	10562	22	3000	1140	
	30.71	30249	26045	23276	21021	13022	10562	22	3000	960	
	32.63	26379	25324	24797	23917	14817	12017	22	3000	960	
	37.10	30014	26045	23276	21021	13022	10562	22	3000	785	
	43.50	25813	22225	19863	17938	11113	9013	22	3000		
L3	45.23	30553	29225	28561	23609	14520	11860	18	3800	875	
	53.31	31350	29984	29040	23609	14520	11860	18	3800	785	
	59.08	31350	29984	29040	23609	14520	11860	18	3800	700	
	64.97	34417	29633	26483	23917	14817	12017	18	3800	700	
	76.25	38335	33007	29499	26640	16504	13385	18	3800	520	
	86.18	38335	33007	29499	26640	16504	13385	18	3800	430	
	95.50	37489	33007	29499	26640	16504	13385	18	3800	340	
	106.29	34417	29633	26483	23917	14817	12017	18	3800	340	
	114.46	30334	29120	28514	23609	14520	11860	18	3800	340	
	125.35	33211	31882	29499	26640	16504	13385	18	3800	250	
	138.31	30334	29120	28514	23609	14520	11860	18	3800	250	
	149.14	34417	29633	26483	23917	14817	12017	18	3800	250	
	158.65	30249	26045	23276	21021	13022	10562	18	3800	250	
	168.56	34417	29633	26483	23917	14817	12017	18	3800	250	
	184.24	30249	26045	23276	21021	13022	10562	18	3800	250	
	195.75	31875	29633	26483	23917	14817	12017	18	3800	160	
	222.62	30249	26045	23276	21021	13022	10562	18	3800	160	
	236.53	26379	25324	24797	23917	14817	12017	18	3800	160	
	269.00	30014	26045	23276	21021	13022	10562	18	3800	160	
L4	295.69	30789	29196	28134	23609	14520	11860	11	4000	160	
	304.70	38335	33007	29499	26640	16504	13385	11	4000	160	
	350.18	37489	33007	29499	26640	16504	13385	11	4000	160	
	403.83	33252	32870	29040	23609	14520	11860	11	4000	160	
	499.82	38335	33007	29499	26640	16504	13385	11	4000	160	
	550.85	33252	33252	29040	23609	14520	11860	11	4000	160	
	603.24	38335	33007	29499	26640	16504	13385	11	4000	160	
	655.85	21956	20820	20063	19684	14520	11860	11	4000	160	
	700.53	34274	32501	29499	26640	16504	13385	11	4000	160	
	755.57	33211	31882	29499	26640	16504	13385	11	4000	160	
	801.23	30334	29120	28514	23609	14520	11860	11	4000	160	
	877.43	33211	31882	29499	26640	16504	13385	11	4000	160	
	900.69	34274	32501	29499	26640	16504	13385	11	4000	160	
	998.16	37489	33007	29499	26640	16504	13385	11	4000	160	
	1110.86	34417	29633	26483	23917	14817	12017	11	4000	160	
	1206.11	31387	29763	28681	26640	16504	13385	11	4000	160	
	1342.29	34417	29633	26483	23917	14817	12017	11	4000	160	
	1526.52	30249	26045	23276	21021	13022	10562	11	4000	160	
	1725.29	30249	26045	23276	21021	13022	10562	11	4000	160	
	2003.56	30249	26045	23276	21021	13022	10562	11	4000	160	

$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

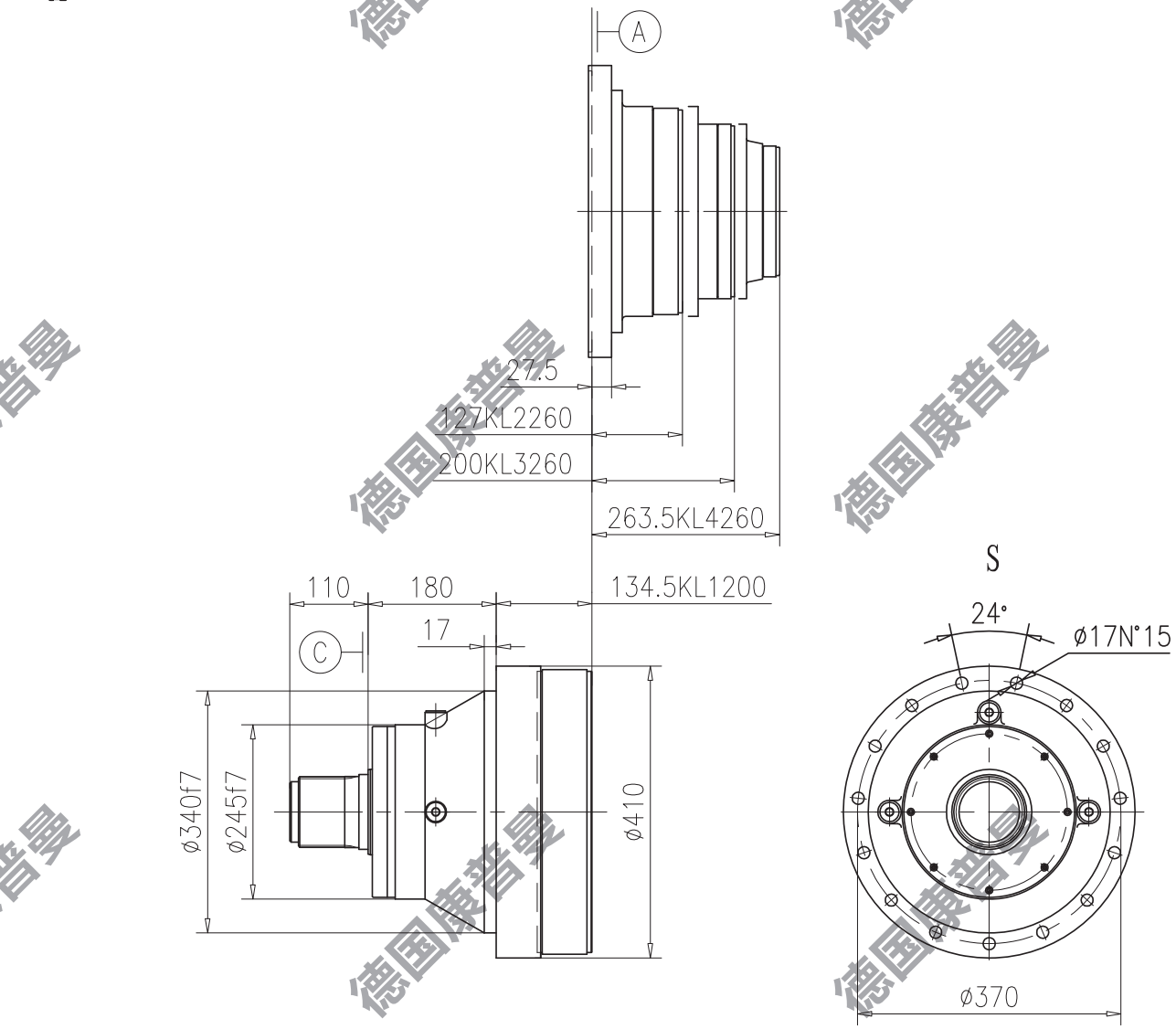
T_2 = 26000Nm

KR260

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
R2	11.64	10942	10942	10942	10942	10942	10942	55	2500	1140
	12.75	11980	11980	11980	11980	11980	11980	55	2500	1140
	14.19	13344	13344	13344	13344	13344	12017	55	2500	1140
	16.14	15182	15182	15182	15182	13022	10562	55	2500	1140
	17.91	15562	15562	15562	15562	13022	10562	55	2500	1140
	18.92	17792	17792	17792	17792	11113	9013	55	2500	1140
	21.00	18236	18236	18236	17938	11113	9013	55	2500	1050
	23.45	17698	17698	17698	17698	11113	9013	55	2500	960
	27.00	18447	18447	18447	17938	11113	9013	55	2500	875
R3	39.76	16722	16722	16722	16722	14520	11860	22	3800	520
	46.86	19732	19732	19732	19732	14520	11860	22	3800	520
	51.32	21604	21604	21604	21604	16504	13385	22	3800	520
	64.28	27044	27044	27044	26640	16504	13385	22	3800	520
	79.44	30517	29633	26483	23917	14817	12017	22	3800	520
	88.77	30033	29633	26483	23917	14817	12017	22	3800	430
	94.48	30249	26045	23276	21021	13022	10562	22	3800	430
	104.91	30249	26045	23276	21021	13022	10562	22	3800	430
	117.24	30249	26045	23276	21021	13022	10562	22	3800	340
	126.77	30014	26045	23276	21021	13022	10562	22	3800	340
	141.67	30014	26045	23276	21021	13022	10562	22	3800	340
	166.09	25813	22225	19863	17938	11113	9013	22	3800	250
	187.05	25813	22225	19863	17938	11113	9013	22	3800	250
R4	139.17	30553	29225	28561	23609	14520	11860	15	4000	250
	164.02	31350	29984	29040	23609	14520	11860	15	4000	250
	193.31	33252	33252	29040	23609	14520	11860	15	4000	250
	214.23	33252	33252	29040	23609	14520	11860	15	4000	250
	234.61	38335	33007	29499	26640	16504	13385	15	4000	250
	281.18	31350	29686	28606	23609	14520	11860	15	4000	250
	300.46	33252	33252	29040	23609	14520	11860	15	4000	160
	326.30	37489	33007	29499	26640	16504	13385	15	4000	160
	364.65	37489	33007	29499	26640	16504	13385	15	4000	160
	405.82	34417	29633	26483	23917	14817	12017	15	4000	160
	457.03	34417	29633	26483	23917	14817	12017	15	4000	160
	511.68	37489	33007	29499	26640	16504	13385	15	4000	160
	569.45	34417	29633	26483	23917	14817	12017	15	4000	160
	600.96	28617	27472	26900	26614	16504	13385	15	4000	160
	651.29	33211	31882	29499	26640	16504	13385	15	4000	160
	703.44	30249	26045	23276	21021	13022	10562	15	4000	160
	756.33	28617	27472	26900	26614	16504	13385	15	4000	160
	792.21	30249	26045	23276	21021	13022	10562	15	4000	160
	849.99	30249	26045	23276	21021	13022	10562	15	4000	160
	903.12	26379	25324	24797	23917	14817	12017	15	4000	160
	957.26	30249	26045	23276	21021	13022	10562	15	4000	160
	1027.08	30014	26045	23276	21021	13022	10562	15	4000	160
	1204.16	25813	22225	19863	17938	11113	9013	15	4000	160

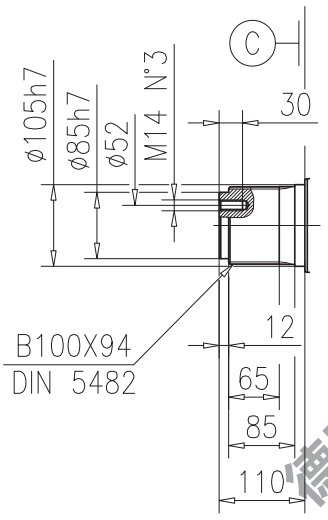
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL260

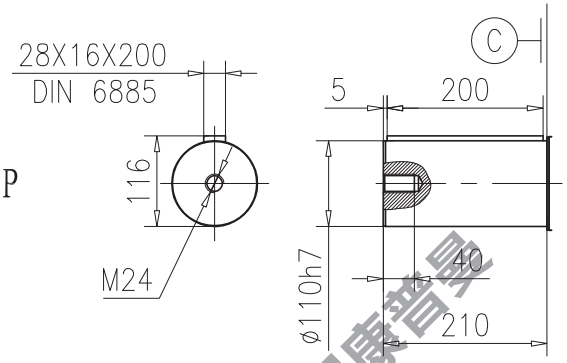


S

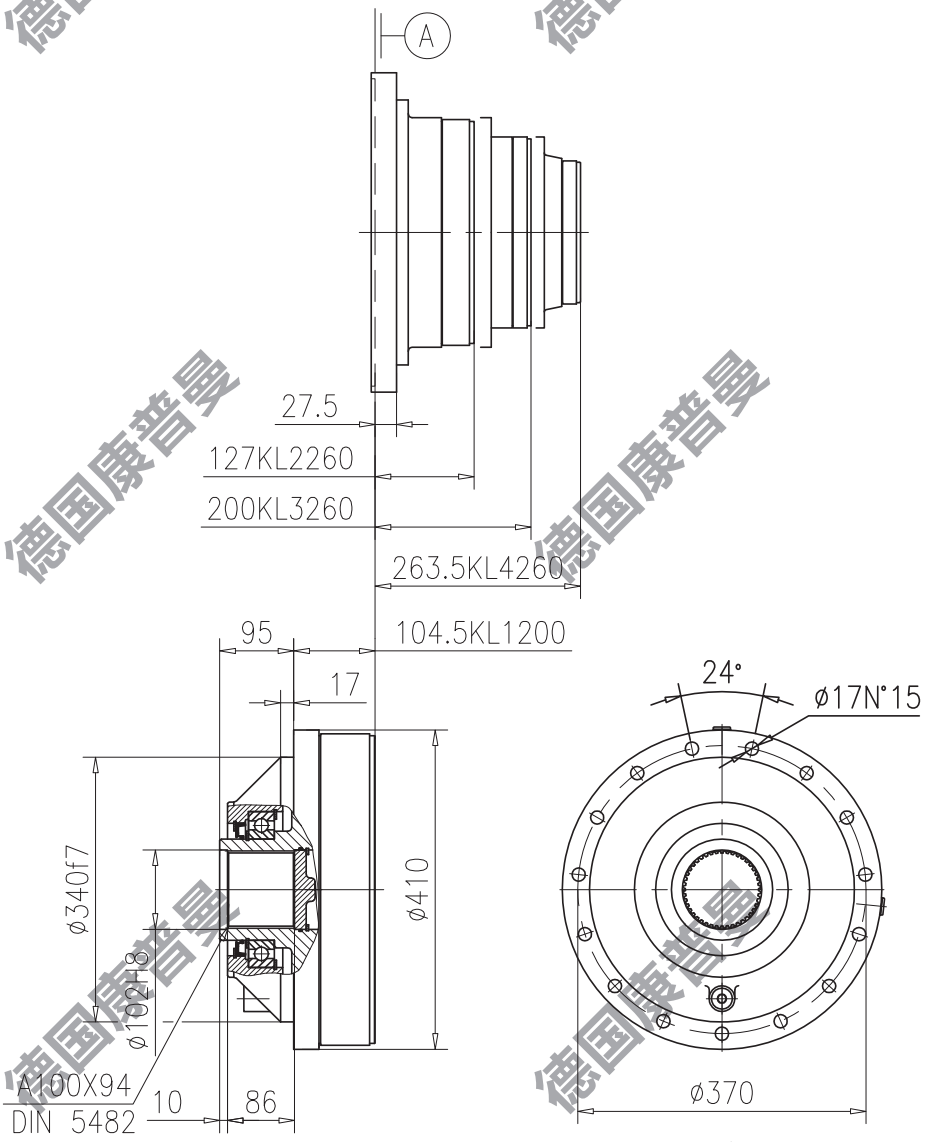
I

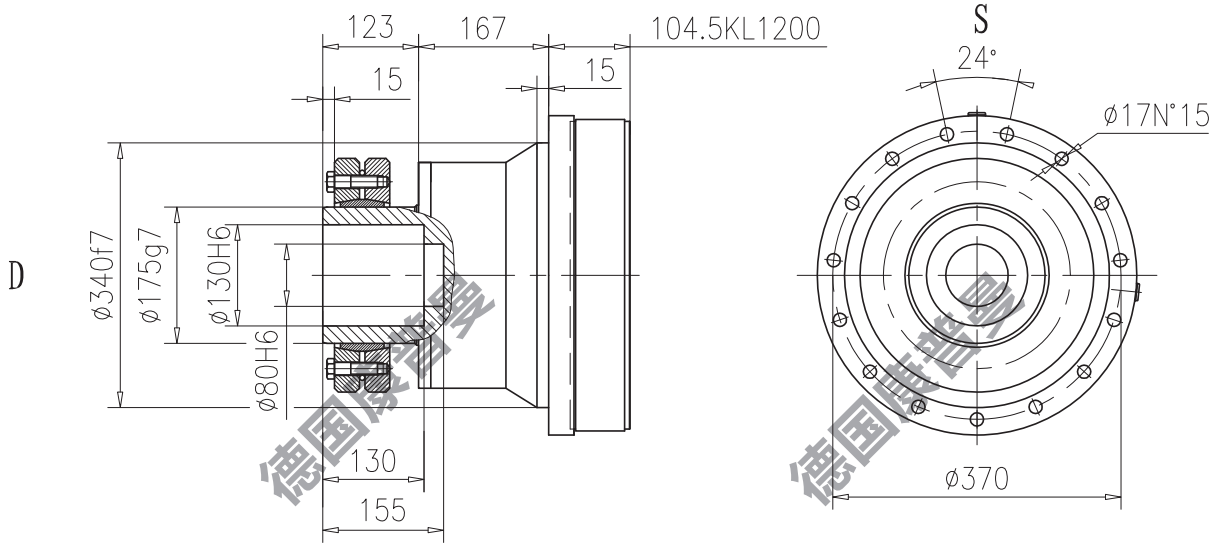


P

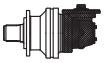


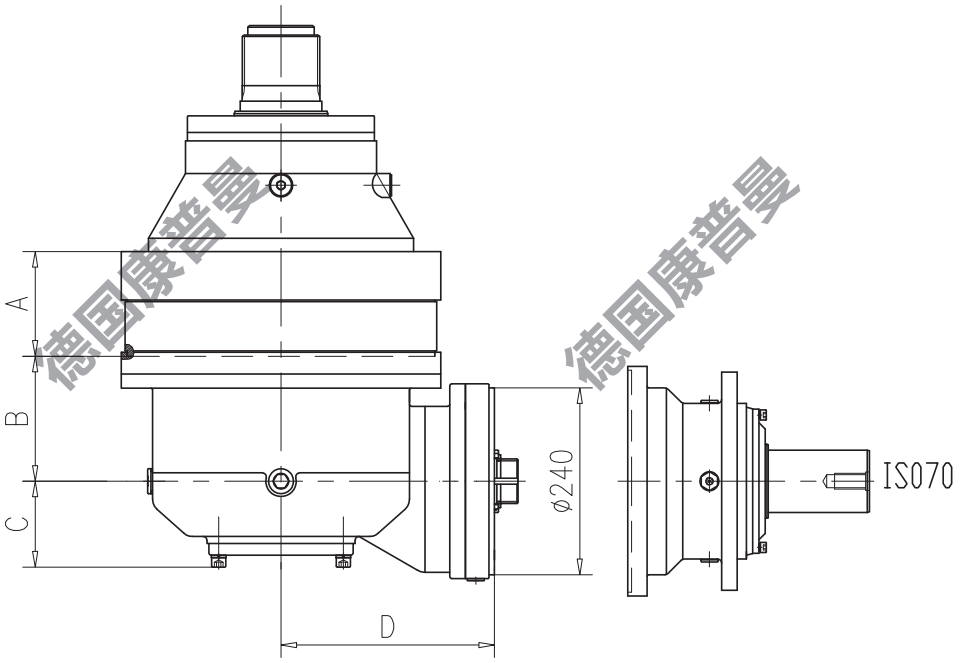
KL260

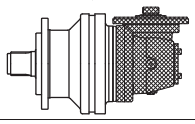

A
27.5
127KL2260
200KL3260
263.5KL4260
95
104.5KL1200
17
H
ø340f7
ø102H8
ø410
A100X94
DIN 5482
10
86
24°
ø17N°15
ø370
S


123
167
104.5KL1200
15
15
D
ø340f7
ø175g7
ø130H6
ø80H6
130
155
24°
ø17N°15
ø370

KR260

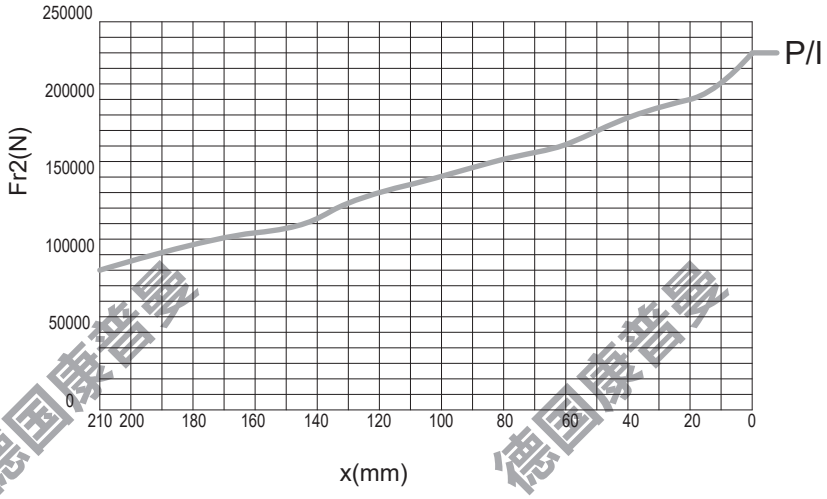


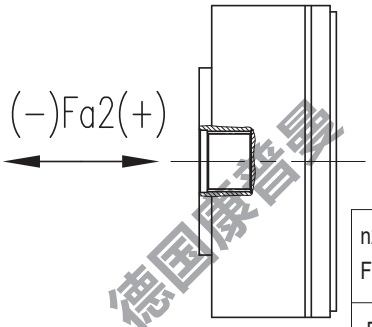




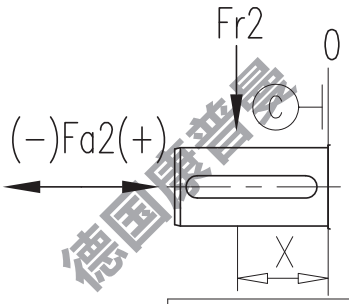
	A				B	C	D
	SP	SI	H	SD			
KR 2260	134.5	134.5	104.5	104.5	160.5	110	274
KR 3260	261.5	261.5	231.5	231.5	124	105	185
KR 3260	334.5	334.5	304.5	304.5	122	105	185

KL260





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	65000	52000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	170000	100000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL330

T_2=35000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
L1	3.69	47480	43721	39370	36455	27690	22491	35	2100	
	4.04	54985	47869	43105	39913	30436	24722	35	2100	
	4.50	49364	42976	38698	35833	27325	22195	35	2100	
	5.12	43387	37772	34012	31494	24016	19507	35	2100	
	6.00	37023	32232	29024	26875	20493	16646	35	2100	
L2	14.15	54985	47869	43105	39913	29693	24117	26	2500	
	16.68	54985	47869	43105	39913	29693	24117	26	2500	
	21.11	53534	46604	41966	38243	26085	21187	26	2500	
	26.44	43387	37772	34012	31494	24016	19507	26	2500	
	30.71	43387	37772	34012	31494	24016	19507	26	2500	
L3	45.23	47480	43721	39370	36455	27121	22028	18	3100	1140
	53.31	47480	43721	39370	36455	27121	22028	18	3100	1050
	59.08	47480	43721	39370	36455	27121	22028	18	3100	960
	63.77	47480	43721	39370	36455	27690	22491	18	3100	960
	73.12	54985	47869	43105	39913	29693	24117	18	3100	960
	86.18	54985	47869	43105	39913	28864	23444	18	3100	785
	95.50	53534	46604	41966	38243	26085	21187	18	3100	700
	106.29	49364	42976	38698	35833	27325	22195	18	3100	610
	114.46	43221	37626	33882	30876	21060	17106	18	3100	430
	125.35	47321	41195	37096	33804	23057	18728	18	3100	430
	138.31	43221	37626	33882	30876	21060	17106	18	3100	430
	148.50	37023	32232	29024	26875	20493	16646	18	3100	340
	158.65	43387	37772	34012	31494	24016	19507	18	3100	340
	168.56	49364	42976	38698	35833	25683	20860	18	3100	340
	184.24	43387	37772	34012	31494	24016	19507	18	3100	340
	195.75	45418	39538	35604	32445	22130	17975	18	3100	340
	222.62	43387	37772	34012	31494	24016	19507	18	3100	340
L4	210.97	47480	43721	39370	36455	26363	21413	11	4000	340
	219.97	53534	46604	41966	38243	26085	21187	11	4000	340
	245.03	43221	37626	33882	30876	21060	17106	11	4000	250
	319.16	47480	43721	39370	36455	27690	22491	11	4000	250
	350.18	53534	46604	41966	38243	26085	21187	11	4000	250
	403.83	47480	42566	38331	34930	23825	19351	11	4000	160
	450.74	49364	42976	38698	35833	27325	22195	11	4000	160
	499.82	54985	47869	43105	39913	28864	23444	11	4000	160
	550.85	47480	43721	39370	36455	26363	21413	11	4000	160
	603.23	54985	47869	43105	39913	28864	23444	11	4000	160
	710.30	47321	41195	37096	33804	23057	18728	11	4000	160
	795.43	43387	37772	34012	31494	24016	19507	11	4000	160
	900.68	54985	47869	43105	39913	28864	23444	11	4000	160
	998.16	53534	46604	41966	38243	26085	21187	11	4000	160
	1110.86	49364	42976	38698	35833	27325	22195	11	4000	160
	1231.24	40775	35496	31964	29128	19868	16137	11	4000	160
	1341.89	43387	37772	34012	31494	24016	19507	11	4000	160
	1517.06	49364	42976	38698	35833	25683	20860	11	4000	160
	1725.29	42766	37229	33525	30550	20838	16925	11	4000	160
	2003.56	43387	37772	34012	31494	24016	19507	11	4000	160

$$T_{2max}=1.2 \cdot T_{n2}(_{n2 \cdot h}=10000)$$

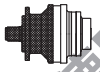
T_2=35000 Nm

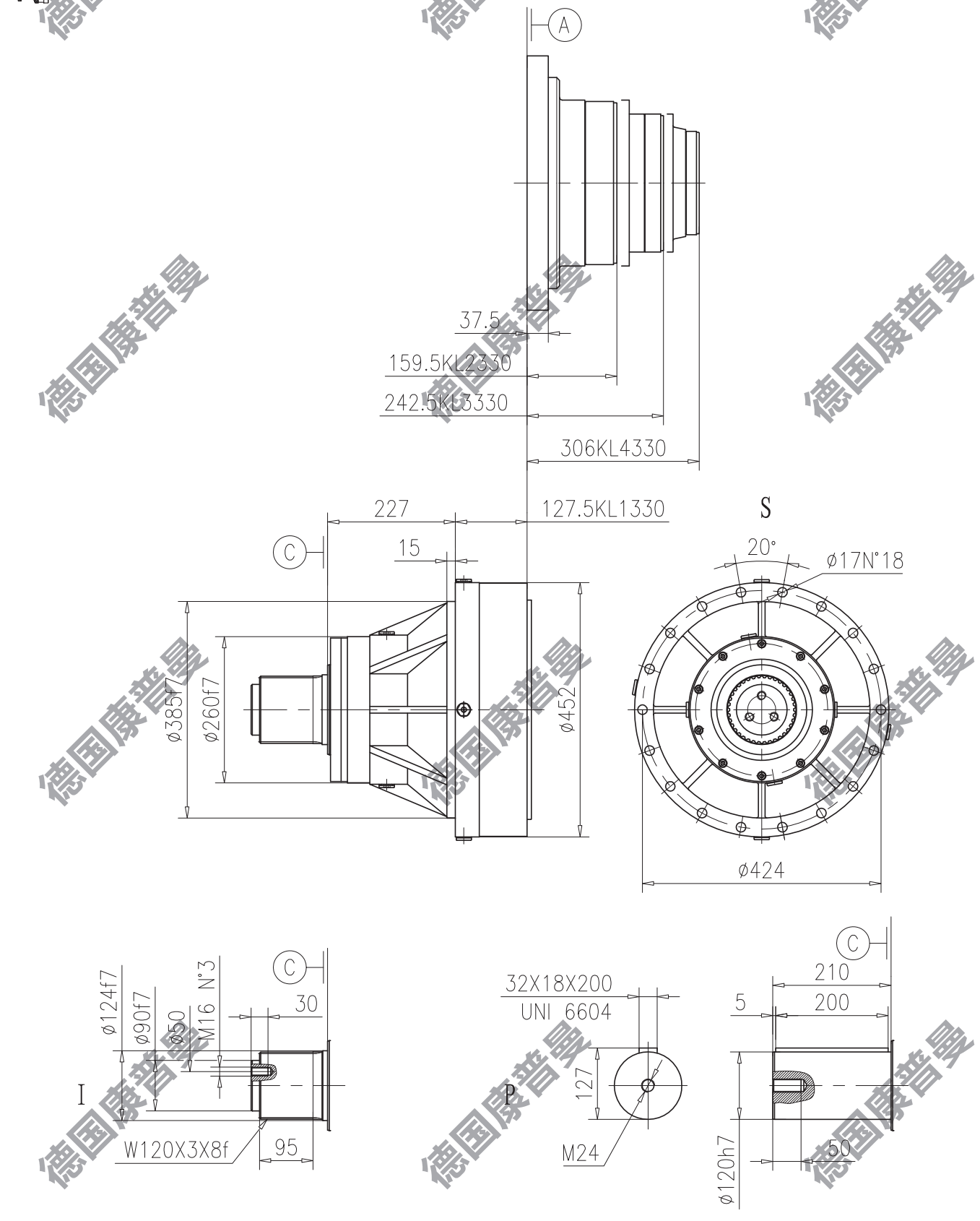
KR330

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
R2	11.65	47480	47480	47480	47480	47480	47480	75	2500	
	12.75	24365	24365	24365	24365	24365	24365	75	2500	
	14.19	27140	27140	27140	27140	27140	22195	75	2500	
	16.14	30879	30879	30879	30879	24016	19507	75	2500	
	17.91	31908	31908	31908	31494	24016	19507	75	2500	
	18.92	36186	32232	29024	26875	20493	16646	75	2500	
	21.00	37023	32232	29024	26875	20493	16646	75	2500	
	23.45	37023	32232	29024	26875	20493	16646	75	2500	
	27.00	37023	32232	29024	26875	20493	16646	75	2500	
R3	39.76	16722	16722	16722	16722	16722	16722	40	3500	520
	42.92	18060	18060	18060	18060	18060	18060	40	3500	520
	46.86	19732	19732	19732	19732	19732	19732	40	3500	520
	51.32	21604	21604	21604	21604	21604	21604	40	3500	520
	64.28	27044	27044	27044	27044	23057	18728	40	3500	520
	79.44	30517	30517	30517	30517	25683	20860	40	3500	520
	88.77	30033	30033	30033	30033	25683	20860	40	3500	520
	94.48	39776	37772	34012	31494	24016	19507	40	3500	520
	104.91	40295	37772	34012	31494	24016	19507	40	3500	520
	117.24	39656	37772	34012	31494	24016	19507	40	3500	430
R4	139.17	47480	43721	39370	36455	27121	22028	22	3500	430
	164.02	47480	43721	39370	36455	27121	22028	22	3500	430
	193.31	47480	43721	39370	36455	26363	21413	22	3500	340
	214.23	47480	43721	39370	36455	26363	21413	22	3500	340
	234.61	54985	47869	43105	39913	28864	23444	22	3500	340
	281.18	47480	43721	39370	36455	26363	21413	22	3500	250
	300.46	47480	43721	39370	36455	26363	21413	22	3500	250
	326.30	53534	46604	41966	38243	26085	21187	22	3500	250
	364.65	53534	46604	41966	38243	26085	21187	22	3500	250
	405.82	49364	42976	38698	35833	27325	22195	22	3500	160
	457.03	49364	42976	38698	35833	27325	22195	22	3500	160
	600.96	40775	35496	31964	29128	19868	16137	22	3500	160
	651.29	47321	41195	37096	33804	23057	18728	22	3500	160
	703.44	43387	37772	34012	31494	24016	19507	22	3500	160
	756.33	40775	35496	31964	29128	19868	16137	22	3500	160
	792.21	43387	37772	34012	31494	24016	19507	22	3500	160
	849.99	43387	37772	34012	31494	24016	19507	22	3500	160
	957.26	43387	37772	34012	31494	24016	19507	22	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL330

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306KL4330
227
127.5KL1330
15
C
S
20°
ø17N°18
ø385f7
ø260f7
ø452
ø424
ø124f7
ø90f7
ø50
M16 N°3
30
I
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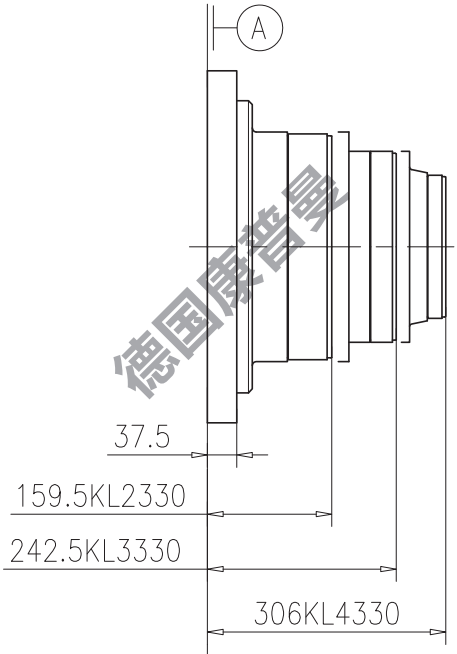
95
32X18X200
UNI 6604
127
P
M24
210
5
200
ø120h7
50

KL330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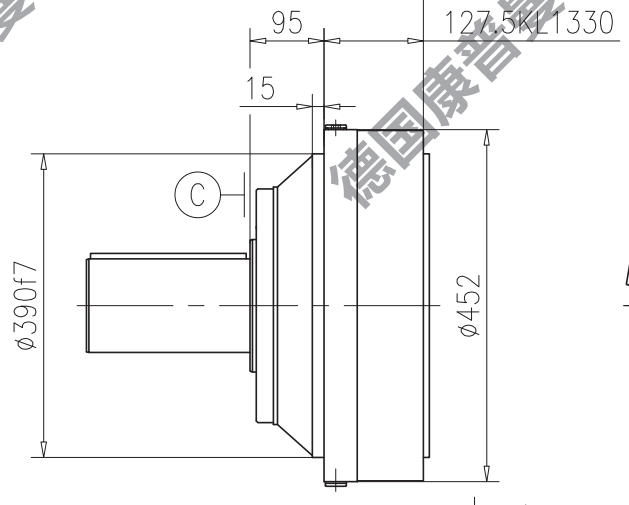
242.5KL3330
306KL4330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15
C
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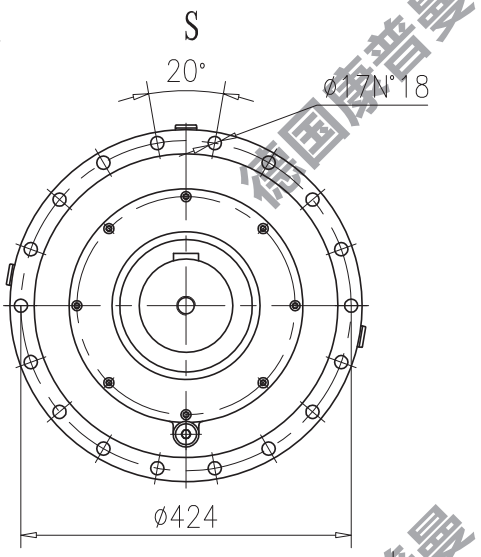
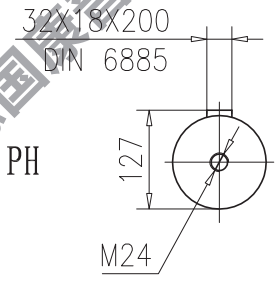

S
20°
ø17N°18
ø424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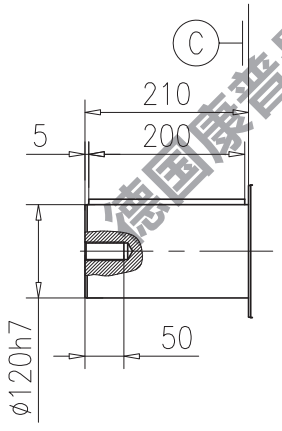
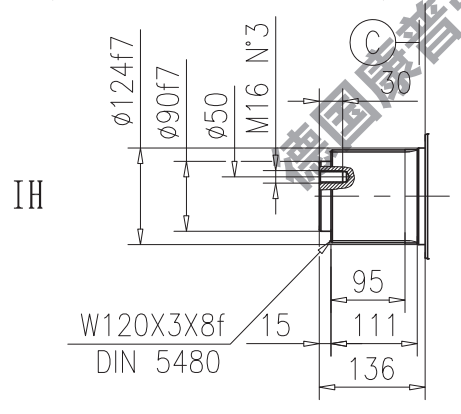

C
210
5
200
ø120h7
50


IH
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M16 N°3
C
30
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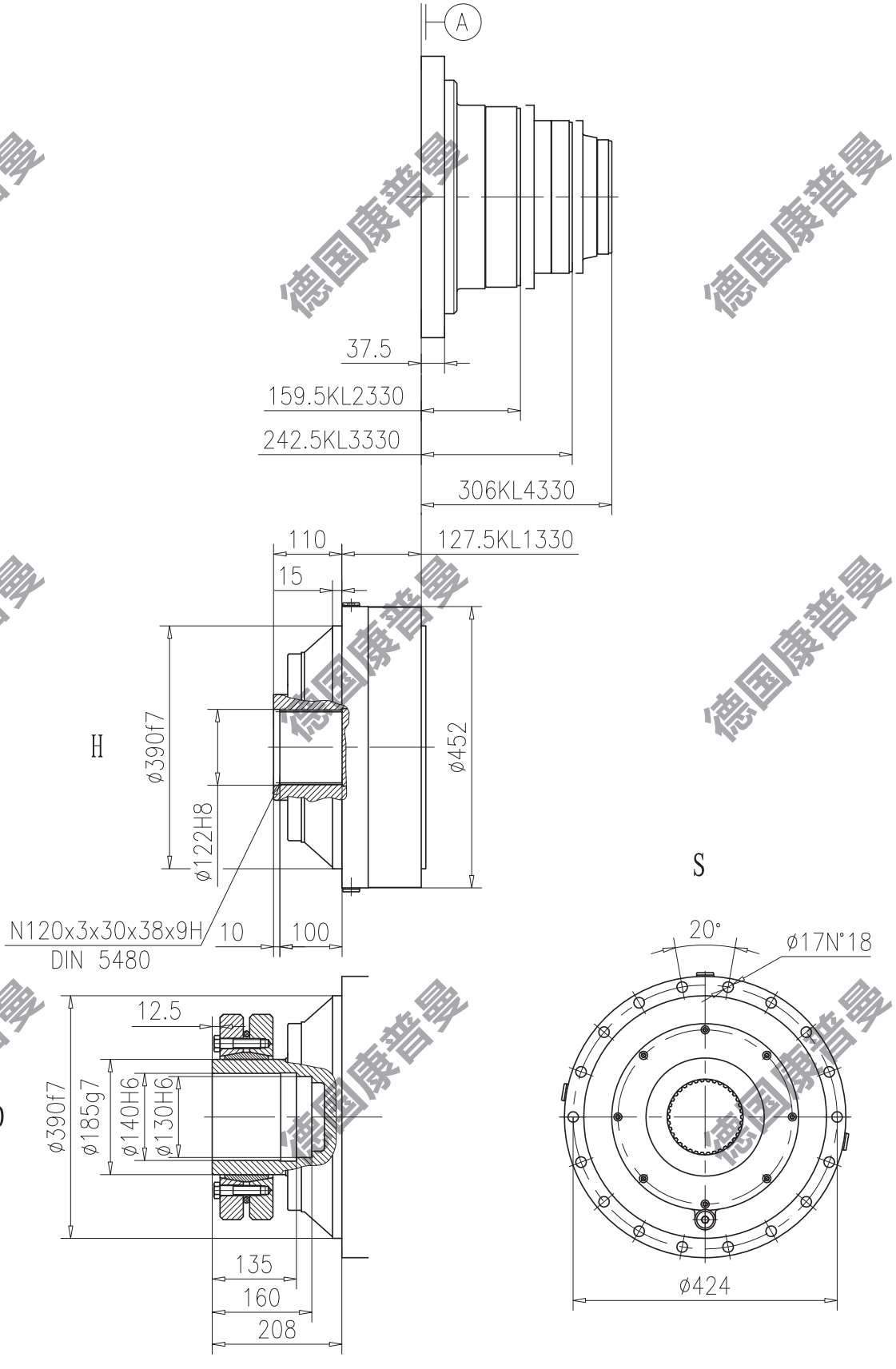
DIN 5480
15
111
136

KL330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159.5KL2330
242.5KL3330
306KL4330
110
127.5KL1330
15
H
ø390f7
ø122H8
ø452
N120x3x30x38x9H
DIN 5480
10
100
S
20°
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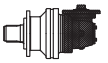
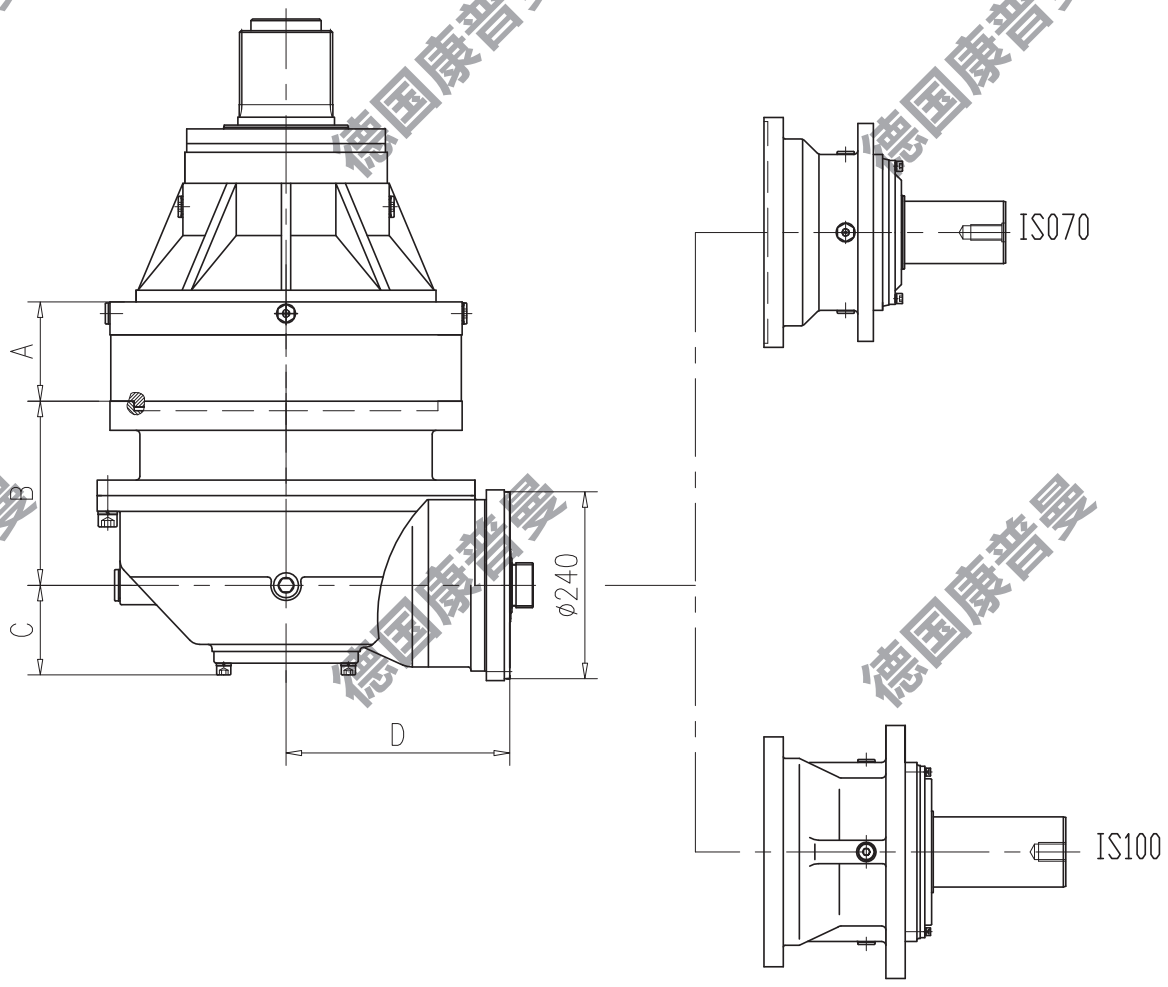
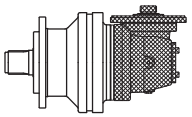
D
12.5
ø390f7
ø185g7
ø140H6
ø130H6
135
160
208
ø424

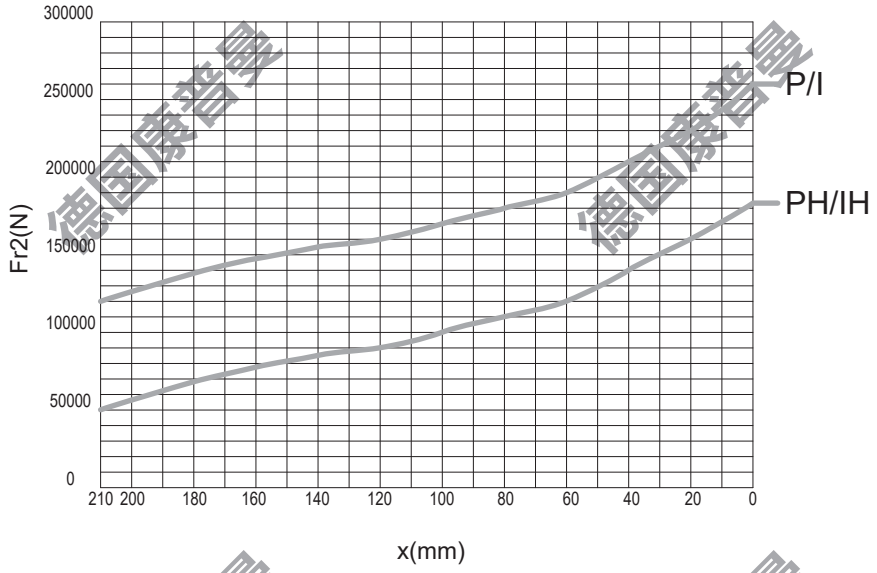


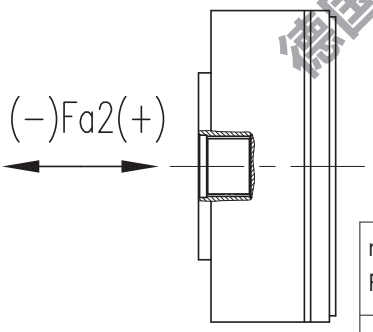




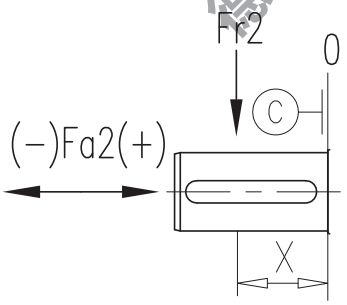
	A			B	C	D
	SP	SI	H			
KR 2330	127.5	127.5	127.5	236.5	115	287
KR 3330	287	287	287	124	105	185
KR 4330	370	370	370	122	105	185

KL330





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	65000	60000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	200000	140000
SPH-SIH	62500	77000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL400

T_2=45000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$				
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]	
L1	4.18	54007	45843	40568	40191	24743	20096	35	1800		
	4.89	46166	39187	34678	34356	21150	17178	35	1800		
	6.00	37625	31938	28263	28000	17238	14000	35	1800		
L2	19.15	54007	45843	40568	40191	24743	20096	26	2500		
	21.95	54007	45843	40568	40191	24743	20096	26	2500		
	25.67	46166	39187	34678	34356	21150	17178	26	2500		
	27.47	37625	31938	28263	28000	17238	14000	26	2500		
	31.50	37625	31938	28263	28000	17238	14000	26	2500		
	37.38	37625	31938	28263	28000	17238	14000	26	2500		
L3	54.45	54007	45843	40568	40191	24743	20096	18	3800	1140	
	64.17	54007	45843	40568	40191	24743	20096	18	3800	1050	
	70.57	54007	45843	40568	40191	24743	20096	18	3800	960	
	78.99	54007	45843	40568	40191	24743	20096	18	3800	875	
	87.54	54007	45843	40568	40191	24743	20096	18	3800	785	
	92.34	46166	39187	34678	34356	21150	17178	18	3800	610	
	102.34	46166	39187	34678	34356	21150	17178	18	3800	610	
	113.43	54007	45843	40568	40191	24743	20096	18	3800	610	
	124.03	54007	45843	40568	40191	24743	20096	18	3800	520	
	138.83	54007	45843	40568	40191	24743	20096	18	3800	520	
	145.00	46166	39187	34678	34356	21150	17178	18	3800	430	
	159.17	54007	45843	40568	40191	24743	20096	18	3800	430	
	186.08	46166	39187	34678	34356	21150	17178	18	3800	340	
	220.85	46166	39187	34678	34356	21150	17178	18	3800	250	
L4	185.12	54007	45843	40568	40191	24743	20096	11	4000	430	
	218.18	54007	45843	40568	40191	24743	20096	11	4000	340	
	239.93	54007	45843	40568	40191	24743	20096	11	4000	250	
	296.80	54007	45843	40568	40191	24743	20096	11	4000	250	
	332.23	46166	39187	34678	34356	21150	17178	11	4000	160	
	372.19	54007	45843	40568	40191	24743	20096	11	4000	160	
	421.26	54007	45843	40568	40191	24743	20096	11	4000	160	
	458.12	54007	45843	40568	40191	24743	20096	11	4000	160	
	507.70	54007	45843	40568	40191	24743	20096	11	4000	160	
	552.91	54007	45843	40568	40191	24743	20096	11	4000	160	
	599.33	46166	39187	34678	34356	21150	17178	11	4000	160	
	653.37	54007	45843	40568	40191	24743	20096	11	4000	160	
	716.35	46166	39187	34678	34356	21150	17178	11	4000	160	
	804.23	54007	45843	40568	40191	24743	20096	11	4000	160	
	928.28	46166	39187	34678	34356	21150	17178	11	4000	160	
	1078.00	46166	39187	34678	34356	21150	17178	11	4000	160	
	1249.43	54007	45843	40568	40191	24743	20096	11	4000	160	
	1432.53	54007	45843	40568	40191	24743	20096	11	4000	160	
	1674.75	46166	39187	34678	34356	21150	17178	11	4000	160	
	1987.62	46166	39187	34678	34356	21150	17178	11	4000	160	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

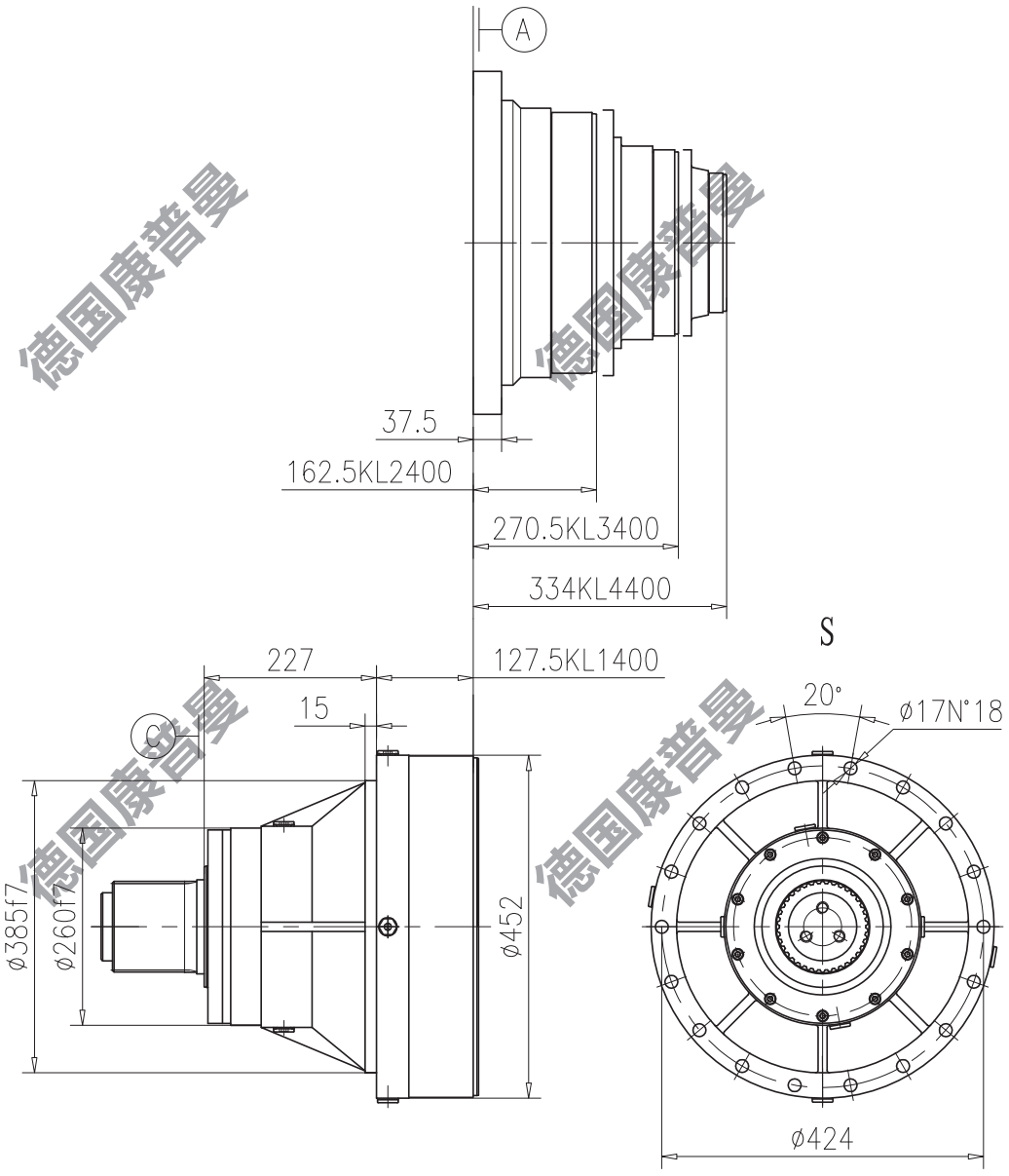
T_2=45000 Nm

KR400

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
R2	13.19	25210	25210	25210	25210	24743	20096	75	2500	
	14.64	26050	26050	26050	26050	24743	20096	75	2500	
	15.42	29492	29492	29492	29492	21150	17178	75	2500	
	17.11	30474	30474	30474	30474	21150	17178	75	2500	
	18.92	36186	31938	28263	28000	17238	14000	75	2500	
	21.00	37625	31938	28263	28000	17238	14000	75	2500	
	23.45	37128	31938	28263	28000	17238	14000	75	2500	
	27.00	37458	31938	28263	28000	17238	14000	75	2500	
R3	60.39	33798	33798	33798	33798	24743	20096	40	4000	700
	67.02	34246	34246	34246	34246	24743	20096	40	4000	700
	76.84	29255	29255	29255	29255	24743	20096	40	4000	520
	80.95	45322	39187	34678	34356	21150	17178	40	4000	520
	85.82	38742	38742	38742	38742	24743	20096	40	4000	520
	89.83	45923	39187	34678	34356	21150	17178	40	4000	520
	96.07	46166	39187	34678	34356	21150	17178	40	4000	520
	106.62	46166	39187	34678	34356	21150	17178	40	4000	520
	119.08	46166	39187	34678	34356	21150	17178	40	4000	430
	137.08	46166	39187	34678	34356	21150	17178	40	4000	430
	168.23	37625	31938	28263	28000	17238	14000	40	4000	430
R4	167.53	54007	45843	40568	40191	24743	20096	22	4000	340
	197.45	54007	45843	40568	40191	24743	20096	22	4000	340
	247.31	54007	45843	40568	40191	24743	20096	22	4000	340
	301.99	54007	45843	40568	40191	24743	20096	22	4000	160
	353.51	54007	45843	40568	40191	24743	20096	22	4000	160
	405.31	54007	45843	40568	40191	24743	20096	22	4000	160
	450.07	54007	45843	40568	40191	24743	20096	22	4000	160
	502.96	54007	45843	40568	40191	24743	20096	22	4000	160
	554.52	46166	39187	34678	34356	21150	17178	22	4000	160
	607.74	54007	45843	40568	40191	24743	20096	22	4000	160
	662.20	46166	39187	34678	34356	21150	17178	22	4000	160
	710.50	46166	39187	34678	34356	21150	17178	22	4000	160
	800.16	46166	39187	34678	34356	21150	17178	22	4000	160
	949.64	46166	39187	34678	34356	21150	17178	22	4000	160
	1034.87	37625	31938	28263	28000	17238	14000	22	4000	160
	1165.47	37625	31938	28263	28000	17238	14000	22	4000	160

