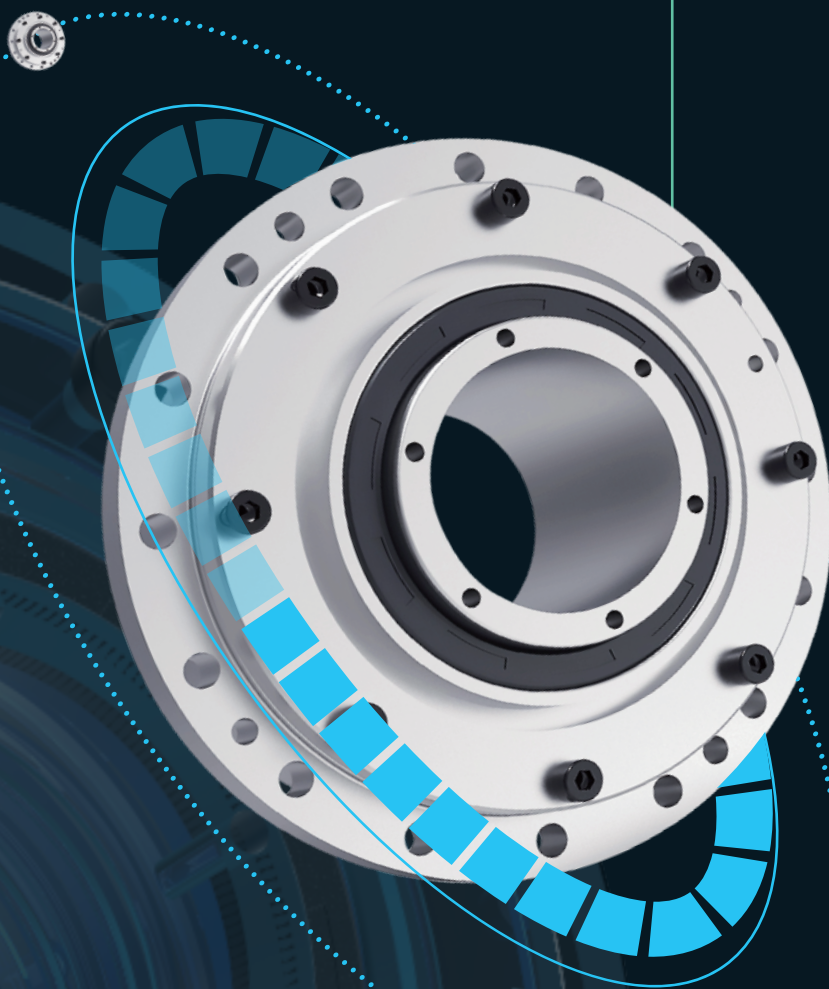


高精密轴承减速机

HIGH PRECISION BEARING REDUCER

Hsoar

选型指南 CATALOG



SD-BR Series
SD-BRG Series
SD-BLG Series

www.china-hsoar.com



由海尚自主研发的高精密轴承减速机突破常规减速机的技术原理瓶颈；采用摆线差动变速输出和全接触的传动方式，具备高精度、结构紧凑、体积小、轻量化等特点，同时还具有高刚性、高扭矩、高效率、耐过载和长寿命的优点。产品荣获国家、国际多项实用、发明专利。

高精密轴承减速机长期销售海内外，协助多国机器人、自动化产业升级而享誉全球；并多次获得国际QA体系认证。

同时海尚中空减速机、行星减速机和轮毂减速机实现重大技术突破，其标准化生产线已成功上线。

HSOAR has developed high precision bearing reducer successfully and independently, to break through the bottleneck of conventional gear technology. It adopts cycloid differential speed output and full contact transmission method, features highest precision, compact, small volume, light weight, also boasts high stiffness, high output torque, high motion efficiency, overload resistance, as well as long service life etc. combined advantages. It has been awarded dozens of international and domestic patents for both invention and utility.

High precision bearing reducer has now become world well known through years of overseas and domestic business development and has assisted successfully many robot brands in upgrading robotics and automation. Excellent performance has passed International QA system standard many times.

Since hollow shaft reducer, planetary reducer, wheel hub reducer have implemented significant technological advantages, HSOAR has deployed successfully standard production lines on manufacturing.

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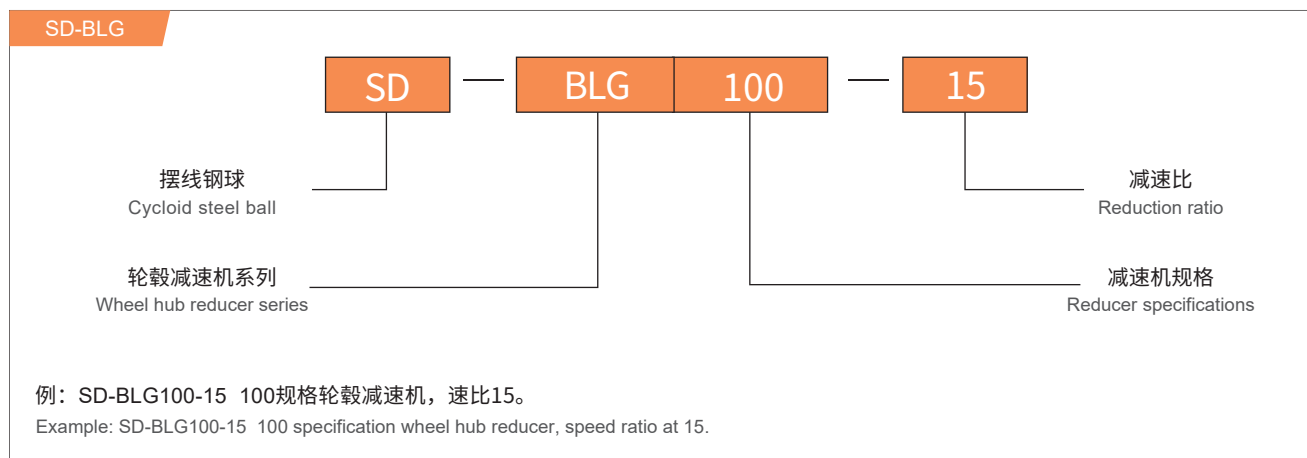
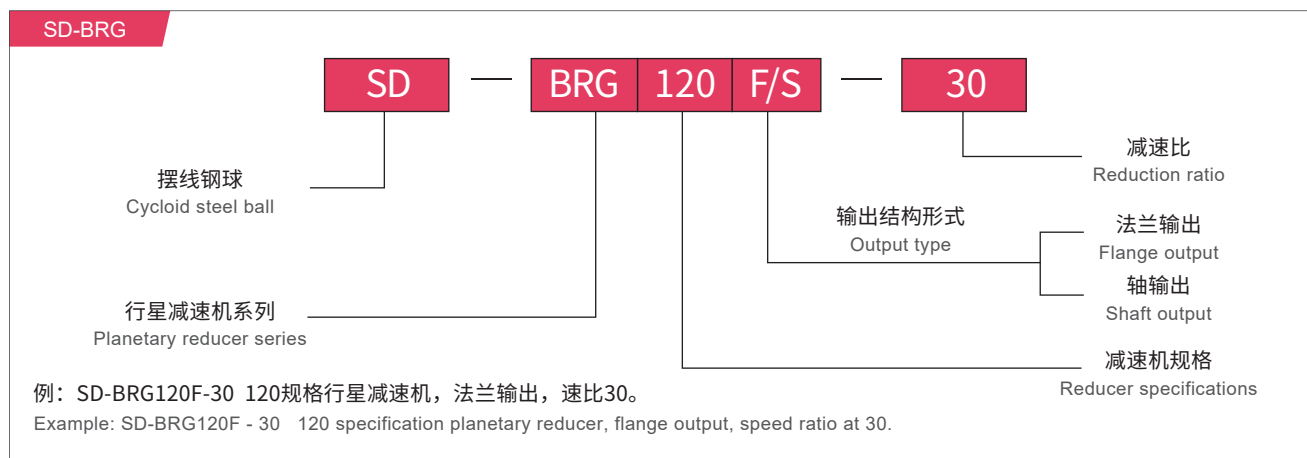
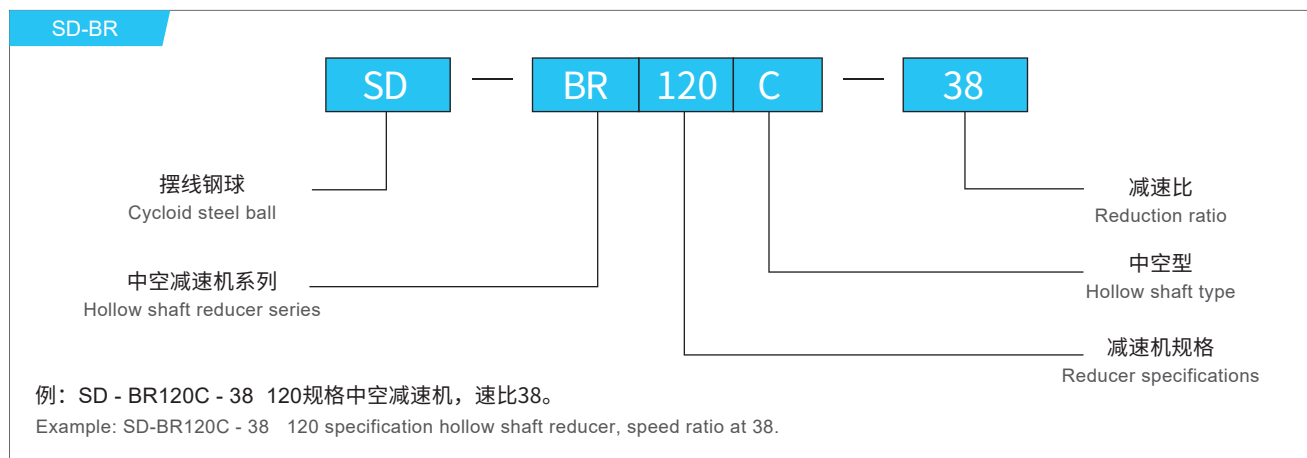
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01 命名规则 NAMING RULES

订购、咨询时，请按下述型号标记进行指示。

When ordering or inquiring, please follow the model mark below for instructions.



零背隙 Zero Backlash

采用活齿传动技术，以钢球作为活齿代替传统的固定轮齿，通过预压与摆线滚道组成无隙滚动啮合副，实现零背隙，高精度。

Using movable gear transmission technology, steel balls are used to replace the traditional fixed gear teeth, through preloading and cycloid raceway to form a backlash-less rolling mesh pair, to achieve zero backlash, high precision.

高承载 High Load

输出端采用十字交叉滚子轴承（平面推力轴承+圆柱滚子轴承），同时所有钢球参与啮合传动重合度高，具备高承载力与过载能力。

The output adopts crossed roller bearing (plane thrust bearing + cylindrical roller bearing), and all the steel balls are engaged in meshing transmission with high contact degree, with high bearing capacity and overload capacity.

低噪音 Low Noise

传动啮合机构为滚动接触方式，无碰撞冲击，运转噪音低。

Transmission Meshing Mechanism belongs to rolling contact mode, no clash and impact, low operating noise.

宽速比 Wide Ratios

采用差动变速传动方式，两级并联结构可实现宽速比传动，传动比6~2000范围，大速比结构可做到与小速比相同的体积宽度。

Adopt differential speed transmission method, can realize wide ratio range of 6~2000, large speed ratio structure can achieve the same volume width as small speed ratio.

高效率 High Efficiency

钢球与摆线滚道采用滚动接触啮合，有效降低运转时摩擦阻力，传动效率高。

The steel ball and the cycloid raceway adopt rolling contact meshing, effectively reduces the friction resistance in operation, thus the transmission efficiency is high.

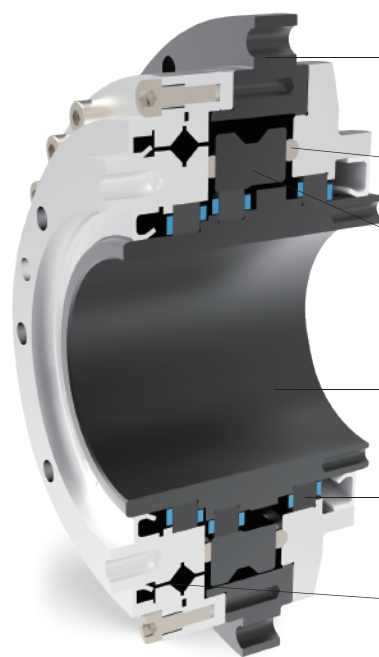
长寿命 Long Service Life

采用滚动摩擦传动方式，有效降低运转温升与磨损，设计寿命长。

The rolling friction transmission method is applied to effectively reduce the temperature rise and wear during operation, and the design life is long.

03 构造和工作原理 STRUCTURE AND OPERATING PRINCIPLE

构造 Structure



外壳
Case

钢球
Steel ball

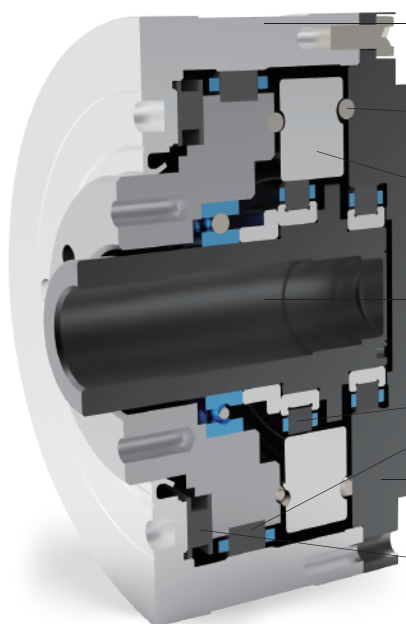
驱动盘
Drive disk

偏心输入轴
Eccentric input shaft

圆柱滚子轴承
Cylindrical roller bearing

交叉滚子轴承
Crossed roller bearing

SD-BR



旋转机体壳
Rotary mechanism casing

钢球
Steel ball

驱动盘
Drive disk

偏心输入轴
Eccentric input shaft

圆柱滚子轴承
Cylindrical roller bearing

后盖
Rear cover

平面推力轴承
Plane thrust bearing

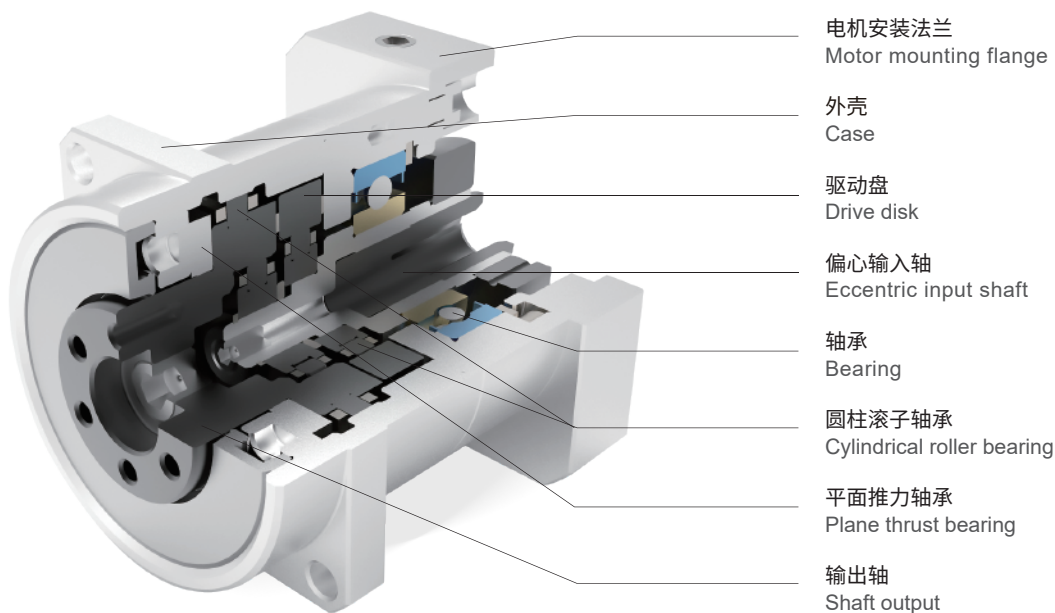
SD-BLG



03 构造和工作原理 STRUCTURE AND OPERATING PRINCIPLE

构造 Structure

SD-BRG



工作原理 Operating Principle

第一减速部：正摆线槽减速机构

Stage 1: Cycloid groove reduction mechanism

在输入轴的偏心部分，通过滚动轴承安装驱动盘，将输入轴旋转时的偏心运动通过偏心部传递到驱动盘，按驱动盘A面和后盖的摆线槽齿数和钢球数比进行减速；这是第1减速部。(摆线槽齿数和钢球数差1齿)

