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SMART FACTORY | OPERATION CENTER

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齿轮工厂
HELICAL GEARBOX FACTORY

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行星·齿轮·蜗轮蜗杆·工业齿轮箱
Planetary · Helical · Worm
Industrial Gearbox

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SPN 行星齿轮减速机 SPN PLANETARY GEAR REDUCERS

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我们只做减速机
WE ONLY FOCUS ON THE
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We Only Focus On The
Reducer Field





COMPANY INTRODUCTION

After 20 years of deep ploughing, SUPROR has entered into the era of intelligent manufacturing from professional manufacturing. SUPROR is a manufacturer and driving solution provider with independent intellectual property rights and brand, Integrating Resarch, Development and producing vairous types of speed reduction transmission equipment as a whole.

The company is National level high-tech enterprise, which set up transmission-research institute, owning honors of Provice level SRDI- "specialized, Refinement, Differential, Innovation", Municipality level green factory and future factory and so on. The company has many high quaiy customer, such as Listed companies.

SUPROR have two production bases, They are "Hangzhou SUPROR Transmission Machinery Co.,ltd and Zhejiang SUPROR machinery technology Co.,ltd". They are located in Hangzhou Airport Development Zone, being adjacent to Hangzhou International Airport, and Tianzi Lake Industrial Park in Anji, Huzhou. The total production area of the company covers nearly 80,000 square metres, with a registered capital of RMB115.3 million. At present, annual production capacity of various reducers has reached 1.5 million units. In 2021, the company built the first RV worm gearbox smart factory in China, making the production capacity of this product ranks to be the frist in China and the world.

公司简介

深耕20年，速博雷尔已从专业制造跨入智能制造时代。速博雷尔是一家具有自主知识产权和品牌并集研发、生产制造各类减速传动设备为一体的制造商和传动解决方案提供商。

公司是国家级高新技术企业，成立了传动研究院，荣获了省专精特新、市绿色工厂和未来工厂等荣誉称号。拥有众多上市公司等优质客户。

速博雷尔拥有两大生产基地，他们是“杭州速博雷尔传动机械有限公司”和“浙江速博机械科技有限公司”。并分别坐落于杭州空港开发区，毗邻杭州国际机场；以及湖州安吉天子湖工业园区。公司生产占地总面积近8万平方米，注册资金11530万元人民币。目前各类减速机年生产能力已达150万台。公司2021年建成了国内第一家RV蜗轮蜗杆智能工厂，该类产品的产能位居中国第一，世界第二。



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规格
Specifications

01

SPN系列主要特点:

- 18种机座号:
- 输出扭矩达到500, 000 Nm
- 输出功率达到450 kw
- 速比 3.5:1 ~ 3000:1
- 型式:
- 同轴式包括1至4级减速型式
- 直角轴式包括2至4级减速型式 (第一级为螺旋伞齿轮)
- 法兰、底脚和轴装方式
- 带平键输出轴、花键输出轴、花键空心轴、带收缩盘空心输出轴
- 输入联接方式:
- IEC 标准电机
- 输入轴
- 伺服电机
- 液压马达
- 安装的附件:
- 法兰
- 小齿轮
- 花键轴
- 收缩盘
- 更多特点:
- 可选扭矩种类繁多
- H型使用了重型圆锥滚子轴承, 能承受很高的悬臂载荷与径向载荷
- 高效率
- 零件间使用花键连接, 比使用平键连接更好
- 行星轮安装在自动定心装置上, 确保每个齿轮承受相同负载
- 球墨铸铁箱体

结构形式
Versions

02

- A
- 01 IEC电机/电机接头
- 02 实心输入轴
- 03 带风扇的实心输入轴
- 04 伺服电机
- 05 液压马达
- B
- 06 直角减速机
- 07 单级行星减速机
- 08 二级行星减速机
- 09 三级行星减速机
- C
- 10 MC/MZ-带平键或花键实心轴输出 (SPN00-SPN07)
- 11 HC/HZ-带平键或花键加强型实心轴输出 (SPN00-SPN07)
- 12 PC-底座支撑带平键实心轴输出
- 13 PZ-底座支撑带花键实心轴输出
- 14 HC-带平键实心轴输出 (SPN09-SPN21)
- 15 HZ-带花键实心轴输出 (SPN09-SPN21)
- 16 FP-配收缩盘空心轴输出
- 17 FZ-带花键空心轴输出
- 18 VK-搅拌机用加强型平行实心轴输出
- D
- 19 法兰
- 20 齿轮
- 21 连接套管
- 22 端盖
- 23 花键轴
- 24 收缩盘

SPN series basic features are:

- 18 size:
- output torque up to 500, 000 Nm
- output power up to 450 kw
- ratios from 3.5:1 to 3000:1
- Modular design :
- in-line with 1 to 4 reductions
- right angle (spiral bevel gear set into first stage)with 2 to 4 reduction.
- Flange-mounted, foot-mounted and shaft-mounted output
- Output shafts with keyway, splined, splined hollow shafts, hollow shafts for shaft-mounting with shrink disc
- Input adaptors for :
- electric motors to IEC standards design B5
- input shafts
- servomotors
- hydraulic motor setting
- Installation accessories:
- flanges
- pinions
- splined bars
- shrink discs
- More design features:
- high ratio of transmissible torque to overall dimensions
- high radial and axial load capacity of output shafts thanks to tapered roller bearings fitted on the H versions
- high efficiency
- inner parts are connected using grooved sections instead of tabs
- planetary gears of reduction stages mounted to floating holders to ensure maximum load distribution among planetary gears
- housing from ductile cast iron

- A
- 01 Electric motors IEC / Electric motor setting
- 02 Solid input shaft
- 03 Solid input shaft with fan
- 04 Servomotors
- 05 Hydraulic motor setting
- B
- 06 Right angle reduction stage
- 07 Single reduction stage
- 08 Two reduction stages
- 09 Three reduction stages
- C
- 10 Keyed or splined solid shaft output (SPN00-SPN07)
- 11 Keyed or splined heavy solid shaft output (SPN00-SPN07)
- 12 Output with support bracket and keyed solid shaft
- 13 Output with support bracket and splined solid shaft
- 14 Keyed solid shaft output (SPN09-SPN21)
- 15 Splined solid shaft output (SPN09-SPN21)
- 16 Hollow shaft output for shrink disc
- 17 Splined hollow shaft output
- 18 Reinforced output with parallelshaft for stirres and mixers
- D
- 19 Flange
- 20 Pinion
- 21 Sleeve coupling
- 22 Stop bottom plate
- 23 Splined bar
- 24 Shrink disc

输出扭矩
Output torque

03

3.1 减速机传递的扭矩 M2 [Nm]
基于减速机输入功率的额定输出扭矩 (转矩值已考虑到齿轮箱的效率)

3.2 额定输出扭矩 Mn2 [Nm]
指齿轮箱能安全传递的扭矩, 条件为:
-均匀负载, 安全系数为1
-理论寿命为10000小时

3.3 最大扭矩 M2max [Nm]
指齿轮箱在静态条件或高启停运转条件下所能承受的输出转矩。通常是指峰值负载或启动负载。

3.4 实际所需扭矩 Mr2 [Nm]
所需转矩取决于应用场合的实际工况。
拟选齿轮箱的额定Mn2必须大于这个扭矩。

3.5 计算用扭矩 Mc2 [Nm]
计算用扭矩会在选择齿轮箱时被用到, 可由实际所需扭矩Mr2和使用系数fs, 按以下公式得出。
M_c2=M_2 \cdot f_s < M_{n2} (1)

符号及计量单位
Symbols and units of measure

符号	单位	说明
Ac1	N	输入轴计算用轴向力
Ac2	N	输出轴计算用轴向力
An1	N	输入轴所允许的轴向力
An2	N	输出轴所允许的轴向力
Fh	-	齿轮箱计算寿命系数
Fh1,Fh2	-	轴计算寿命系数
fh1,fh2	-	轴载修正系数
fm	-	调节系数
fs	-	服务系数
ft	-	热功率系数
flp	-	温度系数
fv	-	速度系数
h	h	寿命小时
i	-	速比
ka	-	轴向载荷系数
kr	-	径向载荷系数
l	-	循环周期系数
M2	Nm	传递到输出轴的扭矩
Mb	Nm	额定制动扭矩
Mc2	Nm	计算用输出扭矩
M2max	Nm	最大输出扭矩
Mr1	Nm	输入轴所需扭矩
Mr2	Nm	输出轴所需扭矩
n1	rpm	输入转速
n2	rpm	输出转速
P1	kW	最大输入功率
P2	kW	输出功率
Pn	kW	电机额定功率
Pr1	kW	所需输入功率
Pr2	kW	最大输出转速时的输出功率
Ps	kW	损耗功率
Pt	kW	齿轮箱热功率
Rc1	N	输入轴计算用径向力
Rc2	N	输出轴计算用径向力
Rn1,Rn2	N	输入和输出轴中点的额定径向载荷
ta	℃	环境温度
X	mm	悬臂载荷的作用距离
η d	-	动态效率
Z	-	每小时启动次数

3.1 Reference torque M2 [Nm]
Indicative output torque to easily establish the performance class for each gearbox basic size.

3.2 Norminal torque Mn2 [Nm]
The condition is that the torque of the gearbox can be transmitted safely:
- Uniform load, the safety factor is 1
- Theoretical life is 10000 hours

3.3 Maximum torque M2max [Nm]
It is the output torque that the reduction unit can withstand instatic or highly intermittent conditions. It is considered as instantaneous load peak torque or stanting torque under load.

3.4 Required torque Mr2 [Nm]
Ihis is the torque corresponding to application requirement.
It must always be equal to or less than rated output torque Mn2 of the selected gearbox.

3.5 Calculated torque Mr2 [Nm]
Torque value to be used for selecting the gearbox, considering required torque Mr2 and service factor fs, and is obtained by formula.
M_c2=M_2 \cdot f_s < M_{n2} (1)

04

Description
Calculated thrust load at gearbox input shaft
Calculated thrust load at gearbox output shaft
Rated thtrust load at gearbox input shaft
Rated thrust load at gearbox output shaft
Lifetime factor for gearbox calculation
lifetime factor for bearing shafts calculation
load corrective factor on shafts
Increase factor
Service factor
Thermal factor
Temperature factor
Speed factor
Lifetime in hours
Reduction ratio
Axial load factor
Radial load factor
Intermittence fator
Reference torque
Rated brake torque
Calculated torque at gearbox output shaft
Gearbox max.output torque
Required torque at gearbox input shaft
Required torque at gearbox output shaft
Angular speed at gearbox input
Angular speed at gearbox output
Max transmissible power at gearbox input
Transmitted power at gearbox output
Motor rated power
Required input power
Maximun output speed
Excess power
Gearbox thermal capacity
Calculated radial load of gearbox input shaft
Calculated radial load of gearbox output shaft
Radial load at the midpoint of the input and output shaft
Ambient temperature
Action distance of cantilever load
Dynamic efficiency
Start times per hour

功率
Power

05

5.1 额定输入功率 P1 [kW]

P1是指齿轮箱安全的最大输入功率:

- 输入转速为n1
- 安全系数S=1
- 理论寿命为10000小时

请检查下面的公式:

P1 • fs ≤ P1 (2)

5.2 输出功率 P2 [kW]

输出功率是指传动到输出轴的有效功率, 可按以下公式得出:

P2= P1 • ηd (3)

P2= (m12 • n2) / 9550 (4)

热功率
Thermal power

06

热功率值与齿轮箱的发热限值相关。具体数值在齿轮箱额定值表中列出。

该参数表示在输入转速n1、环境温度为20℃、润滑油温度不超过85~90℃, 减速机温度不超过75~80℃且不带附加冷却系统的条件下, 齿轮箱能持续传递的功率。在短工作时间和长时间停止的工况中, 如果定制时间较长, 齿轮箱的温度能冷却, 则热功率就不再有意义, 在计算时可以忽略。

在工作环境不同于20℃、间歇工作制、或输入转速n1不是额定值时, Pt值应由表(A1)中的热功率系数ft或速度系数fv进行调整。

确保满足以下条件:

Prt ≤ P1 • ft • fv (5)

n1	fv
750	1.5
950	1.2
1500	1.0
2000	0.7

循环持续时间系数是指处于负荷下的工作时间tf与周期时间(tf+tr, tr代表停止时间)的比, 并以百分数表示。

I = (tf / (tf + tr)) • 100 (6)

如果常规配置中减速机热功率不足且不能满足 (5) 中的条件, 建议使用带冷却风扇的输入轴FAD。相关的热容量见下面列出的图表(A2)。

5.1 Input rated power P1 [kW]

P1 refers to the maximum input power gear box security:

- input speed n1
- theoretical duration 10000 h
- service factor fs=1

Check that the formula here below is always satisfied:

P1 • fs ≤ P1 (2)

5.2 Output rated power P2 [kW]

This value is the power transmitted at gearbox output.It can be calculated with the following formulas.

P2= P1 • ηd (3)

P2= (m12 • n2) / 9550 (4)

This parameter is linked to the gearbox thermal limit.Values for the thermal capacity are listed within the rating charts of gearboxes and gearmotors and represent the mechanical power that can be transmitted continuously at an input speed n1 and at an ambient temperature of 20℃, without the lubricant exceeding The temperature of 85~90℃ and the gear case the temperature of 75~80℃,withtout the use a supplementary cooling system.When the duty cycle is formed by short operating periods and rest time is long enough for the unit to cool down,the thermal capacity is hardly significant and it may be omitted from calculation .

For ambient temperatures other than 20℃, intermittent duty and drive speed n1 other than the reference speed listed in the rating charts,Pt is to be adjusted through thermal factor ft and/or speed factor fv as listed in table (A1).

Finally, make sure that the following condition is always satisfied:

Pt					
Ta max [℃]	连续工作制 Continuous duty	间歇工作制 / Intermittent duty			
		负载持续率 % / Cyclic duration factor %			
		80	60	40	20
10	1.2	1.3	1.6	1.8	2
20	1	1.1	1.3	1.5	1.7
30	0.9	1	1.2	1.3	1.5
40	0.7	0.8	0.9	1	1.2
50	0.5	0.6	0.7	0.8	0.9

The intermittence factor (I)%is obtained form the ratio between operating time under load tf and total time (tf+tr), where rest time tr, expressed as percentage:

Should the gear unit in the conventional configuration fall short of thermal capacity and not verify the condition(5) above , it is recommended that the fan cooled input shaft-ordering code FAD__ is specified instead . The relevant thermal capacity is listed in the charts here after.

效率
Efficiency

07

动态效率 [ηd]

动态效率可以由以下公式计算得出:

ηd = (P2 / P1) (7)

它的值是一个传递功率的函数, 其值与油的温度和粘度有关。具体效率值如下表(A3)所示:

级数 / N°			
L1	L2、R2	L3、R3	L4、R4
0.97	0.94	0.91	0.88

Dynamic efficiency [ηd]

Dynamic efficiency can be calculated by the following formula:

ηd = (P2 / P1) (7)

Its value is a function of the transmitted power, the reduction ratio and oil temperature and viscosity.

The maximum efficiency values are shoun in table (A3) below:

Stages			
L1	L2、R2	L3、R3	L4、R4
0.97	0.94	0.91	0.88

A2

	热容量 / Thermal capacity Pt [kW]							n1=1450 rpm			
	FAD3	FAD4	FAD5	FAD6	FAD7	FAD8				FAD3	FAD4
SPN03	L1 29	-	-	-	-	-		SPN07	R2	52	-
SPN05	L1 31	-	-	-	-	-		SPN09	R2	52	-
SPN06	L1 -	45	-	-	-	-		SPN10	R2(B)	-	82
	L2 31	-	-	-	-	-			R2(C)	-	82
SPN07	L1 -	-	49	-	-	-		SPN11	R2(B)	-	102
	L2 36	-	-	-	-	-			R2(C)	-	117
SPN09	L1 -	-	52	-	-	-			R3	58	-
	L2 36	-	-	-	-	-			R2(B)	-	102
SPN10	L1 -	-	-	-	62	-		SPN13	R2(C)	-	117
	L2 -	49	-	-	-	-			R3	58	-
	L3 36	-	-	-	-	-			R3(B)	-	82
SPN11	L1 -	-	-	-	-	62		SPN14	R3(C)	-	82
	L2 -	-	53	52	-	-			R4	38	-
	L3 36	-	-	-	-	-		SPN15	R3(B)	-	102
SPN13	L1 -	-	-	-	-	-			R3(C)	-	117
	L2 -	-	57	57	-	-			R4	58	-
	L3 36	-	-	-	-	-		SPN16	R3(B)	-	102
SPN14	L2 -	-	-	-	67	-			R3(C)	-	117
	L3 -	52	-	-	-	-			R4	63	-
	L4 33	-	-	-	-	-		SPN17	R3(B)	-	117
SPN15	L2 -	-	-	-	-	72			R3(C)	-	127
	L3 -	-	57	57	-	-			R4	68	-
	L4 36	-	-	-	-	-		SPN18	R4(B)	-	108
	L2 -	-	-	-	-	72			R4(C)	-	137
SPN16	L3 -	-	57	57	-	-		SPN19	R4(B)	-	122
	L4 36	-	-	-	-	-			R4(C)	-	142
SPN17	L2 -	-	-	-	-	77		SPN21	R4(B)	-	132
	L3 -	-	62	62	-	-			R4(C)	-	152
	L4 36	-	-	-	-	-					
SPN18	L3 -	-	-	-	-	62					
	L4 -	-	45	45	-	-					
SPN19	L3 -	-	-	-	-	77					
	L4 -	-	57	57	-	-					
SPN21	L3 -	-	-	-	-	87					
	L4 -	-	62	62	-	-					

传动比
Reduction ratio

08

传动比等于输入转速与输出转速的比值：

i = n1 / n2 (8)

工作转速
Operating speed

09

10.1 输入转速 n1 [min-1]
减速机的驱动速度，如减速机与电机直接相连，则转速值与电机转速相同。
如果减速机有外部传动装置驱动，在间接驱动的情况下,这个值是由电机的转速除以间接驱动附件（皮带、链条等）的传动比。
输入转速不得超过减速机额定值表中规定的值。
在工业应用中的连续操作，我们建议速度不超过1750 min-1.

10.2 输出转速 n2 [min-1]
输出转速按照下列公式通过输入转速n1和传动比i计算出来的：

n2 = n1 / i (9)

使用系数
Service factor

10

使用系数表现减速机的应用特性。它考虑到减速机的负载类型和每日工作时间。

可以参照表（A4）所列的值选取合适使用系数。

A4

使用系数 / Service factors						
负载类型 Type of load	每小时启动次数 Type of drive unit	Number of starts/hour 运行总时间(h)				
		≅ 5000	10000	15000	20000	50000
		每日运行时间 (h)				
		h <4	4<h <8	8<h <12	12<h<16	16<h <24
均匀负载 Uniform load	Z < 10	0.9	1.0	1.15	1.3	1.6
	10 < Z < 30	0.95	1.15	1.30	1.5	1.8
	30 < Z < 100	1.0	1.25	1.45	1.6	2.0
中等负载 Moderate shlick load	Z < 10	1.0	1.25	1.45	1.6	2.0
	10 < Z < 30	1.1	1.4	1.6	1.8	2.2
	30 < Z < 100	1.2	1.5	1.7	2.0	2.4
重负载 Heavy shock load	Z < 10	1.2	1.5	1.7	2.0	2.4
	10 < Z < 30	1.3	1.6	1.8	2.1	2.6
	30 < Z < 100	1.4	1.75	2.0	2.3	2.8

寿命系数
Life factor

11

输入转速n1或输出转速乘以实际工作时间（休息时间除外）所得出为寿命系数。
寿命系数与齿轮箱的转速成正比。

Fh1 = (n1 * h) Fh2 = (n2 * h)

This is the ratio of gearbox input speed to output speed:

i = n1 / n2 (8)

10.1 Input speed n1 [min-1]
The driving speed of the gear box, if gear box and motor directly connectly, then the speed value and motor speed are the same.
In the case of an indirect drive, this value is the speed of the motor divided by the transmission ratio of the indirect drive accessory (belt ,chain ,etc.).
Input speed shall not exceed the value specified in the gear box.
As for continuous operation in industrial applications, We recommend that speed of 1750 min-1 be never exceeded.

10.2 output speed n2 [min-1]
Calculated from input speed n1 and transmission ratio i according to the following equation:
n2 = n1 / i (9)

Factor depending on the application type.This factor takes into consideration (with sufficient approximation) load variations which the gearbox may undergo for a specific type of duty .

Table (A4) gives indications for the service factor to be selected according to the application and operation type.

Factor resulting by multiplying angular speed at input (n1) or output(n2) by actual operating working hours h , break times excluded.
Life factor is directly proportional to gearbox rpms during the whole duty time.

Fh1 = (n1 * h) Fh2 = (n2 * h)

选型
Selection

12

减速机选型
a) 根据应用所需的确定以下数据：
- 使用系数 fs (表A4)
- 减速机要求
- 工作寿命，（小时 ）
b) 根据所需输出转矩Mr2按照以下公式得出计算用转矩Mc2:
c) 根据工作寿命、输出转速n2，得出寿命系数
Fh2 = (n2 * h) (13)
d) 计算需要的速比：
i = n1 / n2 (14)
e) 选择最接近的传动比以及满足以下条件的减速机机座号：
Mc2 ≤ Mn2 (15)
Fh2 ≤ (n2 * h) (16)

校核
Verification

13

完成减速机选型后，执行以下校核工作：

a)热功率
确保减速机热功率大于或等于应用的机械功率，见公式（5）.如果不能满足，应选择较大的减速机或增加一个辅助冷却系统。
b)最大转矩
确保瞬时峰值转矩和带载启动转矩不超过减速机的额定最大转矩 M2max(见表A5)

A5

减速机 Gearbox	SPN00	SPN01	SPN03	SPN05	SPN06	SPN07	SPN09	SPN10
Mn2 [Nm]	1000	1750	2500	5000	8500	12500	18000	25000
M2max [Nm]	1200	2100	3500	7000	12000	18000	27000	36000
减速机 Gearbox	SPN11	SPN13	SPN14	SPN16	SPN17	SPN18	SPN19	SPN21
Mn2 [Nm]	40000	55000	80000	135000	170000	250000	350000	500000
M2max [Nm]	54000	66000	100000	162000	216000	300000	420000	650000

C) 悬臂载荷
检查所选配置并确定：
输入轴和输出轴上的悬臂载荷可通过下列公式求出：
Rc1-2 = 2000 * Mc1-2 * K2 / d (17)
Rc1-2 悬臂载荷（N）
1 = 表示输入轴
2 = 表示输出轴
Mc1-2 轴上的转矩（Nm）
d P.C,D(mm)传动部件分度圆直径
（链轮，齿轮，带轮等）
Kr = 1 链条传动
Kr = 1.25 齿轮传动
Kr = 1.5~2.5 V形带传动

定义可靠载荷位置x轴。用图表示减速机Rx1和Rx2承受载荷值。
检查以下是否满足要求：
Rc1-2 ≤ Rx1-2 * fh (18)

径向和轴向负荷修正系数fh1-2取决于所要求的寿命系数Fh1和Fh2.