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL400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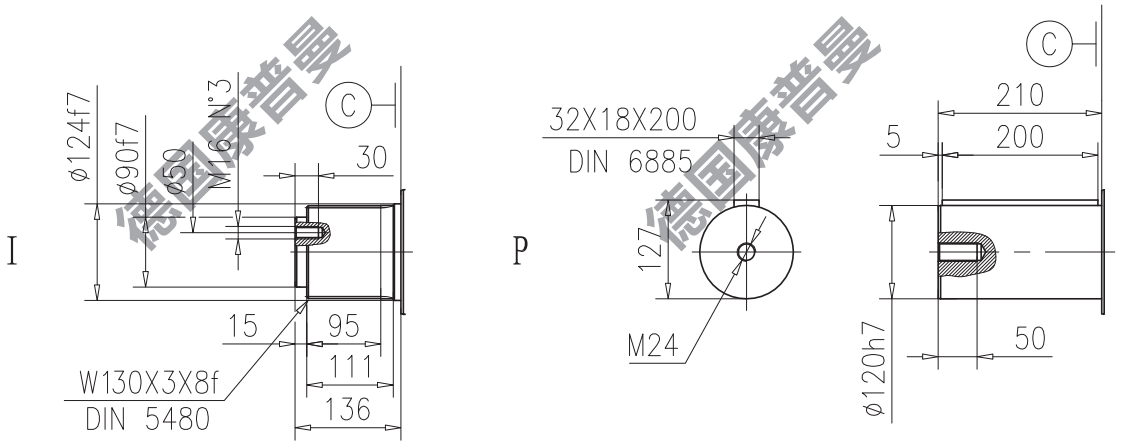
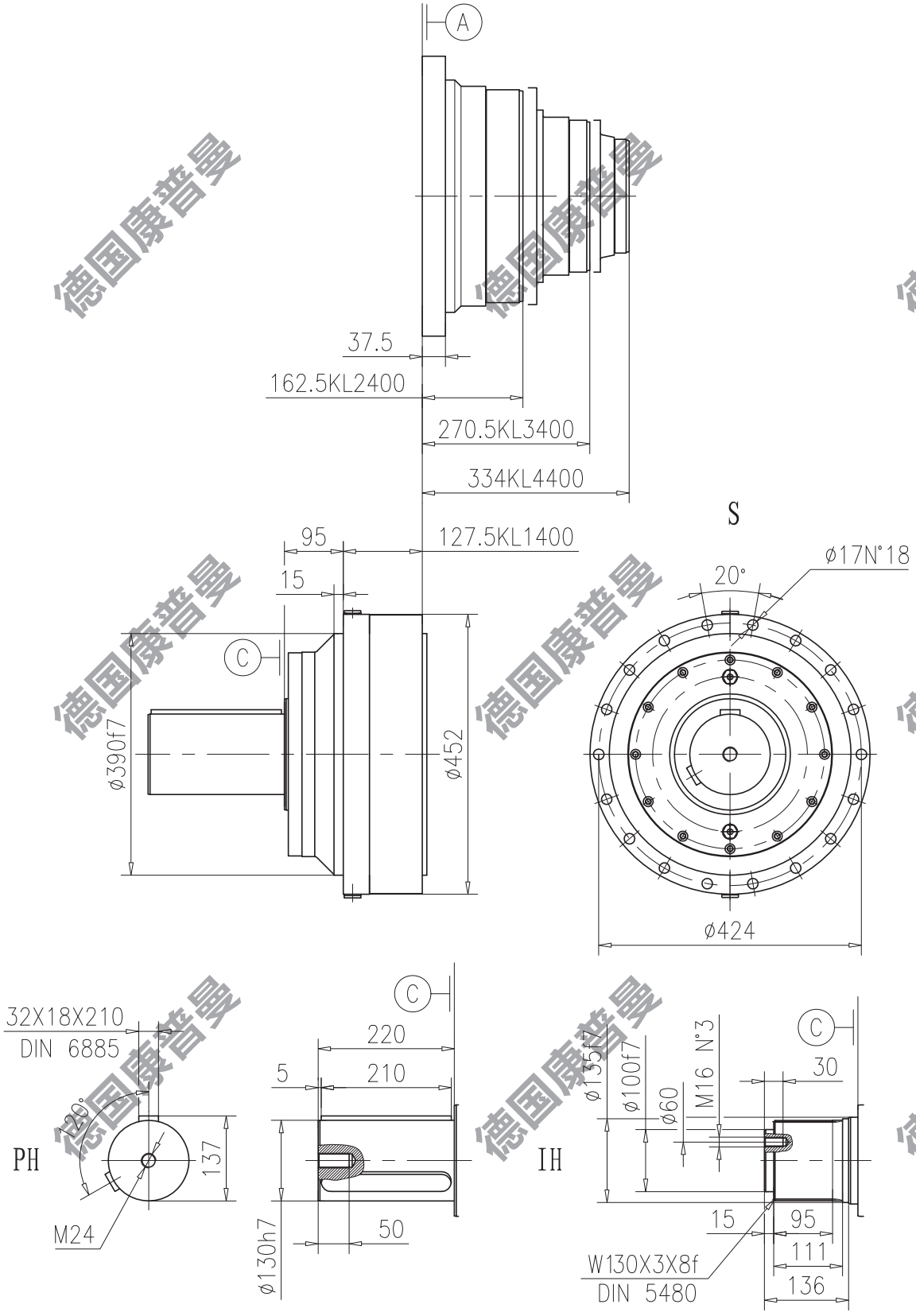
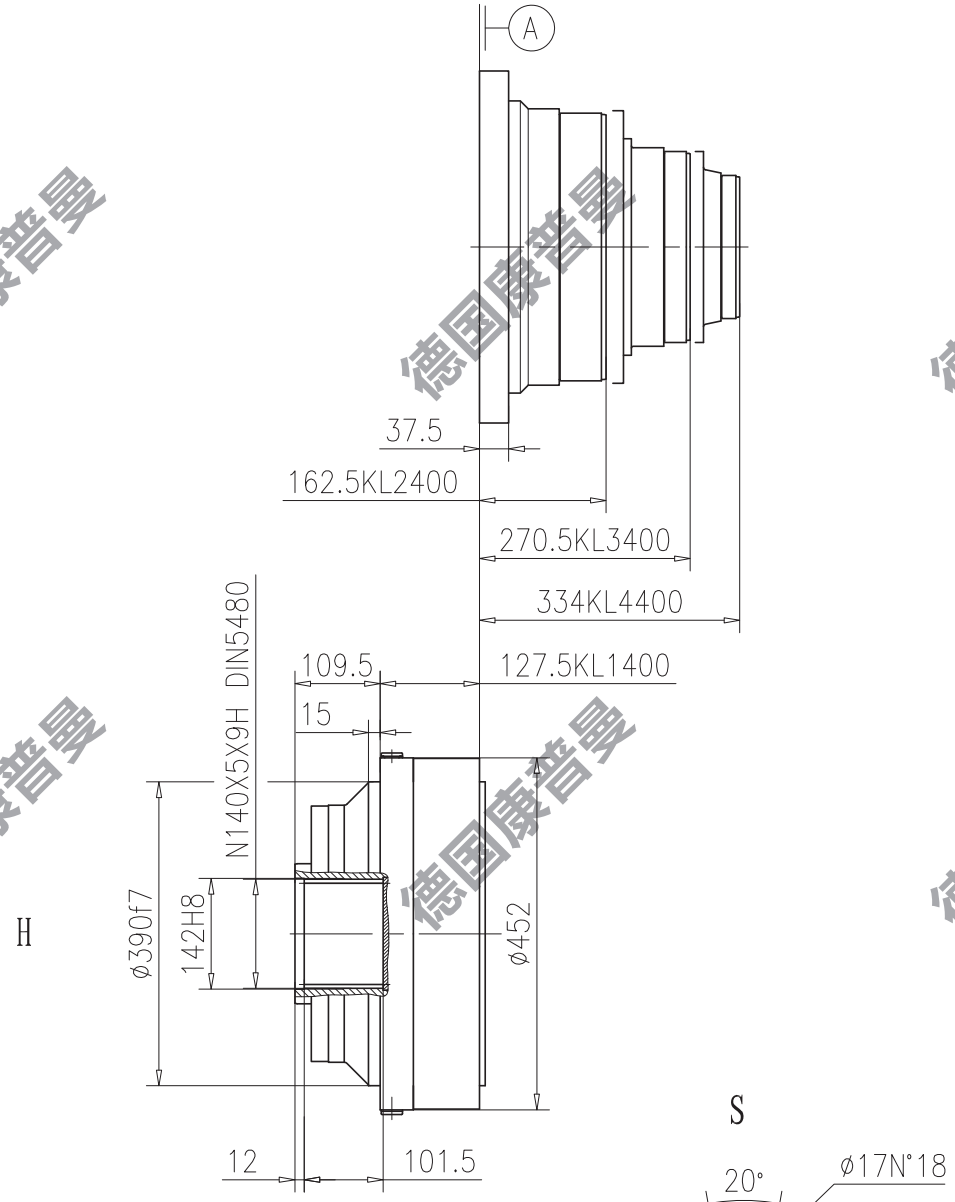
227
127.5KL1400
15
C
ø385f7
ø260f7
ø452
S
20°
ø17N°18
ø424


I
ø124f7
ø90f7
ø50
M16N°3
C
30
15
95
111
136
W130X3X8f
DIN 5480
P
32X18X200
DIN 6885
127
M24
C
210
5
200
50
ø120h7

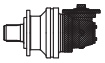
KL400

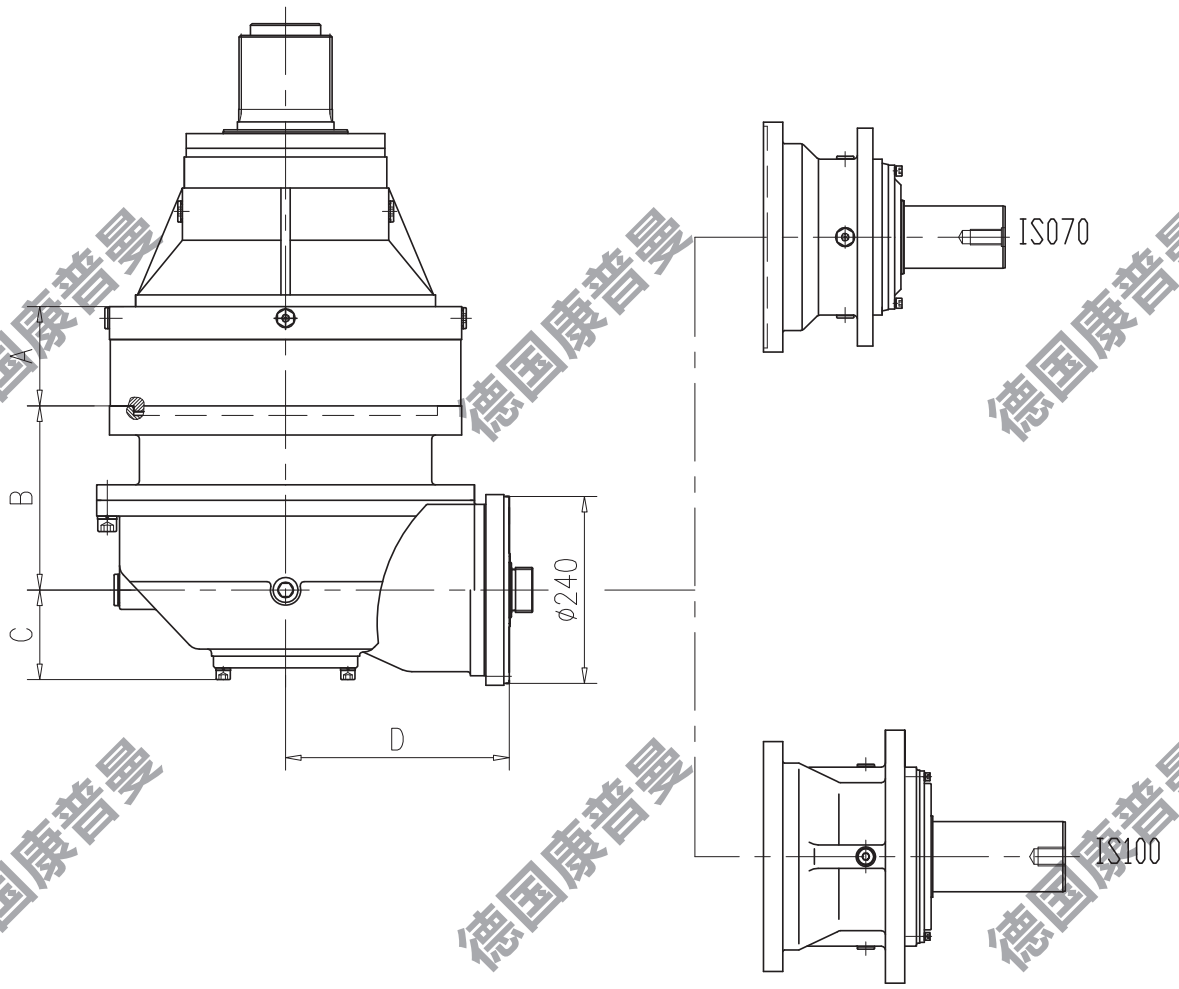

A
37.5
162.5KL2400
270.5KL3400
334KL4400
95
127.5KL1400
15
C
ø390f7
ø452
S
ø17N°18
20°
ø424
32X18X210
DIN 6885
120°
PH
137
M24
C
220
5
210
ø130h7
50
IH
ø135f7
ø100f7
ø60
M16 N°3
C
30
15
95
111
136
W130X3X8f
DIN 5480

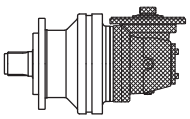
KL400


A
37.5
162.5KL2400
270.5KL3400
334KL4400
109.5
127.5KL1400
15
N140X5X9H DIN5480
H
ϕ390f7
142H8
ϕ452
12
101.5
S
20°
ϕ17N°18
D
12.5
ϕ390f7
ϕ185g7
140H6
130H6
135
160
208
ϕ424

KR400

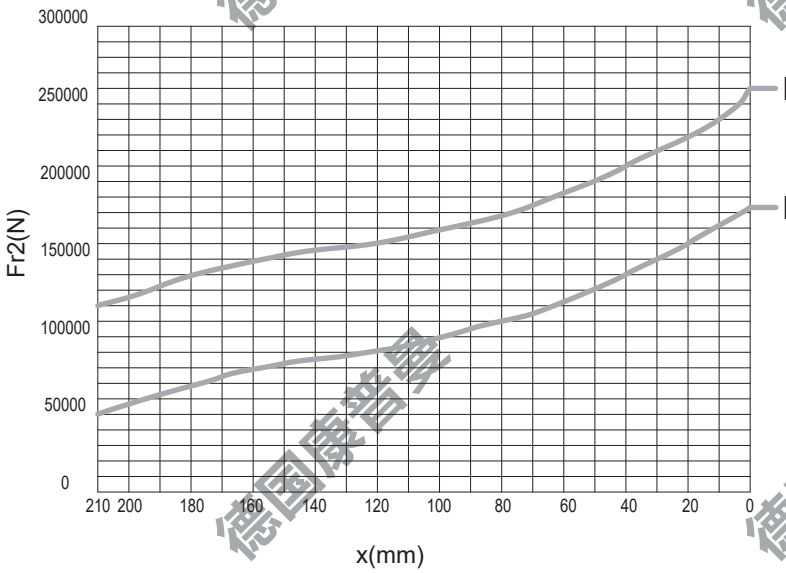


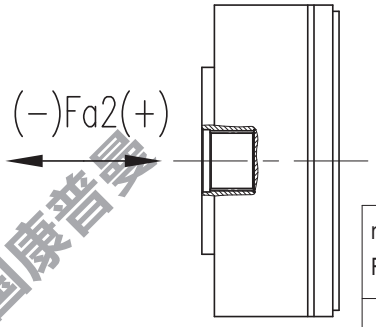




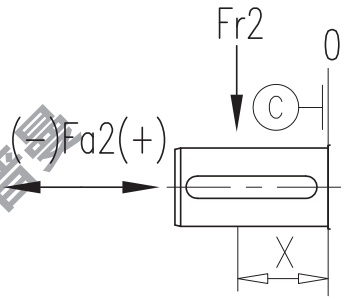
	A			B	C	D
	SP	SI	H			
KR 2400	127.5	127.5	127.5	236.5	115	287
KR 3400	290	290	290	130.5	105	197
KR 4400	398	398	398	122	105	185

KL400





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	65000	60000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	200000	140000
SPH-SIH	62500	77000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL500 **T_2=50000 Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
L1	4.04	72222	62875	56617	53237	40567	32951	58.5	1800	
	4.50	64840	56448	50830	47795	36420	29582	58.5	1800	
	5.12	56988	49613	44674	42007	32010	26000	58.5	1800	
	6.00	48630	42336	38122	35846	27315	22187	58.5	1800	
L2	16.54	72222	62875	56617	53237	40567	32951	35.3	2400	
	18.51	72222	62875	56617	53237	40567	32951	35.3	2400	
	21.23	70841	61671	55534	52047	40567	32951	35.3	2400	
	25.19	59698	51970	46798	43860	39291	31914	35.3	2400	
	28.04	64840	56448	50830	47795	36420	29582	35.3	2400	
	31.89	56988	49613	44674	42007	32010	26000	35.3	2400	
	37.39	48630	42336	38122	35846	27315	22187	35.3	2400	
L3	52.65	72222	62875	56617	53237	40567	32951	25.1	3100	
	64.80	72222	62875	56617	53237	40567	32951	25.1	3100	
	75.62	72222	62875	56617	53237	40567	32951	25.1	3100	1140
	95.66	72222	62875	56617	53237	40567	32951	25.1	3100	960
	111.09	72222	62875	56617	53237	40567	32951	25.1	3100	785
	121.07	56988	49613	44674	42007	32010	26000	25.1	3100	610
	134.23	62911	59657	56617	53237	40133	32540	25.1	3100	610
	140.60	56988	49613	44674	42007	32010	26000	25.1	3100	610
	153.91	70841	61671	55534	52047	40567	32951	25.1	3100	610
	171.28	64840	56448	50830	47795	36420	29582	25.1	3100	520
	182.66	59698	51970	46798	43860	39291	31914	25.1	3100	430
	194.79	56988	49613	44674	42007	32010	26000	25.1	3100	430
	203.28	64840	56448	50830	47795	36420	29582	25.1	3100	430
	231.18	56988	49613	44674	42007	32010	26000	25.1	3100	340
L4	302.18	72222	62875	56617	53237	40567	32951	19.7	4000	340
	334.88	72222	62875	56617	53237	40567	32951	19.7	4000	340
	382.64	72222	62875	56617	53237	40567	32951	19.7	4000	250
	438.59	72222	62875	56617	53237	40567	32951	19.7	4000	250
	450.75	71656	62875	56617	53237	40567	32951	19.7	4000	250
	490.91	72222	62875	56617	53237	40567	32951	19.7	4000	250
	592.48	72222	62875	56617	53237	40567	32951	19.7	4000	160
	644.32	72222	62875	56617	53237	40567	32951	19.7	4000	160
	738.74	70841	61671	55534	52047	40567	32951	19.7	4000	160
	839.48	56180	53274	51337	50368	35839	29059	19.7	4000	160
	891.59	70841	61671	55534	52047	40567	32951	19.7	4000	160
	971.71	56988	49613	44674	42007	32010	26000	19.7	4000	160
	1045.72	64840	56448	50830	47795	36420	29582	19.7	4000	160
	1089.66	56988	49613	44674	42007	32010	26000	19.7	4000	160
	1189.25	56988	49613	44674	42007	32010	26000	19.7	4000	160
	1275.75	64840	56448	50830	47795	36420	29582	19.7	4000	160
	1385.14	70841	61671	55534	52047	40567	32951	19.7	4000	160
	1422.95	64840	56448	50830	47795	36420	29582	19.7	4000	160
	1541.53	64840	56448	50830	47795	36420	29582	19.7	4000	160
	1753.11	56988	49613	44674	42007	32010	26000	19.7	4000	160
	2080.62	56988	49613	44674	42007	32010	26000	19.7	4000	160

$$T_{2max}=1.2 \cdot T_{n2}(n2 \cdot h=10000)$$

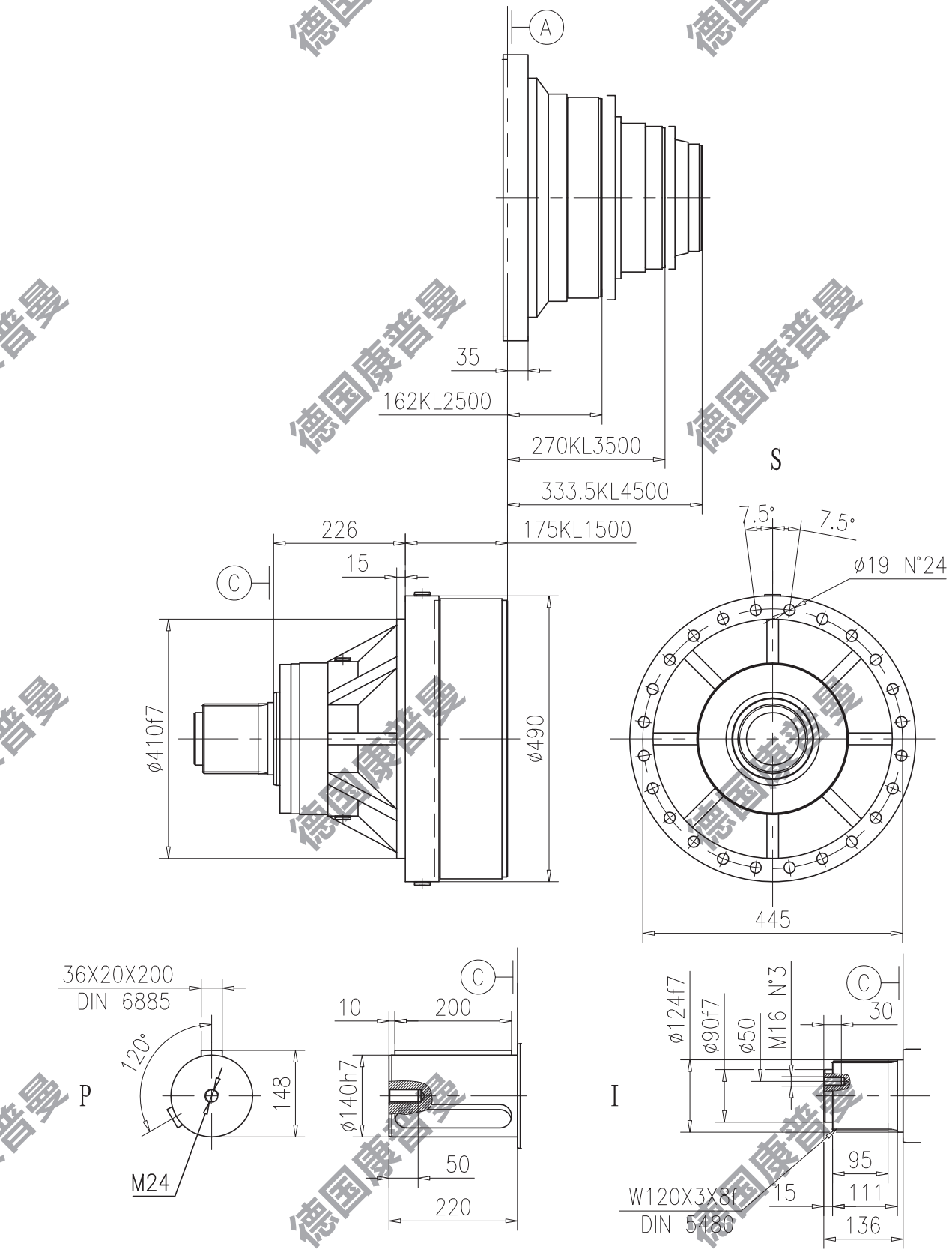
T_2=50000 Nm

KR500

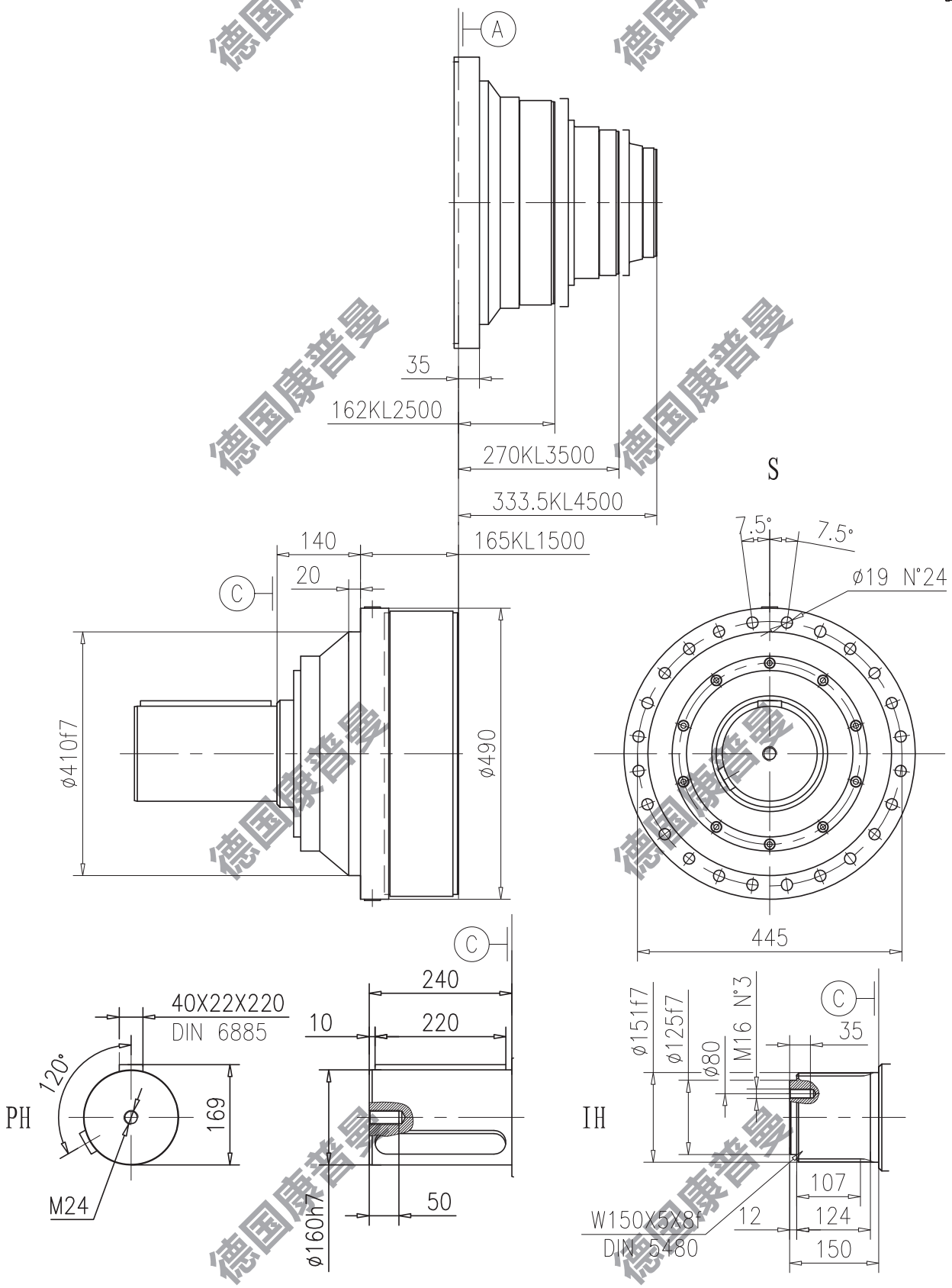
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
R3	58.39	32666	32666	32666	32666	32666	32666	40	3500	700
	66.95	37444	37444	37444	37444	37444	32651	40	3500	700
	74.30	37940	37940	37940	37940	37940	32651	40	3500	700
	80.55	36385	36385	36385	36385	36385	29582	40	3500	700
	84.74	47454	47454	44674	42007	32010	26000	40	3500	700
	94.04	48083	48083	44674	42007	32010	26000	40	3500	700
	100.57	56312	49613	44674	42007	32010	26000	40	3500	700
	109.60	49493	49493	49493	47795	36420	29582	40	3500	610
	124.65	56312	49613	44674	42007	32010	26000	40	3500	610
	143.49	56988	49613	44674	42007	32010	26000	40	3500	520
	168.23	48630	42336	38122	35846	27315	22187	40	3500	520
R4	235.92	72222	62875	56617	53237	40567	32951	22	3500	430
	258.36	65965	57427	51712	48624	34926	28369	22	3500	340
	294.34	72222	62875	56617	53237	40567	32951	22	3500	340
	365.25	64840	56448	50830	47795	36420	29582	22	3500	250
	406.49	64840	56448	50830	47795	36420	29582	22	3500	250
	457.78	64840	56448	50830	47795	36420	29582	22	3500	250
	510.41	64840	56448	50830	47795	36420	29582	22	3500	160
	562.89	56988	49613	44674	42007	32010	26000	22	3500	160
	615.51	56988	49613	44674	42007	32010	26000	22	3500	160
	665.53	56988	49613	44674	42007	32010	26000	22	3500	160
	711.32	56988	49613	44674	42007	32010	26000	22	3500	160
	789.86	56988	49613	44674	42007	32010	26000	22	3500	160
	882.69	56988	49613	44674	42007	32010	26000	22	3500	160
	994.07	56988	49613	44674	42007	32010	26000	22	3500	160
	1034.87	48630	42336	38122	35846	27315	22187	22	3500	160
	1165.47	48630	42336	38122	35846	27315	22187	22	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(n2 \cdot h=10000)$$

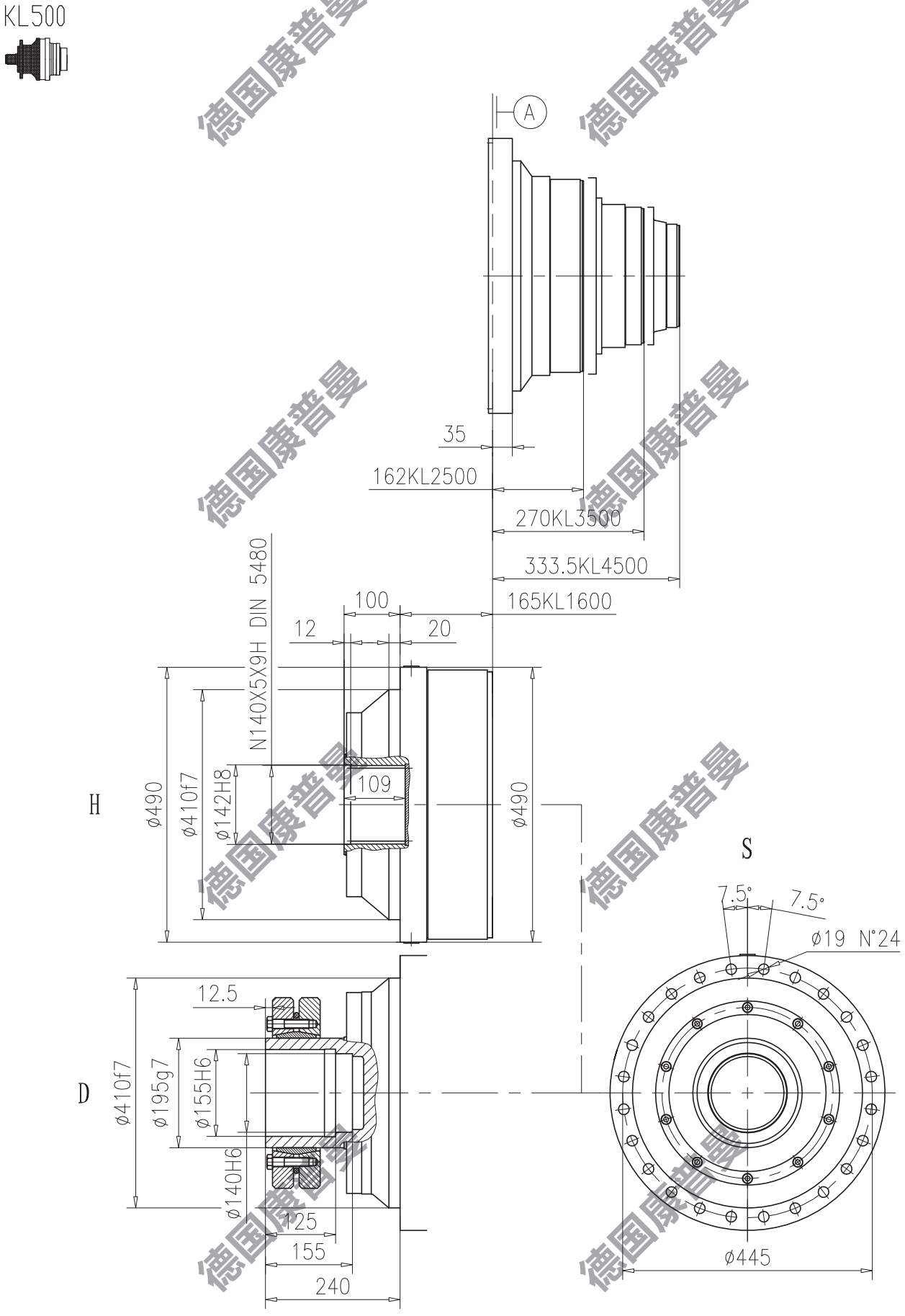
KL500


A
35
162KL2500
270KL3500
333.5KL4500
S
226
175KL1500
15
C
ø410f7
ø490
7.5°
7.5°
ø19 N°24
445
36X20X200
DIN 6885
120°
148
M24
P
10
200
C
ø140h7
50
220
I
ø124f7
ø90f7
ø50
M16 N°3
C
30
95
W120X3X8f
DIN 5480
15
111
136

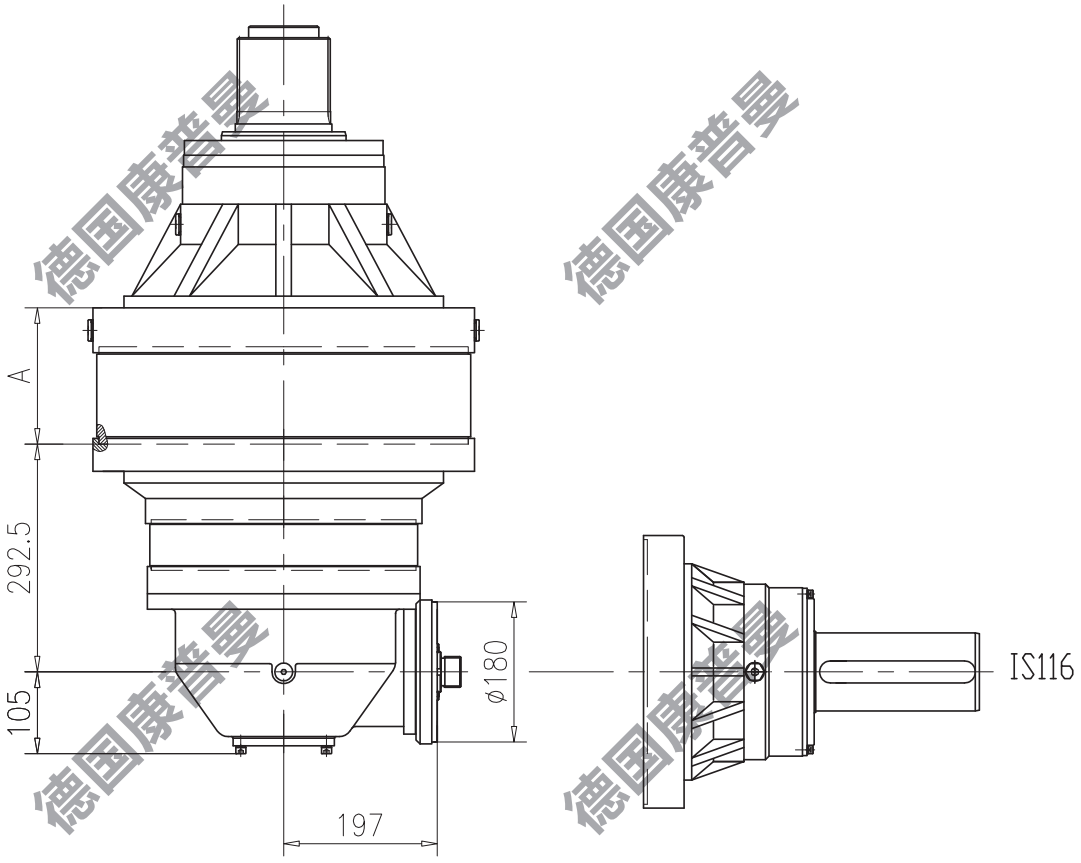
KL500

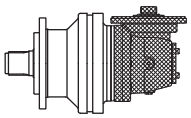

A
35
162KL2500
270KL3500
333.5KL4500
165KL1500
140
20
C
ø410f7
ø490
S
7.5°
7.5°
ø19 N°24
445
C
240
10
220
40X22X220
DIN 6885
120°
PH
169
M24
ø160h7
50
IH
ø151f7
ø125f7
ø80
M16 N°3
C
35
107
124
150
12
W150X5X8f
DIN 5480

KL500


A
35
162KL2500
270KL3500
333.5KL4500
165KL1600
100
12
20
N140X5X9H DIN 5480
H
ø490
ø410f7
ø142H8
109
ø490
S
7.5°
7.5°
ø19 N°24
ø445
D
12.5
ø410f7
ø195g7
ø155H6
ø140H6
125
155
240

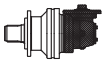
KR500

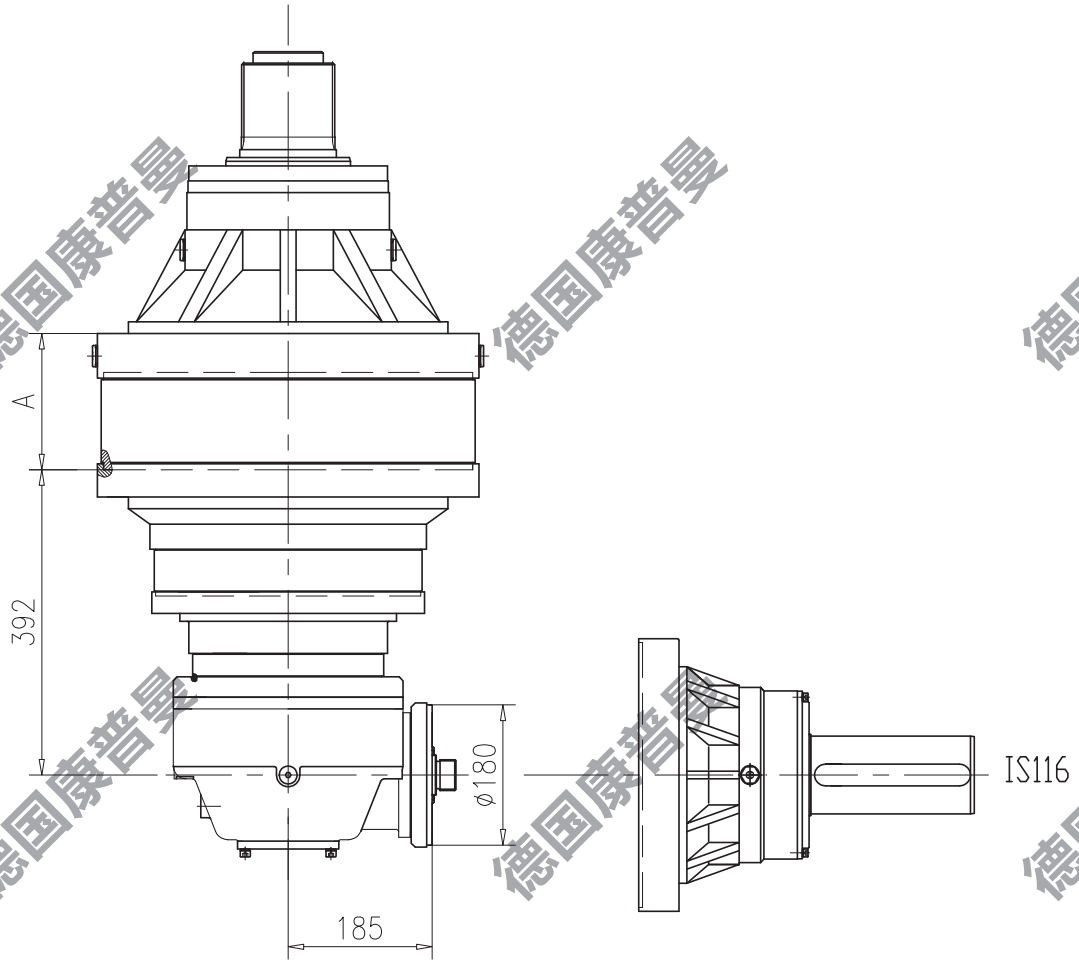


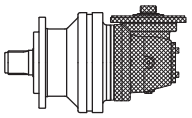


	A				
	SP	SI	SPH	SIH	H
KR 3500	175	175	165	165	165

KR500

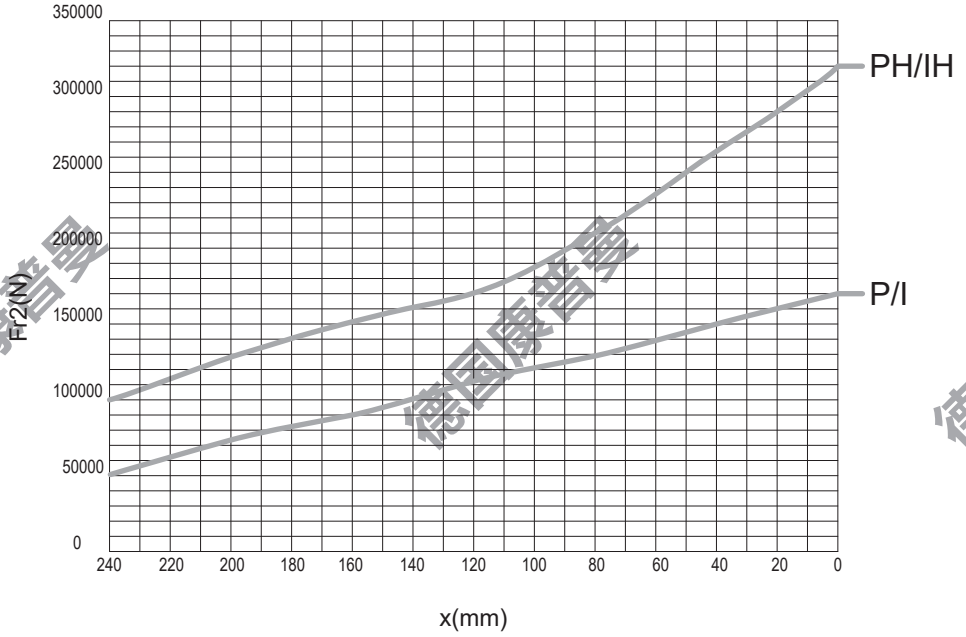


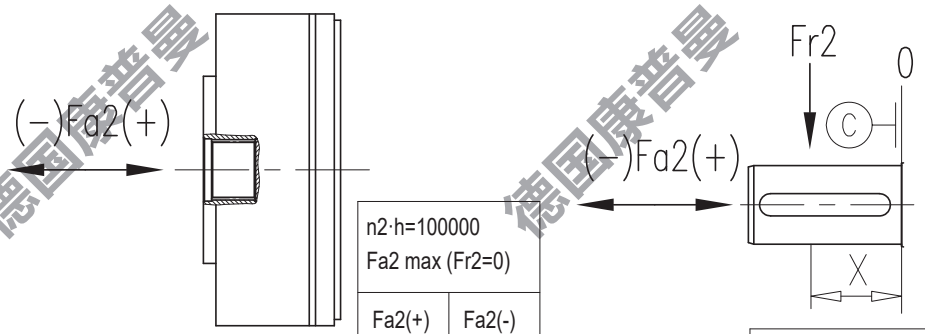




	A				
	SP	SI	SPH	SIH	H
KR 4500	175	175	165	165	165

KL500





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	54000	75000

	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	150000	130000
SPH-SIH	65000	130000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL600

T_2=60000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
L1	4.18	92033	80122	72147	68516	45641	37072	58.5	1800	
	4.89	78670	68489	61672	58568	39014	31689	58.5	1800	
L2	15.44	92033	80122	72147	68516	45641	37072	43.2	2350	
	18.82	92033	80122	72147	68516	45641	37072	43.2	2350	
	19.77	78670	68489	61672	58568	39014	31689	43.2	2350	
	22.00	78670	68489	61672	58568	39014	31689	43.2	2350	
	25.02	78670	68489	61672	58568	39014	31689	43.2	2350	
	29.33	78670	68489	61672	58568	39014	31689	43.2	2350	
L3	97.23	92033	80122	72147	68516	45641	37072	30.9	2500	1140
	110.57	92033	80122	72147	68516	45641	37072	30.9	2500	1050
	128.41	92033	80122	72147	68516	45641	37072	30.9	2500	875
	143.32	78670	68489	61672	58568	39014	31689	30.9	2500	700
	150.12	78670	68489	61672	58568	39014	31689	30.9	2500	700
	155.16	92033	80122	72147	68516	45641	37072	30.9	2500	700
	181.39	78670	68489	61672	58568	39014	31689	30.9	2500	610
	212.67	78670	68489	61672	58568	39014	31689	30.9	2500	520
L4	244.13	92033	80122	72147	68516	45641	37072	24.2	3100	520
	399.38	92033	80122	72147	68516	45641	37072	24.2	3100	340
	451.38	92033	80122	72147	68516	45641	37072	24.2	3100	340
	502.34	92033	80122	72147	68516	45641	37072	24.2	3100	340
	560.42	92033	80122	72147	68516	45641	37072	24.2	3100	250
	603.43	78670	68489	61672	58568	39014	31689	24.2	3100	250
	655.17	78670	68489	61672	58568	39014	31689	24.2	3100	160
	704.90	92033	80122	72147	68516	45641	37072	24.2	3100	160
	801.65	92033	80122	72147	68516	45641	37072	24.2	3100	160
	900.71	78670	68489	61672	58568	39014	31689	24.2	3100	160
	937.19	78670	68489	61672	58568	39014	31689	24.2	3100	160
	1088.35	78670	68489	61672	58568	39014	31689	24.2	3100	160
	1315.09	78670	68489	61672	58568	39014	31689	24.2	3100	160
	1541.83	78670	68489	61672	58568	39014	31689	24.2	3100	160

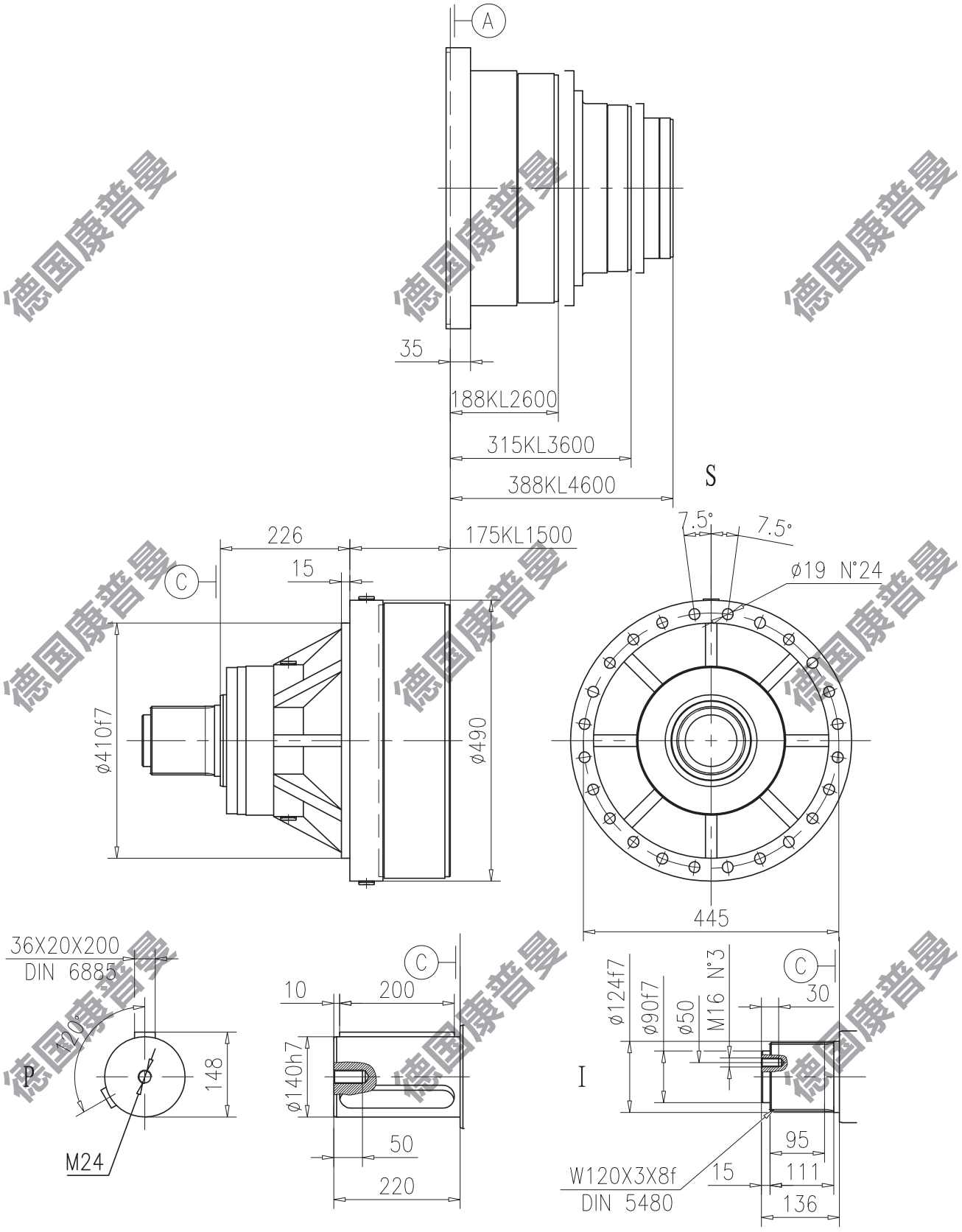
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2=60000 Nm **KR600**

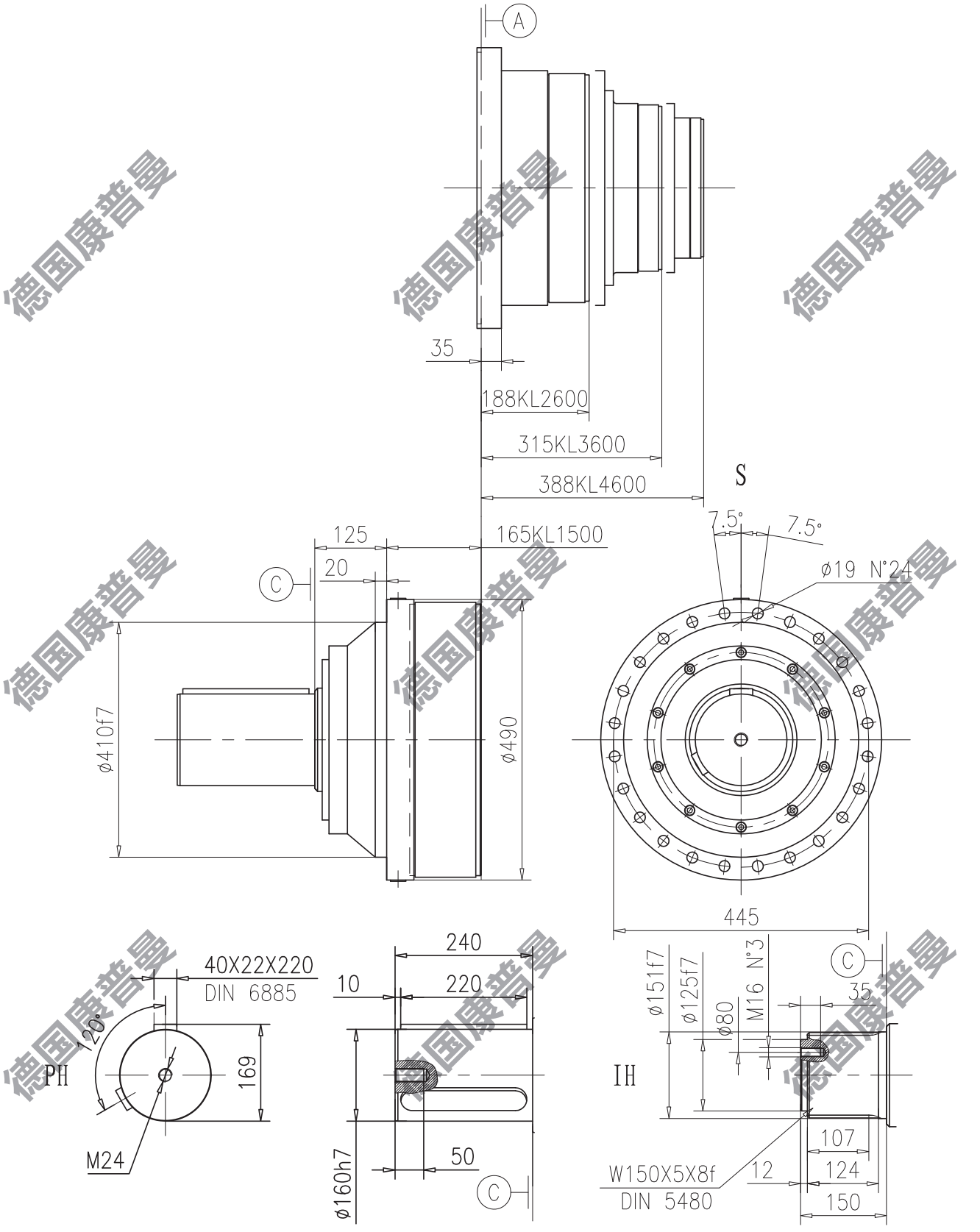
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R3	59.35	55777	55777	55777	55777	45641	37072	40	3500	1140
	67.50	63462	63462	63462	63462	45641	37072	40	3500	1140
	74.90	65048	65048	65048	65048	45641	37072	40	3500	1050
	83.66	63128	63128	63128	63128	45641	37072	40	3500	960
	87.57	76097	68489	61672	58568	39014	31689	40	3500	1050
	97.80	73851	68489	61672	58568	39014	31689	40	3500	960
	114.67	78670	68489	61672	58568	39014	31689	40	3500	875
	132.00	78670	68489	61672	58568	39014	31689	40	3500	785
R4	250.90	78670	68489	61672	58568	39014	31689	22	3500	430
	265.22	92033	80122	72147	68516	45641	37072	22	3500	430
	299.16	92033	80122	72147	68516	45641	37072	22	3500	430
	371.23	92033	80122	72147	68516	45641	37072	22	3500	340
	405.25	78670	68489	61672	58568	39014	31689	22	3500	250
	461.90	78670	68489	61672	58568	39014	31689	22	3500	250
	512.90	78670	68489	61672	58568	39014	31689	22	3500	250
	573.18	78670	68489	61672	58568	39014	31689	22	3500	160
	619.76	78670	68489	61672	58568	39014	31689	22	3500	160
	667.18	92033	80122	72147	68516	45641	37072	22	3500	160
	779.99	78670	68489	61672	58568	39014	31689	22	3500	160
	914.47	78670	68489	61672	58568	39014	31689	22	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(_{n2 \cdot h}=10000)$$