In the eccentric part of the input shaft, the drive plate is installed through the rolling bearing, and the eccentric motion of the input shaft is transmitted to the drive plate through the eccentric part, and the speed is reduced through the number difference of cycloid groove teeth and steel balls on drive disk A side and back cover. This is the first speed reduction section. (The difference between the number of cycloidal grooves and the number of balls is 1 tooth)

第二减速部：差动摆线槽减速机构

Stage 2: Differential cycloidal groove reduction mechanism

正摆线槽与驱动盘相连接，变为第2减速部的输入。在输出轴内侧与驱动盘B面之间的摆线齿槽和钢球数差1个齿与第1减速部以不同比值形成双联摆线齿输出。

将轴固定时，外壳侧成为输出侧。

The first stage cycloidal groove is connected to the drive disk and becomes the input of the second speed reduction section. There is one number difference between cycloidal groove and the steel balls at the place of inner side of output shaft and drive disk B side, so the second stage along with the first reduction section combine to form a double-stage cycloidal groove teeth output.

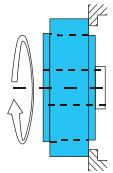
When the shaft is fixed, the cover side becomes the output side.

04 旋转方向与速比 ROTATION DIRECTION AND SPEED RATIO

旋转方向 Rotation Direction

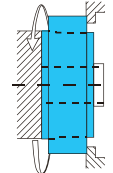
减速装置
Reduction mechanism

① 外壳固定轴输出
Case fixed, shaft output



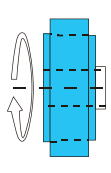
输入：偏心轴
Input: Eccentric shaft

② 轴固定外壳输出
Shaft fixed, case output



输入：偏心轴
Input: Eccentric shaft

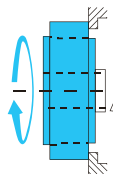
③ 偏心轴固定轴输出
Eccentric shaft fixed, shaft output



输入：外壳
Input: Case

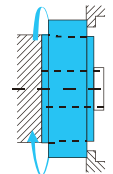
增速装置
Acceleration mechanism

④ 外壳固定偏心轴输出
Case fixed, eccentric shaft output



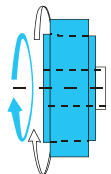
输入：轴
Input: Shaft

⑤ 轴固定偏心轴输出
Shaft fixed, eccentric shaft output



输入：外壳
Input: Case

⑥ 偏心轴固定外壳输出
Eccentric shaft fixed, case output



输入：轴
Input: Shaft

SD型减速机有很多使用方法；请选择最佳使用方法。
There are many ways to use SD reducer; please choose the best method of use.

速比 Reduction Ratio

减速机的减速比*i*因使用方法而异，通常使用情况下：

The reduction ratio *i* of the reducer varies depending on the method of use, under normal use conditions:

轴输出时
Shaft output

$$i = \frac{1}{R}$$

外壳输出时
Shell output

$$i = -\frac{1}{R-1}$$

i: 与输入相对应的输出速度比

i: The output speed ratio corresponding to the input

R: 速比值

R: Speed ratio value

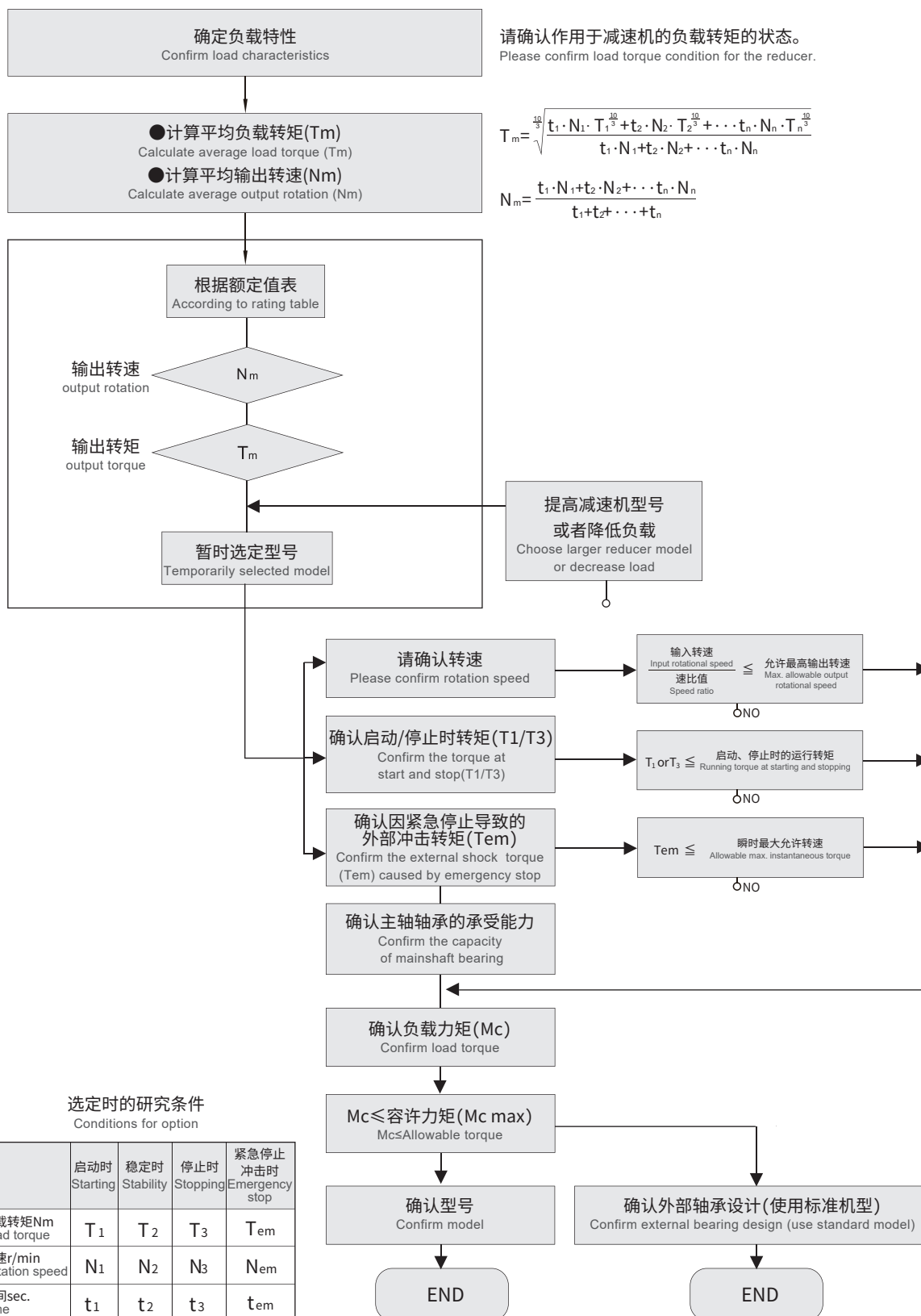
+: 输入与输出为相同方向

+: The input and output are in the same direction

-: 输入与输出为相反方向

-: The input and output are in opposite direction

05 选型方式 SELECTION METHOD



6-1强度与寿命 Strength and Service Life

额定转矩

Rated torque

输入转速为额定转速时所允许的连续负载转矩。

Input rotational speed is continuous load torque allowable at rated rotational speed.

启动、停止时的容许转矩

Allowable starting, stopping torque

启动(停止)时, 附加旋转部的惯性转矩, 给减速机施加大于稳态时负载转矩的负载转矩。额定值表中所示, 表示其容许值。

启动、停止时的容许转矩为额定转矩X200%-300%。

When starting (stopping), the inertia torque of the rotating part is added, and a load torque greater than the load torque during steady state is applied to the reducer. The ratings shown in the table indicate the allowable values.

The allowable torque at start and stop is 200%-300% of the rated torque .

瞬时最大容许转矩

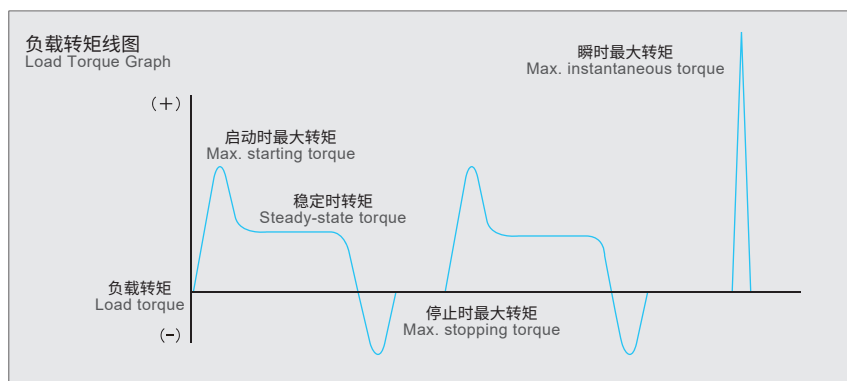
Allowable max. instantaneous torque

有时由于紧急停止或外部的冲击, 可能会给减速机施加较大的转矩。

额定值表中所显示的值表示的是此时的瞬时最大容许转矩值。

Sometimes due to emergency stop or external shock, a larger torque may be applied to the reducer.

The value displayed in the rating table indicates the allowable maximum instantaneous torque value at this time.



额定寿命

Rated service life

减速机各种型号均按照额定转矩、额定输出转速运转时的寿命时间, 具体设定如下。

Reducer models will be referring to rated torque, and rated output rotation speed for service life. Details are as follows.

L _h	寿命时间 Service life:(Hr)	
L ₁₀	K	8,000~20,000

将减速机实际安装到装置并运转时, 由于各负载条件不同, 因此请按下述计算公式计算寿命时间。

When the reducer is actually installed in the device for running, due to the different load conditions, please calculate the service life according to following formula:

$$L_h = K \times \frac{N_o}{N_m} \times \left(\frac{T_o}{T_m} \right)^{\frac{10}{3}}$$

L_h : 所求寿命时间(Hr)

L_h : Calculated service life

N_m: 平均输出转速 (r/min)

N_m: Average output rotation speed

T_m: 平均负载转矩 (Nm)

T_m: Average load torque

N_o : 额定输出转速 (r/min)

N_o : Rated output rotation speed

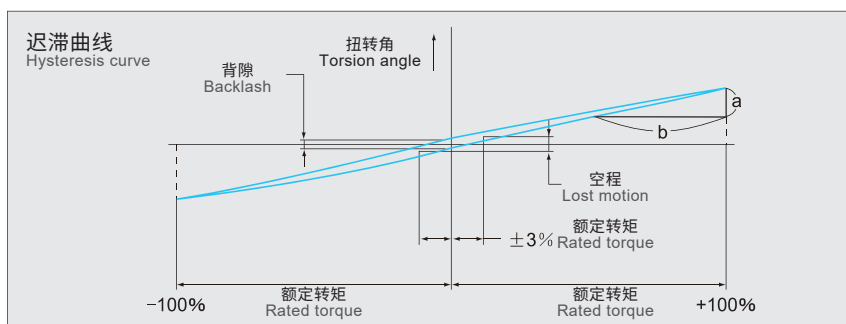
T_o : 额定转矩 (Nm)

T_o : Rated torque

6-2刚性(扭转刚度、空程) R Rigidity (Torsional stiffness, lost motion)

固定输入轴，然后向输出轴施加转矩，则会产生与转矩响应的扭曲，并画出迟滞曲线。

By fixing the input shaft and then applying torque to the output shaft, a torsional moment is converted accordingly with a hysteresis curve shown as follows.



从该曲线获取的扭转刚度、空程表示减速机的刚性。SD减速机的这种刚性很优异。

Torsional stiffness, lost motion obtained from this curve, represent the rigidity of the reducer. The rigidity of the SD series reducer is excellent.

$$\text{扭转刚度} = \frac{b}{a}$$

Torsional rigidity

空程：指在额定转矩的±3%处的迟滞曲线宽度的中间点的扭转角。

Lost motion: Refers to torsional angle at the midpoint of the width of the hysteresis curve at ±3% place of the rated torque.

背隙：指迟滞曲线的转矩“零”处的扭转角。

Backlash: Refers to the torsional angle at the 'zero' point of the torque of hysteresis curve.

6-3容许力矩 R Allowable Torque

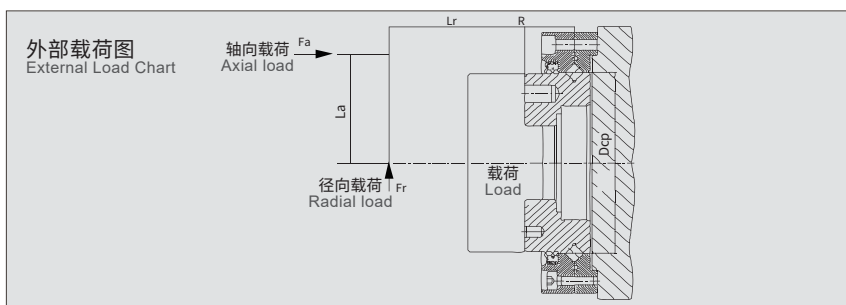
容许力矩表示减速机可支撑的运转时发生负载力矩（启动、停止时的力矩等）容许值。最大负载静力矩（Mmax）的计算方法如下：

$$M_{\max} = F_r \max * (L_r + R) + F_a \max * L_a \quad \text{请确认: } M_{\max} \text{ (最大负载静力矩)} \leq M_c \max \text{ (容许力矩)}$$

The allowable torque indicates the allowable value of the load torque (torque at start, stop, etc.) that occurs when the reducer can support the operation.

