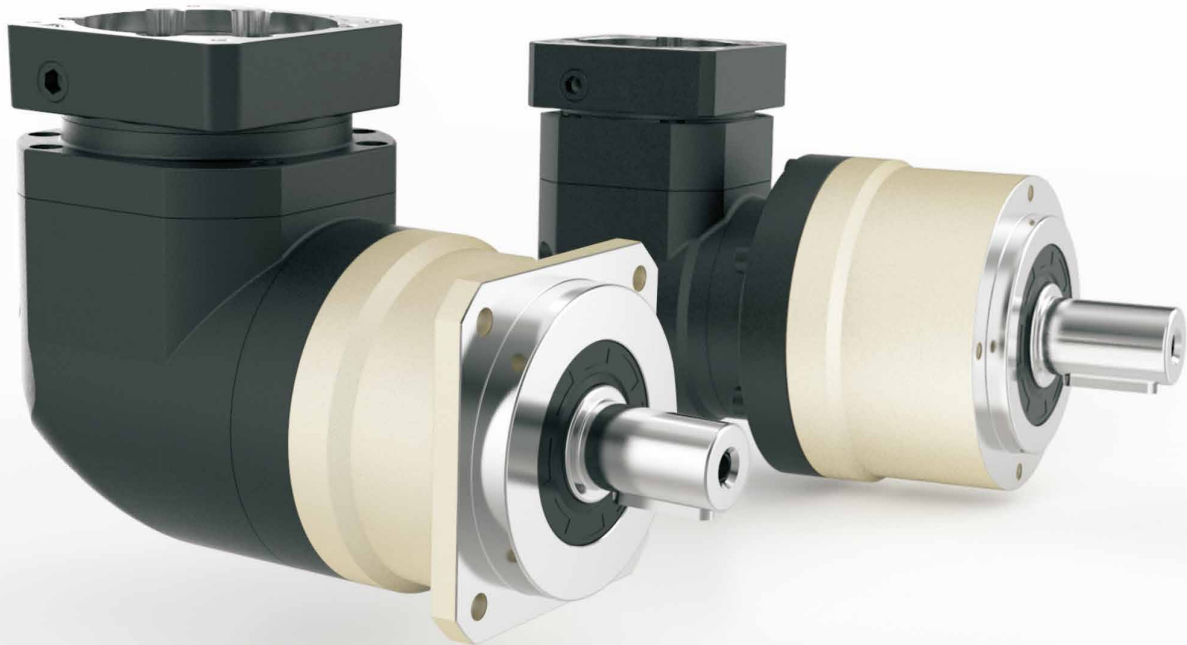


FBR/FER SERIES



型号说明 / MODEL ILLUMINATION

FBR090 - 10 - S2 - 马达

减速机型式：FBR060/FER070
FBR090/FER090
FBR115/FER120
FBR142/FER155

输出轴型式选择：S1：平滑直轴
S2：附件直轴

马达型号：
马达制造及型号

减速比：单级（L1）：3,4,5,6,7,8,10,14,20
双级（L2）：12,15,20,25,30,35,40,50,60,
70,80,100,120,140,160,200

选用范例：FBR090-10-S2/MHMD-082G1U

减速机性能资料 / GEAR BOX PERFORMANCE INFORMATION

规格		级数	减速比 ¹	FBR060 FER070	FBR090 FER090	FBR115 FER120	FBR142 FER155
额定输出力矩T _{2N}	Nm	1	3	55	130	208	342
			4	50	140	290	542
			5	60	160	330	650
			6	55	150	310	600
			7	50	140	300	550
			8	50	140	290	542
			10	60	160	330	650
			14	50	140	300	550
			20	40	100	230	450
		2	12	55	130	208	342
			15	55	130	208	342
			20	50	140	290	542
			25	60	160	330	650
			30	55	130	208	342
			35	60	160	330	650
			40	50	140	290	542
			50	60	160	330	650
			60	55	150	310	600
			70	60	160	330	650
			80	50	140	290	542
			100	60	160	330	650
			120	—	150	310	600
			140	—	140	300	550
			160	—	120	260	500
			200	—	100	230	450
最大输出力矩T _{2B}	Nm	1,2	3~200	3倍额定输出力矩			
额定输入转速n ₁	rpm	1,2	3~200	5,000	4,000	4,000	3,000
最大输入转速n _{1B}	rpm	1,2	3~200	10,000	8,000	8,000	6,000
背隙	arcmin	1	3~20	≤10	≤10	≤10	≤10
		2	12~200	≤12	≤12	≤12	≤12
扭转刚性	Nm/arcmin	1,2	3~200	7	14	25	50
容许径向力F _{2rB} ²	N	1,2	3~200	1,530	3,250	6,700	9,400
容许轴向力F _{2a1B} ²	N	1,2	3~200	630	1,300	3,000	4,000
容许轴向力F _{2a2B} ²	N	1,2	3~200	765	1,625	3,350	4,700
使用寿命	hr	1,2	3~200	20,000*			
效率 η	%	1	3~20	≤95%			
		2	12~200	≤92%			
重量	kg	1	3~20	2.1	6.4	13	24.5
		2	12~200	2.5	7.8	14.2	27.5
使用温度	℃	1,2	3~200	-10℃~+90℃			
润滑		1,2	3~200	合成润滑油脂			
防护等级		1,2	3~200	IP65			
安装方向		1,2	3~200	任意方向			
噪音值 (n ₁ =3000rpm)	dB	1,2	3~200	≤63	≤65	≤68	≤70

减速机转动惯量

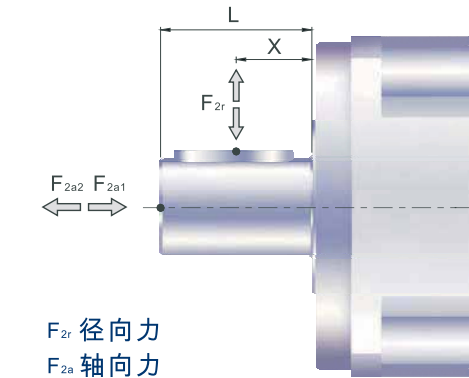
规格		级数	减速比 ¹	FBR060 FER070	FBR090 FER090	FBR115 FER120	FBR142 FER155
转动惯量J ₁	kg · cm ²	1	3~7	0.35	2.25	6.84	23.4
			8~10	0.07	1.87	6.25	21.8
			14~20	0.07	1.87	6.25	21.8
		2	12~40	0.09	0.35	2.25	6.84
			50	0.09	0.31	1.87	6.25
			60	0.09	0.35	2.25	6.84
			70~100	0.09	0.31	1.87	6.25
			120~200	—	0.31	1.87	6.25