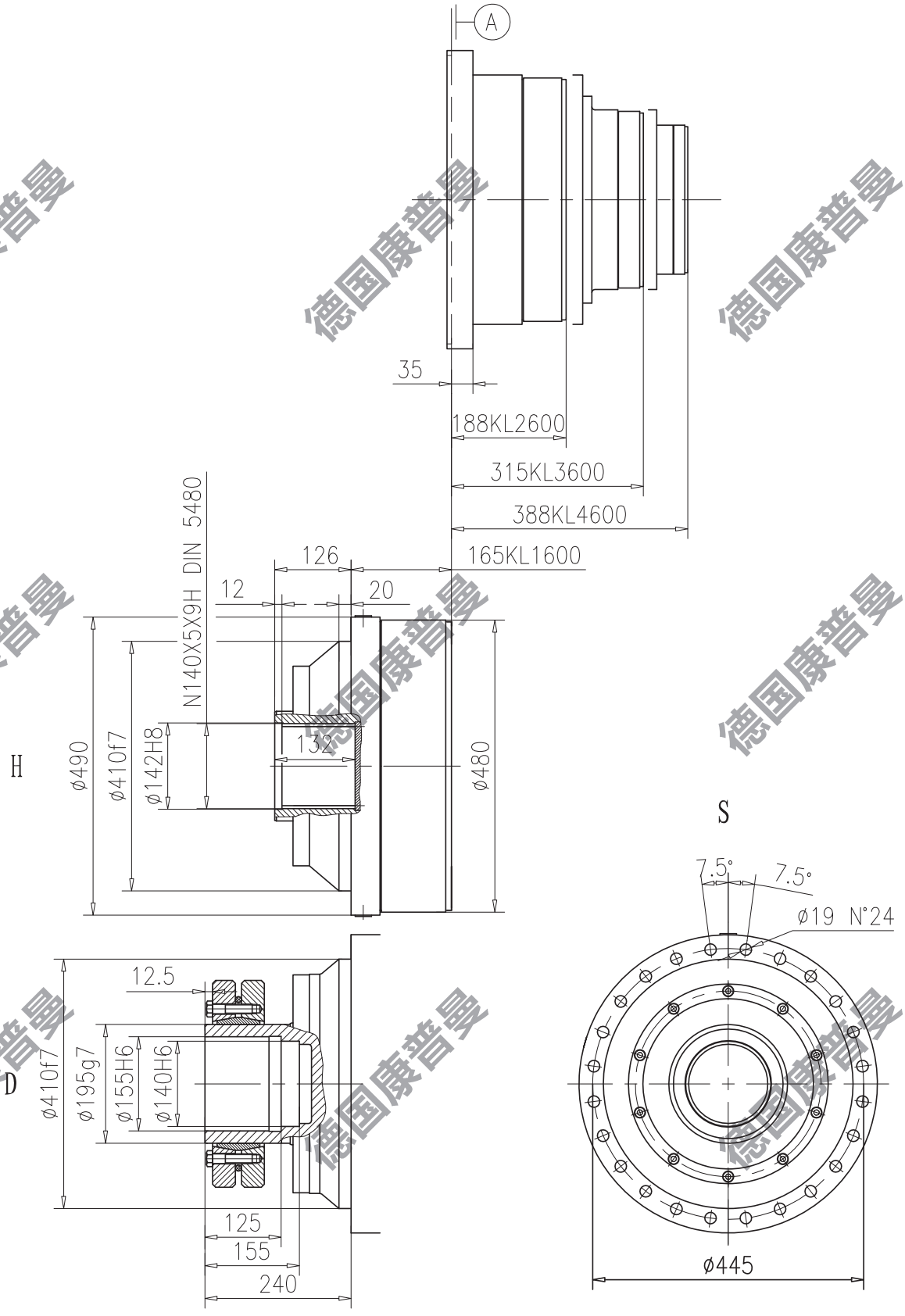
KL600


A
35
188KL2600
315KL3600
388KL4600
S
7.5°
7.5°
ø19 N°24
226
175KL1500
15
C
ø410f7
ø490
445
36X20X200
DIN 6885
P
148
M24
10
200
C
ø140h7
50
220
I
ø124f7
ø90f7
ø50
M16 N°3
C
30
95
15
111
136
W120X3X8f
DIN 5480

KL600


A
35
188KL2600
315KL3600
388KL4600
S
125
165KL1500
20
C
7.5°
7.5°
ø19 N°24
ø410f7
ø490
445
40X22X220
DIN 6885
120°
PH
169
M24
240
10
220
50
ø160h7
C
ø151f7
ø125f7
ø80
M16 N°3
C
35
IH
107
W150X5X8f
DIN 5480
12
124
150

KL600


A
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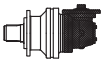
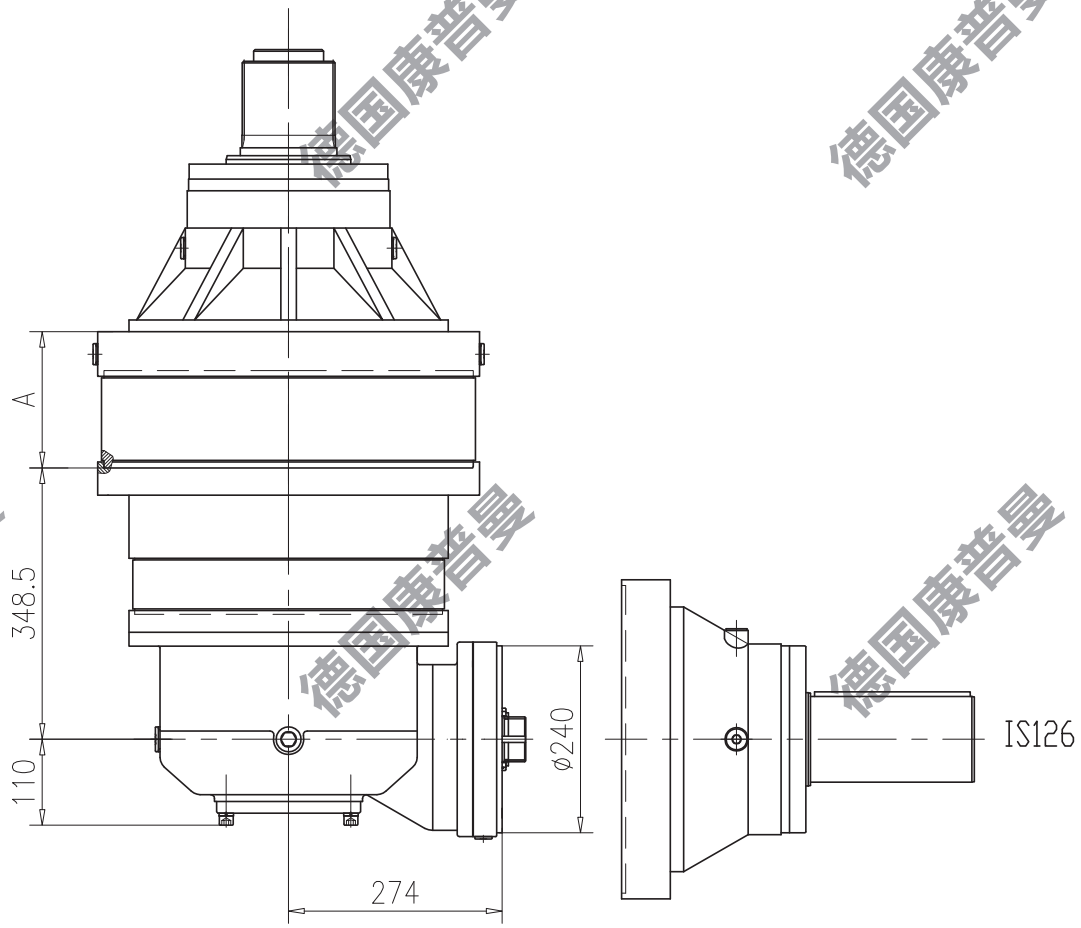
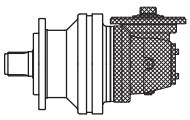
188KL2600
315KL3600
388KL4600
165KL1600
126
12
20
N140X5X9H DIN 5480
H
ø490
ø410f7
ø142H8
132
ø480
S
7.5°
7.5°
ø19 N°24
ø445
D
12.5
ø410f7
ø195g7
ø155H6
ø140H6
125
155
240

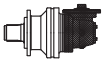


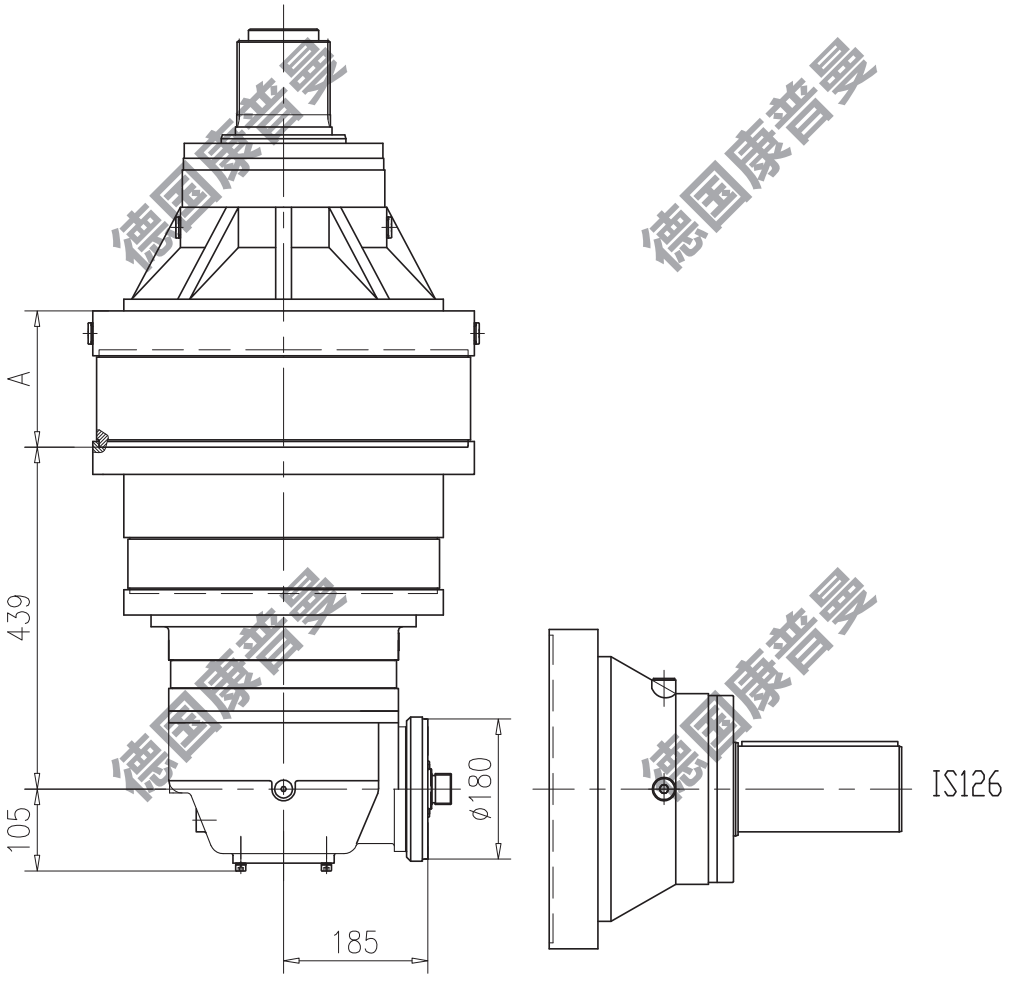


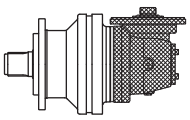


	A				
	SP	SI	SPH	SIH	H
KR 3600	175	175	165	165	165

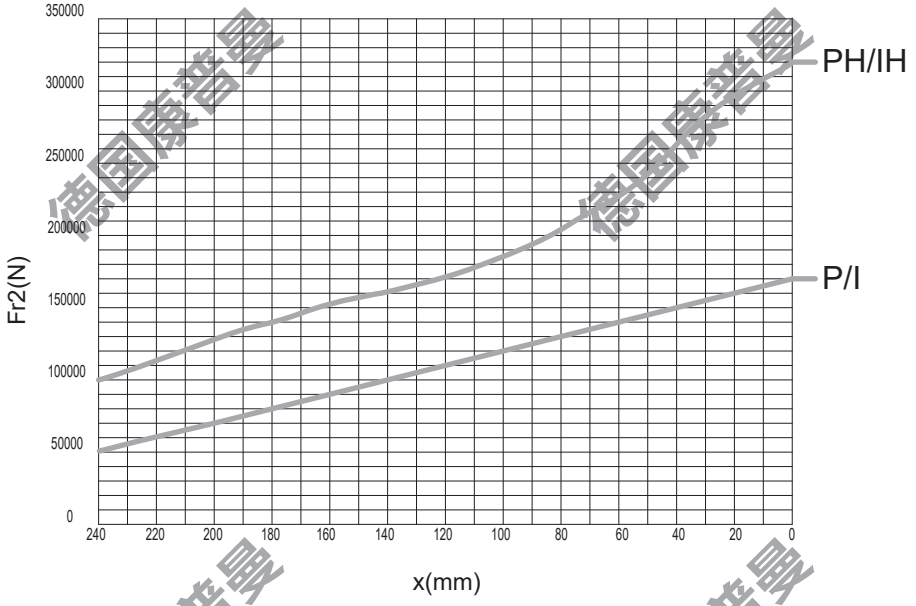
KR600

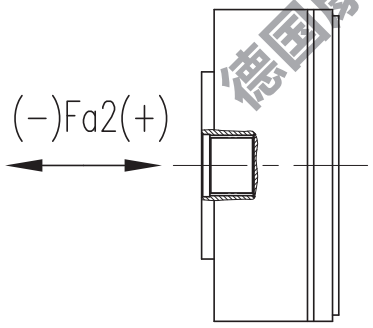




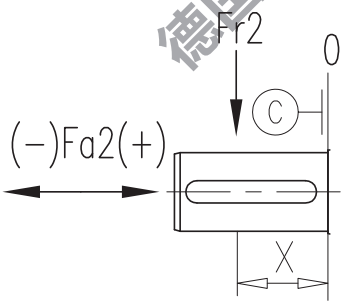


	A				
	SP	SI	SPH	SIH	H
KR 4600	175	175	165	165	165





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	54000	75000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI	150000	130000
SPH-SIH	65000	130000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL850

T_2=85000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
L1	4.18	100989	88748	80588	79567	49985	40498	60	1500	
	4.89	86326	75863	68887	68015	42727	34618	60	1500	
L2	15.44	100989	88748	80588	79567	49985	40498	45	1800	
	16.91	100989	88748	80588	79567	49985	40498	45	1800	
	18.82	100989	88748	80588	79567	49985	40498	45	1800	
	21.40	100989	88748	80588	79567	49985	40498	45	1800	
	25.02	86326	75863	68887	68015	42727	34618	45	1800	
	29.33	86326	75863	68887	68015	42727	34618	45	1800	
L3	97.23	100989	88748	80588	79567	49985	40498	30	3000	
	110.57	100989	88748	80588	79567	49985	40498	30	3000	
	128.41	100989	88748	80588	79567	49985	40498	30	3000	1050
	143.30	86326	75863	68887	68015	42727	34618	30	3000	875
	150.12	86326	75863	68887	68015	42727	34618	30	3000	875
	155.16	100989	88748	80588	79567	49985	40498	30	3000	960
	181.39	86326	75863	68887	68015	42727	34618	30	3000	700
	212.67	86326	75863	68887	68015	42727	34618	30	3000	610
L4	244.13	100989	88748	80588	79567	49985	40498	18	3800	610
	399.38	100989	88748	80588	79567	49985	40498	18	3800	430
	451.38	100989	88748	80588	79567	49985	40498	18	3800	340
	502.34	100989	88748	80588	79567	49985	40498	18	3800	340
	560.42	100989	88748	80588	79567	49985	40498	18	3800	250
	603.43	86326	75863	68887	68015	42727	34618	18	3800	250
	655.17	86326	75863	68887	68015	42727	34618	18	3800	250
	704.90	100989	88748	80588	79567	49985	40498	18	3800	250
	801.65	100989	88748	80588	79567	49985	40498	18	3800	250
	900.71	86326	75863	68887	68015	42727	34618	18	3800	160
	937.19	86326	75863	68887	68015	42727	34618	18	3800	160
	1088.35	86326	75863	68887	68015	42727	34618	18	3800	160
	1315.09	86326	75863	68887	68015	42727	34618	18	3800	160
	1541.83	86326	75863	68887	68015	42727	34618	18	3800	160

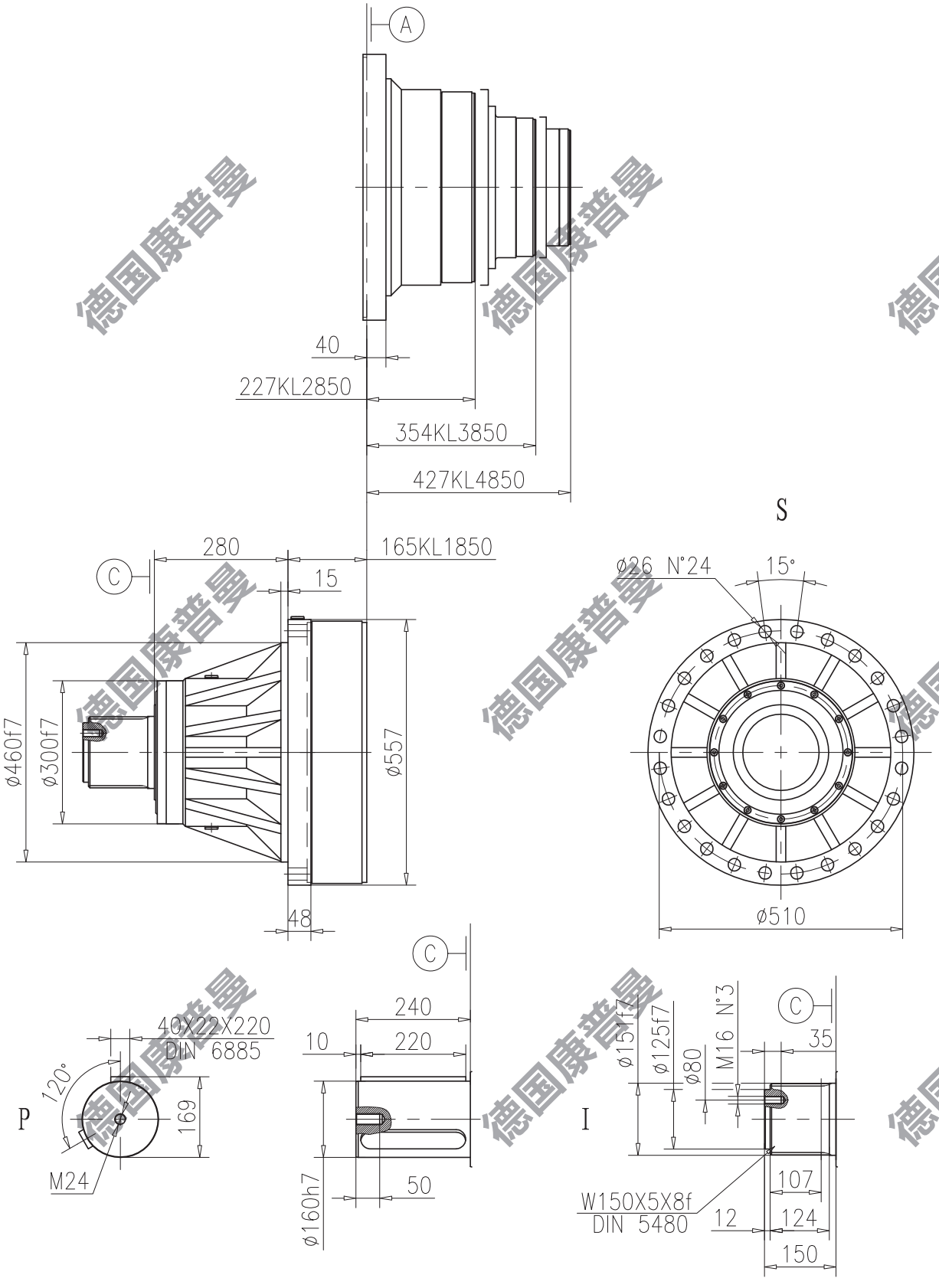
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2=85000 Nm **KR850**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R3	59.35	55777	55777	55777	55777	49985	40498	55	2500	
	67.50	63462	63462	63462	63462	49985	40498	55	2500	
	74.90	65048	65048	65048	65048	49985	40498	55	2500	
	83.66	63128	63128	63128	63128	49985	40498	55	2500	1050
	87.57	76097	75863	68887	68015	42727	34618	55	2500	1050
	97.80	73851	73851	68887	68015	42727	34618	55	2500	1050
	114.67	86326	75863	68887	68015	42727	34618	55	2500	1050
	132.00	86326	75863	68887	68015	42727	34618	55	2500	960
R4	250.90	86326	75863	68887	68015	42727	34618	22	3800	520
	265.22	100989	88748	80588	79567	49985	40498	22	3800	610
	299.16	100989	88748	80588	79567	49985	40498	22	3800	430
	371.23	100989	88748	80588	79567	49985	40498	22	3800	430
	405.25	86326	75863	68887	68015	42727	34618	22	3800	340
	461.90	86326	75863	68887	68015	42727	34618	22	3800	340
	512.90	86326	75863	68887	68015	42727	34618	22	3800	250
	573.18	86326	75863	68887	68015	42727	34618	22	3800	250
	619.76	86326	75863	68887	68015	42727	34618	22	3800	250
	667.18	100989	88748	80588	79567	49985	40498	22	3800	250
	779.99	86326	75863	68887	68015	42727	34618	22	3800	160
	914.47	86326	75863	68887	68015	42727	34618	22	3800	160
R5	1163.35	100989	88748	80588	79567	49985	40498	18	3800	160
	1314.45	86326	75863	68887	68015	42727	34618	18	3800	160
	1364.54	100989	88748	80588	79567	49985	40498	18	3800	160
	1415.03	100989	88748	80588	79567	49985	40498	18	3800	160
	1518.60	100989	88748	80588	79567	49985	40498	18	3800	160
	1617.05	100989	88748	80588	79567	49985	40498	18	3800	160
	1664.11	100989	88748	80588	79567	49985	40498	18	3800	160
	1717.32	100989	88748	80588	79567	49985	40498	18	3800	160
	1868.09	86326	75863	68887	68015	42727	34618	18	3800	160
	2200.50	100989	88748	80588	79567	49985	40498	18	3800	160
	2620.24	86326	75863	68887	68015	42727	34618	18	3800	160

$$T_{2max}=1.2 \cdot T_{n2}(n2 \cdot h=10000)$$

KL850


A
40
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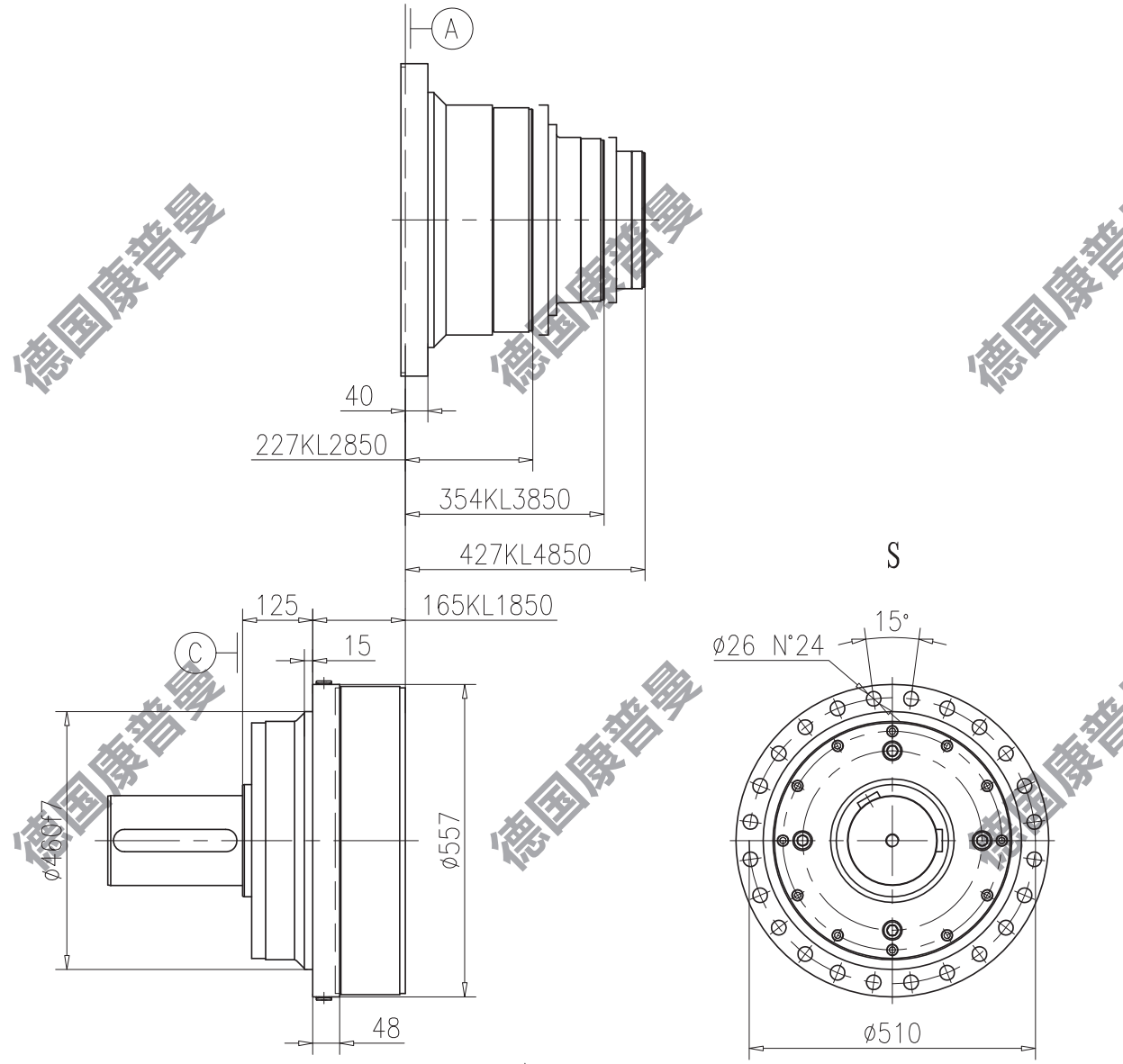
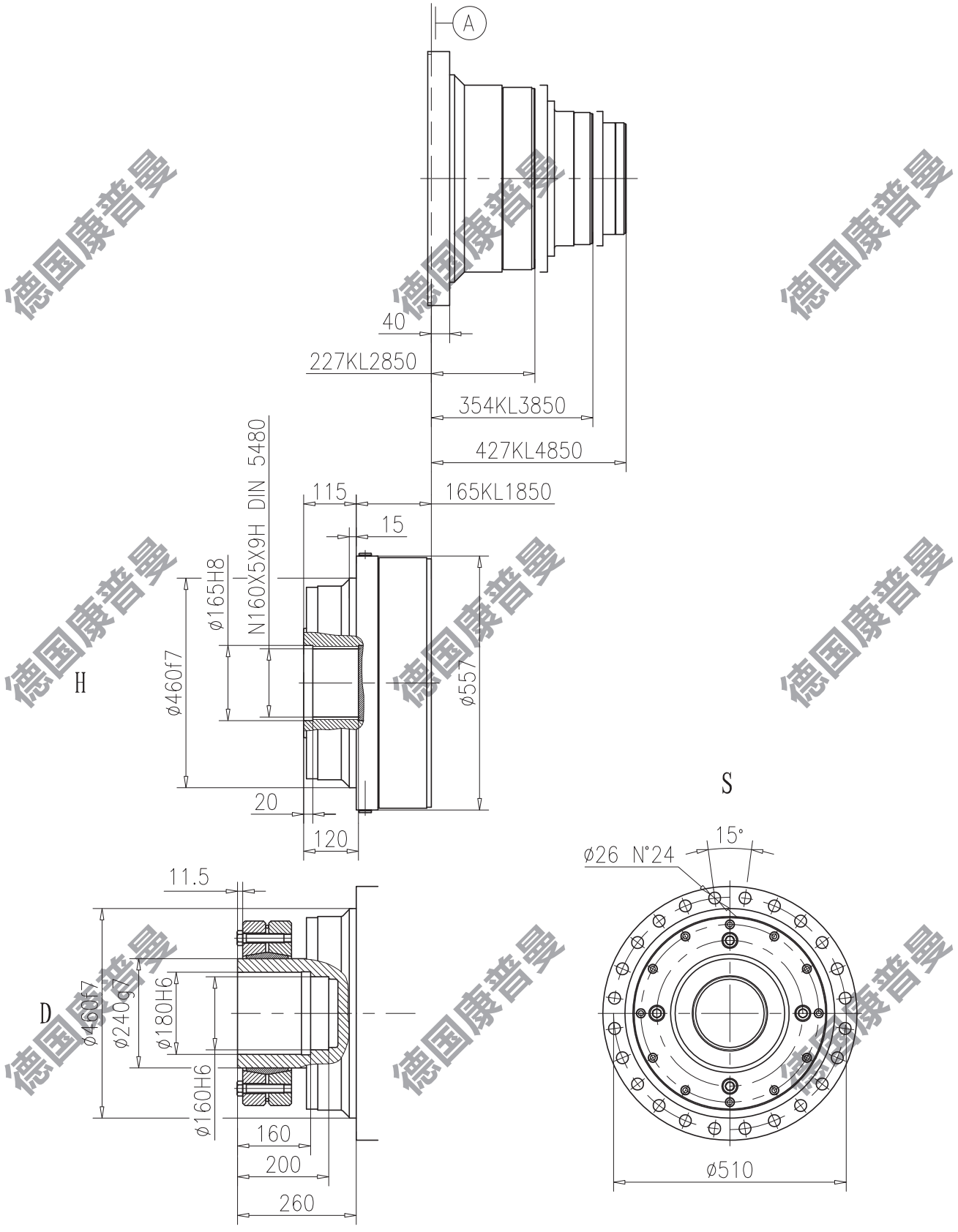
354KL3850
427KL4850
280
165KL1850
C
15
ø460f7
ø300f7
ø557
48
S
ø26 N°24
15°
ø510
C
240
10
220
50
ø160h7
P
40X22X220
DIN 6885
120°
169
M24
I
ø151f7
ø125f7
ø80
M16 N°3
C
35
107
124
150
W150X5X8f
DIN 5480
12

KL850


A
40
227KL2850
354KL3850
427KL4850
125
165KL1850
15
C
ø460f7
ø557
48
S
15°
ø26 N°24
ø510
C
240
40X22X220
DIN 6885
10
220
PH
120°
169
M24
ø160h7
50
IH
ø171f7
ø140f7
ø110
M16 N°4
C
35
W170X5X8f
DIN 5480
15
115
140
170

KL850


A
40
227KL2850
354KL3850
427KL4850
115
165KL1850
15
N160X5X9H DIN 5480
ø165H8
ø460f7
H
ø557
20
120
S
15°
ø26 N°24
ø510
11.5
D
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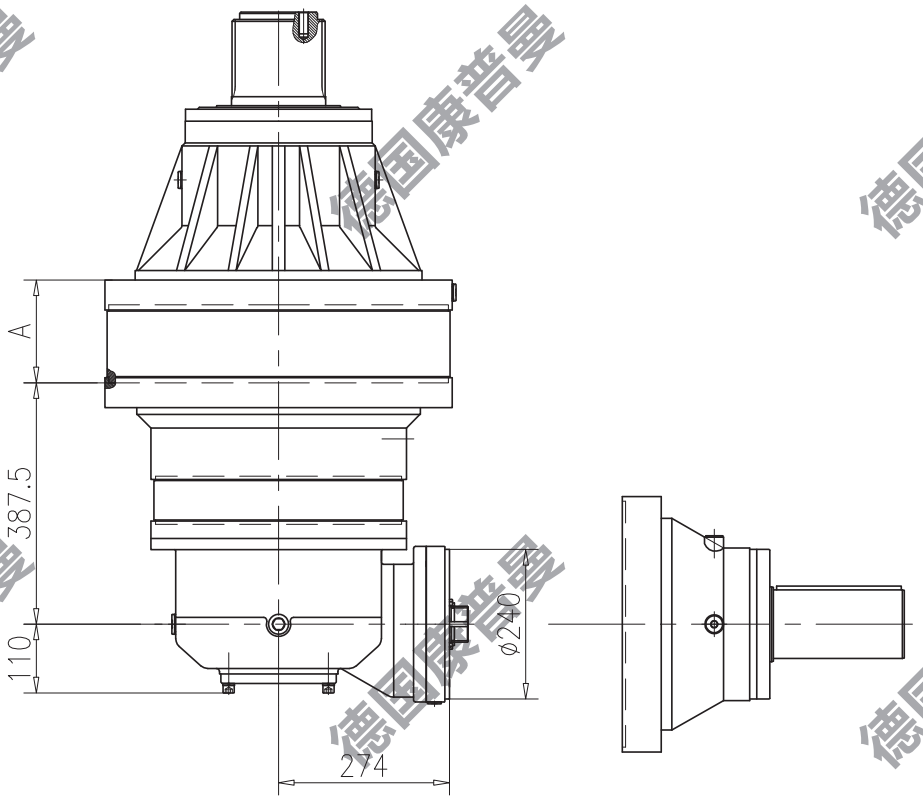
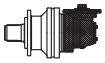
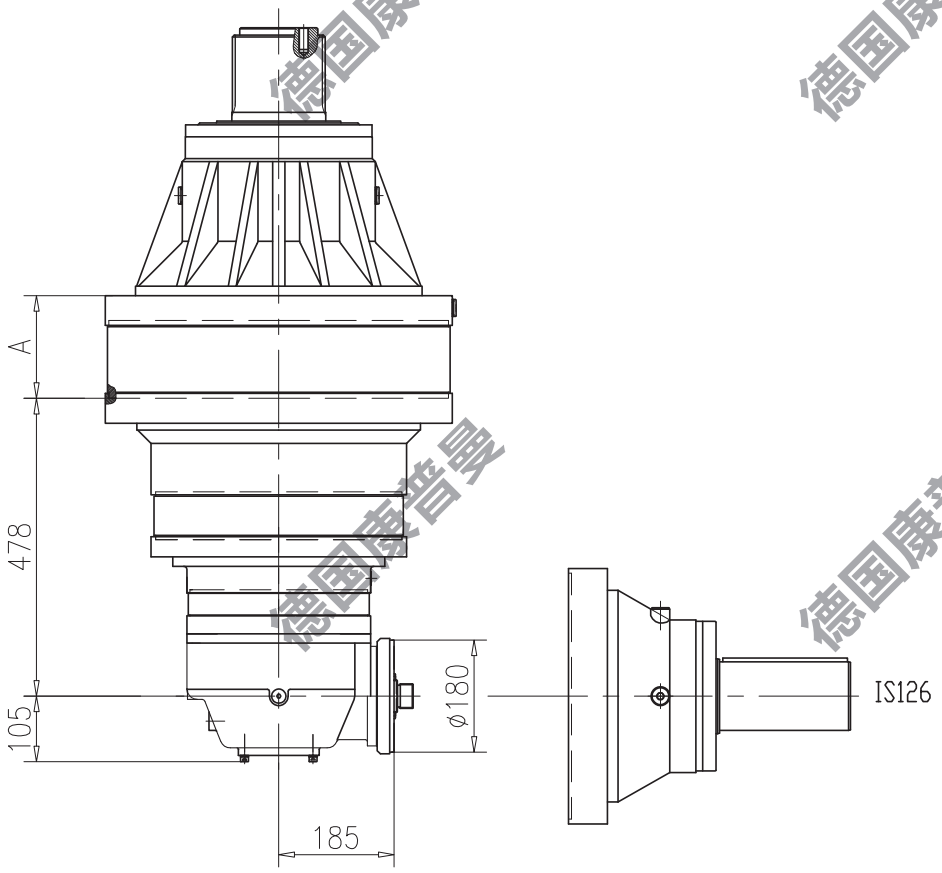
ø240g7
ø180H6
ø160H6
160
200
260

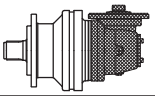


	A				
	SP	SI	SPH	SIH	H
KR 3850	165	165	165	165	165

KR850

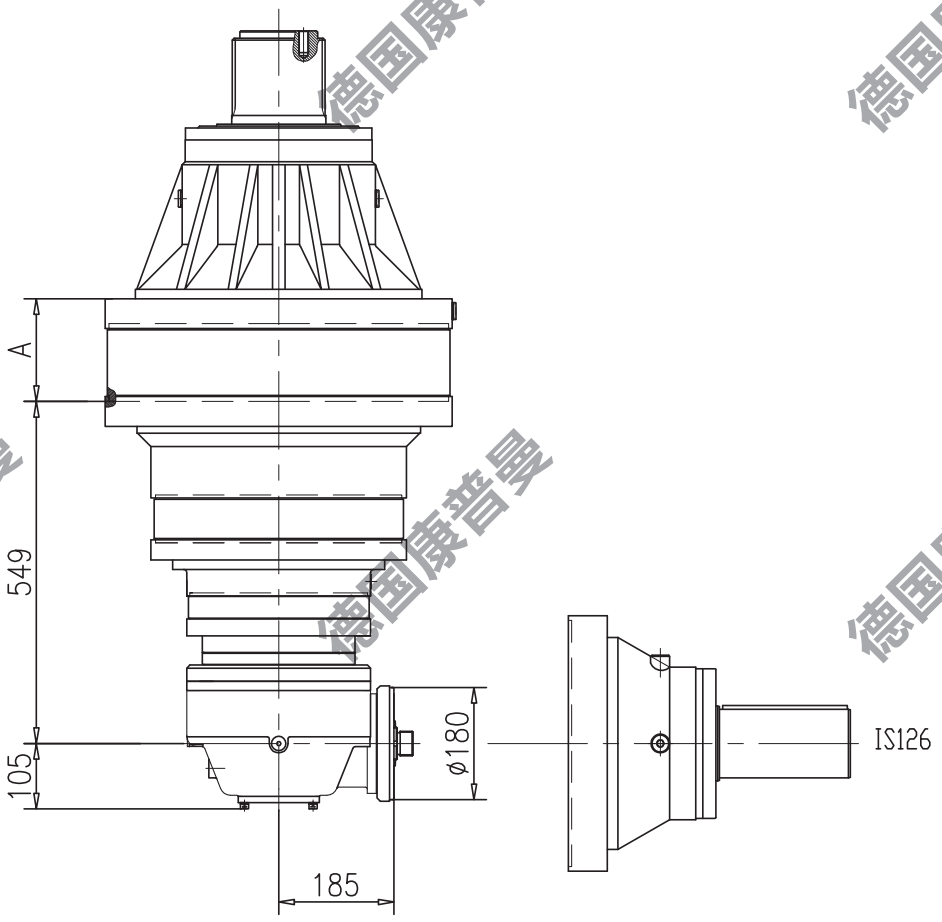






	A				
	SP	SI	SPH	SIH	H
KR 4850	165	165	165	165	165

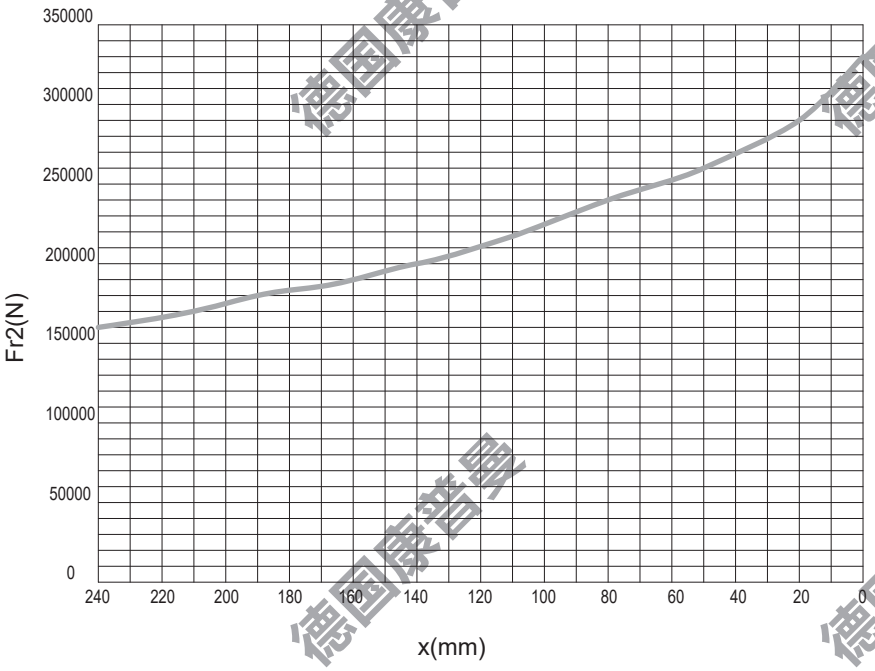
KR850

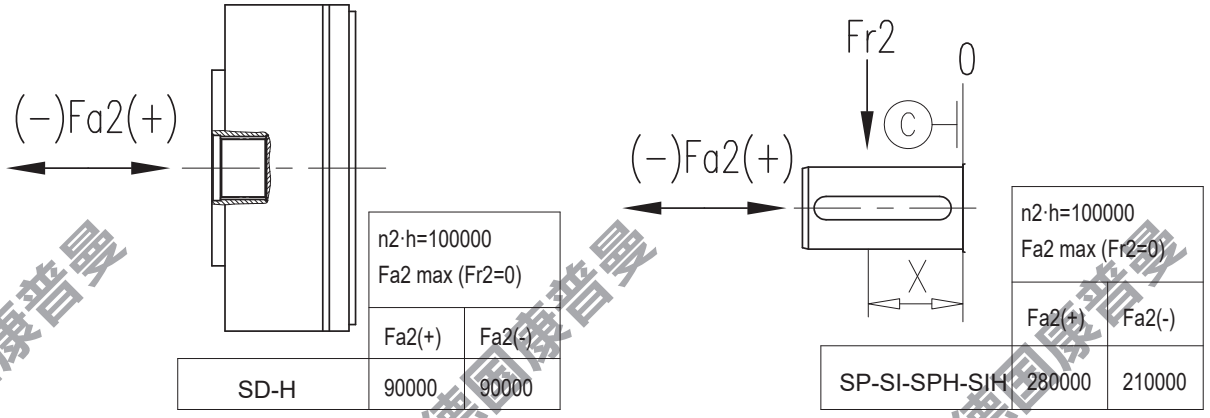


	A				
	SP	SI	SPH	SIH	H
KR 5850	165	165	165	165	165

KL850

P/I/PH/IH





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	90000	90000

	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SPH-SIH	280000	210000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL1050 **T_2=105000 Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
L1	4.09	125498	109255	98380	92206	70255	57065	87	1200	
	5.25	97769	85115	76643	71833	54732	44456	87	1200	
L2	16.54	125498	109255	98380	92206	70255	57065	51	2100	
	18.41	125498	109255	98380	92206	70255	57065	51	2100	
	20.94	125498	109255	98380	92206	70255	57065	51	2100	
	24.55	125498	109255	98380	92206	70255	57065	51	2100	
	31.50	97769	85115	76643	71833	54732	44456	51	2100	
L3	57.90	125498	109255	98380	92206	70255	57065	37	2500	
	68.23	125498	109255	98380	92206	70255	57065	37	2500	
	95.11	125498	109255	98380	92206	70255	57065	37	2500	
	125.61	125498	109255	98380	92206	70255	57065	37	2500	
	138.82	97769	85115	76643	71833	54732	44456	37	2500	1050
	189.00	97769	85115	76643	71833	54732	44456	37	2500	785
L4	218.08	125498	109255	98380	92206	70255	57065	28	3100	700
	243.41	125498	109255	98380	92206	70255	57065	28	3100	610
	294.55	125498	109255	98380	92206	70255	57065	28	3100	520
	352.54	125498	109255	98380	92206	70255	57065	28	3100	520
	401.99	97769	85115	76643	71833	54732	44456	28	3100	340
	453.71	125498	109255	98380	92206	70255	57065	28	3100	430
	504.94	125498	109255	98380	92206	70255	57065	28	3100	340
	570.68	125498	109255	98380	92206	70255	57065	28	3100	340
	649.01	125498	109255	98380	92206	70255	57065	28	3100	340
	706.54	97769	85115	76643	71833	54732	44456	28	3100	250
	800.80	125498	109255	98380	92206	70255	57065	28	3100	250
	1168.74	97769	85115	76643	71833	54732	44456	28	3100	160

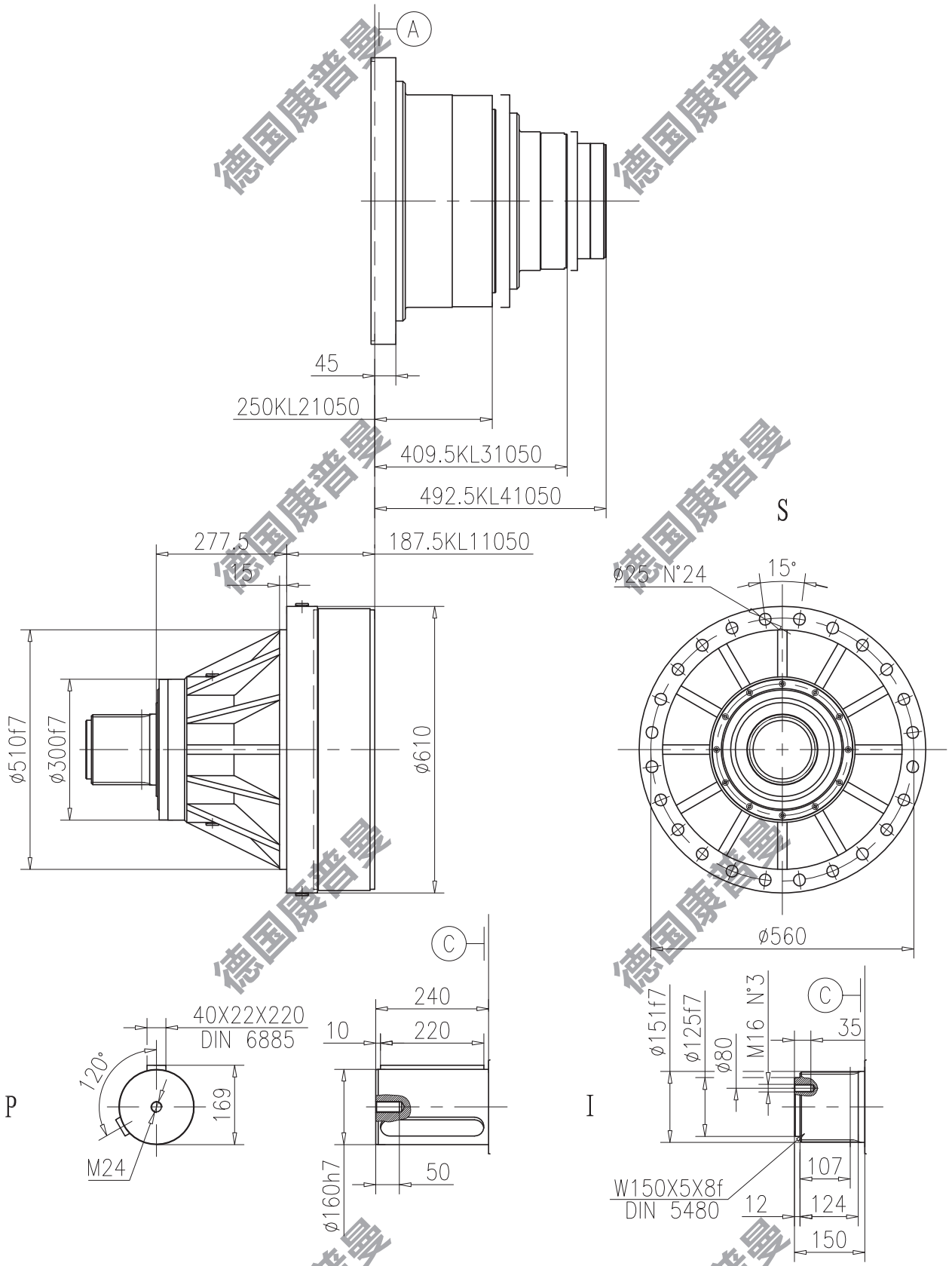
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2=105000 Nm **KR1050**

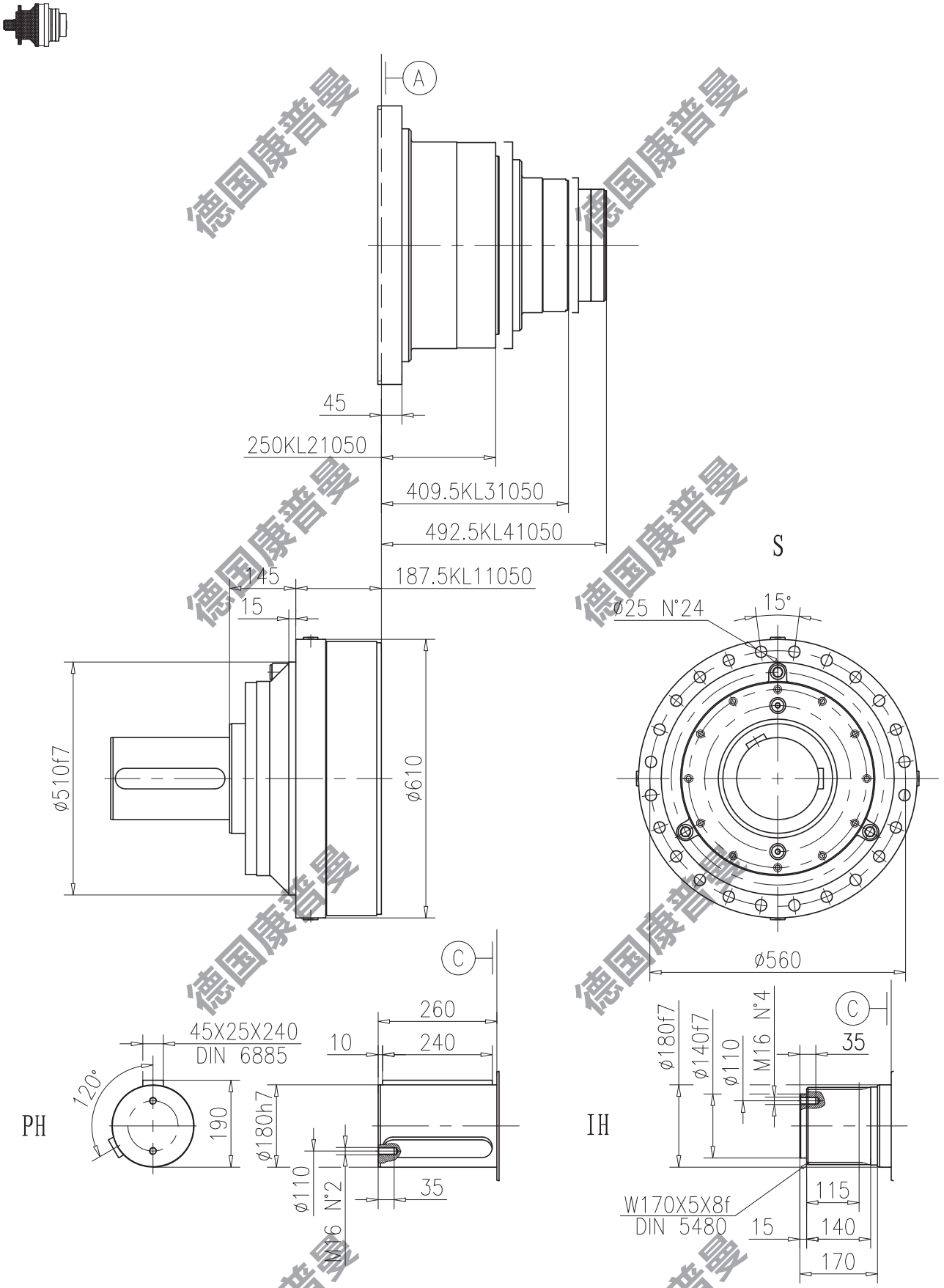
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R3	58.06	111001	109255	98380	92206	70255	57065	65	2500	
	66.03	125498	109255	98380	92206	70255	57065	65	2500	
	81.84	125498	109255	98380	92206	70255	57065	65	2500	
	105.03	97769	85115	76643	71833	54732	44456	65	2500	
	123.14	97769	85115	76643	71833	54732	44456	65	2500	1140
	141.75	97769	85115	76643	71833	54732	44456	65	2500	960
R4	209.95	97769	85115	76643	71833	54732	44456	29	3500	610
	233.65	98421	98421	98380	92206	70255	57065	29	3500	520
	259.45	99706	99706	98380	92206	70255	57065	29	3500	520
	305.38	125498	109255	98380	92206	70255	57065	29	3500	520
	363.16	122834	109255	98380	92206	70255	57065	29	3500	430
	408.99	122339	109255	98380	92206	70255	57065	29	3500	430
	465.12	125498	109255	98380	92206	70255	57065	29	3500	340
	503.18	125498	109255	98380	92206	70255	57065	29	3500	340
	562.31	125498	109255	98380	92206	70255	57065	29	3500	340
	721.64	97769	85115	76643	71833	54732	44456	29	3500	160
	812.70	97769	85115	76643	71833	54732	44456	29	3500	160
R5	804.23	125498	109255	98380	92206	70255	57065	22	3500	250
	858.80	125498	109255	98380	92206	70255	57065	22	3500	250
	959.77	125498	109255	98380	92206	70255	57065	22	3500	250
	1065.75	125498	109255	98380	92206	70255	57065	22	3500	160
	1103.12	125498	109255	98380	92206	70255	57065	22	3500	160
	1207.21	125498	109255	98380	92206	70255	57065	22	3500	160
	1325.46	125498	109255	98380	92206	70255	57065	22	3500	160
	1445.52	125498	109255	98380	92206	70255	57065	22	3500	160
	1521.49	125498	109255	98380	92206	70255	57065	22	3500	160
	1660.17	125498	109255	98380	92206	70255	57065	22	3500	160
	1755.94	125498	109255	98380	92206	70255	57065	22	3500	160
	1876.33	125498	109255	98380	92206	70255	57065	22	3500	160
	2204.98	125498	109255	98380	92206	70255	57065	22	3500	160
	2403.14	125498	109255	98380	92206	70255	57065	22	3500	160
	2813.78	97769	85115	76643	71833	54732	44456	22	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