The calculation method of the maximum load static moment (Mmax) is as follows:

$$M_{\max} = F_r \max * (L_r + R) + F_a \max * L_a \quad \text{Make your choice: } M_{\max} \text{ (Maximum load static moment)} \leq M_c \max \text{ (Allowable torque)}$$

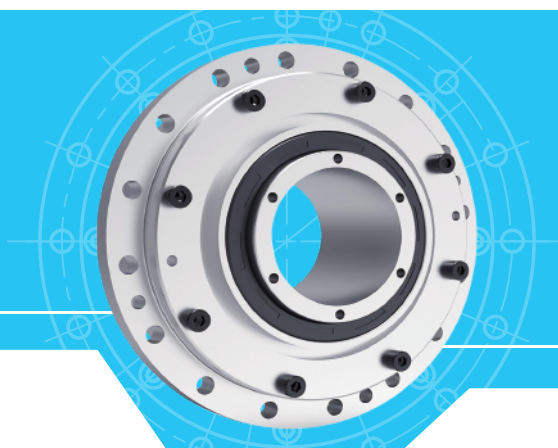


6-4传动误差 R Transmission Error

传动误差(θer)是指输入指示任意旋转角(θin)时的理论输出旋角度与实际输出旋角度(θout)之间的差，用传动误差(θer)表示。

Transmission error (θer) refers to the difference between the theoretical output rotation angle and the actual output rotation angle (θout) when the input indicates any rotation angle (θin), expressed by the transmission error (θer).

$$\theta_{er} = \frac{\theta_{in}}{R} - \theta_{out} \text{ (R:速比值 Speed ratio)}$$



中空减速机

HOLLOW SHAFT REDUCER

07 性能参数与图纸 PERFORMANCE PARAMETER AND DRAWINGS

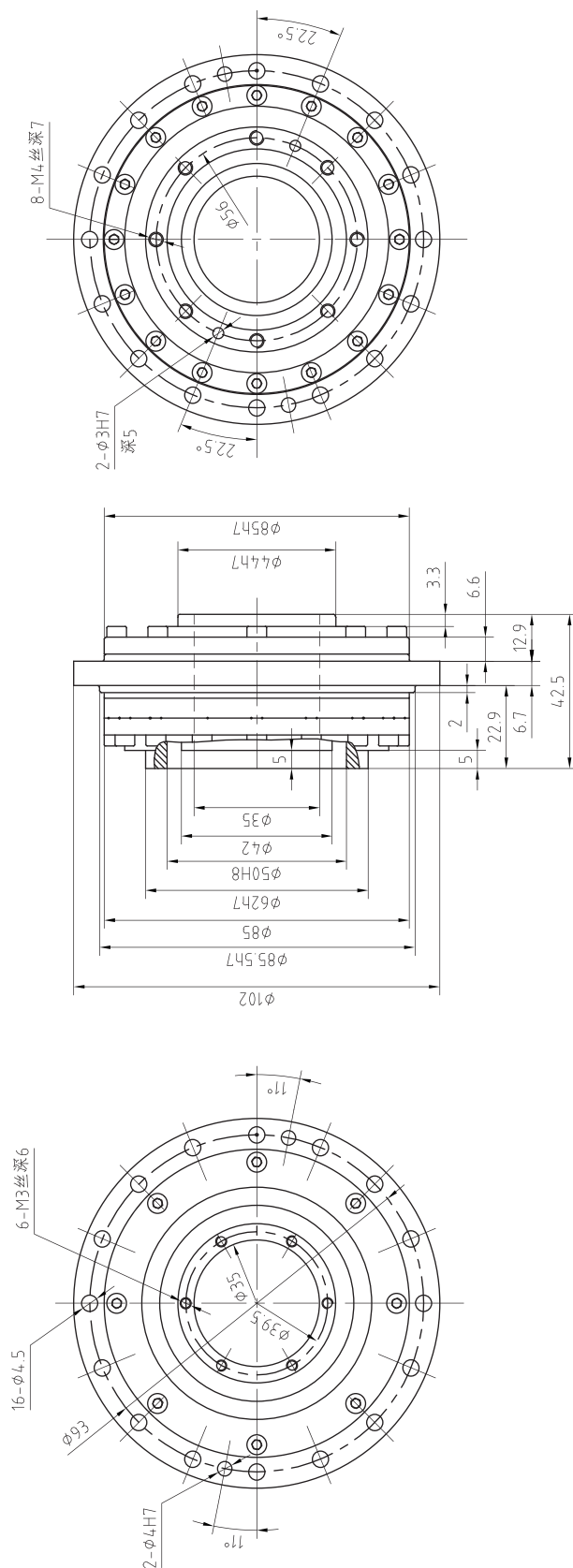
SD-BR 中空减速机性能参数表 Hollow Shaft Reducer Series Product Parameters

型号	减速比	容许 额定转矩	启动停止 容许转矩	瞬时最大 容许转矩	额定 输入转速	容许最高 输入转速	空程	传动误差	扭转刚度	容许 径向负荷	容许 轴向负荷	容许 最大力矩	惯性力矩	重量
Model	Reduction ratio	Allowable rated torque	Allowable start and stop torque	Allowable Max instantaneous torque	Rated input rotation speed	Allowable Max input rotation speed	Lost motion	Transmission error	Torsional rigidity	Allowable radial load	Allowable axial load	Allowable Max torque	Moment of Inertia	Weight
		N.m	N.m	N.m	r/min	r/min	arc.min	arc.min	N.m/arc.min	N	N	N.m	kg.cm ²	kg
SD-BR85C	16	26	52	117	2000	4000	≤2	≤2	5	800	800	156	0.625	1.1
SD-BR100C	15.5	56	112	224	2000	4000	≤2	≤2	11	1500	1500	270	1.652	2.3
	29													
	50													
SD-BR120C	15.25	86	172	344	2000	4000	≤2	≤2	17	2600	2600	410	4.597	3.5
	38													
	50													

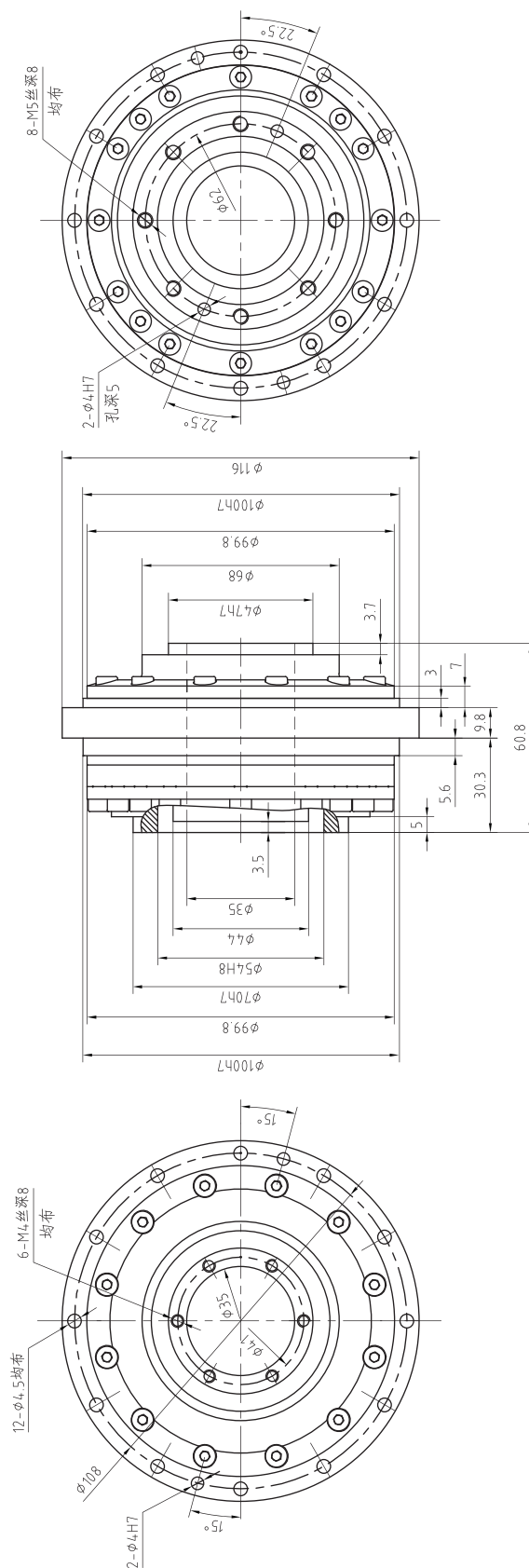
注NOTE:

- (1) 请将输入轴最高转速设定为小于容许最高输入转速。
- (2) 以上参数仅供参考，具体数值取决于减速机的形态与使用情况，以实际为准。
- (3) 在大于上述容许最高输入转速的情况下使用时，以及需要上述减速比以外的速比时，请向本公司咨询。
- (1) Set the maximum input shaft speed to be less than the allowable maximum input speed.
- (2) The above parameters are for reference only, the specific value depends on the condition and use of the reducer, whichever is the actual situation.
- (3) Please consult our company when surpassing the above-mentioned allowable maximum input speed, or when a speed ratio is not within the above reduction ratio scope.

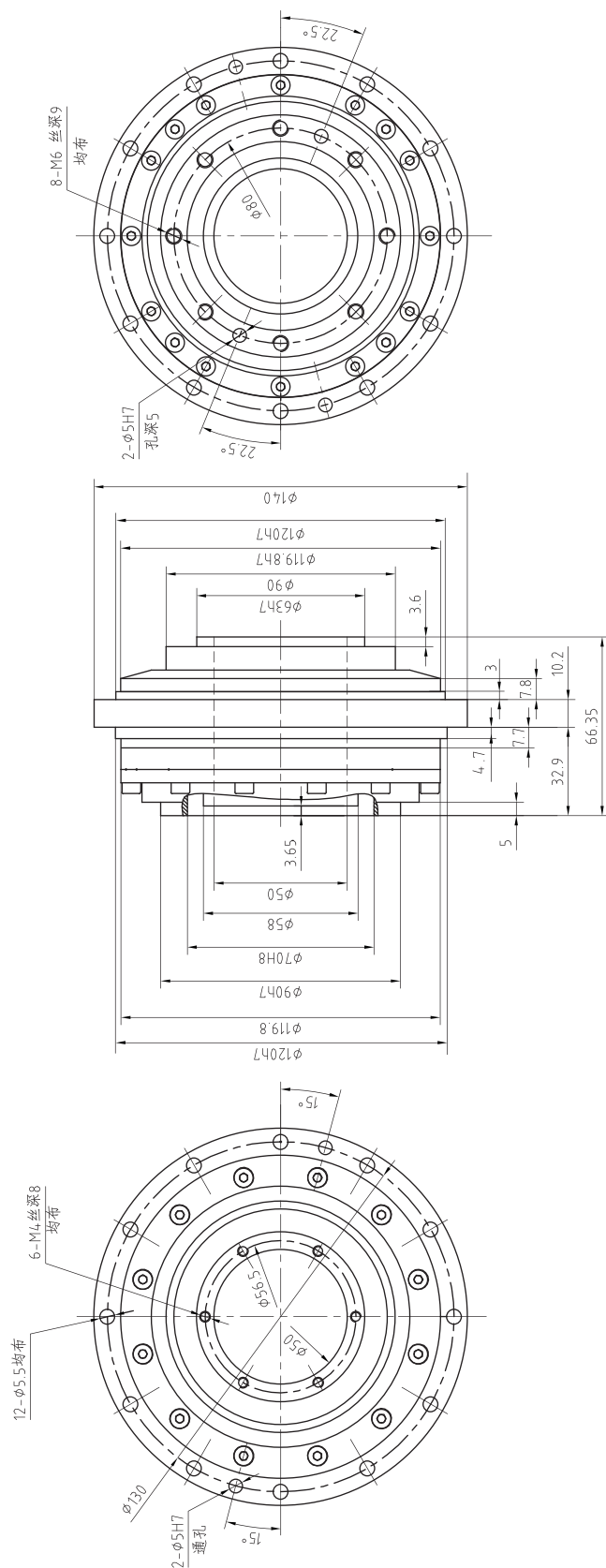
SD-BR85C中空减速机外形图
SD-BR85C Hollow Shaft Reducer Drawing



SD-BR100C中空减速机外形图
SD-BR100C Hollow Shaft Reducer Drawing



SD-BR120C中空减速机外形图
SD-BR120C Hollow Shaft Reducer Drawing





行星减速机
PLANETARY REDUCER

07 性能参数与图纸 PERFORMANCE PARAMETER AND DRAWINGS

SD-BRG 行星减速机性能参数表 Planetary Reducer Series Product Parameters

型号	减速比	容许 额定转矩	启动停止 容许转矩	瞬时最大 容许转矩	额定 输入转速	容许最高 输入转速	容许径向负荷 Allowable radial load		容许 轴向负荷	容许 最大力矩	空载 摩擦转矩	增速转矩	扭转刚度
Model	Reduction ratio	Allowable rated torque	Allowable start and stop torque	Allowable Max. instantaneous torque	Rated input rotation speed	Allowable Max. input rotation speed	法兰输出 Flange output	轴输出 Shaft output	Allowable axial load	Allowable Max. torque	No-load friction torque	Acceleration torque	Torsional rigidity
		N.m	N.m	N.m	r/min	r/min	N		N	N.m	N.m	N.m	N.m/arc.min
SD-BRG60F(S)	7.38	6.8	20.4	27.2	3000	6000	617	225	892	40	0.15	0.7	6
	10	10.4	31.2	41.6			662	244	892		0.15	0.8	
	16	11.6	34.8	46.4			707	263	892		0.15	1.0	
	20	12.1	36.3	48.4			752	282	892		0.15	1.0	
	25	13.7	41.1	54.8			797	301	892		0.15	1.0	
	30	14.1	42.3	56.4			842	320	892		0.15	1.2	
	35	15.3	45.9	61.2			887	339	892		0.15	1.2	
	47	14.4	43.2	57.6			932	358	892		0.15	1.2	
	50.4	14.1	42.3	56.4			977	377	892		0.15	1.2	
	63.44	13.7	41.1	54.8			1022	396	892		0.15	1.2	
SD-BRG90F(S)	9	19.4	58.2	77.6	3000	6000	1260	546	2165	110	0.20	0.8	12
	14.5	26.9	80.6	107.5			1358	591	2165		0.20	1.4	
	22	37.5	112.5	150.0			1456	636	2165		0.20	1.7	
	25	39.2	117.6	156.8			1554	681	2165		0.20	1.7	
	30	41.6	124.8	166.4			1652	726	2165		0.20	1.7	
	35	45.3	135.9	181.2			1750	771	2165		0.20	2.1	
	40	43.8	131.4	175.2			1848	816	2165		0.20	2.1	
	45	46.1	138.3	184.4			1946	861	2165		0.20	2.1	
	50	47.7	143.1	190.8			2044	906	2165		0.20	2.5	
	59.58	49.3	147.9	197.2			2142	951	2165		0.20	3.2	
SD-BRG120F(S)	11.88	40.5	121.5	162.0	3000	6000	2352	926	3512	328	0.30	1.0	23
	15.5	60.2	180.6	240.8			2510	958	3512		0.30	1.4	
	20	65.8	197.4	263.2			2668	990	3512		0.30	1.7	
	25	83.7	251.1	334.8			2826	1022	3512		0.30	1.7	
	30	100.3	300.9	401.2			2984	1054	3512		0.30	1.7	
	35	113.6	340.8	454.4			3142	1086	3512		0.30	2.1	
	40	120.8	362.4	483.2			3300	1118	3512		0.30	2.1	
	56.73	124.0	372.0	496.0			3458	1150	3512		0.30	2.5	
	79.22	90.4	271.2	361.6			3616	1182	3512		0.30	3.2	

注NOTE:

(1) 请将输入轴最高转速设定为小于容许最高输入转速。

(2) 以上参数仅供参考，具体数值取决于减速机的形态与使用情况，以实际为准。

(3) 在大于上述容许最高输入转速的情况下使用时，以及需要上述减速比以外的速比时，请向本公司咨询。

(1) Set the maximum input shaft speed to be less than the allowable maximum input speed.