Gearbox selection
a) Determine the following according to the required application:
- Service factor fs (tab.A4)
- Required gearbox
- Working life h
b) Define the calculated torque with the required output torque Mr2
c) Calculate the life factor with required working life H and output speed n2:
Fh2 = (n2 * h) (13)
d) Calculate the required reduction ratio:
i = n1 / n2 (14)
e) Select gearbox featuring the ratio I nearest to calculated ratio that also satisfies the condition.
Mc2 ≤ Mn2 (15)
Fh2 ≤ (n2 * h) (16)

After selecting the drive units, please check the following:

a) Thermal capacity
Make sure that the thermal power of the gearbox is equal to or greater than the mechanical power required by the application,as per equation (5).
If this is not the case provide a supplementary cooling system (see chap.29)or select a larger gearbox.
b) Maximum torque
Make sure that either the momentary peak torque nor the starting torque under load ever exceed the M2max value that the gearbox is rated for (see tab.A5)

C) Overhung load
Examine the application and establish:
overhung load applying to input and/or output shaft through the following formula:
Rc1-2 = 2000 * Mc1-2 * K2 / d (17)
Rc1-2 Overhung load（N）
1 = for input shaft
2 = for output shaft
Mc1-2 Torque at the shaft（Nm）
d P,C,D(mm) of transmission element
(sprcket,gear,pulley,etc)
Kr = 1 chain transmission
Kr = 1.25 gear transmission
Kr = 1.5~2.5 V-belt transmission

Define the trust load position X onto shaft .Check this value with the chart indicating the load Rx1 and Rx2 bearable by the gearbox.Check that the following is satisfied:
Rc1-2 ≤ Rx1-2 * fh (18)

Where fh1-2 the radial and thrust load corrective factor depending on the required life factor Fh1 and Fh2.

d) 轴向力
当施加到输出轴上的径向载荷为指定时，请检查轴向力。满足以下要求：

$$\pm A_{o2} \leq \pm A_{n2} \cdot fh_2 \tag{19}$$

Ac2 输出轴计算用轴向力 [N]
An2 输出轴所允许的轴向力 [N]

选择电机
Motor selection

14

根据以下公式计算减速机所需的输入功率。
须提前确定以下参数：

- 所需扭矩Mr2
- 输出转速n2
- 效率 η d

$$P_{r1} = \frac{M_{r2} \cdot n_2}{9550 \cdot \eta_d} \tag{20}$$

表（A3）列出了不同型号减速机的效率 η d；

根据以下条件，在电机选型标准选择合适的电机：

$$P_{r1} \leq P_n \tag{21}$$

对于非连续工作制S1条件下使用的电机，电机额定值可使用系数fm进行调整。见表（A6）
优先选择四级电机或较低转速的电机。

$$\frac{P_{r1}}{f_m} \leq P_n \tag{22}$$

A6

	工作制 / DUTY					
	S2			S3		
	循环周期 / Cycle time			循环周期系数 / Cyclic durationn rate		
	10	30	60	25%	40%	60%
fm	1.3	1.15	1.05	1.25	1.15	1.1

d) Thrust loads
Check the thrust load,when exerted onto the output shaft,as specified for the radial load. The following should be satisfied:

$$\pm A_{o2} \leq \pm A_{n2} \cdot fh_2 \tag{19}$$

Ac2 Calculated thrust load at gearbox output shaft [N]
An2 Rated thrust load at gearbox output shaft [N]

Through the formula here after calculate the power required to gearbox input shaft.

The following paramenters must be determined on beforehand:

- required torque Mr2
- output speed n2
- efficiency η d

$$P_{r1} = \frac{M_{r2} \cdot n_2}{9550 \cdot \eta_d} \tag{20}$$

Table (A3) lists the efficiency value η d for the vsrious types of gearboxes.
In the electric motor section select a motor that is sufficiently rated,as per the following condition:

$$P_{r1} \leq P_n \tag{21}$$

For duties other than continuous S1 the motor rating can be upgraded through the factor fm listed in table (A6)
4-pole motors or over should be preferred.

$$\frac{P_{r1}}{f_m} \leq P_n \tag{22}$$

- a) 固定**
- 将减速机安放在一个足够坚硬的表面上，结合面应经过机加工且保持平坦。
 - 对法兰安装的带花键空心输出轴的减速机尤其重要。
 - 在输出端有较大径向载荷的应用中，建议使用法兰安装，因为这种安装方式能在减速机上实现双导径。
 - 确保减速机适合于所需的安装位置。
 - 使用8.8或更高等级的螺栓固定减速机，拧紧螺栓至相应图表中规定的额定值。

当传递的扭矩大于或等于给定的M2max值70%并频繁换向时，使用等级高于10.9的螺栓。

部分减速机可以使用螺栓和销进行固定。如果使用了销，插入减速机的长度至少为直径的1.5倍。

b) 连接
装配传动装置零件至减速机上时，禁止使用铁锤或类似工具进行敲打压入零件，可使用维护螺钉和轴端螺纹。装配前务必清除轴上的油脂或防锈剂。

c) 油漆
使用和减速机底漆一致的油漆，请参照：供货条件。
在油漆之前，保护好装在轴上的密封件。
与溶剂接触会损坏密封件并导致漏油。

d) 润滑
调试前，在减速机中装入指定型号和数量的润滑油（参照：润滑）。
可通过合适的油位塞或观察孔检测油位，每个减速机都装有观察孔，位置与安装方式相关。

维护
Maintenance

16

初次运行50小时后需要检查安装螺栓是否松动，运行100-150小时后必须进行首次换油。随后每运行2000-3000小时更换一次润滑油，具体取决于应用情况。也可以选择一年更换一次油。

然而，必须每隔一段时期检查油面并按规定注油。
间歇工作制条件下应每月检查设备，连续工作制条件下需经常检查。

存放
Storage

17

遵循以下说明正确存放产品。

- a) 不要存放在户外露天或过于潮湿的地方。
- b) 始终在设备和地板之间垫有木板、木材或其它材料，减速机不得与地板直接接触。
- c) 对于存放时间超过60天的减速机，所有加工面如法兰、轴和联轴器必须涂刷防锈产品。
- d) 当减速机存放时间可能超过6个月时，必须采取以下额外措施：
- 所以加工部件需涂上油脂防止生锈。
 - 放置减速机时必须使透气塞处于顶部并注满润滑油（不适用于终身润滑减速机）。减速机投入运转前，要重新注入适当型号的润滑油。

- a) Fastening**
- Please the gearbox on a surface providing adequate rigidity. Mating surfaces should be machined and flat.
 - This applies especially to flange-mounted gearboxes with splined hollow output shafts.
 - In applications that involve high radial loads at the output end, flange mounting is recommended for some gearboxes as. This mounting pattern benefits from the double pilot diameters provided on these gearboxes.
 - Make sure the gearbox is suitable for the reired mounting position.
 - Use bolts of grade 8.8 or greater to secure the gearbox. tighten the bolts to the rated values specified in the relevant charts.

With transmitted worque greater than or equal to 70% of the given M2max and with frequent reversals,use bolts with minimum grade 10.9.

Some gearboxes can be fastened using both blots and pins.If a pin is used,the portion of the pin inserted into the structure the gearbox is being installed to should be least 1.5 times its diameter.

b) Connections
When fitting transmission elements onto the gearbox do not tap them with hammers or similar tools.To slide these parts in ,use the service screws and taps provided at the shaft ends. Be sure to clean off any grease or rust preventative from the shafts before fitting any parts.

c) Paint coating
Use paints compatible with the primer applied to the gearbox, see :Supply comditions. Before painting ,protect the seal rings installed on the shafts. Contact with paint may deteriorate the seals with su bsequent oil leakage.

d) Lubrication
Before start-up ,fill the gearbox with the recommended lube oil(see lubrication)up to correct level.
level is checked through the suitable plug or sight glass provided on each gearbox depending on designated mounting position.

Check the tightness of mounting bolts after the initial 50 hours of operation. Change the oil first after 100-150 hours operation. Subsequently,change the oil every 2000-3000 hours operation depending on the application. Alternatively change oil once a year.
However ,oil lever should be checked at regular intervals and topped up as required. Check monthly if unit operates under intermittent duty, more frequently if duty is continuous.

Observe the following instructions to ensure correct storage of the products.

- a) Do not store outdoors,in areas exposed to weather or with excessive humidity.
- b) Always place boards,wood,or other material between the produts and the floor. The gearbox should not have direct contact with the floor.
- c) For storage periods of over 60 days ,oil machined surfaces such as flanges,shafts and couplings must be protected with a suitable anti-oxidation product.
- d) The following meastres must be taken in respect of products for which the expected storage period exceeds 6 months:
- Cover outer machined parts and mating parts with grease to avoid.
 - Position the gearboxes with the breather plug up and fill them with oil. Before use , the gearboxes should be filled with the proper amount of lubricant of the recommended type.

安装位置
Mounting positions

21

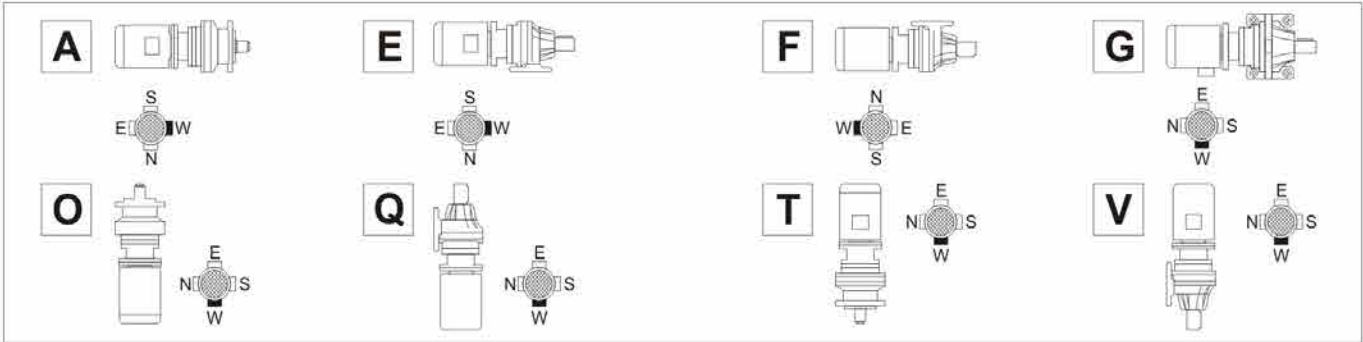
一个产品完整的型号必须包含安装位置，同轴式减速机请参阅表 (A8)，直角轴式减速机请参阅表 (A9)

The product designation is only complete when the mounting position is also specified. Please refer to table (A8) for in-line gear units and to (A9) for right angle drives.

21.1 同轴式减速机

21.1 In-line units

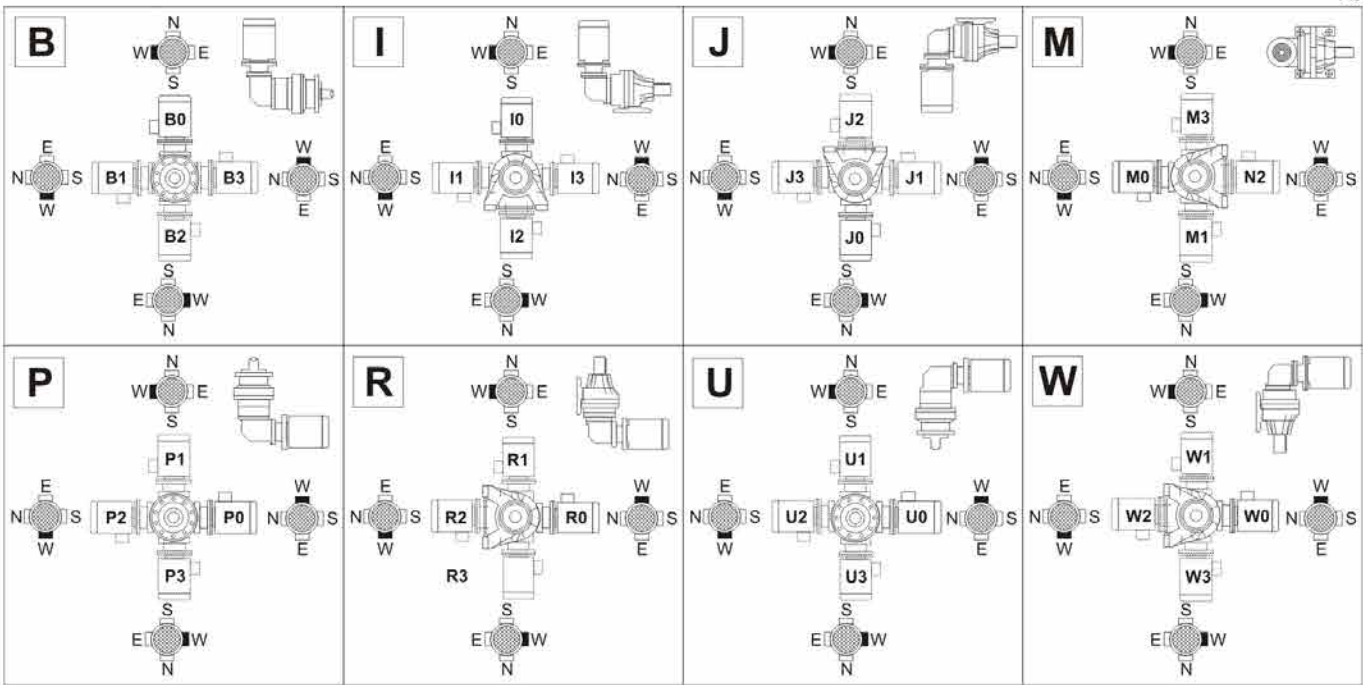
A8



21.2 直角轴式减速机

21.2 Right angle units

A9



SPN 系列减速机油堵位置
SPN Seres oil plug positions

22

所有减速机

- 1 注油塞/透气塞
- 2 油位塞
- 3 放油塞
- 2A 透明油位管
- 5 连续工况中的附加油罐

1 级同轴式行星减速机 (表A10)

- 1A 注油塞/透气塞
- 3A 放油塞

2 级直角轴式行星减速机 (表A11)

- 1B 注油塞/透气塞
- 3B 放油塞

ALL UNITS

- 1 Filler/breather oil plug
- 2 Oil level plug
- 3 Oil draining plug
- 2A Transparent oil level pipe
- 4 Expansion tank for continuous duty

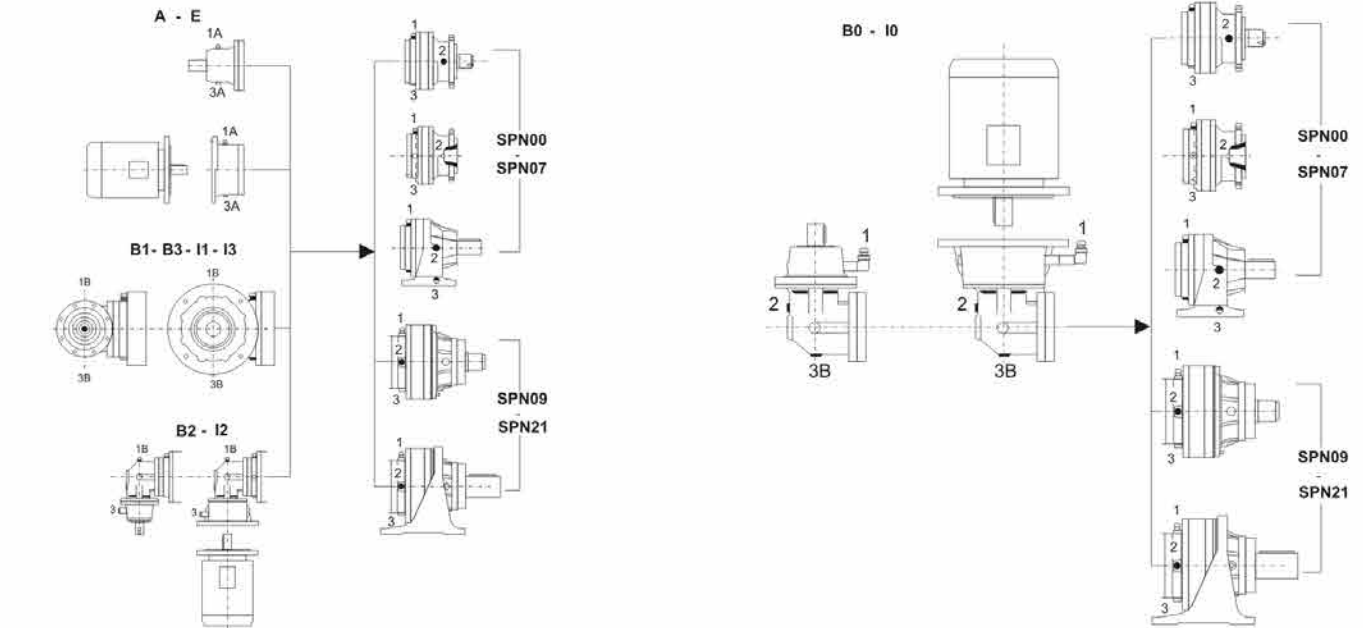
1 STAGE IN-LINE GEAR UNITS (Table A10)

- 1A Filler/breather oil plug
- 3A Oil draining plug

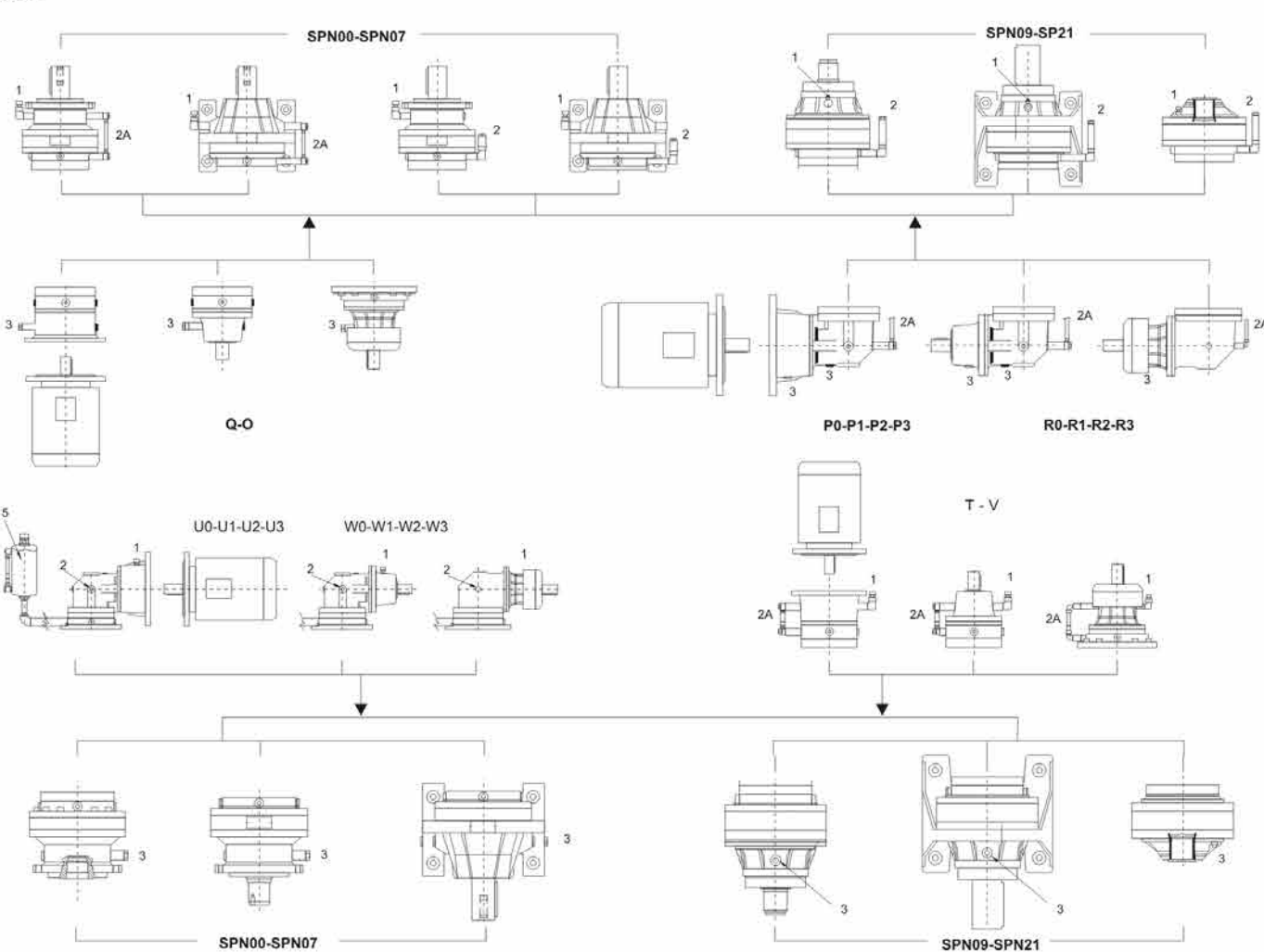
2 STAGE RIGHT ANGLE UNITS (Table A11)

- 1B Filler/breather oil plug
- 3B Oil draining plug

A10



A11



系列润滑油量 (L)
Series oil quantity (L)

23

A12 L同轴式

		安装位置 Mounting position		
		A	T	O
SPN00	L1	0.6	1.0	0.9
	L2	0.9	1.3	1.2
	L3	1.2	1.6	1.5
	L4	1.5	1.9	1.8
SPN01	L1	0.8	1.2	1.1
	L2	1.1	1.5	1.4
	L3	1.4	1.8	1.7
SPN03	L1	1.3	2.3	2.0
	L2	1.6	2.6	2.3
	L3	1.9	2.9	2.6
	L4	2.2	3.2	2.9
SPN05	L1	1.6	2.6	2.4
	L2	2.1	3.1	2.9
	L3	2.4	3.4	3.2
	L4	2.7	3.7	3.5
SPN06	L1	2.5	3.5	3.2
	L2	3.3	4.3	4.0
	L3	3.6	4.6	4.3
	L4	3.9	4.9	4.6
SPN07	L1	3.5	5.0	4.5
	L2	4.5	6.0	5.5
	L3	5.0	6.5	6.0
	L4	5.3	6.8	6.3
SPN09	L1	4.0	5.5	5.0
	L2	5.0	6.5	6.0
	L3	5.5	7.0	6.5
	L4	5.8	7.3	6.8
SPN10	L1	5.0	6.5	6.0
	L2	6.3	7.8	7.3
	L3	7.1	8.6	8.1
	L4	7.4	8.9	8.4

L In-line

		安装位置 Mounting position		
		A	T	O
SPN11	L1	7.0	12	10
	L2	9.0	14	12
	L3	10	15	13
	L4	11	16	14
SPN13	L1	9.0	14	12
	L2	12	17	15
	L3	13	18	16
	L4	13	18	16
SPN14	L2	17	25	21
	L3	19	27	23
	L4	20	28	24
	L1	15	23	29
SPN15	L2	19	27	23
	L3	21	29	25
	L4	22	30	26
	L2	22	30	26
SPN16	L3	24	32	28
	L4	25	33	29
SPN17	L2	26	41	36
	L3	29	44	39
	L4	30	45	40
	L2	35	50	45
SPN18	L3	40	55	50
	L4	43	58	53
	L2	45	65	55
	L3	50	70	60
SPN19	L4	53	73	63
	L3	56	76	66
	L4	60	80	70
SPN21				

A13 R 直角轴式

		安装位置 Mounting position		
		BO	U_	P_
SPN00	R2	1.2	1.7	1.5
	R3	1.5	2.0	1.8
	R4	1.8	2.3	2.1
SPN01	R2	1.6	2.1	1.9
	R3	1.9	2.4	2.2
	R4	2.2	2.7	2.5
SPN03	R2	2.2	2.8	2.6
	R3	2.5	3.1	2.9
	R4	2.8	3.4	3.2
SPN05	R2	2.5	3.1	2.9
	R3	3.0	3.6	3.4
	R4	3.3	3.9	3.7
SPN06	R2	4.0	5.0	4.8
	R3	4.8	5.8	5.6
	R4	5.1	6.1	5.9
SPN07	R2	6.0	8.0	7.0
	R3	7.0	9.0	8.0
	R4	7.5	9.5	8.5
SPN09	R2	6.5	8.5	7.5
	R3	7.5	9.5	8.5
	R4	8.0	10	9.0

R Right angle

		安装位置 Mounting position		
		BO	U_	P_
SPN10	R2	13	15	14
	R3	11	13	12
	R4	12	14	13
SPN11	R2	14	19	17
	R3	16	21	19
	R4	17	22	20
SPN13	R2	16	21	19
	R3	19	24	22
	R4	20	25	23
SPN14	R3	25	33	29
	R4	28	36	32
SPN15	R3	27	35	31
	R4	30	38	34
SPN16	R3	30	38	34
	R4	33	41	37
SPN17	R3	38	52	48
	R4	42	56	52
SPN18	R4	48	63	58

注：所有润滑油量为估计值，注油后专门的油堵检查实际油位。

N.b.oil quantities are indicative. Check actual level after filling through the appropriate plug.

