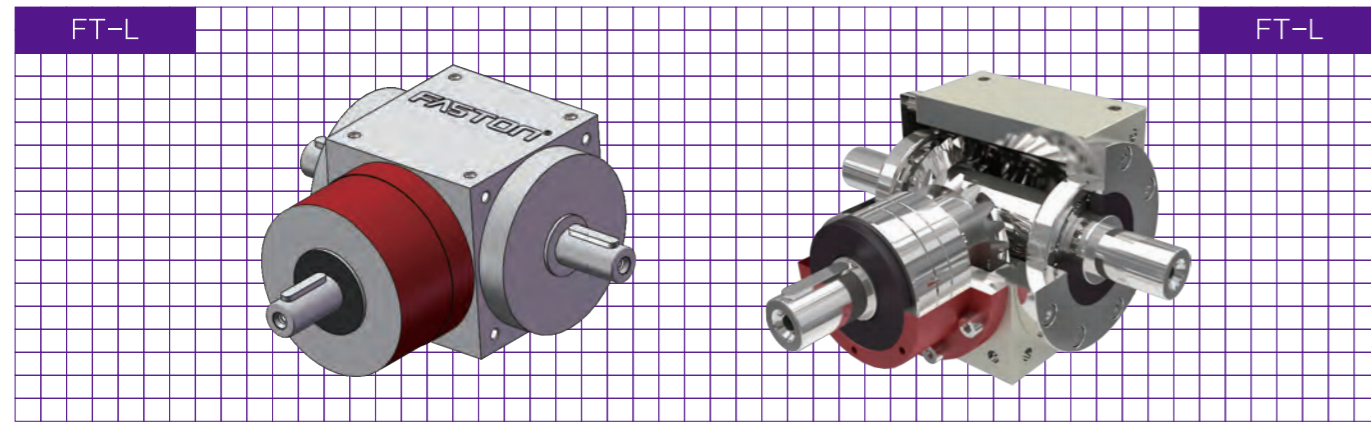


产品特点 PRODUCT FEATURES



一体化不锈钢本体确保最大刚性耐蚀性, 多重精密加工表面易于组装。  
Integrated stainless steel body ensures maximum rigidity and corrosion resistance. Multiple precision machined surface for easy assembly.

采用顶级蜗线伞齿轮的设计软件, 经最佳化设计接触齿面负载均一容许高扭矩输出, 齿轮采高强度渗碳合金钢, 研磨精度符合DIN 5级标准以内。  
The adoption of the top spiral worm gear design software and the optimized design of contact tooth surface make the even load and allow high torque output. Gears are made of high strength carburizing alloy steel and the grinding precision is up to the standard of DIN 5 level.

多重不锈钢输出输入轴的设计可以适用于各种工业上应用的需求。  
Multiple stainless steel output and input shaft design can be applied to various of industrial applications needs.

高精度研磨的蜗线伞齿轮组合最佳化设计的行星式齿轮组可以达到500:1的减速比。  
The combination of high-precision grinded worm bevel gear set and the optimized the design of planetary gear set can make the reduction speed up to 500:1.

高扭矩低背隙的精简结构设计适用于精密伺服的应用。  
High torque and low backlash design of the compact structure is suitable for the application of precision servo.

专利的油封设计, 免保养无需更换润滑油, 运转寿命长。  
Patented oil seal design, maintenance-free without replacing the lubrication oil, long operating life.

重量 Weight

减速机型 Model No.	节数 Stage	比数 Ratio	FT065	FT075	FT090	FT110	FT140	FT170	FT210	FT240	FT280
L系列 L Series	1	1~5	2.6	4.2	6.8	11.6	19.8	34.8	66.2	98.1	155.7
L1系列 L1 Series	1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
H系列 H Series	1	1~5	2.5	3.9	6.4	11.0	18.1	31.6	60.0	89.4	143.4
C系列 C Series	1	1~5	2.8	4.2	6.9	11.4	19.6	33.7	63.3	97.9	149.1
R1系列 R1 Series	1	1~5	2.6	4.1	6.7	11.5	19.5	34.2	65.1	96.6	153.4
LM系列 LM Series	1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
RM系列 RM Series	1	1	3.5	5.6	9.0	15.2	24.1	42.4	81.4	122.0	190.9
4M系列 4M Series	1	1	3.5	5.6	9.1	15.4	24.8	42.6	82.5	123.5	193.3

