



Minimum Space Maximum Performance

MiniMax series



Price Performer

Not only Radial but also high tilting moment & axial load

Perfect for linear servo drive

Universal Installation

Protection IP65

Enhance & Robust main bearing

Extremely Silent

High Dynamics

Simple To Use

Reliability

MiniMax™ 规格参数一览表 MiniMax™ series Ratings at a glance

规格 Specifications	符号 Symbol	单位 Unit	MM 速比 ⁷⁾ ratio ⁷⁾		型号 Model							
					MM050		MM065		MM085		MM120	
			1 级	2 级	1级	2级	1级	2级	1级	2级	1级	2级
额定输出扭矩 Rated output torque (最大输出扭矩 当ED>60%或负载运行时间>20分钟 / Maximum output torque when ED>60%, or load cycle duration > 20 minutes)	T _{2n}	Nm	4	16, 20, 28, 40	4	6.4	15	22	45	55	90	110
			5	25, 35, 50	4.2	7.1	16	24	45	59	110	120
			7	49, 70	4.5	6	17	28	43	64	90	140
			10	100	3.5	4	14	16	35	40	80	90
最大加/减速扭矩 ¹⁾ Maximum Acceleration /Deceleration. torque¹⁾	T _{2B}	Nm	4	16, 20, 28, 40	8	10	28	44	88	110	180	220
			5	25, 35, 50	8.4	12	32	48	90	118	210	240
			7	49, 70	8	10	28	50	86	120	160	280
			10	100	7	8	25	29	70	80	160	180
峰值输出扭矩 (紧急刹车) ²⁾ Peak torque (Emergency stop)²⁾	T _{2not}	Nm	4	16, 20, 28, 40	16	17	42	66	129	165	240	330
			5	25, 35, 50	16	17	48	72	135	176	300	360
			7	49, 70	14	15	45	75	129	180	270	420
			10	100	12	12	36	42	102	120	180	270
额定(连续的)输入转速 Rated (Cont.) Input Speed	n _{1n}	rpm	所有速比 All ratio		3000		3000		3000		3000	
最高输入转速 Maximum input speed	n _{1max}	rpm			6000		6000		5000		5000	
标准级 旋转空回 Standard torsional play MM	B	arcmin	1 级 stage	2 级 stage	16	20	12	15	10	14	10	14
精密级 旋转空回 Reduced torsional play MM⁺					9	12	7	9	6	8	6	8
特选级 旋转空回 Selected torsional play MM⁺⁺					6	8	5	6	4	6	4	6
高精级 旋转空回 Advanced torsional play MM²					3	4	2	3	2	3	2	3
抗扭转刚性 Torsional stiffness	C _t	Nm/arcmin	4	16, 20, 28, 40	0.5		2.4		7.1		17.2	
			5	25, 35, 50	0.5		2.4		7.1		17.2	
			7	49, 70	0.4		2.2		6		14	
			10	100	0.4		2		5		10	
输入端转动惯量 ³⁾ Input side mass moment of inertia³⁾	J _i	kg.cm ²	4	16	0.06	0.06	0.32	0.06	1.44	0.32	2.97	1.44
			5	20, 25	0.06	0.06	0.31	0.06	1.36	0.31	2.68	1.36
			7	28, 35, 49	0.06	0.06	0.3	0.06	1.30	0.3	2.48	1.30
			10	40, 50, 70, 100	0.06	0.06	0.3	0.06	1.27	0.3	2.39	1.27
抗倾覆强度 Tilting rigidity	M _R	Nm/arcmin	所有速比 All ratio		7		15		40		100	