KL1050


A
45
250KL21050
409.5KL31050
492.5KL41050
277.5
187.5KL11050
15
ø510f7
ø300f7
ø610
S
ø25 N°24
15°
ø560
C
240
10
220
40X22X220
DIN 6885
120°
169
M24
P
ø160h7
50
I
ø151f7
ø125f7
ø80
M16 N°3
35
107
W150X5X8f
DIN 5480
12
124
150

KL1050


A
45
250KL21050
409.5KL31050
492.5KL41050
145
187.5KL11050
15
ø510f7
ø610
S
ø25 N°24
15°
ø560
C
260
45X25X240
DIN 6885
10
240
120°
190
ø180h7
ø110
M16 N°2
35
PH
IH
ø180f7
ø140f7
ø110
M16 N°4
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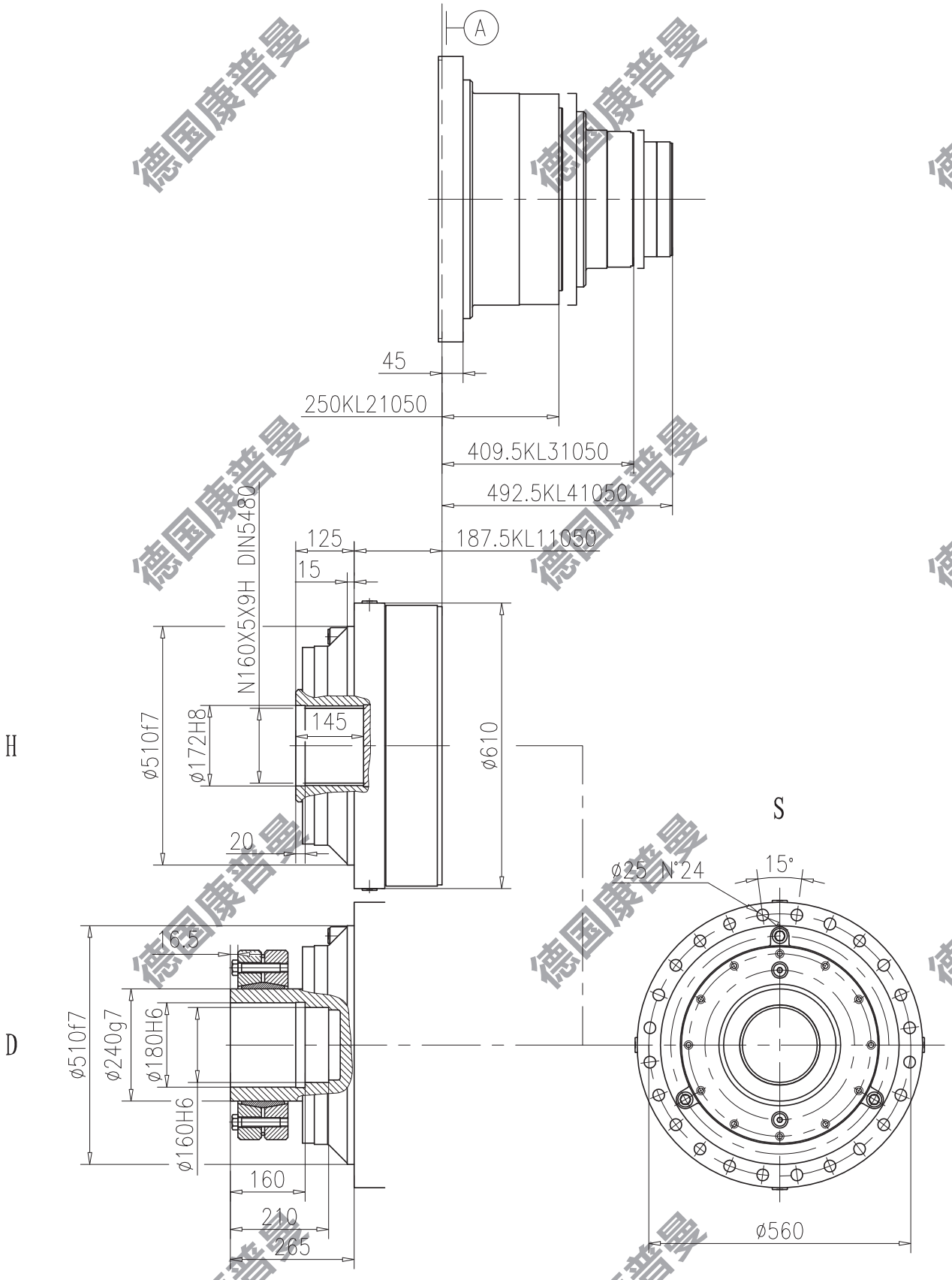
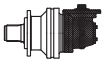
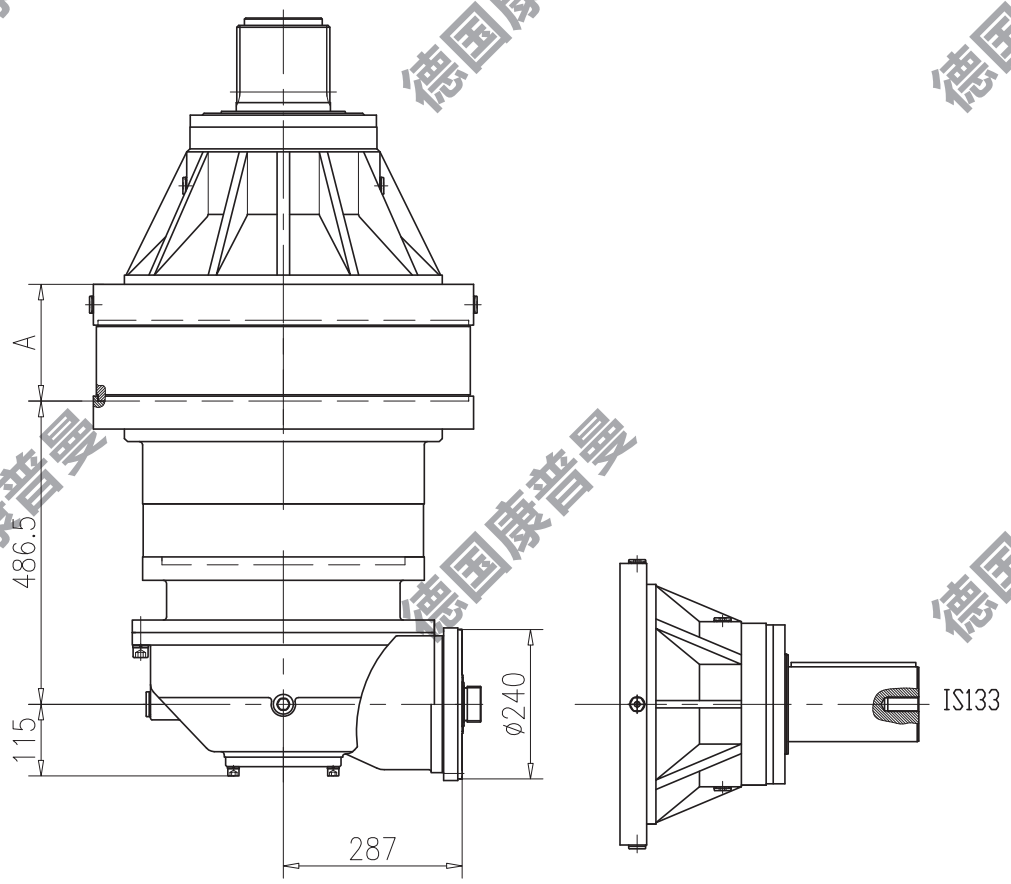
DIN 5480
115
15
140
170

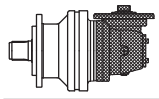
KL1050



KR1050

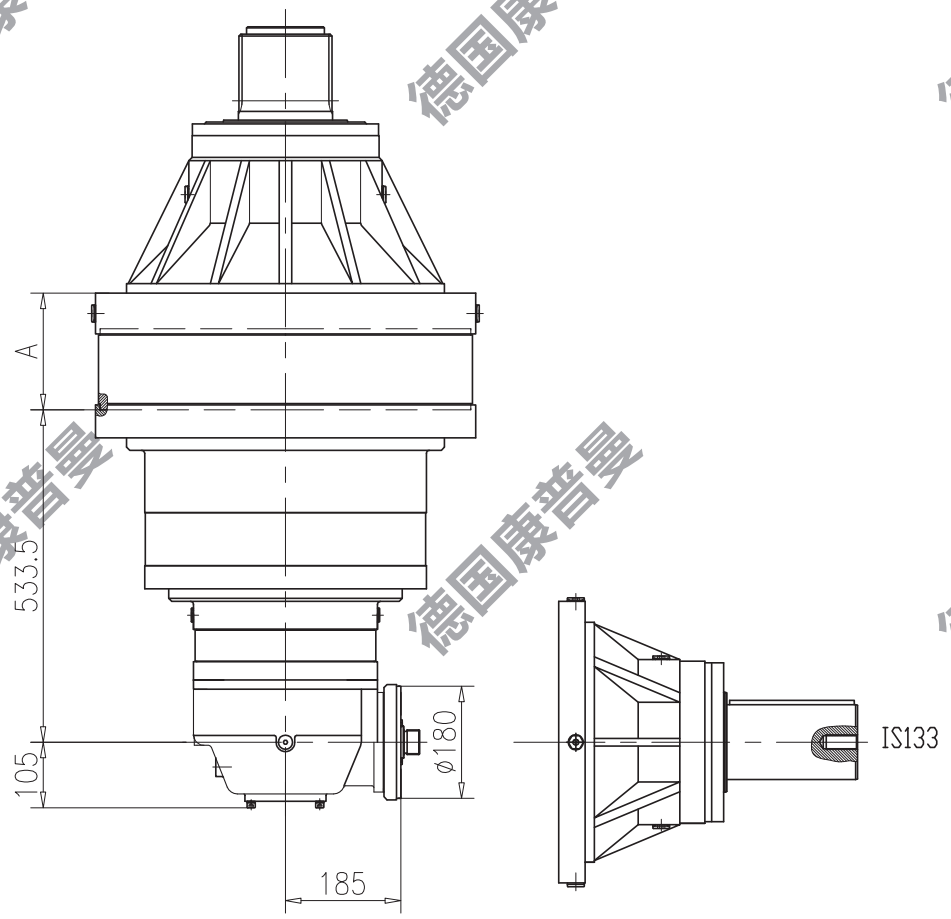


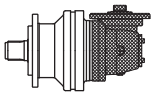




	A				
	SP	SI	SPH	SIH	H
KR 31050	187.5	187.5	187.5	187.5	187.5

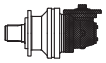
KR1050

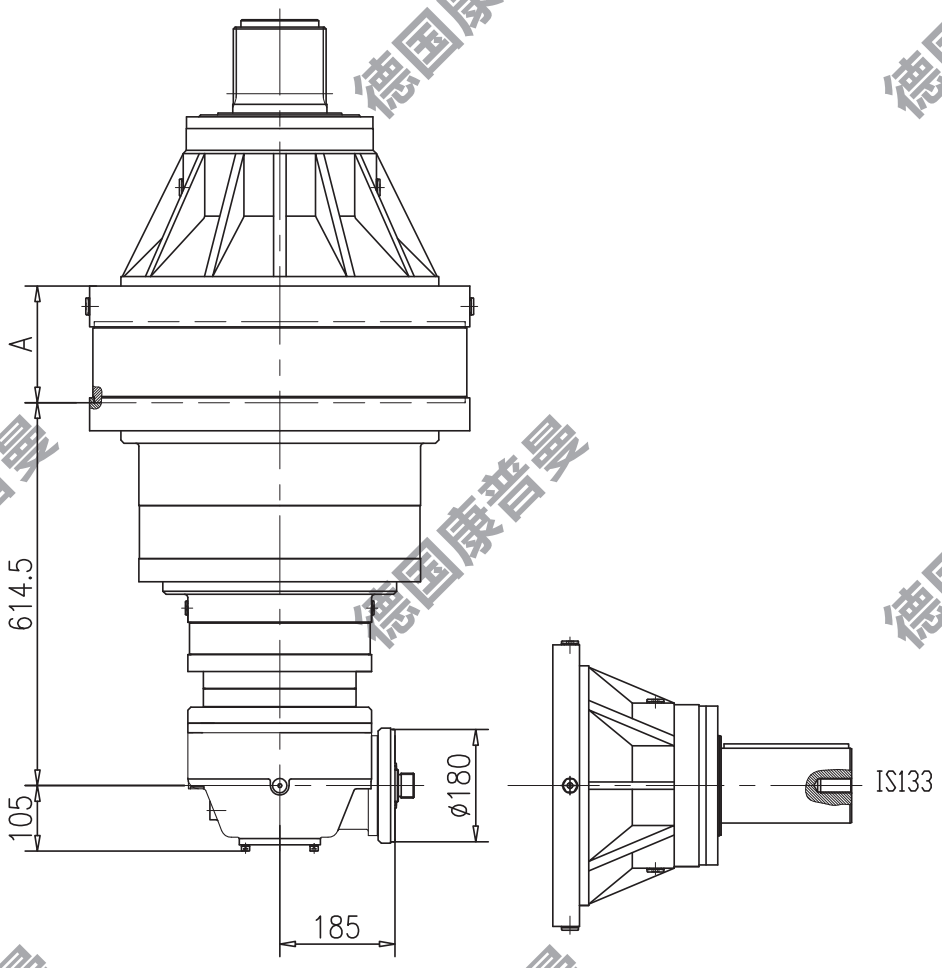


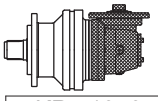


	A				
	SP	SI	SPH	SIH	H
KR 41050	187.5	187.5	187.5	187.5	187.5

KR1050

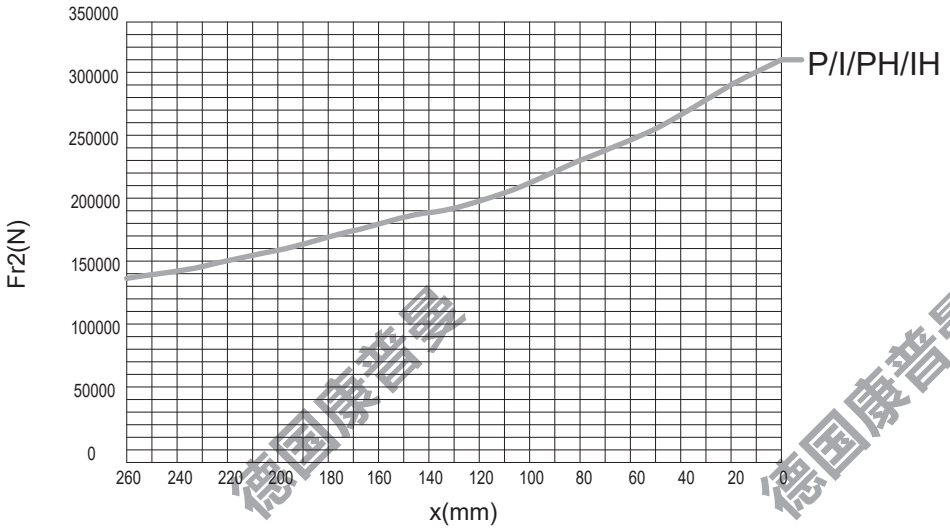


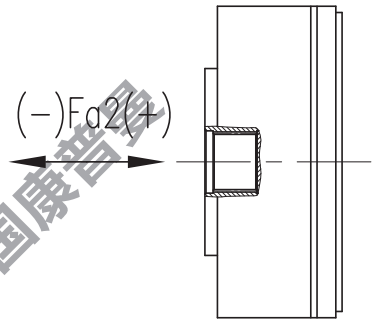




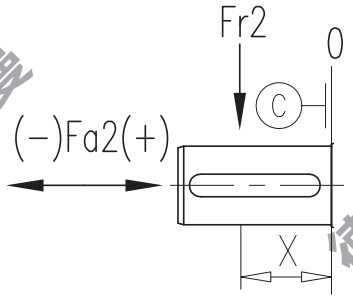
	A				
	SP	SI	SPH	SIH	H
KR 51050	187.5	187.5	187.5	187.5	187.5

KL1050





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	90000	90000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SP-SI-SPH-SIH	280000	210000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL1350 **T_2=135000 Nm**

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
L1	3.83	149804	139817	125392	110966	73238	59922	87	1000	
	4.40	130398	121705	109148	96591	63750	52159	87	1000	
L2	18.40	130398	121705	109148	96591	63750	52159	54	1800	
	21.51	130398	121705	109148	96591	63750	52159	54	1800	
	23.00	144104	122321	108245	107240	66020	53620	54	1800	
	26.40	130398	121705	109148	96591	63750	52159	54	1800	
L3	65.58	149804	139817	125392	110966	73238	59922	38	2400	
	73.40	149804	139817	125392	110966	73238	59922	38	2400	
	80.02	130398	121705	109148	96591	63750	52159	38	2400	
	84.16	149804	139817	125392	110966	73238	59922	38	2400	
	96.60	130398	121705	109148	96591	63750	52159	38	2400	
	112.93	130398	121705	109148	96591	63750	52159	38	2400	
	120.88	130398	121705	109148	96591	63750	52159	38	2400	
	134.03	130398	121705	109148	96591	63750	52159	38	2400	
	164.49	130398	121705	109148	96591	63750	52159	38	2400	1140
L4	256.91	149804	139817	125392	110966	73238	59922	30	3100	875
	287.58	149804	139817	125392	110966	73238	59922	30	3100	785
	335.55	149804	139817	125392	110966	73238	59922	30	3100	700
	406.31	130398	121705	109148	96591	63750	52159	30	3100	520
	443.37	149804	139817	125392	110966	73238	59922	30	3100	520
	504.95	149804	139817	125392	110966	73238	59922	30	3100	430
	579.60	130398	121705	109148	96591	63750	52159	30	3100	340
	677.60	130398	121705	109148	96591	63750	52159	30	3100	340
	713.32	149804	139817	125392	110966	73238	59922	30	3100	340
	846.58	149804	139817	125392	110966	73238	59922	30	3100	250
	971.72	130398	121705	109148	96591	63750	52159	30	3100	250

$T_{2max}=1.2 \cdot T_{n2(n2 \cdot h=10000)}$

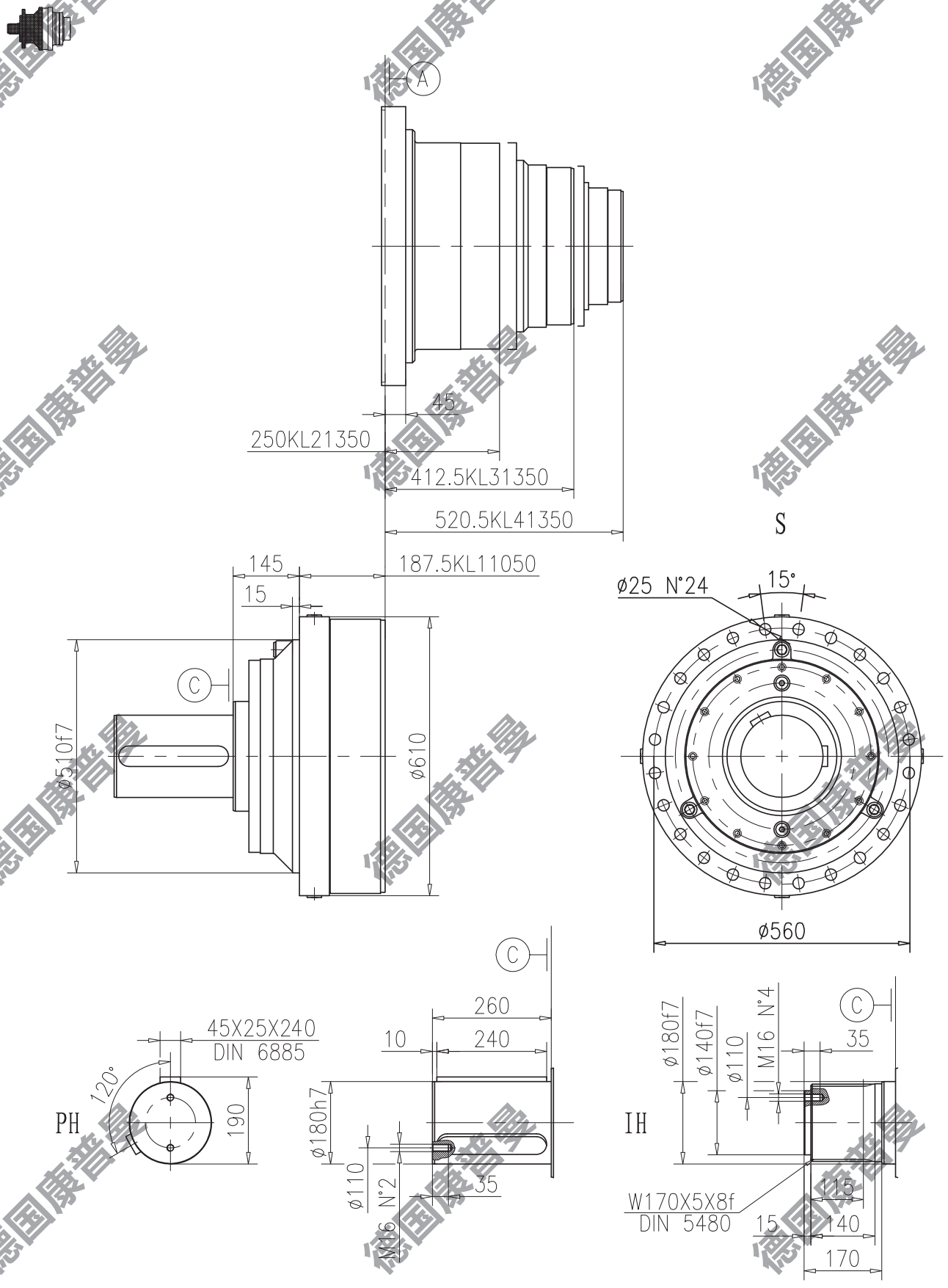
T_2=135000 Nm

KR1350

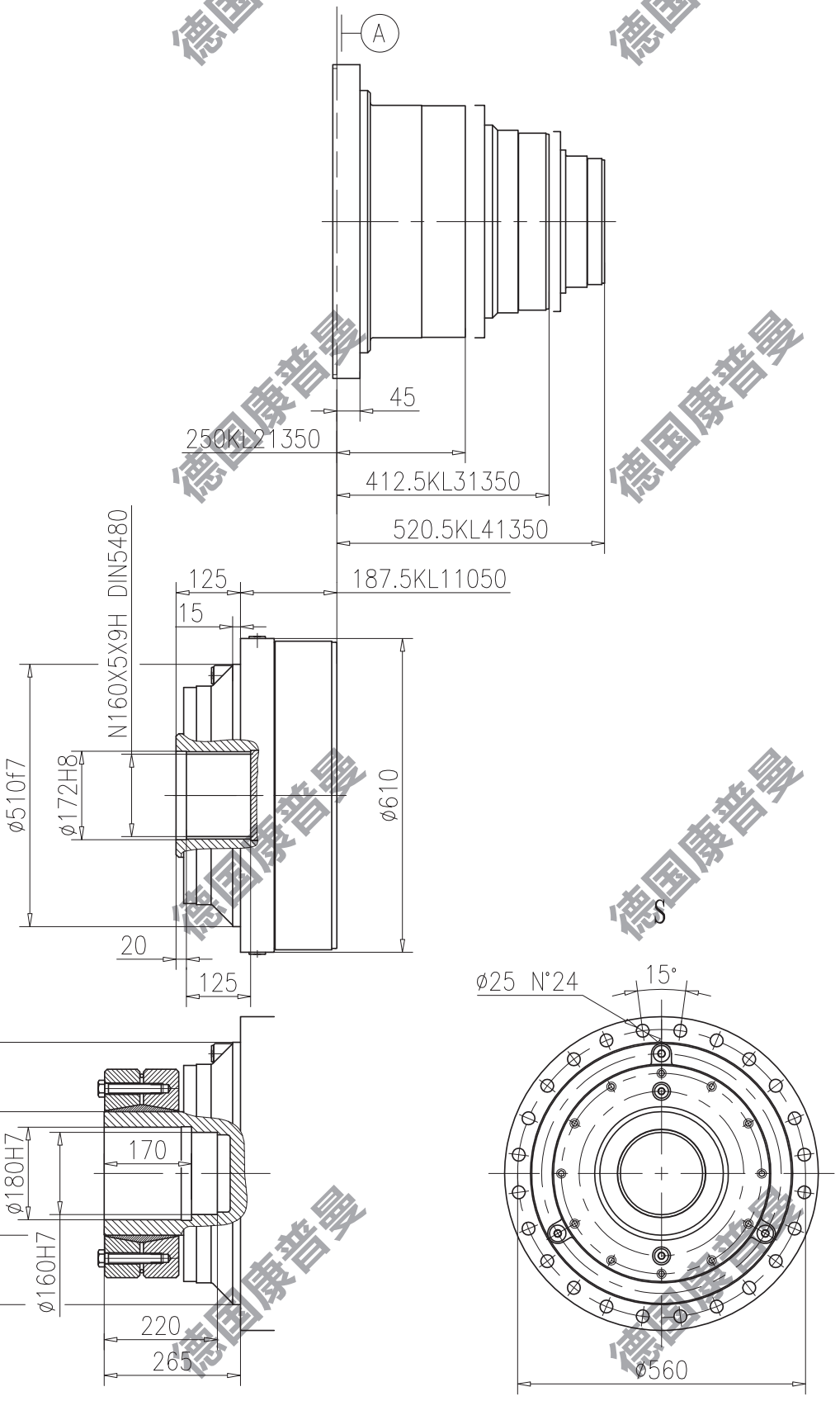
	i	T_{cont} [Nm]						P_t	n_{1max}	T_6
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
R3	50.56	96553	96553	96553	96553	73238	59922	75	2500	
	56.11	99771	99771	99771	99771	73238	59922	75	2500	
	59.11	112953	112953	112953	112953	73238	59922	75	2500	
	65.59	116717	116717	116717	110966	73238	59922	75	2500	
	75.29	130398	121705	109148	96591	63750	52159	75	2500	
	84.09	130398	121705	109148	96591	63750	52159	75	2500	
	103.50	143464	122321	108245	107240	66020	53620	75	2500	
R4	208.71	106532	106532	106532	106532	73238	59922	45	3500	700
	265.42	148381	139817	125392	110966	73238	59922	45	3500	700
	286.93	129445	129445	125392	110966	73238	59922	45	3500	700
	300.35	149804	139817	125392	110966	73238	59922	45	3500	700
	344.36	149804	139817	125392	110966	73238	59922	45	3500	610
	384.61	149804	139817	125392	110966	73238	59922	45	3500	610
	442.75	149804	139817	125392	110966	73238	59922	45	3500	520
	508.20	130398	121705	109148	96591	63750	52159	45	3500	430
	603.14	130398	121705	109148	96591	63750	52159	45	3500	340
	740.22	130398	121705	109148	96591	63750	52159	45	3500	250
R5	832.34	149804	139817	125392	110966	73238	59922	38	3500	250
	922.43	149804	139817	125392	110966	73238	59922	38	3500	250
	1024.27	149804	139817	125392	110966	73238	59922	38	3500	250
	1146.47	149804	139817	125392	110966	73238	59922	38	3500	160
	1248.78	149804	139817	125392	110966	73238	59922	38	3500	160
	1338.18	149804	139817	125392	110966	73238	59922	38	3500	160
	1412.60	130398	121705	109148	96591	63750	52159	38	3500	160
	2016.97	149804	139817	125392	110966	73238	59922	38	3500	160
	2213.97	149804	139817	125392	110966	73238	59922	38	3500	160
	2436.00	134053	125116	112199	99299	65589	53663	38	3500	160
	2839.88	130398	121705	109148	96591	63750	52159	38	3500	160
	3067.27	149804	139817	125392	110966	73238	59922	38	3500	160
	3232.39	149804	139817	125392	110966	73238	59922	38	3500	160
	3320.54	130398	121705	109148	96591	63750	52159	38	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

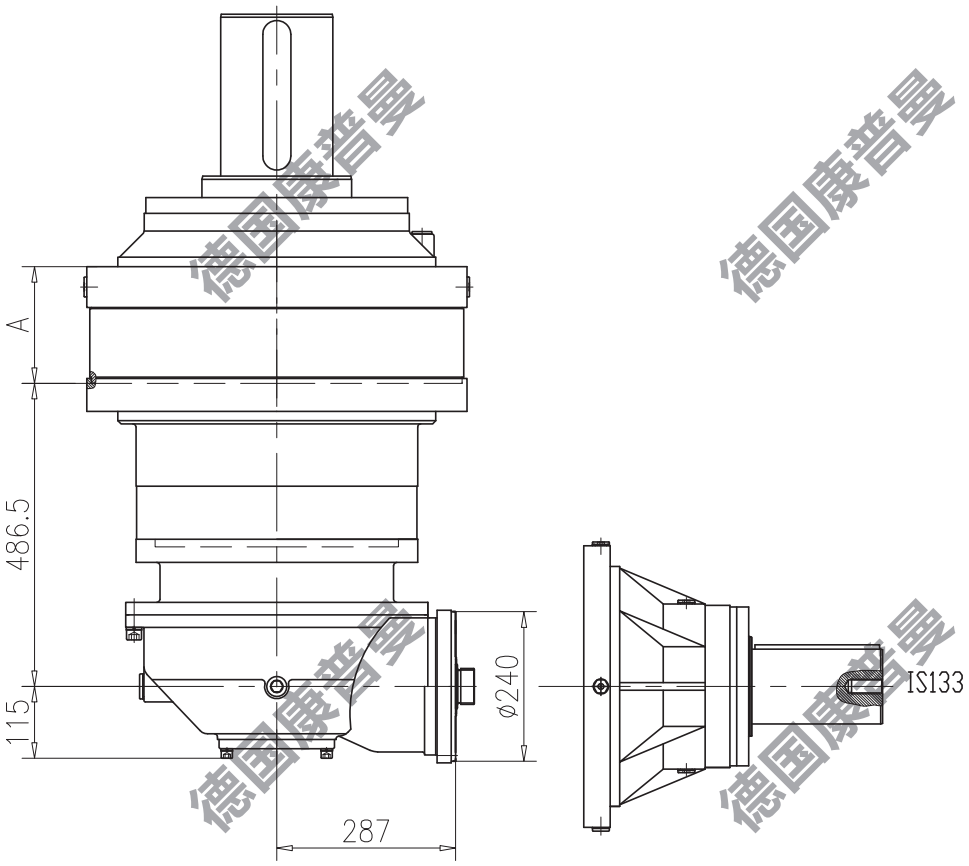
KL1350

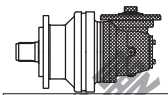


KL1350



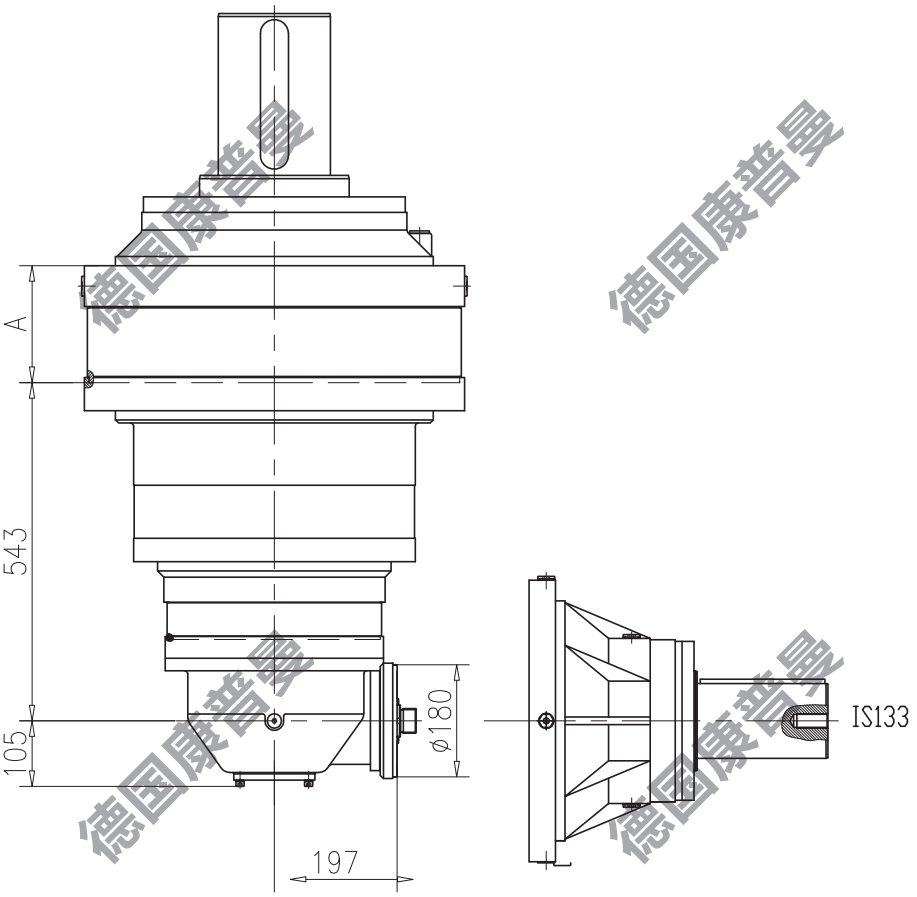
KR1350

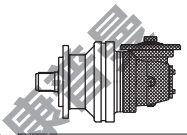




	A		
	SPH	SIH	H
KR 31350	187.5	187.5	187.5

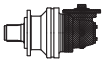
KR1350

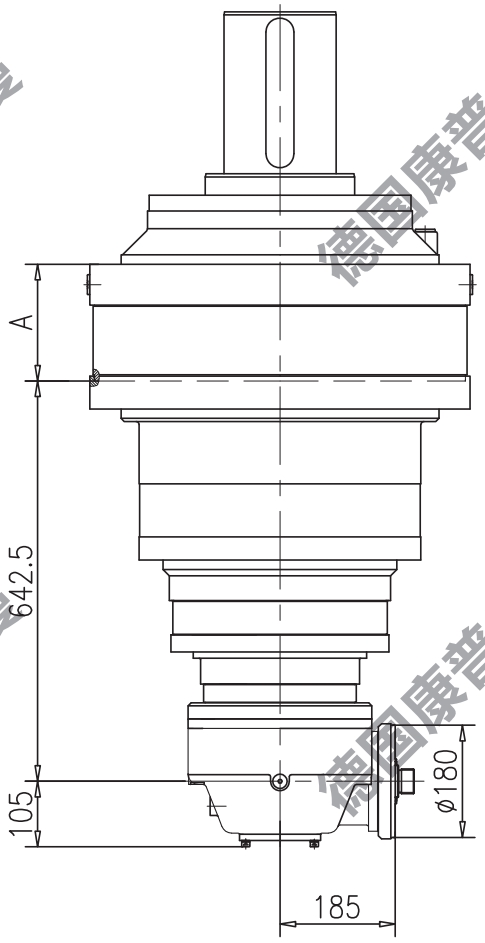


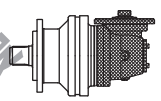


	A		
	SPH	SIH	H
KR 41350	187.5	187.5	187.5

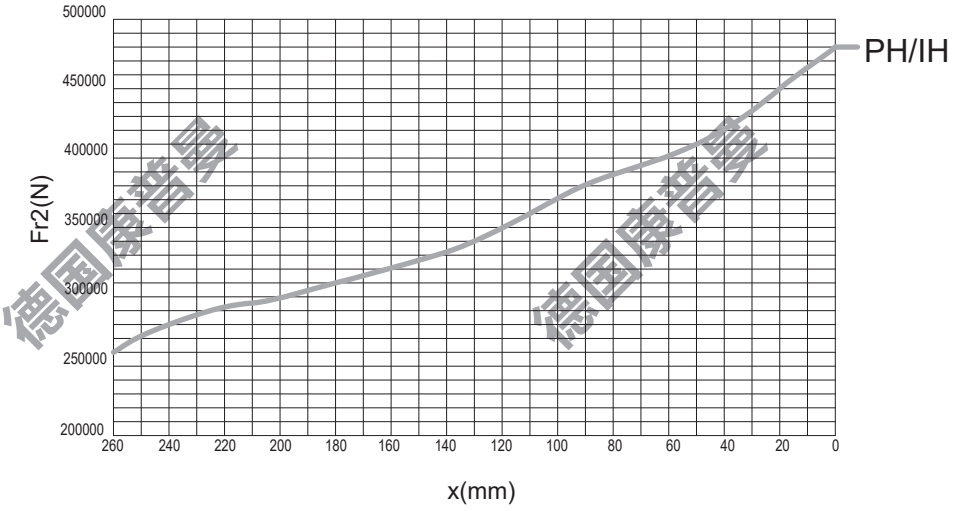
KR1350

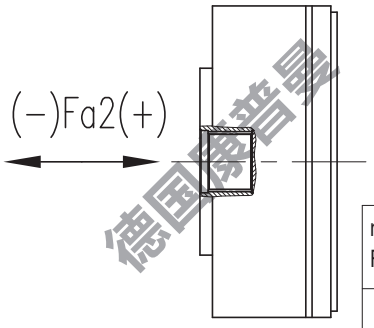




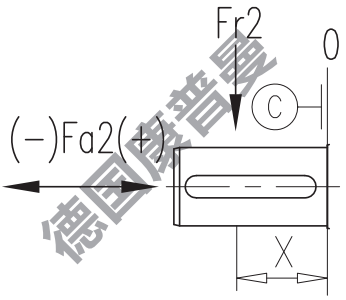


	A		
	SPH	SIH	H
KR 51350	187.5	187.5	187.5





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	150000	150000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	360000	300000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_F	1.7	1.3	1.15	1.06	1	0.8	0.63

KL1800

T_2=180000 Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$			
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]
L1	4.09	200261	174343	156989	128603	79352	64453	117	800	
	5.25	156013	135822	122302	100188	61819	50212	117	800	
L2	16.54	200261	174343	156989	128603	79352	64453	69	1800	
	18.41	200261	174343	156989	128603	79352	64453	69	1800	
	20.94	200261	174343	156989	128603	79352	64453	69	1800	
	26.87	156013	135822	122302	100188	61819	50212	69	1800	
	31.50	156013	135822	122302	100188	61819	50212	69	1800	
L3	61.53	200261	174343	156989	128603	79352	64453	50	2400	
	67.67	200261	174343	156989	128603	79352	64453	50	2400	
	75.31	200261	174343	156989	128603	79352	64453	50	2400	
	84.29	200261	174343	156989	128603	79352	64453	50	2400	
	103.07	200261	174343	156989	128603	79352	64453	50	2400	
	114.70	200261	174343	156989	128603	79352	64453	50	2400	
	123.03	178836	155691	140194	114844	70862	57557	50	2400	
	130.45	200261	174343	156989	128603	79352	64453	50	2400	
	141.06	156013	135822	122302	100188	61819	50212	50	2400	
	152.94	198895	173154	155920	128603	79352	64453	50	2400	
	167.41	156013	135822	122302	100188	61819	50212	50	2400	
	196.27	156013	135822	122302	100188	61819	50212	50	2400	1140
L4	281.30	182144	158571	141361	114821	70848	57546	39	3100	960
	317.93	182144	158571	141361	114821	70848	57546	39	3100	875
	398.67	200261	174343	156989	128603	79352	64453	39	3100	700
	454.07	182144	158571	141361	114821	70848	57546	39	3100	610
	505.77	200261	174343	156989	128603	79352	64453	39	3100	610
	558.92	178836	155691	140194	114844	70862	57557	39	3100	520
	629.61	200261	174343	156989	128603	79352	64453	39	3100	520
	738.15	178836	155691	140194	114844	70862	57557	39	3100	340
	831.60	200261	174343	156989	128603	79352	64453	39	3100	430
	891.93	178836	155691	140194	114844	70862	57557	39	3100	340
	945.74	200261	174343	156989	128603	79352	64453	39	3100	340
	1108.79	198895	173154	155920	128603	79352	64453	39	3100	250
	1213.69	156013	135822	122302	100188	61819	50212	39	3100	250

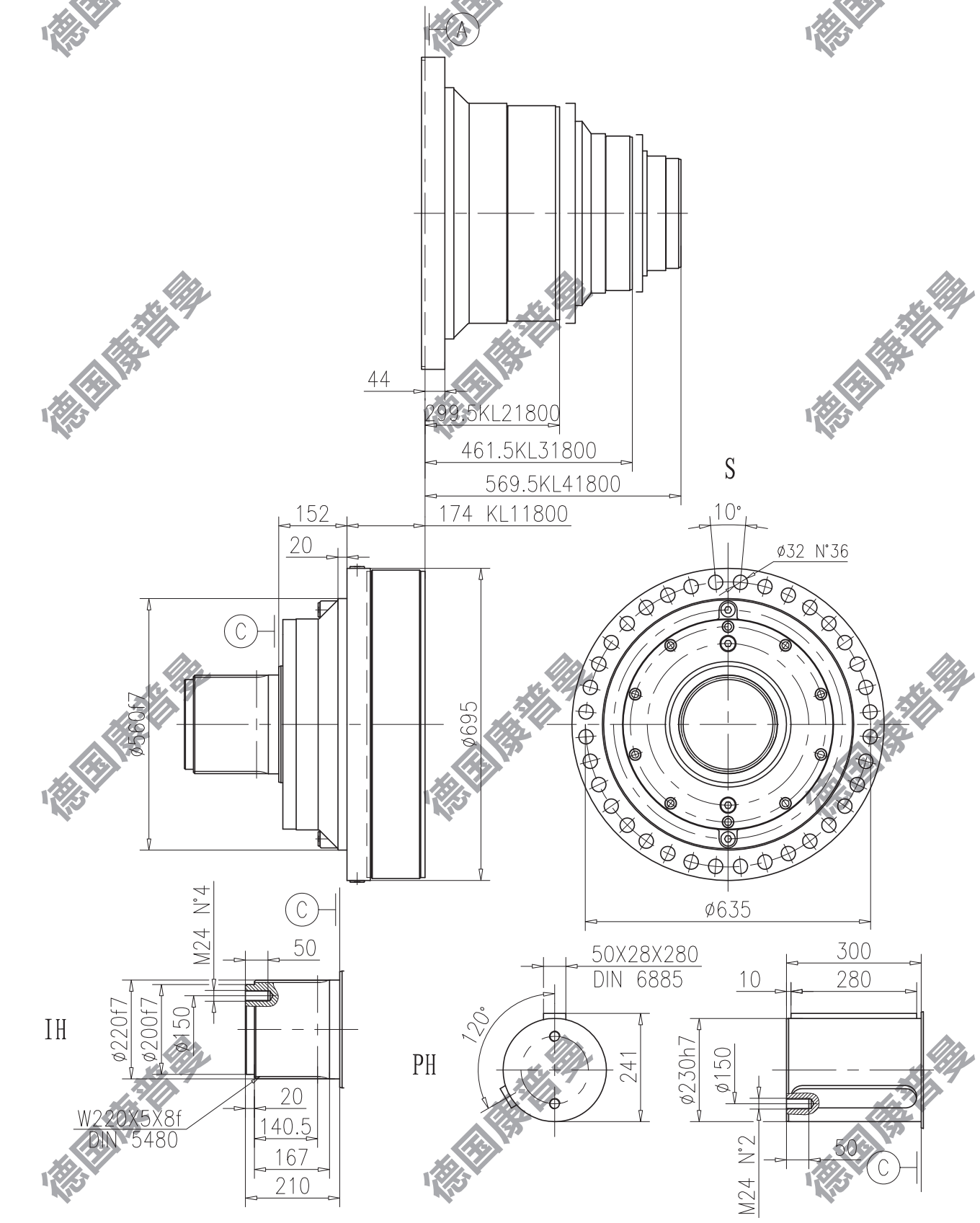
$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

T_2=180000 Nm **KR1800**

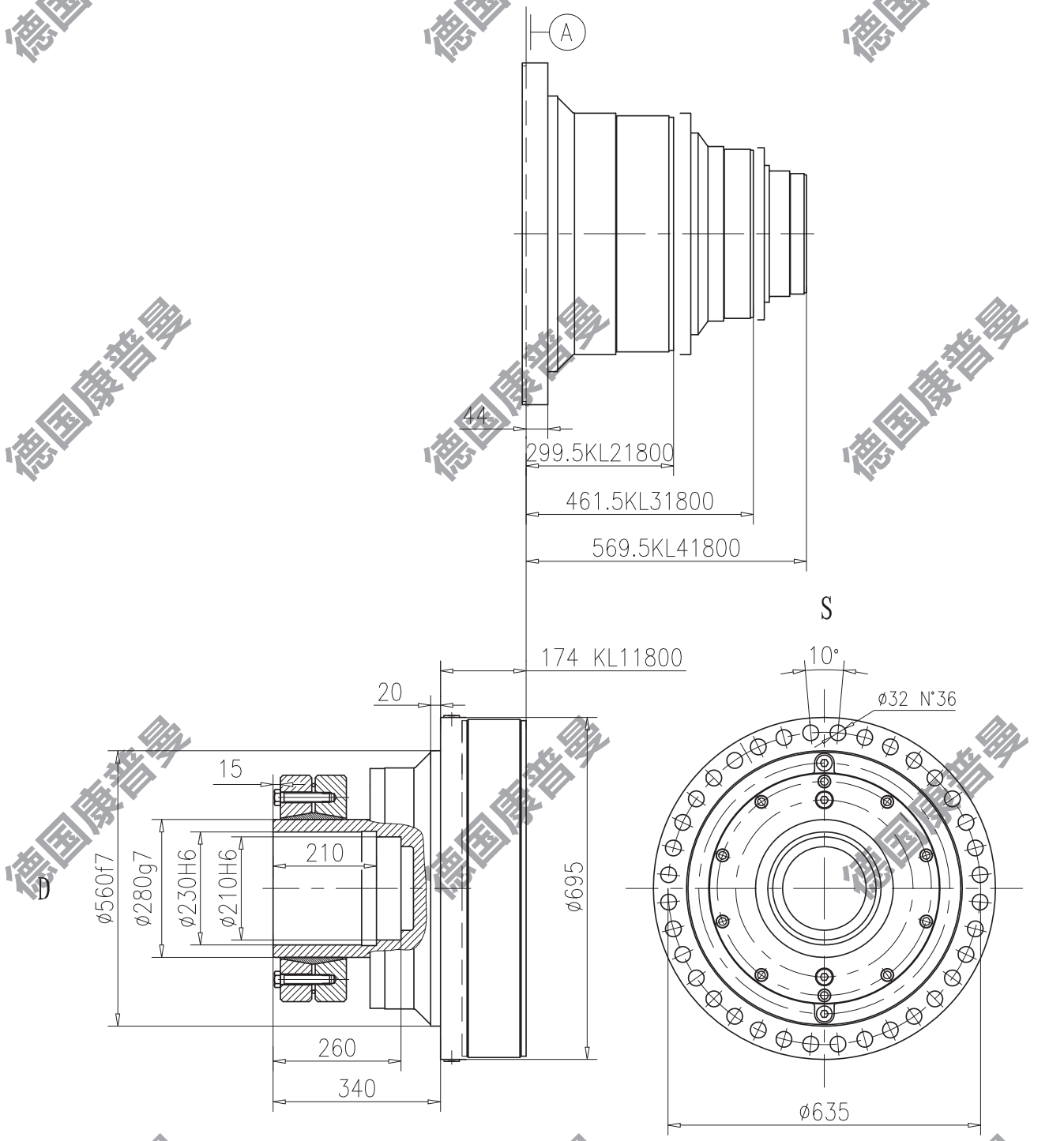
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R3	66.03	126294	126294	126294	126294	79352	64453	90	2500	
	82.84	114902	114902	114902	114902	79352	64453	90	2500	
	94.21	130733	130733	130733	128603	79352	64453	90	2500	
	105.03	156013	135822	122302	100188	61819	50212	90	2500	
	123.14	156013	135822	122302	100188	61819	50212	90	2500	
	141.75	156013	135822	122302	100188	61819	50212	90	2500	
R4	265.10	135373	135373	135373	128603	79352	64453	50	3500	785
	303.95	155176	155176	155176	128603	79352	64453	50	3500	785
	349.82	178836	155691	141361	114821	70848	57546	50	3500	785
	401.46	200261	174343	156989	128603	79352	64453	50	3500	700
	456.56	200261	174343	156989	128603	79352	64453	50	3500	610
	509.93	200261	174343	156989	128603	79352	64453	50	3500	610
	553.61	178836	155691	140194	114844	70862	57557	50	3500	520
	654.41	156013	135822	122302	100188	61819	50212	50	3500	340
	753.33	156013	135822	122302	100188	61819	50212	50	3500	340
	883.21	156013	135822	122302	100188	61819	50212	50	3500	250
R5	781.01	182144	158571	141361	114821	70848	57546	42	3500	340
	865.54	182144	158571	141361	114821	70848	57546	42	3500	340
	955.86	200261	174343	156989	128603	79352	64453	42	3500	250
	1126.48	200261	174343	156989	128603	79352	64453	42	3500	250
	1255.41	182144	158571	141361	114821	70848	57546	42	3500	250
	1457.89	182144	158571	141361	114821	70848	57546	42	3500	250
	1622.49	182144	158571	141361	114821	70848	57546	42	3500	160
	1784.27	200261	174343	156989	128603	79352	64453	42	3500	160
	1981.28	200261	174343	156989	128603	79352	64453	42	3500	160
	2214.11	200261	174343	156989	128603	79352	64453	42	3500	160
	2493.51	200261	174343	156989	128603	79352	64453	42	3500	160
	2707.33	200261	174343	156989	128603	79352	64453	42	3500	160
	2818.40	178836	155691	140194	114844	70862	57557	42	3500	160
	3012.99	200261	174343	156989	128603	79352	64453	42	3500	160
	3174.06	178836	155691	140194	114844	70862	57557	42	3500	160