产品规格 PRODUCT SPECIFICATION

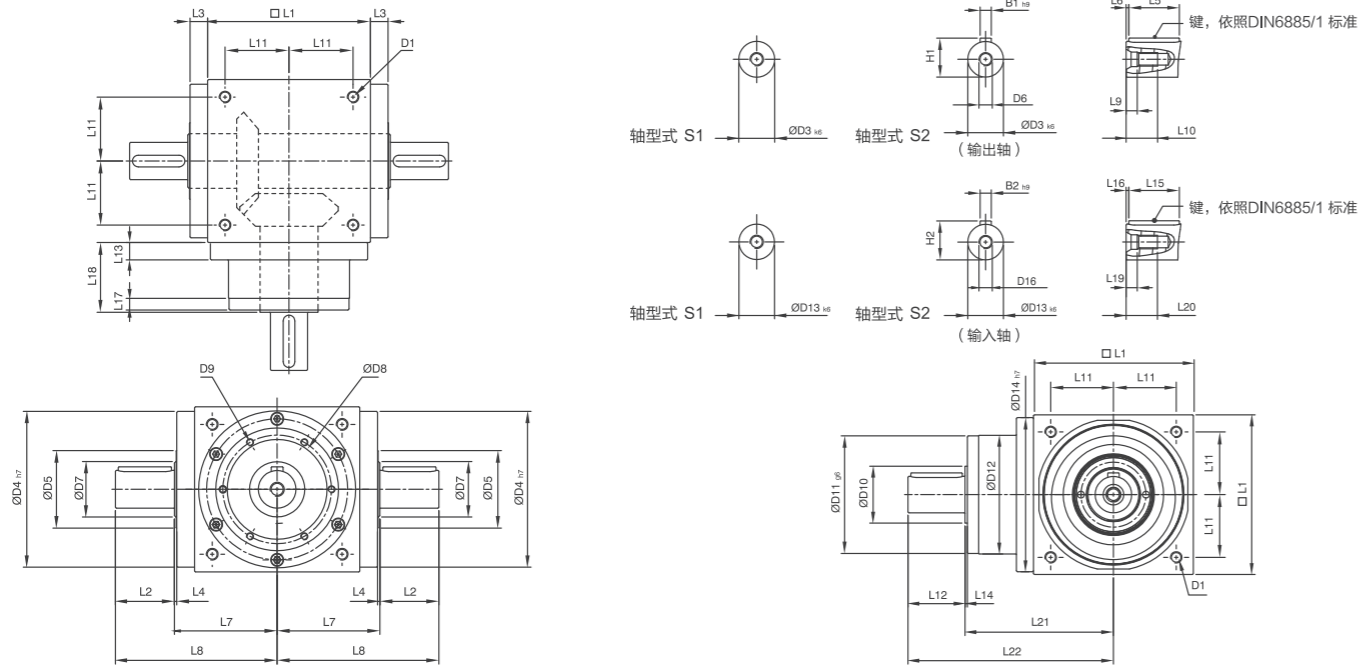
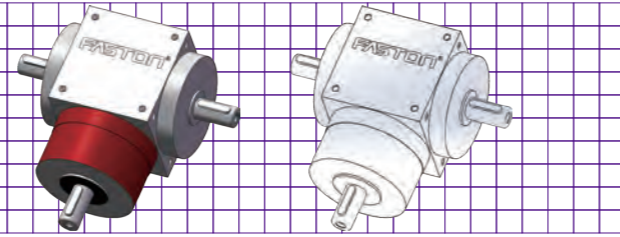
规格 Specification	节数 Stage	比数 <sup>1</sup> Ratio <sup>A</sup>	FT065L	FT075L	FT090L	FT110L	FT140L	FT170L	FT210L	FT240L	FT280L	
			FT065L1	FT075L1	FT090L1	FT110L1	FT140L1	FT170L1	FT210L1	FT240L1	FT280L1	
额定输出力矩 <sub>T<sub>2N</sub></sub> Rated Output Torque	Nm	1	1	25	45	78	150	360	585	1,300	2,150	3,200
			1.5	25	45	78	150	360	585	1,300	2,150	3,200
			2	24	42	68	150	330	544	1,220	2,010	3,050
			3	18	33	54	120	270	450	1,020	1,650	2,850
			4	13	28	48	100	224	376	860	1,410	2,300
			5	12	25	40	85	196	320	740	1,210	2,000
最大加速力矩 <sub>T<sub>2B</sub></sub> Max.	Nm	1	1~5	1.5倍额定输出力矩 1.5 Times of Rated Output Torque								
最大加速输入转速 <sub>n<sub>1B</sub></sub> Max.	rpm	1	1~5	7,500	6,500	5,500	4,500	3,500	3,000	2,200	2,000	1,700
背隙*Backlash	arcmin	1	1~5	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6	≤6
容许径向力 <sub>F<sub>1rB</sub></sub> <sup>2</sup> Radial 输入轴d1 Input d1	N	1	1~5	700	950	1,450	2,100	2,700	3,800	7,800	9,600	10,500
容许径向力 <sub>F<sub>2rB</sub></sub> <sup>3</sup> Radial 输入轴d2 Input d2	N	1	1~5	900	1,100	1,700	2,700	4,800	6,600	11,500	16,000	18,000
容许轴向力 <sub>F<sub>1aB</sub></sub> <sup>3</sup> Axial 输入轴d1 Input d1	N	1	1~5	350	425	725	1,050	1,350	1,900	3,900	4,800	5,250
容许轴向力 <sub>F<sub>2aB</sub></sub> <sup>3</sup> Axial 输入轴d2 Input d2	N	1	1~5	450	550	850	1,350	2,400	3,300	5,750	8,500	9,000
使用寿命 Service Life	hr	1	1.5	20, 000*								
效率 η Efficiency	%	1	1.5	≥98%								
使用温度 Operating Temp	°C	1	1.5	-10°C~90°C								
润滑 Lubrication				合成润滑油 Fully Synthetic Grease								
噪音值 (n1=1500rpm, 无负载) dB (A)		1	1.5	≤68	≤70	≤74	≤76	≤77	≤78	≤80	≤82	≤83

