



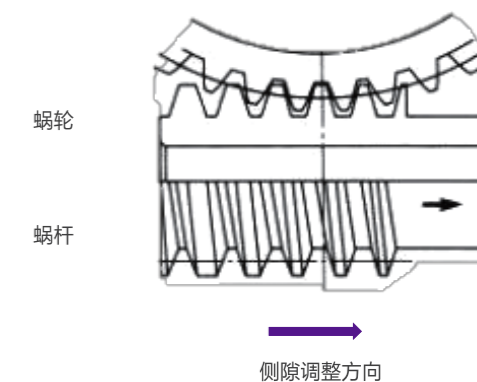
高精度双导程涡轮
High Precision Planetary Gearboxes

高精度双导程涡轮
HIGH PRECISION PLANETARY GEARBOXES

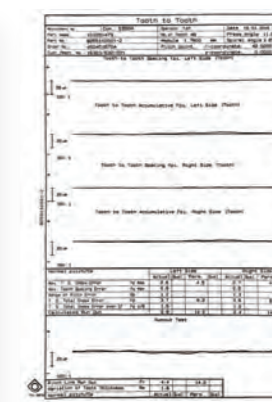
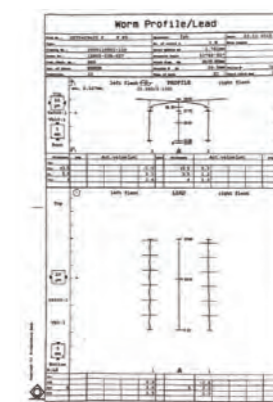
工作原理 working principle

双导程蜗轮蜗杆减速机是把蜗杆做成渐变齿厚蜗杆, 通过渐变齿厚蜗杆的轴向位移改变减速机的反向间隙。

The double-lead worm gear reducer is a worm with a gradually changing tooth thickness, and the backlash of the reducer is changed by the axial displacement of the gradually changing tooth thickness worm.



蜗轮蜗杆精度 Worm gear accuracy



齿轮量测仪

可靠的输出精度 Reliable output accuracy

- 输出精度 ≤ 1弧分 (≤ 0.017° , ≤ 11MM)
- OUTPUT ACCURACY ≤ 1 ARC MINUTE (≤ 0.017° , ≤ 11MM)
- 侧隙 ≤ 1弧分 (≤ 0.017° , ≤ 11MM)
- BACKLASH ≤ 1 ARC MINUTES (≤ 0.017° , ≤ 11MM)

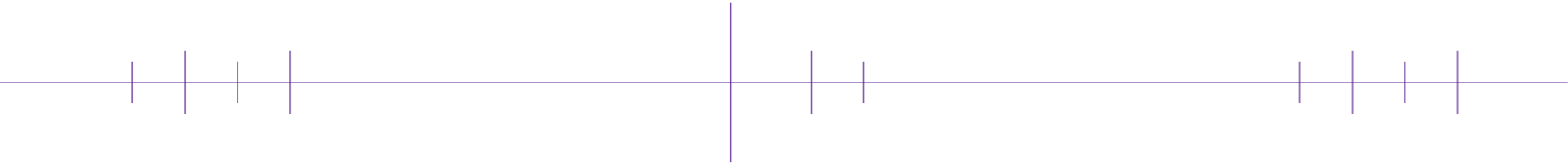
高精度双导程涡轮

HIGH PRECISION PLANETARY GEARBOXES

双导程减速机结构紧凑,是直角式精密行星减速机的理想替代产品,可以减少使用精密行星减速机的成本。机械设计者的理想设计方案是通过90°来旋转伺服电机驱动系统。

The double-lead reducer has a compact structure and is an ideal substitute for the right-angle precision planetary reducer, which can reduce the cost of using the precision planetary reducer.

The ideal design plan of the mechanical designer is to rotate the servo motor drive system through 90° .



