

HSOAR
REDUCER



矢量摆线减速机

VECTOR DOUBLE-CYCLOID BALL REDUCER

中国·海尚集团
CHINA·HSOAR GROUP

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矢量摆线减速机

VECTOR DOUBLE-CYCLOID BALL REDUCER

矢量摆线减速机开创性采用双摆线差动变速输出方式,是高精度控制用减速机。由于摆线全接触的传动方式,具备小型、轻量特点,也具有高刚性、耐过载的特点。另外,由于旋转振动、惯性小,所以具有良好的加速性能,可实现平稳运转并获取正确位置的精度。

As high precision control reducer, HSOAR double cycloid ball reducer innovatively adopts the double cycloid differential speed output.

Since all the steel balls fully contact the cycloid disk, this transmission is featured as small scale, light weight, high rigidity, high overload capacity.

In addition, it has tiny rotary vibration, inertia, thus keeps good performance on acceleration and deceleration, high positioning accuracy.



- 命名规则·Naming Rules

- 特点·Features

- 性能参数·Performance Parameters

- SD-BR中空减速机系列 Hollow Shaft Reducer Series

- SD-BQX关节减速机(轻型精密)系列 Joint Reducer Series(Light Weight, High Precision)

- SD-BIR关节减速机(类RV)系列 Joint Reducer Series(Replace RV Gearbox)

- SD-BXB关节减速机(类谐波)系列 Joint Reducer Series(Replace Harmonic Gearbox)

- SD-BRG摆线行星(类行星)减速机系列 Cycloid Planetary Reducer Series (Replace Planetary Gearbox)

- SD-BLG轮毂减速机系列 Wheel Hub Reducer Series

- 技术术语·Technical Terms

- 4-1强度与寿命 Torque and ServiceLife

- 4-2刚性(扭转刚度、空程) Rigidity (Torsional Stiffness , Lost Motion)