规格 Specifications	符号 Symbol	单位 Unit	平均输出转速(rpm) Average output speed	型号 Model			
				MM050	MM065	MM085	MM120
倾覆力矩 ⁴⁾ Tilting moment load⁴⁾	M _T	Nm	500	7 (5)	15 (11)	43 (31)	107 (75)
			400	9 (6)	20 (14)	56 (39)	137 (96)
			300	12 (8)	26 (18)	73 (51)	179 (126)
			200	16 (11)	36 (25)	101 (71)	247 (173)
			100	21 (18)	56 (40)	159 (111)	385 (270)
轴向负载 ⁵⁾ Axial load⁵⁾	F _A	N	500	170 (69)	276 (112)	602 (255)	1044 (443)
			400	220 (89)	354 (144)	777 (329)	1339 (568)
			300	290 (118)	464 (189)	1022 (433)	1753 (744)
			200	401 (164)	638 (260)	1410 (598)	2409 (1022)
			100	629 (257)	996 (407)	2208 (937)	3757 (1594)
径向负载 ⁶⁾ Radial load⁶⁾	F _R	N	500	1126 (140)	1766 (225)	3438 (540)	5809 (920)
			400	1213 (170)	1903 (270)	3703 (645)	6258 (1100)
			300	1335 (210)	2094 (335)	4076 (795)	6888 (1350)
			200	1528 (275)	2397 (435)	4666 (1030)	7884 (1750)
			100	1926 (410)	3020 (645)	5879 (1500)	9934 (2550)
径向负载距离 Radial load distance	r _d	mm		17.5	19.5	25	30.5
重量(连电机法兰) Weight (with motor flange)	m	kg	1级 stage 2级 stage	0.7 0.9	1.2 1.4	2.8 3.2	6.9 7.8
运作噪音 Operating noise @n_{1n}=3000rpm	O _n	dB		< 68	< 66	< 68	< 70
额定负载时工作效率 Efficiency with rated load	η	%		> 92	> 94	> 93	> 93
使用寿命 Lifetime	L _h	hr		L ₁₀ > 10000 (L ₅₀ > 50000)			
润滑设计 Lubrication				永久性润滑, 封闭式系统 Lifetime lubrication, Closed system			
表面防护 Surface protection				阳极化处理, 输入输出端除外 Anodized aluminum & galvanically treated, except input & output			
安装定位 Installation position				任意方向, 自由定位 Any, include variable orientation			
使用温度 Operating temperature				-10 °C ~ +90 °C (可特选 -30 °C ~ +90 °C On request)			
输出转向 Output direction of rotation				与输入端一致 The same as input			
防护规格 Degree of protection				IP65			