1. 减速比(i=N<sub>in</sub>/N<sub>out</sub>)  
2. 作用于输入轴中心位置@n<sub>1B</sub>  
3. 作用于输出轴中心位置@n<sub>1B</sub>  
\*连续运转降低使用寿命二分之一。  
\*背隙值为在2%额定力矩T<sub>2N</sub>的扭力下所测得  
AT-LM/RM/4M 只提供1:1比数

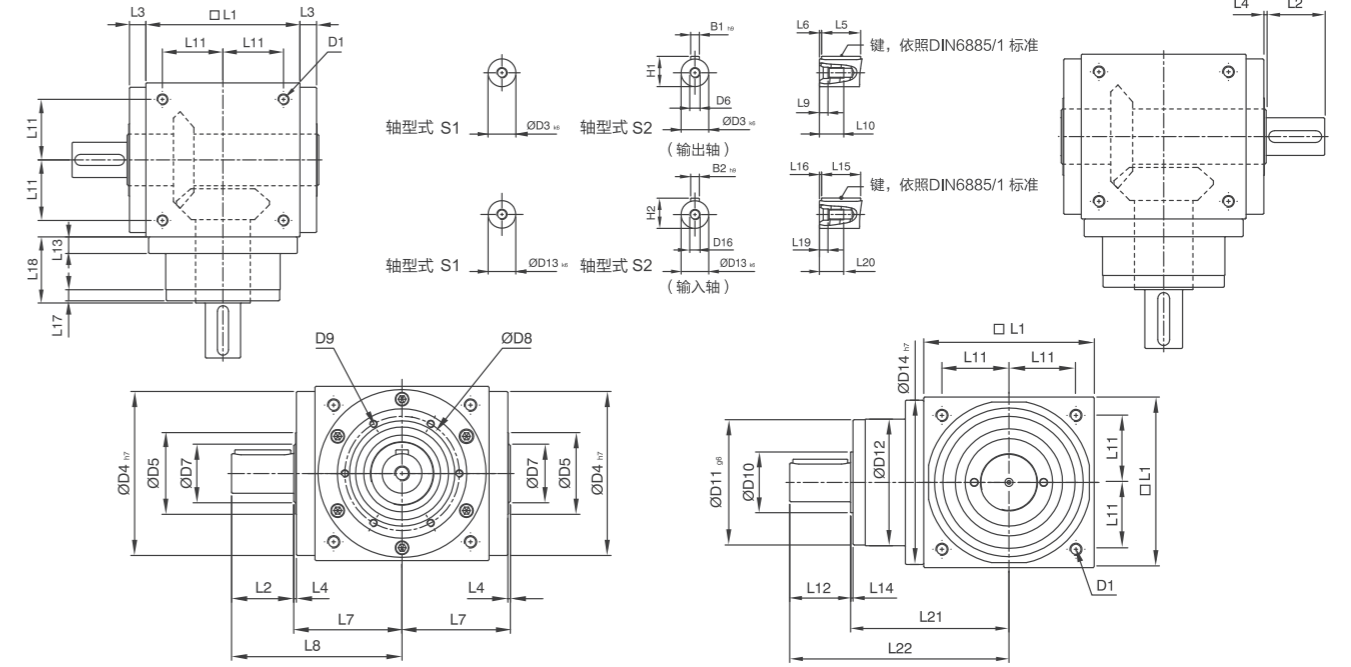
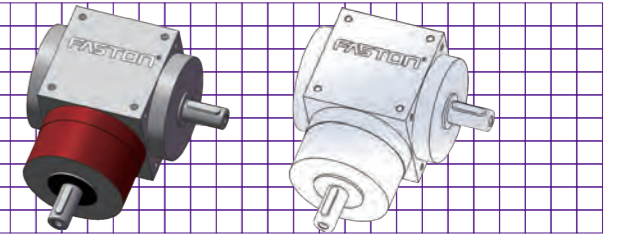
减速机转动惯量 Rotary Inertia of Reducer

规格 Specification	节数 Stage	比数 <sup>1</sup> Ratio <sup>A</sup>	FT065L	FT075L	FT090L	FT110L	FT140L	FT170L	FT210L	FT240L	FT280L	
			FT065L1	FT075L1	FT090L1	FT110L1	FT140L1	FT170L1	FT210L1	FT240L1	FT280L1	
转动惯量 <sub>J<sub>1</sub></sub> Rotary Inertia	kg · cm <sup>2</sup>	1	1	0.51	1.30	3.16	7.70	23.57	58.99	195.40	369.34	799.12
			1.5	0.64	1.16	2.82	6.74	19.37	49.28	155.45	283.58	595.78
			2	0.44	1.11	2.70	6.31	17.75	45.35	140.24	249.74	511.76
			3	0.43	1.09	2.66	6.17	17.18	44.01	134.95	237.71	483.06
			4	0.43	1.09	2.65	6.13	17.06	43.70	133.58	234.72	476.26
			5	0.43	1.09	2.65	6.12	17.02	43.60	133.14	233.67	473.58

FT-L系列双轴出轴型式  
Double Output Shaft Type  
尺寸 (单节1-stage, 减速比ratio i=1 ~ 5)



FT-L1(左)/FT-R1(右)系列  
单边出轴型式 single-side Output Shaft Type  
尺寸 (单节1-stage, 减速比ratio i=1 ~ 5)