产品特点/Product characteristics

可靠的输出

Reliable output

- 蜗轮轴使用原装进口强力圆锥滚子轴承
 - 可承受重的垂直负荷
 - 保证长时间运行的稳定性
 - 输出精度≤1弧分
 - 反向间隙≤1弧分
- Worm gear shaft uses imported powerful tapered roller bearings
 - Can withstand heavy vertical loads
 - Ensure long-term stability
 - Output accuracy ≤ 1 arc minute
 - Backlash ≤ 1 arc minutes

使用高性能合成润滑油

Use high-performance synthetic lubricants

- 减少摩擦,降低各种磨耗
 - 延长润滑使用寿命
 - 减速机在高温运行时也能维持足够的润滑保护薄膜
 - 很好热稳定性和抗氧化性能
- Reduce friction, reduce various wear
 - Extend lubrication life
 - The reducer can maintain sufficient lubricating protective film even when running at high temperatures
 - Very good thermal stability and oxidation resistance

高精度双导程涡轮 High Precision Planetary Gearboxes

安装便捷

Easy to install

- 采用双膜片联轴器,提供更高的精度和刚性
 - 伺服电机法兰更换方便
- Adopt double diaphragm coupling to provide higher precision and rigidity
 - Easy replacement of servo motor flange

多种输出方式

Multiple output methods

- 一台电机驱动多台串联减速机,实现同步输出
 - 输出方式:单轴输出,双轴输出,空心轴输出,孔键槽输出,法兰输出
- One motor drives multiple series reducers to achieve synchronous output
 - Output mode: single shaft output, double shaft output, hollow shaft output, hole keyway output, flange output

双导程蜗杆

Double lead worm

- 蜗轮接触区优化设计,实现斑点优化接触
 - 采用特殊合金,提高耐磨性能
 - 双导程蜗轮蜗杆啮合趋于“零”侧隙
 - 特别适用在高精度,平稳传动的工作环境
 - 蜗轮蜗杆侧隙可调,延长使用寿命,减少维护成本
- Optimized design of worm gear contact area to achieve optimal spot contact
 - Use special alloy to improve wear resistance
 - Double lead worm gear meshing tends to "zero" backlash
 - Especially suitable for working environment with high precision and smooth transmission
 - The backlash of the worm gear can be adjusted to extend the service life and reduce the maintenance cost

稳定的输入

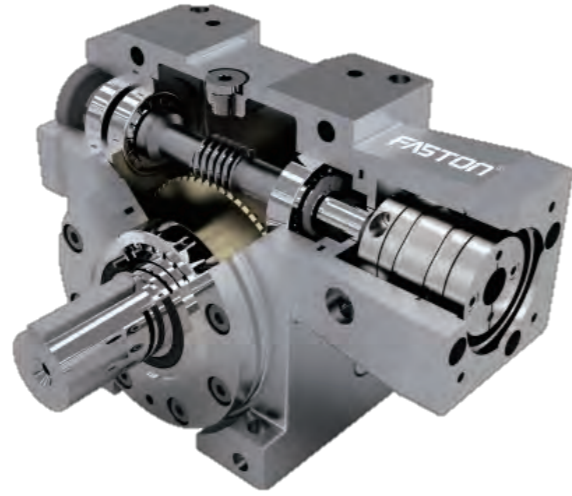
Stable input

- 蜗杆使用两个进口圆锥滚子轴承提
 - 供高强度的支撑
 - 输入转速可达4000rpm
- The worm uses two imported tapered roller bearings to provide
 - high-strength support
 - Input speed can reach 4000rpm