(2) The above parameters are for reference only, the specific value depends on the condition and use of the reducer, whichever is the actual situation.

(3) Please consult our company when surpassing the above-mentioned allowable maximum input speed, or when a speed ratio is not within the above reduction ratio scope.

07 性能参数与图纸 PERFORMANCE PARAMETER AND DRAWINGS

SD-BRG 行星减速机性能参数表 Planetary Reducer Series Product Parameters

型号	减速比	空程	传动误差	惯性力矩($\leq \phi 8$) Moment of Inertia		惯性力矩($\leq \phi 14$) Moment of Inertia		惯性力矩($\leq \phi 19$) Moment of Inertia		惯性力矩($\leq \phi 28$) Moment of Inertia		重量 Weight	
Model	Reduction ratio	Lost motion	Transmission error	法兰输出 Flange output	轴输出 Shaft output	法兰输出 Flange output	轴输出 Shaft output	法兰输出 Flange output	轴输出 Shaft output	法兰输出 Flange output	轴输出 Shaft output	法兰输出 Flange output	轴输出 Shaft output
		arc.min	arc.min	kg.cm ²		kg.cm ²		kg.cm ²		kg.cm ²		kg	
SD-BRG60F(S)	7.38	≤ 3.0	≤ 3.0	0.076	0.081	0.136	0.142	-	-	-	-	1.3	1.4
	10			0.072	0.076	0.132	0.136	-	-	-	-	1.3	1.4
	16			0.070	0.074	0.127	0.131	-	-	-	-	1.4	1.4
	20			0.067	0.071	0.122	0.126	-	-	-	-	1.4	1.4
	25			0.063	0.066	0.118	0.121	-	-	-	-	1.4	1.4
	30			0.046	0.047	0.116	0.116	-	-	-	-	1.4	1.4
	35			0.054	0.056	0.116	0.116	-	-	-	-	1.4	1.4
	47			0.045	0.046	0.110	0.111	-	-	-	-	1.3	1.4
	50.4			0.045	0.046	0.110	0.111	-	-	-	-	1.3	1.4
	63.44			0.044	0.045	0.108	0.109	-	-	-	-	1.3	1.4
SD-BRG90F(S)	9	≤ 3.0	≤ 3.0	-	-	0.375	0.381	0.765	0.779	2.001	2.028	2.8	3.1
	14.5			0.263	0.267	0.342	0.348	0.728	0.736	1.976	1.988	2.8	3.1
	22			0.224	0.226	0.333	0.336	0.713	0.723	1.967	1.976	2.8	3.1
	25			0.220	0.221	0.329	0.331	0.702	0.712	1.964	1.973	2.8	3.1
	30			0.186	0.188	0.314	0.316	0.691	0.703	1.955	1.964	2.8	3.1
	35			0.147	0.148	0.305	0.306	0.685	0.689	1.943	1.947	2.8	3.1
	40			0.142	0.143	0.296	0.297	0.673	0.674	1.921	1.924	2.8	3.1
	45			0.140	0.141	0.284	0.285	0.665	0.666	1.910	1.912	2.8	3.1
	50			0.138	0.149	0.275	0.276	0.658	0.659	1.898	1.899	2.8	3.1
	59.58			0.127	0.128	0.256	0.257	0.644	0.645	1.886	1.887	2.8	3.1
SD-BRG120F(S)	11.88	≤ 3.0	≤ 3.0	-	-	0.957	0.977	1.383	1.406	2.939	3.148	7.2	7.7
	15.5			-	-	0.834	0.856	1.321	1.340	2.898	2.926	7.2	7.7
	20			-	-	0.646	0.659	1.131	1.150	2.717	2.727	7.3	7.7
	25			-	-	0.632	0.640	1.121	1.131	2.698	2.708	7.3	7.7
	30			-	-	0.625	0.633	1.113	1.117	2.685	2.691	7.3	7.7
	35			-	-	0.608	0.611	1.105	1.108	2.673	2.677	7.3	7.7
	40			-	-	0.332	0.340	0.875	0.878	2.513	2.514	7.3	7.7
	56.73			-	-	0.313	0.318	0.871	0.874	2.496	2.497	7.2	7.7
	79.22			-	-	0.165	0.172	0.822	0.824	2.481	2.482	7.2	7.7

注NOTE:

(1) 请将输入轴最高转速设定为小于容许最高输入转速。

(2) 以上参数仅供参考，具体数值取决于减速机的形态与使用情况，以实际为准。

(3) 在大于上述容许最高输入转速的情况下使用时，以及需要上述减速比以外的速比时，请向本公司咨询。

(1) Set the maximum input shaft speed to be less than the allowable maximum input speed.

(2) The above parameters are for reference only, the specific value depends on the condition and use of the reducer, whichever is the actual situation.

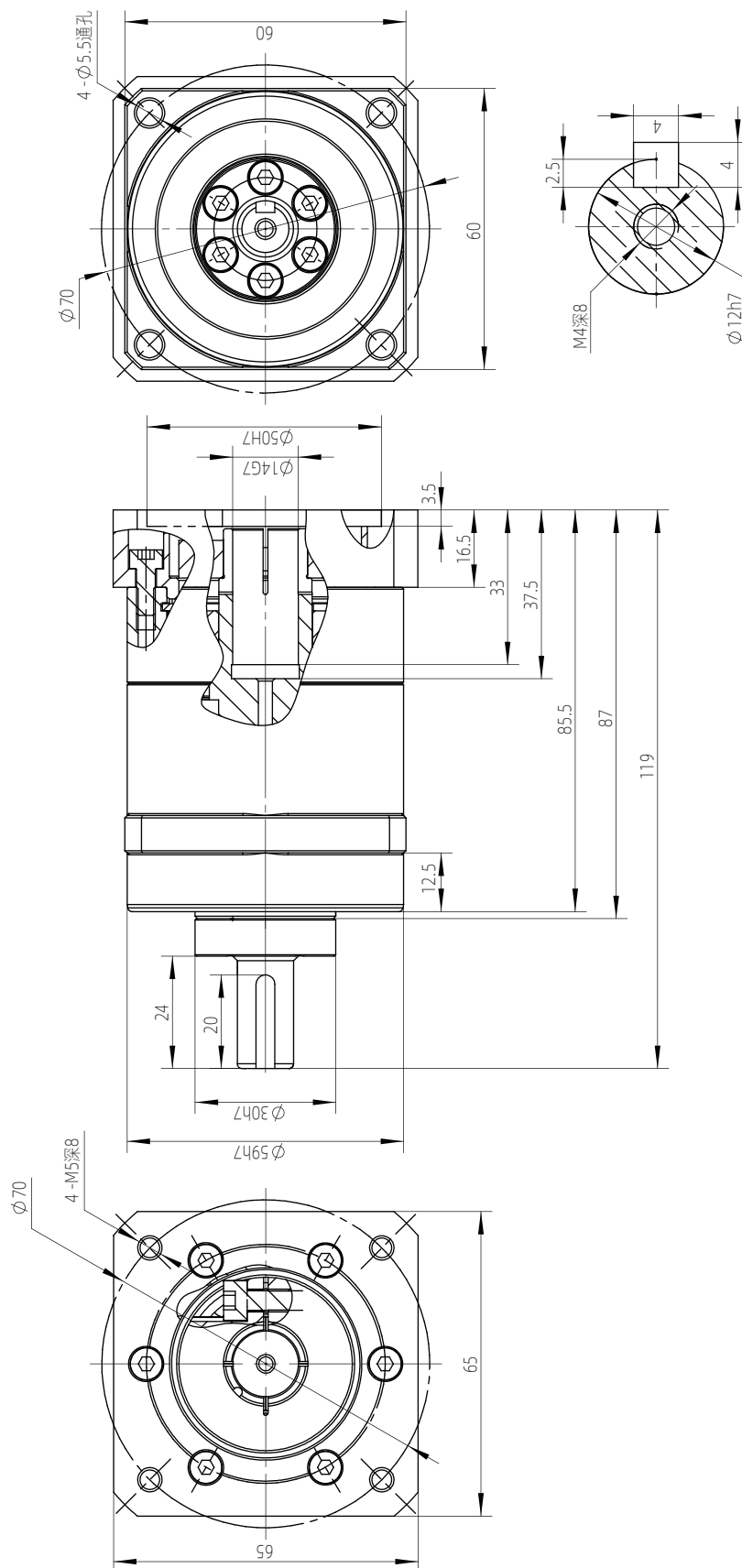
(3) Please consult our company when surpassing the above-mentioned allowable maximum input speed, or when a speed ratio is not within the above reduction ratio scope.

SD-BRG60S型减速机外形图

(说明: 本减速机外形图适用于速比16 20 25 30 35)

SD-BRG60S Reducer Drawing

(Remarks : This drawing is available for speed ratios 16, 20, 25, 30, 35)



(说明: 本减速机外形图适用于速比7.38 10 47 50.4 63.44)

(Remarks : This drawing is available for speed ratios 7.38 10 47 50.4 63.44)

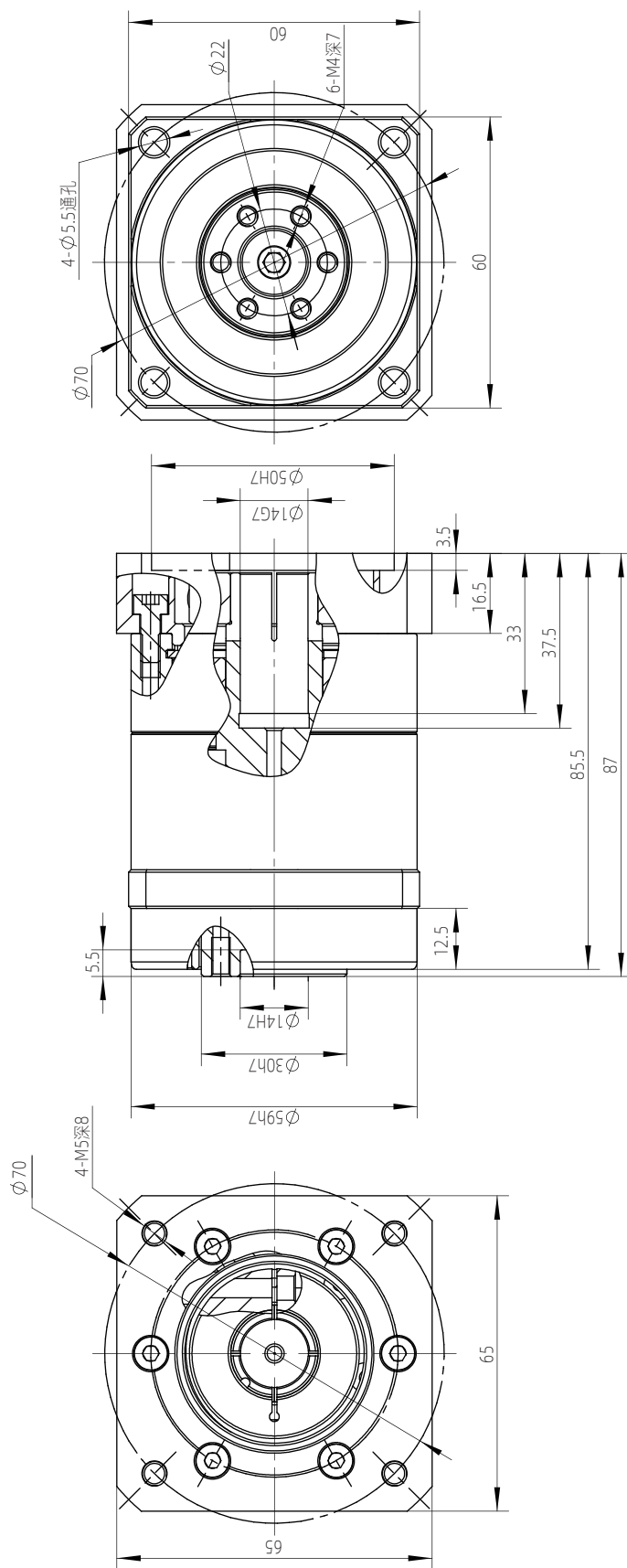


SD-BRG60F型减速机外形图

(说明：本减速机外形图适用于速比16 20 25 30 35)

SD-BRG60F Reducer Drawing

(Remarks : This drawing is available for speed ratios 16 20 25 30 35)

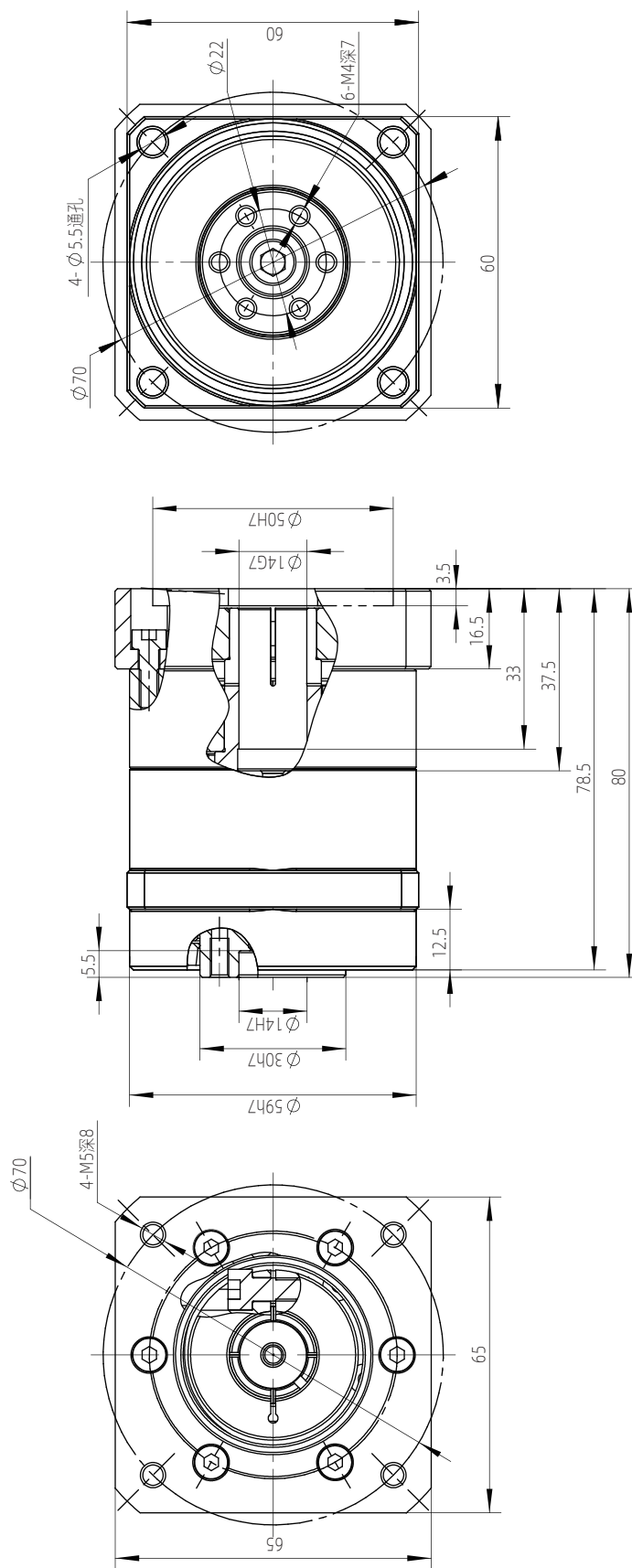


SD-BRG60F型减速机外形图N

(说明：本减速机外形图适用于速比7.38 10 47 50.4 63.44)