- 4-3容许力矩 Allowable Torque

- 4-4传动误差 Transmission Error

- 质量保证·Quality Assurance

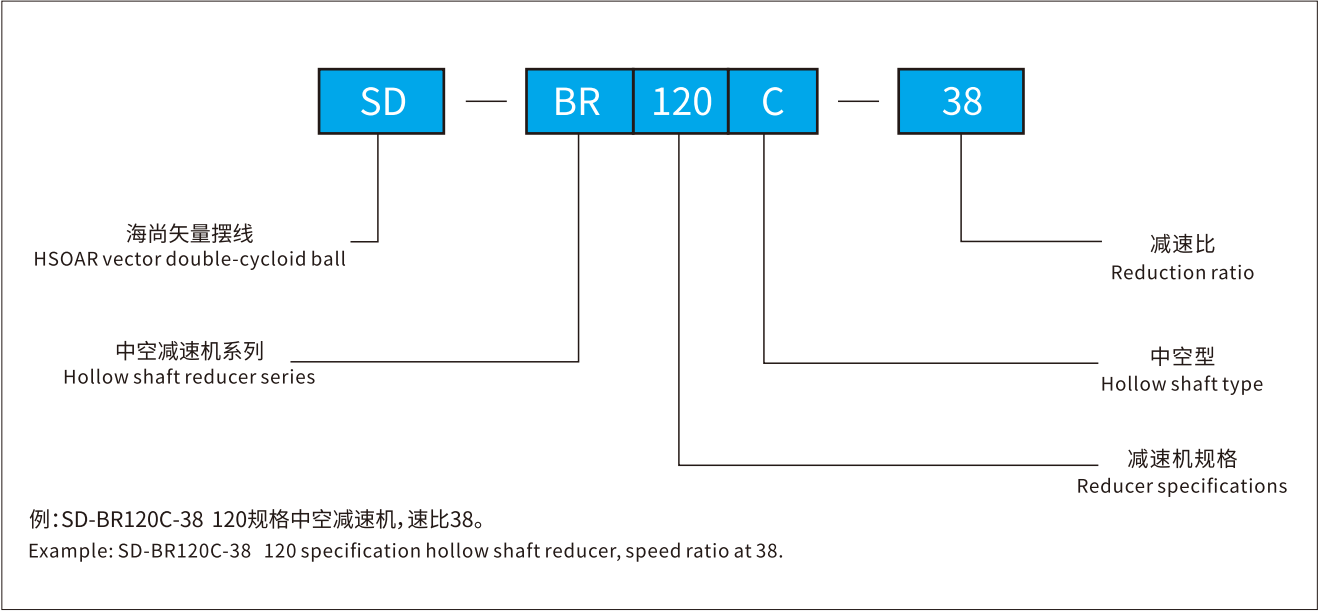
- 应用示例·Application Examples

命名规则

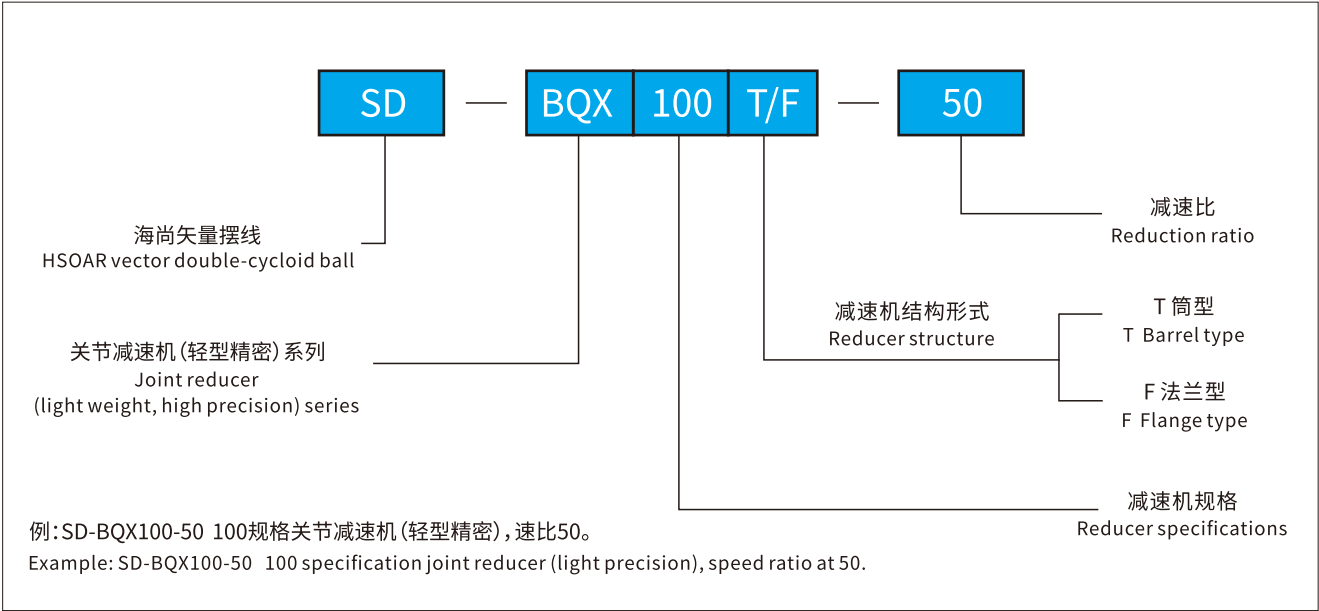
NAMING RULES

■ 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.