1.减速比 (i=N_{in}/N_{out})
* 连续运转降低使用寿命二分之一。

2.输出转数 100rpm 时，作用于输出轴中心位置。

减速机输出轴之容许径向力及轴向力

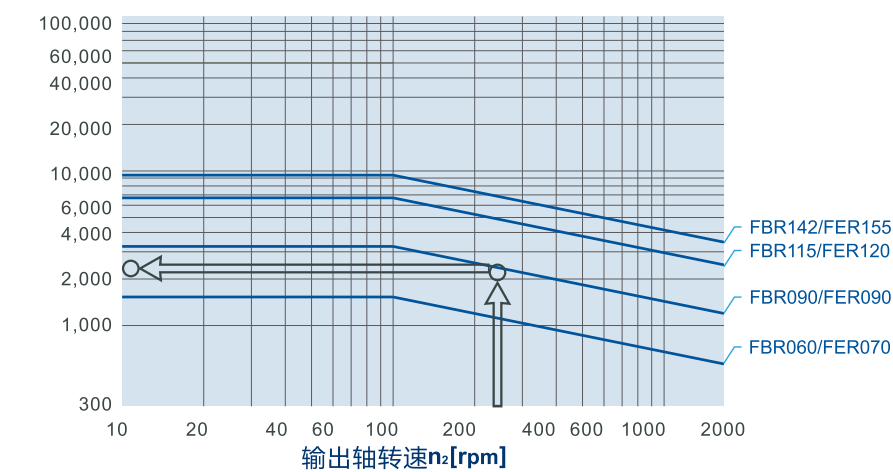
REDUCER OUTPUT SHAFT OF THE PERMISSIBLE RADIAL FORCE AND SHAFT AND FORCE



减速机输出轴所能承受之最大径向力及轴向力,端视内部支撑轴承之设计,减速机采用大尺寸的轴承及较大跨距的设计,其能承受更大的径向及轴向负荷。

F_{2r} 径向力
F_{2a} 轴向力

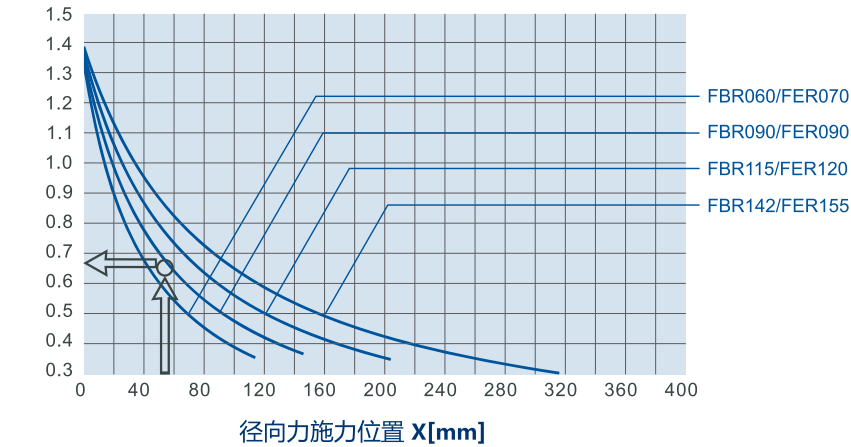
容许径向力 F_{2rB}[N] 施力于轴中心位置



当径向力F_{2r}施力于轴中心位置即X=1/2xL时，不同规格之减速机在不同输出转速运用下使用寿命为20,000hr*时，所能承受之容许径向力F_{2rB}，请参照左图，而能承受之容许轴向力F_{2aB}，为

F_{2a1B}=0.2x F_{2rB}
F_{2a2B}=0.1x F_{2rB}

位置负荷系数K_b

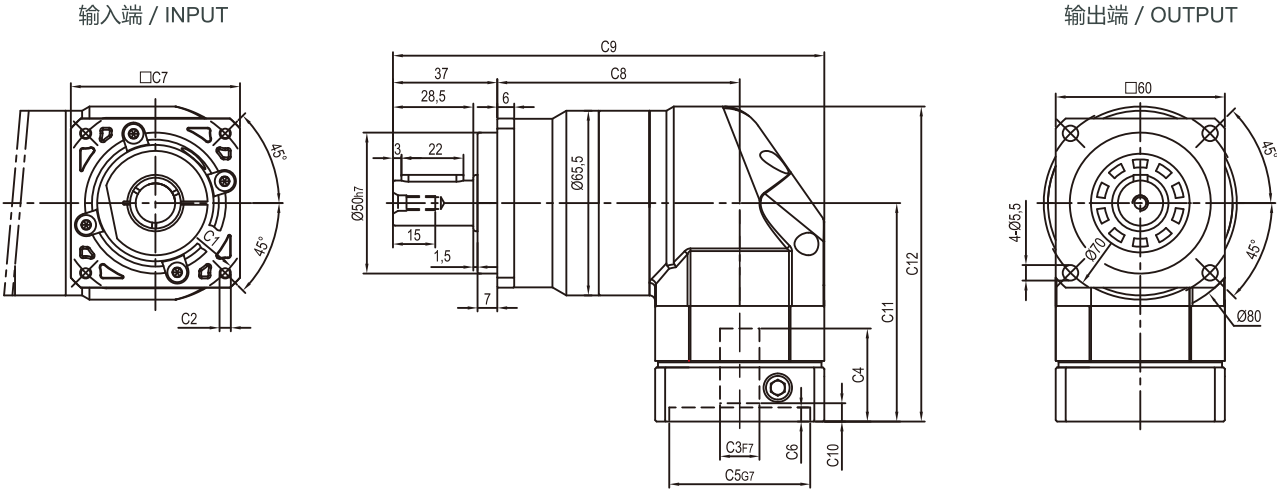


当径向力F_{2r}施力不在轴中心位置时，越靠近减速机即X < 1/2xL，所能承受之容许径向力变大，越远离减速机即X > 1/2xL时，所能承受之容许径向力则变小，藉由左图，依减速机规格及径向力施力位置X，查出位置负荷系数K_b，在代入下列公式，求出容许径向力：
F'_{2rB}=K_bx F_{2rB}
轴向力：
F'_{2a1B}=0.2x F'_{2rB}
F'_{2a2B}=0.1x F'_{2rB}