SD-BRG60F Reducer Drawing N

(Remarks : This drawing is available for speed ratios 7.38 10 47 50.4 63.44)

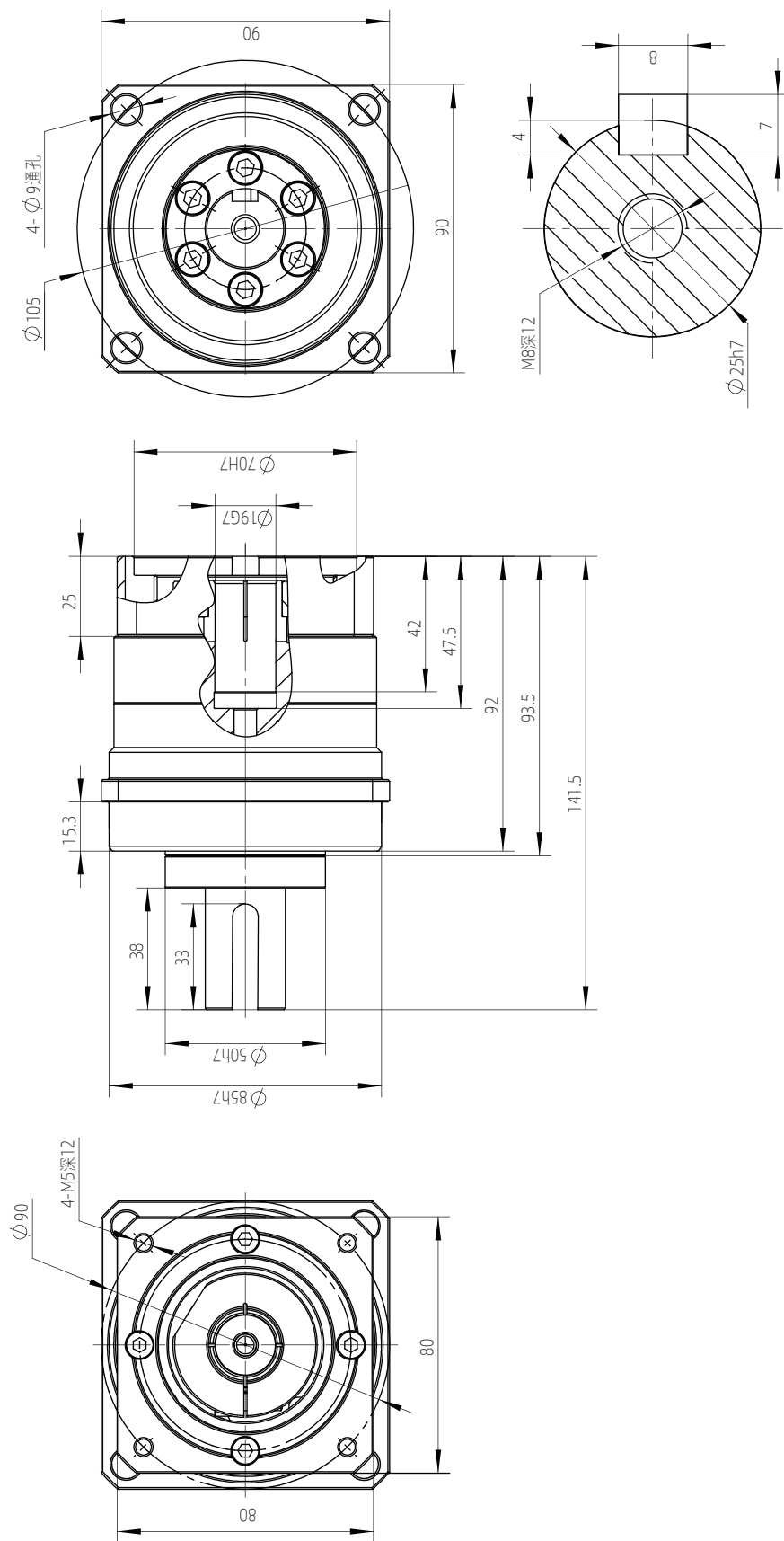


SD-BRG90S型减速机外形图

(说明：本减速机外形图适用于速比22 25 30 35 40 45 50)

SD-BRG90S Reducer Drawing

(Remarks : This drawing is available for speed ratios 22 25 30 35 40 45 50)

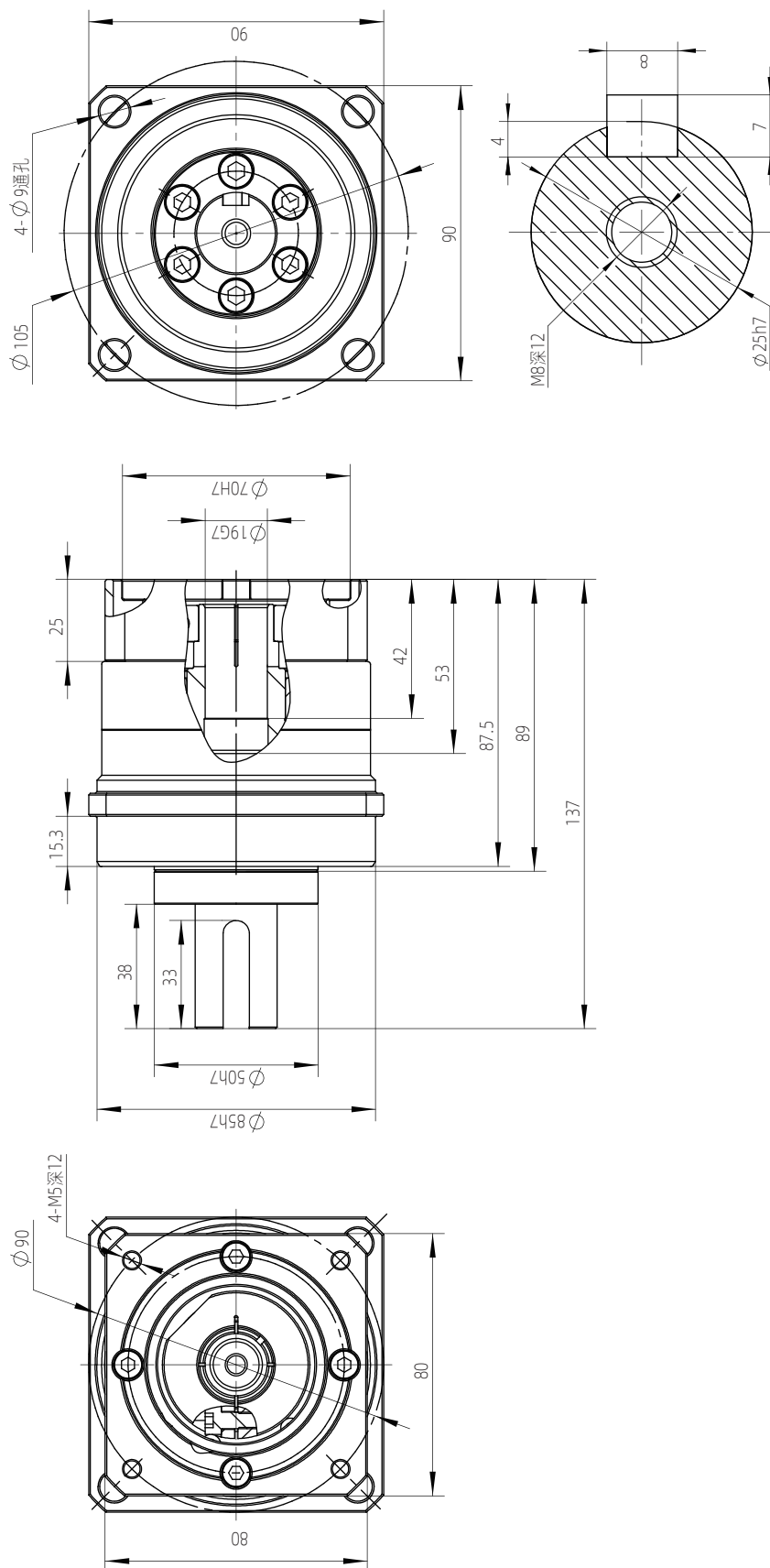


SD-BRG90S型减速机外形图N

(说明：本减速机外形图适用于速比9 14.5 59.58)

SD-BRG90S Reducer Drawing N

(Remarks : This drawing is available for speed ratios 9 14.5 59.58)

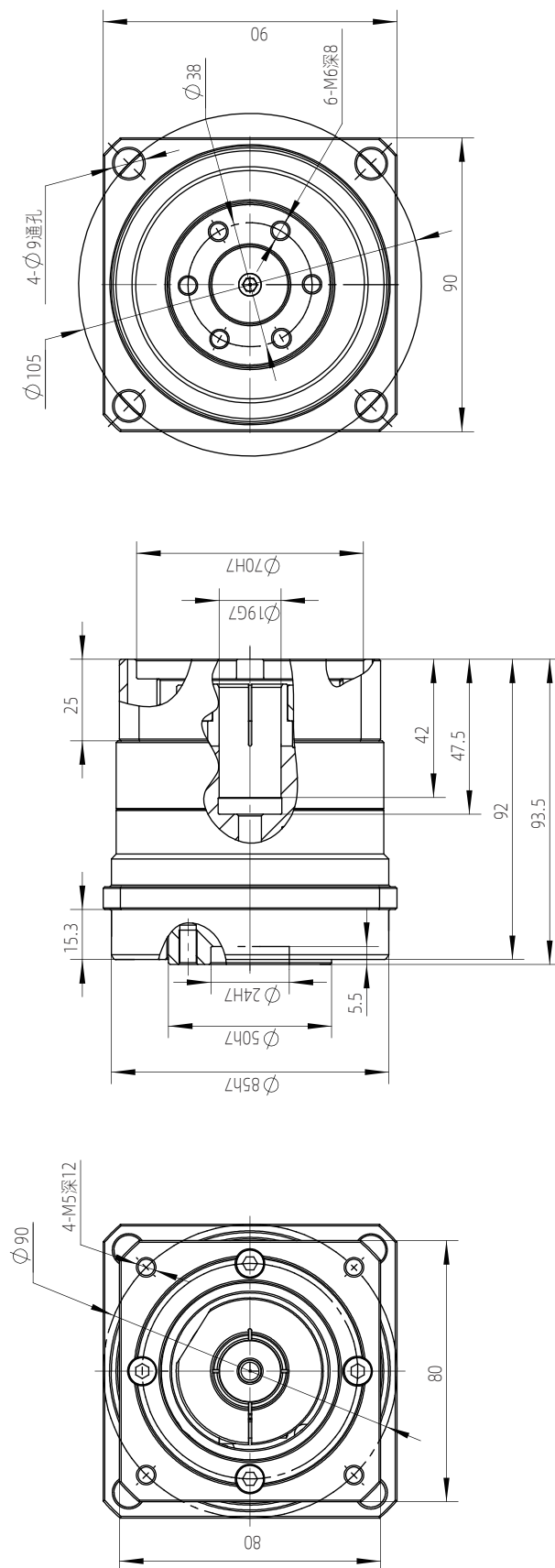


SD-BRG90F型减速机外形图

(说明：本减速机外形图适用于速比22 25 30 35 40 45 50)

SD-BRG90F Reducer Drawing

(Remarks : This drawing is available for speed ratios 22 25 30 35 40 45 50)

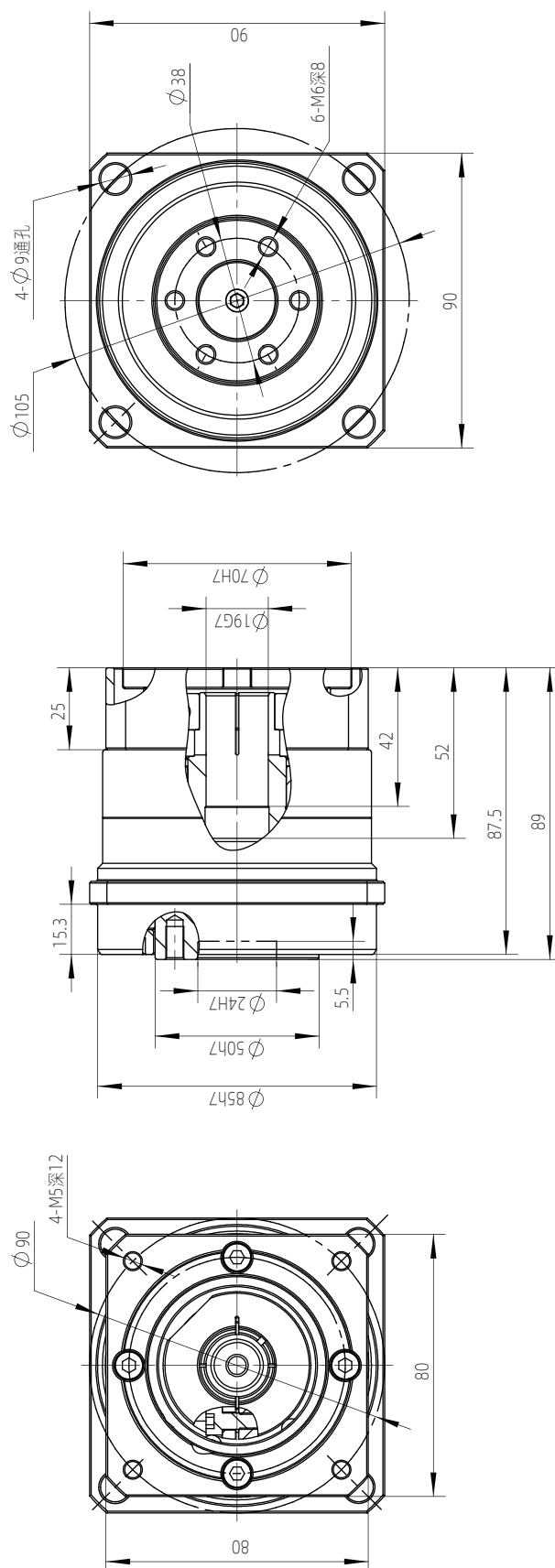


SD-BRG90F型减速机外形图N

(说明: 本减速机外形图适用于速比9 14.5 59.58)

SD-BRG90F Reducer Drawing N

(Remarks : This drawing is available for speed ratios 9 14.5 59.58)