SD-BR系列
SD-BR series



SD-BQX系列
SD-BQX series

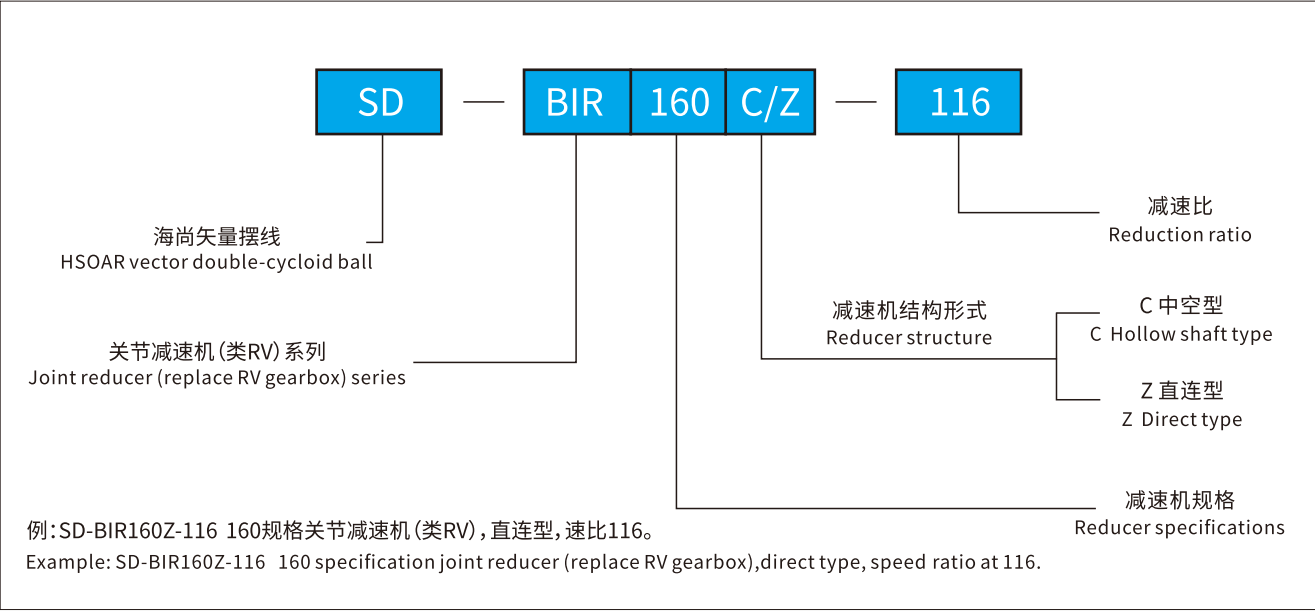


命名规则

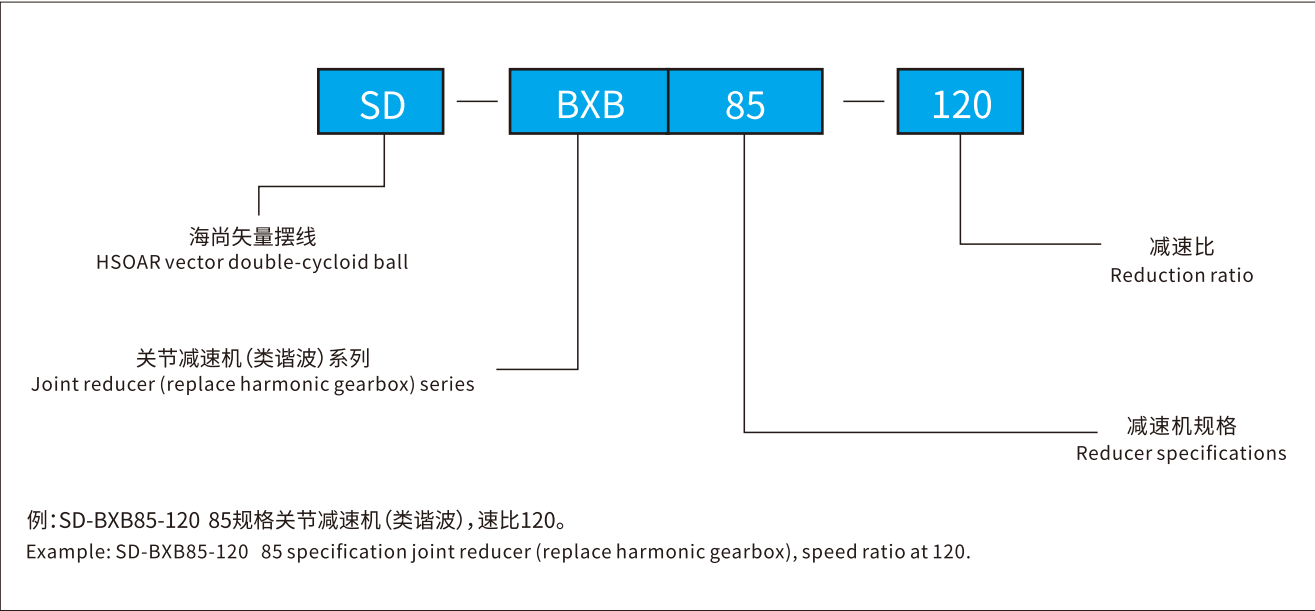
NAMING RULES

■ 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.