铝制箱体

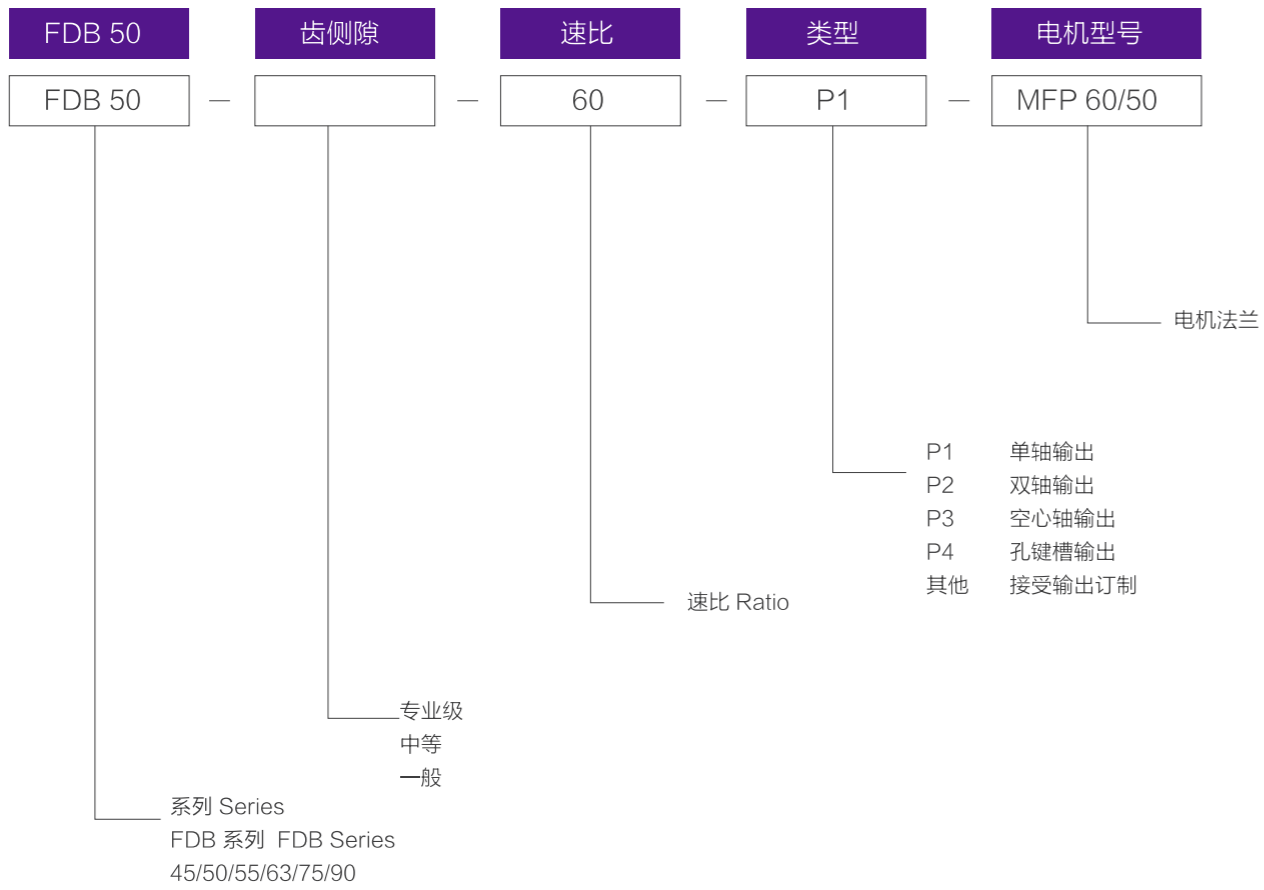
Aluminum box

- 使用高强度铝合金,经压力铸造工艺成型
 - 通过特殊热处理提高刚性
 - 具有重量轻,强度高的特点
 - 表面防腐处理,增加抗腐性
- Use high-strength aluminum alloy, formed by pressure casting process
 - Increase rigidity through special heat treatment
 - It has the characteristics of light weight and high strength
 - Surface anti-corrosion treatment to increase corrosion resistance



多种输出选择
Multiple output options

	<p>具有收缩盘的空心输出，高精度，容易整合 Hollow output with shrink disk, high precision, easy to integrate</p>
	<p>孔键槽输出，安装方便 Hole keyway output, easy to install</p>
	<p>实心输出（单轴或双轴） Solid output (single shaft or double shaft)</p>
	<p>齿轮、齿条输出 Gear and rack output</p>