CP

XP

MM

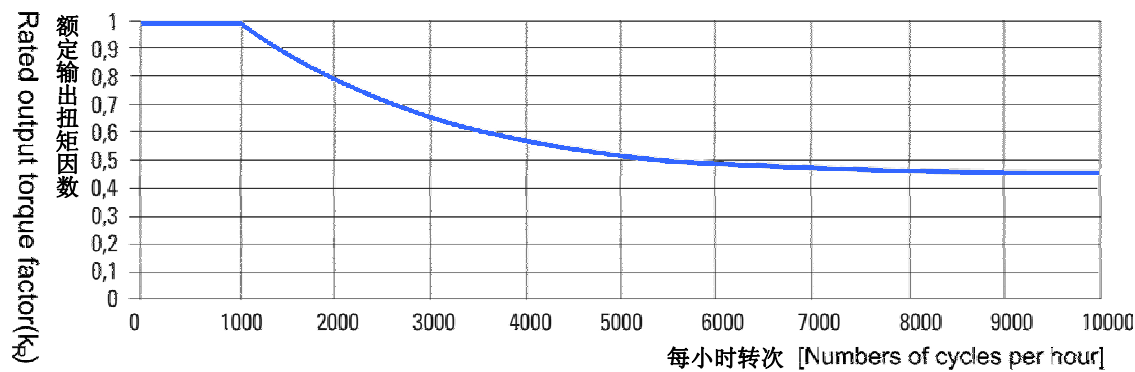
SS

XQ

- 在最高每小时1000运转次数时, 加/减速度占运行周期比例小于5%, 同时发生在0.3秒以内。At a maximum 1000 cycle per hour, percentage of acc. & dec. time in one cycle less than 5%, and duration of the impulse less than 0.3 sec.
- 在MiniMax 系列的使用寿命中发生紧急停止次数不可多于1000次。Maximum 1000 times during MiniMax series lifetime.
- 随应用电机输入轴径而异。Depends on applied motor shaft diameter.
- 不带径向负载时的最高值, () 显示当轴向负载为最大值时的参考值。Maximum value without axial load. () shows reference value when axial load applied maximum.
- 从输出轴心计算起的最高值, 不带倾覆力矩计算下, () 显示当倾覆力矩为最大值时的参考值。Maximum value at the center of output rotation, without tilting moment load. () shows reference value when tilting moment load applied maximum.
- 以径向负载距离(轴承中间距)为基准的最高值, 不带轴向负载计算下。() 显示当轴向负载为最大值时的参考值。Maximum value at the middle of output supporting bearing distance. () shows maximum combinable axial load. If radial load applied out of output supporting range, then 'tilting moment load' divide by 'actual radial load distance' may use for conversion. Refer each series dimensions.
- 要了解每个型号的可用速比, 请参阅第28页的'MiniMax™'订购须知。[Please refer page 28 'MiniMax™' ordering information' for each model available ratio.]

Minimum Space Maximum Performance •-----• be precise with 

MiniMax™ 额定输出扭矩因数图表 MiniMax™ series Rated output torque factor diagram



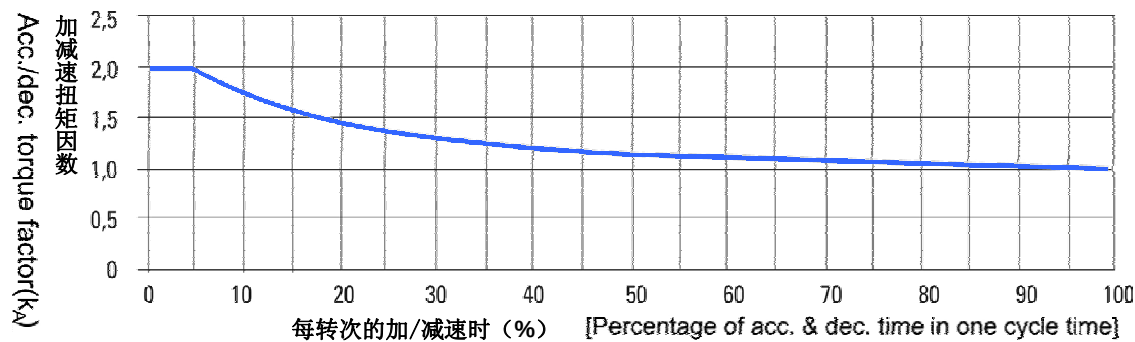
当每小时运转次数超过 1000 次时，请参考以上 MM 系列的额定输出扭矩因数图表，以计算设计输出扭矩。

Please refer MiniMax series rated output torque diagram for application that numbers of cycles per hour are over 1000 times.

举例：当每小时运转次数=1800次，根据图表所示，因数=0.8；因此，齿轮箱为要保持正常使用寿命的前提下所依据的设计输出扭矩=额定输出扭矩x0.8。

Example: If numbers of cycles per hour are 1800 times, then only approximately 0.8 times of each MiniMax model rated output torque should be applied to satisfy lifetime.