SD-BIR系列
SD-BIR series



SD-BXB系列
SD-BXB series

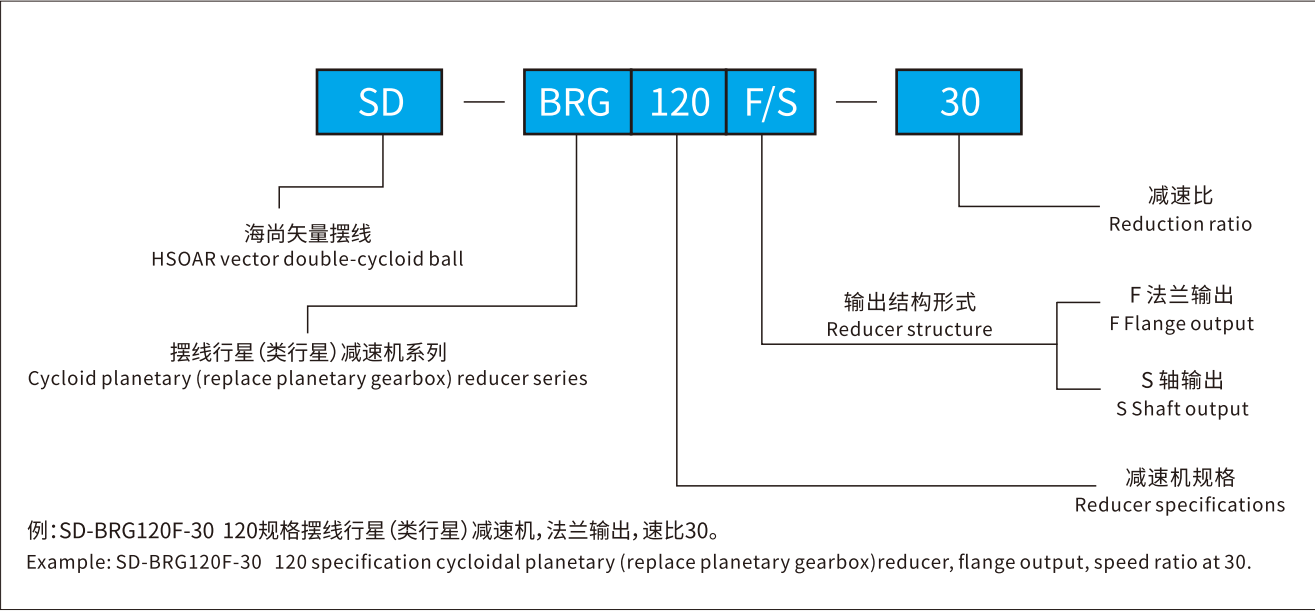


命名规则

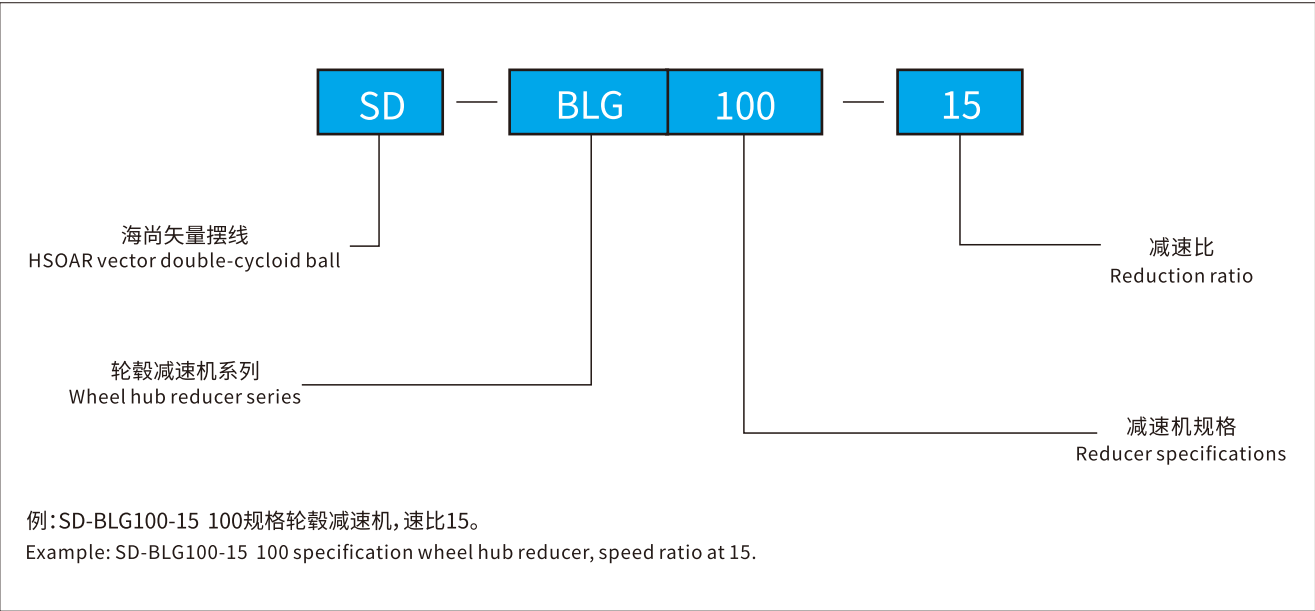
NAMING RULES

■ 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.

SD-BRG系列
SD-BRG series

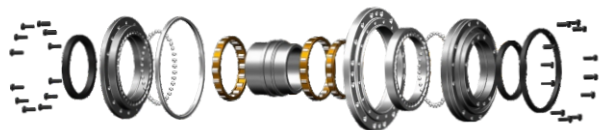


SD-BLG系列
SD-BLG series



特点

FEATURES



■ 零背隙

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。

■ 无死角

摆线运动轨迹,实现全方位无死角运转。

■ 大中空

大中空设计便于穿插电缆、管路以及各类轴等,并适用于同步带等应用,有效节省利用空间。

■ 高承载

输出端采用十字交叉滚子轴承(双列角接触轴承),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。

■ 低噪音

传动啮合机构为滚动接触方式,无碰撞冲击,运转噪音低。

■ 宽速比

采用差速传动方式,一级传动最大可达数百速比,通过相应组合,可达数千速比,覆盖速比范围广。

■ 高效率

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。

■ 免维护

减速机采用封闭式结构,内部填充高粘度、抗腐、抗磨、耐水性、耐介质性及抗氧化性润滑脂,有效防止漏油,并且在产品寿命期内无需补充与更换油脂。

■ 易安装

安装姿态无限制,具有更为方便的设计自由度。

■ 寿命长

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。

■ 用途广

通过相应连接方式,可对任何电机,满足不同场合与工况的使用要求。

■ Zero-backlash

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

■ No dead ends

Cycloidal motion trajectory, to achieve all-round operation without dead angle.

■ Large hollow shaft

The extra-large hollow shaft is ideal for the cables, pipelines, various shafts to pass through the axis of rotation. This structure is suitable for applications such as timing belts, which effectively saves the space.

■ High load

The output adopts cross-roller bearing (or double row angular contact bearing), and all the steel balls are engaged in meshing transmission with high contact degree, with high bearing capacity and overload capacity.

■ Low noise

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

■ Wide ratios

Using differential transmission, the maximum speed ratio of the first stage can reach several hundred, through the corresponding combination, it can reach several thousand, covering a wide range of speed ratios.

■ High efficiency

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

■ Maintenance free

The reducer adopts a closed structure and is filled with high-viscosity, anti-corrosion, anti-wear, water-resistant, medium-resistant and anti-oxidant grease, which can effectively prevent oil leakage, and there is no need to supplement or replace grease during the life of the product.

■ Easy installation

The installation posture has no limitation, and has more convenient design freedom.

■ Long service life

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

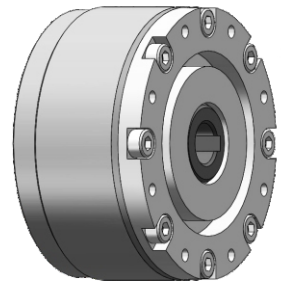
■ Wide applications

Can work with any motor through appropriate connection methods, to meet various demands and needs in different environments and locations.

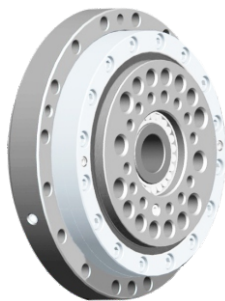
SD-BR



SD-BQX



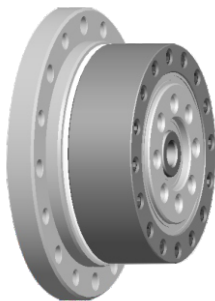
SD-BIR



SD-BRG



SD-BXB



SD-BLG



性能参数

PERFORMANCE PARAMETER

SD-BR中空减速机性能参数表
SD-BR 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 (换算到 输入轴上)	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. moment	Moment of Inertia (convert to input shaft)	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	≤2.0	≤2.0	5	800	800	156	0.625	1.2
	30													
	50													
SD-BR100C	15.5	56	112	224	2000	4000	≤2.0	≤2.0	11	1500	1500	270	1.652	2.3
	29													
	50													
SD-BR120C	15	86	172	344	2000	4000	≤2.0	≤2.0	17	2600	2600	410	4.597	3.5
	38													
	50													
SD-BR160C	15	221	442	884	2000	4000	≤2.0	≤2.0	44	4100	4100	790	12.468	7.5
	38													
	50													
SD-BR190C	15	512	1024	2048	2000	4000	≤2.0	≤2.0	102	7500	7500	1011	21.265	13.4
	38													
	50													
SD-BR220C	15	855	1710	3420	2000	4000	≤2.0	≤2.0	171	11000	11000	1550	32.751	20.1
	38													
	50													

注： (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。

Note: (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 shape and use of the reducer, whichever is the actual situation.
Please consult our company when using it when it is greater than the above-mentioned allowable maximum input speed, and when a speed ratio other than the
(3) above reduction ratio is required.