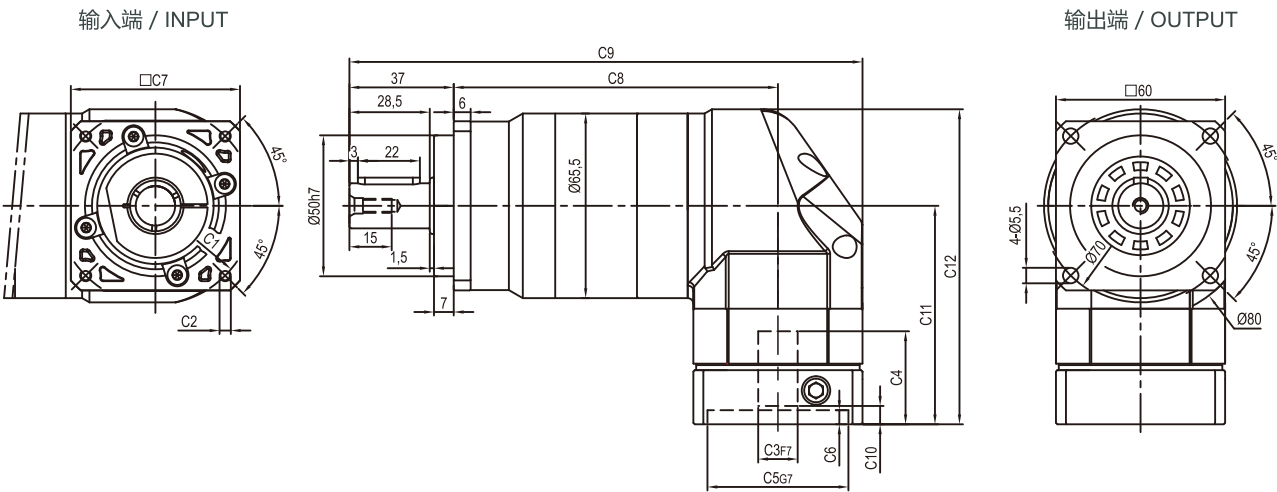
*连续运转降低使用寿命二分之一。

外形尺寸图表 / OUTLINE DIMENSION SHEET

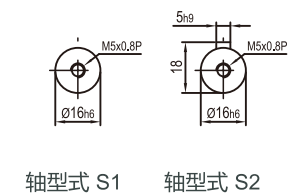
FBR-060D(M1)-L1



FBR-060D(M1)-L2



输出轴径/Output Diameter



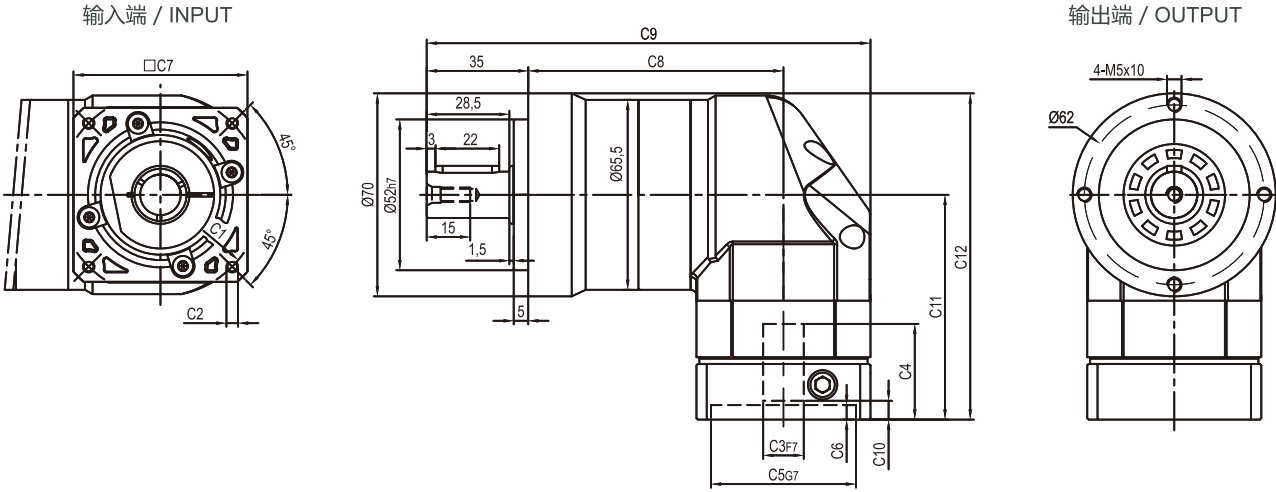
轴型式 S1 轴型式 S2

尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FBR-060D-L1	Ø66.7	4-M4x10	Ø8	33	Ø38.1	5	60	86	153	5.5	77.5	111.75
FBR-060D-L2								115	182			
FBR-060D-L1	Ø70	4-M4x10,4-M5x12	Ø11,Ø14	33	Ø50	5	60	86	153	5.5	77.5	111.75
FBR-060D-L2								115	182			
FBR-060M1-L1	Ø90	4-M5x12,4-M6x14	Ø19	42.5	Ø70	6.5	80	86	163	12	87	121.25
FBR-060M1-L2								115	192			

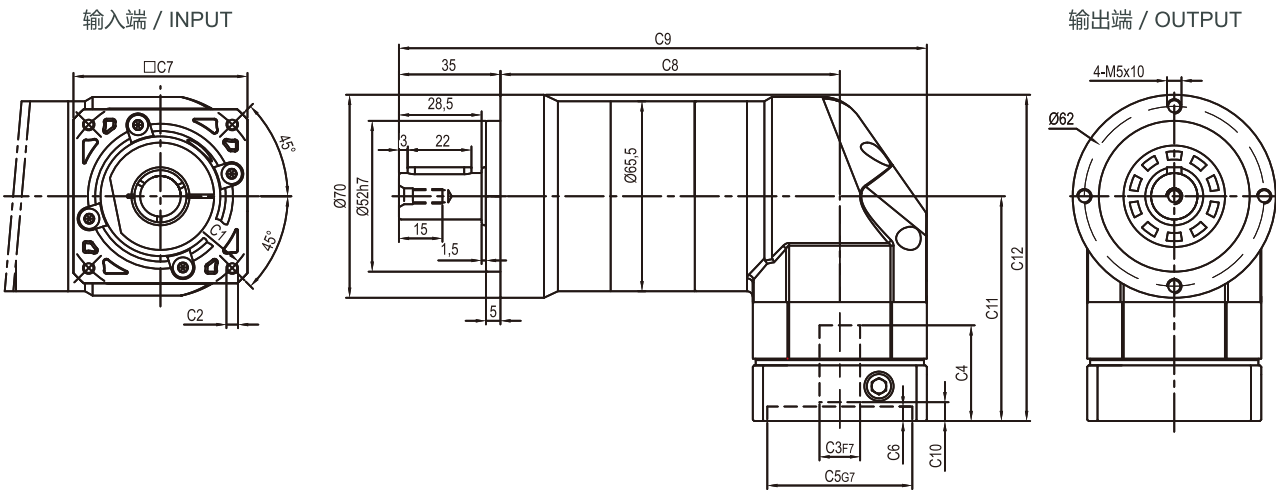
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.
* D:常规孔,M1:极限孔
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