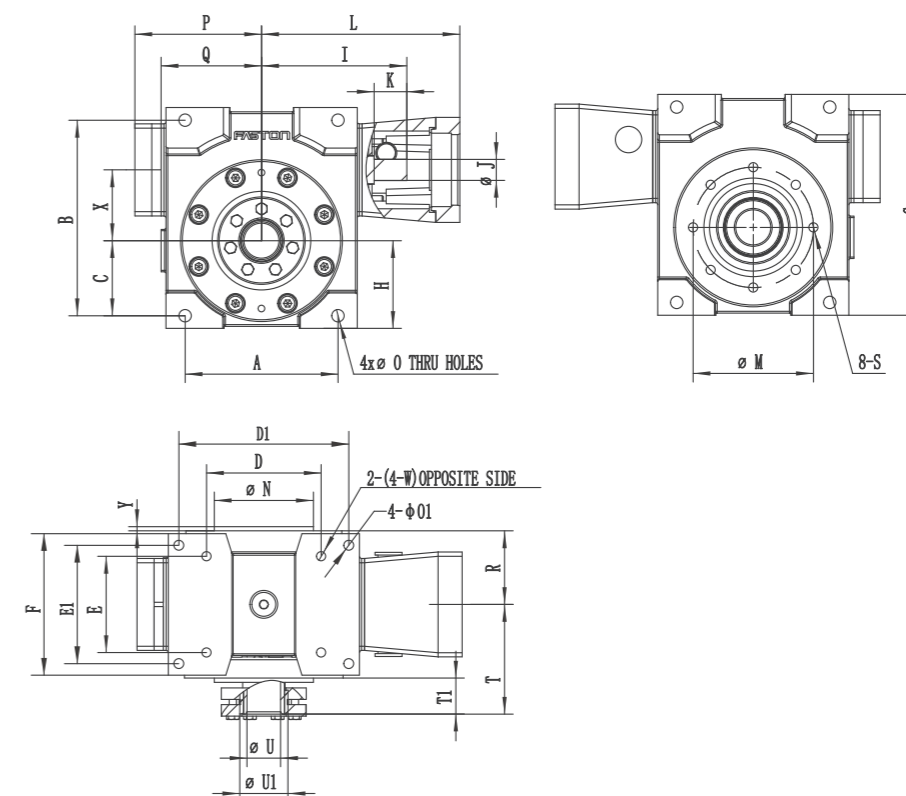


减速机性能资料 REDUCER PERFORMANCE DATA

转速 Rotating speed		3000rpm			2000rpm			1000rpm			Fr	Fa
FDB	速比 <i>i</i>	S1	S5	η	S1	S5	η	S1	S5	η		
45	14.5	45	75	0.85	52	82	0.81	58	90	0.75	5500	3800
	19.5	48	78	0.82	54	85	0.78	61	94	0.73	5500	3800
	25	49	80	0.78	56	88	0.76	62	95	0.71	5500	3800
	30	53	82	0.75	59	92	0.71	64	98	0.65	5500	3800
	40	49	80	0.72	55	86	0.69	58	91	0.6	5500	3800
	50	48	78	0.65	53	83	0.62	57	88	0.51	5500	3800
	60	49	79	0.6	54	85	0.55	58	89	0.5	5500	3800
50	5.2	55	80	0.86	68	95	0.82	75	112	0.80	5500	3800
	9.25	55	80	0.85	69	95	0.83	75	112	0.76	5500	3800
	19.5	52	76	0.82	67	89	0.8	75	108	0.73	5500	3800
	25	51	76	0.8	70	92	0.75	78	112	0.7	5500	3800
	35	60	86	0.65	65	100	0.67	78	115	0.68	5500	3800
	40	60	86	0.65	65	100	0.67	78	115	0.68	5500	3800
	50	56	82	0.64	63	95	0.6	72	112	0.58	5500	3800
55	14.5	82	130	0.83	98	155	0.8	112	181	0.77	6800	4600
	19.5	86	135	0.82	102	160	0.79	117	190	0.76	6800	4600
	25	92	141	0.8	105	162	0.78	119	192	0.75	6800	4600
	30	95	145	0.77	112	168	0.76	126	195	0.74	6800	4600
	40	93	143	0.72	111	165	0.7	124	194	0.68	6800	4600
	50	93	142	0.66	108	158	0.63	120	189	0.6	6800	4600
63	14.5	104	174	0.86	142	232	0.82	155	260	0.75	8500	8000
	19.5	100	168	0.82	132	220	0.77	146	251	0.73	8500	8000
	25	91	158	0.78	130	223	0.76	136	238	0.7	8500	8000
	30	115	185	0.75	150	245	0.70	168	276	0.65	8500	8000
	40	110	180	0.72	150	245	0.69	165	275	0.6	8500	8000
	50	102	170	0.65	132	223	0.62	146	250	0.52	8500	8000
75	14.5	151	243	0.85	195	310	0.83	235	350	0.76	10000	10100
	19.5	160	250	0.82	210	320	0.8	234	348	0.73	10000	10100
	25	152	245	0.8	201	315	0.75	213	320	0.7	10000	10100
	30	168	260	0.65	230	345	0.67	258	360	0.68	10000	10100
	40	163	258	0.65	220	330	0.67	243	345	0.68	10000	10100
	50	150	243	0.64	210	322	0.6	225	320	0.58	10000	10100
	60	146	236	0.55	202	312	0.53	210	310	0.52	10000	10100
90	80	128	220	0.5	192	300	0.5	205	300	0.48	10000	10100
	14.5	272	390	0.83	368	540	0.8	420	590	0.77	15000	12000
	19.5	265	385	0.82	356	530	0.79	389	560	0.76	15000	12000
	25	250	380	0.8	341	525	0.78	365	545	0.75	15000	12000
	30	312	420	0.77	406	580	0.76	450	630	0.74	15000	12000
	40	275	385	0.72	358	550	0.7	410	605	0.68	15000	12000
	50	260	380	0.66	340	534	0.63	389	586	0.6	15000	12000
	60	225	350	0.64	318	526	0.6	350	568	0.58	15000	12000
80	220	345	0.62	280	489	0.58	318	521	0.52	15000	12000	