性能参数

PERFORMANCE PARAMETER

SD-BQX关节减速机(轻型精密)性能参数表
SD-BQX Joint Reducer (light weight, high precision) 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	容许 径向负荷	容许 轴向负荷	惯性力矩 (换算到 输入轴上)	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	Allowable radial load	Allowable axial load	Moment of Inertia (convert to input shaft)	Weight
		N. m	N.m	N.m	r/min	r/min	arc.min	arc.min	N	N	kg.cm ²	kg
SD-BQX52	80	5.2	10.4	20.8	2000	4000	≤3.0	≤3.0	200	60	0.012	0.32
	105											
	128											
SD-BQX70	80	12.4	24.8	49.6	2000	4000	≤3.0	≤3.0	600	180	0.084	0.75
	100											
	128											
SD-BQX85	76	20.6	41.2	82.4	2000	4000	≤3.0	≤3.0	800	240	0.192	1.18
	105											
	133											

说明: 本参数仅供参考, 具体数值取决于减速机的形式与使用情况, 以实际为准。
Note: Above rating figures are for reference only, exact numbers will be subject to the reducer shape and real application environments.

PERFORMANCE PARAMETER

SD-BIR Joint Reducer (replace RV gearbox) Series Product Parameters

型号 Model	输入转速 Input speed r/min		750		1000		1250		1500		1750		2000		2500	
	减速比 Reduction ratio		输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power	输出转矩 Output torque	输入功率 Input power
	轴输出 Shaft output	外壳输出 Shell output	N.m	kW	N.m	kW	N.m	kW	N.m	kW	N.m	kW	N.m	kW	N.m	kW
SD-BIR125Z	69	-68	255	0.38	227	0.46	196	0.49	171	0.52	152	0.54	133	0.54	112	0.57
	87.4	-86.4		0.30		0.36		0.39		0.41		0.42		0.45		
	115	-114		0.23		0.28		0.30		0.31		0.32		0.34		
	161	-160		0.17		0.20		0.21		0.22		0.23		0.24		
SD-BIR160Z	58	-57	496	0.91	472	1.15	448	1.37	427	1.56	406	1.74	387	1.89	361	2.21
	87	-86		0.60		0.76		0.90		1.03		1.15		1.25		1.46
	116	-115		0.45		0.57		0.67		0.77		0.85		0.93		1.08
	145	-144		0.36		0.45		0.54		0.062		0.68		0.75		0.87
SD-BIR190Z	63	-62	985	1.66	916	2.06	845	2.37	772	2.61	728	2.86	662	2.98	601	3.38
	86.25	-85.25		1.21		1.50		1.73		1.89		2.09		2.17		2.46
	125	-124		0.83		1.03		1.18		1.30		1.43		1.49		1.69
	156	-155		0.66		0.82		0.95		1.04		1.14		1.19		1.35
SD-BIR210Z	85	-84	1323	1.62	1225	2.01	1127	2.31	1029	2.53	931	2.67	833	2.73		
	122.5	-121.5		1.13		1.39		1.61		1.75		1.85		1.89		
	145	-144		0.95		1.17		1.35		1.48		1.56		1.60		
	175	-174		0.79		0.97		1.12		1.23		1.29		1.32		
SD-BIR240Z	81	-80	1960	2.56	1812	3.16	1665	3.63	1518	3.97						
	117	-116		1.76		2.18		2.50		2.74						
	156	-155		1.32		1.63		1.87		2.05						
	201	-200		1.02		1.26		1.45		1.59						

性能参数

PERFORMANCE PARAMETER

SD-BIR关节减速机(类RV)性能参数表
SD-BIR Joint Reducer (replace RV gearbox) Series Product Parameters

型号 Model	容许最高 输入转速	力矩刚性	容许力矩	瞬时最大 容许力矩	启动/停止 容许转矩	瞬时最大 容许转矩	空程	传动误差	扭转刚度	重量
	Allowable Max. input rotation speed	Moment rigidity	Allowable moment	Allowable Max. moment	Allowable start and stop torque	Allowable Max. instantaneous torque	Lost motion	Transmission error	Torsional rigidity	Weight
	r/min	N.m/ arc.min	N.m	N.m	N.m	N.m	arc.min	arc.min	Nm/ arc.min	kg
SD-BIR125Z	3500	216	478	880	522	1086	≤1.5	≤1.5	48	4.6
SD-BIR160Z	3000	412	1176	2058	1078	2156	≤1.5	≤1.5	122	9.0
SD-BIR190Z	2500	750	1617	2940	1960	3430	≤1.5	≤1.5	196	13.5
SD-BIR210Z	2000	980	1960	3920	2058	4100	≤1.5	≤1.5	294	17.0
SD-BIR240Z	1500	1548	2940	5880	3038	5880	≤1.5	≤1.5	392	24.5

注： (1) 请将输入轴最高转速设定为小于容许最高输入转速。
(2) 输入功率 (kW) 考虑了减速机的效率。
(3) 额定转矩是指输入转速1500r/min时的输出转矩, 是计算寿命的基础数值。
(4) 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。
(5) 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。

Note: (1) Please set the maximum input shaft speed to be less than the allowable maximum input speed.
(2) Input power (kW) takes into account of the efficiency of the reducer.
(3) Rated torque refers to the output torque when the input speed is 1500r/min, which is the basic value for calculating the life.
(4) The above parameters are for reference only, the specific value depends on the form and use of the reducer, and the actual situation prevails.
(5) When using at a speed greater than the above allowable maximum input speed, or when a speed ratio other than the above reduction ratio is required, please consult our company.