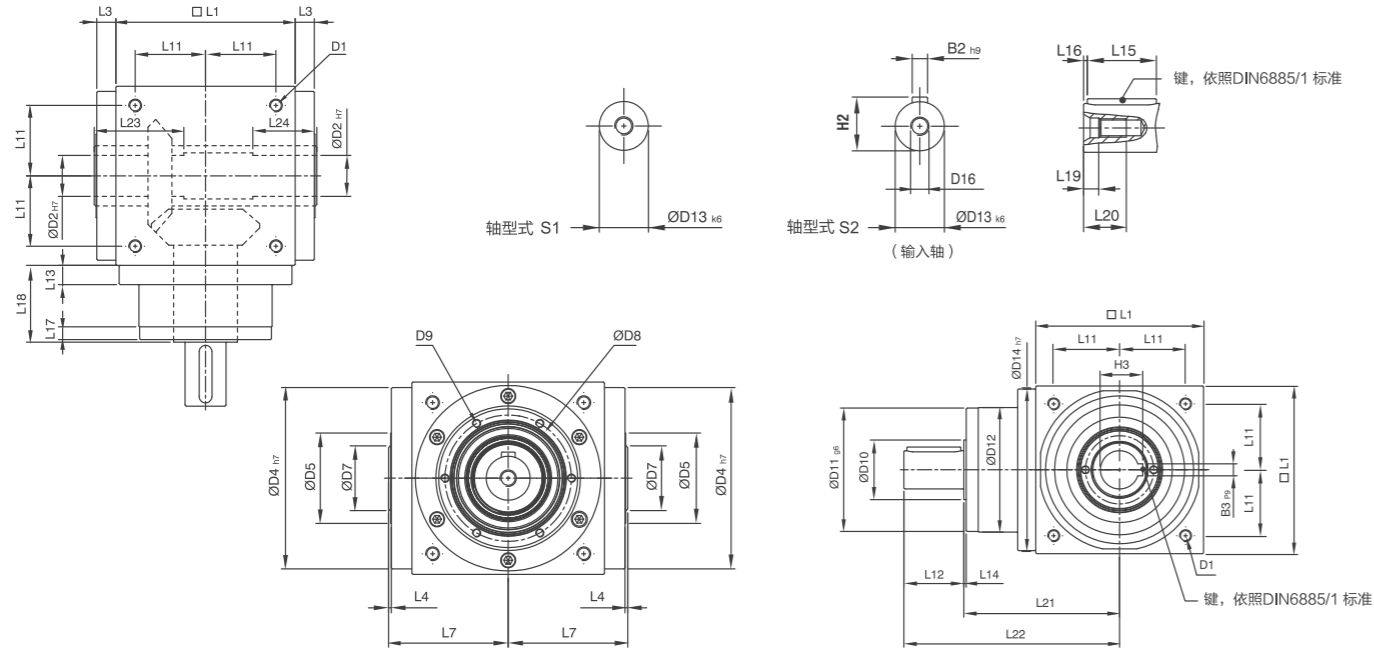
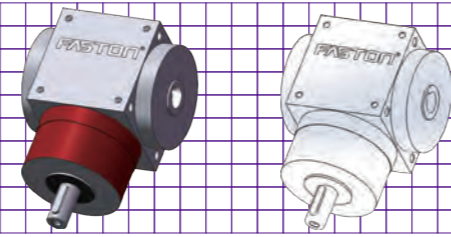
尺寸 Size	FT065L	FT075L	FT090L	FT110L	FT140L	FT170L	FT210L	FT240L	FT280L
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 k6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

尺寸 Size	FT065L1/R1	FT075L1/R1	FT090L1/R1	FT110L1/R1	FT140L1/R1	FT170L1/R1	FT210L1/R1	FT240L1/R1	FT280L1/R1
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 k6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

FT-H系列孔输出型式

Hole Input Type

尺寸 (单节1-stage, 减速比ratio i=1 ~ 5)