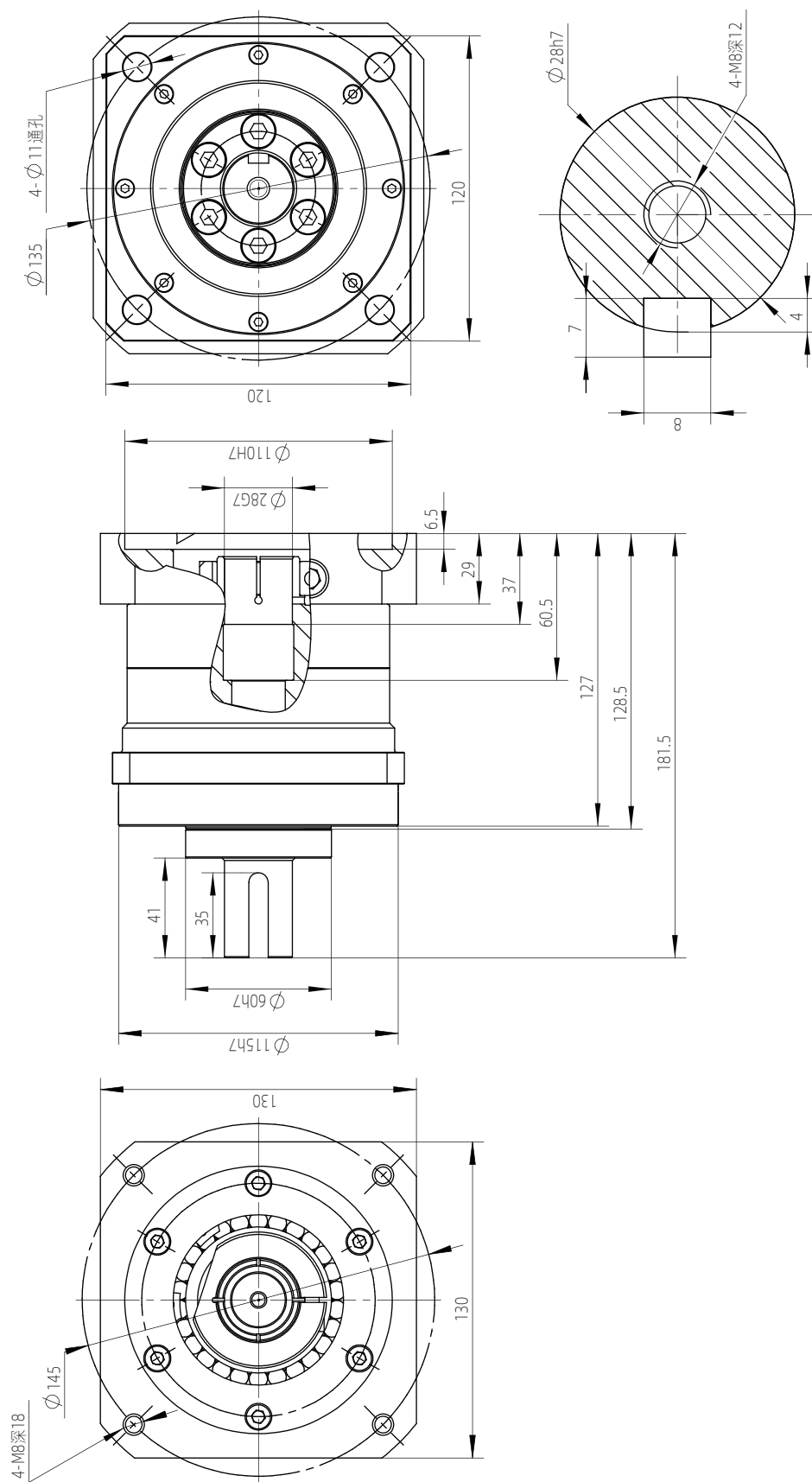


SD-BRG120S型减速机外形图

(说明: 本减速机外形图适用于速比20 25 30 35 40)

SD-BRG120S Reducer Drawing

(Remarks : This drawing is available for speed ratios 20 25 30 35 40)

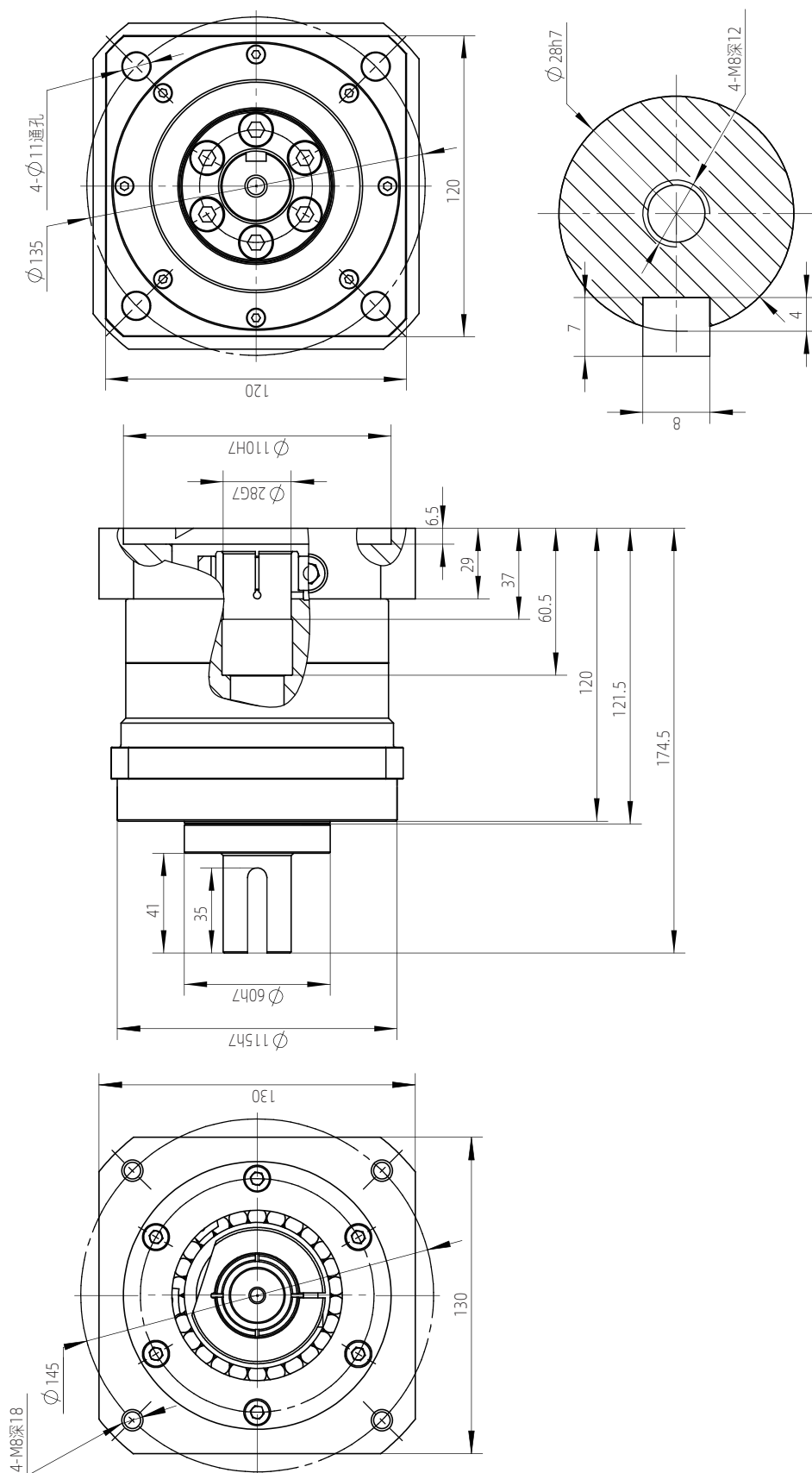


SD-BRG120S型减速机外形图N

(说明: 本减速机外形图适用于速比11.88 15.5 56.73 79.22)

SD-BRG120S Reducer Drawing N

(Remarks : This drawing is available for speed ratios 11.88 15.5 56.73 79.22)



(说明: 本减速机外形图适用于速比20 25 30 35 40)

(Remarks : This drawing is available for speed ratios 20 25 30 35 40)

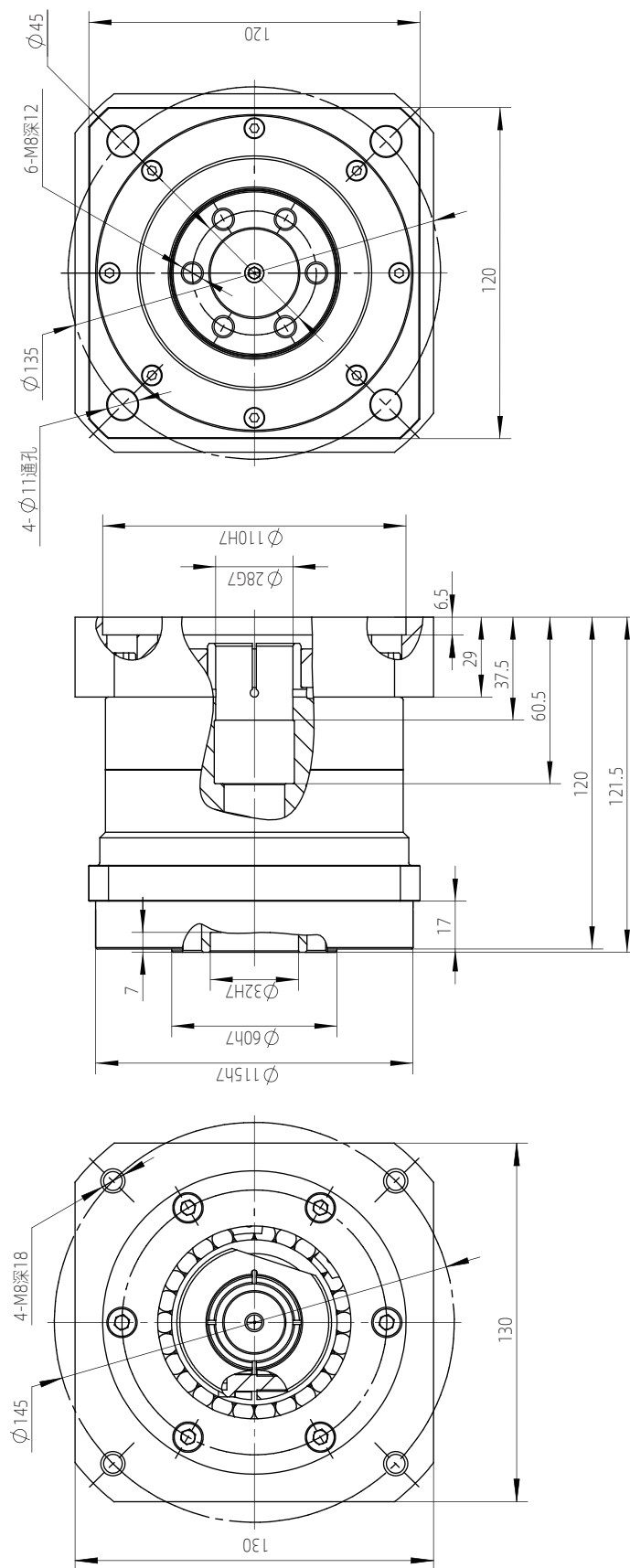


SD-BRG120F型减速机外形图N

(说明：本减速机外形图适用于速比11.88 15.5 56.73 79.22)

SD-BRG120F Reducer Drawing N

(Remarks : This drawing is available for speed ratios 11.88 15.5 56.73 79.22)





轮毂减速机
WHEEL HUB REDUCER

07 性能参数与图纸 PERFORMANCE PARAMETER AND DRAWINGS

SD-BLG 轮毂减速机性能参数表 Wheel Hub Reducer Series Product Parameters

型号	减速比	容许 额定转矩	启动停止 容许转矩	瞬时最大 容许转矩	额定 输入转速	容许最高 输入转速	空程	容许 径向负荷	容许 轴向负荷	惯性力矩	重量
Model	Reduction ratio	Allowable rated torque	Allowable start and stop torque	Allowable Max. instantaneous torque	Rated input rotation speed	Allowable Max. input rotation speed	Lost motion	Allowable radial load	Allowable axial load	Moment of Inertia	Weight
		N.m	N.m	N.m	r/min	r/min	arc.min	N	N	kg.cm ²	kg
SD-BLG80	15	20	40	80	3000	5000	≤3	1100	200	0.392	1.8
	20									0.336	
	25									0.311	
	30									0.297	
SD-BLG100	15	31	62	124	3000	5000	≤3	2800	500	0.992	3.2
	20									0.936	
	25									0.911	
	30									0.897	
SD-BLG120	15	51	102	204	3000	5000	≤3	4900	1200	1.525	4.8
	20									1.499	
	25									1.441	
	30									1.309	
	35									1.291	

注NOTE:

- (1) 请将输入轴最高转速设定为小于容许最高输入转速。
- (2) 以上参数仅供参考，具体数值取决于减速机的形态与使用情况，以实际为准。
- (3) 在大于上述容许最高输入转速的情况下使用时，以及需要上述减速比以外的速比时，请向本公司咨询。
- (1) Set the maximum input shaft speed to be less than the allowable maximum input speed.
- (2) The above parameters are for reference only, the specific value depends on the condition and use of the reducer, whichever is the actual situation.
- (3) Please consult our company when surpassing the above-mentioned allowable maximum input speed, or when a speed ratio is not within the above reduction ratio scope.