性能参数

PERFORMANCE PARAMETER

SD-BXB关节减速机(类谐波)性能参数表
SD-BXB Joint Reducer (replace harmonic gearbox) Series Product Parameters

型号 Model	减速比 Reduction Ratio		输入2000r/min时的 额定转矩 Rated torque when input 2000r/min		容许最高 输入转速	力矩刚性	启动/停止 容许转矩	瞬时最大 容许转矩	空程	传动误差	扭转刚度	重量
	轴输出 Shaft output	外壳输出 Shell output	N.m	Kgf.m	Allowable Max. input rotation speed	Moment rigidity	Allowable start and stop torque	Allowable Max. instantaneous torque	Lost motion	Transmission error	Torsional rigidity	Weight
					r/min	N.m/ arc.min	N.m	N.m	arc.min	arc.min	Nm/ arc.min	kg
SD-BXB63	45	-44	36	3.7	3500	80	102	160	≤1.5	≤1.5	18	0.85
	81	-80										
	105	-104										
SD-BXB72	58	-57	48	4.9	3500	112	132	210	≤1.5	≤1.5	28	1.25
	96	-95										
	118.8	-117.8										
	153	-152										
SD-BXB86	63	-62	86	8.8	3500	172	236	380	≤1.5	≤1.5	45	1.75
	86	-85										
	111	-110										
	133	-132										
	172	-171										

说明：本参数仅供参考，具体数值取决于减速机的形式与使用情况，以实际为准。
Note: Above rating figures are for reference only, exact numbers will be subject to the reducer shape and real application environments.

性能参数

PERFORMANCE PARAMETER

SD-BRG摆线行星(类行星)减速机性能参数表
SD-BRG Cycloid planetary (replace planetary gearbox) reducer series Product Parameters

型号 Model	减速比 Reduction ratio	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
		Allowable rated torque	Allowable start and stop torque	Allowable max. instantaneous torque	Rated input rotary speed	Allowable max. input rotary speed	法兰输出 Flange output	轴输出 Shaft output	Allowable axial load	Allowable max. torque	Empty load friction torque	Reverse acceleration torque	Torsional rigidity
		N. m	N.m	N.m	r/min	r/min	N		N	N.m	N.m	N.m	Nm/arc.min
SD-BRG60F(S)	5	5.7	20.7	41.5	3000	6000	637	232	951	40	0.10	0.4	6
	9	9.3	23.2	46.4			713	260	973		0.07	0.6	
	10	10.4	28.4	56.9			784	286	973		0.07	0.6	
	15	11.6	28.6	57.1			886	323	973		0.07	1.0	
	20	12.1	30.2	60.5			960	395	973		0.04	1.0	
	36	13.7	34.4	68.8			1120	415	973		0.04	1.0	
	41	14.1	35.2	70.5			1190	428	973		0.03	1.2	
	53	15.3	36.5	73.0			1270	450	973		0.03	1.2	
	60	13.1	33.5	67.1			1360	465	973		0.03	1.2	
SD-BRG90F(S)	5	10.8	27.5	55.0	3000	6000	1229	516	1835	145	0.28	0.8	12
	9	19.4	47.5	95.1			1450	609	2165		0.28	0.8	
	10	21.6	51.8	103.7			1512	635	2258		0.15	1.0	
	15	32.4	71.9	143.9			1722	723	2571		0.10	1.4	
	20	38.4	83.7	167.4			1859	781	2776		0.10	1.7	
	25	42.0	91.4	182.7			1995	838	2776		0.10	1.7	
	30	50.4	110.4	220.8			2085	876	2776		0.10	1.7	
	35	58.8	126.4	252.8			2205	926	2776		0.09	2.1	
	40	62.4	132.9	265.8			2289	961	2776		0.09	2.1	
	45	64.8	136.1	272.2			2360	991	2776		0.08	2.1	
	50	66.0	165.0	330.0			2430	1021	2776		0.08	2.5	
	73.3	87.9	219.8	439.5			2710	1138	2776		0.07	3.2	
	88	84.5	211.3	422.5			2830	1189	2776		0.06	3.2	
SD-BRG120F(S)	5	86.7	217.0	434.0	3000	6000	2142	900	3198	378	0.56	0.8	23
	9	100.1	240.0	480.0			2202	971	3450		0.32	0.8	
	10	102.5	257.2	514.4			2352	988	3512		0.30	1.0	
	15	118.2	289.6	579.2			3073	1291	3927		0.26	1.4	
	20	157.5	378.0	756.0			3235	1359	3927		0.22	1.7	
	25	159.6	344.8	689.6			3463	1454	3927		0.22	1.7	
	28	161.7	363.8	727.6			3621	1521	3927		0.22	1.7	
	36	167.2	367.8	735.6			3855	1619	3927		0.19	2.1	
	44.7	187.7	375.4	750.8			4060	1705	3927		0.17	2.1	
	55.7	187.1	374.2	748.4			4510	1894	3927		0.15	2.5	
	77	161.7	323.4	646.8			4815	2022	3927		0.15	3.2	

性能参数

PERFORMANCE PARAMETER

SD-BRG摆线行星(类行星)减速机性能参数表
SD-BRG Cycloid planetary (replace planetary gearbox) reducer series Product Parameters