减速机性能资料 REDUCER PERFORMANCE DATA

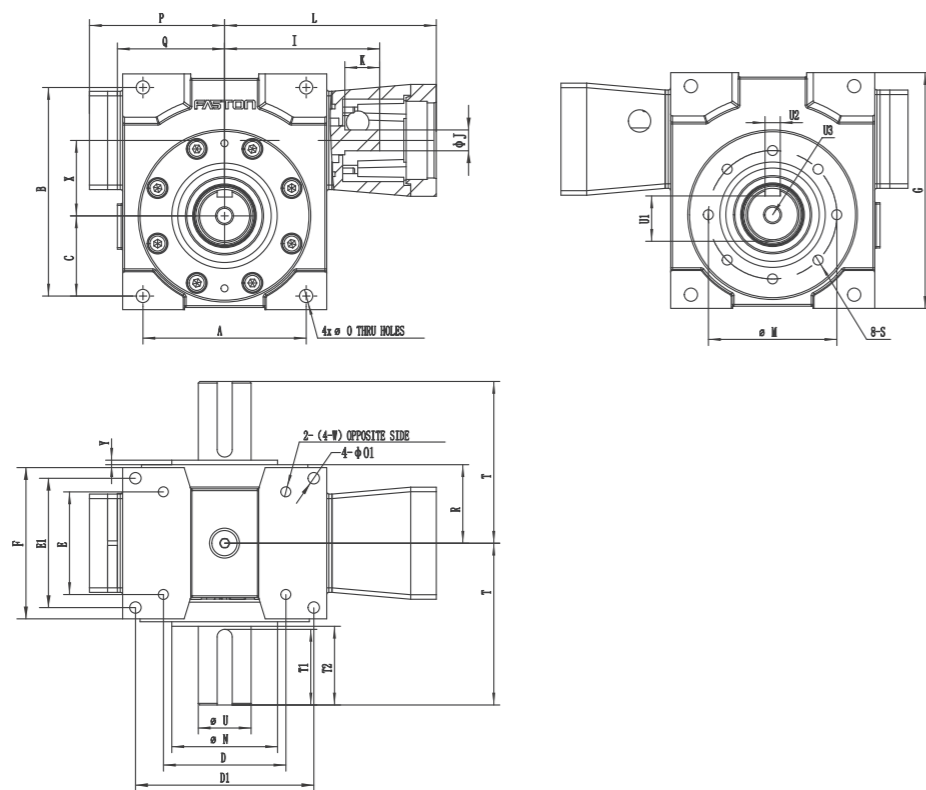
空心轴尺寸
Hollow shaft size



FDB	45	50	55	63	75	90
A	108	108	120	134	172	186
B	135	155	155	173	208	234
C	53	53	61	66	82	91
D	81	81	90	98	136	141
D1	114	114	125	140	172	204
E	68	68	78	91	110	130
E1	84	84	96	108	125	140
F	100	100	112	127	148	170
G	156	156	175	197	232	264
H	62	62	71	78	78	94
I	98.5	98.5	111	122	147	157
J (h6)	14	15	18	20	20	24
K	23	23	28	30	35	35
M	85	85	100	115	130	165
N (h6)	70	70	80	95	110	130
O	9	9	9	11	11	13
O1	9	9	9	11	11	11
P (Max)	90	90	101	107	128	139
Q	70.5	71	78	87.5	107	117.5
R	52	52	58	65.5	76	87
S	M8	M8	M8	M8	M10	M12
T	78	78	87	96.5	110	124
T1	24	24	29	29	31	34
U(H7)	25	25	30	35	40	50
X	45	50	55	63	75	90
Y	3	3	3.5	3.5	4	4