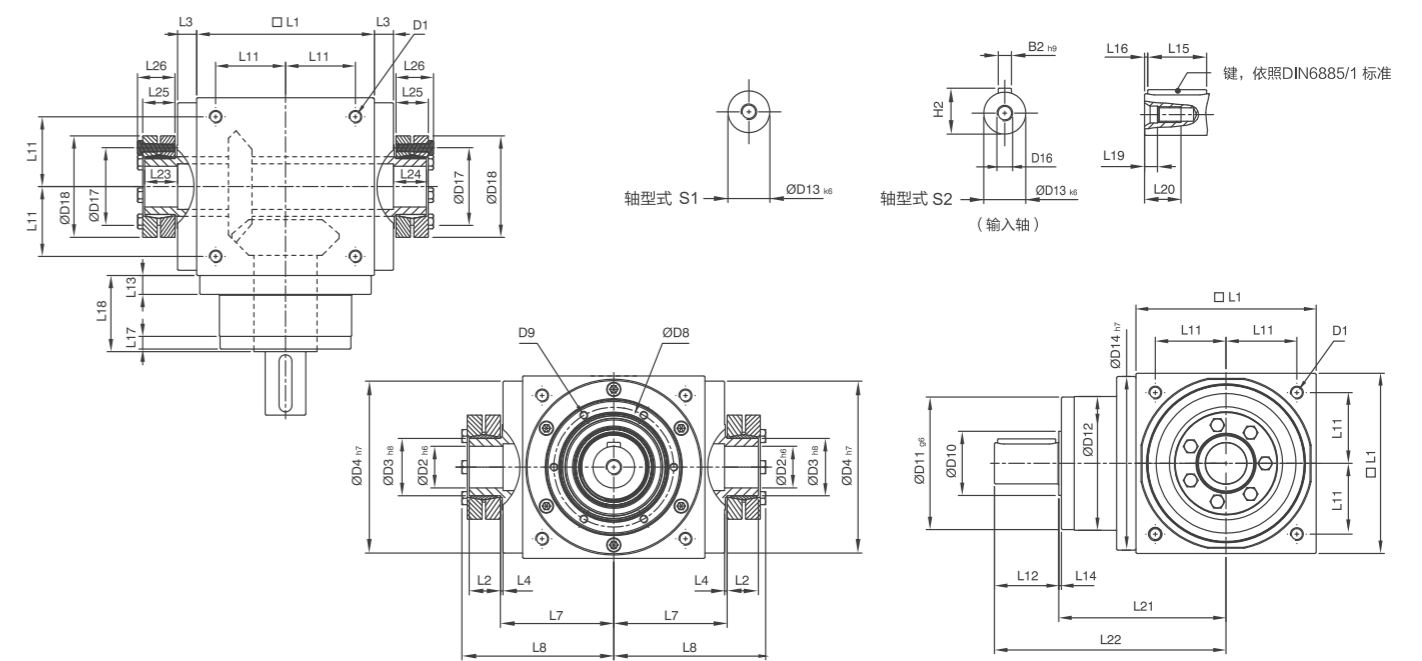
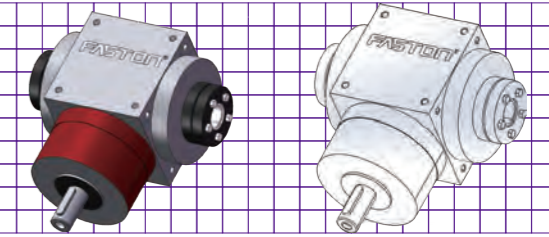


尺寸 Size	FT065H	FT075H	FT090H	FT110H	FT140H	FT170H	FT210H	FT240H	FT280H
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 h7	13	14	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	15	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	40	47	52	53	70	80	95	115	115