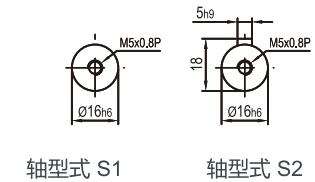
FER-070D(M1)-L1



FER-070D(M1)-L2



输出轴径/Output Diameter



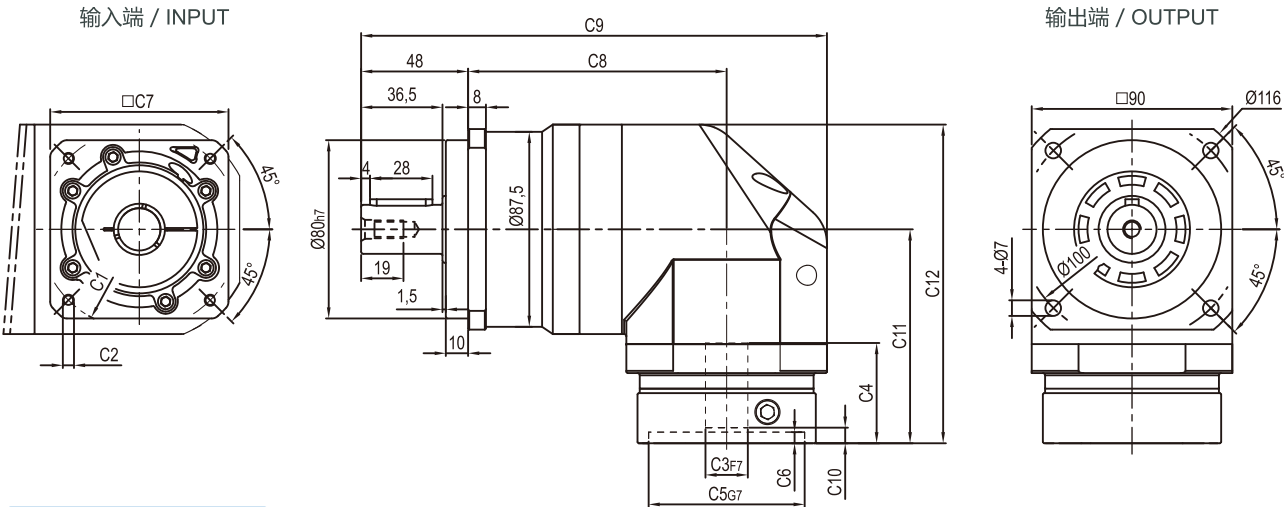
轴型式 S1 轴型式 S2

尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FER-070D-L1	Ø66.7	4-M4x10	Ø8	33	Ø38.1	5	60	88	153	5.5	77.5	112.5
FER-070D-L2								117	182			
FER-070D-L1	Ø70	4-M4x10,4-M5x12	Ø11,Ø14	33	Ø50	5	60	88	153	5.5	77.5	112.5
FER-070D-L2								117	182			
FER-070M1-L1	Ø90	4-M5x12,4-M6x14	Ø19	42.5	Ø70	6.5	80	88	163	12	87	122
FER-070M1-L2								117	192			

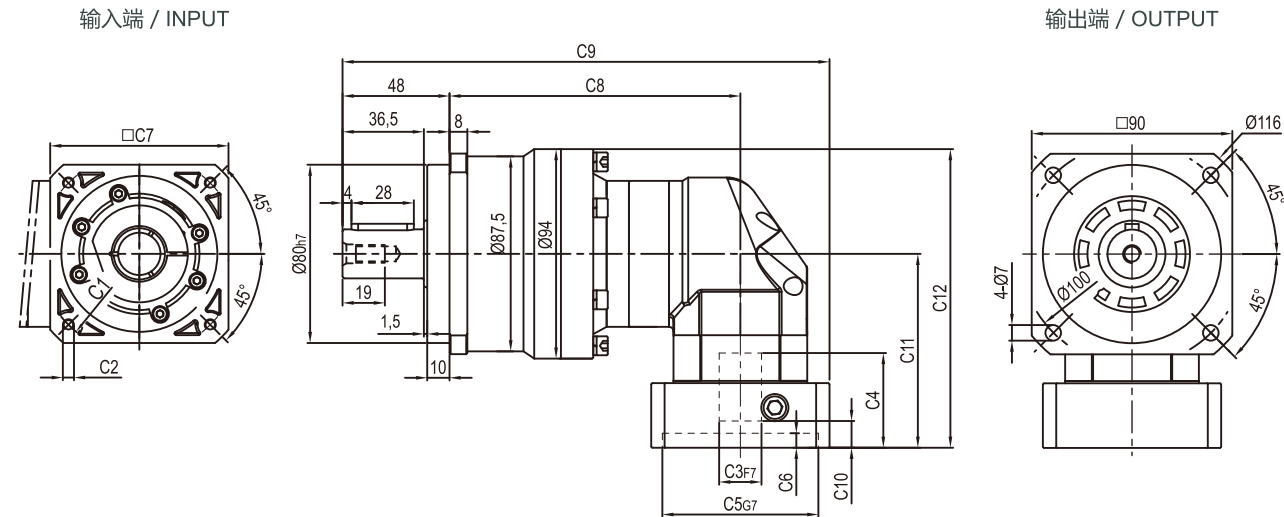
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.
* D:常规孔,M1:极限孔
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

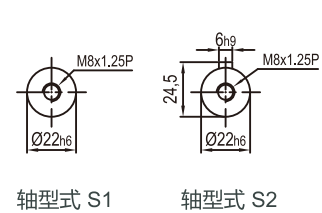
FBR-090D(M1)-L1



FBR-090D(M1)-L2



输出轴径/Output Diameter



轴型式 S1 轴型式 S2

尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FBR-090D-L1	Ø90	4-M5x12,4-M6x14	Ø19	45	Ø70	6.5	80	116	209	7	96	143
	Ø100	4-M6x14	Ø16	45	Ø80	6.5	86	116	209	6	96	143
FBR-090M1-L1	Ø115	4-M8x20	Ø19,Ø22	56.5	Ø95	8	100	116	214	16.5	117.5	164.5
	Ø145	4-M8x20	Ø19,Ø22,Ø24	59	Ø110	11	130	116	229	19	120	167
FBR-090D-L2	Ø66.7	4-M4x10	Ø8	33	Ø38.1	5	60	130.5	208.5	5.5	77.5	124.5
	Ø70	4-M4x10,4-M5x12	Ø11,Ø14	33	Ø50	5	60	130.5	208.5	5.5	77.5	124.5
FBR-090M1-L2	Ø90	4-M5x12,4-M6x14	Ø19	42.5	Ø70	6.5	80	130.5	218.5	12	87	134
	Ø100	4-M6x14	Ø16	42.5	Ø80	6.5	86	130.5	221.5	11	87	134

* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。

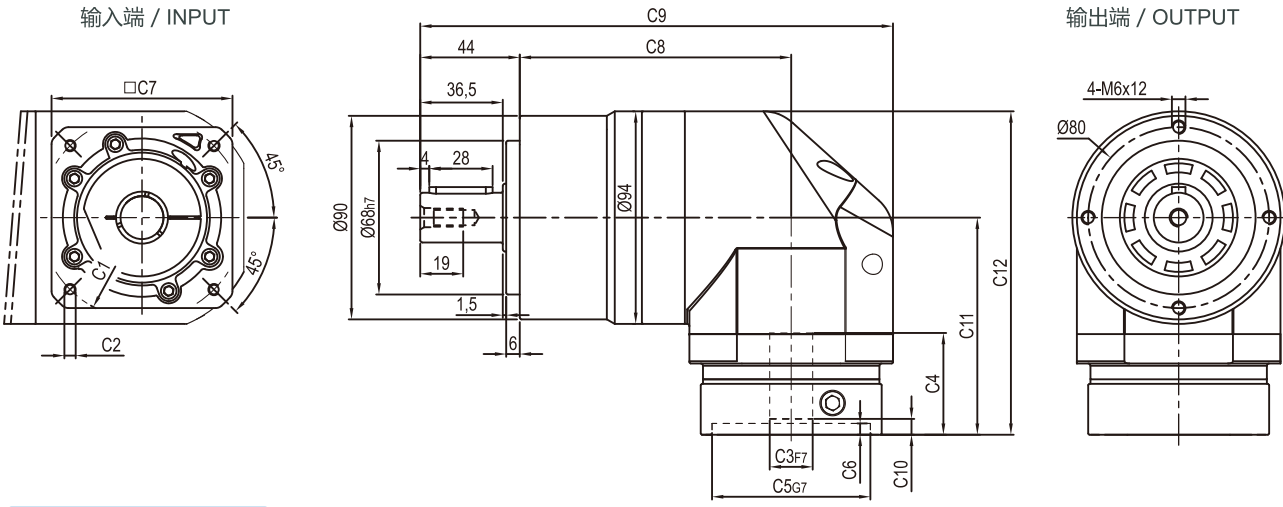
* C1~C7are motor(metric standard) specific dimensions, which could be customised.

* D:常规孔,M1:极限孔

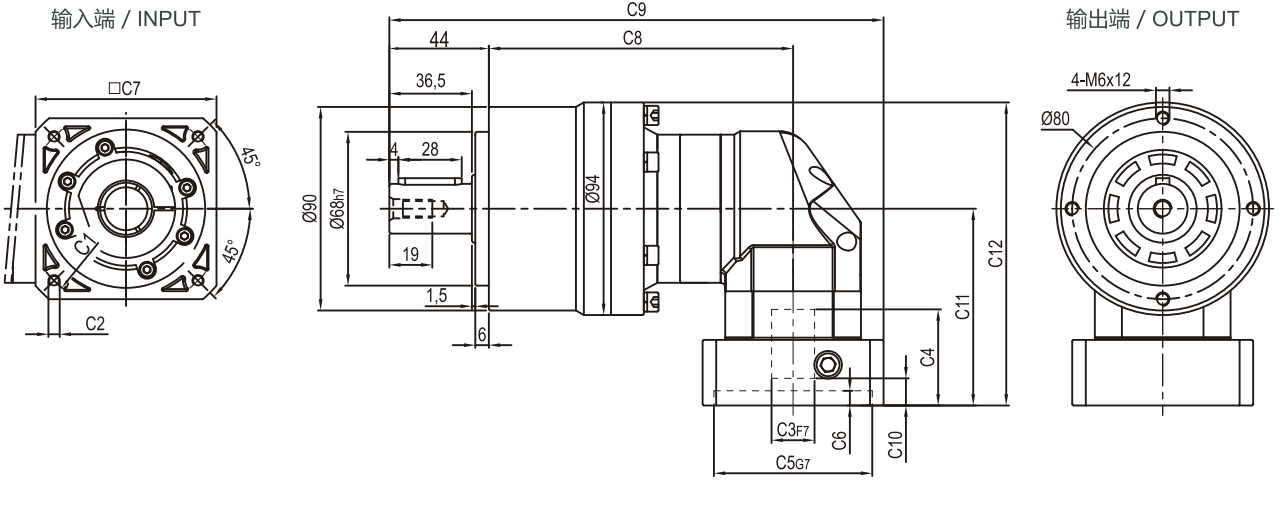
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

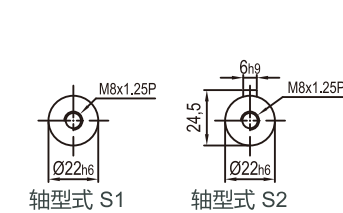
FER-090D(M1)-L1



FER-090D(M1)-L2



输出轴径/Output Diameter



轴型式 S1 轴型式 S2

尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FER-090D-L1	Ø90	4-M5x12,4-M6x14	Ø19	45	Ø70	6.5	80	120	209	7	96	143
	Ø100	4-M6x14	Ø16	45	Ø80	6.5	86	120	209	6	96	143
FER-090M1-L1	Ø115	4-M8x20	Ø19,Ø22	56.5	Ø95	8	100	120	214	16.5	117.5	164.5
	Ø145	4-M8x20	Ø19,Ø22,Ø24	59	Ø110	11	130	120	229	19	120	167
FER-090D-L2	Ø66.7	4-M4x10	Ø8	33	Ø38.1	5	60	134.5	208.5	5.5	77.5	124.5
	Ø70	4-M4x10,4-M5x12	Ø11,Ø14	33	Ø50	5	60	134.5	208.5	5.5	77.5	124.5
FER-090M1-L2	Ø90	4-M5x12,4-M6x14	Ø19	42.5	Ø70	6.5	80	134.5	218.5	12	87	134
	Ø100	4-M6x14	Ø16	42.5	Ø80	6.5	86	134.5	221.5	11	87	134

* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。

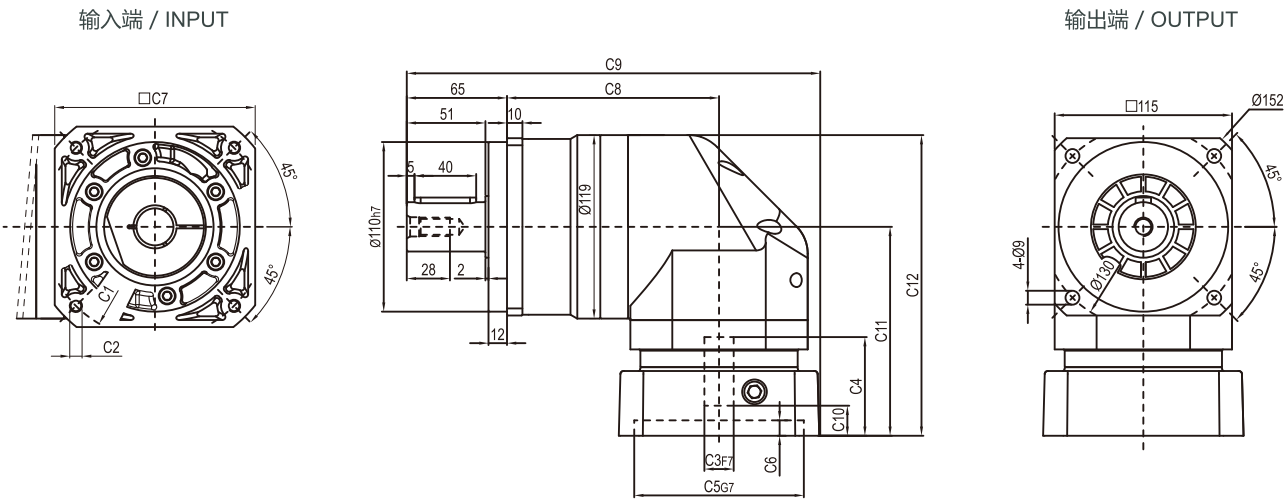
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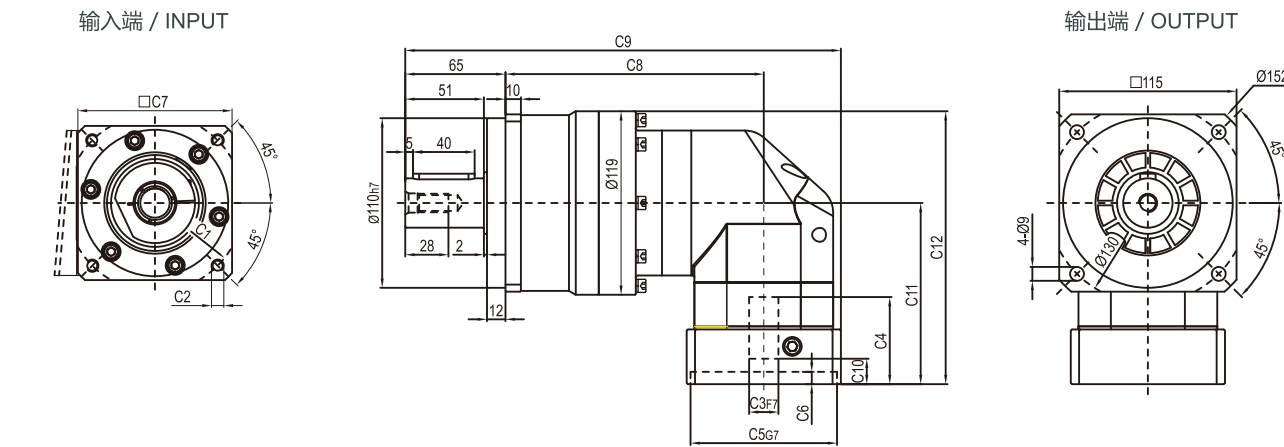
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

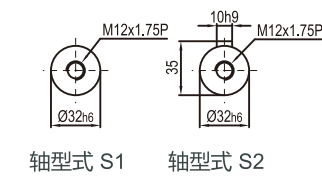
FBR-115D(M1)-L1



FBR-115D(M1)-L2



输出轴径/Output Diameter

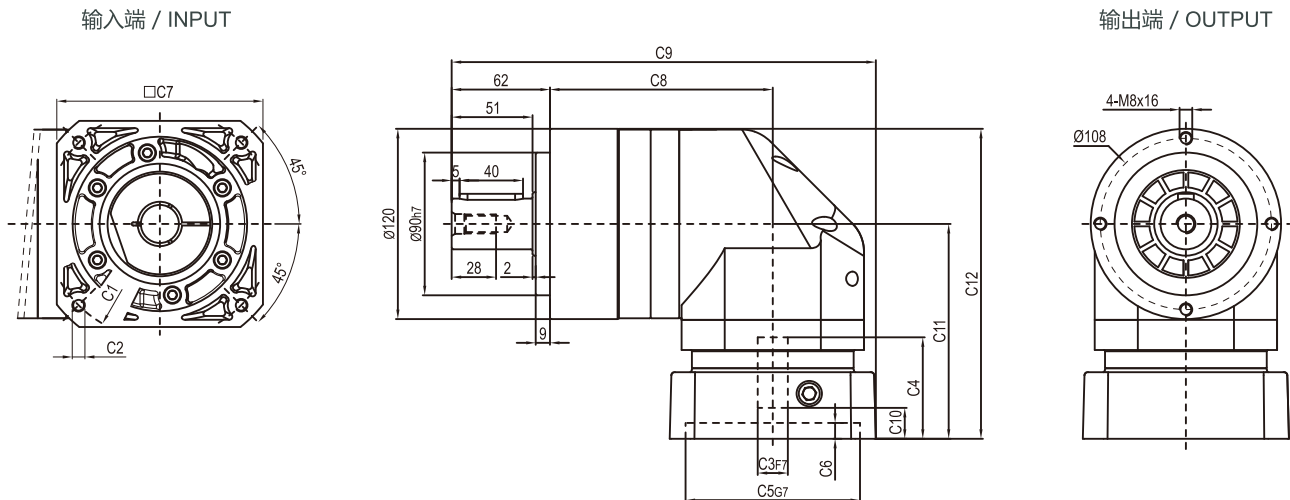


尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FBR-115D-L1	Ø145	4-M8x20	Ø19,Ø22,Ø24	64	Ø110	10	130	137.5	267.5	19.5	135.5	195
FBR-115M1-L1	Ø200	4-M12x28	Ø35	81	Ø114.3	10	180	137.5	292.5	28	152.5	212
FBR-115D-L2	Ø90	4-M5x12, 4-M6x14	Ø19	45	Ø70	6.5	80	167.5	277.5	7	96	155.5
	Ø100	4-M6x14	Ø16	45	Ø80	6.5	86	167.5	277.5	6	96	155.5
FBR-115M1-L2	Ø115	4-M8x20	Ø19,Ø22	56.5	Ø95	8	100	167.5	282.5	16.5	117.5	177
	Ø145	4-M8x20	Ø19,Ø22,Ø24	59	Ø110	11	130	167.5	297.5	19	120	179.5