减速机性能资料 REDUCER PERFORMANCE DATA

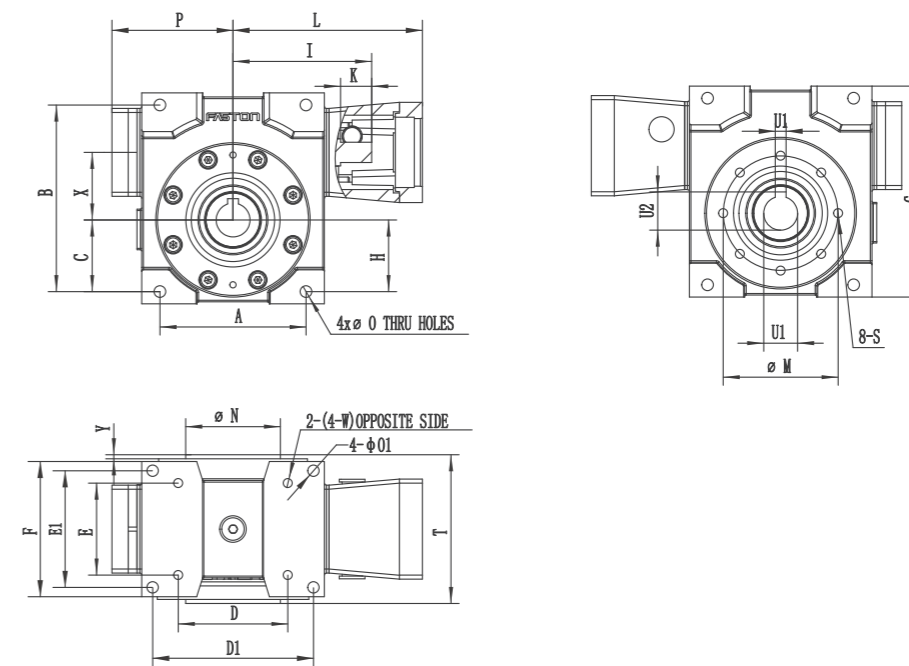
实心轴尺寸
Solid shaft size



FDB	45	50	55	63	75	90
A	108	108	120	134	172	186
B	135	155	155	173	208	234
C	53	53	61	66	82	91
D	81	81	90	98	136	141
D1	114	114	125	140	172	204
E	68	68	78	91	110	130
E1	84	84	96	108	125	140
F	100	100	112	127	148	170
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M	85	85	100	115	130	165
N (h6)	70	70	80	95	110	130
O	9	9	9	11	11	13
O1	9	9	9	11	11	11
P (Max)	90	90	101	107	128	139
Q	70.5	71	78	87.5	107	117.5
R	52	52	58	65.5	76	87
S	M8	M8	M8	M8	M10	M12
T	107	107	121.5	139	155	191
T1	55	55	60	70	75	100
T2	58	58	63	73	78	103
U(h6)	35	35	40	45	50	65
U2	10	10	12	14	14	16
U3	M12	M12	M12	M12	M16	M16
W	M8	M8	M8	M10	M10	M12
X	45	50	55	63	75	90
Y	3	3	3.5	3.5	4	4