(输入轴孔径为Φ8)

SD-BLG80-φ8 Reducer Drawing
(Input shaft bore diameter φ8)

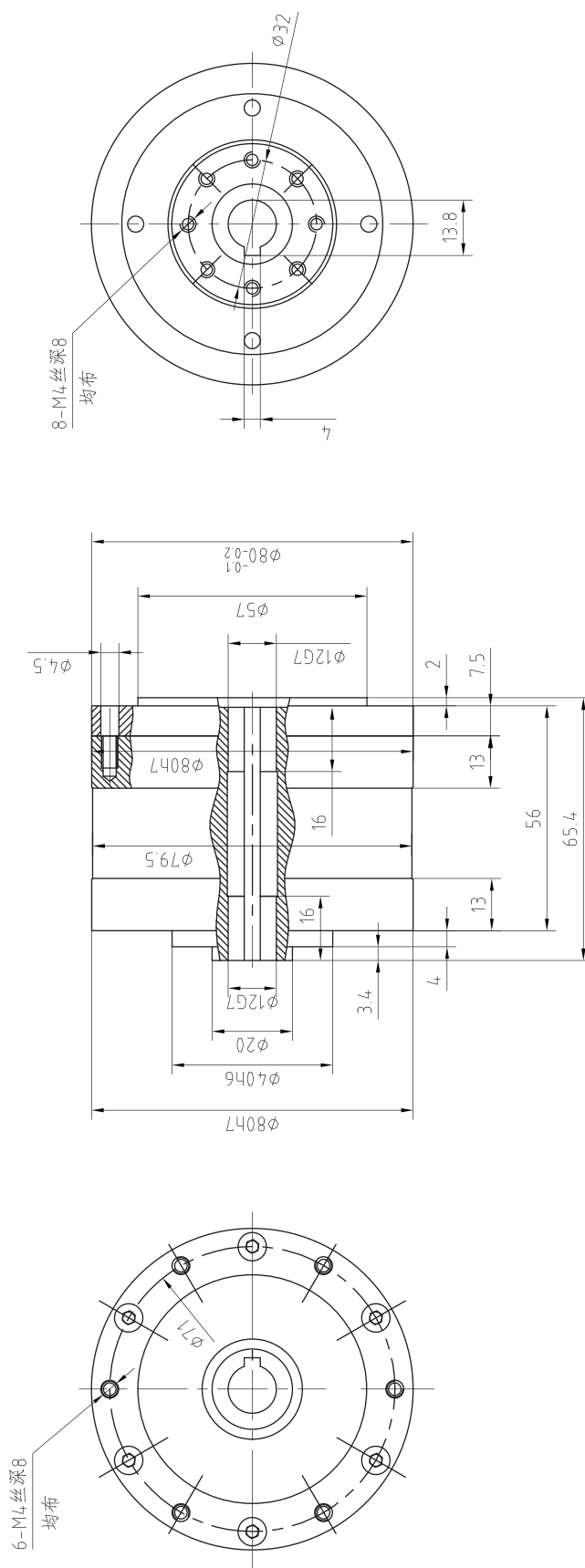


SD-BLG80-Φ12外形图

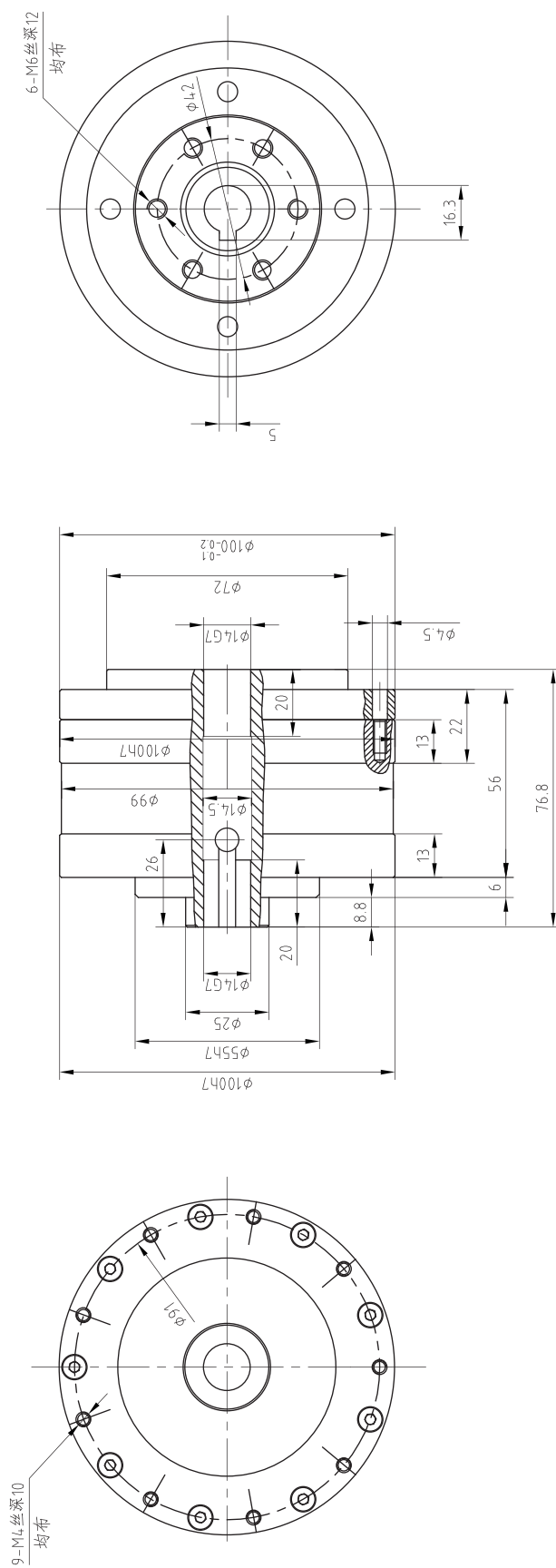
(输入轴孔径为Φ12)

SD-BLG80-Φ12 Reducer Drawing

(Input shaft bore diameter Φ12)



SD-BLG100外形图
SD-BLG100 Reducer Drawing



(输入轴孔径为 $\Phi 14$)

(Input shaft bore diameter $\phi 14$)

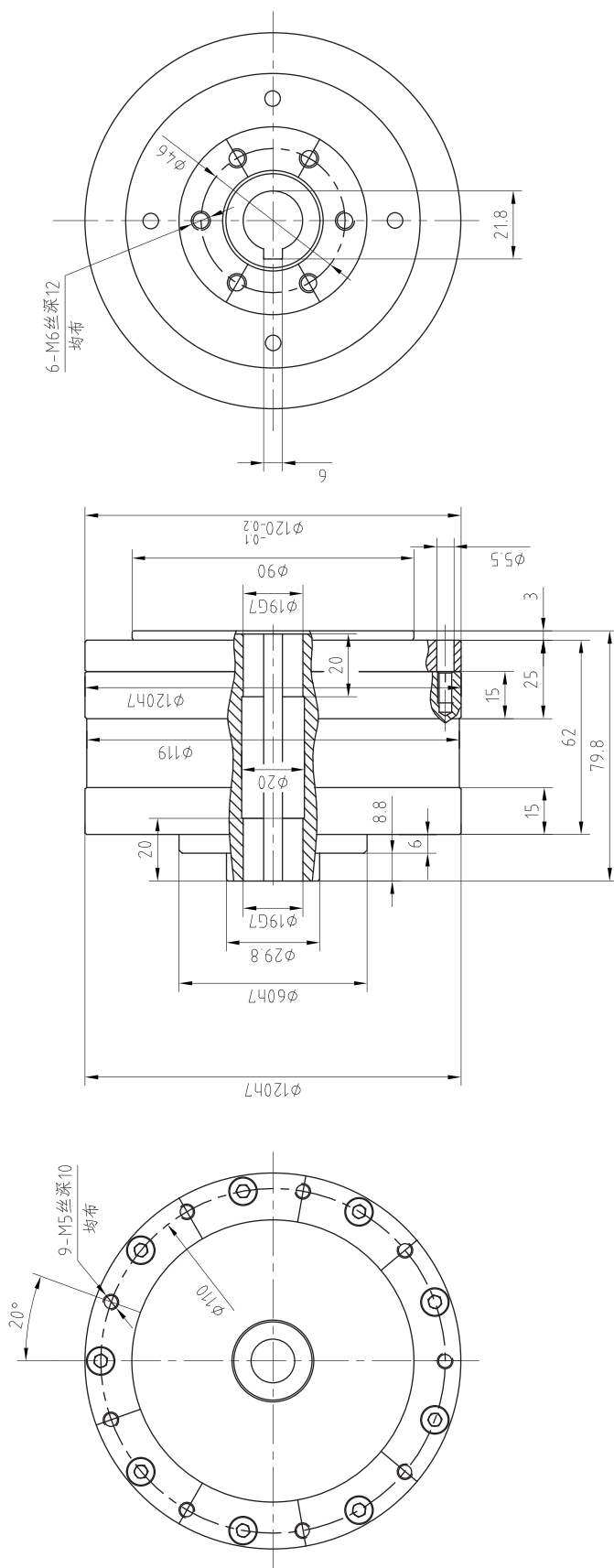


SD-BLG120-φ19外形图

(输入轴孔径为φ19)

SD-BLG120-φ19 Reducer Drawing

(Input shaft bore diameter φ19)



08 安装说明 INSTALLATION NOTES

安装示意图 Installation Map

SD-BR 中空减速机

SD-BR Hollow Shaft Reducer

安装步骤:

Installation steps:

1. 用螺栓将BR系列固定在用户装置壳体上(安装面A)

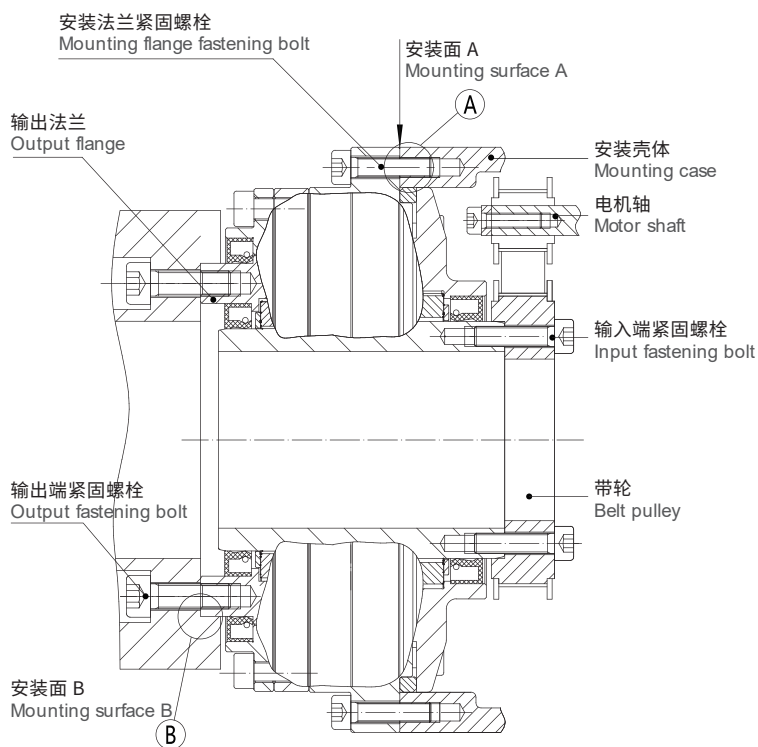
1. Fix the BR series reducer to the place of user device's housing with bolts (mounting surface A)

2. 用螺栓将BR系列输出法兰安装到机器的输出轴上(安装面B)

2. Install the BR series output flange to the output shaft of the machine with bolts (mounting surface B)

3. 用螺栓将带轮或相当部件安装到输入轴上

3. Install the belt and pulley or equivalent to the input shaft with bolts



螺栓紧固力矩 Bolt Tightening Torque

输出端紧固螺栓 Output fastening bolt		安装法兰紧固螺栓 Mounting flange tightening bolt		输入端紧固螺栓 Input fastening bolt	
螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)
M4x0.7	4.3	M4x0.7	4.3	M4x0.7	4.3
M5x0.8	8.7	M5x0.8	8.7	M5x0.8	8.7
M6x1.0	15	M6x1.0	15	M6x1.0	15
M8x1.25	36	M8x1.25	36	M8x1.25	36
M10x1.5	71	M10x1.5	71	M10x1.5	71

注NOTE:

(1) 紧固螺栓采用符合GB/T3098.1, 强度等级为12.9级的内六角螺栓。

(2) 螺纹符合GB/T196, 螺纹精度不低于GB/T 196规定的6级。

(3) 以上表示配套侧使用钢、铸铁时的紧固力矩, 使用铝材等材料时, 请限制螺栓的紧固力矩。

(1) The fastening bolt adopts the hexagon socket bolt with the strength grade of 12.9 in accordance with GB/T3098.1 standard.

(2) The thread standard complies with GB/T196, and the thread accuracy is not lower than the class 6 specified in GB/T 196 standard.

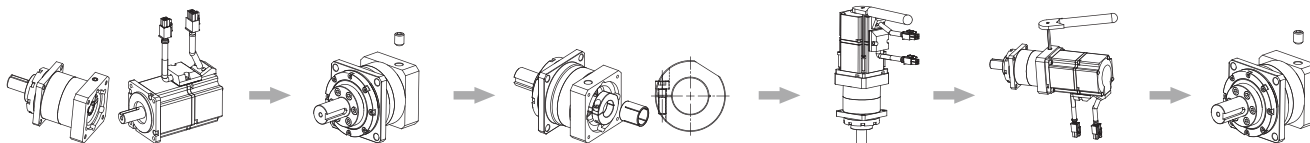
(3) The above shows the tightening torque when steel or cast iron is used on the mating side. When using aluminum and other materials, please limit the tightening torque of the bolts.

08 安装说明 INSTALLATION NOTES

安装示意图 Installation Map

SD-BRG 行星减速机 SD-BRG Planetary Reducer

电机安装步骤： Motor installation steps:



- 1.将电机轴与减速机输入轴上的防锈油与润滑脂擦拭干净。
1.Wipe clean the anti-rust oil and grease on the motor shaft and the input shaft of the reducer.
- 2.将减速机上电机安装法兰塞孔部位的螺栓取下。
2.Remove the bolts from the plug hole on the motor mounting flange of the reducer.
- 3.旋转输入轴使紧固螺栓的头部对准塞孔，此时请确认紧固螺栓处于松动状态，如带有轴套安装方法如图所示。
3.Rotate the input shaft so that the head of the fastening bolt is pointed at the plug hole. At this time, please confirm that the fastening bolt is in a loose state, the installation method with a shaft sleeve is shown in Figure.
- 4.将减速机垂直放置，电机安装面朝上，将电机轴缓慢插入输入轴，注意避免碰撞到输入轴，将电机与减速机法兰对接安装。
4.Place the reducer vertically with the motor mounting surface facing upwards, and slowly insert the motor shaft into the input shaft, taking care to avoid collision with the input shaft, and connect the motor with the reducer flange.
- 5.将减速机输入轴紧固螺栓紧固。
5.Tighten the fastening bolts of the reducer input shaft.
- 6.将减速机上电机安装法兰塞孔上的螺栓拧上。
6.Screw on the bolts at the plug hole of the motor mounting flange located on reducer.

螺栓紧固力矩 Bolt Tightening Torque

减速机安装/输出法兰紧固螺栓 Reducer installation/Output flange fastening bolt		减速机输入轴紧固螺栓 Reducer input shaft fastening bolt		电机安装紧固螺栓 Motor mounting fastening bolt	
螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)
M4x0.7	4.3	M4x0.7	4.3	M4x0.7	2.5
M5x0.8	8.7	M5x0.8	8.7	M5x0.8	5.1
M6x1.0	15	M6x1.0	15	M6x1.0	8.7
M8x1.25	36	M8x1.25	36	M8x1.25	21
M10x1.5	71	M10x1.5	71	M10x1.5	42

注NOTE:

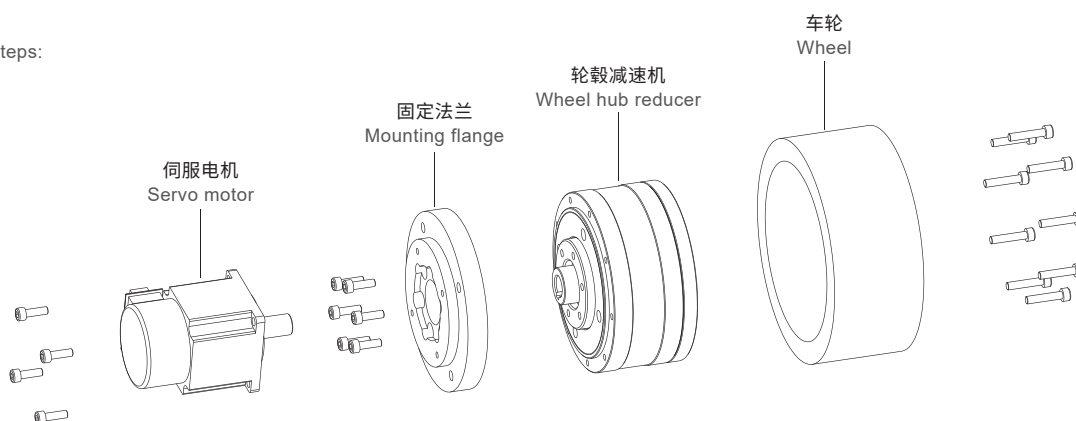
- (1) 紧固螺栓采用符合GB/T3098.1，强度等级为12.9级的内六角螺栓。
- (2) 螺纹符合GB/T196，螺纹精度不低于GB/T 196规定的6级。
- (3) 以上表示配套侧使用钢、铸铁时的紧固力矩，使用铝材等材料时，请限制螺栓的紧固力矩。
- (1) The fastening bolt adopts the hexagon socket bolt with the strength grade of 12.9 in accordance with GB/T3098.1 standard.
- (2) The thread standard complies with GB/T196, and the thread accuracy is not lower than the class 6 specified in GB/T 196 standard.
- (3) The above shows the tightening torque when steel or cast iron is used on the mating side. When using aluminum and other materials, please limit the tightening torque of the bolts.