L24	30	32	35	35	50	55	65	80	80
B2 h9	5	5	6	6	10	12	14	16	18
B3 p9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64
H3	15.3	16.3	20.8	24.8	35.3	43.3	53.8	59.3	64.4

FT-C系列孔输出带抱箍型式

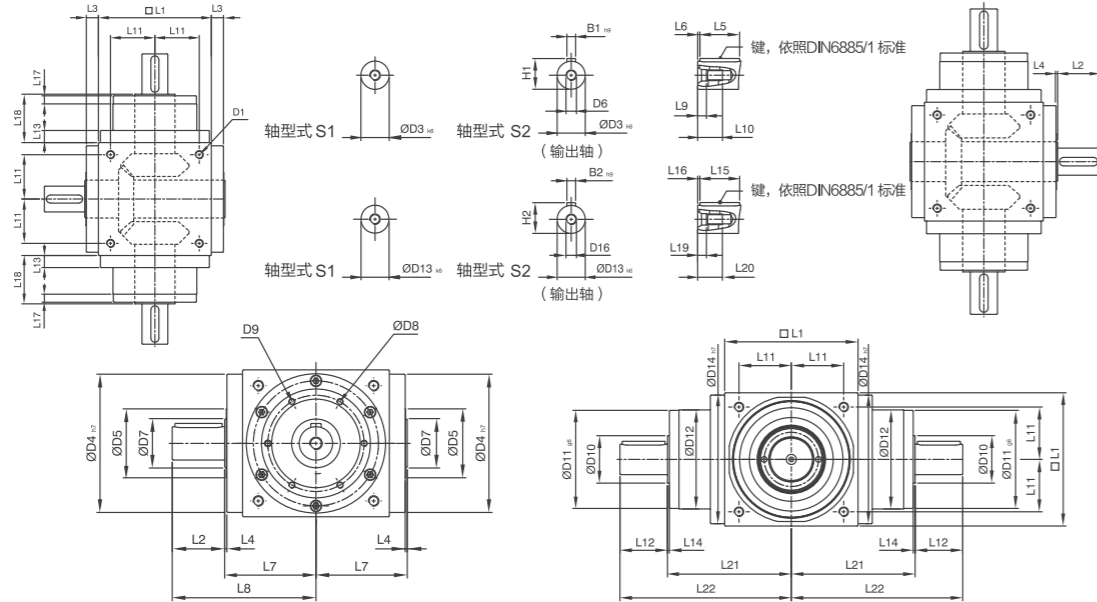
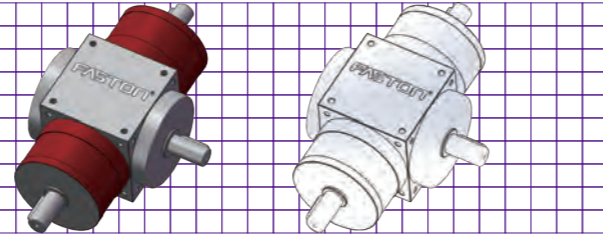
Hole Output Hoop Type