减速机性能资料 REDUCER PERFORMANCE DATA

孔键槽输出
Hole keyway output

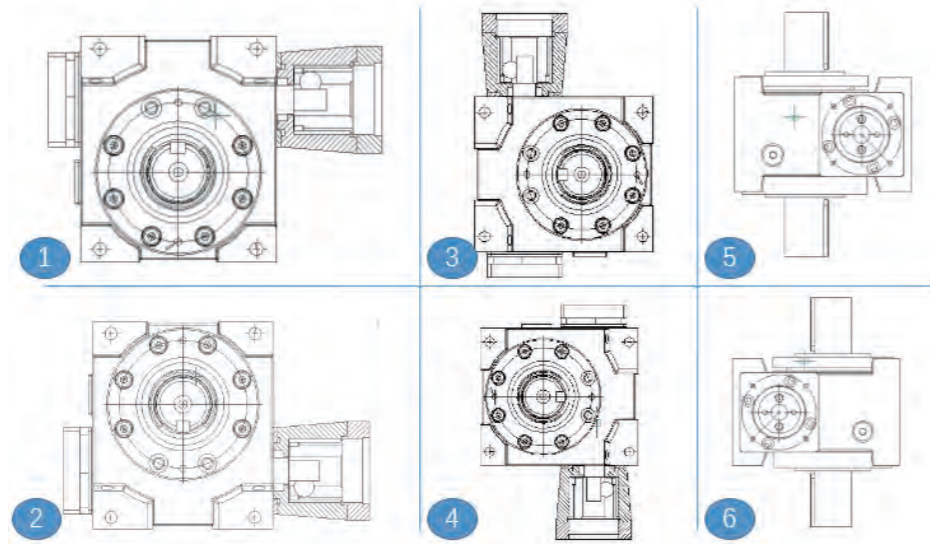


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B	135	155	155	173	208	234
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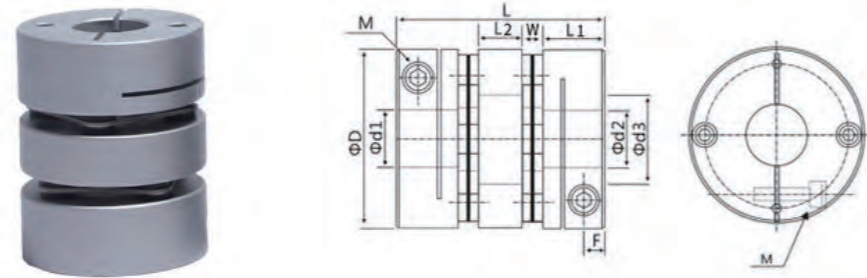
安装方位
Installation position

减速机箱体外形方正, 每个面均有连接孔, 可以根据需要把减速机按不同方位安装。

The shape of the reducer case is square, with connecting holes on each side, and the reducer can be installed in different orientations as needed.



安装便捷
Easy to install



型号	φ d1 φ d2孔径	D	L	W	L1	M	紧固螺栓		额定扭矩 (N.m)	最大扭矩 (N.m)	最高转速 (rpm)	静态力矩 (N.m/rad)	重量 (g)
							中心到轴 测距离	拧紧力矩					
FQ-26*26	2 6 8 9.5 25 10	2 6	26	2.5	12	M3	3.75	1.5	1.4	2.8	10000	950	24
FQ-34*32	8 9.5 25 10 11 12 14	3 4	32	3.1	15	M4	5	1.5	2.8	5.6	10000	1960	46
FQ-39*34	10 11 12 14 15 16	3 9	34	4.1	16	M4	4.75	2.5	5.8	11.6	10000	4500	78

产品概述
product description

ISO VG润滑油是采用精拣聚乙二醇润滑油和添加剂调配而成的高级合成重载工业蜗杆传动齿轮油。该产品可在严苛工况下提供出色的润滑性能, 包括提高效率、较长使用寿命和抗微点腐蚀。

ISO VG lubricant is a high-grade synthetic heavy-duty industrial worm transmission gear oil blended with finely selected polyethylene glycol lubricants and additives. The product can provide excellent lubrication performance under severe conditions, including improved energy efficiency, longer service life and resistance to micro-pitting.

性能特点
Performance characteristics

- 使用寿命长——节省维护费用
- 抗磨损性能优
- 保持系统效率
- Long service life-saving maintenance costs
- Excellent wear resistance
- Maintain system efficiency

兼容性
Compatibility

密封及涂料兼容性

ISO VG润滑油可满足丁腈橡胶和氟橡胶密封材料的要求。此润滑油不建议与其他的聚乙二醇产品混合。通常, 最好避免通过排干和重新加油引起的油品混合。

Sealing and coating compatibility

ISO VG lubricants can meet the requirements of nitrile rubber and fluorine rubber sealing materials. This lubricant is not recommended to be mixed with other polyethylene glycol products. Generally, it is best to avoid oil mixing caused by draining and refueling.

典型数据 Typical data			
测试项目	单位	试验方法	数据
ISO VG			150 220 320 460 680
外观		目测	清澈透明
运动粘度40℃ 100℃ VI	mm²/s	ASTM D445 ASTM D2270	137 222 321 460 673 24.2 37.5 52.8 73.5 98.2 220 220 230 240 240
倾点	℃	ASTM D97	-42 -40 -39 -36 -36
闪点	℃	ASTM D92	280 280 290 290 290
FZG负载试验	级	DIN51354	> 14