$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

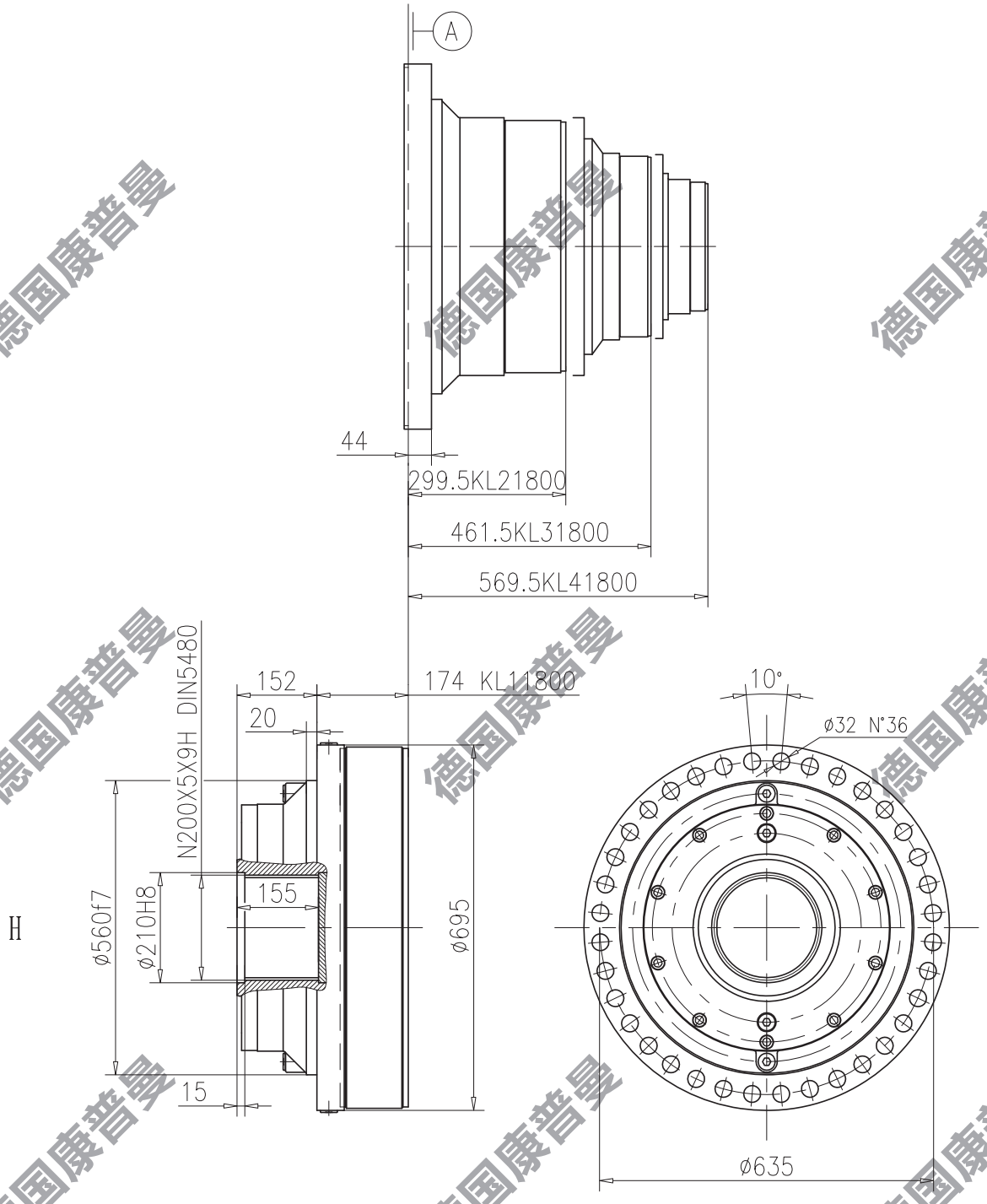
KL1800

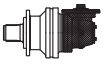


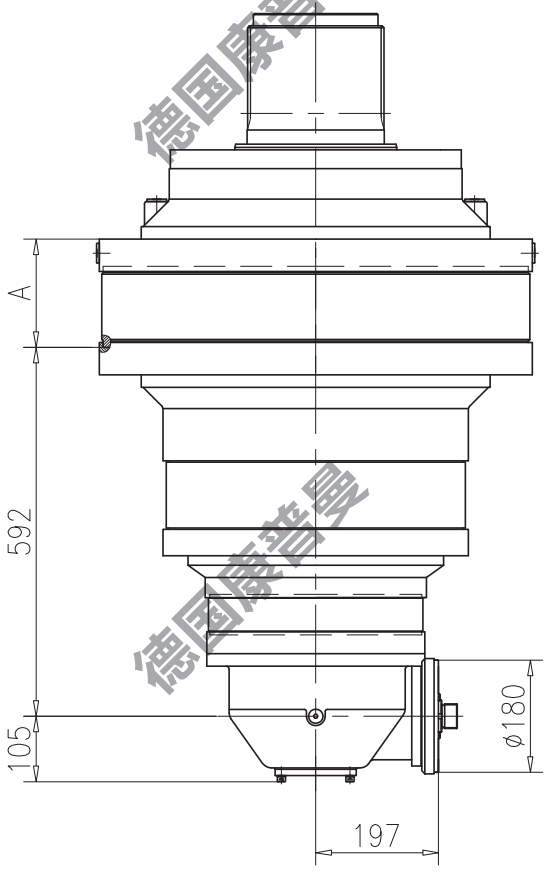
KL1800

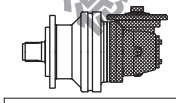


KL1800



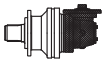


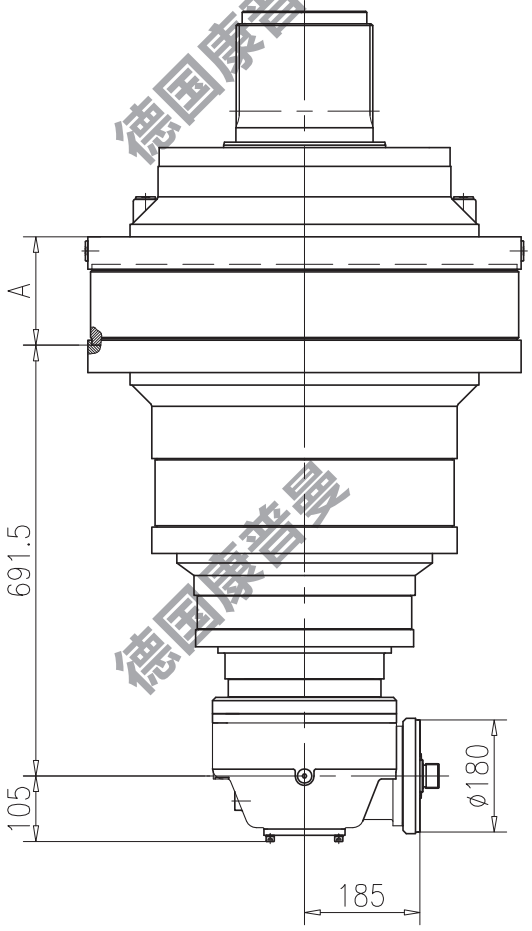


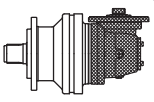


	A			
	SPH	SIH	H	SD
KR 41800	174	174	174	174

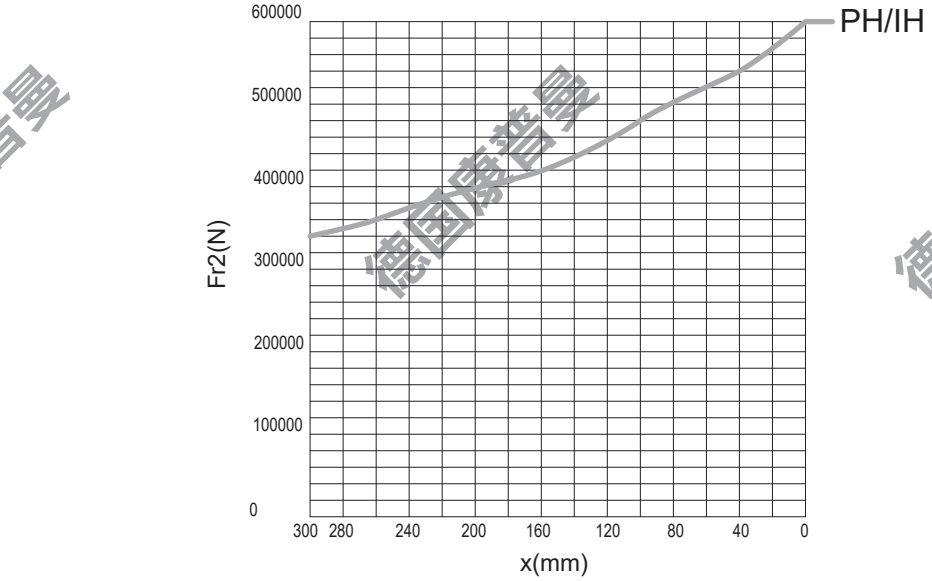
KR1800

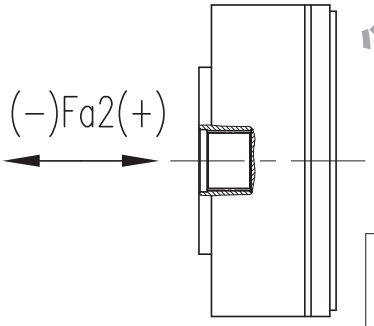




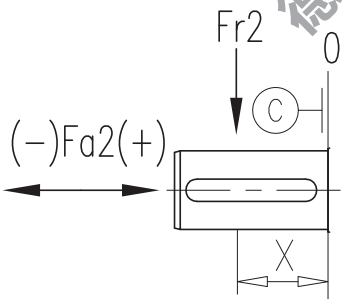


	A			
	SPH	SIH	H	SD
KR 51800	174	174	174	174





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	150000	150000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	360000	300000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL2250

T_2=225000Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$				
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.83	259338	225775	203302	183110	112985	91772	117	600		
	4.40	225742	196527	176965	159389	98349	79883	117	600		
L2	16.03	259338	225775	203302	183110	112985	91772	73	1800		
	18.74	259338	225775	203302	183110	112985	91772	73	1800		
	21.51	225742	196527	176965	159389	98349	79883	73	1800		
L3	59.19	259338	225775	203302	183110	112985	91772	53	2200		
	69.20	259338	225775	203302	183110	112985	91772	53	2200		
	75.78	259338	225775	203302	183110	112985	91772	53	2200		
	82.04	259338	225775	203302	183110	112985	91772	53	2200		
	95.91	259338	225775	203302	183110	112985	91772	53	2200		
	110.09	225742	196527	176965	159389	98349	79883	53	2200		
	129.07	225742	196527	176965	159389	98349	79883	53	2200		
L4	226.86	259338	225775	203302	183110	112985	91772	42	3000		
	244.15	259338	225775	203302	183110	112985	91772	42	3000		
	277.99	225742	196527	176965	159389	98349	79883	42	3000		
	312.58	259338	225775	203302	183110	112985	91772	42	3000		
	353.85	259338	234916	194171	157715	97315	79044	42	3000	1140	
	391.52	259338	225775	203302	183110	112985	91772	42	3000	960	
	454.11	225742	196527	176965	159389	98349	79883	42	3000	700	
	506.00	259338	225775	203302	183110	112985	91772	42	3000	700	
	549.39	259338	225775	203302	183110	112985	91772	42	3000	610	
	611.42	259338	225775	203302	183110	112985	91772	42	3000	520	
	701.80	225742	196527	176965	159389	98349	79883	42	3000	430	
	815.22	259338	225775	203302	183110	112985	91772	42	3000	520	
	935.73	225742	196527	176965	159389	98349	79883	42	3000	340	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

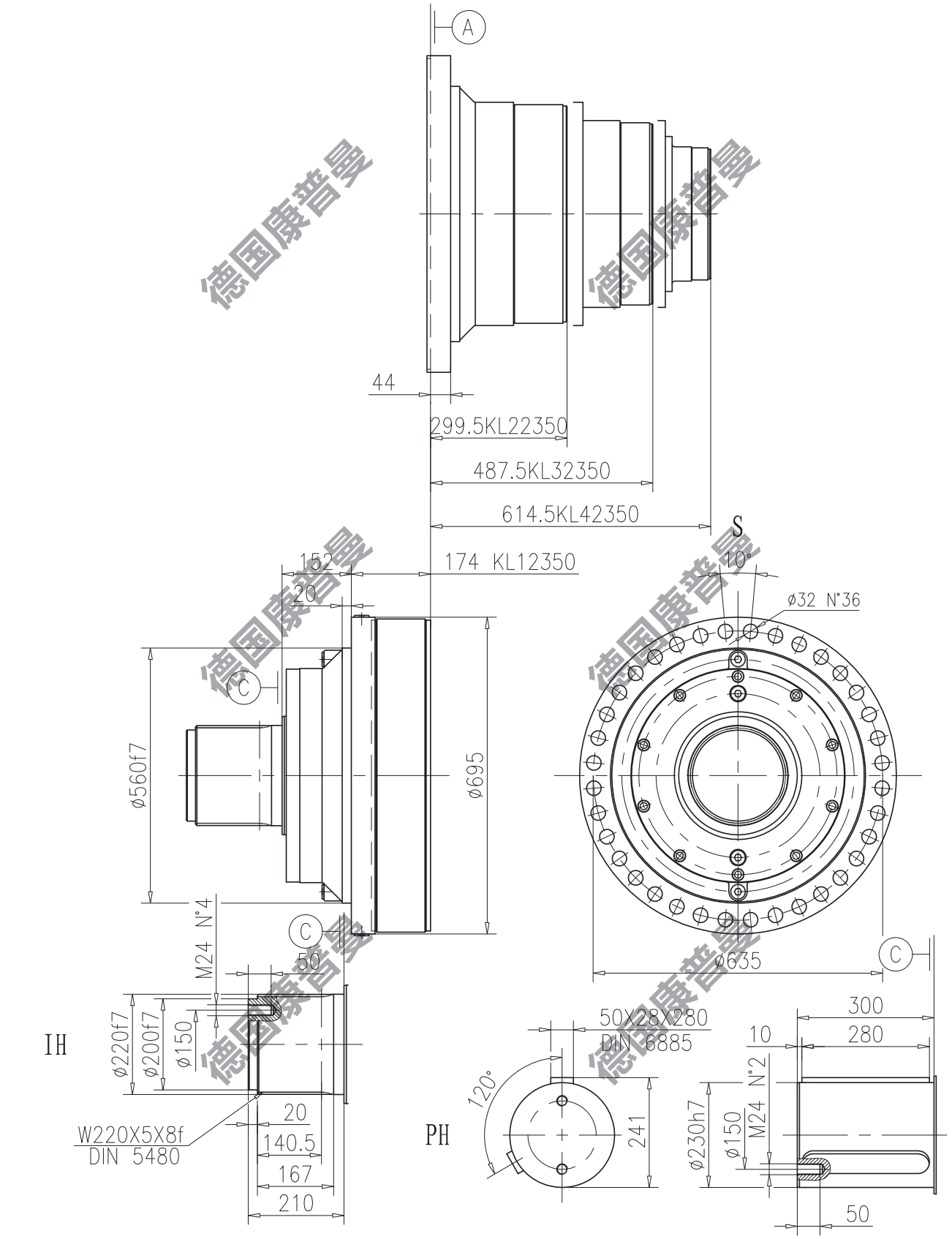
T_2=225000Nm

KL2250

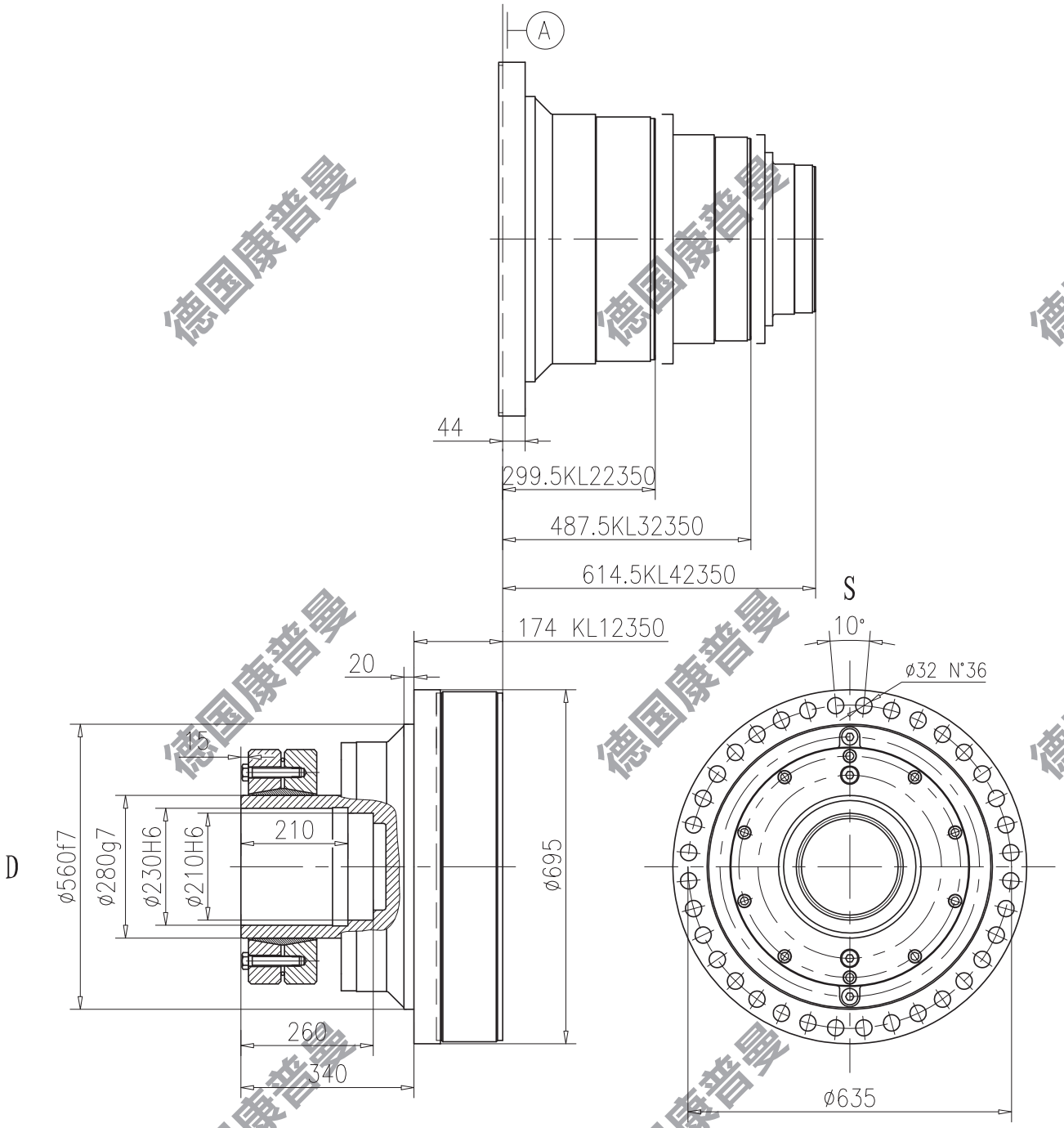
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]
R4	227.51	213627	213627	203302	183110	112985	91772	50	3500	1140
	258.73	243060	225775	203302	183110	112985	91772	50	3500	1140
	302.48	259338	225775	203302	183110	112985	91772	50	3500	1050
	347.20	225742	196527	176965	159389	98349	79883	50	3500	960
	379.50	259116	225775	203302	183110	112985	91772	50	3500	960
	407.06	225742	196527	176965	159389	98349	79883	50	3500	785
	431.59	259338	225775	203302	183110	112945	91772	50	3500	875
	451.73	225742	196527	176965	159389	98349	79883	50	3500	700
	504.53	225742	196527	176965	159389	98349	79883	50	3500	700
	580.80	225742	196527	176965	159389	98349	79883	50	3500	610
R5	698.04	259338	225775	203302	183110	112985	91772	45	3500	520
	776.85	259338	225775	203302	183110	112985	91772	45	3500	430
	862.63	259338	225775	203302	183110	112985	91772	45	3500	430
	915.58	259338	225775	203302	183110	112985	91772	45	3500	340
	1016.67	259338	225775	203302	183110	112985	91772	45	3500	340
	1146.67	259338	225775	203302	183110	112985	91772	45	3500	340
	1273.41	259338	225775	203302	183110	112985	91772	45	3500	250
	1423.05	259338	225775	203302	183110	112985	91772	45	3500	250
	1609.20	259338	225775	203302	183110	112985	91772	45	3500	160
	1701.18	259338	225775	203302	183110	112985	91772	45	3500	160
	1943.33	225742	196527	176965	159389	98349	79883	45	3500	160
	2150.57	225742	196527	176965	159389	98349	79883	45	3500	160
	2429.45	225742	196527	176965	159389	98349	79883	45	3500	160
	2654.92	259338	225775	203302	183110	112985	91772	45	3500	160
	2840.23	225742	196527	176965	159389	98349	79883	45	3500	160
	3047.39	225742	196527	176965	159389	98349	79883	45	3500	160
	3197.09	225742	196527	176965	159389	98349	79883	45	3500	160
	3431.94	225742	196527	176965	159389	98349	79883	45	3500	160

$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$

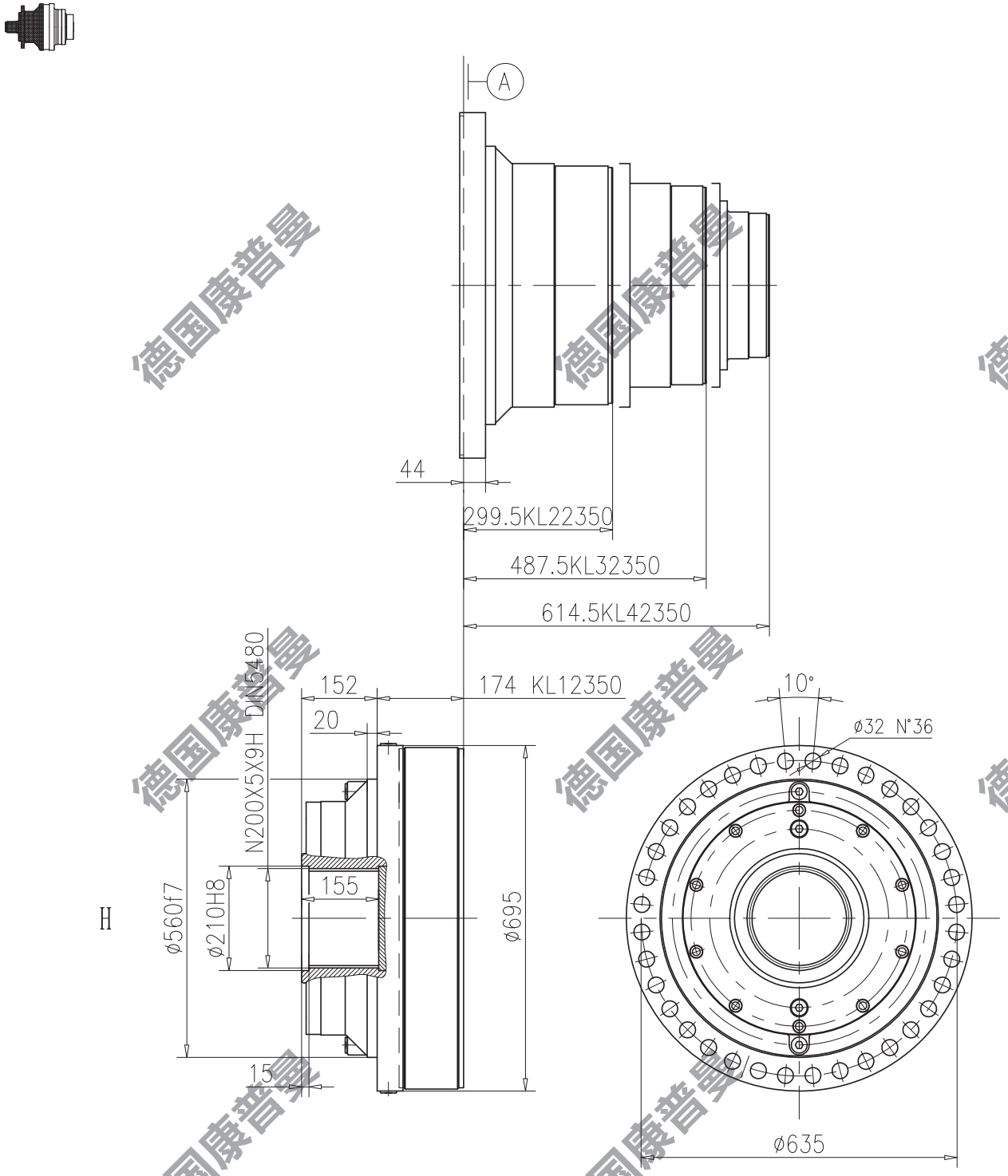
KL2250

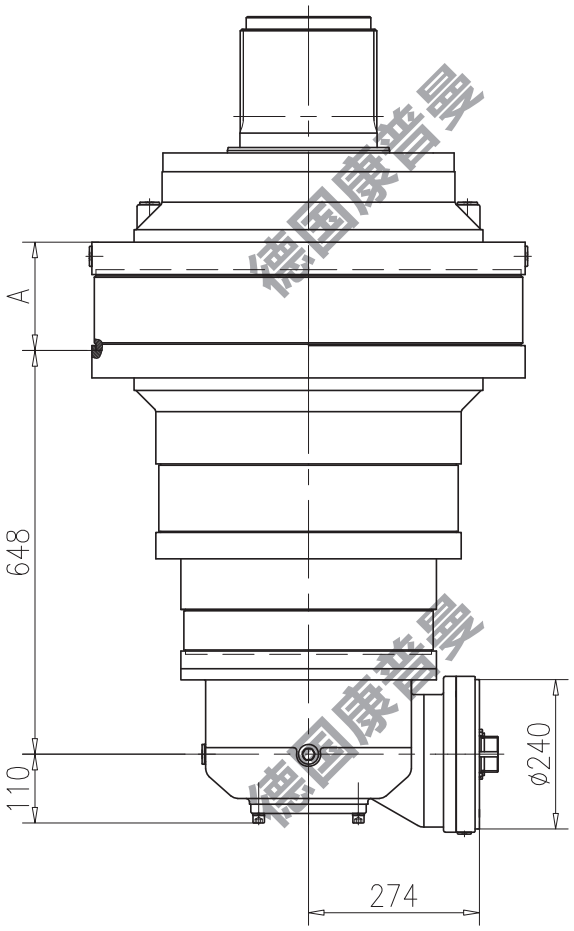

A
44
299.5KL22350
487.5KL32350
614.5KL42350
S
10°
152
20
174 KL12350
ø32 N°36
C
ø560f7
ø695
M24 N°4
50
ø635
IH
ø220f7
ø200f7
ø150
W220X5X8f
DIN 5480
20
140.5
167
210
PH
50X28X280
DIN 6885
120°
241
300
280
10
ø230h7
ø150
M24 N°2
50

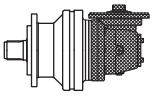
KL2250



KL2250

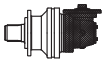


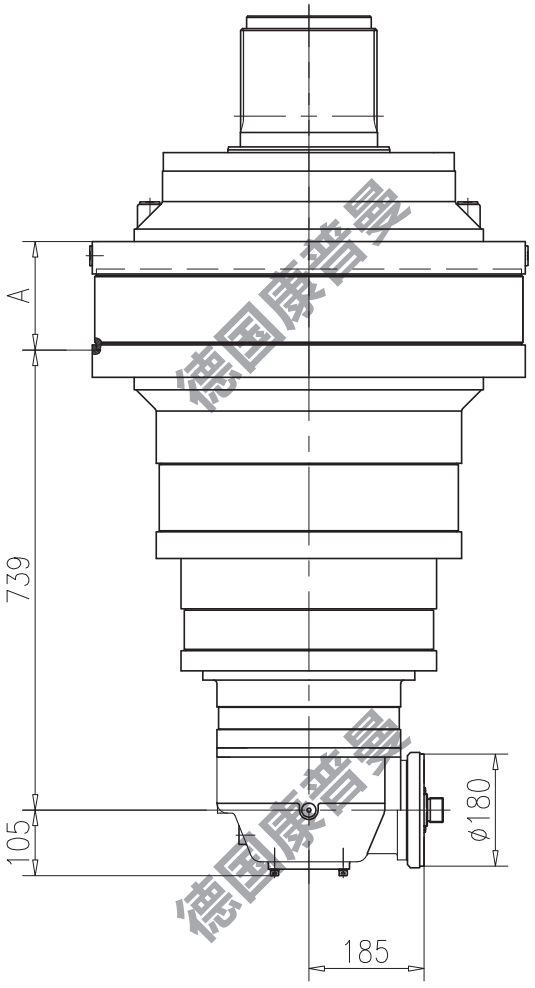


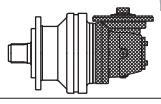


	A			
	SPH	SIH	H	SD
KR 42250	174	174	174	174

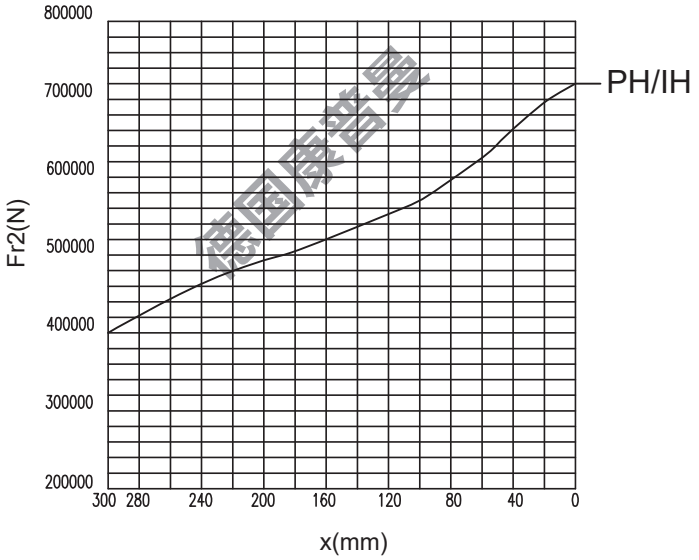
KR2250

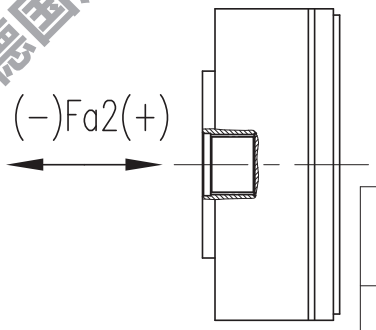




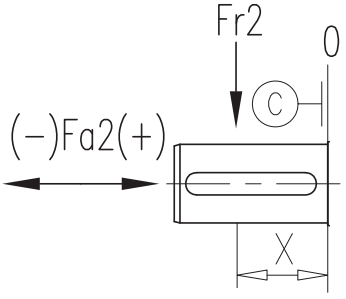


	A			
	SPH	SIH	H	SD
KR 52250	174	174	174	174





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	200000	200000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	500000	450000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL2700

T_2=270000Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	4.18	272895	237576	213929	204548	155286	126132	120	400		
	4.89	233272	203081	182868	174849	132740	107818	120	400		
L2	17.49	272895	237576	213929	204548	155286	126132	75	1500		
	20.44	272895	237576	213929	204548	155286	126132	75	1500		
	23.90	233272	203081	182868	174849	132740	107818	75	1500		
L3	64.57	272895	237576	213929	204548	155286	126132	54	2100		
	78.69	272895	237576	213929	204548	155286	126132	54	2100		
	89.50	272895	237576	213929	204548	155286	126132	54	2100		
	96.64	233272	203081	182868	174849	132740	107818	54	2100		
	104.63	272895	237576	213929	204548	155286	126132	54	2100		
	122.32	233272	203081	182868	174849	132740	107818	54	2100		
	143.41	233272	203081	182868	174849	132740	107818	54	2100		
L4	225.99	272895	237576	213929	204548	155286	126132	43	2500		
	275.43	272895	237576	213929	204548	155286	126132	43	2500		
	322.00	272895	237576	213929	204548	155286	126132	43	2500	1050	
	395.26	272895	237576	213929	204548	155286	126132	43	2500	960	
	462.39	272895	237576	213929	204548	155286	126132	43	2500	875	
	536.97	272895	237576	213929	204548	155286	126132	43	2500	785	
	633.78	272895	237576	213929	204548	155286	126132	43	2500	610	
	733.91	233272	203081	182868	174849	132740	107818	43	2500	520	
	860.44	233272	203081	182868	174849	132740	107818	43	2500	430	

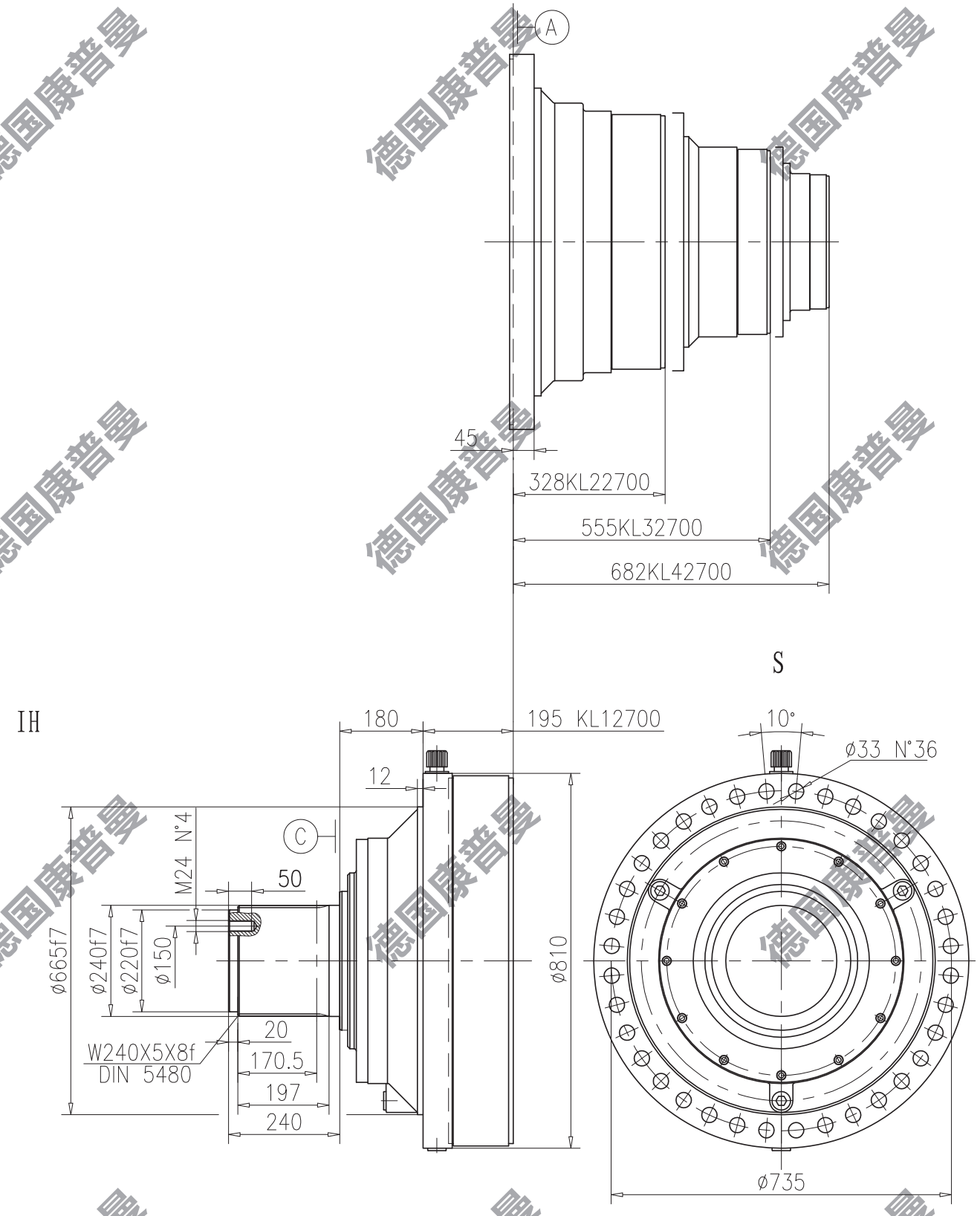
$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

T_2=270000Nm **KR2700**

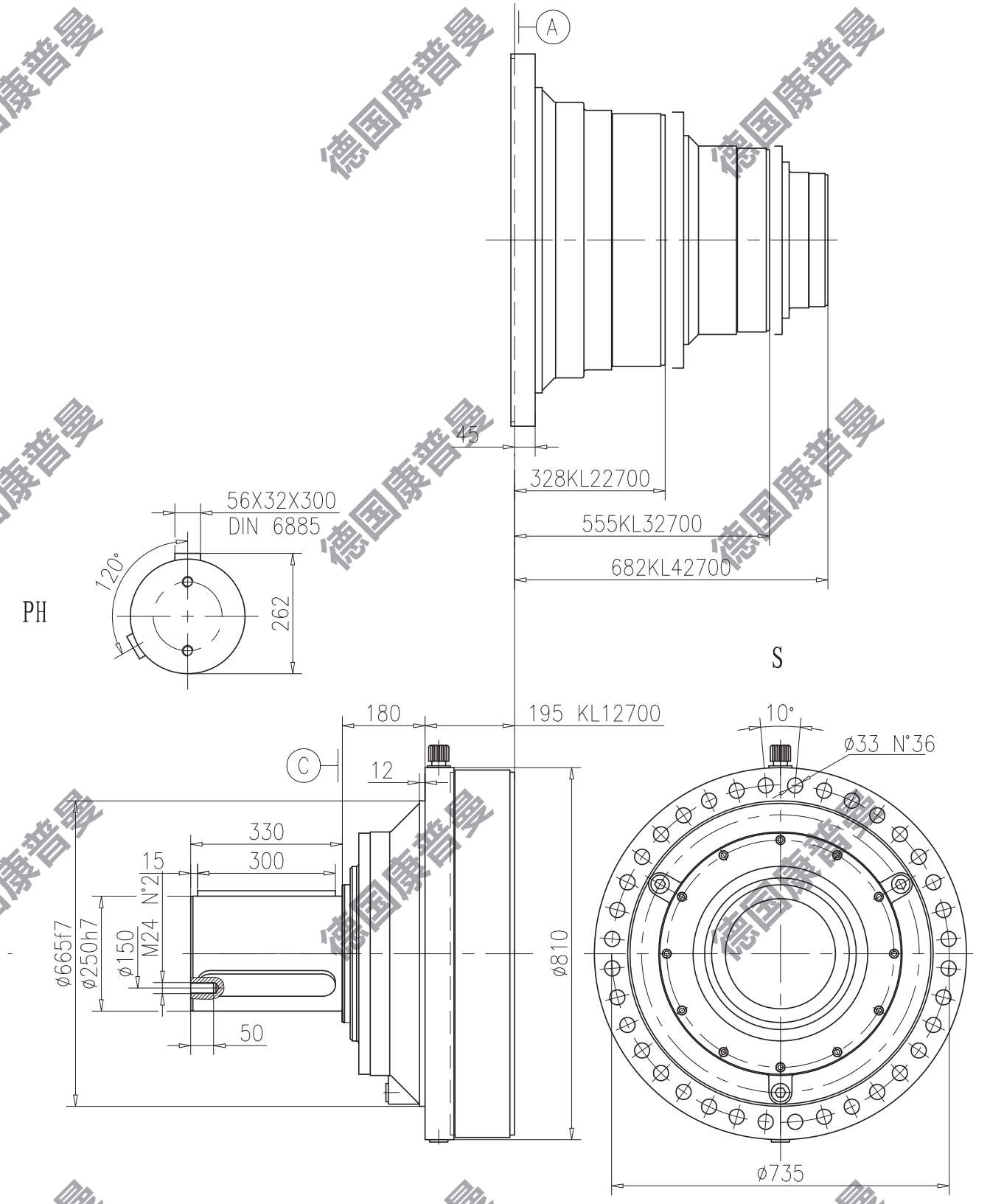
	i 1:	T_{cont} [Nm] $n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	P_t [KW]	n_{1max} [min^{-1}]	T_b [Nm]
R4	247.49	272895	237576	213929	204548	155286	126132	80	3500	
	282.25	272895	237576	213929	204548	155286	126132	80	3500	
	313.23	272895	237576	213929	204548	155286	126132	80	3500	1050
	366.20	272895	237576	213929	204548	155286	126132	80	3500	960
	409.00	272895	237576	213929	204548	155286	126132	80	3500	960
	434.90	233272	203081	182868	174849	132740	107818	80	3500	785
	470.82	272895	237576	213929	204548	155286	126132	80	3500	875
	501.93	233272	203081	182868	174849	132740	107818	80	3500	700
	560.59	233272	203081	182868	174849	132740	107818	80	3500	610
	645.33	233272	203081	182868	174849	132740	107818	80	3500	520
R5	958.11	272895	237576	213929	204548	155286	126132	60	3500	430
	1109.10	272895	237576	213929	204548	155286	126132	60	3500	340
	1239.43	272895	237576	213929	204548	155286	126132	60	3500	340
	1302.00	272895	237576	213929	204548	155286	126132	60	3500	340
	1422.75	272895	237576	213929	204548	155286	126132	60	3500	250
	1552.42	272895	237576	213929	204548	155286	126132	60	3500	250
	1663.31	272895	237576	213929	204548	155286	126132	60	3500	250
	1765.50	272895	237576	213929	204548	155286	126132	60	3500	250
	1931.58	272895	237576	213929	204548	155286	126132	60	3500	250
	2064.01	272895	237576	213929	204548	155286	126132	60	3500	160
	2258.67	233272	203081	182868	174849	132740	107818	60	3500	160
	2514.67	272895	237576	213929	204548	155286	126132	60	3500	160
	2896.28	272895	237576	213929	204548	155286	126132	60	3500	160
	3029.92	233272	203081	182868	174849	132740	107818	60	3500	160
	3199.09	233272	203081	182868	174849	132740	107818	60	3500	160
	3552.32	233272	203081	182868	174849	132740	107818	60	3500	160

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

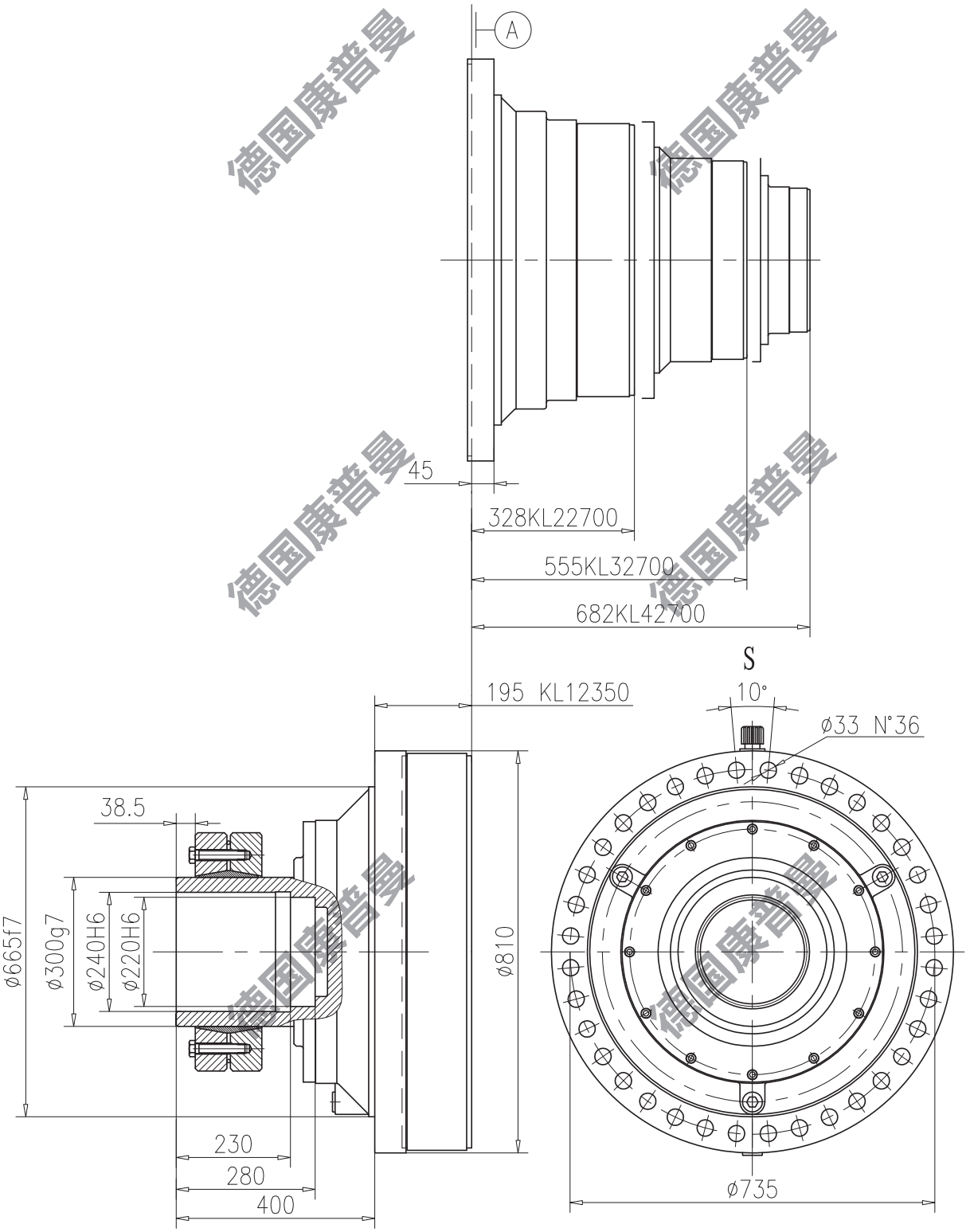
KL2700



KL2700



KL2700



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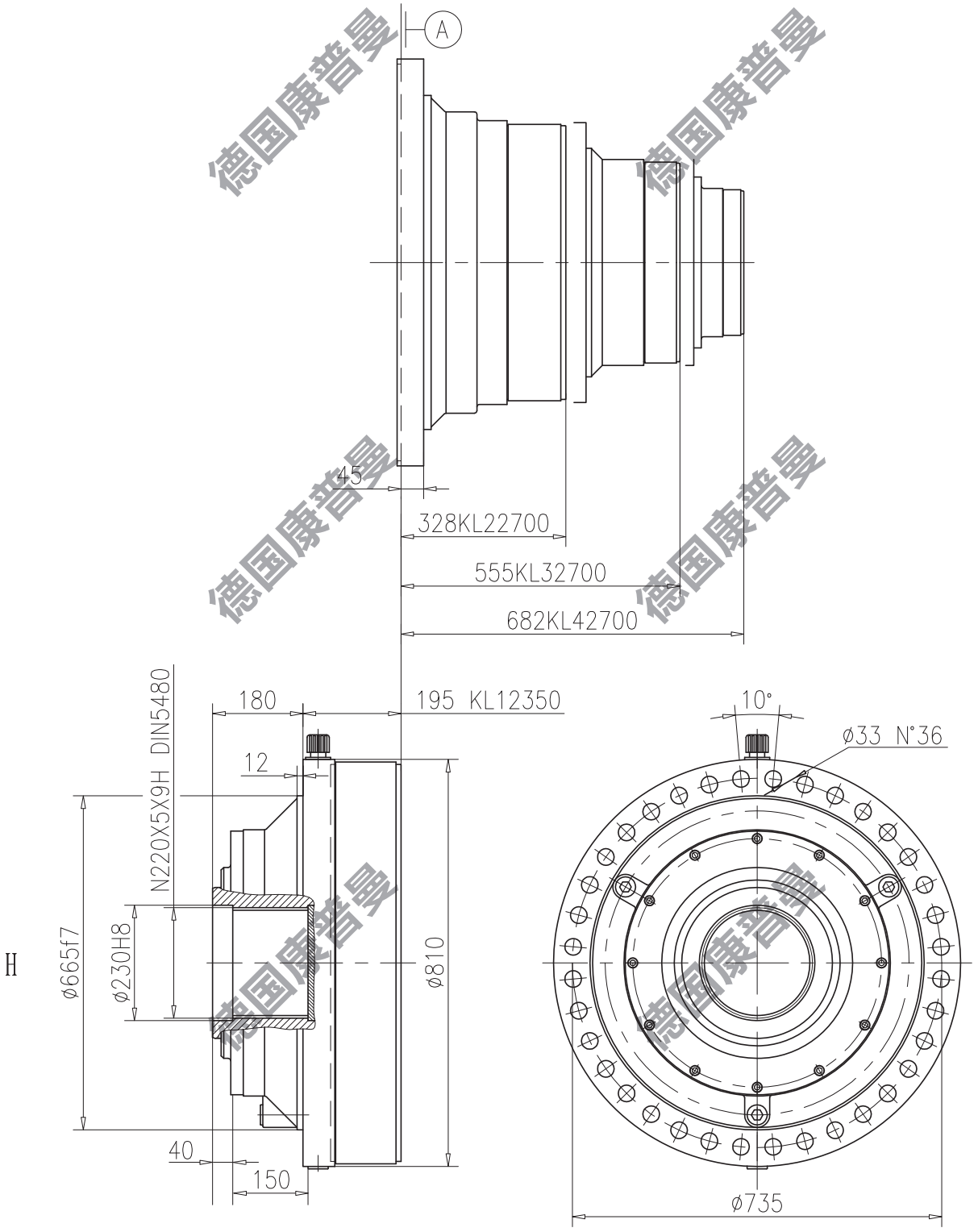
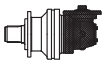
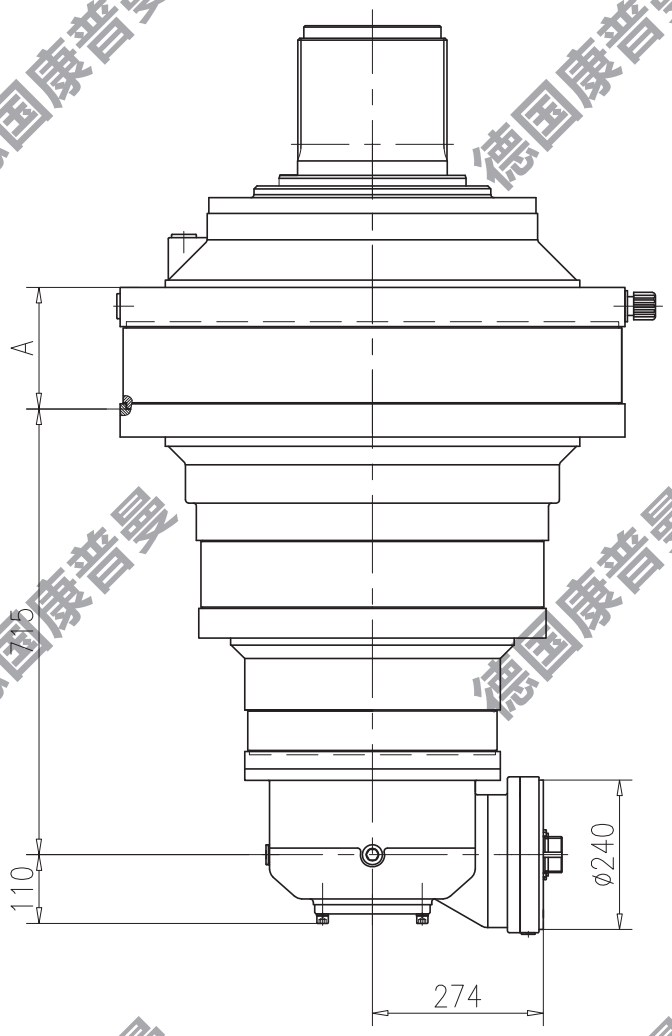
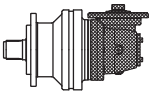


KR2700

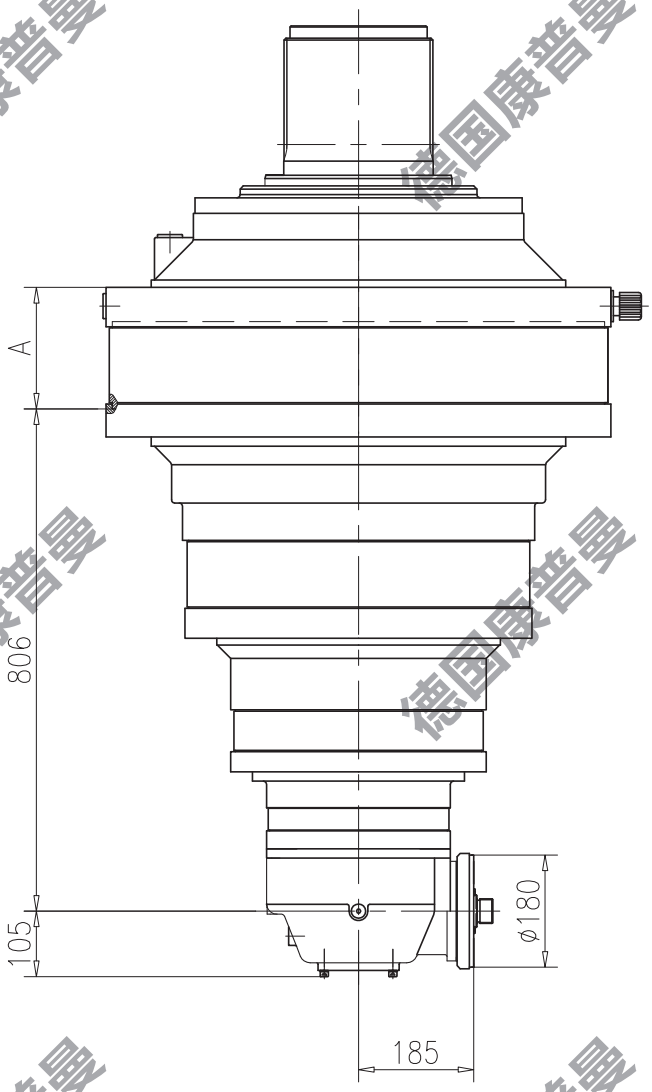






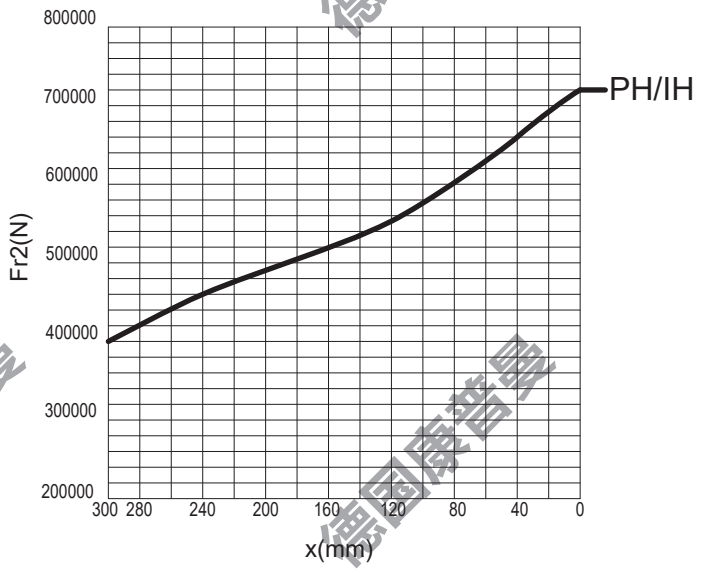
	A			
	SPH	SIH	H	SD
KR 42700	195	195	195	195

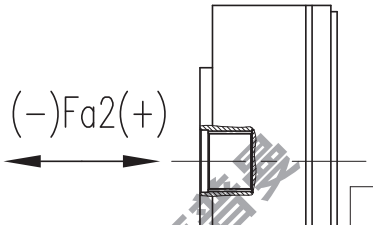
KR2700



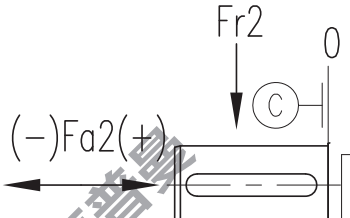
	A			
	SPH	SIH	H	SD
KR 52700	195	195	195	195

KL2700





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	200000	200000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	500000	450000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL3500