08 安装说明 INSTALLATION NOTES

安装示意图 Installation Map

SD-BLG 轮毂减速机 SD-BLG Wheel Hub Reducer

安装步骤：
Installation steps:



- 1.将固定法兰安装至轮毂减速机。
1.Attach the mounting flange with reducer.
- 2.将伺服电机轴插入轮毂减速机输入轴，注意避免碰撞到输入轴，并安装至固定法兰。
2.Insert the servo motor into reducer input shaft, pay attention not to collide with the input shaft, and install to mounting flange.
- 3.将车轮安装至轮毂减速机。
3.Mount the wheel to reducer .

螺栓紧固力矩 Bolt Tightening Torque

输出端紧固螺栓 Output fastening bolt		固定法兰紧固螺栓 Mounting flange fastening bolt		电机安装紧固螺栓 Motor mounting fastening bolt	
螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)	螺栓尺寸 Bolt size	紧固力矩(N.m) Tightening torque (N.m)
M4x0.7	4.3	M4x0.7	4.3	M4x0.7	4.3
M5x0.8	8.7	M5x0.8	8.7	M5x0.8	8.7
M6x1.0	15	M6x1.0	15	M6x1.0	15
M8x1.25	36	M8x1.25	36	M8x1.25	36
M10x1.5	71	M10x1.5	71	M10x1.5	71

注NOTE:

- (1) 紧固螺栓采用符合GB/T3098.1, 强度等级为12.9级的内六角螺栓。
- (2) 螺纹符合GB/T196, 螺纹精度不低于GB/T 196规定的6级。
- (3) 以上表示配套侧使用钢、铸铁时的紧固力矩, 使用铝材等材料时, 请限制螺栓的紧固力矩。
- (1) The fastening bolt adopts the hexagon socket bolt with the strength grade of 12.9 in accordance with GB/T3098.1 standard.
- (2) The thread standard complies with GB/T196, and the thread accuracy is not lower than the class 6 specified in GB/T 196 standard.
- (3) The above shows the tightening torque when steel or cast iron is used on the mating side. When using aluminum and other materials, please limit the tightening torque of the bolts.

09 使用要求及注意事项 USE REQUIREMENTS AND PRECAUTIONS

使用要求 Use Requirements

减速机到厂后

Upon your receiving of reducer

减速机到货后请确认减速机型号是否与订购的型号相同。

After the reducer arrives, please confirm whether the reducer model is the same as the ordered model.

减速机输出轴、输入轴上涂有防锈剂，请擦拭后使用。

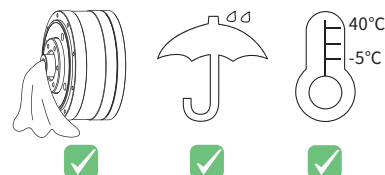
The anti-rust agent has been brushed on the output shaft and input shaft of the reducer, please wipe it off before use.

*减速机内部分系列未完全填充润滑脂。

*Note some series are not fully prefilled with grease.

*减速机到厂后即可使用，部分系列需按要求充填润滑脂后使用。

*The reducer can be used after arriving at the factory. Some series should be used after filling with grease as required.



安装、设置

Installation and setting

请勿在会直接淋到雨或水的场所使用。（*需要在室外或受粉尘、水滴影响的场所使用时，请事先与本公司联系。）

Do not use in a place where it will be directly exposed to rain or water. (*If you need to use it outdoors or in a place affected by dust or water droplets, please contact us in advance.)

请将本机设置在周围温度为-5°C~40°C的环境中。（*如在上述范围外的温度中使用本机时，必须与本公司联系。）

Please install the reducer in an environment with an ambient temperature of -5°C to 40°C. (*If you use the reducer at a temperature outside the above range, you must contact our company.)

将本机设置在坚固的安装台上，并用螺栓紧固。

Set the reducer on a solid installation platform and fasten it with bolts.

设置时应考虑到保养维修的便利性。

During installation, the convenience of maintenance and repair should be considered.

运行注意事项 Operational Considerations

运行开始前的注意事项

Precautions before starting operation

初次运行时，应先确认输出轴的旋转方向后，再慢慢地增加负荷。

During the initial operation, firstly confirm the rotating direction of the output shaft then slowly increase the load.

运行中的注意事项

Precautions during operation

应注意不要超负荷。

Be careful not to overload.

输入转速不得超过规定以上的转速。

The input speed must not exceed the specified speed.

发生下列情况时，请暂停运行立即进行检查。

——*温度突然上升 *突然出现很大的异常声 *转速突然变得不稳定

In the following situations, please suspend operation and check immediately.

——*Temperature suddenly rises * Suddenly abnormal noise occurs *Speed suddenly becomes unstable

如这些原因是由下列事项造成，应马上采取应对措施与本公司联系。

——*是否处于超负荷状态 *是否润滑脂不足、老化或使用不同品种的润滑脂？ *轴承、传动面有无损伤？ *是否与关联机械连接等的条件不良？

If these reasons are caused by the following checking items, you should immediately take countermeasures to contact our company.

—— *Whether it is in overload state. *Is the grease insufficient, aging or using different types of grease? *Is there any damage to the bearing or transmission surface? *If reducer's connection with related mechanism poor?



09 使用要求及注意事项 USE REQUIREMENTS AND PRECAUTIONS

其他注意事项 Other Precautions

定期检查 Regular inspection

有无超负荷或异常旋转。

Whether there is overload or abnormal rotation.

滑轮、链轮、减速机安装螺栓等有无松动。

Whether the pulley, sprocket and reducer mounting bolts are loose.

电气系统有无异常。

Is there any abnormality in the electrical system?

主要部件的检查和维修。

Inspection and maintenance of main components.

润滑脂管理 Grease Management

SD系列减速机的全部采用润滑脂润滑密封方式。减速机到厂后即可使用，部分系列未完全填充润滑脂，需按要求充填润滑脂后使用。

All SD series reducers adopt sealed lubrication method. The reducer can be used after arriving at your factory. Some series of reducers are not fully prefilled with grease, which should be used after filling as required.

不能更换润滑脂。

Please do not replace any grease.

在周围温度-5℃~40℃以外的环境中使用时，请先咨询本公司。

When using in an environment with an ambient temperature below -5℃ or above 40℃, please consult this with HSOAR company.

保管注意事项 Precautions for storage

需要暂时保管本产品时，请遵照下列要领进行。

If you need to temporarily store this product, please follow the procedures below.

*放在清洁干燥的场所进行保管。 *若放在室外或有潮气的场所保管时，应装入箱内并严密包裹，以免受外部侵蚀。（采取防结露、生锈措施）

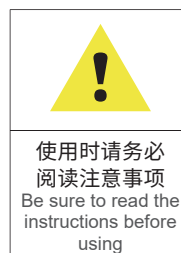
*Store in a clean and dry place. * If it is stored outdoors or in a place with moisture, it should be packed in a box and kept tightly wrapped to protect from external erosion. (Take measures to protect from dew condensation and rust)

减速机故障分析 Fault Analysis of Reducer

常见故障分析 Common Fault Analysis		
故障 Fault	原因分析 Reason analysis	
减速机漏油 Reducer oil leakage	输入轴位置漏油 Oil leakage at input shaft position	输入轴上的油封磨损失效 The oil seal on the input shaft is worn out
	交叉圆柱滚子轴承位置漏油 Oil leakage at the cross cylindrical roller bearing position	交叉圆柱滚子轴承上的油封磨损失效 The oil seal on the cross cylindrical roller bearing is worn out
	机体壳结合处漏油 Oil leakage at the couplings of mechanism case	结合位置的液体密封胶涂抹不均匀，密封失效 The liquid sealant at the joint position is not evenly applied, and the seal fails
异常噪音 Abnormal noise	规律性周期噪音 Regular periodic noise	啮合钢球磨损或摆线滚道损坏 Meshing steel ball wearout or cycloidal rolling trajectory damage
	稳定的研磨噪音 Stable grinding noise	轴承损坏 Bearing damage
减速机温度过高 Temperature of reducer is too high		润滑油失效，导致啮合副磨损发热增大 Lubricant fail, cause mesh mate wear and heat increase
		输入轴上油封装配过紧，导致摩擦生热过大 Oil seal assembly on input shaft is too tight, resulting in excessive heat of friction
		装配时，轴向预紧过大 During assembly, the axial preload is too large
		负载过大，转速过高 Load is too large, speed is too high

注：当出现以上异常情况时，请立即停机检查，与我司售后联系。

Note: In case of any of the above abnormal conditions, please stop the machine immediately for inspection and contact our after-sales service.



10 质量保证 QUALITY ASSURANCE

海尚集团公司保证SD型减速机在材料方面、制造方面没有缺陷。

HSOAR Group Co., Ltd. guarantees that the SD reducers are free from defects in material and workmanship.

在本公司规定的额定运行条件内、在正常的装配状态以及润滑状态下使用，以此为前提，购买后一年，或者实机搭载后运转使用2,000小时，保修期以两者中较早到达的一方为准。

Under the rated operating conditions specified by the company, under normal assembly and lubrication conditions, provided that the warranty period is one year after purchase or 2,000 hours after the actual machine is loaded, whichever comes earlier.

如在上述保修期内发现材料方面、制造方面的缺陷，则该产品的修理、或者购买替代品的相关费用由本公司承担。但是，实机拆卸以及安装所需的工作量、再次购买所需的运费及税金、仓库费用等附带费用不在本公司承担范围内。同时，因本产品不良产生的搭载实机中止而引起的机会损失费用等，本公司不予承担。

If defects in materials or manufacturing are found during the above warranty period, the company shall bear the costs related to the repair of the products or the purchase of substitutes. However, the amount of work required for disassembly and installation of the actual machine, the freight and tax required for repurchase, warehouse costs and other incidental expenses are not covered by our company. At the same time, the company will not bear the opportunity loss cost caused by the suspension of the actual machine due to the defect of the product.

进行经济补偿的情况下，其金额上限不应超过索赔对象产品的出售价格。

In the case of economic compensation, the upper limit of the amount shall not exceed the selling price of the product of the object of claim.

在没有事先通知本公司的情况下，擅自分解该产品、或重新组装该产品，由此引发的性能方面、安全方面的问题等本公司一概不予负责。

Without prior notice to the company, the company will not be responsible for the performance and safety problems caused by the decomposition or reassembly of the product.

属于以下任何情况导致本产品出现问题时不在上述保修范围之内，本公司将进行有偿服务。

Under any of the following circumstances, the product is not within the scope of the above warranty, and the company will provide paid services.

1. 在超出本公司指定的使用条件或规格书中指定的范围的情况下使用本产品时
 2. 因污垢、异物附着（非本公司责任）而导致设备故障时
 3. 在本产品上使用本公司指定产品之外的润滑脂、耗材等时
 4. 在特殊环境中（高温、多湿、有大量尘埃、腐蚀性、挥发性、易燃性气体的环境中、经加减压后的大气中、液体中等。但本公司规格书等明确认可的范围除外。）使用本产品时
 5. 本产品经非本公司人员进行了拆卸、重新组装、修理、改造时
 6. 因本产品之外的机器而导致设备故障时
 7. 因火灾、地震、雷击、水灾等灾害以及其他不可抗力而导致设备故障时
 8. 由其它非本产品设计或制造上的原因而导致设备故障时
1. Using this product when application exceeds the usage conditions specified by our company or the range specified in the specifications
 2. When the reducer is having malfunctions due to the adhesion of dirt and foreign objects (not our responsibility)
 3. When using lubricants, consumables, etc. other than those specified by our company for this product
 4. In special environment (high temperature, high humidity, a large amount of dust, corrosive, volatile, flammable gas environment, or the atmosphere and liquid after compression or decompression etc., except for the scope clearly approved by our company's specifications, etc.)
 5. When this product has been disassembled, reassembled, repaired, or modified by a person other than our company
 6. When a device malfunction occur due to other equipment than this product
 7. When the mechanism fails due to disasters such as fire, earthquake, lightning strike, flood and other force majeure
 8. When the equipment fails due to other reasons than design or manufacturing

故障修理或更换了产品时，经修理更换的部件以及更换的产品保修期为发生该故障的本产品剩余保修期。

When the fault is repaired or the product is replaced, the warranty period of the repaired and replaced parts and the replaced product has the warranty period from the date which the fault occurred.

11 应用示例 APPLICATION EXAMPLES



工业机器人
Industrial Robot



精密仪器
Precision Instruments



风力发电
Wind Power Generation



医疗器械
Medical Devices



电动汽车
Electric Vehicle



智能家居
Smart Home



海尚集团

集团总部:

浙江省瑞安市塘下北工业园区凤都二路88号, 325204

营销中心:

上海市宝山区蕴川路6号智慧湾科创园28栋105室, 200431

电话: 021-6613-5568

网址: www.china-hsoar.com

HSOAR GROUP

Headquarters:

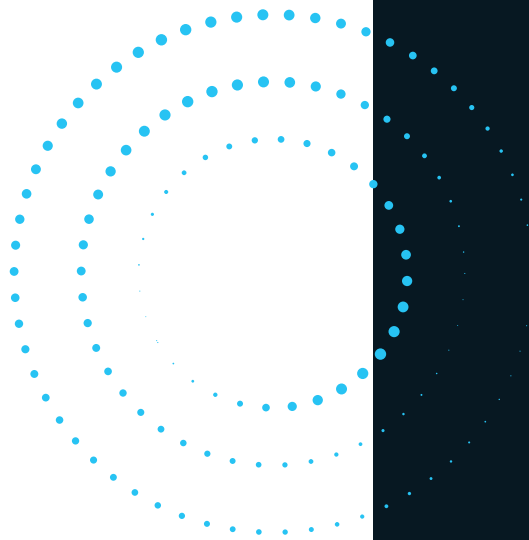
88 Fengdu Er Road, North Industry Zone, Tangxia Town,
Ruian, Zhejiang, P.R. of China 325204

Marketing center:

Room 105, Building 28, Wisdom Bay, 6 Wenchuan Road,
Baoshan District, Shanghai 200431

Tel: +86-21-6613-5568

Web: en.china-hsoar.com



注: 本样册仅供参考, 选型定制详请电话咨询。

Note: This sample book is for reference only.

Please call us for details of model selection and customization.