减速机额定值表
Gearmotor rating charts

24

24.1 SPN...L同轴式减速机额定值表

		SPN00							
		i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]			
						MC/PC MZ/PZ	HC	HZ	FZ
L1		3.48	470	20	7.5	1610	4970	5710	1060
		4.26	490	18.8	7.5	1720	5280	6070	1130
		5.77	470	13.3	7.5	1910	5790	6650	1250
		7.2	410	9.2	7.5	2050	6180	7100	1350
L2		12.1	680	9.4	7.5	2440	7230	8300	1600
		14.8	720	8.1	7.5	2610	7680	8820	1720
		18.2	750	6.9	7.5	2790	8160	9380	1840
		20.1	640	5.3	7.5	2890	8410	9660	1900
		24.6	800	5.5	7.5	3090	8940	10300	2030
		30.7	840	4.6	7.5	3330	9550	11000	2190
		33.3	650	3.3	7.5	3420	9790	11200	2250
		41.5	650	2.6	7.5	3680	10500	12000	2420
		51.9	650	2.1	7.5	3970	11200	12900	2610
L3		51.6	850	2.8	7.5	3960	11200	12800	2600
		63.2	850	2.3	7.5	4240	11900	13600	2780
		69.9	650	1.6	7.5	4380	12200	14000	28800
		77.5	850	1.9	7.5	4530	12600	14500	29800
		85.6	850	1.7	7.5	4680	13000	14900	3080
		105	860	1.4	7.5	5010	13800	15900	3300
		116	650	0.97	7.5	5180	14200	16300	3410
		131	860	1.1	7.5	5400	14800	17000	3550
		142	860	1	7.5	5540	15100	17400	3650
		177	880	0.86	7.5	5970	16200	18600	3920
		192	650	0.58	7.5	6130	16600	19000	4030
		221	910	0.71	7.5	6430	17300	19800	4230
		240	650	0.47	7.5	6600	17700	20300	4340
		299	650	0.37	7.5	7110	18900	21700	4670
		330	970	0.52	6	7350	19500	22400	4830
		403	680	0.3	6	7850	20700	23800	5160
		447	1020	0.4	6	8130	21300	24500	5340
		494	1030	0.37	6	8400	22000	25300	5520
		558	1060	0.34	6	8750	22800	26200	5750
		616	1070	0.31	6	9050	23500	27000	5950
L4		755	1110	0.26	6	9680	25000	28700	6360
		819	1130	0.24	6	9940	25600	29400	6540
		942	1160	0.22	6	10400	26700	30700	6850
		1022	1170	0.2	6	10700	27300	31400	7040
		1108	810	0.13	6	11000	28000	32200	7230
		1275	1220	0.17	6	11500	29200	33600	7580
		1383	850	0.11	6	11800	29900	34000	7790
		1591	1250	0.14	6	12000	31000	34000	8000
		1725	860	0.09	6	12000	31000	34000	8000
		2153	860	0.07	6	12000	31000	34000	8000

i -实际速比，输入转速n1=1500 min-1
Mn2 -减速机额定输出扭矩，
P1 -电机额定功率
Pt -减速机热功率
Rn2 -输出轴上允许的悬臂载荷，根据：
-安全系数S=1，
-10000小时使用寿命。
当作用力没有应用在轴中点时，按照具体减速机的尺寸查看相应图表。

24.1 Rating charts for in-lineunits SPN...L

SPN01							
i	Mn2 [Nm]	P1 [kW]	Pt [kW]				
				MC/MZ	HC/PC	HZ/PZ	FZ
3.48	840	30	7.5	1610	4970	5710	1060
4.26	880	30	7.5	1720	5280	6070	1130
5.77	930	26	7.5	1910	5790	6650	1250
7.2	750	17	7.5	2050	6180	7100	1350
12.1	1220	16.8	7.5	2440	7230	8300	1600
14.8	1280	14.4	7.5	2610	7680	8820	1720
18.2	1360	12.5	7.5	2790	8160	9380	1840
20.1	1260	10.5	7.5	2890	8410	9660	1900
24.6	1490	10.1	7.5	3090	8940	10300	2030
30.7	1580	8.6	7.5	3330	9550	11000	2190
33.3	1300	6.5	7.5	3420	9790	11200	2250
41.5	1300	5.2	7.5	3680	10500	12000	2420
51.9	1300	4.2	7.5	3970	11200	12900	2610
51.6	1630	5.4	7.5	3960	11200	12800	2600
63.2	1650	4.5	7.5	4240	11900	13600	2780
69.9	1300	3.2	7.5	4380	12200	14000	28800
77.5	1670	3.7	7.5	4530	12600	14500	29800
85.6	1680	3.4	7.5	4680	13000	14900	3080
105	1700	2.8	7.5	5010	13800	15900	3300
116	1300	1.9	7.5	5180	14200	16300	3410
131	1720	2.3	7.5	5400	14800	17000	3550
142	1720	2.1	7.5	5540	15100	17400	3650
177	1770	1.7	7.5	5970	16200	18600	3920
192	1300	1.2	7.5	6130	16600	19000	4030
221	1790	1.4	7.5	6430	17300	19800	4230
240	1300	0.93	7.5	6600	17700	20300	4340
299	1300	0.75	7.5	7110	18900	21700	4670
330	1920	1	6	7350	19500	22400	4830
403	1370	0.6	6	7850	20700	23800	5160
447	2030	0.81	6	8130	21300	24500	5340
494	2070	0.74	6	8400	22000	25300	5520
558	2110	0.67	6	8750	22800	26200	5750
616	2150	0.62	6	9050	23500	27000	5950
755	2220	0.52	6	9680	25000	28700	6360
819	2240	0.49	6	9940	25600	29400	6540
942	2290	0.43	6	10400	26700	30700	6850
1022	2320	0.4	6	10700	27300	31400	7040
1108	1630	0.26	6	11000	28000	32200	7230
1275	2400	0.33	6	11500	29200	33600	7580
1383	1700	0.22	6	11800	29900	34000	7790
1591	2000	0.22	6	12000	31000	34000	80000
1725	1720	0.18	6	12000	31000	34000	80000
2153	1720	0.14	6	12000	31000	34000	80000

减速机额定值表
Gearmotor rating charts

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	SPN03								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC	MZ	HC/PC	HZ/PZ	FZ
L1	3.6	1380	40	11	5010	5780	10300	12300	3210
	4.25	1430	40	11	5290	6110	10800	13000	3400
	5.33	1490	40	11	5710	6590	11500	13900	3660
	6.2	1400	36	11	6000	6930	12100	14500	3850
	7.5	1220	26	11	6400	7390	12800	15400	4100
	9.67	750	12.6	11	6960	8040	13800	16600	4470
L2	12.5	1640	20	9	7590	8760	14900	17900	4870
	15.3	1710	18.6	9	8120	9380	15800	19100	5210
	18.1	2020	18.6	9	8580	9910	16600	20000	5510
	20.8	1820	14.6	9	8980	10400	17300	20900	5760
	22.7	2100	15.4	9	9260	10700	17800	21400	5940
	24.5	2150	14.6	9	9490	11000	18200	21900	6090
	26.4	1820	11.5	9	9740	11200	18600	22400	6250
	30.8	2140	11.6	9	10200	11800	19500	23500	6570
	35.8	1820	8.5	9	10800	12400	20400	24600	6910
	38.4	2150	9.3	9	11000	12700	20900	25100	7070
	44.6	1820	6.8	9	11600	13400	21800	26300	7440
L3	53.4	2170	7	7.5	12300	14200	23000	27700	7900
	63.1	2510	6.8	7.5	13000	15000	24200	29100	8340
	72.3	2230	5.3	7.5	13600	15700	25200	30300	8730
	77.2	2520	5.6	7.5	13900	16100	25700	30900	8930
	90.2	2250	4.3	7.5	14700	16900	26900	32400	9400
	105	2580	4.2	7.5	15400	17300	28200	33900	9880
	113	1820	2.8	7.5	15800	18200	28800	34700	10100
	124	1820	2.5	7.5	16300	18800	29700	35700	10500
	141	2610	3.2	7.5	17000	19700	30800	37100	10900
	152	1820	2.1	7.5	17500	20200	31500	37900	11200
	164	2200	2.3	7.5	17900	20600	32200	38800	11500
	178	2210	2.1	7.5	18400	21200	33000	39700	11800
	190	1830	1.7	7.5	18800	21700	33700	40600	12100
	220	2250	1.8	7.5	19700	22800	35200	42400	12700
	258	1840	1.2	7.5	20800	24000	36900	44400	13300
	276	2230	1.4	7.5	21300	24600	37700	45400	13700
	321	1860	1	7.5	22400	25800	39400	47500	14400
	389	1690	0.75	7.5	23900	27500	41800	50300	15300
L4	413	2360	1	6	24300	28100	42500	51200	15600
	446	2810	1.1	6	25000	28800	43500	52400	16000
	492	2690	0.97	6	25800	29800	44800	53900	16600
	556	2810	0.9	6	26900	31000	46500	55900	17200
	649	2320	0.63	6	28300	32700	48700	58600	18200
	718	2150		6	29300	33800	50200	60400	18800
	816	2720	0.53	6	30500	35300	52200	62800	19600
	896	2230	0.59	6	31500	36400	53700	64600	20200
	1018	2740	0.44	6	32900	38000	55800	67100	21100
	1098	2310	0.48	6	33700	38900	57000	68600	21600
	1278	2790	0.37	6	35500	40900	59700	71800	22800
	1370	2400	0.39	6	36000	41900	60900	73300	23300
	1586	2250	0.31	6	36000	42000	63700	74000	24000
	1854	2440	0.25	6	36000	42000	64000	74000	24000
	1991	2850	0.23	6	36000	42000	64000	74000	24000
	2243	2000	0.25	6	36000	42000	64000	74000	24000
	2799	2000	0.16	6	36000	42000	64000	74000	24000

i -实际速比，输入转速n1=1500 min-1
Mn2 -减速机额定输出扭矩，
P1 -电机额定功率
Pt -减速机热功率
Rn2 -输出轴上允许的悬臂载荷，根据：
-安全系数S=1，
-10000小时使用寿命。
当作用力没有应用在轴中点时，按照具体减速机的尺寸查看相应图表。

	SPN05								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC	MZ	HC/PC	HZ/PZ	FZ
	3.6	2370	60	13	5010	5780	10300	12300	3210
	4.25	2450	60	13	5290	6110	10800	13000	3400
	5.33	2560	60	13	5710	6590	11500	13900	3660
	6.2	2650	60	13	6000	6930	12100	14500	3850
	7.5	2270	49	13	6400	7390	12800	15400	4100
	12.5	2930	30	9	7590	8760	14900	17900	4870
	15.3	3060	30	9	8120	9380	15800	19100	5210
	18.1	3620	30	9	8580	9910	16600	20000	5510
	20.8	3250	26	9	8980	10400	17300	20900	5760
	22.7	3940	29	9	9260	10700	17800	21400	5940
	24.5	3830	26	9	9490	11000	18200	21900	6090
	26.4	3530	22	9	9740	11200	18600	22400	6250
	30.8	4280	23	9	10200	11800	19500	23500	6570
	35.8	3560	16.6	9	10800	12400	20400	24600	6910
	38.4	4300	18.7	9	11000	12700	20900	25100	7070
	44.6	3560	13.3	9	11600	13400	21800	26300	7440
	53.4	4000	12.9	7.5	12300	14200	23000	27700	7900
	63.1	4720	12.9	7.5	13000	15000	24200	29100	8340
	72.3	4160	9.9	7.5	13600	15700	25200	30300	8730
	77.2	4820	10.7	7.5	13900	16100	25700	30900	8930
	90.2	4260	8.1	7.5	14700	16900	26900	32400	9400
	105	5030	8.3	7.5	15400	17800	28200	33900	9880
	113	3590	5.5	7.5	15800	18200	28800	34700	10100
	124	3590	5	7.5	16300	18800	29700	35700	10500
	141	5180	6.3	7.5	17000	19700	30800	37100	10900
	152	3600	4.1	7.5	17500	20200	31500	37900	11200
	164	4410	4.6	7.5	17900	20600	32200	38800	11500
	178	4420	4.3	7.5	18400	21200	33000	39700	11800
	190	3600	3.3	7.5	18800	21700	33700	40600	12100
	220	4750	3.7	7.5	19700	22800	35200	42400	12700
	258	3600	2.4	7.5	20800	24000	36900	44400	13300
	276	4460	2.8	7.5	21300	24600	37700	45400	13700
	321	3640	1.9	7.5	22400	25800	39400	47500	14400
	389	3170	1.4	7.5	23900	27500	41800	50300	15300
	413	4720	2	6	24300	28100	42500	51200	15600
	446	5490	2.2	6	25000	28800	43500	52400	16000
	492	5340	1.9	6	25800	29800	44800	53900	16600
	556	5500	1.8	6	26900	31000	46500	55900	17200
	649	4510	1.2	6	28300	32700	48700	58600	18200
	718	4130	1	6	29300	33800	50200	60400	18800
	816	5410	1.2	6	30500	35300	52200	62800	19600
	896	4290	0.85	6	31500	36400	53700	64600	20200
	1018	5450	0.95	6	32900	38000	55800	67100	21100
	1098	4440	0.72	6	33700	38900	57000	68600	21600
	1278	5500	0.76	6	35500	40900	59700	71800	22800
	1370	4620	0.6	6	36000	41900	60900	73300	23300
	1586	4750	0.53	6	36000	42000	63700	74000	24000
	1854	4690	0.45	6	36000	42000	64000	74000	24000
	1991	5600	0.5	6	36000	42000	64000	74000	24000
	2243	3800	0.3	6	36000	42000	64000	74000	24000
	2799	3800	0.24	6	36000	42000	64000	74000	24000

i - Gear ratio, gearbox drive-speed is 1500 min-1
Mn2 - Reference torque
P1 - Reference power
Pt - Thermal Power
Rn2 - Permitted overhung loading on output shaft ,based on:
- safety factor S=1
- 10000 hrs theoretical lifetime
For forces not applying at shaft midpoint,see diagrams provided in the pages following dimensions of the specific gearbox .

	SPN06								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC	MZ	HC/PC	HZ/PZ	FZ
L1	3.6	3760	75	18	6240	7070	16800	19500	4690
	4.25	3890	75	18	6590	7470	17600	20500	4950
	5.33	4060	75	18	7110	8060	18900	22000	5340
	6.2	4200	75	18	7480	8470	19700	23000	5620
	7.5	4090	75	18	7970	9030	20900	24300	5980
L2	13	4820	40	13	9560	10800	24600	28700	7180
	15.3	4990	40	13	10100	11400	25900	30100	7590
	18.1	5890	40	13	10700	12100	27200	31700	8020
	22.7	6140	40	13	11500	13000	29100	33900	8650
	26.4	6370	40	13	12100	13700	30500	35500	9100
	28.4	6700	39	13	12400	14100	31200	36300	9330
	33.1	6870	35	13	13100	14800	32600	38000	9810
	38.4	6470	28	13	13700	15600	34100	39700	10300
	46.5	6470	23	13	14600	16600	36100	42100	11000
	56.3	5210	15.5	13	15600	17700	38300	44500	11700
L3	53.2	7100	20	7.5	15300	17300	37600	43800	11500
	65.2	7480	19.7	7.5	18600	18600	40000	46600	12300
	77	8350	18.7	7.5	17300	19600	42000	48900	13000
	81.9	6890	14.5	7.5	17700	20000	42800	49900	13300
	88.3	8550	16.7	7.5	18100	20500	43800	51000	13600
	104	8900	14.7	7.5	19200	21700	46000	53600	14400
	112	7410	11.3	7.5	19600	22200	47100	54800	14800
	121	7790	11.1	7.5	20100	22800	48200	56100	15100
	141	7900	9.6	7.5	21200	24000	50400	58700	15900
	152	7590	8.6	7.5	21700	24600	51600	60000	16300
	190	6510	5.9	7.5	23400	26500	55100	64200	17600
	205	8110	6.8	7.5	24000	27200	56400	65600	18000
	222	6520	5.1	7.5	24600	27900	57700	67200	18500
	238	8180	5.9	7.5	25200	28600	59000	68700	19000
	268	5500	3.5	7.5	26200	29700	61100	71200	19700
L4	288	5500	3.3	7.5	26900	30500	62400	72700	20200
	325	5540	2.9	7.5	28000	31700	64700	75400	21000
	405	5670	2.4	7.5	30100	34100	69200	80500	22600
	391	6840	3.1	6	29800	33700	68400	79700	22400
	444	9850	3.9	6	31100	35200	71100	82800	23300
	509	9450	3.3	6	32500	36800	74100	86300	24400
	589	9320	2.8	6	34100	38700	77400	90100	25600
	636	9450	2.6	6	35000	39600	79200	92200	26300
	700	9470	2.4	6	36100	40900	81500	94900	27100
	809	7690	1.7	6	37900	43000	85100	99100	28500
877	7710	1.6	6	39000	44100	87200	101600	29300	
1015	9460	1.7	6	40900	46300	91100	106100	30700	
1095	7790	1.3	6	41900	47500	93200	108500	31500	
1279	8400	1.2	6	44200	50100	97700	113700	33200	
1475	10100	1.2	6	45000	51000	101000	118700	34800	
1597	8630	0.96	6	45000	51000	101000	119000	35000	
1714	10100	0.93	6	45000	51000	101000	119000	35000	
1843	8630	0.74	6	45000	51000	101000	119000	35000	
2074	7000	0.6	6	45000	51000	101000	119000	35000	
2337	7000	0.53	6	45000	51000	101000	119000	35000	
2916	7000	0.43	6	45000	51000	101000	119000	35000	

减速机额定值表
Gearmotor rating charts

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	SPN09						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ
L1	3.43	7010	150	25	18100	23300	4740
	4.09	7220	150	25	19000	24600	5030
	5.25	7600	150	25	20500	26500	5470
	6.23	7900	150	25	21600	27900	5790
L2	12.3	7890	60	18	26500	34200	7270
	14.7	9410	60	18	28000	36100	7710
	17.4	9730	60	18	29400	37900	8150
	21.8	10100	60	18	31500	40600	8790
	25.4	10500	60	18	32900	42500	9240
	28	12500	60	18	33900	43700	9550
	32.6	13000	60	18	35500	45800	10000
	38.6	12500	54	18	37400	48200	10600
	46.7	12500	45	18	39600	51000	11300
L3	51.3	13400	30	11	40700	52400	11700
	60.5	14100	30	11	42700	55100	12300
	74.1	15000	30	11	45400	58600	13200
	80.6	14800	30	11	46600	60100	13600
	93	15100	28	11	48600	62700	14200
	100	16500	28	11	49700	64100	14600
	113	15500	24	11	51600	66500	15200
	126	16400	22	11	53200	68700	15800
	139	16000	19.9	11	54800	70700	16300
	162	16300	17.3	11	57400	74000	17100
	183	14300	13.5	11	59500	76800	17800
	202	16500	14.1	11	61300	79100	18400
	223	13000	10	11	63200	81500	19100
	234	13000	9.4	11	64600	83300	19500
	284	15700	9.6	11	67900	87600	20700
	336	13200	6.8	11	71500	92200	21900
L4	349	21300	10.8	7.5	72300	93300	22100
	406	17800	7.8	7.5	75600	97500	23300
	450	18300	7	7.5	78800	101600	24400
	509	14300	5	7.5	81000	104400	25100
	579	21300	6.5	7.5	84100	108500	26200
	654	18100	4.9	7.5	87300	112600	27300
	722	21300	5.2	7.5	89900	116000	28200
	801	18200	4	7.5	92800	119600	29200
	906	17900	3.5	7.5	96300	124200	30400
	999	18200	3.2	7.5	103400	127800	31400
	1149	16200	2.5	7.5	106900	133300	32900
	1286	16500	2.3	7.5	109200	137900	34200
	1352	18200	2.2	7.5	110000	140900	35000
	1605	17000	1.9	7.5	110000	145000	36000
	1723	17000	1.8	7.5	110000	145000	36000
	2003	17000	1.5	7.5	110000	145000	36000
	2041	17000	1.5	7.5	110000	145000	36000
	2423	17000	1.2	7.5	110000	145000	36000

i -实际速比，输入转速n1=1500 min-1
Mn2 -减速机额定输出扭矩，
P1 -电机额定功率
Pt -减速机热功率
Rn2 -输出轴上允许的悬臂载荷，根据：
-安全系数S=1，
-10000小时使用寿命。
当作用力没有应用在轴中点时，按照具体减速机的尺寸查看相应图表。

	SPN10						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ
	4.09	7330	175	35	22600	28400	9080
	5.25	7710	175	35	24300	30600	9870
	6.23	8020	175	35	25600	32200	10400
	14.7	10800	75	22	33100	41700	13900
	17.4	11300	75	22	34800	43800	14700
	21.8	12100	75	22	37300	46900	15900
	25.4	12700	75	22	39000	49100	16700
	28	12800	75	22	40200	50500	17200
	30.7	13400	73	22	41300	51900	17800
	32.6	13300	68	22	42000	52900	18100
	38.6	13600	59	22	44300	55700	19200
	46.7	14200	51	22	46900	58900	20500
	53	15800	40	18	48700	61200	21300
	62.6	16600	40	18	51200	64300	22500
	73.9	17500	40	18	53800	67600	23800
	80.3	17500	37	18	55100	69300	24500
	91.3	18600	35	18	57300	72100	25600
	101	18700	32	18	59000	74200	26400
	110	19700	31	18	60700	76300	27200
	119	19700	28	18	62000	78000	27900
	130	20700	27	18	63800	80200	28800
	142	20700	25	18	65400	82200	29600
	164	22200	23	18	68300	85800	31100
	174	18300	17.7	18	69900	87900	31900
	190	20700	17.0	18	65400	82200	29600
	202	22000	18.8	18	72700	91400	33300
	230	21200	15.8	18	75600	95100	34800
	244	18400	12.7	18	77400	97400	35700
	295	23300	13.6	18	81500	102500	37800
	350	19000	9.3	18	85800	107900	40000
	392	19400	8.8	11	88700	111500	41500
	451	29800	11.7	11	92500	116300	43500
	507	25500	8.9	11	95800	120500	45300
	556	31600	10.1	11	98500	123900	46700
	637	26500	7.4	11	102600	129000	48800
	726	27100	6.6	11	106700	134200	51000
	818	27600	6	11	110600	139100	53100
	864	27100	6.5	11	106700	134200	51000
	939	33200	6.3	11	115300	145000	55600
	973	33200	5.5	11	115300	145000	55600
	1021	28700	5	11	118200	148600	57200
	1164	29300	4.5	11	123000	154600	59700
	1259	27600	3.9	11	125900	158300	61300
	1408	27810	3.2	11	131000	164700	64100
	1672	26000	2.8	11	133000	166000	65000
	1758	26000	2.6	11	133000	166000	65000
	2022	26000	2.3	11	133000	166000	65000
	2523	26000	1.8	11	133000	166000	65000

i - Gear ratio, gearbox drive-speed is 1500 min-1
Mn2 - Reference torque
P1 - Reference power
Pt - Thermal Power
Rn2 - Permitted overhung loading on output shaft ,based on:
- safety factor S=1
- 10000 hrs theoretical lifetime
For forces not applying at shaft midpoint,see diagrams provided in the pages following dimensions of the specific gearbox .