尺寸 (单节1-stage, 减速比ratio i=1 ~ 5)



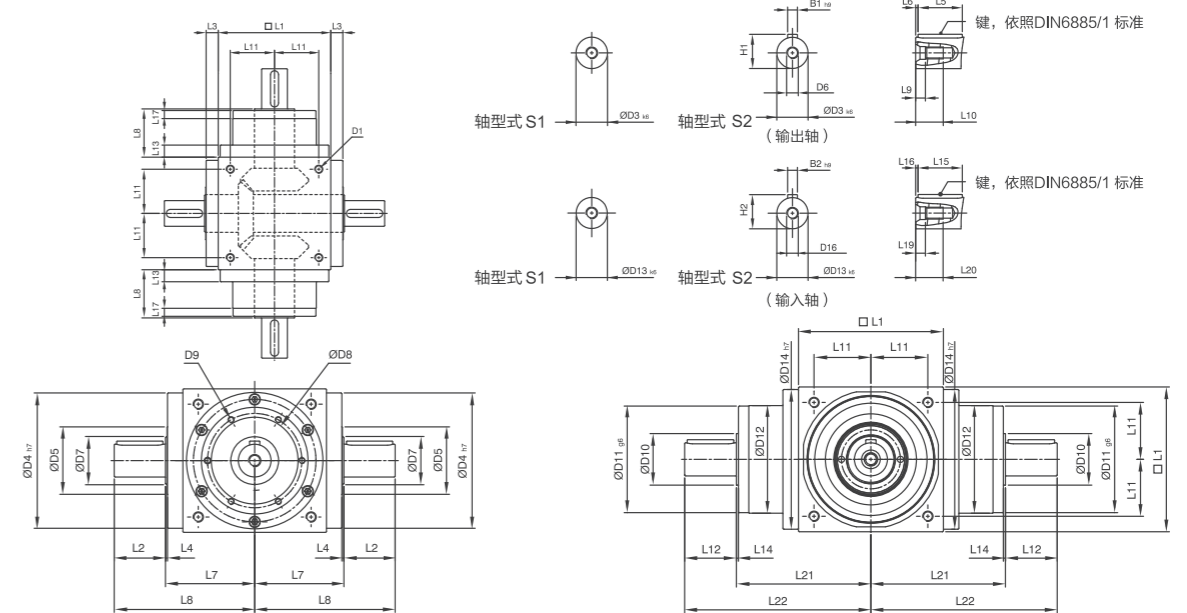
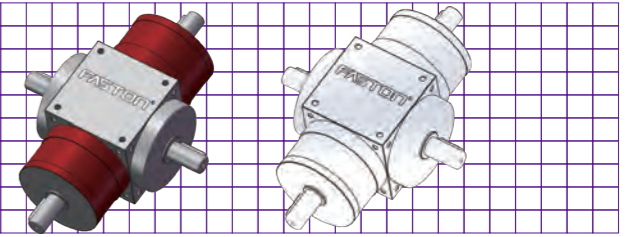
尺寸 Size	FT065C	FT075C	FT090C	FT110C	FT140C	FT170C	FT210C	FT240C	FT280C
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D2 H6	13	14	18	22	32	40	50	55	60
D3 h8	16	16	22	25	44	50	62	68	75
D4 h7	63	73	88	108	135	165	205	235	275
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
D17	26	26	36	38	61	70	86	86	100
D18	41	41	50	50	80	90	110	115	138
L1	65	75	90	110	140	170	210	240	280
L2	14	14	18	18	24	26	29	29	30.5
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L7	47.5	54	62	72	87	102	127	147	167
L8	66	72.5	85	95	116.5	133.5	161.5	181.5	205
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	15	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
L23	15	15	20	20	26	28	31	31	32.5
L24	15	15	20	20	26	28	31	31	32.5
L25	15	15	19.5	19.5	25.5	27.5	30.5	30.5	32.5
L26	18.5	18.5	23	23	29.5	31.5	34.5	34.5	38
B2 h9	5	5	6	6	10	12	14	16	18
H2	15	18	20.5	24.5	35	43	53.5	59	64