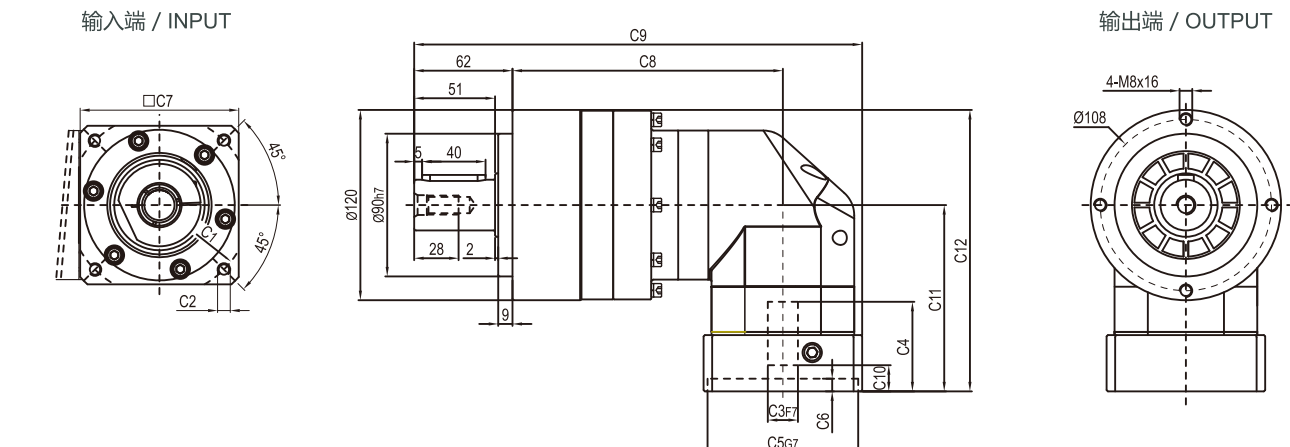
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.
* D:常规孔,M1:极限孔
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

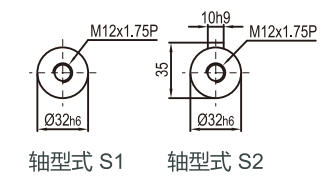
FER-120D(M1)-L1



FER-120D(M1)-L2



输出轴径/Output Diameter

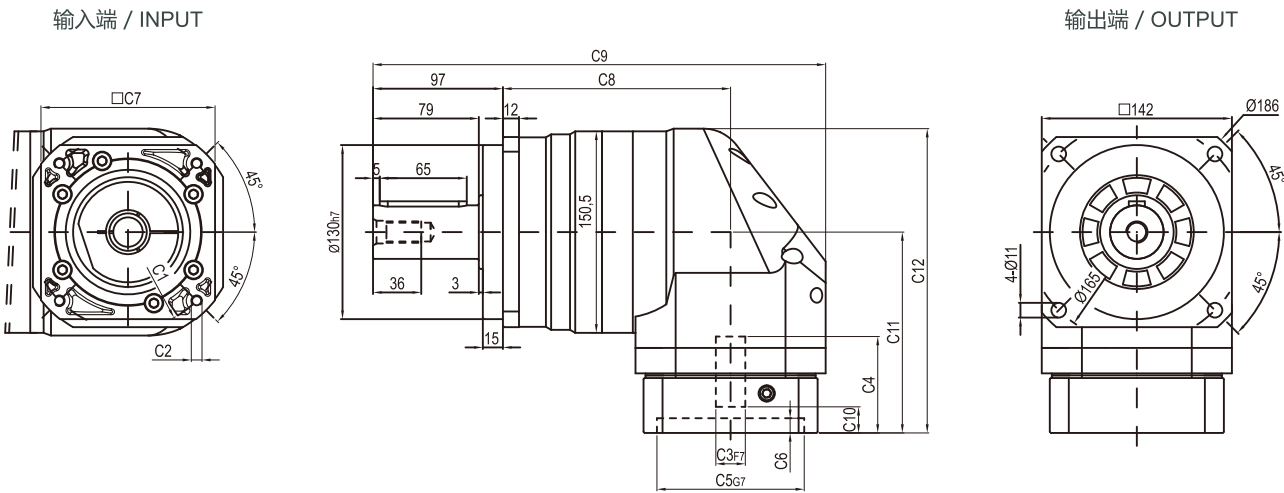


尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FER-120D-L1	Ø145	4-M8x20	Ø19,Ø22,Ø24	64	Ø110	10	130	140.5	267.5	19.5	135.5	195.5
FER-120M1-L1	Ø200	4-M12x28	Ø35	81	Ø114.3	10	180	140.5	292.5	28	152.5	212.5
FER-120D-L2	Ø90	4-M5x12, 4-M6x14	Ø19	45	Ø70	6.5	80	170.5	277.5	7	96	156
	Ø100	4-M6x14	Ø16	45	Ø80	6.5	86	170.5	277.5	6	96	156
FER-120M1-L2	Ø115	4-M8x20	Ø19,Ø22	56.5	Ø95	8	100	170.5	282.5	16.5	117.5	177.5
	Ø145	4-M8x20	Ø19,Ø22,Ø24	59	Ø110	11	130	170.5	297.5	19	120	180

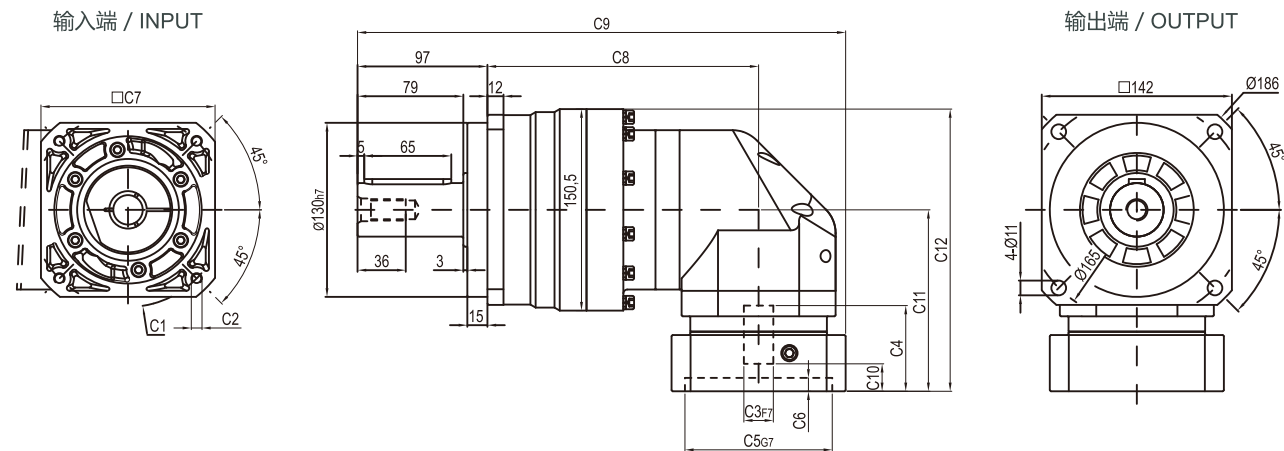
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* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