T_2 = 350000Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.83	512219	439906	391697	373619	230499	186809	184	300		
	4.40	445864	382918	340955	325218	200639	162609	184	300		
L2	15.70	384405	334652	301343	282431	215194	174791	113	1200		
	18.00	445864	382918	340955	325218	200639	162609	113	1200		
	23.10	430184	374506	337229	316065	200639	162609	113	1200		
L3	57.90	480658	418447	376797	353150	230499	186809	82	2100		
	70.57	480658	418447	376797	353150	230499	186809	82	2100		
	80.25	480658	418447	376797	353150	230499	186809	82	2100		
	90.56	374455	325990	293543	275120	209624	170266	82	2100		
	102.99	374455	325990	293543	275120	209624	170266	82	2100		
	118.22	430184	374506	337229	316065	200639	162609	82	2100		
	138.60	430184	374506	337229	316065	200639	162609	82	2100		
L4	202.66	480658	418447	376797	353150	230499	186809	64	2500		
	239.55	480658	418447	376797	353150	230499	186809	64	2500		
	261.56	480658	418447	376797	353150	230499	186809	64	2500		
	291.09	480658	418447	376797	353150	230499	186809	64	2500		
	360.47	374455	325990	293543	275120	209624	170266	64	2500		
	408.00	445864	382918	340955	325218	200639	162609	64	2500		
	467.91	374455	325990	293543	275120	209624	170266	64	2500	960	
	571.73	430184	374506	337229	316065	200639	162609	64	2500	960	
	648.00	445864	382918	340955	325218	200639	162609	64	2500	875	
	709.31	430184	374506	337229	316065	200639	162609	64	2500	875	
	831.60	430184	374506	337229	316065	200639	162609	64	2500	785	

$$T_{2max}=1.2 \cdot T_{n2}(n_{2 \cdot h}=10000)$$

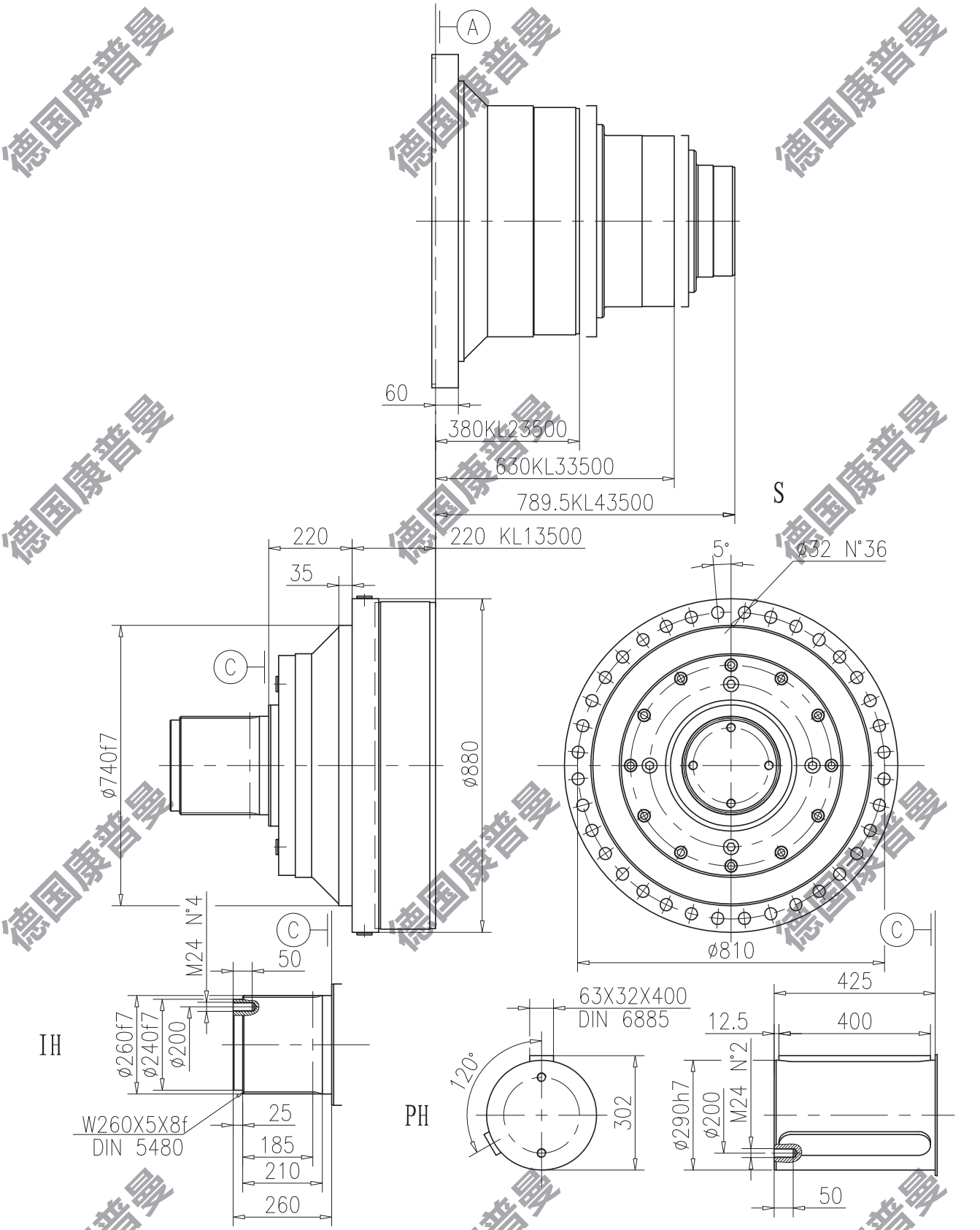
T_2 = 350000Nm

KR3500

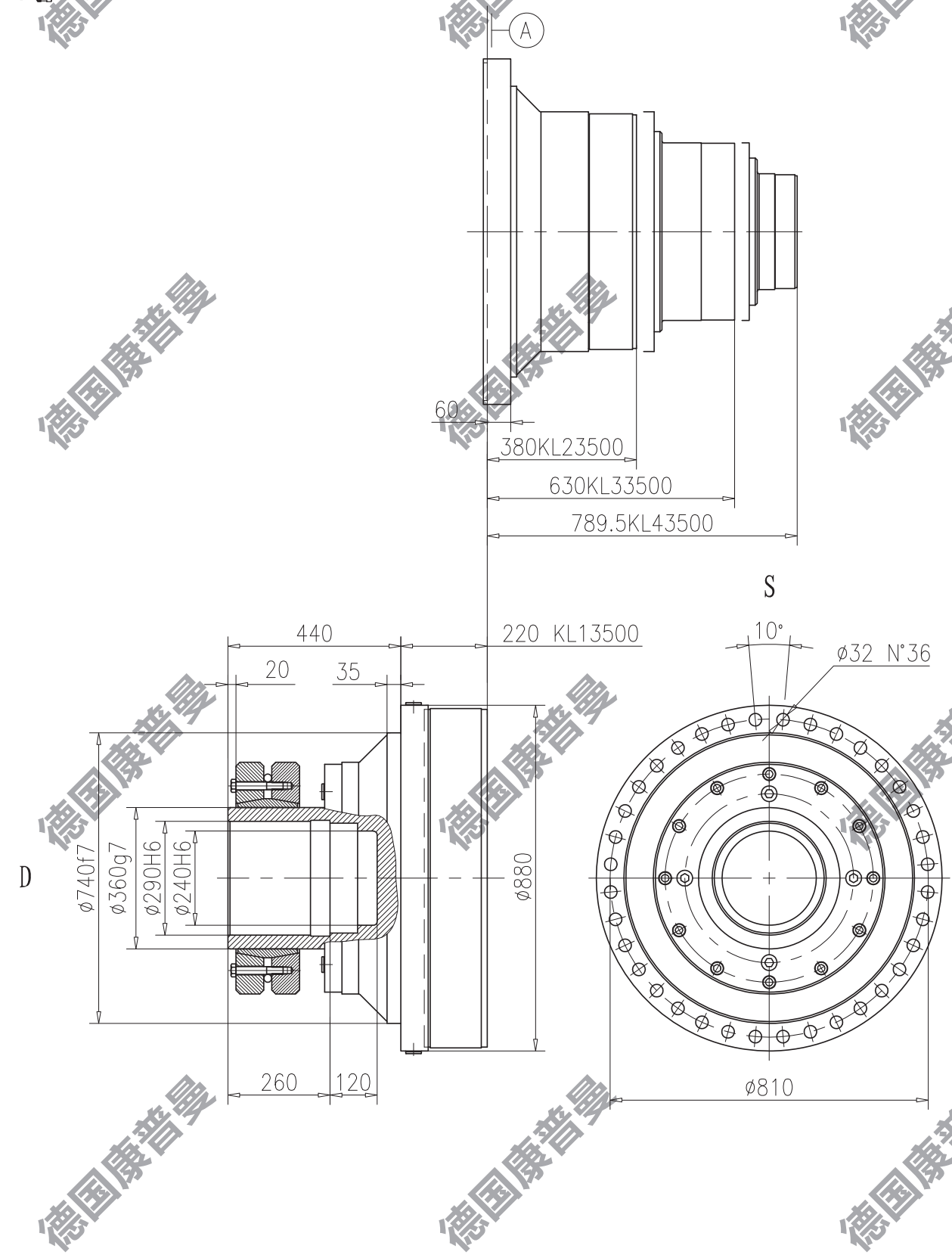
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
R4	222.56	384405	334652	301343	282431	215194	174791	95	2500		
	275.86	436199	418447	376797	353150	230499	186809	95	2500		
	313.72	480658	418447	376797	353150	230499	186809	95	2500		
	361.14	480658	418447	376797	353150	230499	186809	95	2500		
	437.12	430184	374506	337229	316065	200639	162609	95	2500		
	472.02	374455	325990	293543	275120	209624	170266	95	2500	960	
	541.08	430184	374506	337229	316065	200639	162609	95	2500	960	
	623.70	430184	374506	337229	316065	200639	162609	95	2500	875	
R5	804.81	338420	338420	338420	338420	230499	186809	70	3500	520	
	994.57	381873	381873	376797	353150	230499	186809	70	3500	520	
	1111.45	375818	375818	375818	353150	230499	186809	70	3500	430	
	1275.83	480658	418447	376797	353150	230499	186809	70	3500	520	
	1392.12	470455	418447	376797	353150	230499	186809	70	3500	430	
	1500.46	430184	374506	337229	316065	200639	162609	70	3500	430	
	1700.63	445864	382918	340955	325218	200639	162609	70	3500	340	
	1901.81	374455	325990	293543	275120	209624	170266	70	3500	340	
	2229.23	374455	325990	293543	275120	209624	170266	70	3500	250	
	2427.55	480658	418447	376797	353150	230499	186809	70	3500	250	

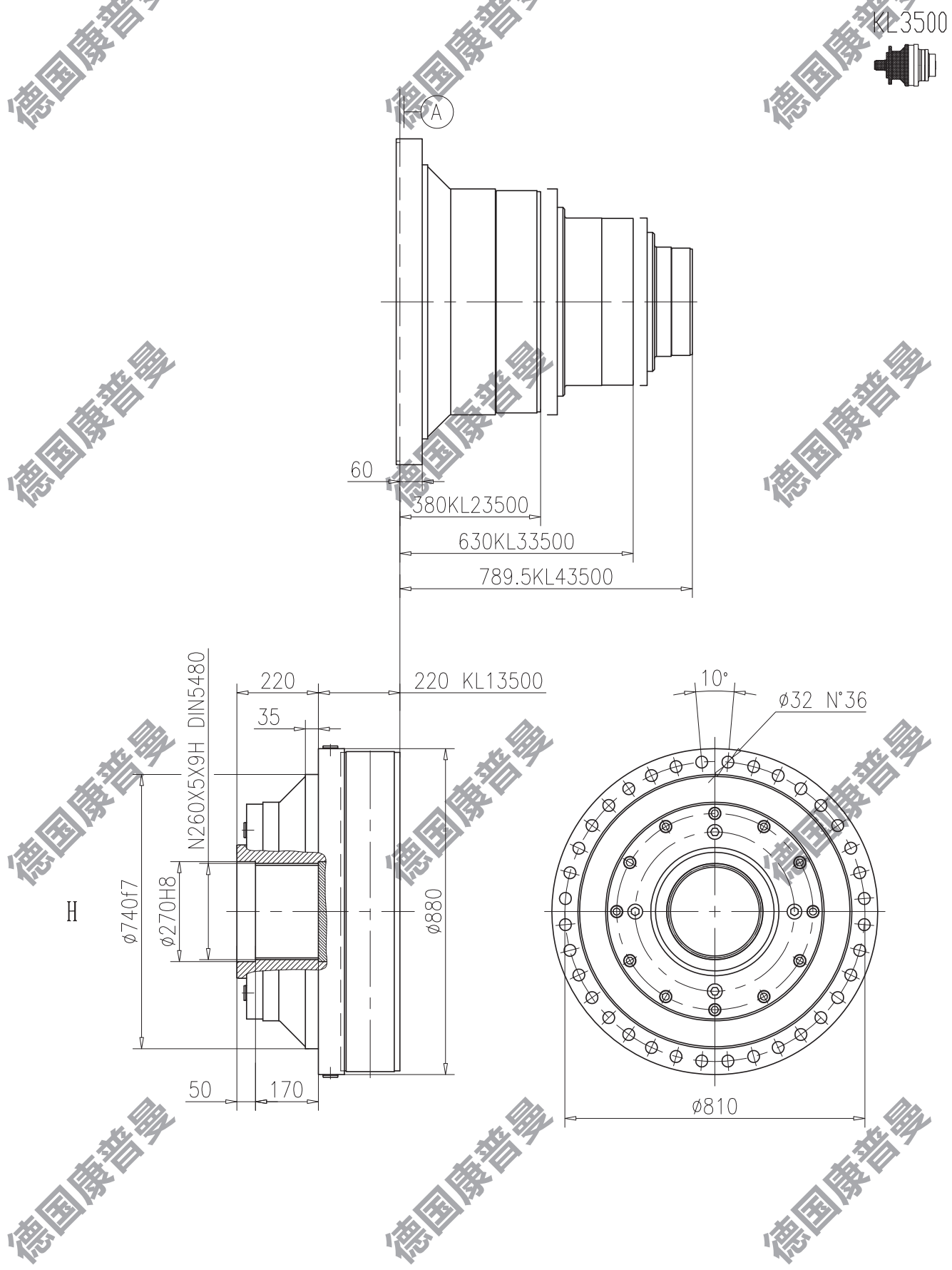
$$T_{2max}=1.2 \cdot T_{n2}(n2 \cdot h=10000)$$

KL3500

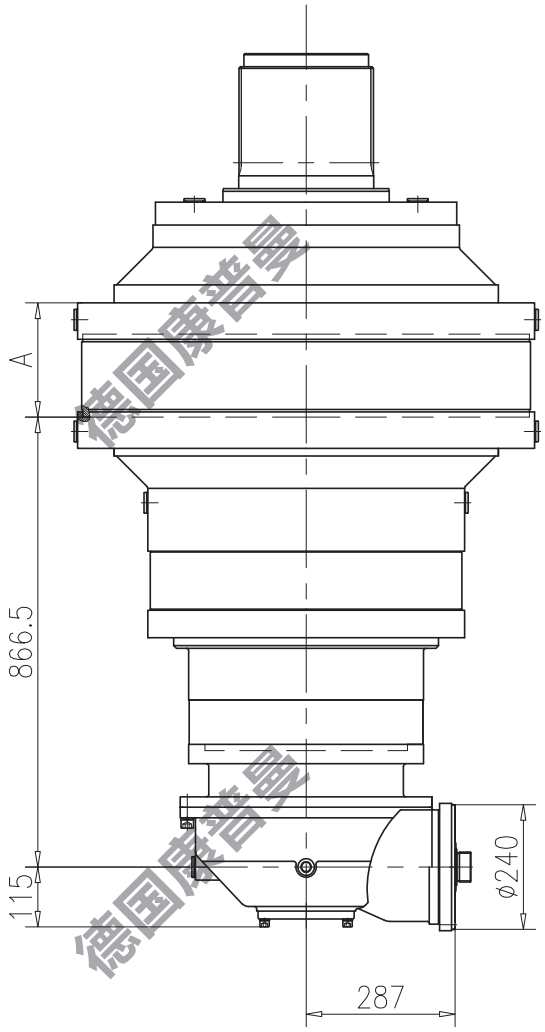


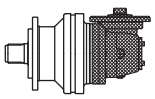
KL3500



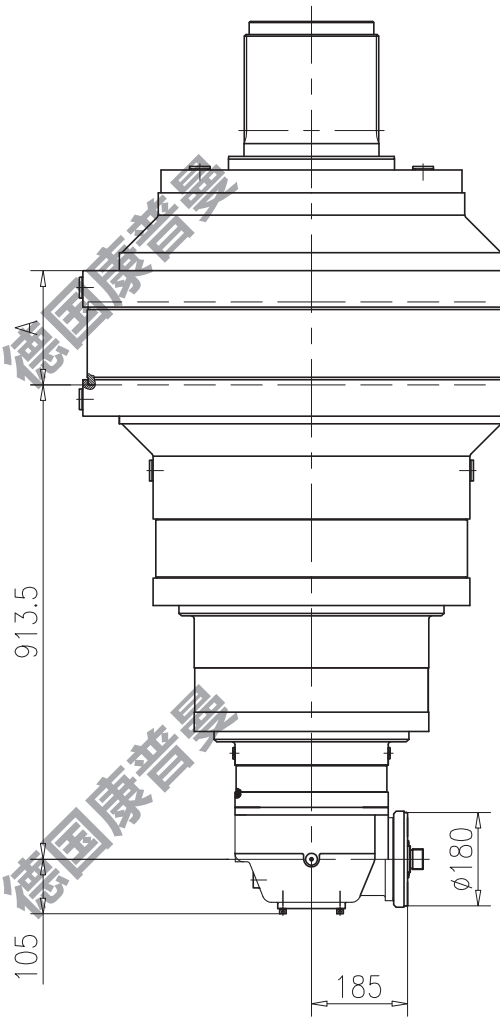

KL3500
A
60
380KL23500
630KL33500
789.5KL43500
220
220 KL13500
35
N260X5X9H DIN5480
H
ø740f7
ø270H8
ø880
50
170
10°
ø32 N°36
ø810

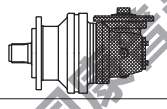
KR3500





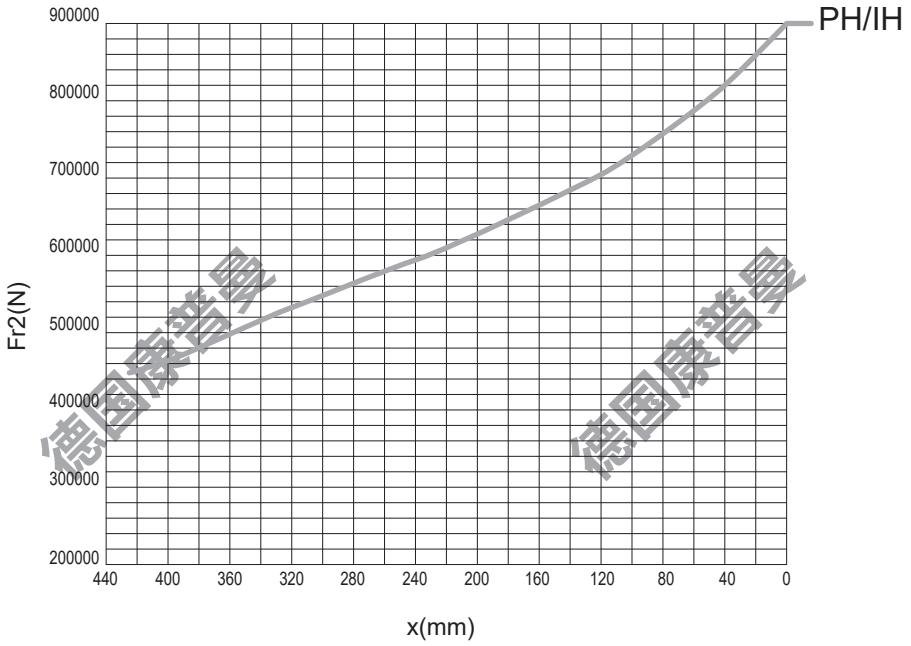
	A			
	SPH	SIH	H	SD
KR 43500	220	220	220	220

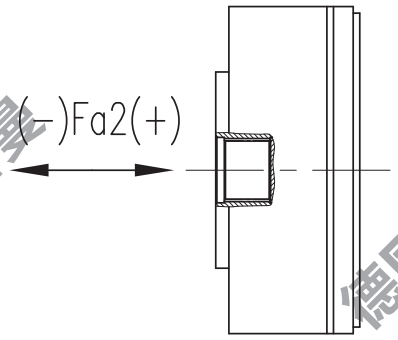




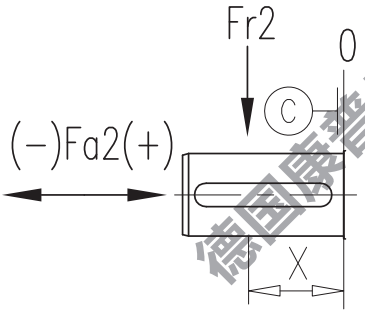
	A			
	SPH	SIH	H	SD
KR 53500	220	220	220	220

KL3500





	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	200000	200000



	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	500000	450000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

KL4500

T_2 = 450000Nm

	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
		$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$	$n_2 \cdot h$				
	1:	10000	25000	50000	100000	500000	1000000	[KW]	[min^{-1}]	[Nm]	
L1	3.83	507097	441468	390474	317163	195699	158957	221	200		
	4.40	441404	384277	339889	276075	170347	138364	221	200		
L2	14.69	507097	441468	390474	317163	195699	158957	135	1000		
	16.87	499423	441468	390474	317163	195699	158957	135	1000		
	19.36	441404	384277	339889	276075	170347	138364	135	1000		
L3	61.45	507097	441468	390474	317163	195699	158957	97	1800		
	71.84	507097	441468	390474	317163	195699	158957	97	1800		
	94.65	441404	384277	339889	276075	170347	138364	97	1800		
	101.20	499423	441468	390474	317163	195699	158957	97	1800		
	116.16	441404	384277	339889	276075	170347	138364	97	1800		
L4	228.59	507097	441468	390474	317163	195699	158957	76	2400		
	281.37	507097	441468	390474	317163	195699	158957	76	2400		
	322.61	507097	441468	390474	317163	195699	158957	76	2400		
	370.30	499423	441468	390474	317163	195699	158957	76	2400		
	513.78	499423	441468	390474	317163	195699	158957	76	2400		
	589.74	441404	384277	339889	276075	170347	138364	76	2400	960	
	630.55	499423	441468	390474	317163	195699	158957	76	2400	960	
	723.77	441404	384277	339889	276075	170347	138364	76	2400	785	

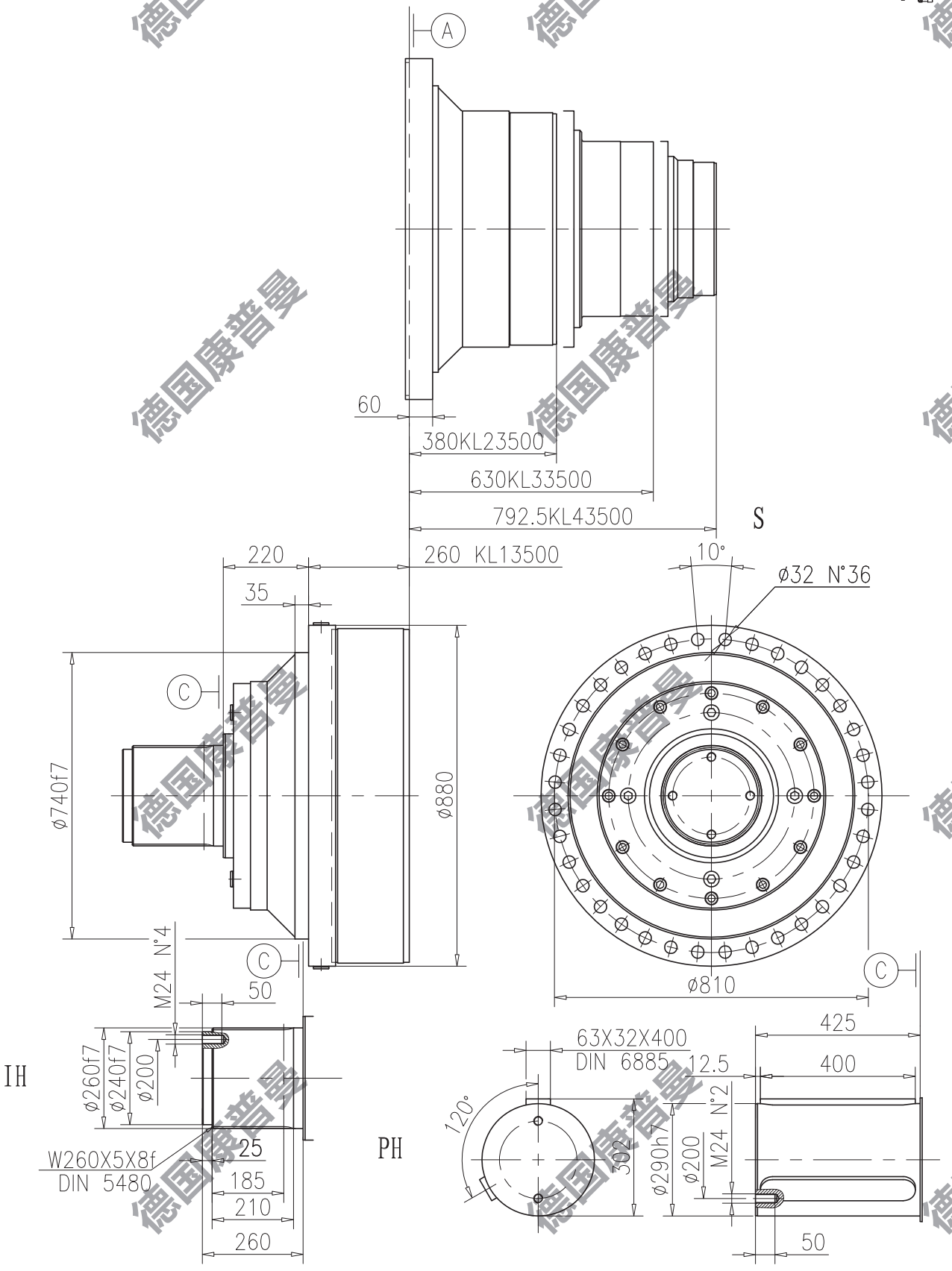
$$T_{2max} = 1.2 \cdot T_{n2}(n_2 \cdot h = 10000)$$

T_2 = 450000Nm **KR4500**

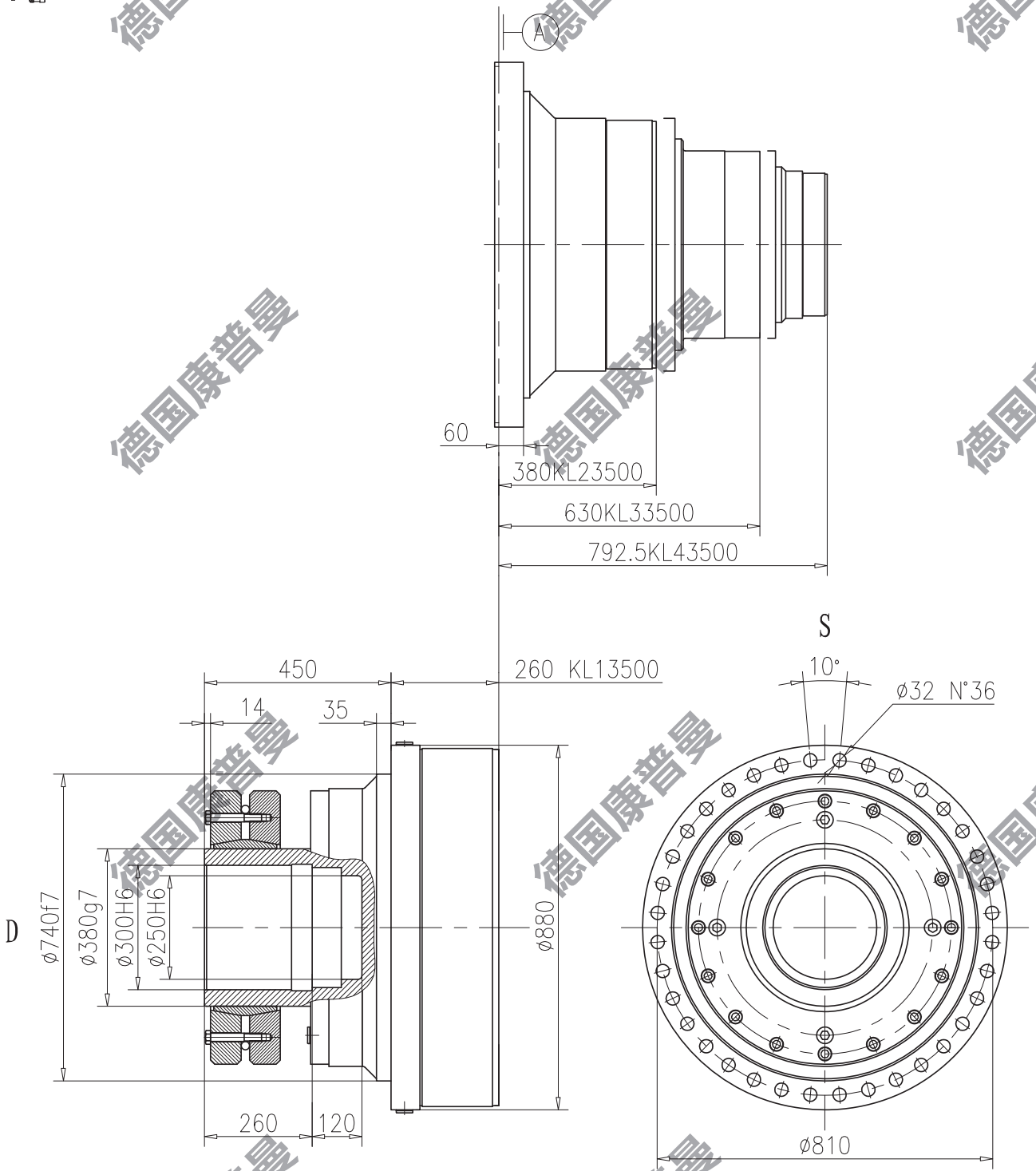
	i	T_{cont} [Nm]						P_t	n_{1max}	T_b	
	1:	$n_2 \cdot h$ 10000	$n_2 \cdot h$ 25000	$n_2 \cdot h$ 50000	$n_2 \cdot h$ 100000	$n_2 \cdot h$ 500000	$n_2 \cdot h$ 1000000	[KW]	[min^{-1}]	[Nm]	
R4	222.45	424832	424832	390474	317163	195699	158957	100	2500		
	260.06	496992	441468	390474	317163	195699	158957	100	2500		
	288.61	499423	441468	390474	317163	195699	158957	100	2500		
	308.58	507097	441468	390474	317163	195699	158957	100	2500		
	322.34	499423	441468	390474	317163	195699	158957	100	2500		
	371.07	499423	441468	390474	317163	195699	158957	100	2500		
	454.08	441404	384277	339889	276075	170347	138364	100	2500		
R5	800.07	408017	408017	390474	317163	195699	158957	75	3500	785	
	910.03	454136	395361	349693	284038	175260	142355	75	3500	700	
	1017.46	507097	441468	390474	317163	195699	158957	75	3500	700	
	1129.13	507097	441468	390474	317163	195699	158957	75	3500	700	
	1320.05	507097	441468	390474	317163	195699	158957	75	3500	610	
	1411.71	507097	441468	390474	317163	195699	158957	75	3500	520	
	1515.19	499423	441468	390474	317163	195699	158957	75	3500	520	
	1722.95	507097	441468	390474	317163	195699	158957	75	3500	430	
	1948.10	499423	441468	390474	317163	195699	158957	75	3500	430	
	2236.08	441404	384277	339889	276075	170347	138364	75	3500	340	
	2533.18	441404	384277	339889	276075	170347	138364	75	3500	250	

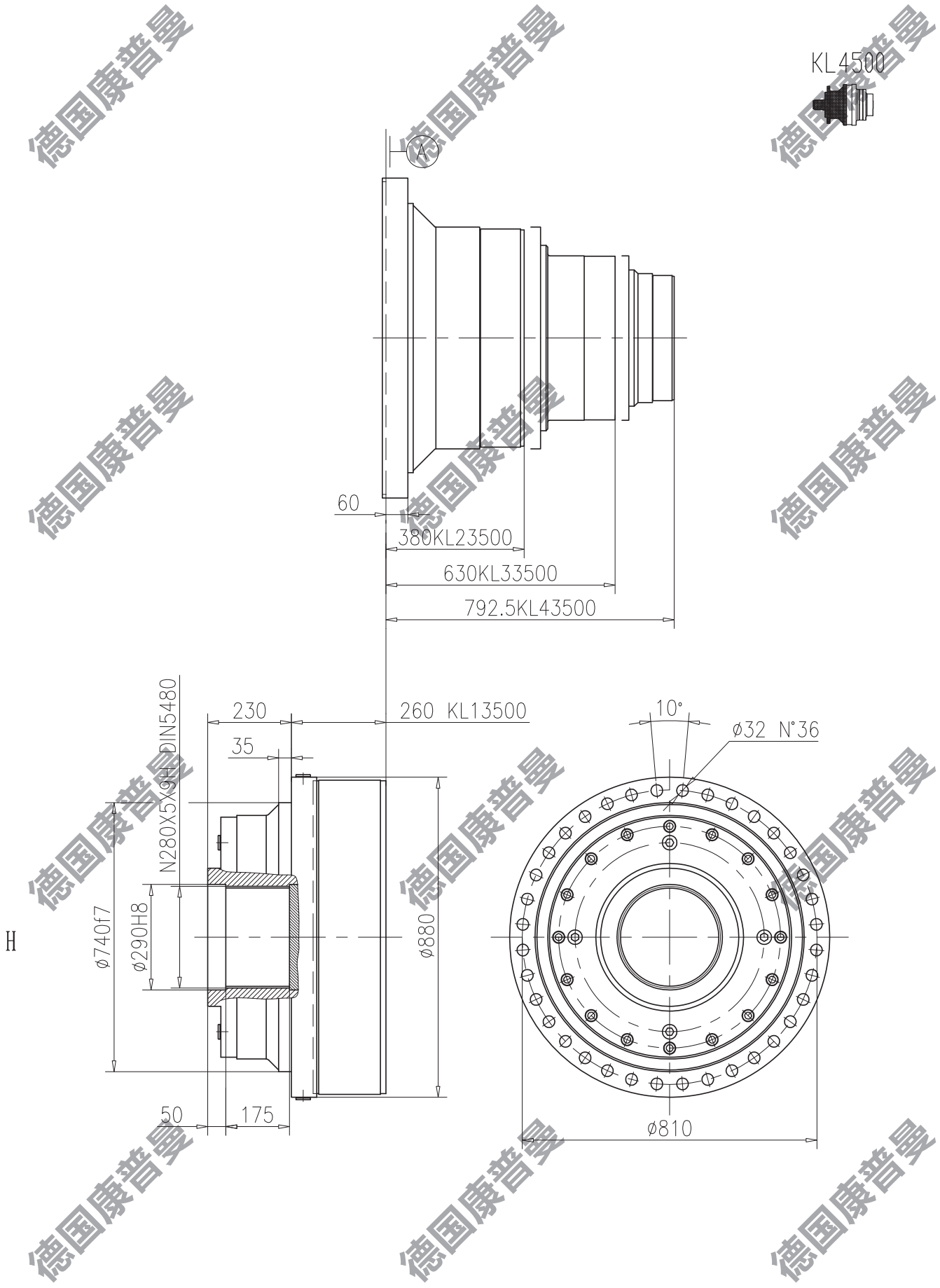
$$T_{2max} = 1.2 \cdot T_{n2}(n_{2 \cdot h} = 10000)$$

KL4500

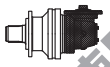


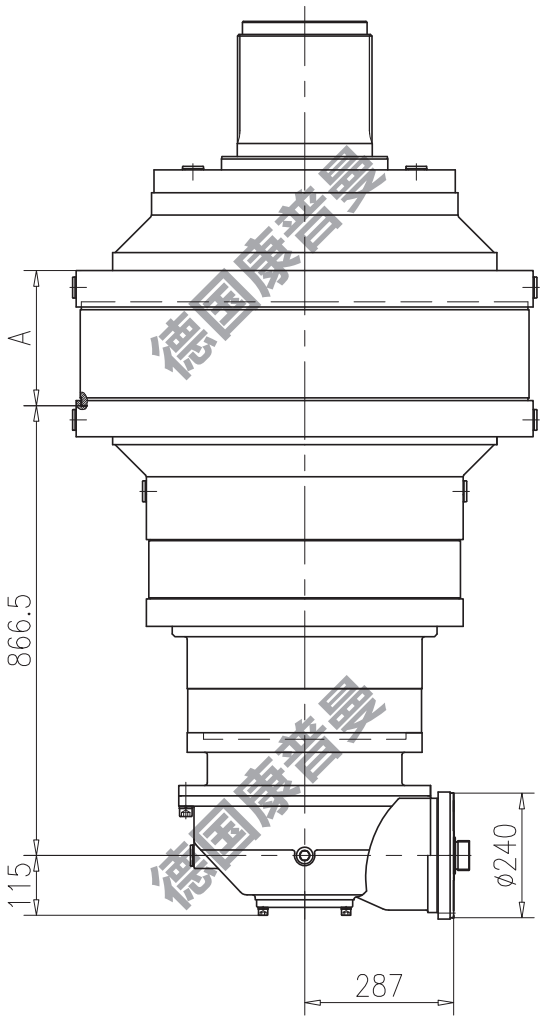
KL4500

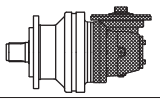



KL4500
A
60
380KL23500
630KL33500
792.5KL43500
230
260 KL13500
35
N280X5X9H DIN5480
ø740f7
ø290H8
ø880
50
175
10°
ø32 N°36
ø810
H

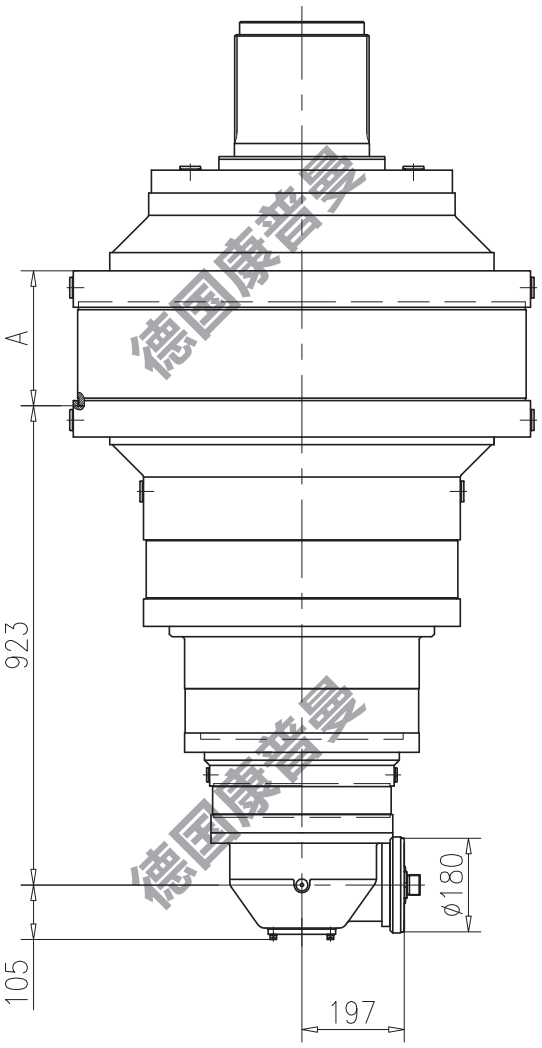
KR4500

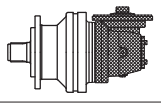






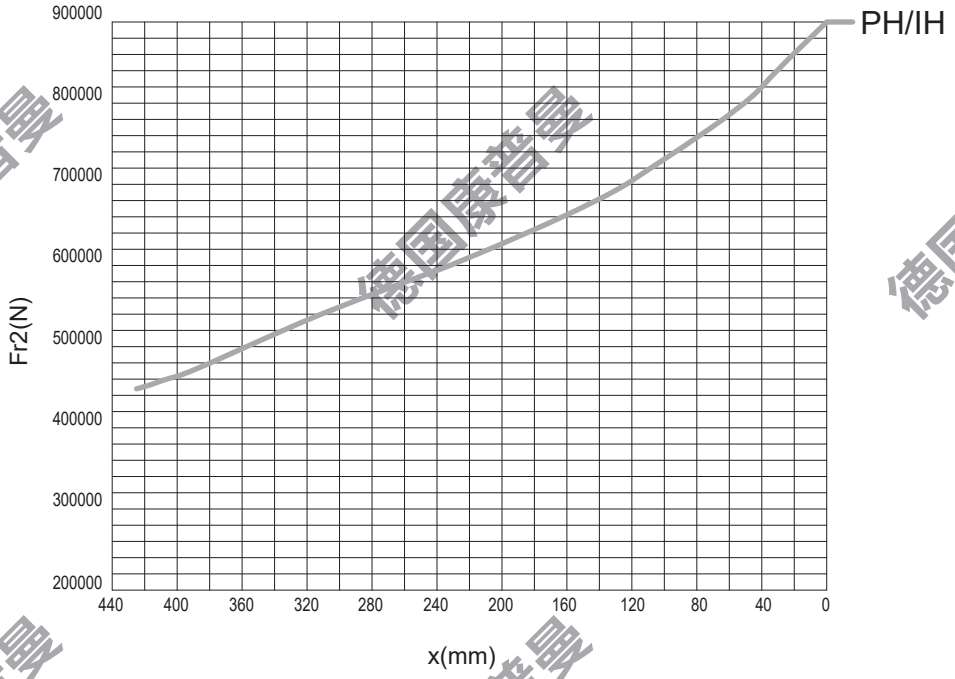
	A			
	SPH	SIH	H	SD
KR 44500	260	260	260	260

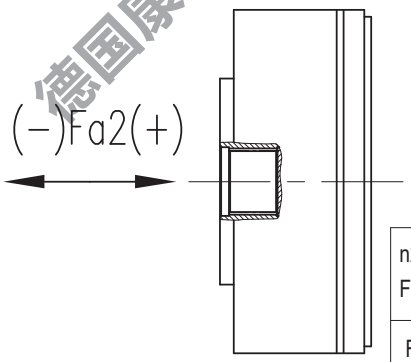




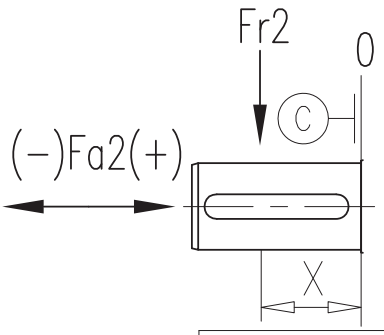
	A			
	SPH	SIH	H	SD
KR 54500	260	260	260	260

KL4500





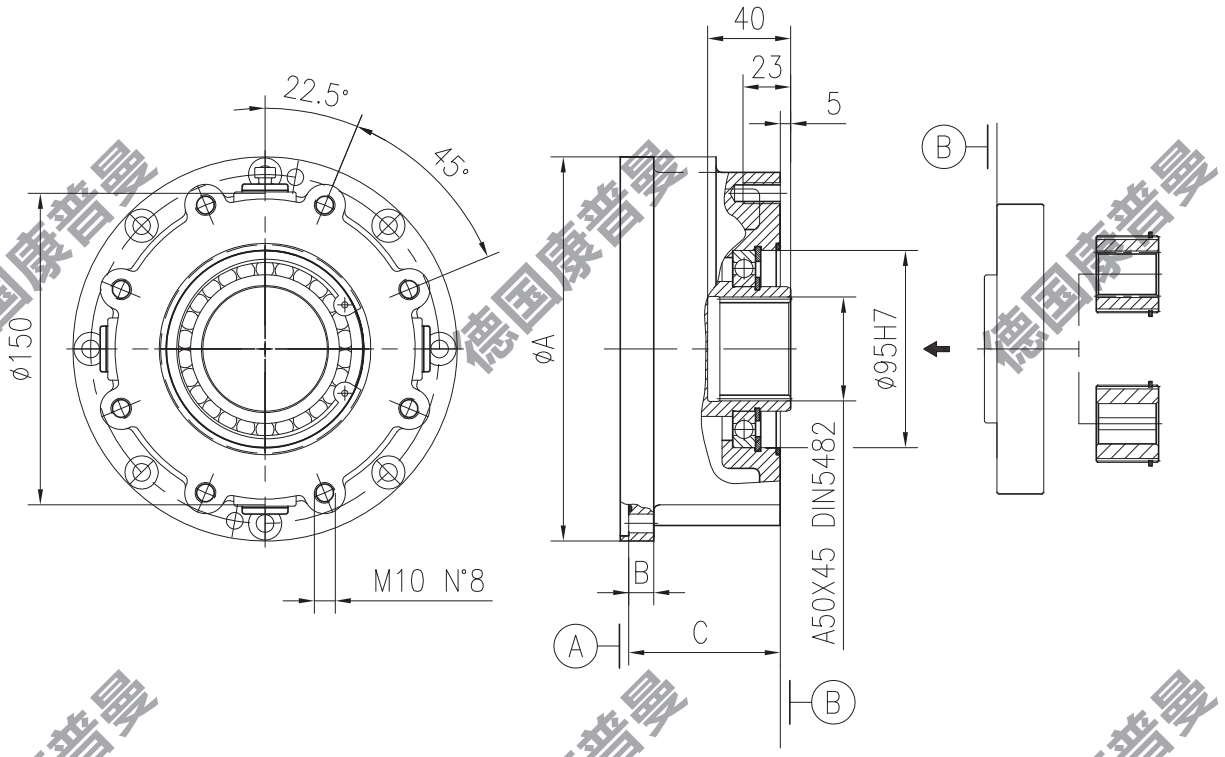
	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SD-H	200000	200000

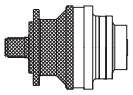


	n2·h=100000 Fa2 max (Fr2=0)	
	Fa2(+)	Fa2(-)
SPH-SIH	500000	450000

	$n_2 \cdot h$						
	20000	40000	60000	80000	100000	200000	400000
K_f	1.7	1.3	1.15	1.06	1	0.8	0.63

IC

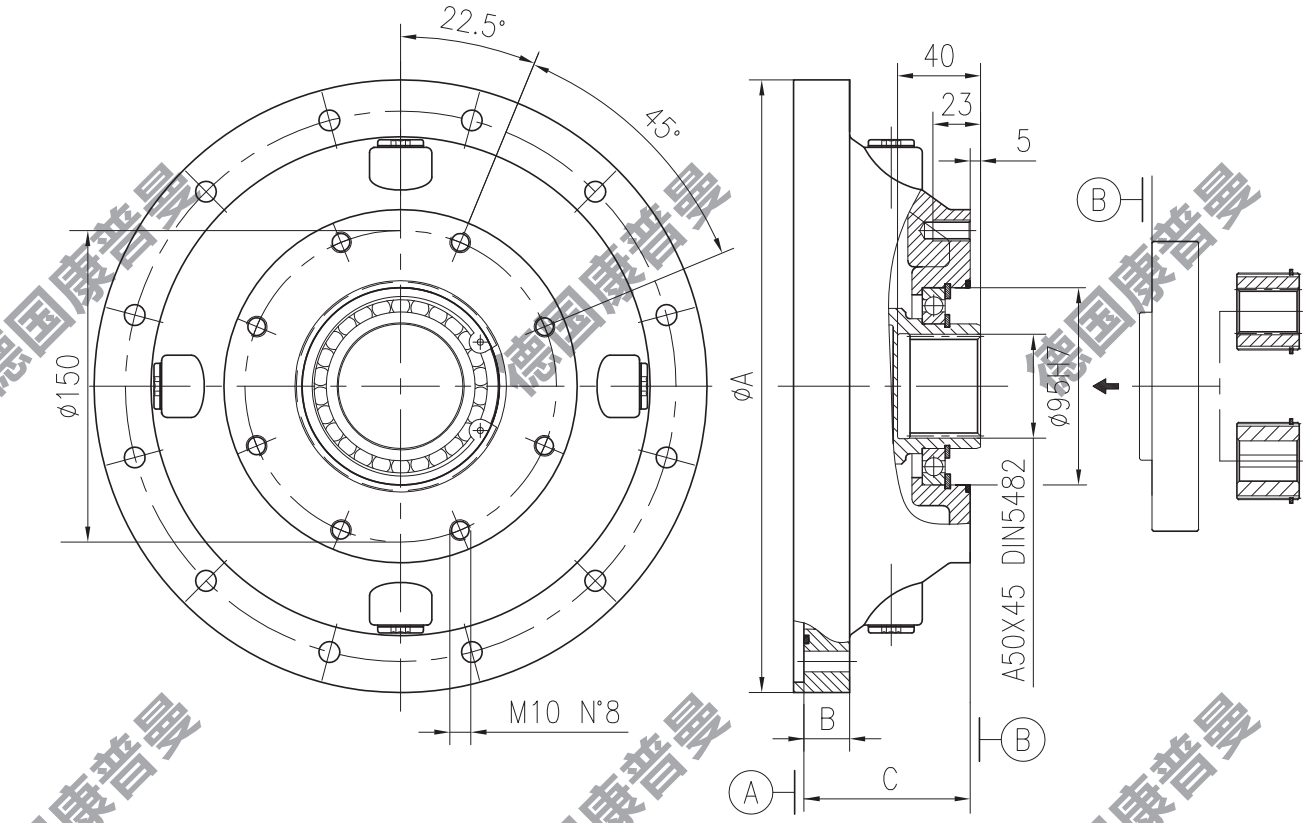


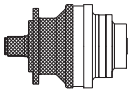


	ØA	B	C	CODE
KL1015-2015-3015-4015	185	12	73	IC01
KL2025-3025-4025				
KL2050-3050-4050				
KL3070-4070				
KL3100-4100				
KL3120-4120				
KL3160-4160				
KL3180				
KL4260				
KL4330				
KL4400				
KL4500				

	ØA	B	C	CODE
KL1025	245	17	73	IC02
KL1050				
KL2070				
KL2100				
KL2160				
KL3330				
KL3400				
KL3500				
KL4600				
KL4850				
KL41050				
KL41350				
KL41800				

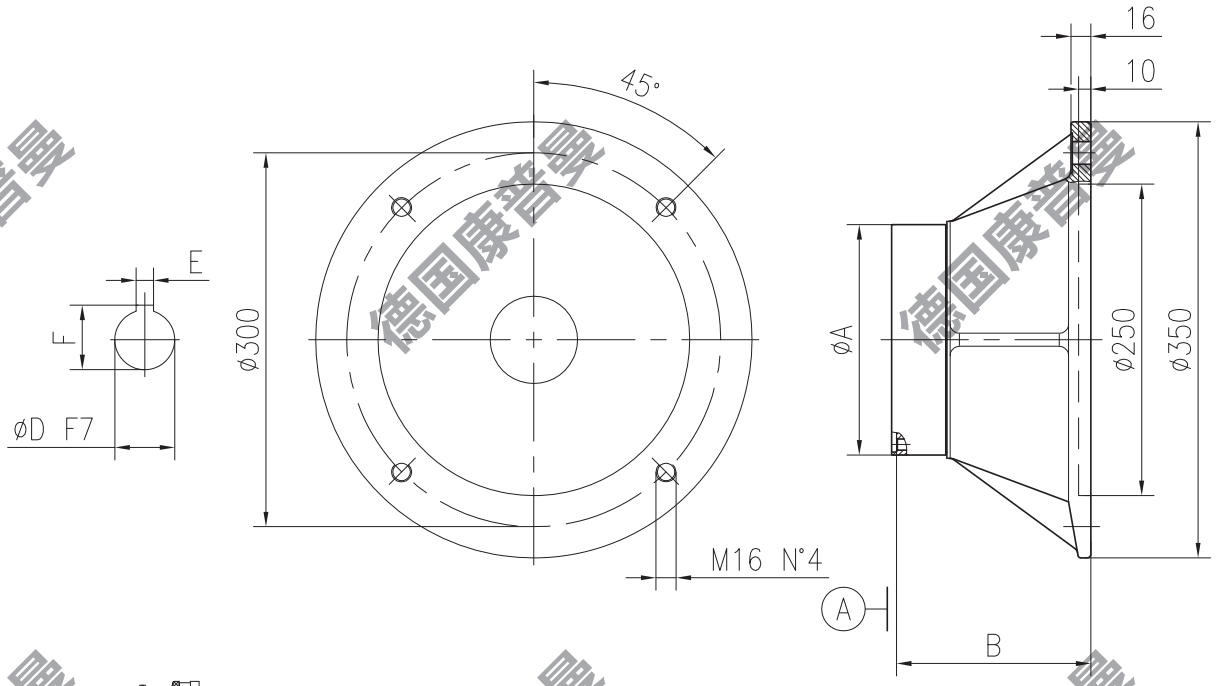
IC

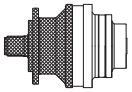




	ØA	B	C	CODE
KL1070	295	22	80	IC03
KL1100				
KL2260				
KL2330				
KL3600				
KL3850				
KL31050				
KL31350				
KL31800				
KL43500				

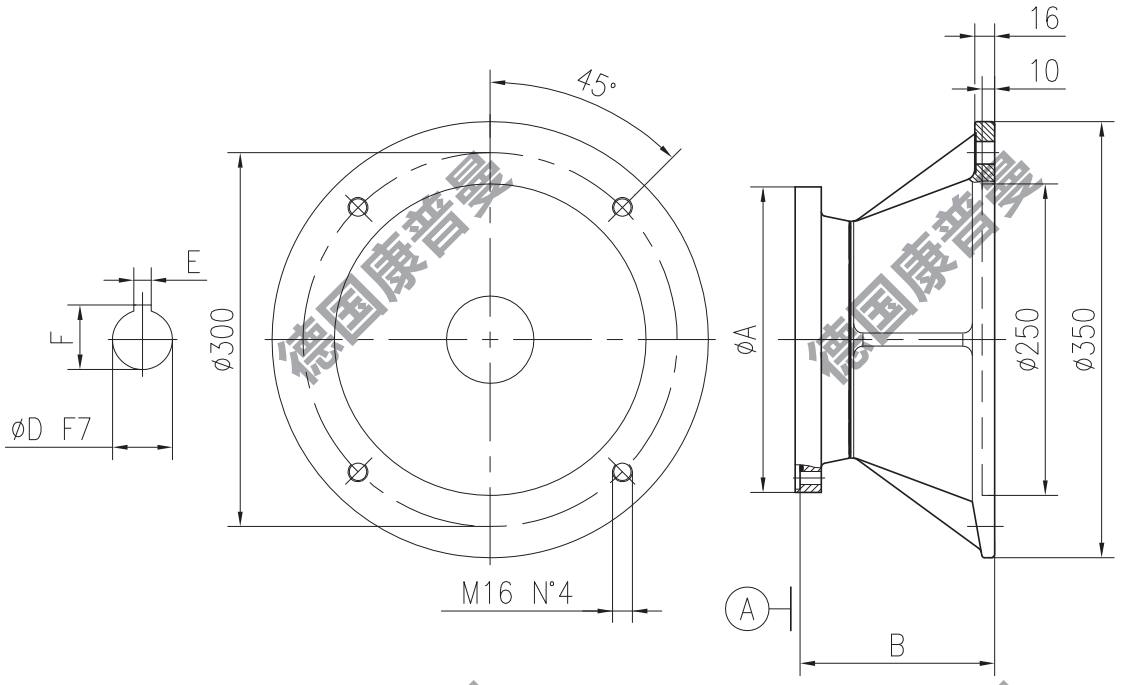
ME





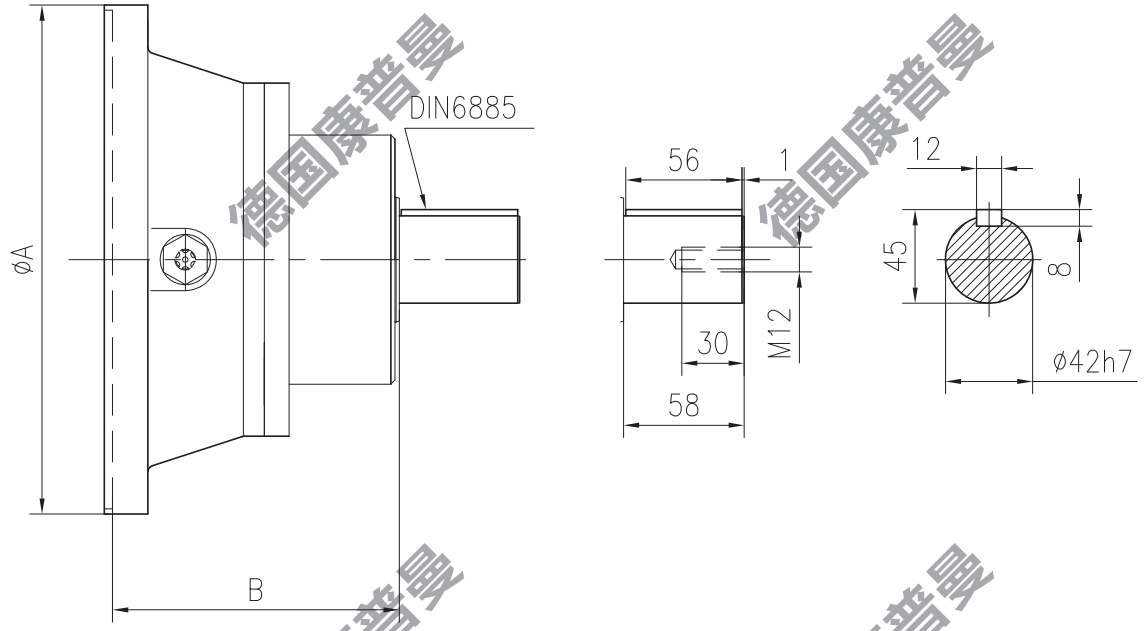
TYPE	ØA	B	ØD	E	F	CODE
KL1015-2015-3015-4015						
KL2025-3025-4025						
KL2050-3050-4050						
KL3070-4070						
KL3100-4100						
KL3120-4120						
KL3160-4160	ME160	185	156	42	12	45.5
KL3180	ME180	185	156	48	14	52
KL4260						
KL4330						
KL4400						
KL4500						