	SPN11							
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]			
					HC/PC	HZ/PZ	FZ	
L1	4.09	10600	200	35	26700	33200	9080	
	5.25	11700	200	35	28700	35800	9870	
	6.23	11600	200	35	30300	37700	10400	
L2	14	15300	115	26	38600	48100	13700	
	16.7	16100	115	26	40700	50700	14500	
	18	16900	115	26	41600	51800	14900	
	21.5	17400	115	26	43900	54600	15800	
	25.5	18300	115	26	46200	57500	16700	
	27.6	19200	115	26	47300	58900	17200	
	32.7	20200	103	26	49800	62000	18200	
	38.8	19700	85	26	52400	65300	19200	
L3								
	50.5	22400	60	18	56700	70600	21000	
	60.2	23700	60	18	59800	74500	22300	
	71.1	24900	60	18	62800	78300	23500	
	77.3	25500	57	18	64400	80200	24200	
	89.3	26600	51	18	67300	83800	25400	
	104	27800	46	18	70400	87600	26700	
	115	28700	43	18	72500	90300	27600	
	126	29500	40	18	74500	92800	28400	
	133	30000	39	18	75800	94500	29000	
	147	31800	37	18	78100	97300	30000	
	161	31800	34	18	80300	100000	30900	
	171	32600	33	18	81700	101800	31500	
	191	32200	29	18	84500	105300	32700	
	203	33400	28	18	86000	107200	33400	
	245	34300	24	18	91100	113500	35500	
	291	27000	16	18	95900	119400	37600	
	L4	348	39800	20	11	101100	126000	39900
		410	41500	18	11	106300	132400	42200
512		44000	15.2	11	113600	141500	45400	
568		43000	13.4	11	117200	145900	47000	
627		39800	11.3	11	120700	150300	48600	
724		46300	11.4	11	126000	157000	51000	
825		44600	9.6	11	131000	163200	53300	
904		46900	9.2	11	134700	167800	54900	
959		44600	7.4	11	131000	163200	53300	
986		42500	7.7	11	138300	172200	56500	
1058		43000	7.2	11	141200	175900	57900	
1170		42500	5.8	11	138300	172200	56500	
1230		43900	6.3	11	147800	184000	60800	
1377		39800	4.6	11	120700	150300	48600	
1415		42800	5.4	11	154100	191900	63800	
1488		43000	4.6	11	141200	175900	57900	
1680		34000	3.6	11	157000	195000	65000	
1766		43000	4.3	11	157000	195000	65000	
2096		34000	2.9	11	157000	195000	65000	

减速机额定值表
Gearmotor rating charts

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	SPN13						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ
L2	14.2	22600	150	30	47900	56700	16900
	16.9	23500	150	30	50500	59700	18000
	18.5	24100	150	30	51800	61400	18500
	21.8	25500	150	30	54400	64400	19500
	25.8	26700	150	30	57300	67800	20700
	28.4	27300	150	30	58900	69700	21300
	33.6	28800	143	30	62000	73400	22600
	40.5	29500	122	30	65600	77600	24000
L3	51.1	32700	60	18	70300	83200	25900
	61	34500	60	18	74100	87700	27500
	72	36300	60	18	77900	92200	29100
	78.3	37300	60	18	79900	94600	29900
	92.4	39300	60	18	84000	99400	31600
	110	41200	60	18	88400	104600	33500
	120	42100	60	18	90900	107600	34500
	135	44000	56	18	94100	111300	35800
	143	44400	53	18	95700	113300	36500
	151	45000	51	18	97300	115200	37200
	163	46000	49	18	99600	117800	38200
	176	45000	44	18	101800	120500	39100
	182	39000	37	18	102900	121800	39600
	194	47600	42	18	104800	124100	40400
	209	45000	37	18	107200	126900	41400
	252	45000	31	18	113500	134300	44200
	304	39100	22	18	120000	142000	47000
L4	352	52500	26	11	125400	148400	49300
	394	55000	25	11	129700	153500	51200
	452	54000	21	11	135200	160000	53600
	514	48600	16.8	11	140500	166300	56000
	564	54800	17.2	11	144500	171000	57700
	633	52000	14.6	11	149600	177000	60000
	695	51000	13	11	153800	182100	61900
	790	52200	11.7	11	159800	189200	64600
	889	53100	10.6	11	165600	196000	67200
	1014	54300	9.5	11	172300	203900	70200
	1117	52500	8.3	11	177300	209900	72500
	1266	56300	7.9	11	184100	217900	75600
	1394	52700	6.7	11	189500	224300	78100
	1502	58000	6.8	11	192000	229400	80000
	1817	58000	5.7	11	192000	231000	80000
	2187	49000	4	11	192000	231000	80000
L5	26.6	48600	75	25	79800	93600	31200
	22.3	37400	175	40	54300	63800	20400
	22.3	37400	175	40	58500	68700	22100
	26.5	37300	175	40	61600	72300	23400
	28	38200	175	40	62700	73600	23900
	33.2	40200	175	40	66000	77400	25300
	38.6	35300	152	40	69000	81000	26600
L6	314	77800	40	15	129400	151900	53400
	388	78500	36	15	137900	161900	57300
	458	79100	31	15	144900	170100	60600
	495	79300	28	15	148300	174100	62200
	554	79700	26	15	153400	180100	64600
	588	79900	24	15	156200	183400	65900
	668	80500	21	15	162300	190600	68700
	738	80900	19.5	15	167200	196300	71000
	858	81500	16.9	15	174900	205400	74700
	926	74000	14.2	15	179000	210100	76600
	1038	82400	14.1	15	185200	217400	79600
	1099	75800	12.2	15	188400	221200	81100
	1277	77400	10.8	15	197100	231400	85300
	1485	66700	8	15	206000	242100	89700
	1796	66800	6.6	15	206000	243000	90000
L7	262	209700	115	22	328800	335600	111800
	313	220800	115	22	346700	353800	118800
	337	225200	115	22	354400	361600	121500
	402	236100	104	22	373600	381300	128900
	422	239300	101	22	379300	387100	131100
	477	247200	92	22	393300	401400	136500
	515	252500	87	22	402700	410900	140100
	612	263300	76	22	423900	432600	148300
	647	264400	73	22	431100	439900	151100
	726	266600	65	22	446300	455400	157000
	768	267600	62	22	453800	463100	160000
	911	270900	53	22	477700	487500	169400
	1059	273800	46	22	499800	510000	178100

	SPN15							SPN16						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]			i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ					HC/PC	HZ/PZ	FZ
L2	17.4	41400	200	45	54300	63800	20400	17.4	43900	200	50	90300	100400	33900
	22.3	46800	200	45	58500	68700	22100	22.3	48500	200	50	97300	108200	36900
	26.5	46600	200	45	61600	72300	23400	26.5	47700	200	50	102500	113900	39100
	28	47800	200	45	62700	73600	23900							
	33.2	50300	200	45	66000	77400	25300							
	38.6	44100	190	45	69000	81000	26600							
L3	59.6	59900	115	30	78600	92300	30700	59.6	63400	115	35	130700	145300	51200
	71.1	63100	115	30	82900	97300	32600	71.1	66900	115	35	137800	153300	54300
	91.3	68000	115	30	89300	104900	35400	76.5	70100	115	35	140800	156600	55600
	108	71600	114	30	94000	110400	37500	91.3	72100	115	35	148500	165200	59000
	139	81100	100	30	101300	119000	40700	108	75900	115	35	156300	173900	62500
	165	80400	84	30	106700	125200	43100	117	79400	115	35	160000	178000	64100
	174	78800	78	30	108500	127400	43900	139	81800	101	35	168500	187400	67900
	207	79800	66	30	114200	134100	46500	165	82500	86	35	177400	197300	71900
	241	65000	46	30	119500	140300	48900							
L4	302	97000	57	18	127900	150200	52800	215	93200	60	18	191900	213500	78500
	370	97900	47	18	135900	159500	56400	256	98200	60	18	202400	225100	83200
	441	98700	40	18	143300	168200	59800	302	103200	60	18	212700	236600	87900
	487	99100	36	18	147600	173300	61800	329	105800	57	18	218100	242600	90400
	533	99500	33	18	151700	178100	63800	370	109400	53	18	225900	251300	94000
	591	99900	30	18	156400	183600	66000	441	115200	46	18	238200	264900	99700
	672	100600	27	18	162500	190800	68900	487	118600	43	18	245400	272900	103100
	741	101100	24	18	167400	196600	71200	533	121800	40	18	252200	280500	106300
	862	101900	21	18	175200	205700	74800	566	123900	39	18	256700	285500	108400
	930	92600	17.6	18	179200	210400	76800	591	122500	37	18	260100	289200	110000
	1043	103000	17.5	18	185500	217800	79700	625	126500	36	18	264500	294100	112000
	1104	94800	15.2	18	188700	221500	81300	685	127800	33	18	271800	302300	115500
	1284	96900	13.4	18	197400	231800	85400	726	128600	31	18	276700	307700	117800
	1492	83400	9.9	18	206000	242500	89800	741	126500	30	18	278400	309600	118600
	1805	83500	8.2	18	206000	243000	90000	812	130000	28	18	286100	318200	122300
								862	129000	27	18	291300	323900	124700
								1043	132300	23	18	308400	343000	132900
							1237	122100	17.5	18	324600	361100	140700	

	SPN19							SPN21						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]			i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ					HC/PC	HZ/PZ	FZ
L3	84.8	195400	200	50	269300	296700	76700							
	109	222400	200	50	290200	319800	83400							
	129	220800	200	50	305500	336600	88300							
	137	226500	200	50	310700	342300	90000							
	162	250300	200	50	326800	360000	95200							
	188	209800	192	50	342200	377000	100100							
	223	246100	190	50	359900	396500	105900							
L4	347	298000	115	30	410900	452700	122700	258	401700	150	35	461500	547200	667600
	445	319800	115	30	442900	487900	133400	308	423600	150	35	486600	577000	708100
	528	335700	113	30	466200	513700	141200	395	456500	150	35	524400	621900	769500
	571	344400	107	30	477300	525800	145000	469	480500	150	35	552000	654600	814700
	678	354900	93	30	502400	553600	153500	515	494200	150	35	567800	673300	840500
	717	355800	88	30	510900	562900	156300	612	519900	150	35	597700	708800	889900
	850	363400	76	30	537900	592600	165500	736	545400	131	35	631900	749400	946600
	912	336100	65	30	549200	605100	169400	796	556600	124	35	646900	7671100	971600
	1007	344900	61	30	565700	623300	175100	945	581800	109	35	681000	807600	1028700
	1195	354500	53	30	595600	656200	185400	1122	530200	84	35	716900	850200	1089200
	1389	355900	45	30	623100	686500	194900							

减速机额定值表
Gearmotor rating charts

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24.2 SPN...R 直角轴式减速机额定值表

	SPN00								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC/PC	MZ/PZ	HC	HZ	FZ
R2	7.13	580	13.7	12	2050	2050	6170	7080	1350
	8.74	610	11.7	12	2190	2190	6550	7530	1440
	11.8	590	8.3	12	2420	2420	7180	8240	1590
	14.8	510	5.7	12	2610	2610	7670	8810	1710
R3	24.8	730	5.1	12	3100	3100	8960	10300	2040
	30.4	840	4.8	12	3320	3320	9530	10900	2180
	37.3	840	3.9	12	3550	3550	10100	11600	2330
	41.2	650	2.7	12	3670	3670	10400	12000	2410
	50.4	850	2.9	12	3930	3930	11100	12700	2580
	62.9	850	2.3	12	4230	4230	11800	13600	2780
	68.2	650	1.6	12	4340	4340	12100	13900	2860
	78.7	850	1.9	12	4550	4550	12700	14600	2990
	85.2	650	1.3	12	4680	4680	13000	14900	3070
R4	106	860	1.4	10	5030	5030	13800	15900	3310
	130	860	1.2	10	5380	5380	14700	16900	3540
	143	650	0.81	10	5560	5560	15200	17400	3660
	159	870	0.97	10	5760	5760	15600	18000	3780
	175	880	0.89	10	5950	5950	16100	18500	3910
	215	910	0.75	10	6370	6370	17100	19700	4190
	237	650	0.49	10	6580	6580	17600	20300	4330
	268	930	0.62	10	6860	6860	18300	21000	4510
	291	950	0.58	10	7040	7040	18800	21500	4630
	363	980	0.48	10	7580	7580	20000	23000	4990
	394	680	0.31	10	7790	7790	20500	23600	5120
	453	1020	0.4	10	8160	8160	2140	24600	5370
	491	710	0.25	10	8390	8390	21900	25200	5510
	613	730	0.21	10	9030	9030	23500	27000	5940

24.2 Rating charts for right-angle units SPN...R

SPN01								
i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
				MC	MZ	HC/PC	HZ/PZ	FZ
7.13	1040	15	12	2050	2050	6170	7080	1350
8.74	1090	15	12	2190	2190	6550	7530	1440
11.8	1150	15	12	2420	2420	7180	8240	1590
14.8	940	10.6	12	2610	2610	7670	8810	1710
24.8	1390	9.7	12	3100	3100	8960	10300	2040
30.4	1580	8.9	12	3320	3320	9530	10900	2180
37.3	1600	7.4	12	3550	3550	10100	11600	2330
41.2	1300	5.4	12	3670	3670	10400	12000	2410
50.4	1630	5.6	12	3930	3930	11100	12700	2580
62.9	1650	4.5	12	4230	4230	11800	13600	2780
68.2	1300	3.3	12	4340	4340	12100	13900	2860
78.7	1570	3.4	12	4550	4550	12700	14600	2990
85.2	1300	2.6	12	4680	4680	13000	14900	3070
106	1700	2.8	10	5030	5030	13800	15900	3310
130	1720	2.3	10	5380	5380	14700	16900	3540
143	1300	1.6	10	5560	5560	15200	17400	3660
159	1740	1.9	10	5760	5760	15600	18000	3780
175	1770	1.8	10	5950	5950	16100	18500	3910
215	1820	1.5	10	6370	6370	17100	19700	4190
237	1300	0.97	10	6580	6580	17600	20300	4330
268	1870	1.2	10	6860	6860	18300	21000	4510
291	1890	1.2	10	7040	7040	18800	21500	4630
363	1960	0.96	10	7580	7580	20000	23000	4990
394	1360	0.61	10	7790	7790	20500	23600	5120
453	1930	0.76	10	8160	8160	2140	24600	5370
491	1410	0.51	10	8390	8390	21900	25200	5510
613	1470	0.42	10	9030	9030	23500	27000	5940

	SPN03								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC/PC	MZ/PZ	HC	HZ	FZ
R2	9.23	1680	30	18	6850	7910	13600	16400	4400
	10.9	1900	29	18	7240	8360	14300	17200	4650
	13.7	1970	24	18	7810	9020	15300	18400	5010
	15.9	1820	19.1	18	8220	9480	16000	19300	5270
	19.2	1550	13.5	18	8750	10100	16900	20400	5620
R3	25.7	2030	13.6	14	9640	11100	18500	22200	6190
	31.5	2110	11.5	14	10300	11900	19600	23600	6620
	37.1	2390	11.1	14	10900	12600	20600	24800	7000
	42.6	2070	8.4	14	11400	13200	21500	25900	7320
	46.6	2160	8	14	11800	13600	22100	26600	7550
	50.3	2380	8.2	14	12100	13900	22600	27200	7740
	54.2	1820	5.8	14	12400	14300	23100	27800	7930
	63.1	2170	5.9	14	13000	15000	24200	29100	8350
	73.3	1820	4.3	14	13700	15800	25300	30500	8780
	78.7	2180	4.8	14	14000	16200	25900	31100	8990
R4	91.5	1820	3.4	14	14700	17000	27100	32600	9450
	129	2620	3.6	12	16500	19100	30000	36100	10600
	148	2310	2.8	12	17300	20000	31300	37600	11100
	158	2660	3	12	17700	20400	31900	38400	11300
	185	2310	2.2	12	18600	21500	33400	40200	11900
	214	2730	2.3	12	19600	22600	34900	42000	12500
	231	1830	1.4	12	20100	23100	35700	43000	12900
	255	1840	1.3	12	20700	23900	36800	44300	13300
	290	2650	1.6	12	21600	25000	38300	46000	13900
	313	1850	1.1	12	22200	25600	39100	47100	14200
	336	2270	1.2	12	22700	26200	40000	48100	14600
	364	2310	1.1	12	23300	26900	40900	49300	15000
	390	1930	0.88	12	23900	27600	41800	50300	15300
	452	2250	0.88	12	25100	28900	43700	52600	16100
	528	2030	0.68	12	26400	30500	45800	55100	16900
	567	2430	0.76	12	27000	31200	46800	56300	17400
	659	2110	0.57	12	28400	32800	48900	58900	18200
	797	1820	0.41	12	30300	35000	51800	62300	19400

	SPN05								
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				
					MC/PC	MZ/PZ	HC	HZ	FZ
R2	9.23	1680	30	18	6850	7910	13600	16400	4400
	10.9	1980	30	18	7240	8360	14300	17200	4650
	13.7	2490	30	18	7810	9020	15300	18400	5010
	15.9	2890	30	18	8220	9480	16000	19300	5270
	19.2	2860	25	18	8750	10100	16900	20400	5620
R3	25.7	3630	15	14	9640	11100	18500	22200	6190
	31.5	3770	15	14	10300	11900	19600	23600	6620
	37.1	4340	15	14	10900	12600	20600	24800	7000
	42.6	3790	15	14	11400	13200	21500	25900	7320
	46.6	4310	15	14	11800	13600	22100	26600	7550
	50.3	4410	15	14	12100	13900	22600	27200	7740
	54.2	3570	11.3	14	12400	14300	23100	27800	7930
	63.1	4330	11.8	14	13000	15000	24200	29100	8350
	73.3	3580	8.4	14	13700	15800	25300	30500	8780
	78.7	4350	9.5	14	14000	16200	25900	31100	8990
91.5	3580	6.7	14	14700	17000	27100	32600	9450	
R4	129	5200	7.1	12	16500	19100	30000	36100	10600
	148	4480	5.4	12	17300	20000	31300	37600	11100
	158	5310	6	12	17700	20400	31900	38400	11300
	185	4490	4.3	12	18600	21500	33400	40200	11900
	214	5390	4.5	12	19600	22600	34900	42000	12500
	231	3600	2.8	12	20100	23100	35700	43000	12900
	255	3600	2.5	12	20700	23900	36800	44300	13300
	290	5300	3.2	12	21600	25000	38300	46000	13900
	313	3620	2.1	12	22200	25600	39100	47100	14200
	336	4560	2.4	12	22700	26200	40000	48100	14600
	364	4620	2.3	12	23300	26900	40900	49300	15000
	390	3750	1.7	12	23900	27600	41800	50300	15300
	452	4750	1.9	12	25100	28900	43700	52600	16100
	528	3920	1.3	12	26400	30500	45800	55100	16900
	567	4860	1.5	12	27000	31200	46800	56300	17400
659	4070	1.1	12	28400	32800	48900	58900	18200	
797	3450	0.77	12	30300	35000	51800	62300	19400	

减速机额定值表

Gearmotor rating charts

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	SPN10								SPN11						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ						HC/PC	HZ/PZ	FZ
R2(B)	12	10100	130	55	31200	39200	13000	R2(B)	12	11900	150	75	36900	45900	13000
	15.4	10700	115	55	33600	42300	14100		15.4	15400	150	75	39700	49500	14100
	18.3	11100	101	55	35400	44500	15000		18.3	16000	146	75	41800	52100	15000
R2(C)	16.6	11200	112	55	34400	43200	14500	R2(C)	16.6	14400	144	90	40600	50600	14500
	21.3	11800	92	55	37100	46600	15800		21.3	16900	132	90	43800	54500	15800
	25.3	12200	81	55	39000	49000	16700		25.3	17600	116	90	46100	57400	16700
R3	37.7	6650	30	22	44000	55300	19000	R3	53	20300	66	40	57500	71600	21300
	44.6	7860	30	22	46200	58100	20100		63.2	24000	65	40	60600	75500	22600
	55.9	9860	30	22	49500	62200	21700		68	24000	61	40	62000	77200	23200
	65	11500	30	22	51700	65100	22800		81.1	25900	55	40	65400	81400	24600
	71.8	12700	30	22	53300	67000	23600		96.3	27200	49	40	68800	85700	26000
	78.6	13900	30	22	54800	68900	24300		104	28700	47	40	70400	87700	26700
	83.4	14700	30	22	55800	70100	24800		124	30200	42	40	74100	92400	28300
	99	16400	29	22	58700	73800	26300		147	26900	32	40	78100	97200	29900
	120	17400	25	22	62200	78200	28000								
R4	136	21000	27	15	64600	81200	29200	R4	154	26400	30	22	79300	98700	30500
	160	22000	24	15	67800	85300	30900		182	31200	30	22	83300	103800	32200
	189	23200	22	15	71300	89700	32600		198	33800	30	22	85400	106400	33100
	206	22100	19	15	73100	91900	33500		229	35300	27	22	89200	111100	34700
	234	24700	18.7	15	76000	95600	35000		266	36900	25	22	93300	116200	36500
	258	22800	15.7	15	78300	98400	36200		294	38000	23	22	96100	119700	37700
	298	26100	16.4	15	80500	101200	37300		322	39000	22	22	98800	123100	38900
	305	23400	13.6	15	82300	103500	38200		341	39200	20	22	100600	125300	39700
	334	27400	14.6	15	84600	106300	39400		413	40600	17.4	22	106500	132600	42300
	363	24100	11.8	15	86700	109000	40500		438	37500	15.2	22	108400	135000	43100
	419	29000	12.3	15	90500	113800	42500		490	34500	12.5	22	112100	139600	44800
	445	20000	7.8	15	92700	116600	43600		520	38600	13.2	22	114100	142100	45700
	517	25600	8.8	15	96400	121200	45600		629	39700	11.2	22	120800	150500	48600
	590	21800	6.6	15	100300	126100	47600		746	30500	7.3	22	127200	158400	51500
	626	21500	6	15	102700	129100	48900								
	757	26400	6.2	15	108100	135900	51700								
	898	23200	4.6	15	113800	143100	54800								

	SPN13								SPN14						
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]		
					HC/PC	HZ/PZ	FZ						HC/PC	HZ/PZ	FZ
R2(B)	12.2	12100	150	75	45700	54100	16100	R3(B)	51.1	38500	130	55	75000	88100	29200
	15.9	15700	150	75	49500	58600	17600		65.5	49700	130	55	80900	94900	31700
	19.1	19100	150	75	52300	61900	18700		77.8	52400	114	55	85100	100000	33600
R2(C)	16.8	14600	144	90	50400	59600	17900	R3(C)	82.3	55100	110	55	86600	101600	34200
	22	19000	144	90	54600	64600	19600		97.6	43900	97	55	91100	107000	36200
	26.4	22800	144	90	57700	68300	20800		113	49800	93	55	95300	111900	38100
R3	53.7	20500	66	40	71300	84400	26400	R4	70.7	51500	107	55	82700	97100	32500
	64	24500	66	40	75200	89000	28000		90.7	48000	90	55	89200	104700	35300
	69.9	26700	66	40	77200	91400	28800		108	47300	80	55	93900	110200	37400
	82.2	31400	66	40	81100	95900	30400		114	51700	78	55	95400	112100	38100
	97.5	37300	66	40	85300	101000	32200		135	60500	77	55	100500	118000	40300
	107	38800	62	40	87800	103900	33200		157	52000	57	55	105100	123400	42400
	127	40700	55	40	92400	109400	35100								
	153	39000	44	40	97700	115600	37400								
R4	185	31600	30	22	103300	122300	39800	R4	160	56200	35	22	105800	124200	42700
	201	34300	30	22	106000	125400	40900		189	59300	35	22	111200	130500	45100
	237	40500	30	22	111400	131800	43200		238	71100	35	22	119000	139700	48700
	281	48100	30	22	117200	138800	45800		276	75700	35	22	124500	146200	51200
	309	44500	26	22	120600	142700	47200		354	78200	35	22	134200	157500	55600
	346	53000	27	22	124700	147600	49000		421	78800	33	22	141300	165900	58900
	387	46700	21	22	129100	152800	50900		445	67800	27	22	143600	168700	60000
	450	47700	18.8	22	136100	159800	53600		528	68800	23	22	151200	177500	63500
	496	52100	18.6	22	139000	164500	55300		614	57600	16.7	22	158200	185800	66800
	535	48900	16.2	22	142200	168300	56700								
	647	50400	13.8	22	150500	178100	60400								
	778	44200	10.1	22	159100	188300	64300								

	SPN15								SPN16							
	i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]				i	Mn2 [Nm]	P1 [kW]	Pt [kW]	Rn2 [N]			
					HC/PC	HZ/PZ	FZ						HC/PC	HZ/PZ	FZ	
R3(B)	51.1	48100	150	75	75000	88100	29200	R3(B)	51.1	50000	150	75	124800	138800	48600	
	65.5	62100	150	75	80900	94900	31700		65.5	63800	150	75	134500	149500	52800	
	77.8	64400	143	75	85100	100000	33600		77.8	65800	146	75	141600	157400	55900	
	82.3	65500	137	75	86600	101600	34200									
	97.6	68800	121	75	91100	107000	36200	R3(C)	70.7	59300	144	90	137600	153000	54200	
	113	64000	91	75	95300	111900	38100		90.7	69800	132	90	148200	164900	58900	
70.7	54900	134	90	82700	97100	32500	108		72500	116	90	156100	173600	62300		
90.7	59200	112	90	89200	104700	35300										
R3(C)	108	62300	100	90	93900	110200	37400	R4	225	94500	74	45	194700	216600	79700	
	114	64700	98	90	95400	112100	38100		269	99700	66	45	205300	228300	84600	
	135	75700	96	90	100500	118000	40300		289	105700	65	45	209900	233400	86600	
	157	65000	71	90	105100	123400	42400		345	107300	55	45	221300	246100	91900	
									409	112700	49	45	232900	259100	97300	
225	77700	61	40	117100	137500	47800	443		117300	47	45	238500	265200	99900		
269	82000	54	40	123500	145000	50700	525		118900	40	45	251000	279200	105700		
345	96000	49	40	133100	156200	55100	623		115400	33	45	264300	293900	111900		
R4	409	98300	43	40	140100	164500	58400									
	525	99400	34	40	151000	177300	63400									
	623	100200	29	40	158900	186600	67200									
	659	88200	24	40	161600	189800	68400									
	782	90300	20	40	170200	199800	72400									
	909	76900	15	40	178000	209000	76200									

Technical drawings of various mechanical components, including dimensions and labels:

- PC:** Front view (A, A1, m, h, H, C), Side view (L, E, e1, e2, e3, s, g, n1-5S1, B1, B, n, d, s).
- PZ:** Side view (F, f1, e4, n2-S2, g, f2, f3, d1, d2, d3, d4).
- MC:** Side view (L, c2, c3, L1, c1, d, s, W1, K, W2).
- MZ:** Side view (n3-5S3).
- HC:** Side view (L, L2, c2, E, e1, e2, d, s).
- HZ:** Side view.
- FZ:** Side view (Z, Z1, Z2, Z3, Dz2, Dz1, Dz).
- FP:** Side view (L, P, L1, c4, P3, P2, P1, Dp1, Dp).
- Shrink disc:** Front view (P4, Df, Df, M1-10.9, 扭矩/torque).