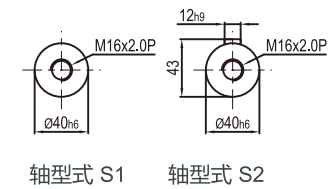
FBR-142D(M1)-L1



FBR-142D(M1)-L2



输出轴径/Output Diameter

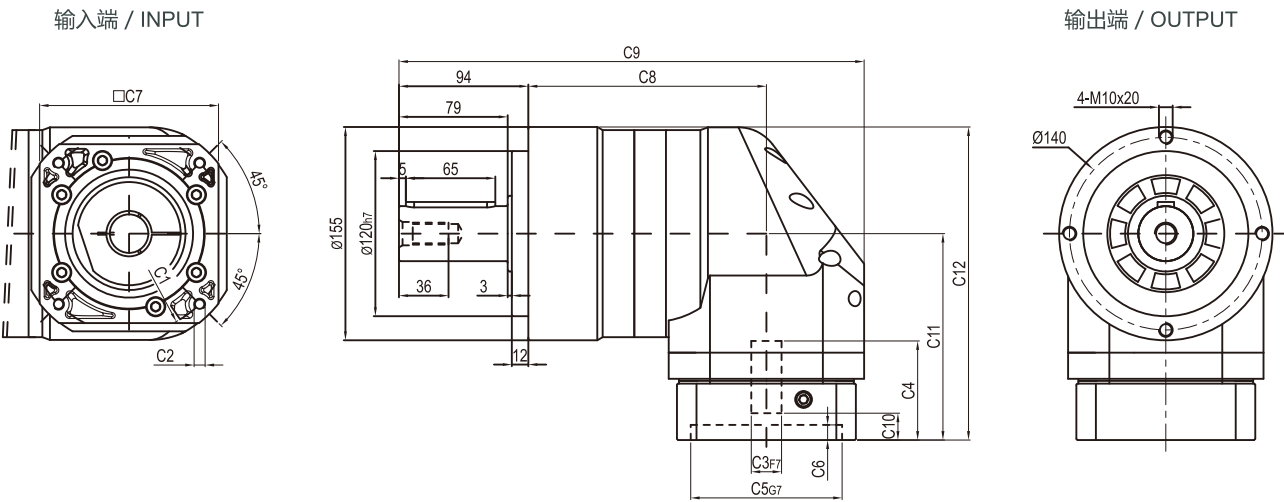


尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FBR-142D-L1	Ø145	4-M8x20	Ø22,Ø24	72	Ø110	11	130	170	338	19.5	150	227.25
	Ø200	4-M12x28	Ø35	82	Ø114.3	8	180	170	357	25	160	237.25
FBR-142D-L2	Ø145	4-M8x20	Ø19,Ø22,Ø24	64	Ø110	10	130	202.5	364.5	19.5	135.5	210.75
FBR-142M1-L2	Ø200	4-M12x28	Ø35	81	Ø114.3	10	180	202.5	389.5	28	152.5	227.75

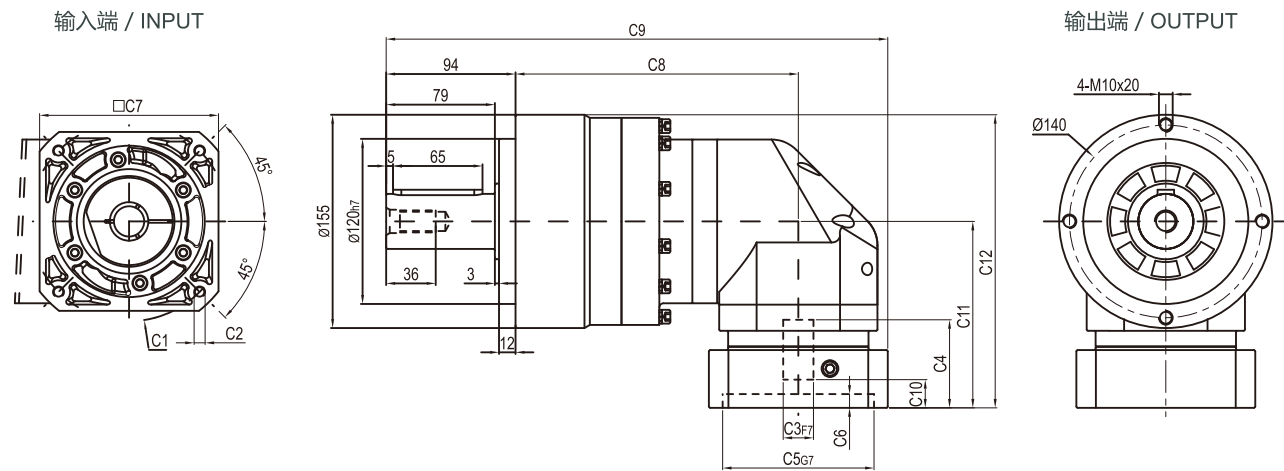
* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
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* D:常规孔,M1:极限孔
* D: Conventional Hole, M1: Limit Hole

外形尺寸图表 / OUTLINE DIMENSION SHEET

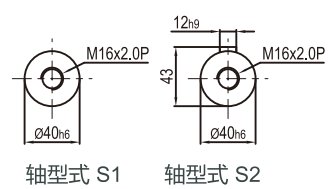
FER-155D(M1)-L1



FER-155D(M1)-L2



输出轴径/Output Diameter



尺寸	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12
FER-155D-L1	Ø145	4-M8x20	Ø22,Ø24	72	Ø110	11	130	173	338	19.5	150	227.5
	Ø200	4-M12x28	Ø35	82	Ø114.3	8	180	173	357	25	160	237.5
FER-155D-L2	Ø145	4-M8x20	Ø19,Ø22,Ø24	64	Ø110	10	130	205.5	364.5	19.5	135.5	213
FER-155M1-L2	Ø200	4-M12x28	Ø35	81	Ø114.3	10	180	205.5	389.5	28	152.5	230

* C1~C7是公制标准马达连接板之尺寸,可根据客户要求单独定做。
* C1~C7are motor(metric standard) specific dimensions, which could be customised.
* D:常规孔,M1:极限孔
* D: Conventional Hole, M1: Limit Hole