型号 Model	减速比 Reduction ratio	空程 Lost motion	传动误差 Motion error	惯性力矩 Moment of Inertia (≤φ8)		惯性力矩 Moment of Inertia (≤φ14)		惯性力矩 Moment of Inertia (≤φ19)		惯性力矩 Moment of Inertia (≤φ28)		重量 Weight	
				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
				kgcm ²		kgcm ²		kgcm ²		kgcm ²		kg	
SD-BRG60F(S)	5	≤2.0	≤2.0	0.076	0.081	0.136	0.142	-	-	-	-	1.2	1.6
	9			0.072	0.076	0.132	0.136	-	-	-	-		
	10			0.070	0.074	0.127	0.131	-	-	-	-		
	15			0.067	0.071	0.122	0.126	-	-	-	-		
	20			0.063	0.066	0.118	0.121	-	-	-	-		
	36			0.054	0.056	0.114	0.116	-	-	-	-		
	41			0.046	0.047	0.112	0.113	-	-	-	-		
	53			0.045	0.046	0.110	0.111	-	-	-	-		
	60			0.044	0.045	0.108	0.109	-	-	-	-		
SD-BRG90F(S)	5	≤2.0	≤2.0	-	-	0.397	0.433	0.858	0.893	2.014	2.052	3.1	3.7
	9			-	-	0.375	0.381	0.765	0.779	2.001	2.028		
	10			-	-	0.366	0.372	0.757	0.769	1.998	2.025		
	15			0.263	0.267	0.342	0.348	0.728	0.736	1.976	1.988		
	20			0.224	0.226	0.333	0.336	0.713	0.723	1.967	1.976		
	25			0.220	0.221	0.329	0.331	0.702	0.712	1.964	1.973		
	30			0.186	0.188	0.314	0.316	0.691	0.703	1.955	1.964		
	35			0.147	0.148	0.305	0.306	0.685	0.689	1.943	1.947		
	40			0.142	0.143	0.296	0.297	0.673	0.674	1.921	1.924		
	45			0.140	0.141	0.284	0.285	0.665	0.666	1.910	1.912		
	50			0.138	0.149	0.275	0.276	0.658	0.659	1.898	1.899		
	73.3			0.127	0.128	0.256	0.257	0.644	0.645	1.886	1.887		
	88			0.067	0.068	0.137	0.138	-	-	-	-		
SD-BRG120F(S)	5	≤2.0	≤2.0	-	-	-	-	1.444	1.553	2.945	3.154	6.3	6.6
	9			-	-	0.976	0.996	1.392	1.413	2.941	3.150		
	10			-	-	0.957	0.977	1.383	1.406	2.939	3.148		
	15			-	-	0.834	0.856	1.321	1.340	2.898	2.926		
	20			-	-	0.646	0.659	1.131	1.150	2.717	2.727		
	25			-	-	0.632	0.640	1.121	1.131	2.698	2.708		
	28			-	-	0.625	0.633	1.113	1.117	2.685	2.691		
	36			-	-	0.608	0.611	1.105	1.108	2.673	2.677		
	44.7			-	-	0.332	0.340	0.875	0.878	2.513	2.514		
	55.7			-	-	0.313	0.318	0.871	0.874	2.496	2.497		
	77			-	-	0.165	0.172	0.822	0.824	2.481	2.482		

说明: 本参数仅供参考, 具体数值取决于减速机的形式与使用情况, 以实际为准。
Note: Above rating figures are for reference only, exact numbers will be subject to the reducer shape and real application environments.

性能参数

PERFORMANCE PARAMETER

SD-BLG轮毂减速机性能参数表
SD-BLG 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 (换算到 输入轴上)	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 (convert to input shaft)	Weight
		N. m	N.m	N.m	r/min	r/min	arc.min	N	N	kg.cm ²	kg
SD-BLG85	15	31	62	124	3000	5000	≤3.0	2800	2100	0.992	3.2
	20									0.936	
	25									0.911	
	30									0.897	
	35									0.888	
	40									0.883	
SD-BLG100	15	51	102	204	3000	5000	≤3.0	4900	3675	1.225	4.8
	20									1.099	
	25									1.041	
	30									1.009	
	35									0.991	
	40									0.978	

说明：本参数仅供参考，具体数值取决于减速机的形式与使用情况，以实际为准。
Note: Above rating figures are for reference only, exact numbers will be subject to the reducer shape and real application environments.

技术术语

TECHNICAL TERMS

4-1强度与寿命 Strength and Service Life

额定转矩

输入转速为额定转速时所允许的连续负载转矩。

启动、停止时的容许转矩

启动(停止)时, 附加旋转部的惯性转矩, 给减速机施加大于稳定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%。

瞬时最大容许转矩

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。

Rated torque

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

Allowable starting, stopping torque

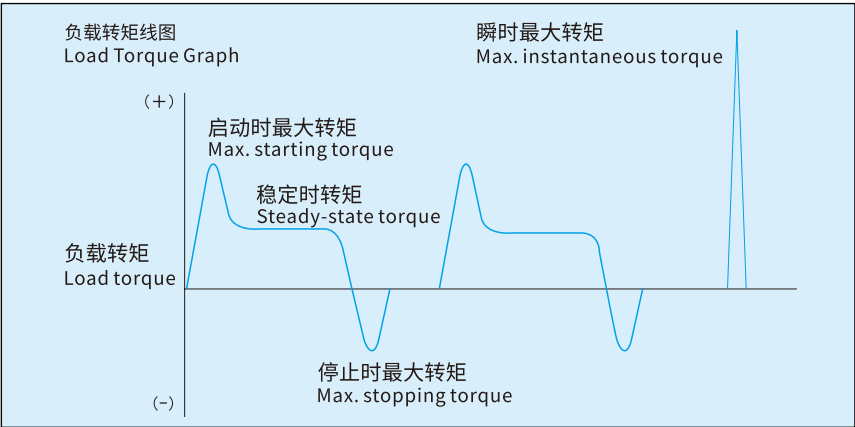
When starting (stopping), the inertia torque of the rotating part is added, and a load torque greater than the load torque during steady state is applied to the reducer. The ratings shown in the table indicate the allowable values.