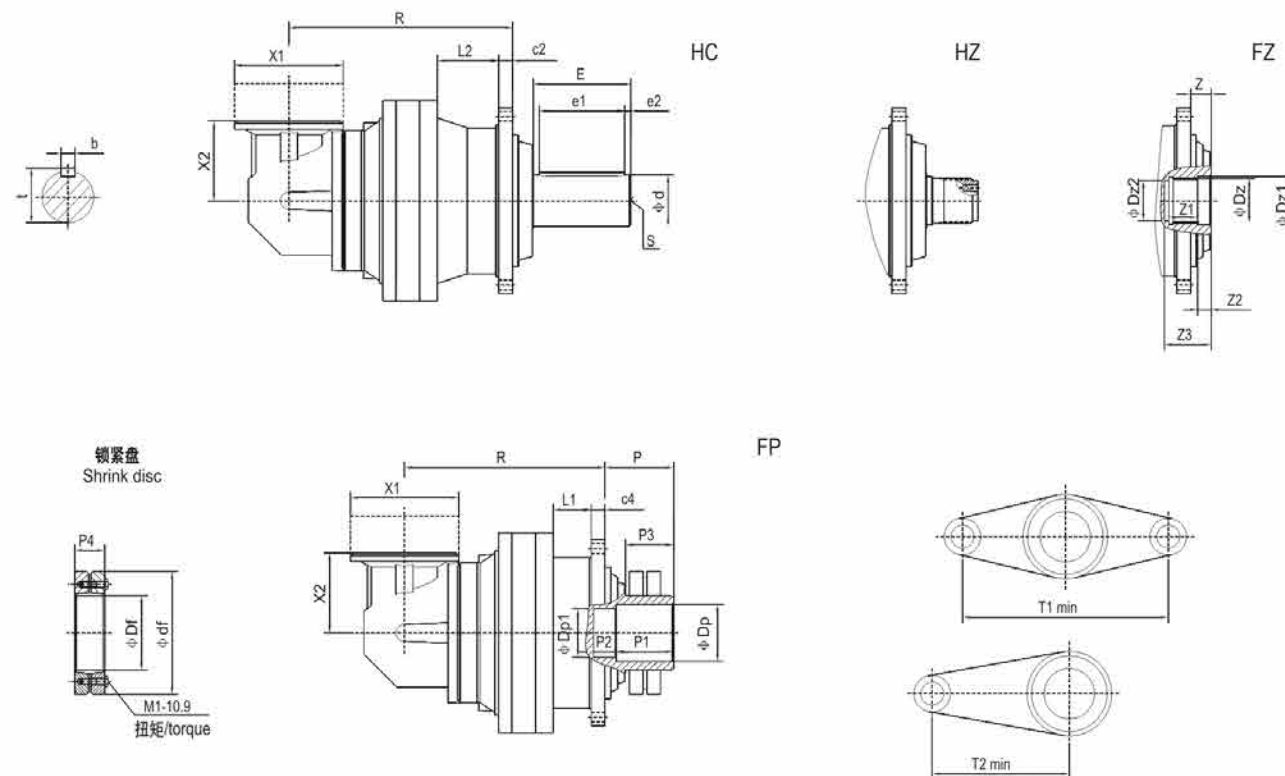
型号 size	级数 Stage	L				 Kg				底脚尺寸 foot dimension				MZ,PZ 花键尺寸 splined shaft dimension (DIN5482)			
		PC PZ	MZ/MC FP/FZ	HC HZ	MZ MC	FZ FP	HZ HC	PC PZ	h H	A B C	A1 B1	m n	n1 φ S1 g	dc n2 S2	dz1 dz2 e4	f1 f2 f3	F dz
SPN00	L1	86	80	115	19	17	21	24		205			4	24	35 f7	7	55 B40*36
	L2	139	133	168	23	21	25	28	100	160	165	125	φ 11	3	42 f7	5	
	L3	192	186	221	27	25	29	33	195		120	20					
	L4	245	239	274	32	29	33	37		13			16	M6	13	35	
SPN01	L1	132	92	126	22	20	24	27		260			4	24	35 f7	7	55 B40*36
	L2	185	145	176	26	24	28	32	132	180	216	172	φ 17	3	42 f7	5	
	L3	238	198	232	30	28	33	36	227		138	21					
	L4	291	251	285	35	33	37	40		15			24	M6	13	35	
SPN03	L1	165	125	150	33	33	37	42		310			4	32	50 f7	10	68 B58*53
	L2	218	178	203	37	37	41	46	160	235	254	198	φ 18	3	60 f7	8	
	L3	271	231	256	41	41	45	50	282		169	33					
	L4	324	284	309	45	45	49	54		22			39	M10	20	46	
SPN05	L1	183	143	168	38	38	42	47		310			4	32	50 f7	10	68 B58*53
	L2	248	208	233	45	45	49	54	160	235	254	198	φ 18	3	60 f7	8	
	L3	301	261	286	49	49	53	58	282		169	33					
	L4	354	314	339	53	53	57	62		22			39	M10	20	46	
SPN06	L1	235	160	195	68	68	73	84		350			4	45	62 f7	10	90 B70*64
	L2	300	225	260	77	77	83	93	180	281	279	200	φ 22	3	72 f7	10	
	L3	353	278	313	81	81	87	97	327		201	40					
	L4	406	331	366	86	86	91	101		25			65	M10	20	61.5	
SPN07	L1	246	165	210	99	89	110	125		390			4	45	70 f7	10	90 B80*74
	L2	335	254	299	112	101	122	138	200	289	318	246	φ 26	3	85 f7	10	
	L3	400	319	364	119	109	129	145	375		219	35					
	L4	453	372	417	123	113	133	149		25			66	M12	20	60	

型号 size	da L1 L2	轴伸尺寸 * shaft dimension			法兰尺寸 flange dimension			FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension			
		d E S	e1 e2	b t e3	c1 c2 c3	W1 K W2	n3 s3 c4	DP DP1 P	P1 P2 P3	φ Df * φ df * P4 M1 扭矩/torque	T1 T2	Dz1 Dz2	z1 z2 z3	Z Dz(DIN5482)	
SPN00	190	38/50 h6	50/70 4/6	10/14	5	110 f7	8	42 H7	42	φ 50x φ 90x26	450 300	42 H7 35 H8	22	14 A40°36 H10	
	36	58/82		41/53.5	12	165	10.5	35 H7	18	M6-10.9			12.5		
	71	M12		28/36	6	185	12	50	44	12 Nm			42.5		
SPN01	190	38/50 h6	50/70 4/6	10/14	5	110 f7	8	52 H7	42	φ 62x φ 110x30	450 300	42 H7 35 H8	22	14 A40°36 H10	
	36	58/82		41/53.5	12	165	10.5	35 H7	18	M6-10.9			12.5		
	71	M12		28/36	6	185	12	50	44	12 Nm			42.5		
SPN03	245	60 h6	90 7.5	18	13	150 f7	10	75 H7	70	φ 100x φ 170x44	500 350	60 H7 50 H8	29	15 A58°53 H10	
	70	105		64	20	195	12.5	65 H7	30	M8-10.9			15		
	91	M20		50	15	222	20	85	70	30 Nm			54		
SPN05	245	60 h6	90 7.5	18	13	150 f7	10	75 H7	70	φ 100x φ 170x44	500 350	60 H7 50 H8	29	15 A58°53 H10	
	70	105		64	20	195	12.5	65 H7	30	M8-10.9			15		
	91	M20		50	15	222	20	85	70	30 Nm			54		
SPN06	294	80 h6	110 10	22	12	200 f7	12	90 H7	90	φ 110x φ 185x44	600 400	72 H7 60 H8	45	40 A70°64 H10	
	72	130		85	20	250	15	75 H7	55	M10-10.9			22		
	107	M20		50	40	280	20	115	75	58 Nm			79		
SPN07	350	90 h6	150 10	25	10	230 f7	10	100 H7	100	φ 125x φ 215x54	700 450	85 H7 70 H8	50	36 A80°74 H10	
	67	170		95	25	295	16.5	85 H7	40	M10-10.9			24		
	107	M20		50	36	325	24	120	80	58 Nm			87		

MC时, d=38 E=58 e1=50 e2=4 b=10 t=41 e3=28
PC HC时, d=50 E=82 e1=70 e2=6 b=14 t=53.5 e3=36

The image displays four sets of technical drawings for different valve models, each consisting of a top view and a side view with dimension labels.

- PC (Pneumatic Control):**
 - Top View:** Shows a circular body with eight internal ports. Dimensions include overall diameter ϕ , port diameter ϕd , and port spacing $\phi d/2$.
 - Side View:** Shows the valve's profile with dimensions for body length R , port diameter ϕd , and port spacing $\phi d/2$.
- PZ (Pneumatic Zero):**
 - Top View:** Shows a circular body with four internal ports. Dimensions include overall diameter ϕ , port diameter ϕd , and port spacing $\phi d/2$.
 - Side View:** Shows the valve's profile with dimensions for body length R , port diameter ϕd , and port spacing $\phi d/2$.
- MC (Manual Control):**
 - Top View:** Shows a circular body with four internal ports. Dimensions include overall diameter ϕ , port diameter ϕd , and port spacing $\phi d/2$.
 - Side View:** Shows the valve's profile with dimensions for body length R , port diameter ϕd , and port spacing $\phi d/2$.
- MZ (Manual Zero):**
 - Top View:** Shows a circular body with four internal ports. Dimensions include overall diameter ϕ , port diameter ϕd , and port spacing $\phi d/2$.
 - Side View:** Shows the valve's profile with dimensions for body length R , port diameter ϕd , and port spacing $\phi d/2$.



型号 size	级数 Stage	R							X1	X2	底脚尺寸 foot dimension					MZ,PZ 花键尺寸 splined shaft dimension (DIN5482)			
		PC PZ	MZ/MC FP/FZ	HC HZ	MZ MC	FZ FP	HZ HC	PC PZ			h H	A B C	A1 B1	m n	n1 φ S1 g	dc n2 S2	dz1 dz2 e4	f1 f2 f3	F dz
SPN00	R2	178	172	207	34	31	36	39	190	122		205			4	24	35 f7	7	55 B40°36
	R3	231	225	260	38	36	40	43	190	122	100 195	160	165 120	125 20	11	3	42 f7	5	
	R4	284	278	313	42	40	44	47	190	122		13			16	M6	13	35	
SPN01	R2	225	184	219	37	35	39	42	190	122		260			4	24	35 f7	7	55 B40°36
	R3	278	237	272	41	39	43	46	190	122	132 227	180	216 138	172 21	17	3	42 f7	5	
	R4	331	290	325	45	43	47	50	190	122		15			24	M6	13	35	
SPN03	R2	257	217	242	53	53	57	62	190	140		310			4	32	50 f7	10	68 B58°53
	R3	310	270	295	51	51	55	60	190	122	160 282	235	254 169	198 33	18	3	60 f7	8	
	R4	363	323	350	55	55	59	64	190	122		22			39	M10	20	46	
SPN05	R2	275	235	260	58	58	62	67	190	140		310			4	32	50 f7	10	68 B58°53
	R3	340	300	325	59	59	63	68	190	122	160 282	235	254 169	198 33	18	3	60 f7	8	
	R4	393	353	378	63	63	67	72	190	122		22			39	M10	20	46	
SPN06	R2	372	297	332	93	93	97	109	190	140		350			4	45	62 f7	10	90 B70°64
	R3	392	317	352	89	89	94	105	190	140	180 327	281	279 201	200 40	22	3	72 f7	10	
	R4	445	370	405	83	83	88	98	190	122		25			65	M10	20	61.5	
SPN07	R2	365	284	329	151	141	161	177	245	225		390			4	45	70 f7	10	90 B80°74
	R3	427	346	391	132	122	143	158	190	140	200 375	289	318 219	246 35	26	3	85 f7	10	
	R4	492	411	456	133	123	144	160	190	122		25			66	M12	20	60	

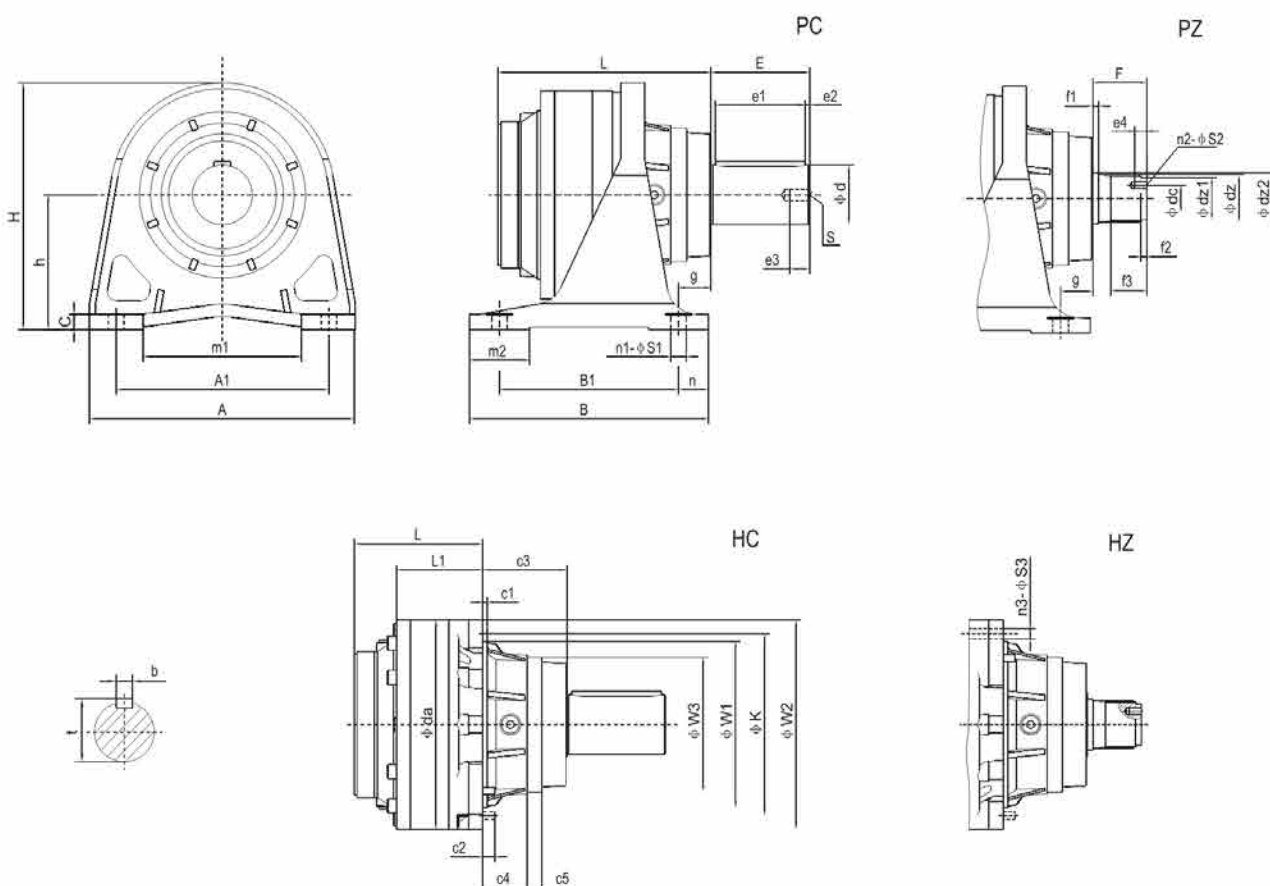
型号 size	da L1 L2	轴伸尺寸 * shaft dimension			法兰尺寸 flange dimension			FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension			
		d E S	e1 e2	b t e3	c1 c2 c3	W1 K W2	n3 s3 c4	DP DP1 P	P1 P2 P3	φ Df * φ df *P4 M1 扭矩/torque	T1 T2	Dz1 Dz2	z1 z2 z3	Z Dz(DIN5482)	
SPN00	190	38/50 h6	50/70 4/6	10/14	5	110 f7	8	42 H7	42	φ 50x φ 90x26	450 300	42 H7 35 H8	22 12.5 42.5	14 A40*36 H10	
	36	58/82		12	165	10.5	35 H7	18	M6-10.9						
	71	M12		6	185	12	50	44	12 Nm						
SPN01	190	38/50 h6	50/70 4/6	10/14	5	110 f7	8	52 H7	42	φ 62x φ 110x30	450 300	42 H7 35 H8	22 12.5 42.5	14 A40*36 H10	
	36	58/82		12	165	10.5	35 H7	18	M6-10.9						
	71	M12		6	185	12	50	44	12 Nm						
SPN03	245	60 h6	90 7.5	18	13	150 f7	10	75 H7	70	φ 100x φ 170x44	500 350	60 H7 50 H8	29 15 54	15 A58*53 H10	
	70	105		20	195	12.5	65 H7	30	M8-10.9						
	91	M20		15	222	20	85	70	30 Nm						
SPN05	245	60 h6	90 7.5	18	13	150 f7	10	75 H7	70	φ 100x φ 170x44	500 350	60 H7 50 H8	29 15 54	15 A58*53 H10	
	70	105		20	195	12.5	65 H7	30	M8-10.9						
	91	M20		15	222	20	85	70	30 Nm						
SPN06	294	80 h6	110 10	22	12	200 f7	12	90 H7	90	φ 110x φ 185x44	600 400	72 H7 60 H8	45 22 79	40 A70*64 H10	
	72	130		20	250	15	75 H7	55	M10-10.9						
	107	M20		40	280	20	115	75	58 Nm						
SPN07	350	90 h6	150 10	25	10	230 f7	10	100 H7	100	φ 125x φ 215x54	700 450	85 H7 70 H8	50 24 87	36 A80*74 H10	
	67	170		25	295	16.5	85 H7	40	M10-10.9						
	107	M20		36	325	24	120	80	58 Nm						

MC时, $d=38$ $E=58$ $e_1=50$ $e_2=4$ $b=10$ $t=41$ $e_3=28$
PC HC时, $d=50$ $E=82$ $e_1=70$ $e_2=6$ $b=14$ $t=53.5$ $e_3=36$

尺寸 Dimensions

25

SPN09 L... ~ SPN17 L...



SPN09 L... ~ SPN17 L...

型号 size	级数 Stage	L				 Kg				da L1 L2	底脚尺寸 foot dimension					MZ,PZ 花键尺寸 splined shaft dimension (DIN5482)			
		PC PZ	HC HZ	FP FZ	HZ HC	PC PZ	FZ	FP	h H		A B C	A1 B1	m1 m2 n	n1 S1 g	dc n2 S2	dz1 dz2 e4	f1 f2 f3	F dz	
SPN09	L1	267	126	101	120	136	99	105	350		445		265	4	45	70 f7	10	90	
	L2	356	215	190	133	148	112	117	144	225	400	356	100	26	3	85 f7	9	B80°74°36° (DIN5482)	
	L3	421	280	255	140	155	119	124		414	24	300	50	54	M12	20	60		
	L4	474	333	308	144	159	123	128	119										
SPN10	L1	288	108	88	141	162	115	120	400		500		300	4	65	85 f7	12	110	
	L2	424	244	224	173	194	146	152	130	250	420	406	100	26	3	105 f7	12	B100°94° (DIN5482)	
	L3	489	309	289	182	203	155	161		469	26	320	50	90	M12	20	78		
	L4	542	362	342	186	207	158	166	110										
SPN11	L1	325	115	115	187	260	166	176	428		550		330	4	65	85 f7	12	110	
	L2	458	248	248	234	306	213	223	134	280	430	457	120	33	3	105 f7	12	B100°94° (DIN5482)	
	L3	547	337	337	246	319	225	236		516	30	334	48	110	M12	20	78		
	L4	612	402	402	253	326	232	243	134										
SPN13	L2	531	304	304	301	395	270	291	445		550		330	4	70	100 f7	14	130	
	L3	620	393	393	317	407	283	301	169	280	520	457	120	33	3	122 f7	10	W120°3° (DIN5480)	
	L4	685	458	458	321	415	290	311	169		30	400	60	111	M16	30	98		
	L4	685	458	458	321	415	290	311	169										
SPN14	L2	641	362	362	415	545	325	375	542		620		280	8	70	125 f6	14	150	
	L3	777	498	498	460	590	370	420	192	315	556	508 (368)	140	33	3	151 f6	12	W150°5° (DIN5480)	
	L4	842	563	563	470	600	380	430	192		35	412	72	169	M16	30	119		
	L4	842	563	563	470	600	380	430	192										
SPN15	L2	665	386	386	473	608	379	431	542		620		280	8	70	125 f6	14	150	
	L3	798	519	519	520	655	426	478	192	315	556	508 (368)	140	33	3	151 f6	12	W150°5° (DIN5480)	
	L4	887	608	608	532	667	439	491	192		35	412	72	169	M16	30	119		
	L4	887	608	608	532	667	439	491	192										
SPN17	L2	624	475	475	960	1120	910	960	695							140	170 f7	30	200
	L3	774	622	622	1030	1180	970	1030	200						6	200 f7	20	W200°5° (DIN5480)	
	L4	862	710	710	1040	1200	990	1040	200						M16	30	150		
	L4	862	710	710	1040	1200	990	1040	200										

型号 size	轴伸尺寸 * shaft dimension			法兰尺寸 flange dimension				FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension			
	d	e1	b	c1	c4	n3	W1	DP	P1	φ Df * φ df * P4	T1	Z	g1	g4	Dz (DIN.)
	E	e2	t	c2	c5	S3	K	DP1	P2	M1	T2	Z1	g2	dz3	Dz1
SPN09	100 m6	150	28	7	74	12	278 f7	120 H7	140	φ 165x φ 290x68	900	82	11	76	A80°74°36°10
	165	7.5	106.4	20	25	17	314	-	165	M16-10.9	600	84	32	170±2	(DIN5482)
	M24	50	141	14/11	225 f7	350	245	114	114	250 Nm	7	56	241±2	88 H8	
SPN10	110 m6	200	28	15	115	15	340 f7	130 H7	155	φ 175x φ 300x71	1000	95	14	92	A100°94
	210	5	116	20	26	17	370	-	175	M16-10.9	700	91	66	222±3	(DIN5482)
	M24	50	180	14	245 f7	400	290	120	120	250 Nm	15	80	293±3	102 H8	
SPN11	120 m6	180	32	12	140	24	358 f7	135 H7	150	φ 185x φ 330x86	1100	88	13	87	B120°3
	210	15	127	-	35	17	390	-	180	M16-10.9	800	92	50	242±3	(DIN5480)
	M24	50	210	12	245 f7	428	190	100	100	250 Nm	15	74	316±3	122 H8	
SPN13	140 m6	180	36	11	152	30	385 f7	140 H7	135	φ 185x φ 330x112	1200	81	13	76	N140°5
	200	10	148	-	40	17	415	130 H7	225	M16-10.9	900	100	35	294±3	(DIN5480)
	M24	50	227	12	260 f7	445	235	140	140	250 Nm	30	62	361±3	142 H7	
SPN14	160 m6	220	40	12	223	20	460 f7	180 H7	210	φ 240x φ 405x109	1400	98	12	96	N150°5
	240	10	169.4	-	34	21	503	160 H7	260	M20-10.9	1100	120	65	224±3	(DIN5480)
	M24	50	279	12	300 f7	542	260	150	150	490 Nm	20	87	350±3	152 H7	
SPN15	160 m6	220	40	12	223	20	460 f7	180 H7	210	φ 240x φ 405x109	1400	98	12	96	N150°5
	240	10	169.4	-	34	21	503	160 H7	260	M20-10.9	1100	120	65	224±3	(DIN5480)
	M24	50	279	12	300 f7	542	260	150	150	490 Nm	20	87	350±3	152 H7	
SPN17	200 r6	250	-	20	-	24	560 f7	200 H7	307	φ 260x φ 430x160	1600	152	20	140	N200°5
	260	5	-	25	-	32	635	-	307	M20-10.9	1300	150	90	455±3	(DIN5480)
	6-M16	30	-	152	20	-	695	318	175	490 Nm	17	-	544±3	210 H8	

法兰尺寸 / flange dimension

SPN09..., FP, c6 = 14 FZ, L2=117

* SPN14, SPN15..., FP, K=600 W2=640 法兰厚度 30/ flange width is 30

[illegible]