ME



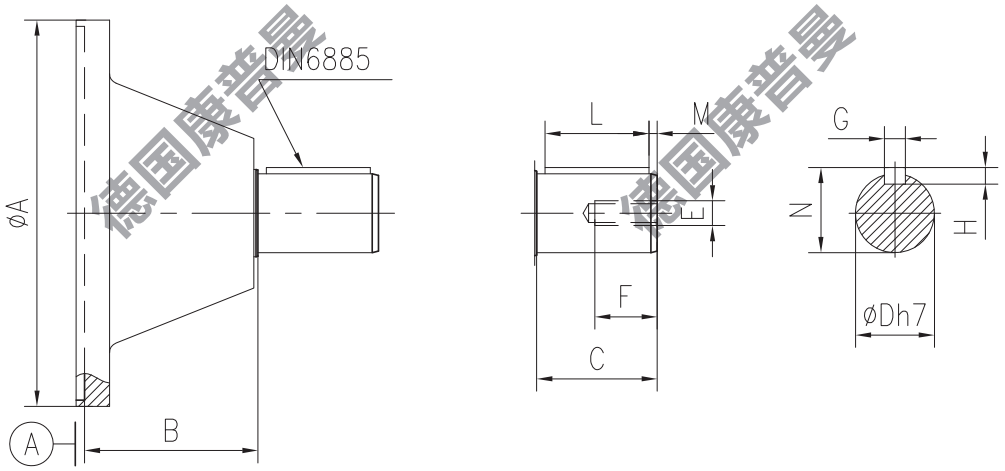
	TYPE	ØA	B	ØD	E	F	CODE
KL1025							
KL1050							
KL2070							
KL2100							
KL2120							
KL2160							
KL2180	ME160	245	156	42	12	45.5	
KL3330	ME180	245	156	48	14	52	
KL3400							
KL3500							
KL4600							
KL4850							
KL41050							
KL41350							
KL41800							

IS00



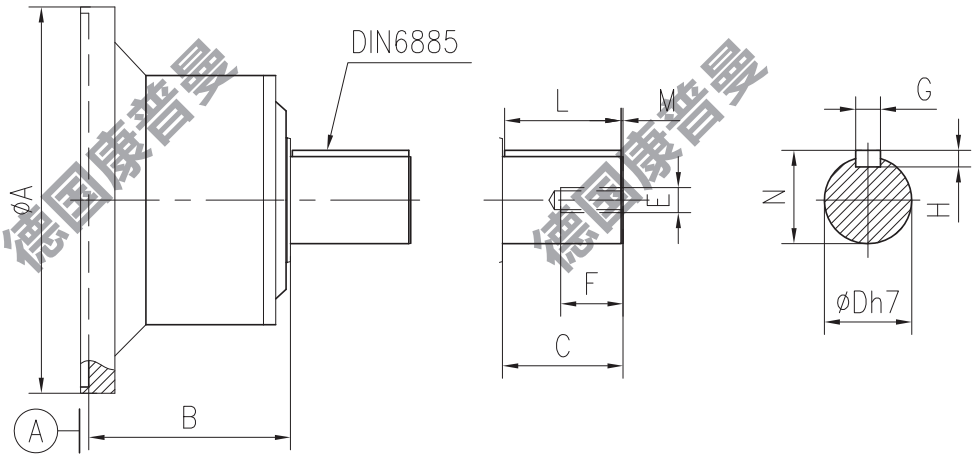
	TYPE	ØA	B
KL1015-2015-3015-4015	IS00	185	138
KL2025-KL3025-KL4025-KL2050-KL3050-KL4050			
KL3070-KL4070-KL3100-KL4100-KL3160-KL4160			
KL3180-KL4180-KL4260-KL4330-KL4400-KL4500			
KL1025-KL2070-KL3260-KL4600-KL4850	IS00	245	138
KL1050-KL2100-KL2160	IS00	245	138
KL3330-KL3400-KL3500			
KL41050-KL41350-KL41800			
KL1070-KL2260-KL3600-KL3850	IS00	295	145
KL42250-KL42700			
KL1100-KL2330-KL31050	IS00	295	145
KL41350			

IS01



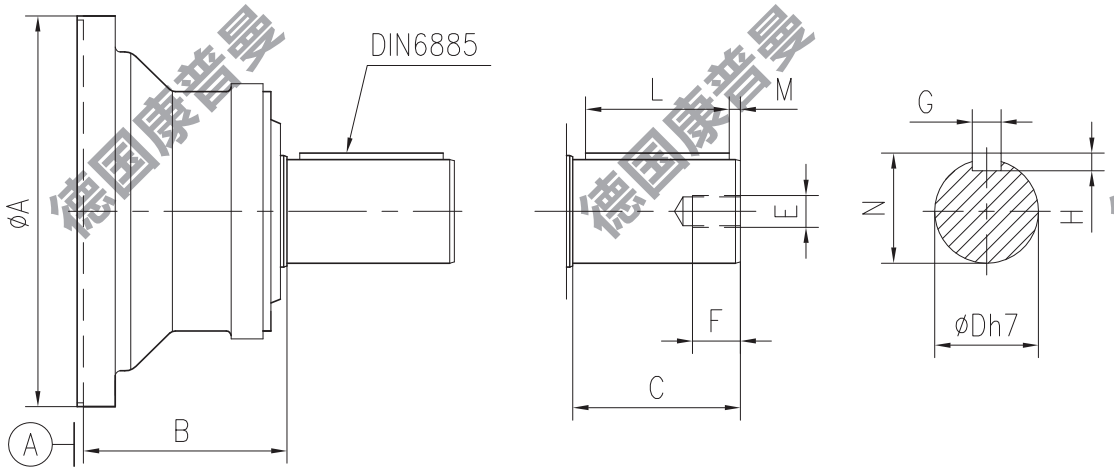
	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1015-2015-3015-4015	IS01	186	83.5	58	38	M12	30	10	8	50	4	41
KL2025-3025-4025												
KL2050-3050-4050												
KL3070-4070												
KL3100-4100												
KL3160-4160												
KL4260												
KL4330												
KL4400												
KL4500												

IS02-IS04



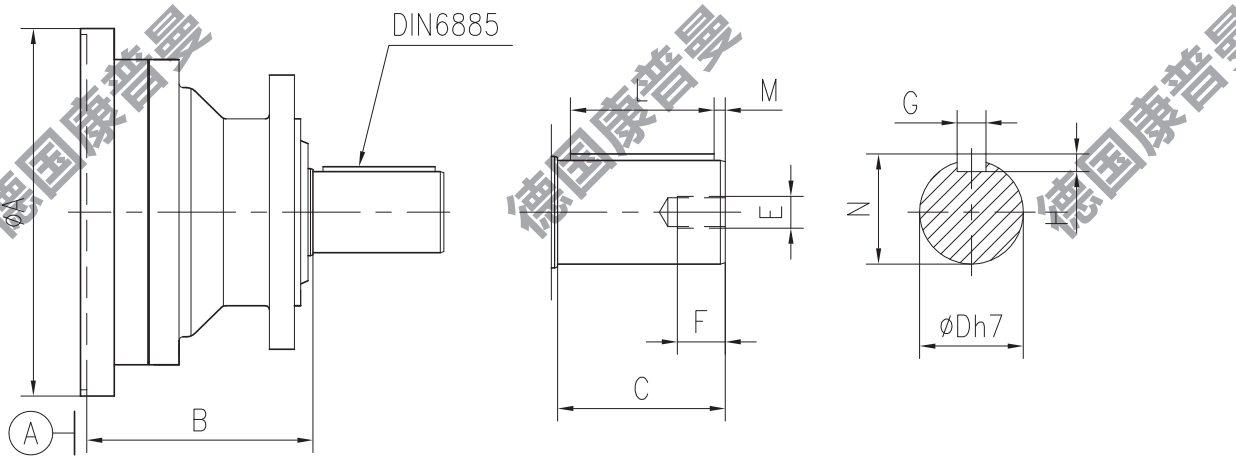
	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1015-2015-3015-4015	IS02	186	97	58	42	M12	30	12	8	56	1	45
KL2025-KL3025-KL4025-KL2050-KL3050-KL4050												
KL3070-KL4070-KL3100-KL4100-KL3160-KL4160												
KL3180-KL4180-KL4260-KL4330-KL4400-KL4500												
KL1025-KL2070-KL3260	IS03	245	97	58	42	M12	30	12	8	56	1	45
KL4600-KL4850												
KL1025-KL2070-KL3260-KL4600-KL4850	IS04	245	110	82	48	M12	30	14	9	70	6	51.5
KL1050-KL2100-KL2160												
KL3330-KL3400-KL3500												
KL41050-KL41350-KL41800												

IS025



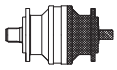
	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1050	IS025	245	127.5	105	65	M20	30	18	11	90	7	69
KL2100-2160												
KL3330-3400-3500												
KL41050-41350-41800												

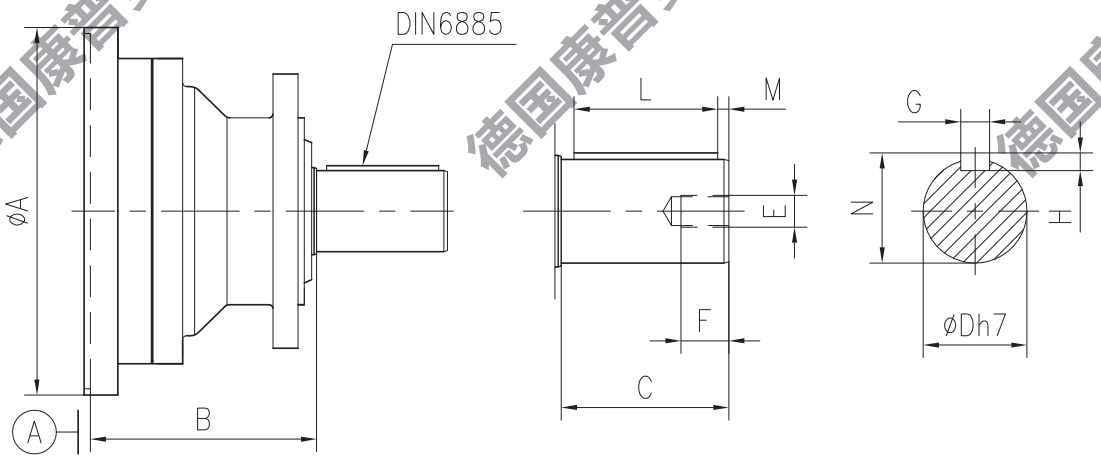
IS050



	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1070-2260-3600-3850	IS050	295	181.5	105	65	M20	30	18	11	90	7	69
KL42050												
KL1100-2330-31050												
KL42500-43500												
KL1160-2400-2500	IS050	350	206.5	105	65	M20	30	18	11	90	7	69
KL31350-31800												
KL44500												

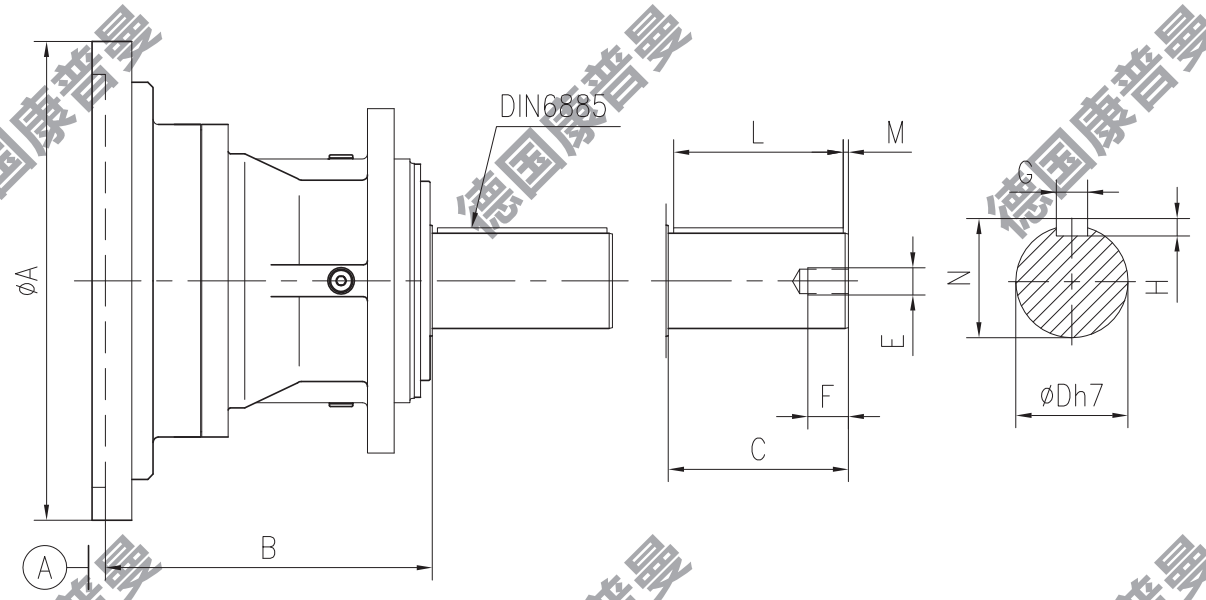
IS070





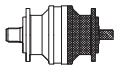
	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1260	IS070	410	266.5	130	80	M20	45	22	14	120	5	85
KL2600-2850												
KL32050												
KL1330-21050	IS070	452	271.5	130	80	M20	45	22	14	120	5	85
KL32500-33500												
KL1400-21350-34500												

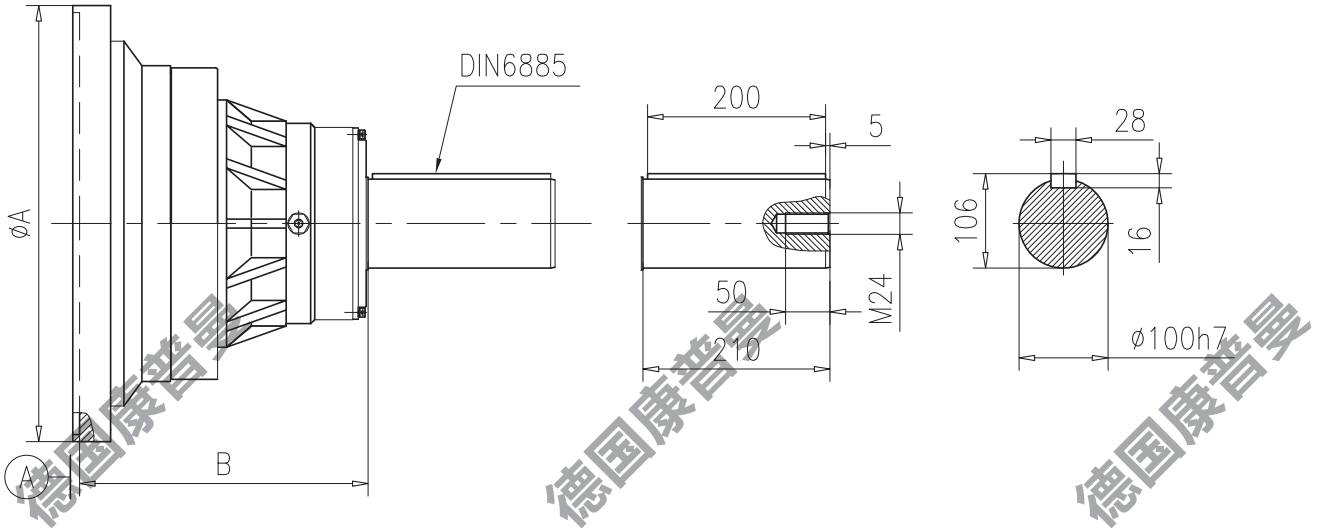
IS100



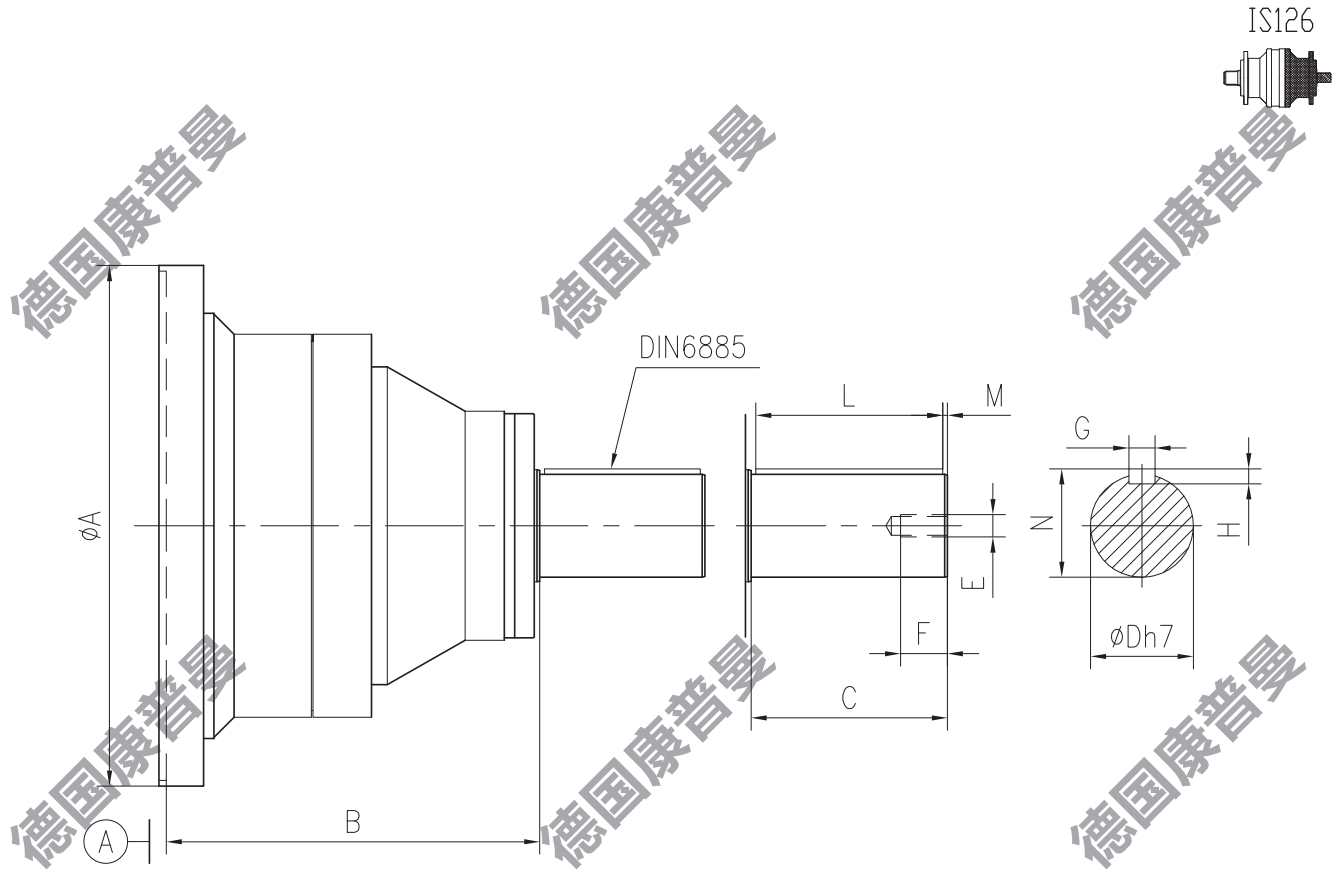
	TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1330-21050	IS100	452	308.5	170	90	M20	45	25	14	160	5	95
KL32500-33500												
KL1400-21350												
KL34500												

IS116



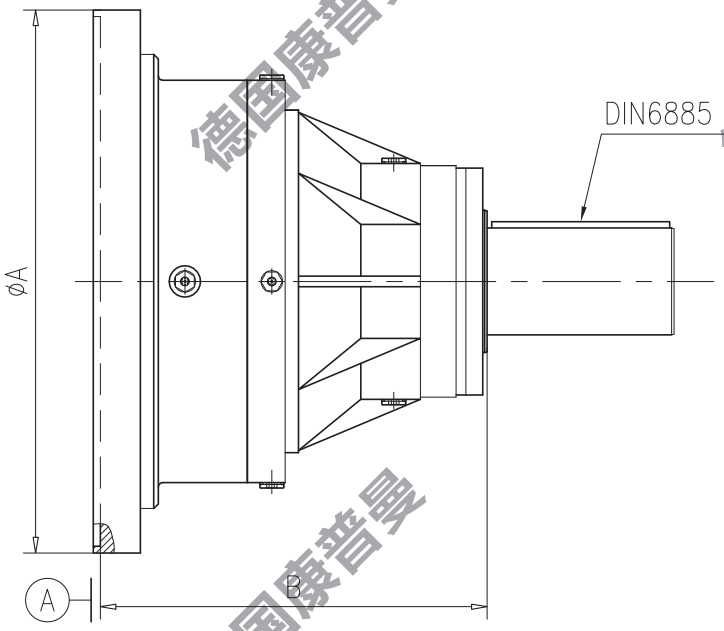


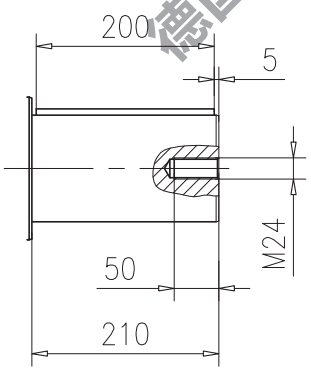
	TYPE	ØA	B
KL1500-KL21800	IS116	490	324

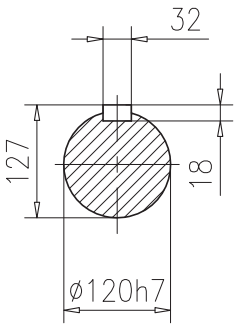


TYPE	ØA	B	C	ØD	E	F	G	H	L	M	N
KL1600-22050	IS126	557	399.5	210	110	M24	50	28	16	200	5	116
KL1850-22500	IS126	490	360	210	110	M24	50	28	16	200	5	116

IS133

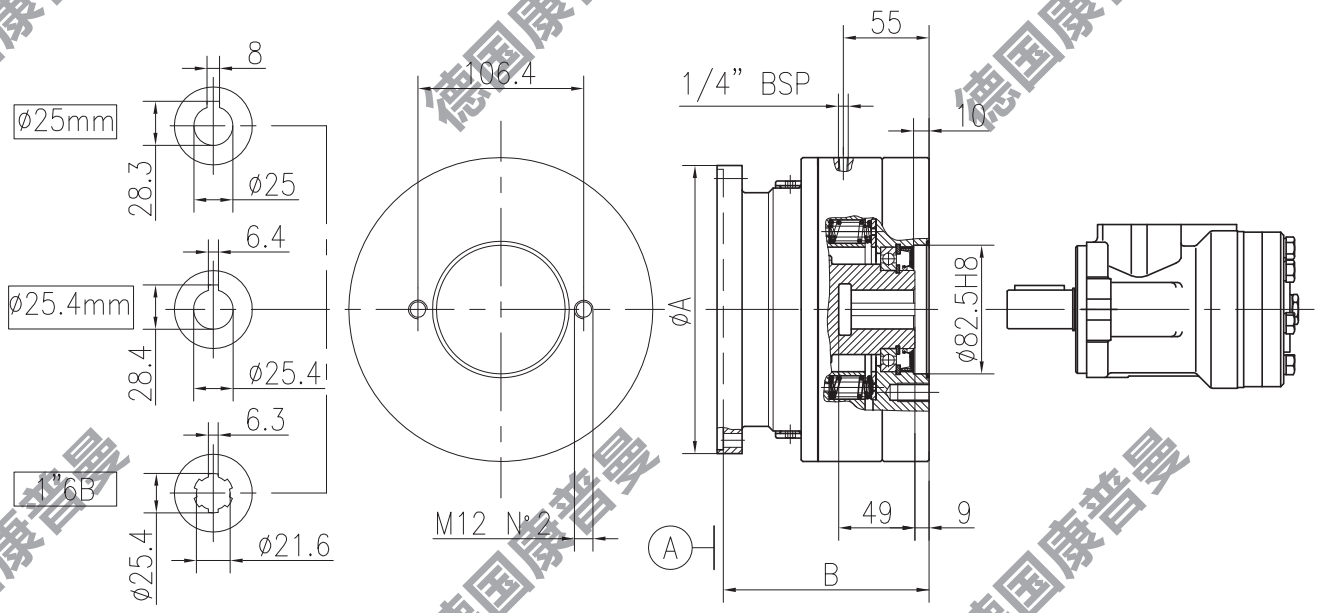






	TYPE	ØA	B
KL11050-KL23500	IS133	610	434.5
KL11350-KL24500	IS133	610	434.5

KPB1-KPB2



	ØA	B	CODE
KL1015-2015-3015-4015	185	132	KPB1
KL2025-3025-4025			
KL2050-3050-4050			
KL3070-4070			
KL3100-4100			
KL3160-4160			
KL4260			
KL4330			
KL4400			
KL4500			

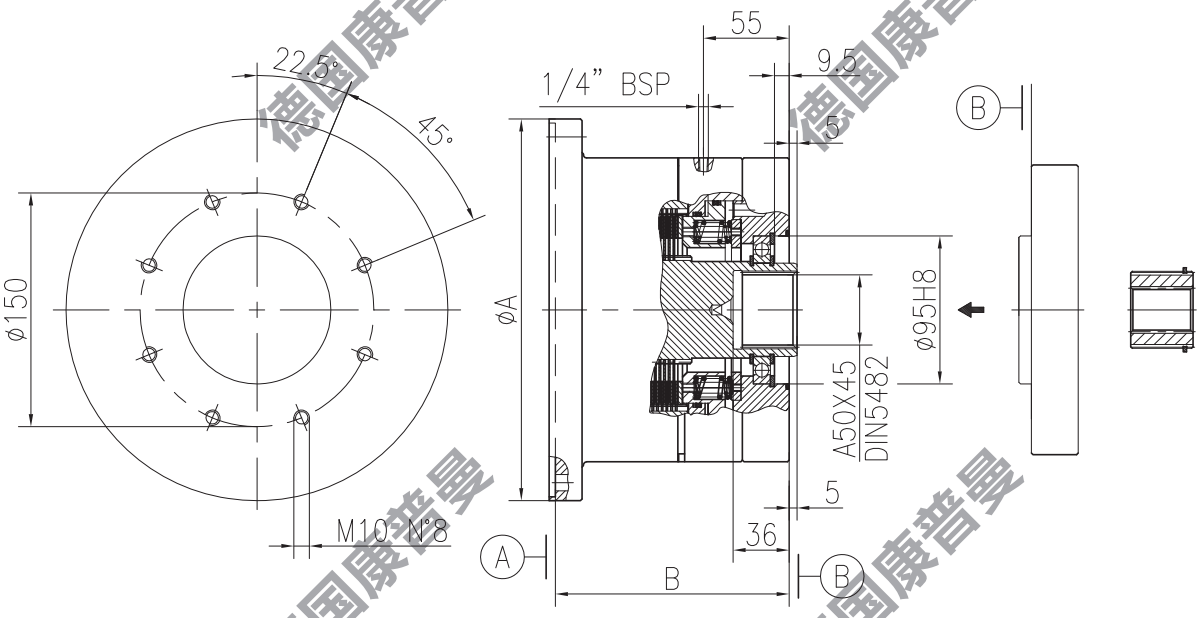
	ØA	B	CODE
KL1025	245	132	KPB2
KL1050			
KL2070			
KL2100			
KL2160			
KL3330			
KL3400			
KL3500			
KL4600			
KL4850			
KL41050			
KL41350			
KL41800			

KPB1-KPB2

	KPB1/15	KPB1/25	KPB1/35	KPB1/45	KPB1/50	KPB1/60	
Tb (Nm)	160	250	340	430	520	610	± 5%
pb (bar)	22-25						
p max (bar)	300						
n_1 max (rpm)	2500						

	KPB2/15	KPB2/25	KPB2/35	KPB2/45	KPB2/50	KPB2/60	
Tb (Nm)	160	250	340	430	520	610	± 5%
pb (bar)	22-25						
p max (bar)	300						
n_1 max (rpm)	2500						

KPB5-KPB6

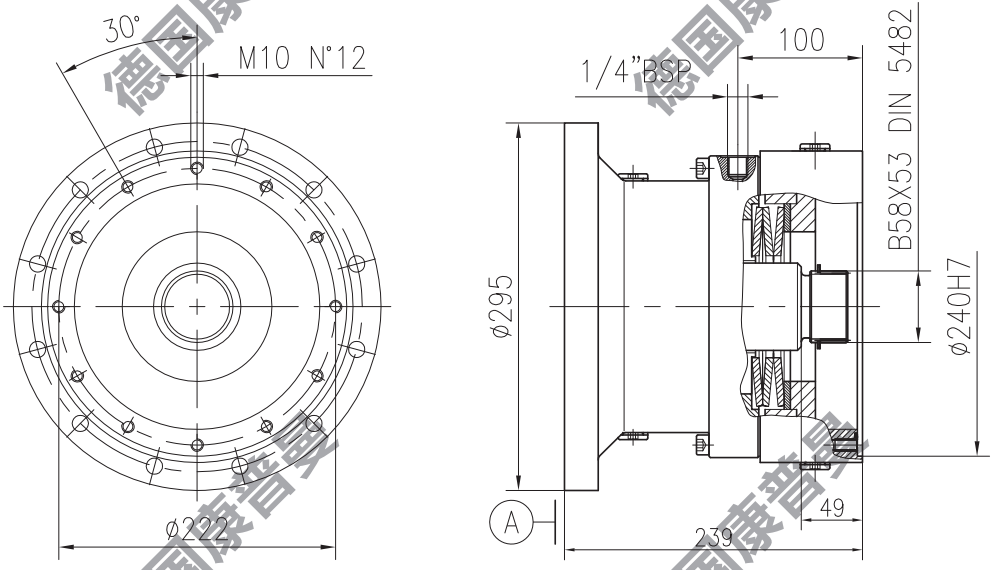


	ØA	B
KL1025	245	150
KL1050		
KL2070		
KL2100		
KL2160		
KL3330		
KL3400		
KL3500		
KL4600		
KL4850		
KL41050		
KL41350		
KL41800		

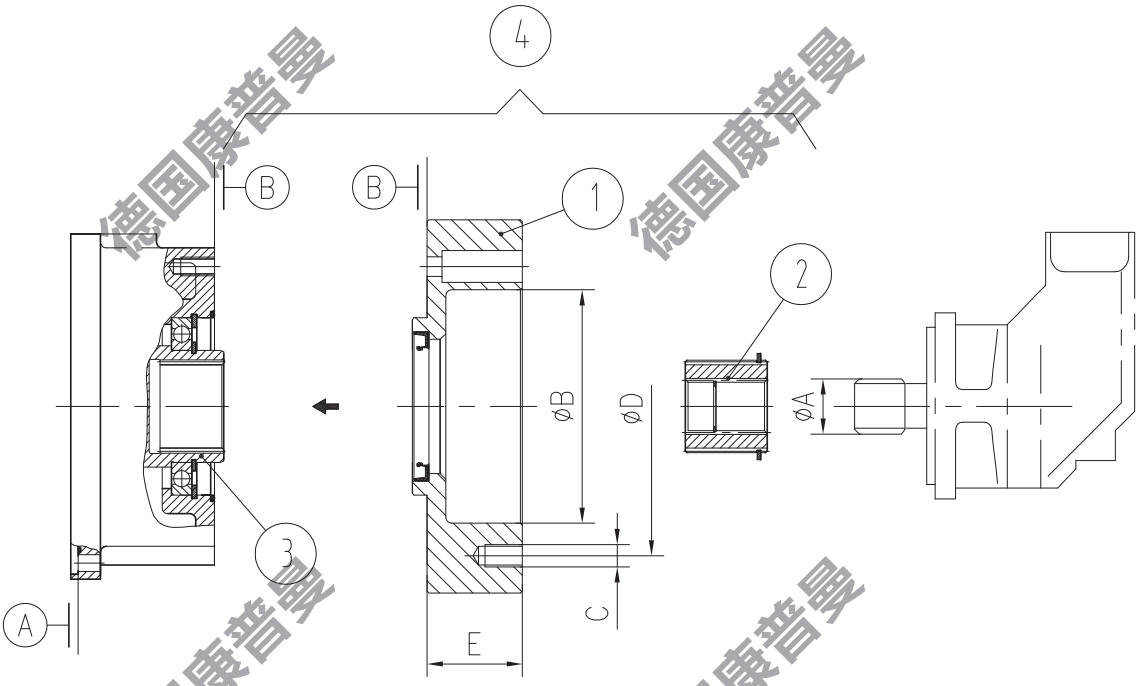
	KPB5/15	KPB5/25	KPB5/35	KPB5/45	KPB5/50	KPB5/60	
Tb (Nm)	160	250	340	430	520	610	±5%
pb (bar)	22-25						
p max (bar)	300						
n_1 max (rpm)	2500						

	KPB5/70	KPB5/80	KPB5/90	KPB5/100	KPB5/110	KPB5/120	
Tb (Nm)	700	785	875	960	1050	1140	±5%
pb (bar)	22-25						
p max (bar)	300						
n_1 max (rpm)	2500						

KPB8

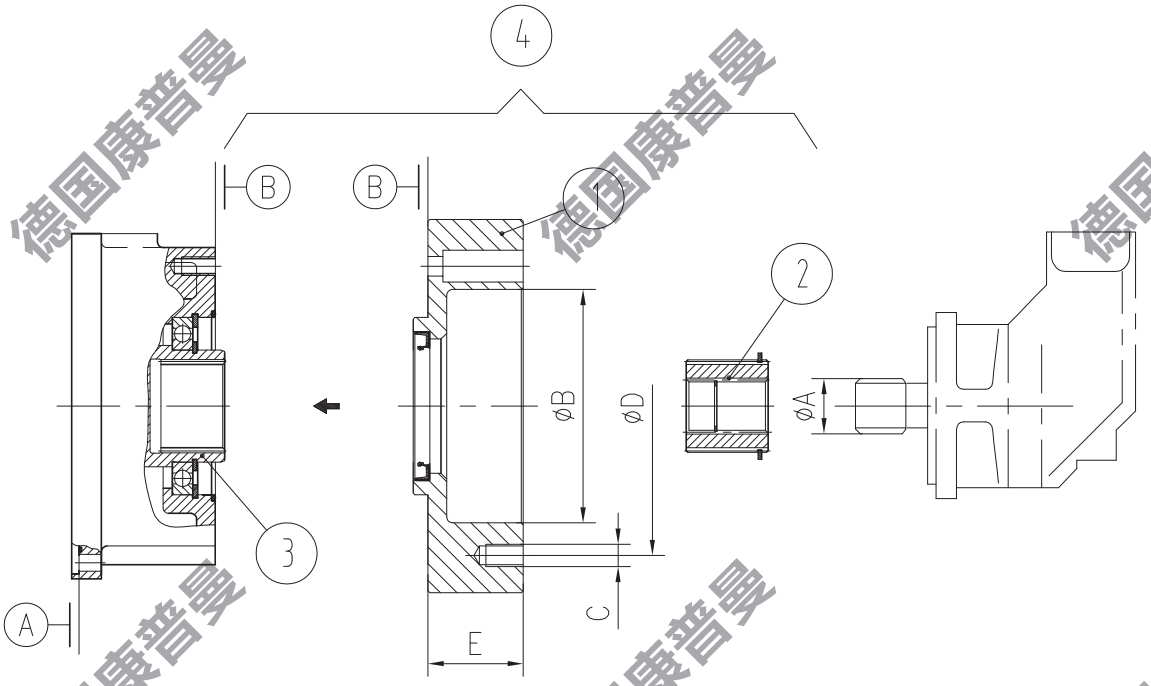


		KPB8/125	KPB8/150	KPB8/175	KPB8/200	KPB8/225	KPB8/250	
KL1070 KL1100 KL2260	Tb (Nm)	1250	1530	1740	1960	2250	2540	±5%
KL2330 KL3600	pb (bar)	22-25						
KL3850 KL31050	p max (bar)	300						
KL31350 KL31800 KL43500	n1 max (rpm)	2000						



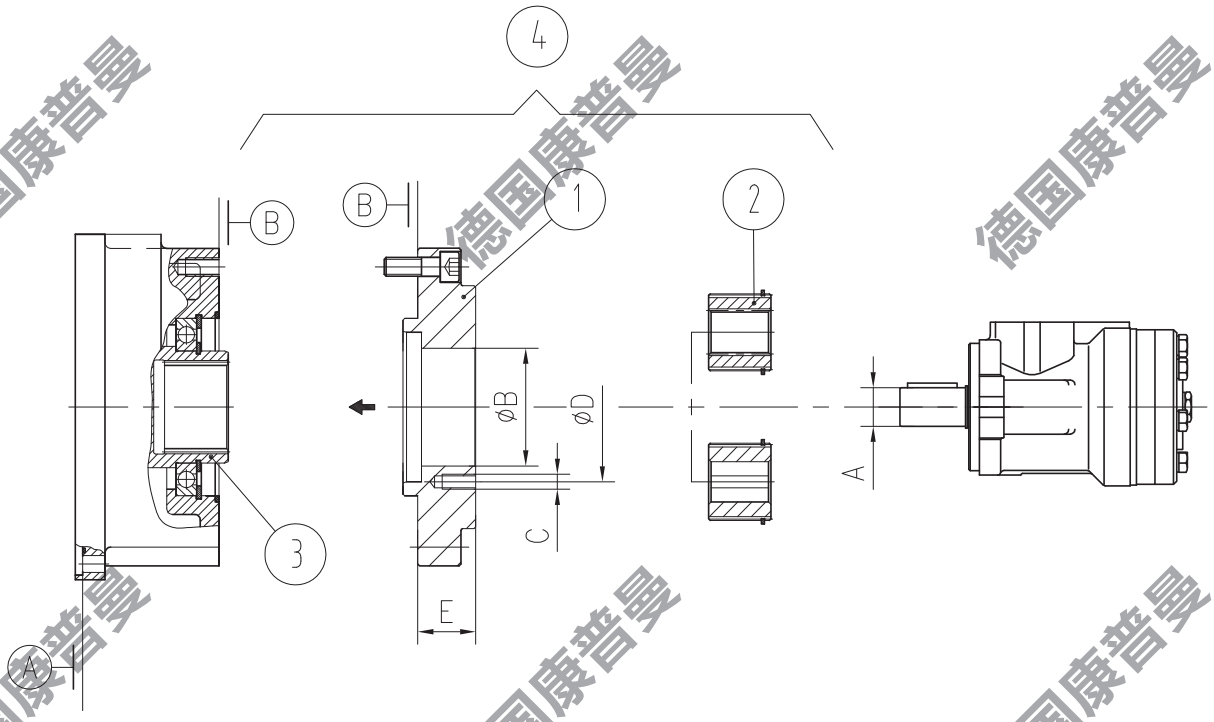
	A	ØB(H8)	C	ØD	E	1	2	3
015-51D060	W30x2x30x14	Ø125	M12	Ø160	51	015-51D060 (W30x2x30x14).1	B50x45 N30x2x30x14	A40x36-A50x45
015-51D060	W35x2x30x16	Ø125	M12	Ø160	51	015-51D060 (W30x2x30x14).1	B50x45 N35x2x30x16	A40x36-A50x45
015-51D080	W35x2x30x16	Ø140	M12	Ø180	51	015-51D080 (W35x2x30x16).1	B50x45 N35x2x30x16	A40x36-A50x45
015-51D080	W40x2x30x18	Ø140	M12	Ø180	51	015-51D080 (W35x2x30x16).1	B50x45 N40x2x30x18	A40x36-A50x45
015-51D080	W40x2x30x18	Ø160	M16	Ø200	59	015-51D110 (W40x2x30x18).1	B50x45 N40x2x30x18	A40x36-A50x45
015-51D110	W45x2x30x21	Ø160	M16	Ø200	59	015-51D110 (W40x2x30x18).1		A40x36-N45x2x30x21
015-51D160	W45x2x30x21	Ø180	M16	Ø224	66	015-51D160 (W45x2x30x21).1		A40x36-N45x2x30x21
015-51D160	W50x2x30x24	Ø180	M16	Ø224	66	015-51D160 (W45x2x30x21).1		A40x36-N50x2x30x24

	A	ØB(H8)	C	ØD	E	1	2	3
070-51D060	W30x2x30x14	Ø125	M12	Ø160	51	015-51D060 (W30x2x30x14).1	B50x45 N30x2x30x14	A58x53-A50x45
070-51D060	W35x2x30x16	Ø125	M12	Ø160	51	015-51D060 (W30x2x30x14).1	B50x45 N35x2x30x16	A58x53-A50x45
070-51D080	W35x2x30x16	Ø140	M12	Ø180	51	015-51D080 (W35x2x30x16).1	B50x45 N35x2x30x16	A58x53-A50x45
070-51D080	W40x2x30x18	Ø140	M12	Ø180	51	015-51D080 (W35x2x30x16).1	B50x45 N40x2x30x18	A58x53-A50x45
070-51D080	W40x2x30x18	Ø160	M16	Ø200	59	015-51D110 (W40x2x30x18).1	B50x45 N40x2x30x18	A58x53-A50x45
070-51D110	W45x2x30x21	Ø160	M16	Ø200	59	015-51D110 (W40x2x30x18).1		A58x53-N45x2x30x21
070-51D160	W45x2x30x21	Ø180	M16	Ø224	66	015-51D160 (W45x2x30x21).1		A58x53-N45x2x30x21
070-51D160	W50x2x30x24	Ø180	M16	Ø224	66	015-51D160 (W45x2x30x21).1		A58x53-N50x2x30x24

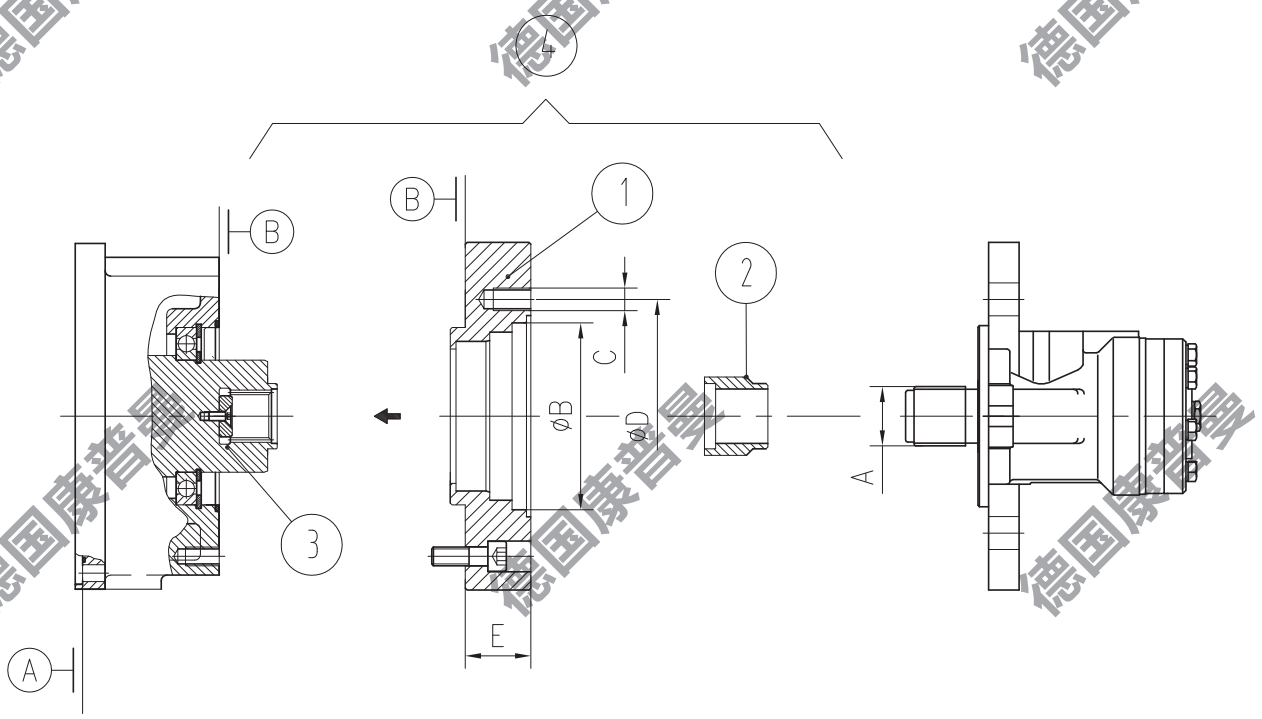


	A	ØB(H8)	C	ØD	E	1	2	3
015-51V060	Dp12-24Z14	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp12-24Z14	A40x36-A50x45
015-51V060	Dp16-32Z21	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp16-32Z21	A40x36-A50x45
015-51V080	Dp16-32Z23	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp16-32Z23	A40x36-A50x45
015-51V110	Dp8-16Z13	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A40x36-Dp8-16Z13
015-51V110	Dp16-32Z27	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A40x36-Dp16-32Z27
015-51V160	Dp8-16Z15	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A40x36-Dp8-16Z15
015-51V250	Dp8-16Z15	Ø165.075	M20	Ø317.491	48	015-51V250 (Dp8-16Z15).1		A40x36-Dp8-16Z15
015-51V250	Dp16-32Z27	Ø165.075	M20	Ø317.491	48	015-51V250 (Dp8-16Z15).1		A40x36-Dp16-32Z27

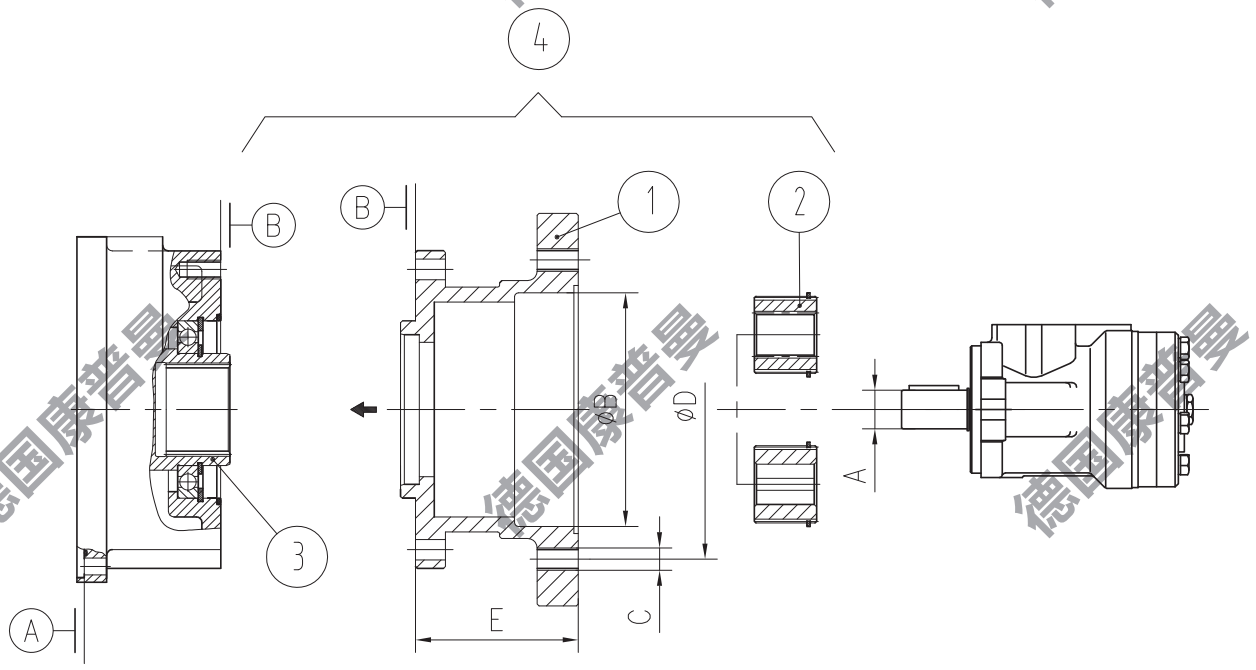
	A	ØB(H8)	C	ØD	E	1	2	3
070-51V060	Dp12-24Z14	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp12-24Z14	A58x53-A50x45
070-51V060	Dp16-32Z21	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp16-32Z21	A58x53-A50x45
070-51V080	Dp16-32Z23	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1	B50x45 Dp16-32Z23	A58x53-A50x45
070-51V110	Dp8-16Z13	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A58x53-Dp8-16Z13
070-51V110	Dp16-32Z27	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A58x53-Dp16-32Z27
070-51V160	Dp8-16Z15	Ø152.375	M20	Ø228.537	48	015-51V110 (Dp8-16Z13).1		A58x53-Dp8-16Z15
070-51V250	Dp8-16Z15	Ø165.075	M20	Ø317.491	48	015-51V250 (Dp8-16Z15).1		A58x53-Dp8-16Z15
070-51V250	Dp16-32Z27	Ø165.075	M20	Ø317.491	48	015-51V250 (Dp8-16Z15).1		A58x53-Dp16-32Z27
015-90M042	Dp16-32Z13	Ø101.6	M14	Ø146	28.5	015-90M042 (Dp16-32Z13).1	B50x45 Dp16-32Z13	A40x36-A50x45
015-90M042	Dp16-32Z15	Ø101.6	M14	Ø146	28.5	015-90M042 (Dp16-32Z13).1	B50x45 Dp16-32Z15	A40x36-A50x45
015-90M100	Dp8-16Z13	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1		A40x36-Dp8-16Z13
070-90M042	Dp16-32Z13	Ø101.6	M14	Ø146	28.5	015-90M042 (Dp16-32Z13).1	B50x45 Dp16-32Z13	A58x53-A50x45
070-90M042	Dp16-32Z15	Ø101.6	M14	Ø146	28.5	015-90M042 (Dp16-32Z13).1	B50x45 Dp16-32Z15	A58x53-A50x45
070-90M100	Dp8-16Z13	Ø127	M12 M14	Ø162	28.5	015-51V060 (Dp12-24Z14).1		A58x53-Dp8-16Z13
015-A6VM250	W50x2x30x24	Ø200	M20	Ø250	79	015-A6VM250 (W50x2x30x24).1		A40x36-N50x2x30x24
070-A6VM250	W50x2x30x24	Ø200	M20	Ø250	79	015-A6VM250 (W50x2x30x24).1		A58x53-N50x2x30x24



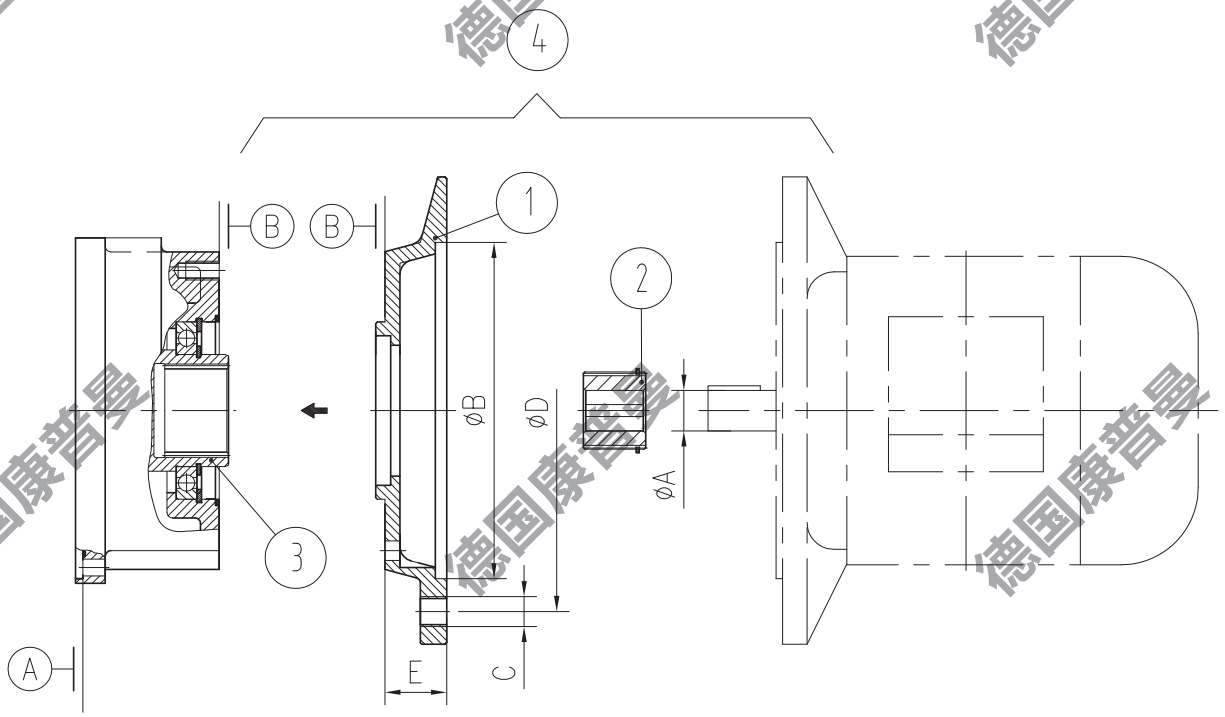
	A	ØB(H8)	C	ØD	E	1	2	3	4
015-OMM	Ø16	Ø63	M8	Ø80	31	015-OMM(Ø16).1	B50x45-Ø16	A40X36-A50x45	
070-OMM	Ø16	Ø63	M8	Ø80	31	015-OMM(Ø16).1	B50x45-Ø16	A58X53-A50x45	
015-OMP	SAE 1" 6B	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-SAE 1" 6B	A40X36-A50x45	
015-OMP	Ø25	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Ø25	A40X36-A50x45	
015-OMP	Ø25.4	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Ø25.4	A40X36-A50x45	
015-OMP	Ø32	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1		A40x36-Ø32x51	
070-OMP	SAE 1" 6B	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-SAE 1" 6B	A58X53-A50x45	
070-OMP	Ø25	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Ø25	A58X53-A50x45	
070-OMP	Ø25.4	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Ø25.4	A58X53-A50x45	
070-OMP	Ø32	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1		A58x53-Ø32x51	
015-OMS	Dp12/24 Z14	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Dp12/24 Z14	A40X36-A50x45	
015-OMS	Ø31.75	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1		A40x36-Ø31.75x51	
070-OMS	Dp12/24 Z14	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1	B50x45-Dp12/24 Z14	A58X53-A50x45	
070-OMS	Ø31.75	Ø82.5	M12	Ø106.4	40	015-OMP(Ø25).1		A58x53-Ø31.75x51	