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

Allowable max. instantaneous torque

Sometimes due to emergency stop or external shock, a large 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

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。

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。

Rated service life

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

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)

N_m: 平均输出转速 (r/min)

T_m: 平均负载转矩 (Nm)

N_o : 额定输出转速 (r/min)

T_o : 额定转矩 (Nm)

L_h : Calculated service life

N_m: Average output rotation speed

T_m: Average load torque

N_o : Rated output rotation speed

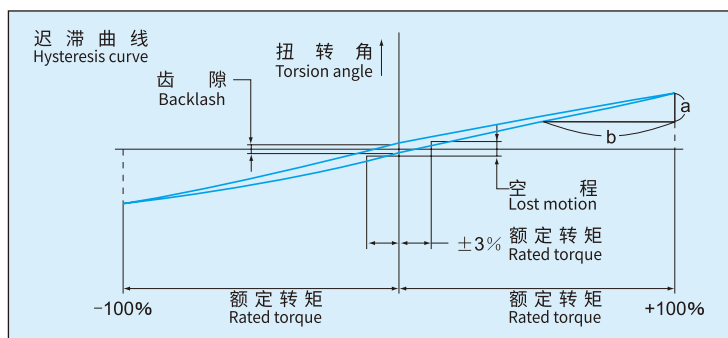
T_o : Rated torque

技术术语

TECHNICAL TERMS

4-2 刚性 (扭转刚度、空程) 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。



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。

$$\text{扭转刚度} = \frac{b}{a}$$

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。

齿隙: 指迟滞曲线的转矩“零”处的扭转角。

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 .

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

$$\text{Torsional rigidity} = \frac{b}{a}$$

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

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

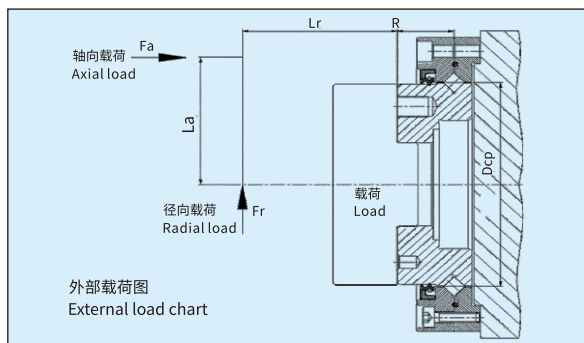
4-3 容许力矩 Allowable Torque

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:

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



4-4 传动误差 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).

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

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。

■ 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。

■ 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。

■ 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。

■ 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。

■ 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。

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

■ 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。

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

■ The terms of guarantee shall be one year after delivery or 2,000 hours of operation after the installation on an actual machine, whichever comes first, on condition that the product is operated under the rated operation conditions specified by us, under normal assembly and lubrication conditions.

■ If any defect in materials or workmanship is detected during the above guarantee term, the product will be repaired or replaced at our expense, provided that the number of man-hours required for demounting and remounting the product from the machine, transportation expenses for re-delivery, warehousing and other incidental expenses shall be excluded from our obligation.

■ At the same time, no compensation will be provided for the lost opportunities or any other type of loss due to a shutdown of operation that was caused by a defect in the product.

■ If obligation under the guarantee are discharged monetarily, the upper limit of the amount shall not exceed the selling price of the product, which is the subject of the claim.

■ Without prior notice to HSOAR, any disassembling or reassembling works will be regarded as without official authorization. HSOAR will not be responsible for any performance or safety problems caused by it.

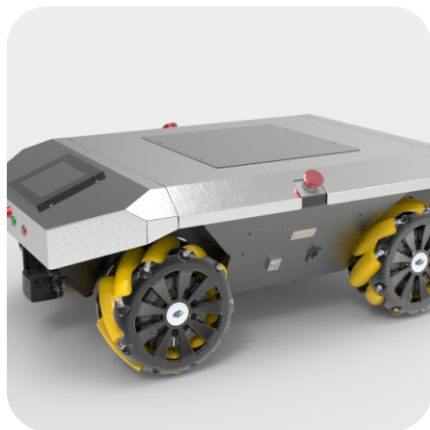
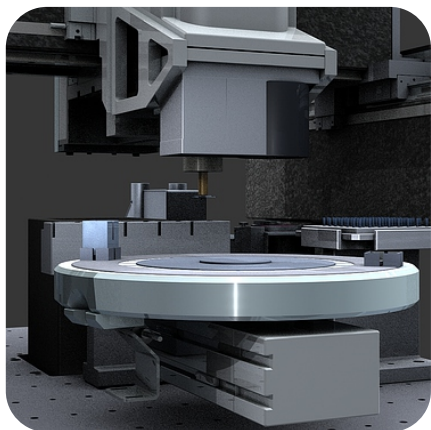
■ If any of the following conditions cause problems with this product, it is not within the scope of the above warranty, and HSOAR will provide paid service.

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

■ 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.

应用示例

APPLICATION EXAMPLES



自 动 化 Automation
机 器 人 Robotics
轻 工 业 Light Industry
医 疗 设 备 Medical Equipment
深 空 探 索 Aerospace Exploration
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HSOAR

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.