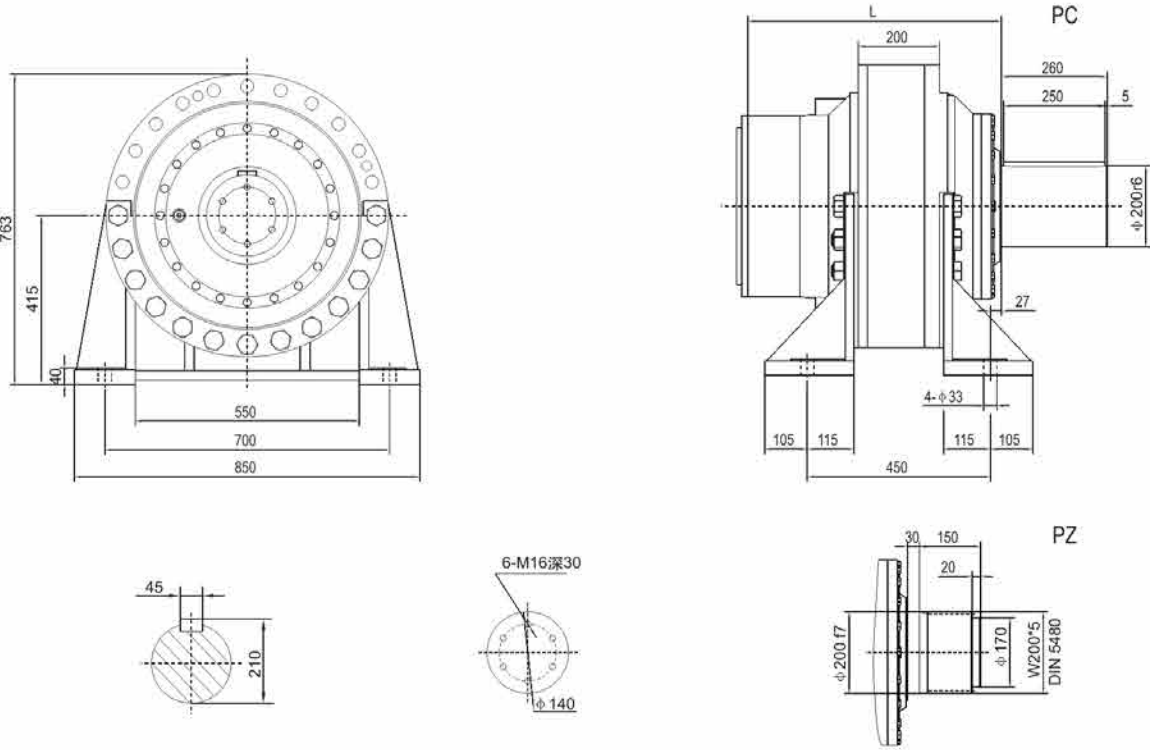
型号 size	级数 Stage	R			 Kg				X1	X2	X3	da L1 L2	底脚尺寸 foot dimension					PC/HC 轴伸尺寸 shaft dimension			
		PC PZ	HC HZ	FP FZ	HZ HC	PC PZ	FZ	FP					h H	A B C	A1 B1	m1 m2 n	n1 S1 g	d E S	e1 e2 e3	S1 d t	
SPN09	R2	386	245	220	172	188	152	157	245	225		350		445		265	4	100m6	150		
	R3	448	307	282	153	170	133	138	190	140	-	144	225 414	400	356 300	100	26	165	7.5	28 106.4	
	R4	513	372	347	154	171	135	139	190	122		119		24		50	54	M24	50		
SPN10	R2(B)	495	315	295	270	290	250	260	294	345	400	400		500		300	4	110m6	200		
	R2(C)	513	333	313	290	311	270	280	294	390	480	130	250 469	420	406 320	100	26	210	5	28 116	
	R3	561	381	361	198	217	170	175	190	140	245	110		26		50	90	M24	50		
	R4	581	401	381	203	222	177	181	190	140	245										
SPN11	R2(B)	550	340	340	322	395	301	312	294	345	400	428		550		330	4	120m6	180		
	R2(C)	550	340	340	330	405	312	322	294	390	480	134	280 516	430	457 334	120	33	210	15	32 127	
	R3	577	367	367	286	358	265	275	245	225	345			30		48	110	M24	50		
	R4	639	429	429	267	340	246	256	190	140	245	134									
SPN13	R2(B)	611	384	384	374	468	343	364	294	345	400	445		550		330	4	140m6	180		
	R2(C)	611	384	384	384	478	353	374	294	390	480	169	280 528	520	457 400	120	33	200	10	36 148	
	R3	650	423	423	353	447	322	343	245	225	345			30		60	111	M24	50		
	R4	712	485	485	335	428	303	324	190	140	245	169									
SPN14	R3(B)	848	569	569	590	720	500	550	294	345	400	542		620	508	280	8	160m6	220		
	R3(C)	856	587	587	600	730	510	560	294	390	480	192	315 613	556	368	140	33	240	10	40 169.4	
	R4	914	635	635	550	680	460	510	245	225	345	192		35	412	72	169	M24	50		
SPN15	R3(B)	890	611	611	613	748	520	572	294	345	400	542		620	508	280	8	160m6	220		
	R3(C)	890	611	611	624	759	530	582	294	390	480	192	315 613	556	368	140	33	240	10	40 169.4	
	R4	917	638	638	572	707	478	530	245	225	345	192		35	412	72	169	M24	50		
SPN17	R3(B)	853	701	701	1100	1260	1050	1100	294	345	400	695		详见附图					200r6	250	
	R3(C)	853	701	701	1110	1270	1060	1110	294	390	480	200		260	5	45 210					
	R4	892	740	740	1080	1230	1030	1080	245	225	345	200									

型号 size	PZ,HZ 花键尺寸 splined shaft dimension				法兰尺寸 flange dimension				FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension				
	dc	dz1	f1	F	c1	c4	n3	W1	DP	P1	Φ Df *Φ df *P4	T1	Z	g1	g4	Dz (DIN..)	
	n2 S2	dz2 e4	f2 f3	dz	c2 c3	c5 c6	S3 W3	K W2	DP1 P	P2 P3	M1 扭矩/torque	T2	Z1 Z2	g2 g3	dz3 dz4	Dz1	
SPN09	45	70 f7	10	90	7	74	12	278 f7	120 H7	140	Φ 165x Φ 290x68		82	11	76	A80*74*36*10H	
	3	85 f7	9	B80*74*36*9e	20	25	17	314	-	165	M16-10.9	900	84	32	170±2	(DIN5482)	
	M12	20	60	(DIN5482)	141	14	225 f7	350	245	114	250 Nm	600	7	56	241±2	88 H8	
SPN10	65	85 f7	12	110	15	115	15	340 f7	130 H7	155	Φ 175x Φ 300x71		95	14	92	A100*94	
	3	105 f7	12	B100*94	20	26	17	370	-	175	M16-10.9	1000	91	66	222±3	(DIN5482)	
	M12	20	78	(DIN5482)	180	14	245 f7	400	290	120	250 Nm	700	15	80	293±3	102 H8	
SPN11	65	85 f7	12	110	12	140	24	358 f7	135 H7	150	Φ 185x Φ 330x86		88	13	87	B120*3	
	3	105 f7	12	B100*94	-	35	17	390	-	180	M16-10.9	1100	92	50	242±3	(DIN5480)	
	M12	20	78	(DIN5482)	210	12	245 f7	428	190	100	250 Nm	800	15	74	316±3	122 H8	
SPN13	70	100 f7	14	130	11	152	30	385 f7	140 H7	135	Φ 185x Φ 330x112		81	13	76	N140*5	
	3	122 f7	10	W120*3	-	40	17	415	130 H7	225	M16-10.9	1200	100	35	294±3	(DIN5480)	
	M16	30	98	(DIN5480)	227	12	260 f7	445	235	140	250 Nm	900	30	62	361±3	142 H7	
SPN14	70	125 f6	14	150	12	223	20	460 f7	180 H7	210	Φ 240x Φ 405x109		98	12	96	N150*5	
	3	151 f6	12	W150*5	-	34	21	503	160 H7	260	M20-10.9	1400	120	65	224±3	(DIN5480)	
	M16	30	119	(DIN5480)	279	12	300 f7	542	260	150	490 Nm	1100	20	87	350±3	152 H7	
SPN15	70	125 f6	14	150	12	223	20	460 f7	180 H7	210	Φ 240x Φ 405x109		98	12	96	N150*5	
	3	151 f6	12	W150*5	-	34	21	503	160 H7	260	M20-10.9	1400	120	65	224±3	(DIN5480)	
	M16	30	119	(DIN5480)	279	12	300 f7	542	260	150	490 Nm	1100	20	87	350±3	152 H7	
SPN17	140	170 f7	30	200	20	-	24	560 f7	200 H7	307	Φ 260x Φ 430x160		152	20	140	N200*5	
	6	200 f7	20	W200*5	25	-	32	635	-	307	M20-10.9	1600	150	90	455±3	(DIN5480)	
	M16	30	150	(DIN5480)	152	20	-	695	318	175	490 Nm	1300	17	-	544±3	210 H8	

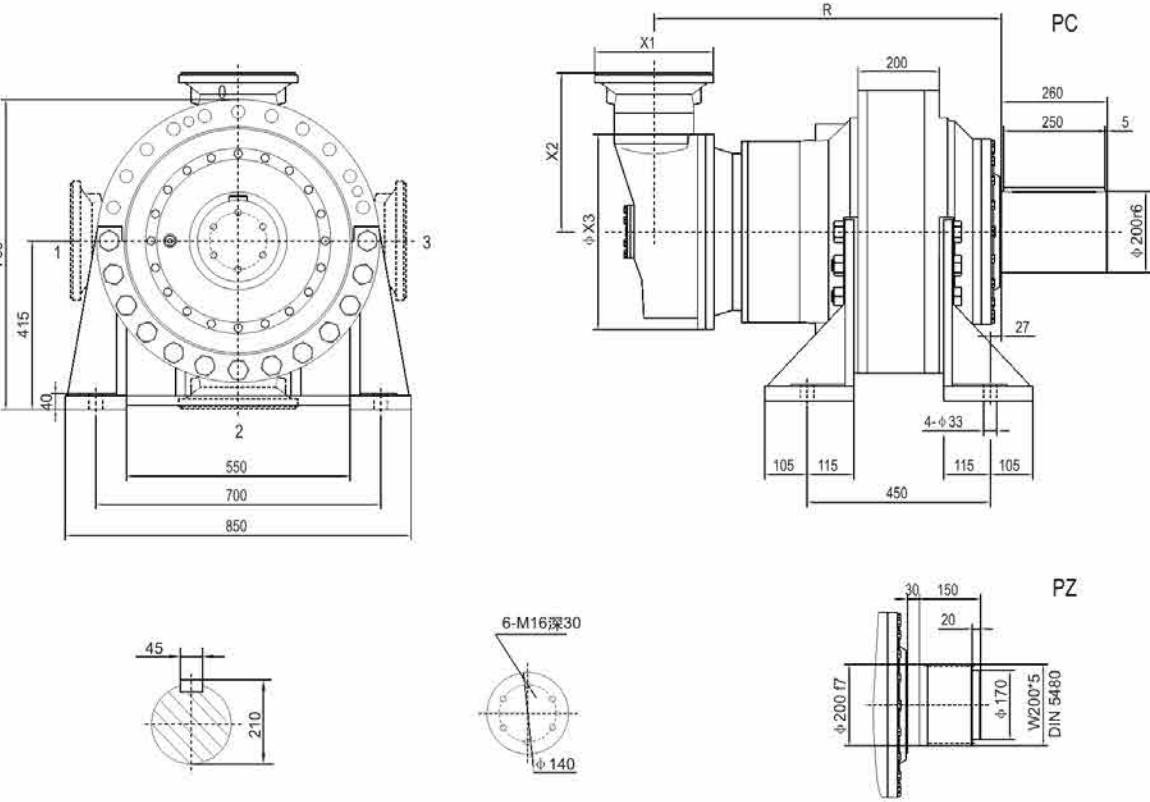
* SPN14, SPN15..., FP, K=600 W2=640 法兰厚度 30/ flange width is 30

尺寸
Dimensions 25

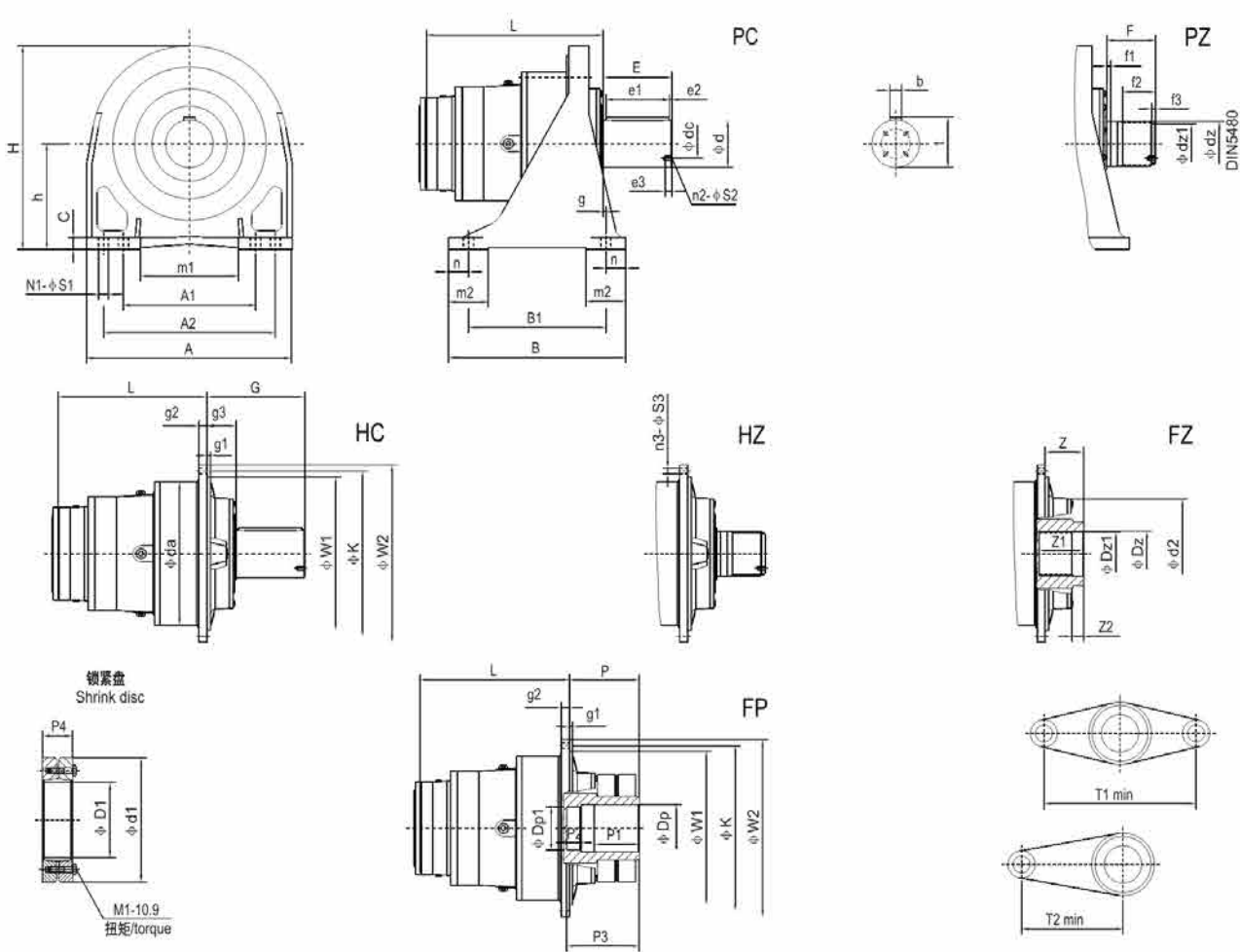
SPN17 L...



SPN17 R...



SPN16 L... ~ SPN18 L...

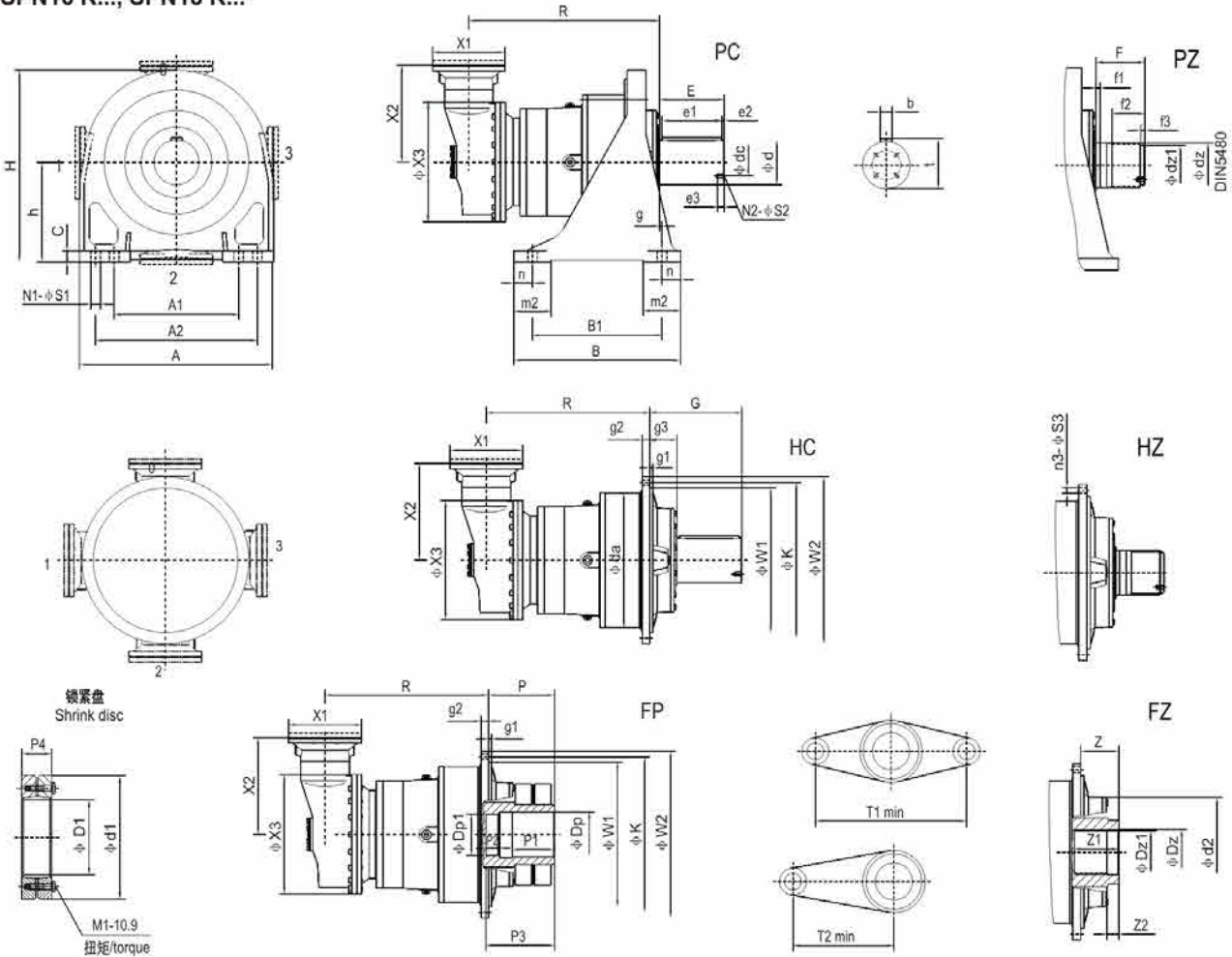


型号 size	级数 Stage	L		 Kg				底脚尺寸 foot dimension					PC/HC 轴伸尺寸 shaft dimension			
		PC PZ	HC/HZ FP FZ	HZ HC	PC PZ	FZ	FP	h H	A B C	A1 A2 B1	m1 m2 n	n1 S1 g	d dc	n2 S2	E e1 e2	b t e3
SPN16	L2	541	431	610	830	540	560	400 770	780	500	370	8	180 110	4 M16	260	45
	L3	674	564	660	870	590	610		670	650	150	38			240	190
	L4	763	653	680	890	610	630		45	520	75	10			10	26
SPN18	L2	677	547	990	1300	830	860	500 935	900	610	460	8	250 150	4 M24	330	56
	L3	889	759	1350	1660	1190	1230		800	760	190	38			310	262
	L4	1022	892	1400	1710	1250	1280		50	650	75	30			10	41

型号 size	PZ,HZ 花键尺寸 splined shaft dimension		法兰尺寸 flange dimension			FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension	
	f1 f2 f3	dz (DIN5480) dz1 F	g1 g2 g3	W1 K W2	G n3 S3	P1 P2 P3	DP DP1 P	T1 T2	φ D1 * φ d1 * P4 M2 扭矩/torque	Z Z1 Z2	Dz-H9 (DIN5480) Dz1 dz2
SPN16	15	W170*5*32	13	580 f7	370	170	182 H7	1500 1200	φ 240* φ 405*144 M20 490	145	N170*5*32
	125	150 f6	30	625	30	45	165 H7			169	172 H7
	15	165	110	670	22	275	265			44	415
SPN18	15	W220*5*42	15	700 f7	460	170	220 H7	1800 1400	φ 280* φ 460*172 M20 490	155	N220*5*42
	160	200 f7	35	750	32	30	200 H7			187	222 H7
	20	210	130	800	26	315	305			45	480

尺寸
Dimensions 25

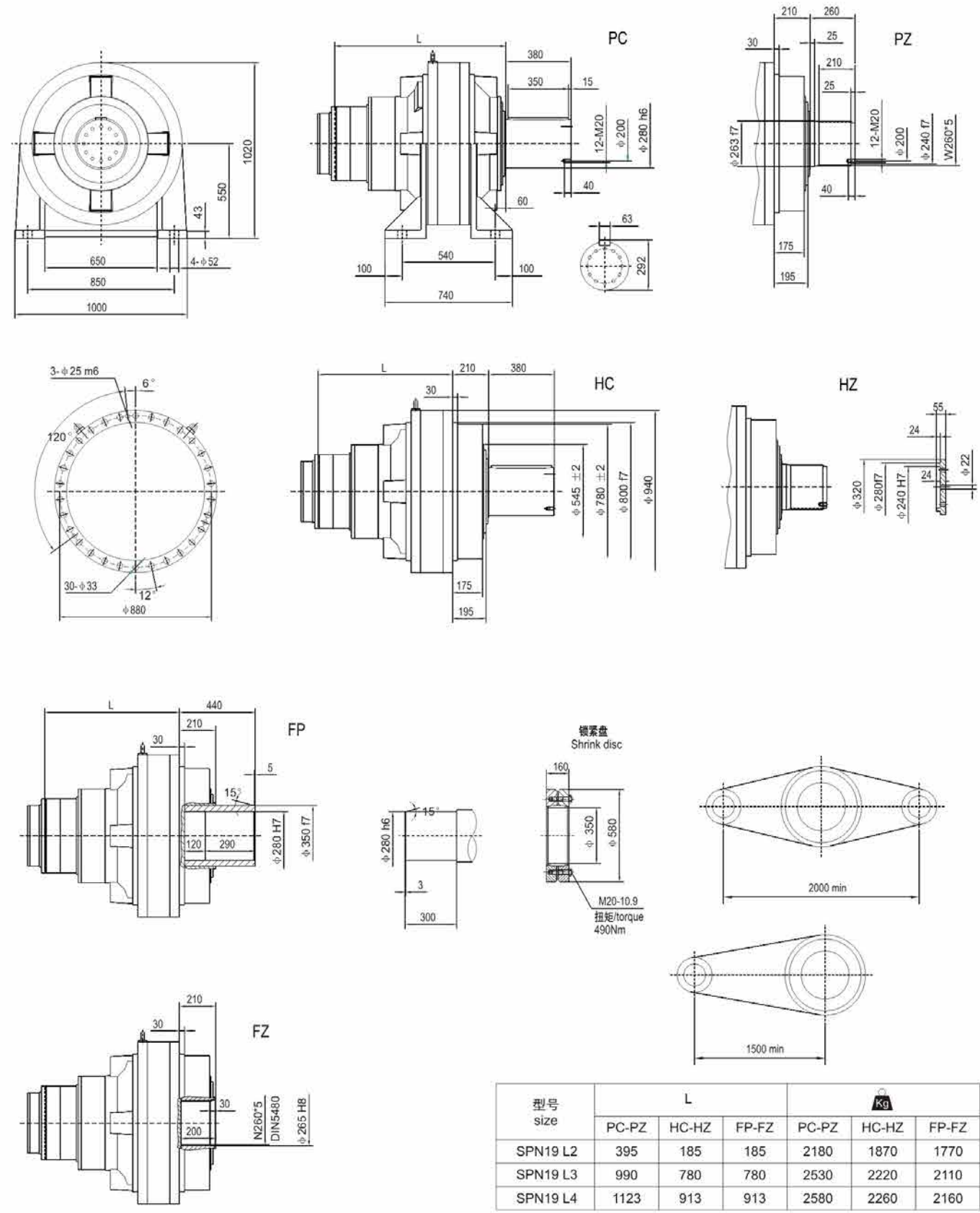
SPN16 R..., SPN18 R...