FT-LM(左)/FT-RM(右)系列  
 双出轴方向相反型式  
 Double Output Shaft Opposite Direction Type  
 尺寸 (单节1-stage, 减速比ratio=1)



尺寸 Size	FT065LM/RM	FT075LM/RM	FT090LM/RM	FT110LM/RM	FT140LM/RM	FT170LM/RM	FT210LM/RM	FT240LM/RM	FT280LM/RM
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 k6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64

FT-4M系列  
 FT-4M Series  
 尺寸 (单节1-stage, 减速比ratio=1)



尺寸 Size	FT065 4M	FT075 4M	FT090 4M	FT110 4M	FT140 4M	FT170 4M	FT210 4M	FT240 4M	FT280 4M
D1	M4	M6	M6	M8	M10	M12	M16	M16	M16
D3 k6	13	16	18	22	32	40	50	55	60
D4 h7	63	73	88	108	135	165	205	235	275
D5	31	35	43	53	68	83	104	124	144
D6	M4	M5	M5	M8	M12	M16	M16	M16	M20
D7	21	22	28	33	47	55	75	85	110
D8	53	62	76	95	92	114	142	160	176
D9	4×M4×L7	4×M5×L8	4×M5×L8	6×M6×L10	6×M6×L10	6×M8×L12.5	6×M8×L12.5	6×M8×L12.5	6×M10×L15
D10	15.4	20.4	25.8	35.8	49.8	59.3	79.3	92.3	102.3
D11 g6	62.9	72.9	87	107	103	127	158	178	198
D12	62	72	86	106	104	128	160	180	200
D13 k6	13	16	18	22	32	40	50	55	60
D14 h7	63	73	88	108	135	165	205	235	275
D16	M4	M5	M5	M8	M12	M16	M16	M16	M20
L1	65	75	90	110	140	170	210	240	280
L2	19.5	30	35	40	50	60	75	85	110
L3	13	14.5	15	15	15	15	20	25	25
L4	2	2	2	2	2	2	2	2	2
L5	16	25	28	32	45	50	70	80	100
L6	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L7	47.5	54	62	72	87	102	127	147	167
L8	67	84	97	112	137	162	202	232	277
L9	4.5	4.8	4.8	7.2	10	12	12	12	15
L10	10	12.5	12.5	19	28	36	36	36	42
L11	27	30	36	44	55	67	85	95	110
L12	19.5	30	35	40	50	60	75	85	110
L13	13	15	15	15	15	15	20	25	25
L14	2	2	2	2	2	2	2	2	2
L15	16	25	28	32	45	50	70	80	100
L16	2	2.5	3.5	4	2.5	5	2.5	2.5	5
L17	6	8	8	8	10	10	10	10	10
L18	43	52.5	55	60	60	70	90	105	120
L19	4.5	4.8	4.8	7.2	10	12	12	12	15
L20	10	12.5	12.5	19	28	36	36	36	42
L21	75.5	90	100	115	130	155	195	225	260
L22	95	120	135	155	180	215	270	310	370
B1 h9	5	5	6	6	10	12	14	16	18
B2 h9	5	5	6	6	10	12	14	16	18
H1	15	18	20.5	24.5	35	43	53.5	59	64
H2	15	18	20.5	24.5	35	43	53.5	59	64