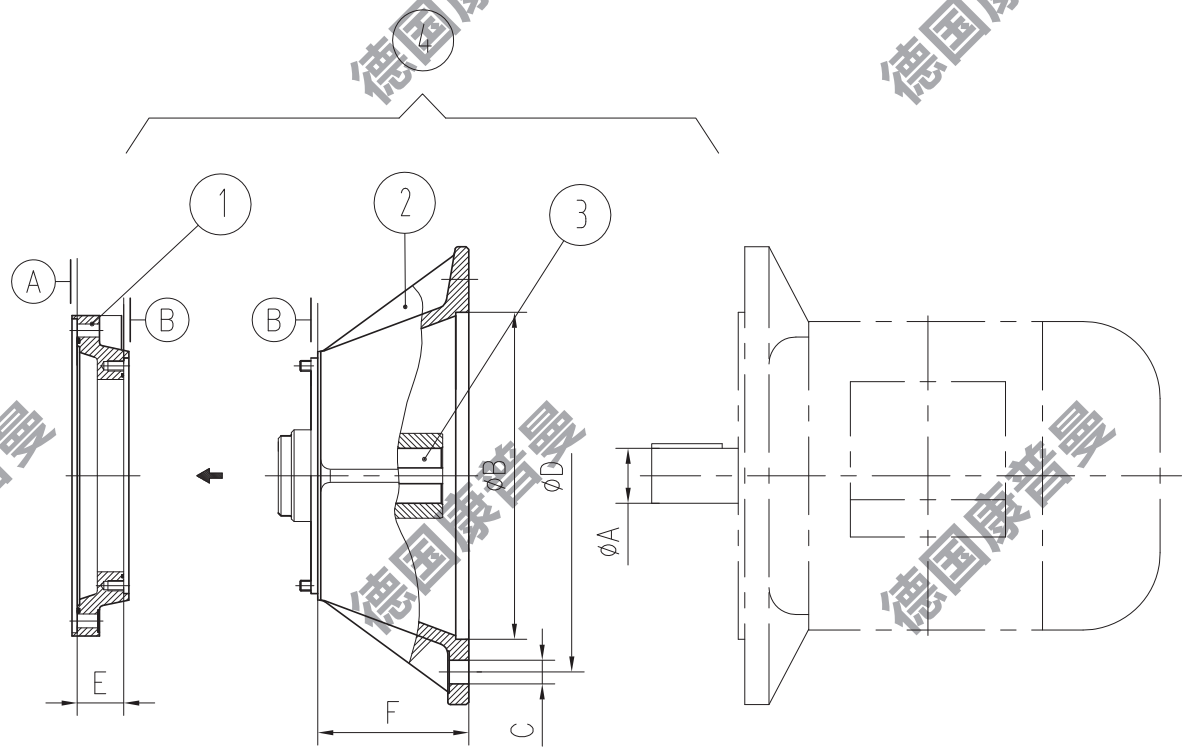
	A	ØB(H8)	C	ØD	E	1	2	3	4
015-OMSS	Dp12/24 Z12	Ø100	M12	Ø125	35	015-OMSS.1	015-OMSS.3	A40x36-Dp12/24Z12	
070-OMSS	Dp12/24 Z12	Ø100	M12	Ø125	35	015-OMSS.1	015-OMSS.3	A58x53-Dp12/24Z12	
015-OMTS	Dp12/24 Z16	Ø125	M12	Ø160	35	015-OMTS.1	015-OMTS.4	A40x36-Dp12/24Z16	
070-OMTS	Dp12/24 Z16	Ø125	M12	Ø160	35	015-OMTS.1	015-OMTS.4	A58x53-Dp12/24Z16	
015-OMVS	Dp10/20 Z16	Ø140	M12	Ø180	41	015-OMVS.1	015-OMVS.3	A40x36-Dp10/20Z16	
070-OMVS	Dp10/20 Z16	Ø140	M12	Ø180	41	015-OMVS.1	015-OMVS.3	A58x53-Dp10/20Z16	



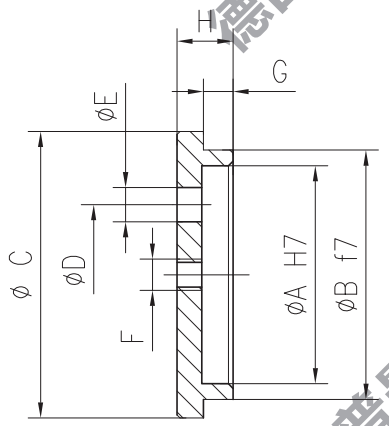
	A	ØB(H8)	C	ØD	E	1	2	3	4
015-OMT	Dp12/24Z17	Ø125	M12	Ø160	87	015-OMT(Ø40).1	B50x45-Dp12-24Z17	A40X36-A40x36	
015-OMT	Ø38.1	Ø125	M12	Ø160	87	015-OMT(Ø40).1		A40x36-Ø38.1x69	
015-OMT	Ø40	Ø125	M12	Ø160	87	015-OMT(Ø40).1		A40x36-Ø40x69	
070-OMT	Dp12/24Z17	Ø125	M12	Ø160	87	015-OMT(Ø40).1	B50x45-Dp12-24Z17	A58X53-A50x45	
070-OMT	Ø38.1	Ø125	M12	Ø160	87	015-OMT(Ø40).1		A58x53-Ø38.1x69	
070-OMT	Ø40	Ø125	M12	Ø160	87	015-OMT(Ø40).1		A58x53-Ø40x69	

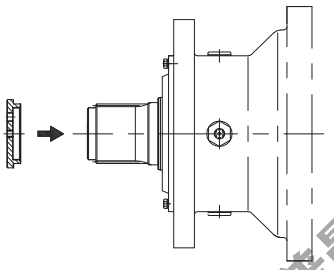


	ØA	ØB(H8)	C	ØD	E	1	2	3	4
015-IEC80	Ø19	Ø130	M10	Ø165	23	015-IEC90.1	B50x45-Ø19	A40X36-A50x45	
070-IEC80	Ø19	Ø130	M10	Ø165	23	015-IEC90.1	B50x45-Ø19	A58X53-A50x45	
015-IEC90	Ø24	Ø130	M10	Ø165	23	015-IEC90.1	B50x45-Ø24	A40X36-A50x45	
070-IEC90	Ø24	Ø130	M10	Ø165	23	015-IEC90.1	B50x45-Ø24	A58X53-A50x45	
015-IEC112	Ø28	Ø180	Ø15	Ø215	33	015-IEC112.1	B50x45-Ø28	A40X36-A50x45	
070-IEC112	Ø28	Ø180	Ø15	Ø215	33	015-IEC112.1	B50x45-Ø28	A58X53-A50x45	
015-IEC132	Ø38	Ø230	Ø15	Ø265	53	015-IEC132.1		A40x36-Ø38x75	
070-IEC132	Ø38	Ø230	Ø15	Ø265	53	015-IEC132.1		A58x53-Ø38x75	



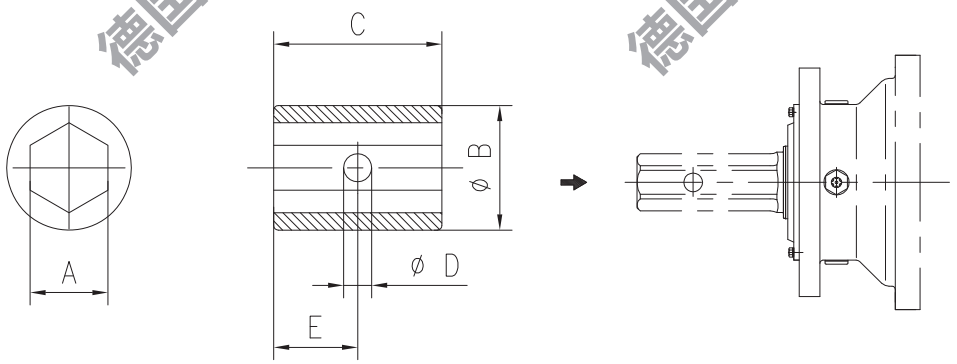
	ØA	ØB(H8)	C	ØD	E+F	1	2	3	4
015-IEC160	Ø42	Ø250	Ø18	Ø300	156	KL20153.1a	015-IEC160.1	A40x36-Ø42x90	
050-IEC160	Ø42	Ø250	Ø18	Ø300	156	KL20503.1B	015-IEC160.1	A40x36-Ø42x90	
015-IEC180	Ø48	Ø250	Ø18	Ø300	156	KL20153.1a	015-IEC180.1	A40x36-Ø48x100	
050-IEC180	Ø48	Ø250	Ø18	Ø300	156	KL20503.1B	015-IEC180.1	A40x36-Ø48x100	





	ØA	ØB	ØC	ØD	ØE	F	G	H	
EP015	35	42	50	24	Ø6.5	M6	4.5	9.5	
EP025	50	60	70	32	Ø11	M10	7.5	14	
EP050									
EP070	62	72	82	40	Ø11	M10	9.5	18	
EP100									
EP160	70	80	92	45	Ø11	M10	9.5	18	
EP260	85	125	125	52	Ø15	M14	11.5	21	
EP330	90	130	140	50	Ø17	M14	14.5	22	
EP400									
EP500									
EP600									
EP850	125	151	170	80	Ø17	M14	11.5	25	
EP1050									
EP1350	140	180	200	110	Ø17	M14	14.5	30	
EP1800	200	230	260	150	Ø25	M24	19	45	
EP2250									
EP2700	220	250	280	150	Ø25	M24	19	45	
EP3500	240	270	300	200	Ø25	M24	24	50	
EP4500									

ES



	VERSION	A	ØB	C	ØD	E	
	SR	50	80	108	18	54	
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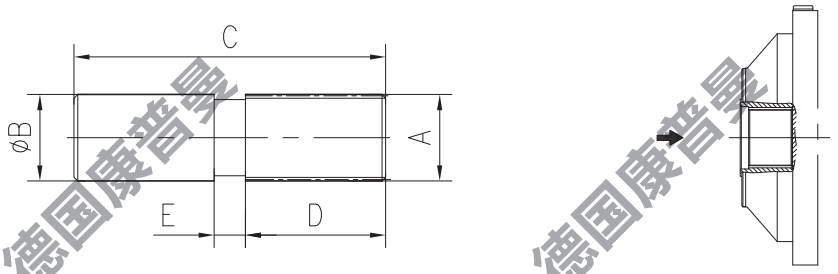
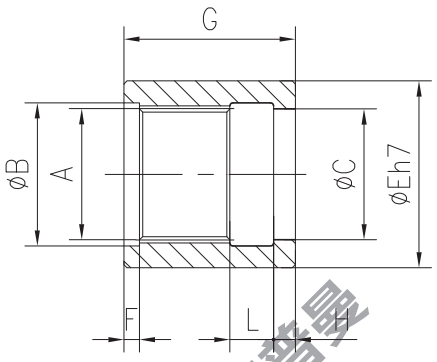
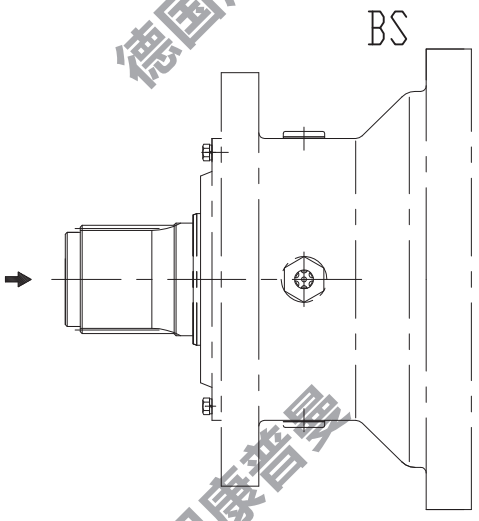
	SR	50	80	108	18	54	
	SR	70	100	115	-	-	

BF



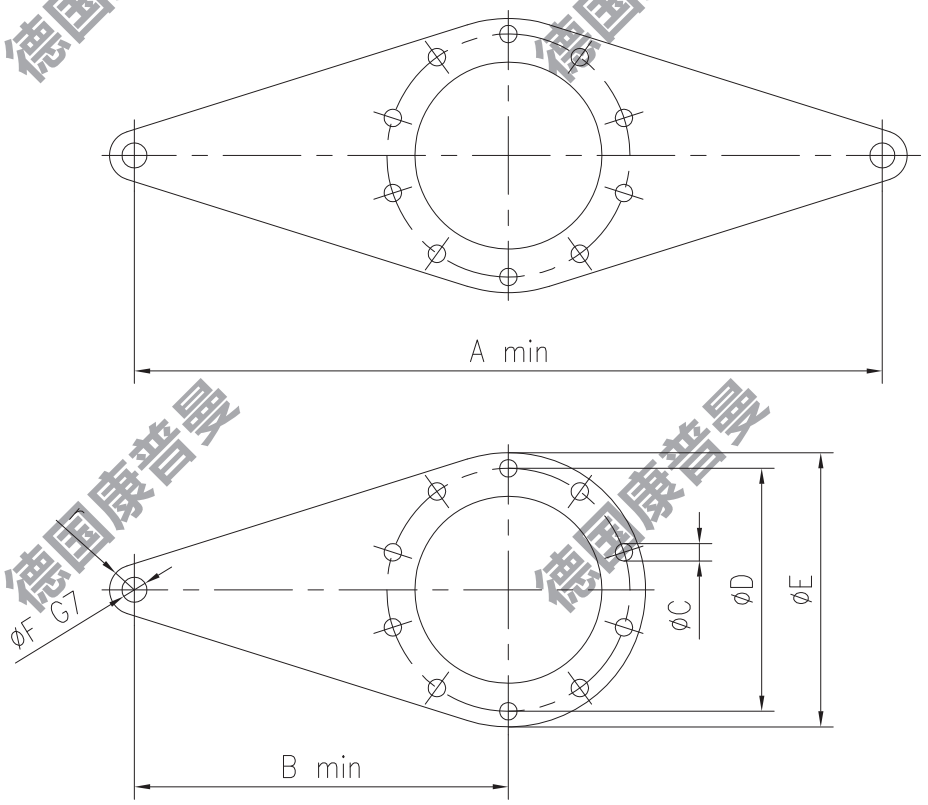
	VERSION	A	ØB	C	D	E
BF015	SH	B40x36 DIN 5482	39.5	300	142	16
BF025	SH	B50x45 DIN 5482	49.5	300	142	16
BF050	SH	B58x53 DIN 5482	57.5	300	142	16
BF070	SH	B70x64 DIN 5482	69.3	300	142	16
BF100	SH	B80x74 DIN 5482	79.3	300	142	16
BF160	SH	B80x74 DIN 5482	79.3	300	142	16
BF260	SH	W100x5x9e DIN 5480	99	300	142	22
BF330	SH	W120x5x9e DIN 5480	119	300	142	22
BF400 BF500 BF600	SH	W140x5x9e DIN 5480	139	300	142	22
BF850 BF1050 BF1350	SH	W160x5x9e DIN 5480	159	300	142	22
BF1800 BF2250	SH	W200x5x9e DIN 5480	199	300	160	30
BF2700	SH	W220x5x9e DIN 5480	219	300	160	30
BF3500 BF4500	SH	W260x5x9e DIN 5480	259	300	160	30



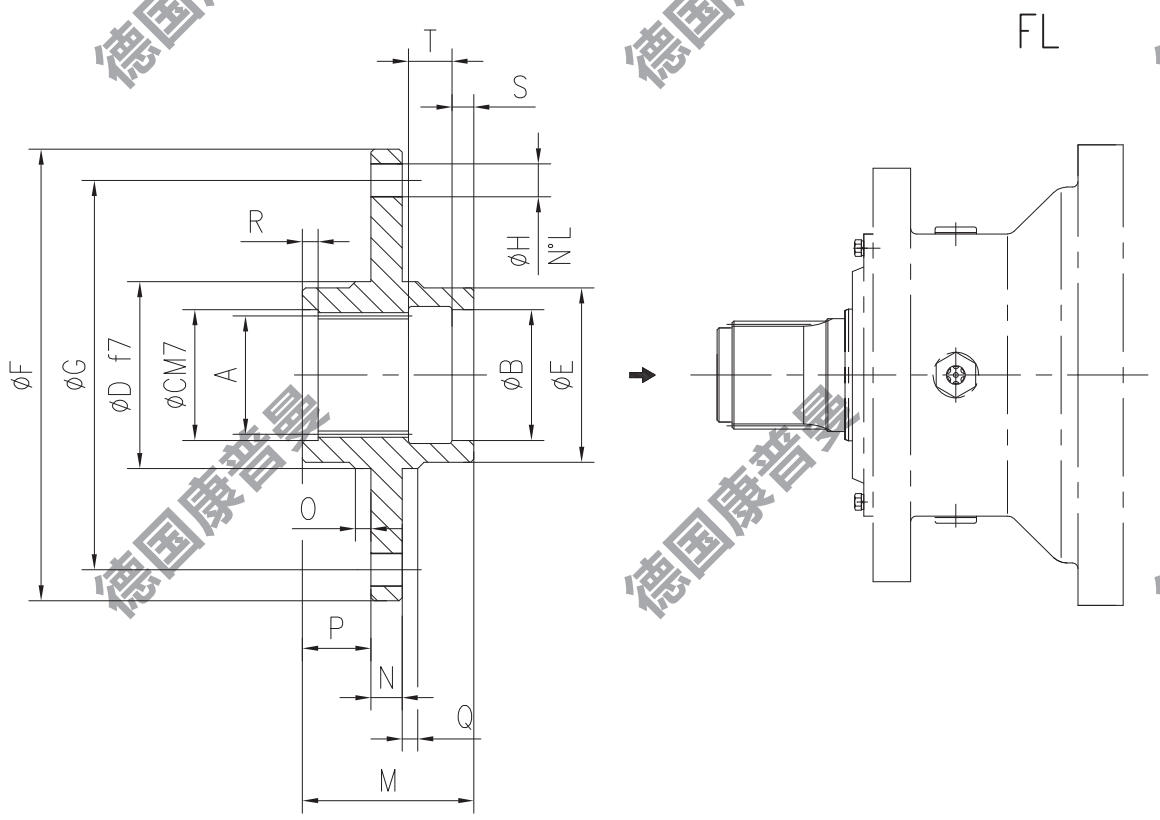


	VERSION	A	ØB	ØC	ØE	ØF	ØG	H	L
BF015	SI	A40x36 DIN 5482	42	42	60	5	55	7	14
BF025	SI	A50x45 DIN 5482	60	60	78	8	68	10	13
BF050	SI	A58x53 DIN 5482							
BF070	SI	A70x64 DIN 5482	72	72	95	10.5	90	10	21
BF100	SI	A80x74 DIN 5482	80	85	108	10.5	90	10	22
BF160	SI								
BF260	SI	A100x94 DIN 5482	105	105	136	12	110	13	15
BF330	SI	N120x3x9e DIN 5480	121	120	190	10	130	21	15
BF400									
BF500									
BF600									
BF850	SI	N150x5x9e DIN 5480	151	151	220	12	150	24	15
BF1050									
BF1350	SI	N170x5x9e DIN 5480	175	180	270	15	170	26	17
BF1800	SI	N220x5x9e DIN 5480	220	220	320	20	210	30	20
BF2250									
BF2700	SI	N240x5x9e DIN 5480	240	240	330	35	240	33	25
BF3500	SI	N260x5x9e DIN 5480	260	260	340	52	260	33	25
BF4500									

BR

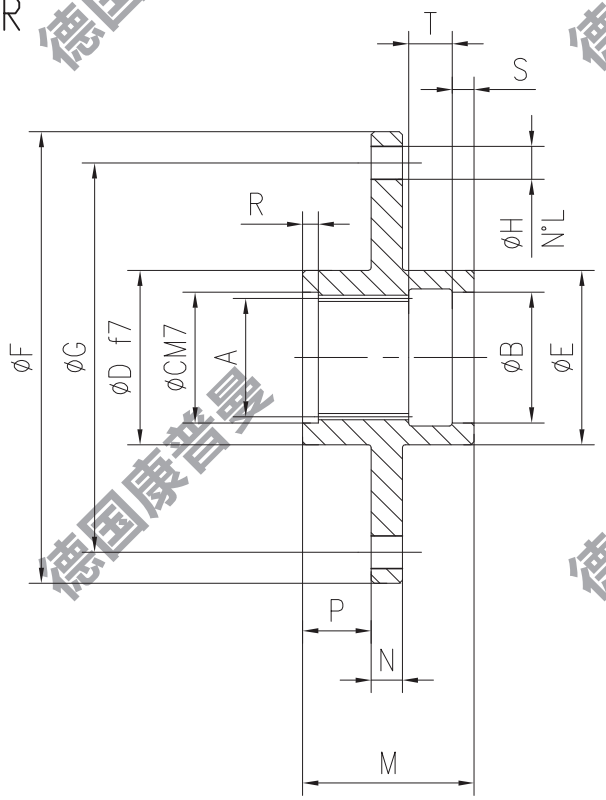


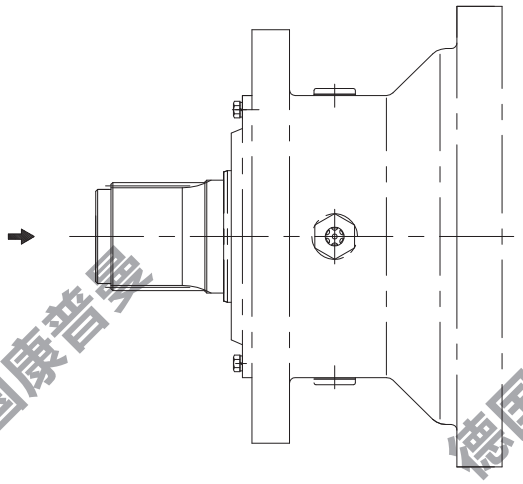
	VERSION	A	B	ØC	ØD	ØE	ØF	r	
015		400	200	Ø10.5X8	Ø165	Ø185	Ø20	20	
025		450	300	Ø14X10	Ø195	Ø220	Ø20	20	
050		500	300	Ø14X10	Ø195	Ø220	Ø25	25	
070		600	400	Ø16X12	Ø250	Ø280	Ø25	25	
100		800	500	Ø17X10	Ø295	Ø325	Ø25	25	
120		800	600	Ø17X10	Ø295	Ø325	Ø30	30	
180		1000	700	Ø17X10	Ø295	Ø325	Ø30	30	
260		1000	700	Ø17X15	Ø370	Ø410	Ø35	35	



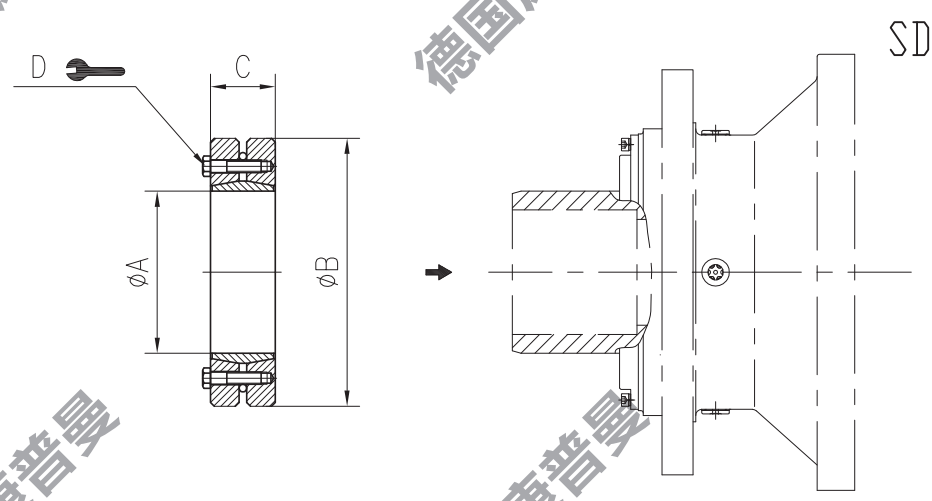
	VERSION	A	ØB	ØC	ØD	ØE	ØF	ØG	H	L	M	N	O	P	Q	R	S	T
FL015	SI	A40X36 DIN 5482	42	42	60	56	145	125	10.5	6x60°	55	10	5	22.5	5	5	7	14
FL025 FL050	SI	A58X53 DIN 5482	60	60	95	86	168	145	12.5	12x30°	68	12.5	5	27.75	5	8	10	13
FL100 FL130	SI	A80X74 DIN 5482	85	80	125	115	210	175	19	12x30°	90	20	10	35	10	10	10	22
FL200	SI	A100X94 DIN 5482	105	105	170	145	254	212	21	12x30°	110	24	10	39	10	12	15	22

FLR

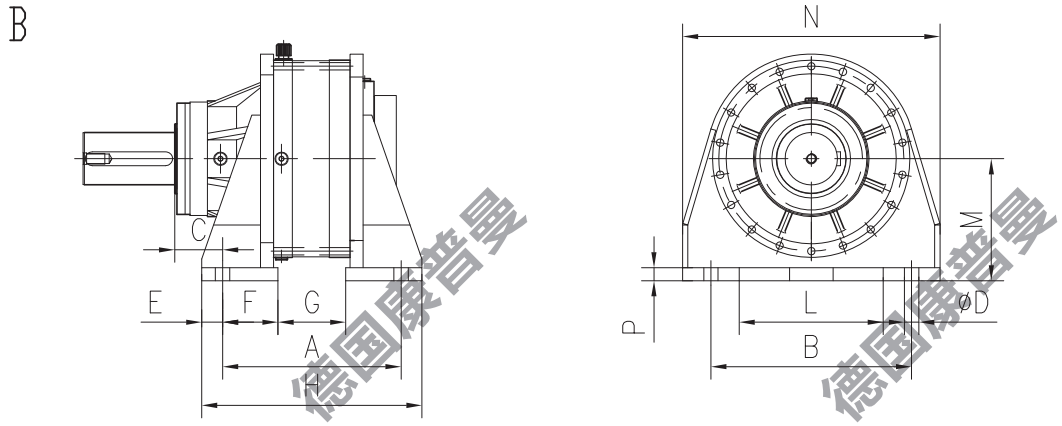




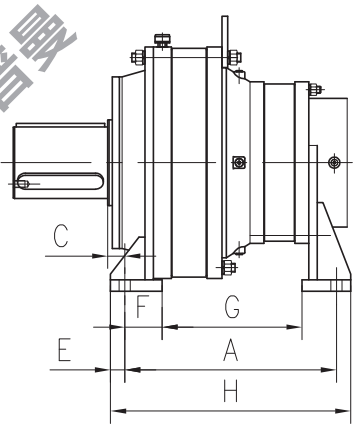
	VERSION	A	ØB	ØC	ØD	ØE	ØF	ØG	H	L	M	N	P	R	S	T
FLR015	SI	A40X36 DIN 5482	42	42	60	56	145	125	10.5	6x60°	55	10	7	5	7	14
FLR025 FLR050	SI	A58X53 DIN 5482	60	60	95	88	168	145	12.5	12x30°	68	12.5	10	8	10	13
FLR070	SI	A70X64 DIN 5482	72	72	125	120	210	175	16	12x30°	90	20	15	10.5	10	21
FLR100 FLR130	SI	A80X74 DIN 5482	85	80	125	115	210	175	19	12x30°	90	20	15	10	10	22
FLR200	SI	A100X94 DIN 5482	105	105	170	145	254	212	21	12x30°	110	24	20	12	15	22
FLR280	SI	N120X3X9H DIN 5480	121	121	200	180	310	260	25	12x30°	130	30	20	10	15	21
FLR400	SI	N130X3X9H DIN 5480	-	-	-	-	-	-	-	-	-	-	-	-	-	-
FLR600	SI	N150X3X9H DIN 5480	151	151	220	220	385	320	25	12x30°	150	40	25	12	18	27

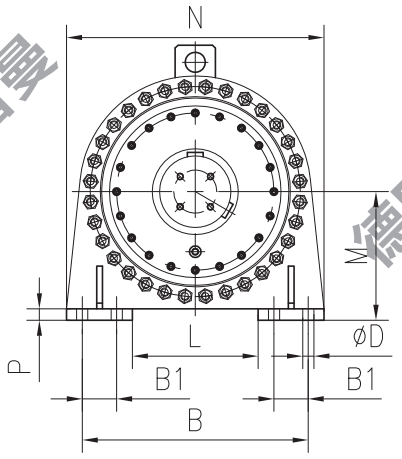


	VERSION	ØA	ØB	C	D	Nm	Tmax
KL1015	SD	62	110	29	M6-10.9(10)	12 Nm	2000 Nm
KL1025-KL1050	SD	100	170	44	M8-10.9(12)	29 Nm	7500 Nm
KL1070-KL1160	SD	125	215	52	M8-10.9(12)	58 Nm	13000 Nm
KL1160	SD	130	215	52	M10-10.9(12)	58 Nm	18000 Nm
KL1160	SD	165	290	68	M16-10.9(8)	240 Nm	35000 Nm
KL1260	SD	175	300	71	M16-10.9(8)	240 Nm	44000 Nm
KL1330-KL1400	SD	185	330	85	M16-10.9(10)	240 Nm	60000 Nm
KL1500-KL1600	SD	195	340	85	M16-10.9(12)	240 Nm	76000 Nm
KL1850-KL11050	SD	240	405	107	M20-10.9(12)	490 Nm	156000 Nm
KL11350	SD	240	405	144	M20-10.9(12)	490 Nm	162000 Nm
KL11800-KL12250	SD	280	460	134	M20-10.9(16)	490 Nm	270000 Nm
KL12700	SD	300	480	134	M20-10.9(16)	490 Nm	270000 Nm
KL13500	SD	360	590	162	M20-10.9(24)	490 Nm	522000 Nm
KL14500	SD	380	660	168	M24-10.9(20)	840 Nm	610000 Nm



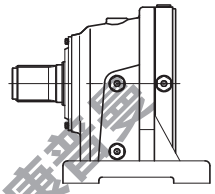
	VERSION	A	B	C	ØD	E	F	G	H	L	M	N	P	
160	KLB	312.5	356	80	Ø25X4	25	89	134.5	362.5	210	230	420	40	
180	KLB	322.5	356	80	Ø25X4	25	89	144.5	372.5	210	230	420	40	
330	KLB	409	460	110	Ø33X4	48	127	155	505	330	280	590	30	
400	KLB	409	460	110	Ø33X4	48	127	155	505	——	280	590	30	
500	KLB	380	510	141	Ø33X4	45	90	200	470	360	315	600	35	
600	KLB	380	510	141	Ø33X4	45	90	200	470	360	315	600	35	



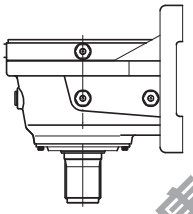


	VERSION	A	B	C	ØD	E	F	G	H	L	M	N	P	B1	
2500	KRB	740	790	60	Ø39X8	50	130	490	840	440	450	900	40	120	

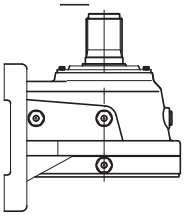
Installation position
安装位置



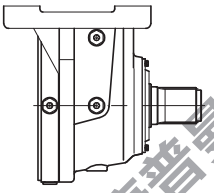
B5



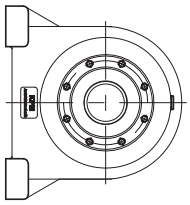
V1



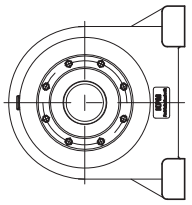
V3



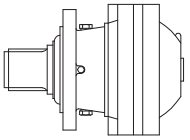
B8



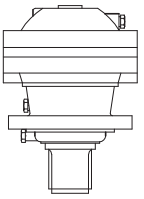
B6



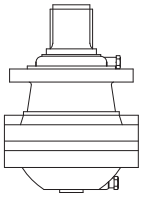
B7



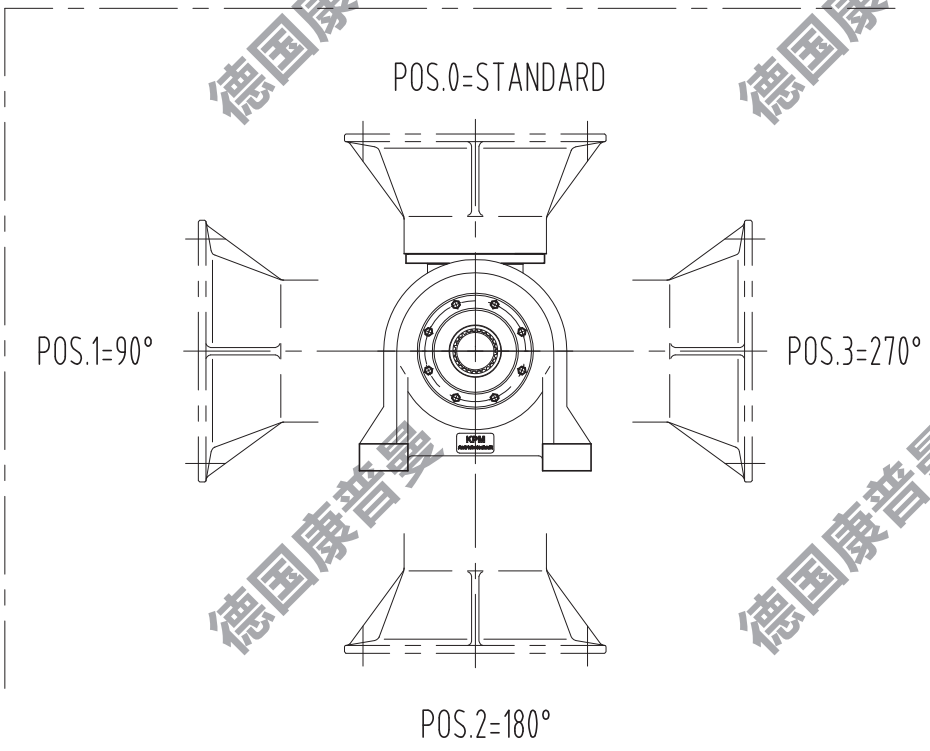
B3

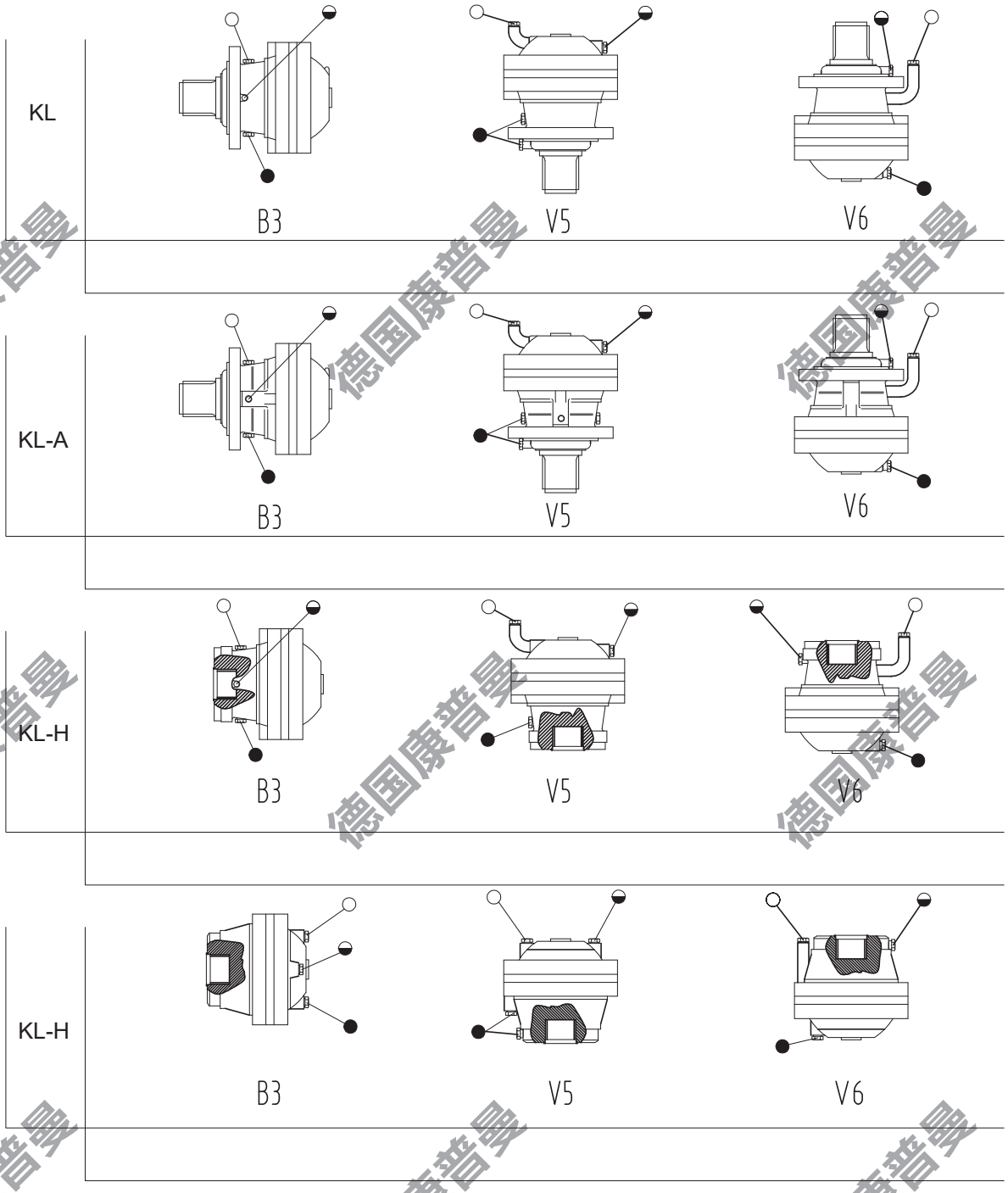


V5



V6

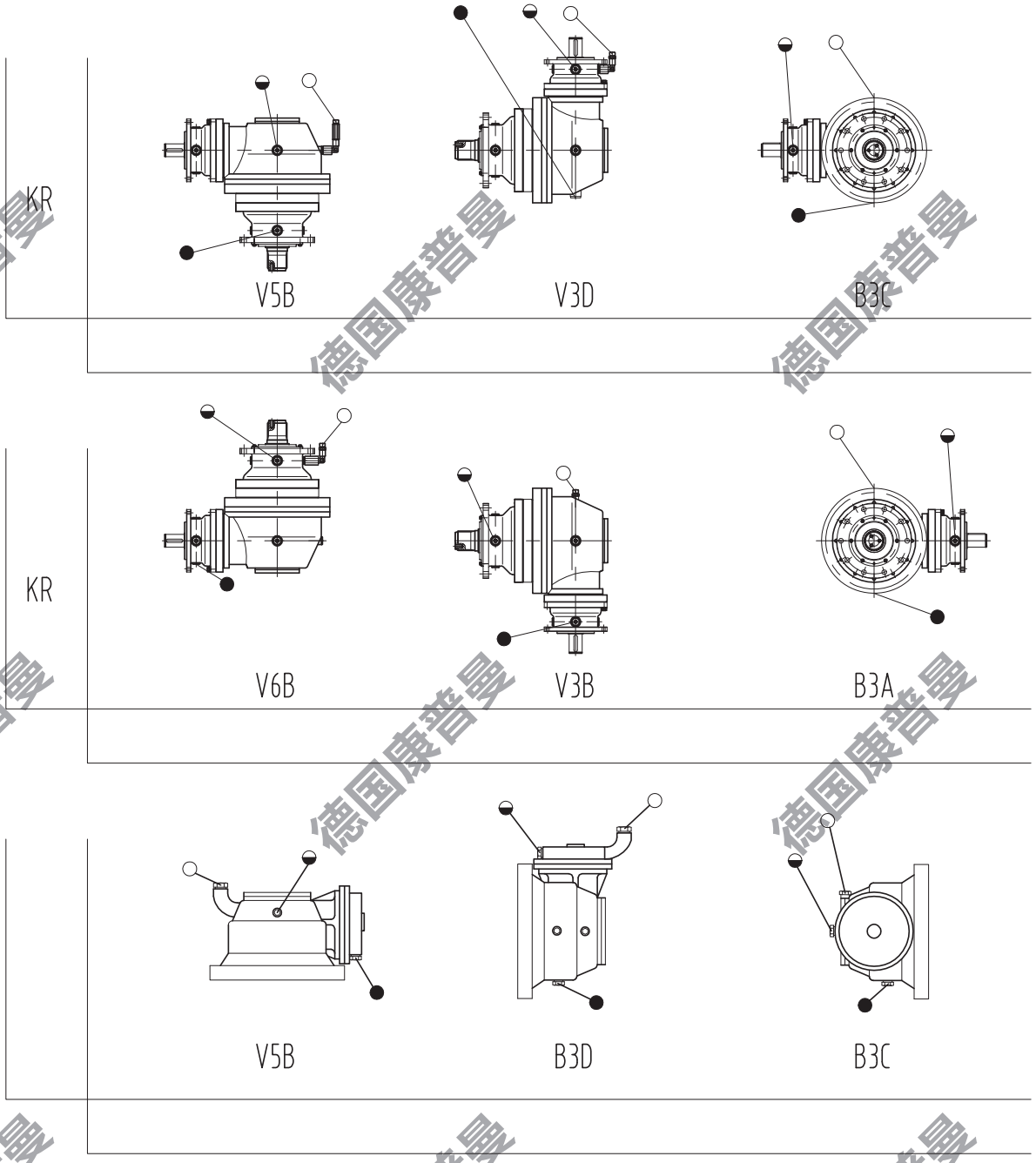




○ Breather and filling plug
通气和加油塞

◒ Oil level plug
油位计

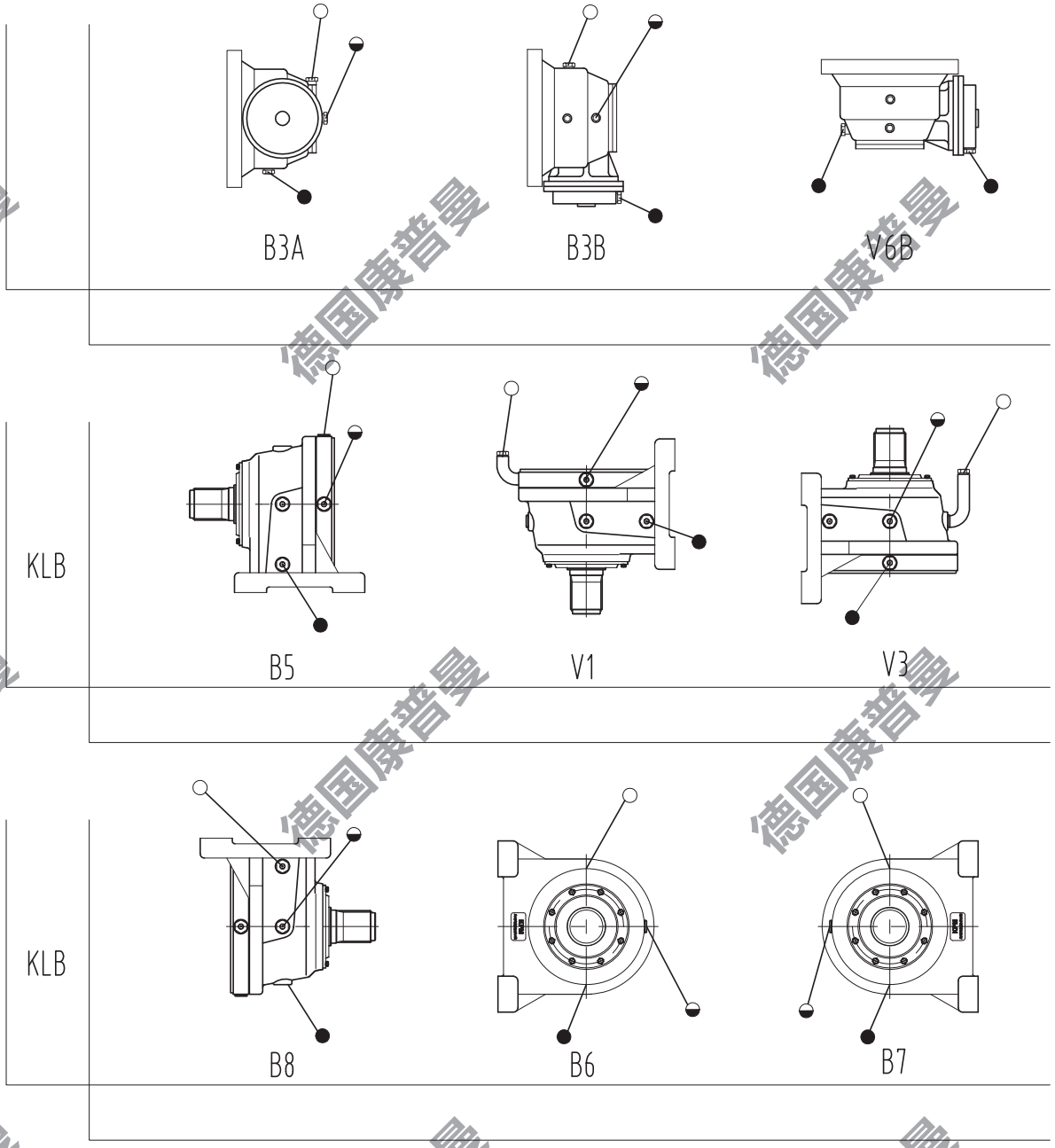
● Drain plug
放油塞



○ Breather and filling plug
通气和加注塞

◒ Oil level plug
油位计

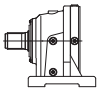
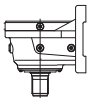
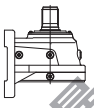
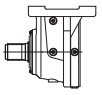
● Drain plug
放油塞



○ Breather and filling plug
通气和加注塞

◒ Oil level plug
油位计

● Drain plug
放油塞

L OIL	B5	V1	V3	B6	B7	B8	B3	V5	V6
									
KL1015	0.8	1.6	1.6	0.7	0.7	0.8	0.5	1.0	1.0
KL2015	1.0	2.0	2.0	0.9	0.9	1.0	0.7	1.4	1.4
KL3015	1.2	2.4	2.4	1.1	1.1	1.2	0.9	1.8	1.8
KL4015	1.4	2.8	2.8	1.3	1.3	1.4	1.1	2.2	2.2
KL1025	1.5	3.0	3.0	1.4	1.4	1.5	1.0	2.0	2.0
KL2025	1.8	3.6	3.6	1.7	1.7	1.8	1.3	2.6	2.6
KL3025	2.0	4.0	4.0	1.9	1.9	2.0	1.5	3.0	3.0
KL4025	2.2	4.4	4.4	2.1	2.1	2.2	1.7	3.4	3.4
KL1050	1.6	3.2	3.2	1.5	1.5	1.6	1.1	2.2	2.2
KL2050	2.0	4.0	4.0	1.9	1.9	2.0	1.5	3.0	3.0
KL3050	2.3	4.6	4.6	2.2	2.2	2.3	1.8	3.6	3.6
KL4050	2.5	5.0	5.0	2.4	2.4	2.5	2.0	4.0	4.0
KL1070	2.4	4.8	4.8	2.3	2.3	2.4	1.6	3.2	3.2
KL2070	2.8	5.6	5.6	2.7	2.7	2.8	2.0	4.0	4.0
KL3070	3.1	6.2	6.2	3.0	3.0	3.1	2.3	4.6	4.6
KL4070	3.3	6.6	6.6	3.2	3.2	3.3	2.5	5.0	5.0
KL1100							2.4	4.8	4.8
KL2100							3.1	6.2	6.2
KL3100							3.5	7.0	7.0
KL4100							3.8	7.6	7.6
KL1160							2.6	5.2	5.2
KL2160							3.3	6.6	6.6
KL3160							3.7	7.4	7.4
KL4160							4.0	8.0	8.0
KL1260							3.7	7.4	7.4
KL2260							4.6	9.2	9.2
KL3260							5.0	10.0	10.0
KL4260							5.3	10.6	10.6
KL1330							4.0	8.0	8.0
KL2330							5.5	11.0	11.0
KL3330							6.0	12.0	12.0
KL4330							6.3	12.6	12.6
KL1400							7.0	12.0	10.0
KL2400							9.0	14.0	12.0
KL3400							10.0	15.0	13.0
KL4400							11.0	16.0	14.0

L OIL	B3 	V5 	V6 
KL1500	5.2	10.4	10.4
KL2500	6.5	13.0	13.0
KL3500	7.1	14.2	14.2
KL4500	7.5	15.0	15.0
KL1600	7.2	14.4	14.4
KL2600	8.5	17.0	17.0
KL3600	9.7	19.4	19.4
KL4600	10.1	20.2	20.2
KL1850			
KL2850	17.0	25.0	21.0
KL3850	19.0	27.0	23.0
KL4850	20.0	28.0	24.0
KL11050	8.7	17.4	17.4
KL21050	10.0	20.0	20.0
KL31050	11.2	22.4	22.4
KL41050	11.5	23.0	23.0
KL11350	15.0	30.0	30.0
KL21350	16.4	32.8	32.8
KL31350	17.6	35.2	35.2
KL41350	18.1	36.2	36.2

L OIL	B3 	V5 	V6 
KL11800	21.0	42.0	42.0
KL21800	23.4	46.8	46.8
KL31800	24.8	49.6	49.6
KL41800	25.2	50.4	50.4
KL12250	21.0	42.0	42.0
KL22250	23.4	46.8	46.8
KL32250	24.8	49.6	49.6
KL42250	25.2	50.4	50.4
KL12700	30.0	60.0	60.0
KL22700	32.4	64.8	64.8
KL32700	33.8	67.6	67.6
KL42700	34.2	68.4	68.4
KL13500	42.5	85.0	85.0
KL23500	46.5	93.0	93.0
KL33500	47.9	95.8	95.8
KL43500	48.7	97.4	97.4

Kg	B	SI	SIA	SR	SH		
							
KL1015	23	20		20	16	18	
KL2015	27	24		24	20	22	
KL3015	31	28		28	24	26	
KL4015	35	32		32	28	30	
KL1025	42	37	37		33	36	
KL2025	49	44	44		40	43	
KL3025	53	48	48		44	47	
KL4025	57	52	52		48	51	
KL1050	45	40	40		36	39	
KL2050	52	47	47		43	46	
KL3050	56	51	51		47	50	
KL4050	60	55	55		51	54	
KL1070	80	70			65	68	
KL2070	89	79			74	77	
KL3070	93	83			78	81	
KL4070	97	87			82	85	
KL1100					70	73	
KL2100					79	82	
KL3100					83	86	
KL4100					87	90	
KL1160	130	115			85	95	105
KL2160	142	127			97	107	117
KL3160	149	134			104	114	124
KL4160	153	138			108	118	128
KL1260	155	135			110		
KL2260	185	165			140		
KL3260	194	174			149		
KL4260	198	178			153		

Kg	B
KL1330	180
KL2330	225
KL3330	237
KL4330	244
KL1400	180
KL2400	225
KL3400	237
KL4400	244
KL1500	230
KL2500	290
KL3500	302
KL4500	309
KL1600	240
KL2600	300
KL3600	312
KL4600	319
KL1850	370
KL2850	405
KL3850	450
KL4850	462
KL11050	519
KL21050	635
KL31050	662
KL41050	673
KL11350	685
KL21350	805
KL31350	855
KL41350	871
KL11800	1150
KL21800	1332
KL31800	1391
KL41800	1407
KL12250	1150
KL22250	1344
KL32250	1403
KL42250	1419

Kg	
KL12700	1210
KL22700	1405
KL32700	1465
KL42700	1480
KL13500	1950
KL23500	2283
KL33500	2399
KL43500	2426

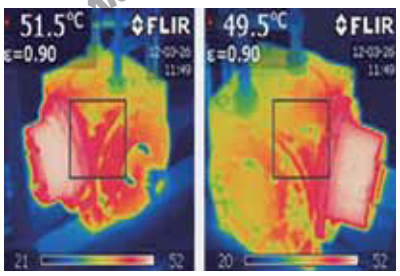
15 PROCESS OF QUICK DIAGNOSE ON SIDE
减速箱现场快速诊断（体检）流程

快速反应24小时内到达现场

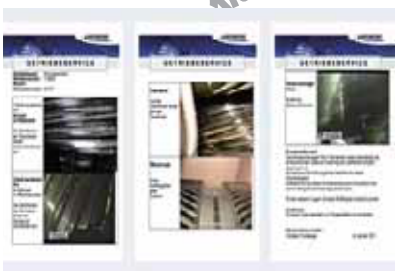
减速箱运行时的热图像检测

不用拆卸减速箱诊断过程中

现场振动分析操作过程中



减速箱的热图像



带照片的检测文档

振动频谱分析报告

减速箱现场各项数据结果分析，提供
评估报告和维修建议

16 COUPLING PRODUCT SERIES
联轴器系列产品

Highly flexible coupling
高弹性联轴器

Torsionally rubber disc couplings
齿式高弹联轴器

Couplings with cardan shaft
盘式高弹联轴器

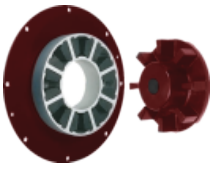
Shafts for test benches
双向高弹联接轴(测试台架用)

Tyre couplings
轮胎式高弹联轴器

Toruque range 扭矩范围
15 nm – 100 000 nm

Flexible coupling
弹性联轴器（橡胶体）

Claw couplings
爪型弹性联轴器



Torsionally flexible flywheel couplings
飞轮爪型弹性联轴器

Titoni couplings
梅花弹性联轴器

Pin couplings
弹性套柱销联轴器

Toruque range 扭矩范围
20 nm – 1 000 000 nm

Rigid coupling
刚性联轴器

Grid couplings
蛇簧联轴器

Torsion stiff metallic couplings
膜片式联轴器

Gear couplings
鼓型齿联轴器

Universal joint couplings
万向联轴器

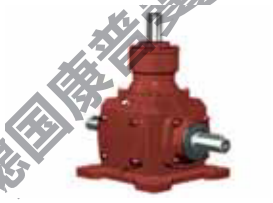
Toruque range 扭矩范围
50 nm – 8 800 000 nm

17 GEAR BOX PRODUCT LINE
齿轮箱系列产品

Gear Box
齿轮减速机

Helical gear box
平行轴减速机

Bevel-helical gear box
直交轴减速机



Right angle gear box
圆锥齿轮减速机

Gear motor
齿轮马达

Toruque range 扭矩范围
600 Nm – 1 500 000 Nm

CAVEX® worm gear box
CAVEX® 蜗轮蜗杆减速机

Single worm gear box
单级蜗轮蜗杆减速机

Double worm gear box
双级蜗轮蜗杆减速机

Toruque range 扭矩范围
600 Nm – 500 000 Nm

Planetary gear box
行星减速机

Coaxial planetary gear box
直线型行星减速机

Orthogonal planetary gear box
直角型行星减速机

Winches planetary gear box
卷扬行星减速机

Toruque range 扭矩范围
600 Nm – 1 500 000 Nm

KPM
德 国 康 普 曼®

Value in Cooperation

Reference 业绩参考

Mobile Equipment 可自驱动设备：
Terex, 中铁建(CRCC), Liebherr, Zeppelin, 振华港机(ZMPC), 中联重科(ZOOMLION), 江苏谷登, Vossloh, Komatsu(小松), Stiebel, 徐工(XCMG), Cummins(康明斯), 天业通联(TOLIAN), 土行孙, 恒天九五, 天津鼎盛, 地龙 ……

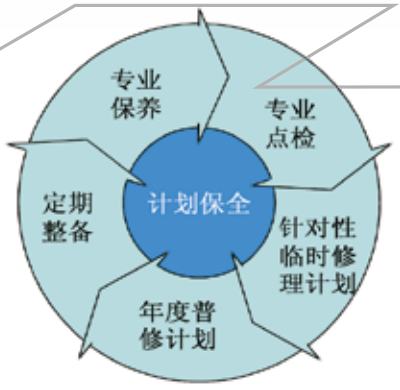
Portable Equipment 可移动设备：
GE Jenbacher(通用电气), MWM, MTU, Caterpillar(卡特彼勒), Atlas(阿特拉斯), Sullair(寿力), GHH, Ingersoll Rand(英格索兰) ……

Industry Equipment 工业设备：
上海宝钢(Bao Steel), 大亚湾核电(DYW Nuclear), 武钢(Wuhan Steel), VAI (奥钢联), Howden, 鞍钢(ANSTEEL), 上海电力(Shanghai Electric), SMS(西玛格), 上海石化(SPC), 天华院, 金山石化, 江西瑞林, 安柴, 苏州协力, 江苏胜达, 江阴华硕, 中国二重(CNEG), 沈阳电力 ……

Marine 船舶设备：
ZF, Schottel, Lindenberg, Janssen, SDT, 江苏海泰船舶, 江苏博林,江苏瑞风,华西海工 ……

Automotive 汽车行业设备：
AVL, Horiba, D2T, FEV, Daimler(奔驰汽车), VW(大众汽车), Hyundai(现代汽车), MAN, 东风汽车, 福田汽车, 一汽大众(FAW), 上汽集团 ……

KPM的服务 = 设备全寿命周期服务



前期管理 → 运行维护管理 → 设备更新改造

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