型号 size	级数 Stage	R		 Kg				X1	X2	X3	底脚尺寸 foot dimension					PZ,HZ 花键尺寸 splined shaft dimension	
		PC PZ	HC/HZ FP FZ	HZ HC	PC PZ	FZ	FP				h H	A B C	A1 A2 B1	m1 m2 n	n1 S1 g	f1 f2 f3	Dz(DIN5480) dz1 F
SPN 16	R3(B)	766	656	740	950	660	680	294	345	400	400 770	780	500	370	8	15	W170*5*32
	R3(C)	766	656	750	960	670	690	294	390	480		670	650	150	38	125	150 f6
	R4	793	683	720	930	640	660	245	225	345		45	520	75	10	15	165
SPN 18	R4(B)	1115	985	1470	1790	1320	1350	294	345	400	500	900	610	460	8	15	W220*5*42
	R4 c	1115	985	1485	1800	1330	1360	294	390	480	935	800	760	190	38	160	200 f6
												50	650	75	30	20	210

型号 size	PC/HC 轴伸尺寸 shaft dimension				法兰尺寸 flange dimension			FP 锁紧盘空心轴尺寸 hollow shaft for shrink disc dimension				FZ 内花键空心轴尺寸 hollow splined shaft dimension	
	d dc	n2 S2	E e1 e2	b t e3	g1 g2 g3	W1 K W2	G n3 S3	P1 P2 P3	DP DP1 P	T1 T2	φ D1 * φ d1 *P4 M2 扭矩/torque	Z Z1 Z2	Dz-H9 (DIN5480) Dz1 d2
SPN 16	180	4	260	45	13	580 f7	370	170	182 H7	1500 1200	φ 240* φ 405*144 M20 490	145	N170*5*32
	110	M16	240	190	30	625	30	45	165 H7			169	172 H7
			10	26	110	670	22	275	265			44	415
SPN 18	250	4	330	56	15	700 f7	460	170	220 H7	1800 1400	φ 280* φ 460*172 M20 490	155	N220*5*42
	150	M24	310	262	35	750	32	30	200 H7			187	222 H7
			10	41	130	800	26	315	305			45	480

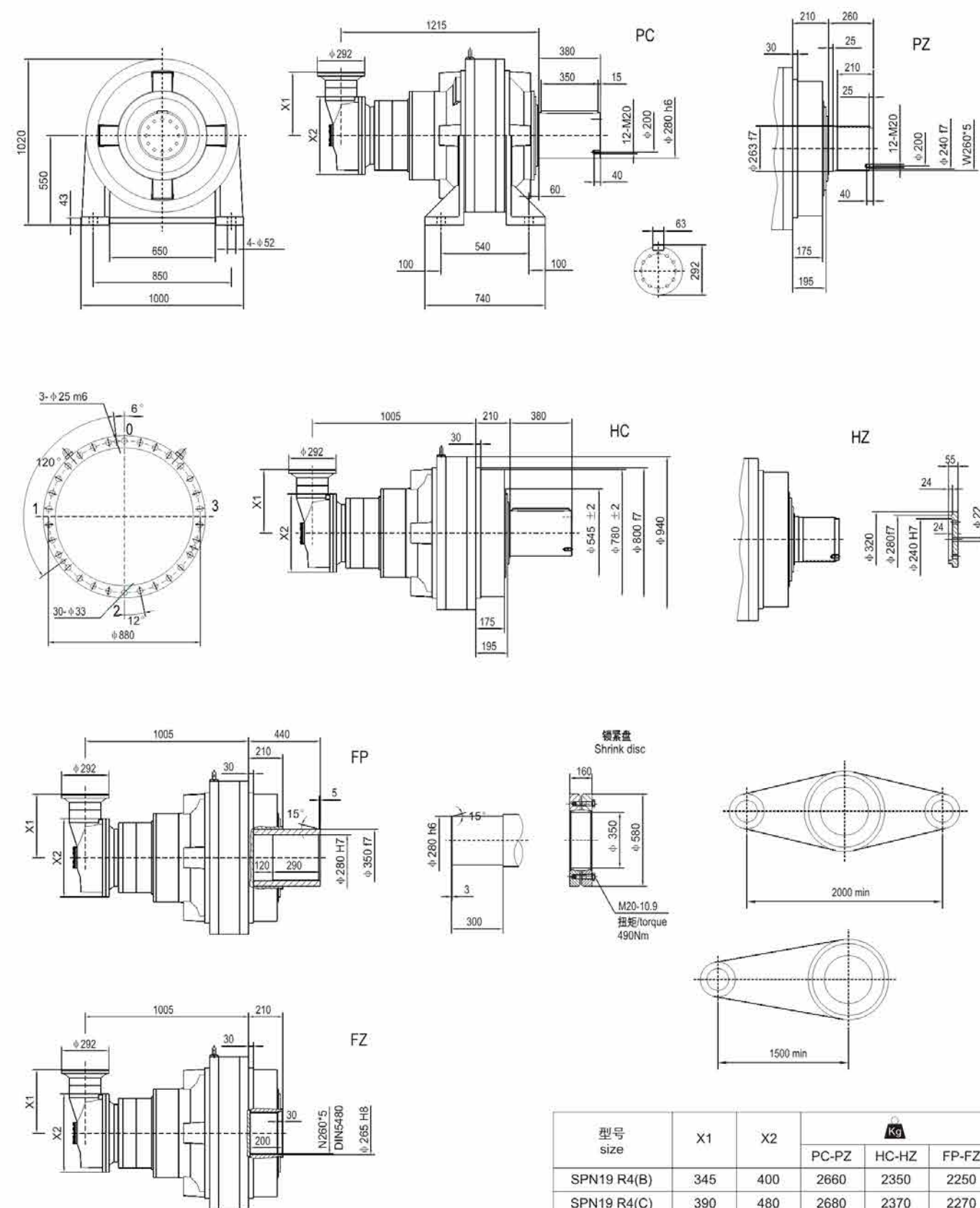
SPN19 L...



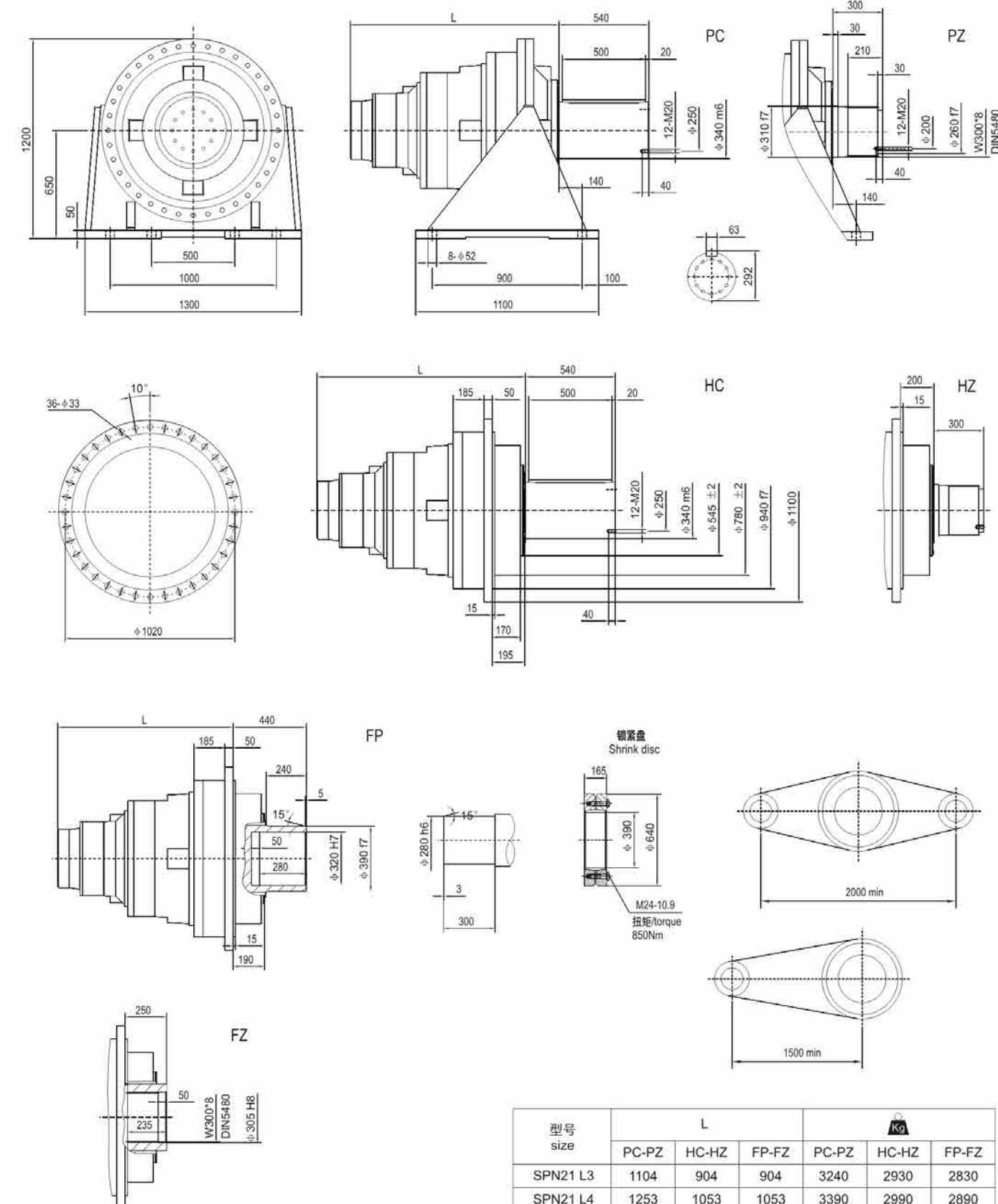
型号 size	L			Kg	PC-PZ	HC-HZ	FP-FZ
	PC-PZ	HC-HZ	FP-FZ				
SPN19 L2	395	185	185	2180	1870	1770	
SPN19 L3	990	780	780	2530	2220	2110	
SPN19 L4	1123	913	913	2580	2260	2160	

尺寸 Dimensions 25

SPN19 R...



SPN21 L...



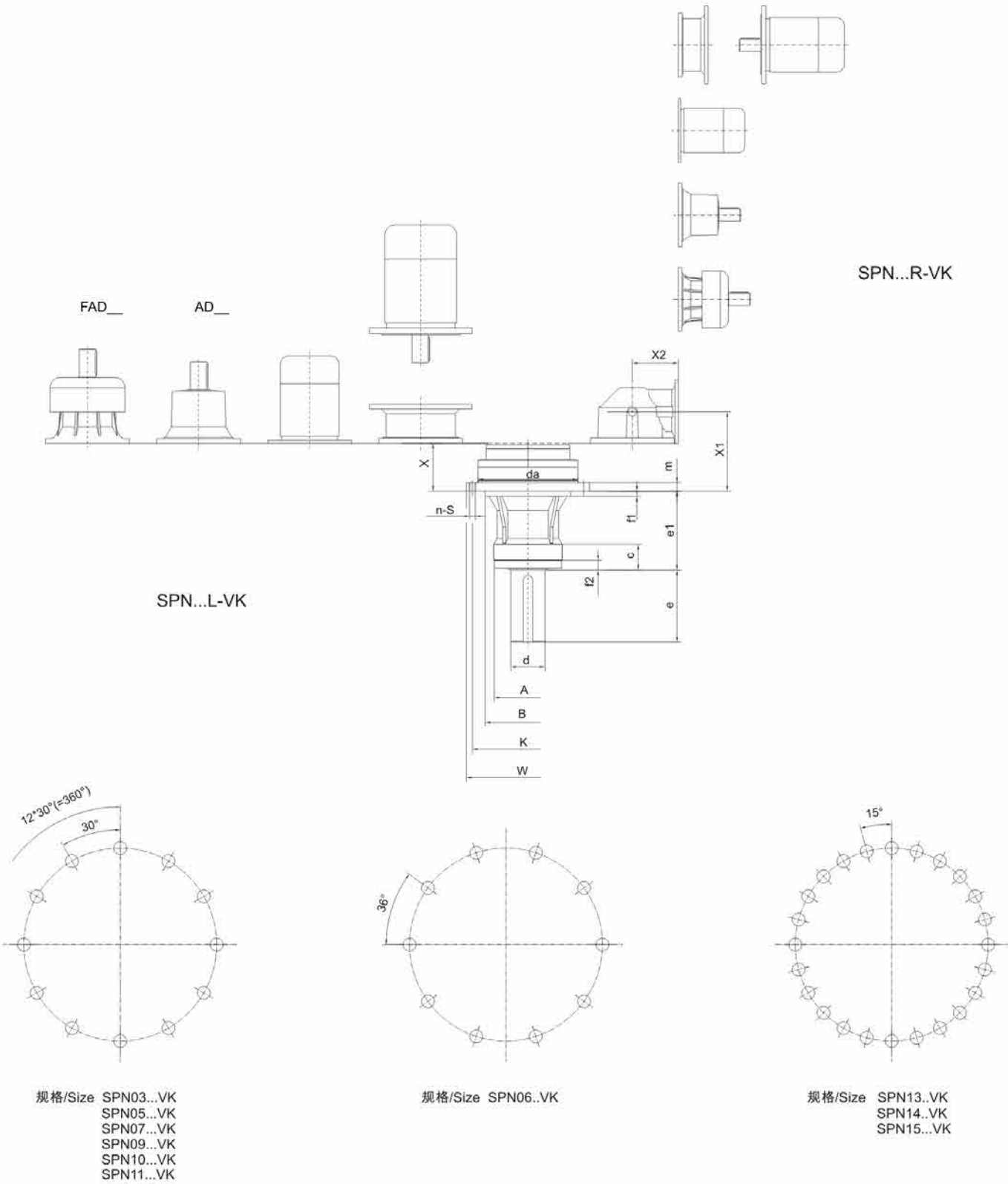
SPN21 R4(B)

SPN21 R4(C)

型号 size	X1	X2	K_g		
			PC-PZ	HC-HZ	FP-FZ
SPN21 R4(B)	345	400	3380	3070	2960
SPN21 R4(C)	390	480	3390	3080	2970

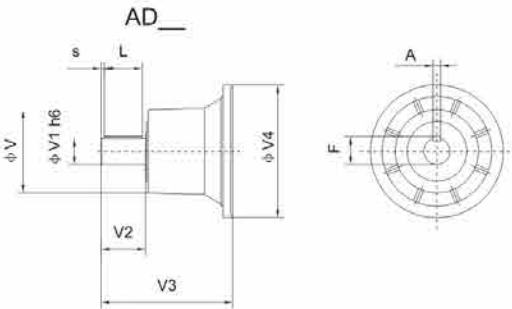
规格/Size SPN19

VK - 搅拌机用加强型平行实心轴输出
VK Reinforced output with parallelshaft for stirres and mixers

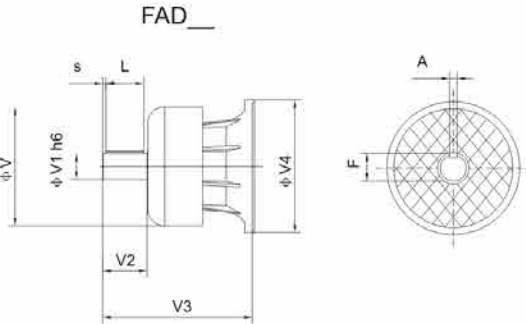


型号 size	级数 Stage	X		级数 Stage	X1	X2		φ da φ W m	φ d e e1	C f1 f2	φ A φ B φ K	n φ S
SPN03	L1	51	65	R2	143	140	85	φ 245	φ 80 m6	75	φ 180 h7	12
	L2	104	70	R3	196	122	83	φ 290	170	20	φ 195 h7	φ 13
	L3	157	73	R4	249	122	87	21	200	29	φ 265	
	L4	210	77									
SPN05	L1	69	70	R2	161	140	90	φ 245	φ 80 m6	75	φ 180 h7	12
	L2	134	77	R3	226	122	92	φ 290	170	20	φ 195 h7	φ 13
	L3	187	81	R4	279	122	95	21	200	29	φ 265	
	L4	240	85									
SPN06	L1	75	110	R2	212	140	130	φ 294	φ 100 m6	75	φ 200 h7	10
	L2	140	120	R3	232	140	125	φ 360	210	15	φ 250 h7	φ 17
	L3	193	125	R4	285	122	120	25	230	28	φ 325	
	L4	246	130									
SPN07	L1	80	145	R2	199	225	180	φ 350	φ 120 m6	95	φ 250 h7	12
	L2	169	160	R3	261	140	170	φ 420	210	25	φ 280 h7	φ 17
	L3	234	170	R4	326	122	175	30	305	30	φ 380	
	L4	287	175									
SPN09	L1	102	165	R2	221	225	200	φ 350	φ 120 m6	95	φ 250 h7	12
	L2	191	180	R3	283	140	190	φ 420	210	25	φ 280 h7	φ 17
	L3	256	190	R4	348	122	195	30	305	30	φ 380	
	L4	309	195									
SPN10	L1	107	200	R2(B)	315	345	320	φ 400	φ 130 m6	105	φ 300 h8	12
	L2	243	230	R2(C)	333	390	340	φ 500	250	20	φ 425 h8	φ 22
	L3	308	240	R3	380	140	250	40	360	42	φ 460	
	L4	361	245	R4	400	140	260					
SPN11	L1	129	295	R2(B)	354	345	420	φ 428	φ 130 m6	105	φ 300 h8	12
	L2	262	340	R2(C)	354	390	430	φ 500	250	20	φ 425 h8	φ 22
	L3	351	350	R3	381	225	385	40	360	42	φ 460	
	L4	416	360	R4	443	140	360					
SPN13	L1	158	380	R2	388	345	510	φ 455	φ 150 m6	130	φ 340 h8	24
	L2	308	440	R3	388	390	520	φ 560	250	18	φ 400 h8	φ 22
	L3	397	450	R4	427	225	490	30	425	40	φ 510	
	L4	462	460									
SPN14	L2	386	650	R3(B)	611	345	720	φ 542	φ 180 m6	130	φ 370 h8	24
	L3	519	700	R3(C)	611	390	730	φ 640	300	30	φ 470 h8	φ 22
	L4	608	710	R4	638	225	690	36	480	30	φ 600	
SPN15	L2	386	650	R3(B)	611	345	720	φ 542	φ 180 m6	130	φ 370 h8	24
	L3	519	700	R3(C)	611	390	730	φ 640	300	30	φ 470 h8	φ 22
	L4	608	710	R4	638	225	690	36	480	30	φ 600	

尺寸 AD_ & FAD_
输入轴 / Input shaft

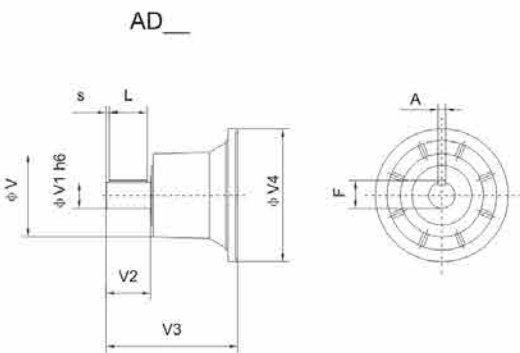


Dimensions for AD_ & FAD_
带风扇的输入轴 / Solid input shaft with fan

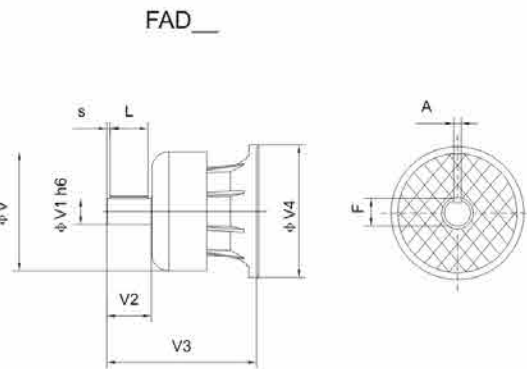


型号 size	级数 Stage	规格 code	V	V1	V2	V3	V4	A	F	L	S
SPN00 SPN01	L1	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L2	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L3	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2/R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN03 SPN05	L1	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L2	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L3	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2/R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN06	L1	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	L2	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L3	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2/R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN07 SPN09	L1	AD6	200	80	130	315	350	22	85	110	10
		FAD6	347.5	80	130	375	350	22	85	110	10
		AD5	155	60	105	313	350	18	64	90	7.5
		FAD5	309	60	105	363	350	18	64	90	7.5
	L2	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L3	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN10	L1	AD7	200	80	130	377	400	22	85	110	10
		FAD7	347.5	80	130	457	400	22	85	110	10
	L2	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	L3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN11	L1	AD8	200	80	130	348	428	22	85	110	10
		FAD8	347.5	80	130	456	428	22	85	110	10
	L2	AD6	200	80	130	315	350	22	85	110	10
		FAD6	347.5	80	130	375	350	22	85	110	10
		AD5	155	60	105	313	350	18	64	90	7.5
	L3	FAD5	309	60	105	363	350	18	64	90	7.5
		AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2(B) R2(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN13	L1	AD8	200	80	130	343	445	22	85	110	10
		FAD8	347.5	80	130	451	445	22	85	110	10
	L2	AD6	200	80	130	315	350	22	85	110	10
		FAD6	347.5	80	130	375	350	22	85	110	10
		AD5	155	60	105	313	350	18	64	90	7.5
	L3	FAD5	309	60	105	363	350	18	64	90	7.5
		AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2(B) R2(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN14	L2	AD7	200	80	130	377	400	22	85	110	10
		FAD7	347.5	80	130	457	400	22	85	110	10
	L3	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	L4	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R3(B) R3(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R4	AD1	120	24	36	137.5	190	8	27	30	3
		Ad2	120	38	58	158	190	10	41	50	4

输入轴/Input shaft

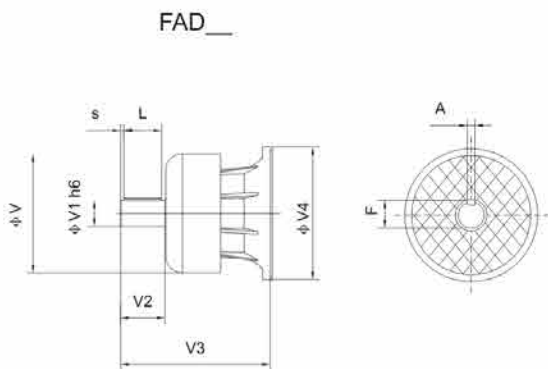


带风扇的输入轴/Solid input shaft with fan



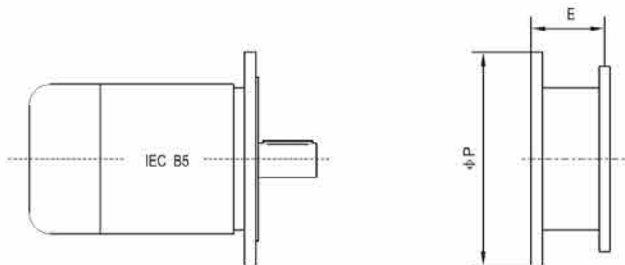
型号 size	级数 Stage	规格 code	V	V1	V2	V3	V4	A	F	L	S
SPN10	L1	AD7	200	80	130	377	400	22	85	110	10
		FAD7	347.5	80	130	457	400	22	85	110	10
	L2	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	L3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R3/R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN11	L1	AD8	200	80	130	348	428	22	85	110	10
		FAD8	347.5	80	130	456	428	22	85	110	10
	L2	AD6	200	80	130	315	350	22	85	110	10
		FAD6	347.5	80	130	375	350	22	85	110	10
		AD5	155	60	105	313	350	18	64	90	7.5
		FAD5	309	60	105	363	350	18	64	90	7.5
	L3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2(B) R2(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	R3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
SPN13	L1	AD8	200	80	130	343	445	22	85	110	10
		FAD8	347.5	80	130	451	445	22	85	110	10
		AD6	200	80	130	315	350	22	85	110	10
	L2	FAD6	347.5	80	130	375	350	22	85	110	10
		AD5	155	60	105	313	350	18	64	90	7.5
		FAD5	309	60	105	363	350	18	64	90	7.5
	L3	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	L4	AD1	120	24	36	137.5	190	8	27	30	3
		AD2	120	38	58	158	190	10	41	50	4
	R2(B) R2(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
R3	AD3	155	48	82	239	245	14	51.5	70	6	
	FAD3	219.5	48	82	276	245	14	51.5	70	6	
R4	AD1	120	24	36	137.5	190	8	27	30	3	
	AD2	120	38	58	158	190	10	41	50	4	
SPN14	L2	AD7	200	80	130	377	400	22	85	110	10
		FAD7	347.5	80	130	457	400	22	85	110	10
	L3	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
	L4	AD3	155	48	82	239	245	14	51.5	70	6
		FAD3	219.5	48	82	276	245	14	51.5	70	6
	R3(B) R3(C)	AD4	155	60	105	307	294	18	64	90	7.5
		FAD4	309	60	105	357	294	18	64	90	7.5
R4	AD1	120	24	36	137.5	190	8	27	30	3	
	Ad2	120	38	58	158	190	10	41	50	4	

帶風扇的輸入軸 / Solid input shaft with fan



型号 size	级数 Stage	规格 code	V	V1	V2	V3	V4	A	F	L	S	
SPN15	L1	AD9	320	120	210	523	542	32	127	180	15	
	L2	AD8	200	80	130	348	428	22	85	110	10	
		FAD8	347.5	80	130	456	428	22	85	110	10	
	SPN15	L3	AD6	200	80	130	315	350	22	85	110	10
FAD6			347.5	80	130	375	350	22	85	110	10	
AD5			155	60	105	313	350	18	64	90	7.5	
SPN16		L4	FAD5	309	60	105	363	350	18	64	90	7.5
	AD3		155	48	82	239	245	14	51.5	70	6	
	FAD3		219.5	48	82	276	245	14	51.5	70	6	
	R3(B) R3(C)	AD4	155	60	105	307	294	18	64	90	7.5	
FAD4		309	60	105	357	294	18	64	90	7.5		
	R4	AD3	155	48	82	239	245	14	51.5	70	6	
		FAD3	219.5	48	82	276	245	14	51.5	70	6	
SPN17	L2	AD8	200	80	130	343	445	22	85	110	10	
		FAD8	347.5	80	130	451	445	22	85	110	10	
	L3	AD6	200	80	130	315	350	22	85	110	10	
		FAD6	347.5	80	130	375	350	22	85	110	10	
		AD5	155	60	105	313	350	18	64	90	7.5	
	L4	FAD5	309	60	105	363	350	18	64	90	7.5	
		AD3	155	48	82	239	245	14	51.5	70	6	
		FAD3	219.5	48	82	276	245	14	51.5	70	6	
	R3(B) R3(C)	AD4	155	60	105	307	294	18	64	90	7.5	
		FAD4	309	60	105	357	294	18	64	90	7.5	
		R4	AD3	155	48	82	239	245	14	51.5	70	6
			FAD3	219.5	48	82	276	245	14	51.5	70	6
SPN18	L2	AD9	320	120	210	523	542	32	127	180	15	
	L3	AD8	200	80	130	348	428	22	85	110	10	
		FAD8	347.5	80	130	456	428	22	85	110	10	
	L4	AD6	200	80	130	315	350	22	85	110	10	
		FAD6	347.5	80	130	375	350	22	85	110	10	
		AD5	155	60	105	313	350	18	64	90	7.5	
		FAD5	309	60	105	363	350	18	64	90	7.5	
	R4(B) R4(C)	AD4	155	60	105	307	294	18	64	90	7.5	
		FAD4	309	60	105	357	294	18	64	90	7.5	
	SPN19	L2	AD9	320	120	210	524	542	32	127	180	15
L3		AD8	200	80	130	348	428	22	85	110	10	
		FAD8	347.5	80	130	456	428	22	85	110	10	
L4		AD6	200	80	130	315	350	22	85	110	10	
		FAD6	347.5	80	130	375	350	22	85	110	10	
		AD5	155	60	105	313	350	18	64	90	7.5	
FAD5		309	60	105	363	350	18	64	90	7.5		
R4(B) R4(C)	AD4	155	60	105	307	294	18	64	90	7.5		
	FAD4	309	60	105	357	294	18	64	90	7.5		
SPN21	L3	AD8	200	80	130	343	445	22	85	110	10	
		FAD8	347.5	80	130	451	445	22	85	110	10	
	L4	AD6	200	80	130	315	350	22	85	110	10	
		FAD6	347.5	80	130	375	350	22	85	110	10	
		AD5	155	60	105	313	350	18	64	90	7.5	
		FAD5	309	60	105	363	350	18	64	90	7.5	
	R4(B) R4(C)	AD4	155	60	105	307	294	18	64	90	7.5	
		FAD4	309	60	105	357	294	18	64	90	7.5	

Electric motor setting



型号 size	级数 Stage	AM71		AM80/AM90		AM100/AM112		AM132		AM160		AM180		AM200		AM225		AM250							
		E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P	E	P						
SPN00	L1/L2/L3/L4	65	160	84	200	94	250	114	300											-					
SPN01	R2/R3/R4	65	160	84	200	94	250	114	300											-					
SPN03	L1	-							114	300	144	350	144	350	174	400	-								
	L2/L3/L4	65	160	84	200	94	250	114	300	144	350	-													
	R2/R3/R4	65	160	84	200	94	250	114	300											-					
SPN05	L1	-							114	300	144	350	144	350	174	400	-								
	L2/L3/L4	65	160	84	200	94	250	114	300	144	350	-													
	R2/R3/R4	65	160	84	200	94	250	114	300											-					
SPN06	L1	-								144	350	153	350	183	400	212	450	193	550						
	L2	-							114	300	144	350	144	350	174	400	-								
	L3/L4	65	160	84	200	94	250	114	300	144	350	-													
	R2/R3/R4	65	160	84	200	94	250	114	300	144	350	-													
SPN07 SPN09	L1	-										195	350	186	400	216	450	216	550						
	L2	-							114	300	144	350	144	350	174	400	-								
	L3/L4	65	160	84	200	94	250	114	300	144	350	-													
	R2	-							114	300	144	350	144	350	174	400	-								
	R3/R4	65	160	84	200	94	250	114	300	144	350	-													
SPN10	L1	-														271	400	301	450	281	550				
	L2	-							144	350	153	350	183	400	212	450	193	550							
	L3	-							114	300	144	350	144	350	174	400	-								
	L4	65	160	84	200	94	250	114	300	144	350	-													
	R2(B)	-														153	350	183	400	212	450	-			
	R2(C)	-							114	300	144	350	153	350	183	400	212	450	-						
	R3/R4	65	160	84	200	94	250	114	300	144	350	-													
SPN11 SPN13	L2	-										195	350	186	400	216	450	216	550						
	L3	-							114	300	144	350	144	350	174	400	-								
	L4	65	160	84	200	94	250	114	300	144	350	-													
	R2(B)/R(C)	-										153	350	183	400	212	450	193	550						
	R3	-							114	300	144	350	144	350	174	400	-								
	R4	65	160	84	200	94	250	114	300	144	350	-													
SPN14	L2	-																271	400	301	450	281	550		
	L3	-							144	350	153	350	183	400	212	450	193	550							
	L4	-							114	300	144	350	144	350	174	400	-								
	R3(B)/R3(C)	-																153	350	183	400	212	450	193	550
	R4	65	160	84	200	94	200	114	300	144	350	-													
SPN15 SPN16 SPN17	L3	-										195	350	186	400	216	450	216	550						
	L4	-							114	300	144	350	144	350	174	400	-								
	R3(B)/R3(C)	-										153	350	183	400	212	450	193	550						
	R4	-							114	300	144	350	144	350	174	400	-								
SPN18 SPN19 SPN21	L4	-										195	350	186	400	216	450	216	550						
	R4(B)/R3(C)	-										153	350	183	400	212	450	193	550						

* Servo motor connection AQA..., hydraulic motor connection ABA..., please refer to us.

尺寸

Dimensions

25

输出轴上载荷
Permissible radial and axial loads on output shaft with $F_{h2}=n_2 \times h=10000$

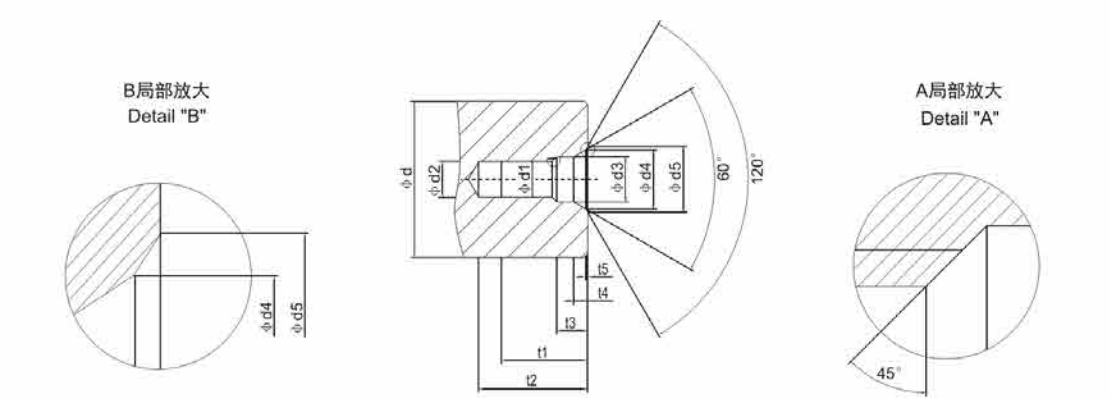


型号 size	An2(+) (N)				An2(-) (N)			
	MZ-MC	PC-PZ	HZ-HC	FZ	MZ-MC	PC-PZ	HZ-HC	FZ
SPN00	20000	20000	40000	8000	15000	15000	40000	8000
SPN01	20000	40000	40000	8000	15000	40000	40000	8000
SPN03	55000	55000	55000	24000	44000	44000	44000	25000
SPN05	55000	55000	55000	24000	44000	44000	44000	25000
SPN06	70000	120000	120000	35000	44000	60000	60000	35000
SPN07	90000	160000	160000	45000	50000	80000	80000	45000
SPN09	-	160000	160000	36000	-	80000	80000	37000
SPN10	-	170000	170000	65000	-	100000	100000	52000
SPN11	-	200000	200000	65000	-	140000	140000	60000
SPN13	-	250000	250000	80000	-	160000	160000	75000
SPN14	-	280000	280000	90000	-	210000	210000	90000
SPN15	-	280000	280000	90000	-	210000	210000	90000
SPN16	-	360000	360000	150000	-	300000	300000	150000
SPN17	-	360000	360000	150000	-	300000	300000	150000
SPN18	-	500000	500000	200000	-	450000	450000	200000
SPN19	-	500000	500000	200000	-	450000	450000	200000
SPN21	-	180000	180000	1200000	-	240000	240000	180000

输出轴上径向载荷位置系数
Load application point factor for radial loading on output shaft

Fh2=n2×h		10000	25000	50000	100000	500000	1000000
fh2(SPN00-SPN07)	MZ-MC-FZ	1	0.74	0.58	0.46	0.27	0.21
	HZ-HC-PC-PZ	1	0.76	0.61	0.50	0.31	0.25
fh2(SPN09-SPN21)	FZ	1	0.74	0.58	0.46	0.27	0.21
	HZ-HC-PC-PZ	1	0.76	0.61	0.50	0.31	0.25

C型轴伸中心孔
C型
带螺纹孔和护锥孔
Centre Holes Form C in Shaft Ends
Form C
Tapped hole,with straight running face and counterbore



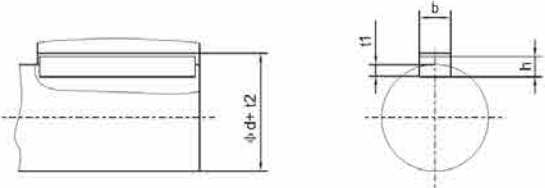
推荐直径范围 Recommended diameters		C 型 / Form C											
大于/above	至/to	C型 中心孔 Centering	d1	d2(1)	d3	d4	d5	t1+2	t2 min max		t3+1	t4≈	t5≈
mm			mm										
16	21	CM6	M6	5	6.4	9.6	10.5	16	20	22	5	2.8	0.4
21	24	CM8	M8	6.8	8.4	12.2	13.2	19	25	28	6	3.3	0.4
24	30	CM10	M10	8.5	10.5	14.9	16.3	22	30	34	7.5	3.8	0.6
30	38	CM12	M12	10.2	13	18.1	19.8	28	37	42	9.5	4.4	0.7
38	50	CM16	M16	14	17	23	25.3	36	45	50	12	5.2	1.0
50	85	CM20	M20	17.5	21	28.4	31.3	42	53	59	15	6.4	1.3
85	130	CM24	M24	21	25	34.2	38	50	63	68	18	8	1.6
130 2)	225 2)	CM30	M30 2)	26.5	31	44	48	60	77	83	17	11	1.9
225 2)	320 2)	CM36	M36 2)	32	37	55	60	74	93	99	22	15	2.3
320 2)	500 2)	CM42	M42 2)	37.5	43	65	71	84	105	111	26	19	2.7
500 2)	710 2)	Cm48	M48 2)	43	49	76	83	94	115	121	30	23	3.2

1) 螺纹底孔直径按标准GB196第一系列确定
2) 不是按照标准JB/ZQ4166确定尺寸

1) Drill diameters for tapping-size holes acc.to GB196 PT.1
2) Dimensions not acc.to JB/ZQ4166

平键和平键槽/ Parallel keyways and parallel keys
平键紧固方式，采用无锥度连接
Drive type tastening without taper action

平键和平键槽按照标准GB1096和GB1095
Parallel key acc.to GB1096 and Gb1095



- 1) 轮毂平键键槽宽度的公差带按JS9确定，重载条件下按照P9确定
- 1) The tolerance zone for the hub keyway width b for Parallel keys is ISO JS9,or ISO P9 for heavy-duty operating conditions.

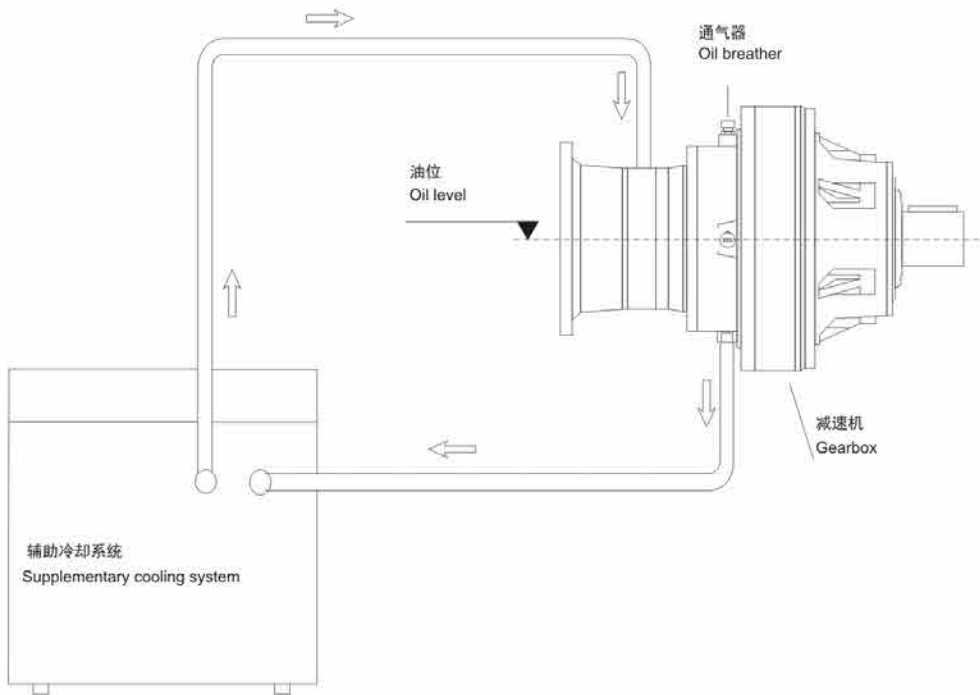
直径 Nominal diameter d		宽度 Width b	高度 Height h	轴键槽深度 Depth of key -way in shaft t1	轮毂键槽深度 Depth of key -way in hub d+12
大于 above	至/to	mm	mm	mm	mm
17	22	6	6	3.5	d+2.8
22	30	8	7	4	d+3.3
30	38	10	8	5	d+3.3
38	44	12	8	5	d+3.3
44	50	14	9	5.5	d+3.8
50	58	16	10	6	d+4.3
58	65	18	11	7	d+4.4
65	75	20	12	7.5	d+4.9
75	85	22	14	9	d+5.4
85	95	25	14	9	d+5.4
95	110	28	16	10	d+6.4
110	130	32	18	11	d+7.4
130	150	36	20	12	d+8.4
150	170	40	22	13	d+9.4
170	200	45	25	15	d+10.4
200	230	50	28	17	d+11.4
230	260	56	32	20	d+12.4
260	290	63	32	20	d+12.4
290	330	70	36	22	d+14.4
330	380	80	40	25	d+15.4
380	440	90	45	28	d+17.4

辅助冷却系统
Supplementary cooling systems

26

如果减速机传递的机械功率大于额定热功率，可指定使用辅助冷却系统。

Should the transmitted mechanical power be greater than the thermal capacity the unit is rated for, supplementary cooling systems can be specified.



独立冷却系统由空气-润滑油换热器、电动泵、滤清器和一套电气系统组成，电气系统含有保护电机的温度传感器。

Independent cooling systems are made up of an air-oil heat exchanger, a motor pump, a filter and an electric system that incorporates a thermostatic sensor that protects the electric momtor.

冷却单元运行时非常安静。

Cooling Uins are partuculary quite in operation.

26.1 技术参数

		CR1	CR2	CR3
消耗功率 Absorbed power	kw	0.55	0.75	1.1
润滑油流量 Oil flow rate	l/min	13	22	34
气体流量 Air flow rate	m3/h	850	1500	2000
1米处噪音值 Noise level at 1 m	dB(A)	68	70	75
重量 Weight	kg	24	36	58

26.1 Technical data

26.2 选型规范

如果机械功率P大于额定热功率Pt,需要冷却的热量[PS]可通过以下公式计算。

$$P_s=0.1 \cdot (P-P_t)$$

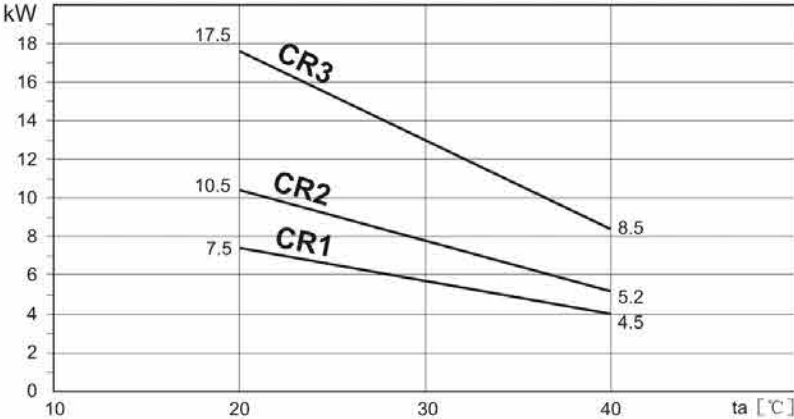
根据环境温度ta（20~40℃）在图表中选取冷却系统规格。参照表格检查所选择的冷却系统是否适合于减速机。

26.2 Selection criteria

Power P to be transmitted is known. Once you have determined hat it is higher than thermal power Ps using this formula.

$$P_s=0.1 \cdot (P-P_t)$$

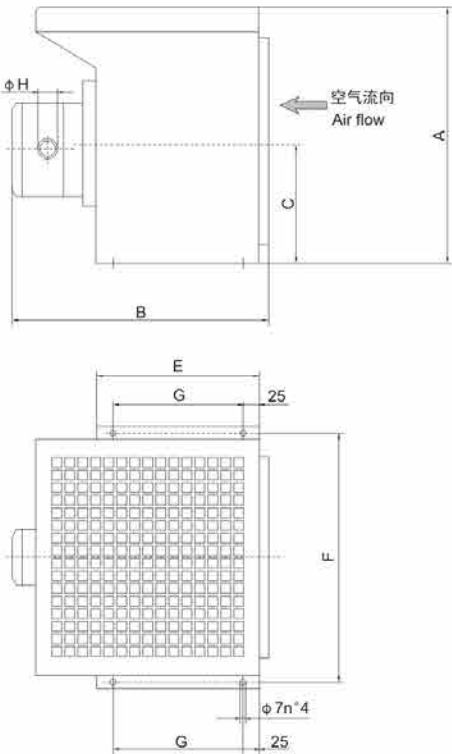
Select cooling system size in chart according to ambient temperature ta（20~40℃）. Check that the coolingsystem you have selected will fit The gearbox.



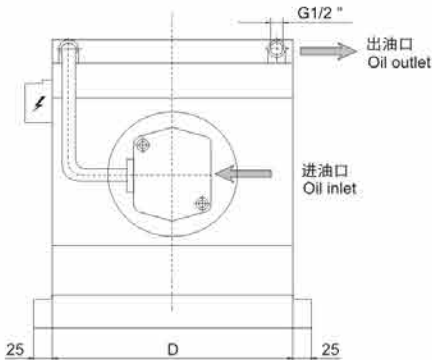
减速机 Gearbox	L1	L2	L3	L4	R2	R3	R4
SPN06	CR1	CR1	-	-	-	-	-
SPN07	CR1	CR1	-	-	CR1	-	-
SPN09	CR1	CR1	CR1	-	CR1	-	-
SPN10	CR2	CR1	CR1	-	-	CR1	-
SPN11	CR2	CR1	CR1	-	CR1	CR1	-
SPN13	CR2	CR1	CR1	-	CR1	CR1	-
SPN14	CR3	CR2	CR1	-	-	CR1	-

减速机 Gearbox	L1	L2	L3	L4	R2	R3	R4
SPN15	CR3	CR2	CR1	-	-	CR1	-
SPN16	CR3	CR2	CR1	-	-	CR1	-
SPN17	CR3	CR2	CR2	CR1	-	-	-
SPN18	CR3	CR2	CR2	CR1	-	-	-
SPN19	CR3	CR2	CR2	CR1	-	-	-
SPN21	CR3	CR2	CR2	CR2	-	-	-

26.3 尺寸



26.3 Dimensions



	A	B	C	D	E	F	G	H
CR1	410	395	193	370	250	400	200	G1/2 "
CR2	450	405	203	470	250	500	200	G3/4 "
CR3	495	455	225	520	290	550	240	G3/4 "

27.1 电机按标准供货，若指定货高于此标准必须说明。

Y 普通三相异步电动机
电压 380V，频率 50HZ（其它电压、频率需说明）

防护等级：IP54
（指定IP55、IP56、IP65等需说明）

绝缘等级：B或F（指定F等需注明）

制动电机的制动器电压：380V或220V
（指定电压或其它电压需注明）

防爆电机防爆等级：d I I BT4（其它等级需注明）

变频电机频率范围：5-50HZ
(0-60HZ、0-120HZ或指定范围需提出)

电机的噪声、电流、效率、功率因素、额定转矩等项目按国家标准。

27.2 以下要求及辅具需另行说明，

- * 指定电机配手动次方装置
- * 电机的热传感器
- * 不带风冷或强制风冷
- * 配选择编码器
- * 防水、防潮、防尘的要求

27.3 电机代号

四极三相异步电动机代号-Y
制动电机代号 - YEJ
防爆电机代号 - YB
变频电机代号 - YP
多速电机代号 - YD
变频制动电机代号 YPEJ
其它电机代号另咨询

27.1 Motors comply with National standard ,please state if specification of other standards needed.

Y general tri-phase asynchronous motor data :
380V , 50HZ (other voltage & frequency should be stated)

I ndex of performance: IP54
(specification of IP55、IP56、IP65 should me stated)

Insulation class : B & F (using F should be stated)

Braking voltage of braking motor : 380V or 220V (other classes should be stated)

Explosion-proof class : d I I BT4 (other classes should be stated)

Frequency range : 5-50HZ (0-60HZ、0-120HZ or other range will be stated)

Noise、current 、efficiency、power factor、nominal torque all comply with national standard.

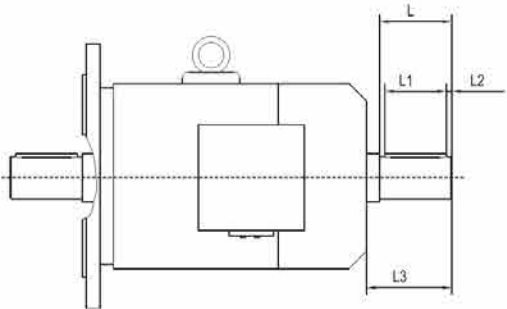
27.2 The following will be specified by customers:

- * Brake motor equipped with manual brake release
- * Thermal sensor
- * No air cooling or forced air cooling
- * Installation of rotation encoder
- * Water proof ,damp proof,dust proof

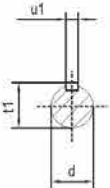
27.3 Motor code

Y4-pole tri-phase asynchronous motor
YEJ Brake motor
YB Explosion-proof motor
YP Frequency conversion motor
YD Multi-speed motor
YPEJFrequency conversion brake motor
Other codes are available on request

27.4 电机双出轴



27.4 Double extended shaft motor



	71	80	90/100	112	132S	132M	160L	180	200-225
d	11	14	19	24	28	38	42	48	55
L	23	30	40	50	60	80	110	110	110
L1	20	22	32	40	50	70	70	80	90
L2	1	4	4	5	5	5	10	10	10
L3	25	31	42	55	65	85	115	115	115
t1	12.5	16	21.5	27	31	41	45	51.5	59
u1	4	5	6	8	8	10	12	14	16

27.4 电机接线盒未注明位置一般以0° 供货

27.4 In general,position of terminal box is at angular 0° without specification.