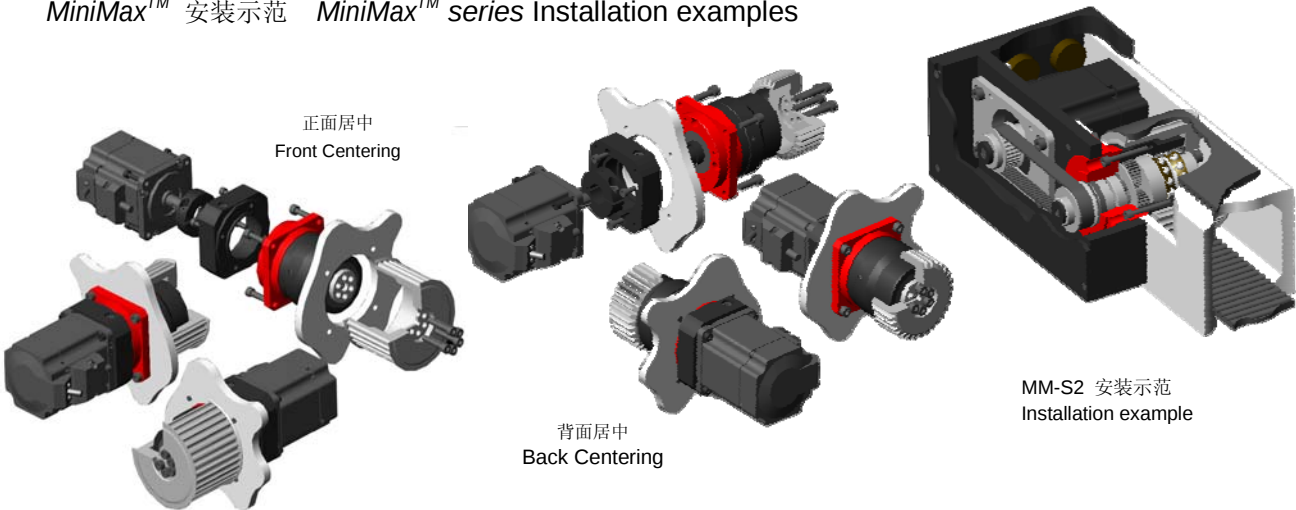
MiniMax™ 系列 加/减速扭矩因数图表 MiniMax™ series acc./dec. torque factor diagram



以上图表显示个别MM系列的最高加/减速扭矩的计算因数。条件：每小时低于1000 运转次数，每转次加/减速占时比例不大于总耗时的5%，并且不超过0.3秒。It shows maximum acceleration & deceleration torque as a numbers of times of each MiniMax model rated output torque, under the condition of max. 1000 cycle per hour, percentage of acceleration & deceleration time in one cycle less than 5%, and duration of the impulse less than 0.3 seconds. 举例：当每小时转次=1800 次，加速和减速占时各为0.1 秒，(0.1<0.3 秒，3600/1800=2 秒，因此，加/减速在每转次的占时比例 (0.1+0.1秒)/2秒=10%，因此，按照图表所得加/减速扭矩因数= 1.75；此时考虑综合因数，结合到1800转时的额定输出扭矩因数1.4 (0.8 x 1.75=1.4)，因此所得最高加/减速扭矩= 额定输出扭矩x1.4。假设加/减速耗时大于0.3 秒，那么加/减速扭矩必须≤额定输出扭矩。

Example: If numbers of cycles per hour are 1800times, acceleration time 0.1 seconds, deceleration time 0.1 seconds (0.1<0.3, also 3600/1800=2sec, therefore, percentage of acceleration & deceleration time in one cycle time is (0.1+0.1)/2=10%), then max. acceleration/deceleration torque is 1.4 times (0.8x1.75=1.4) of each MiniMax model rated output torque. If acceleration & deceleration times is over 0.3 sec., then acceleration/deceleration torque should not exceed its rated output torque.

MiniMax™ 安装示范 MiniMax™ series Installation examples



CP

XP

MM

SS

XQ

Minimum Space Maximum Performance •-----• be precise with 

MiniMax™ 订购须知 MiniMax™ Ordering Information

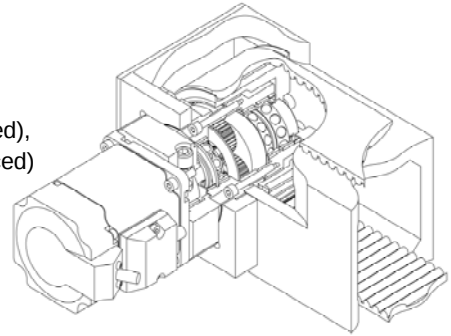
MM	000	-	000	-	C2/S2	-	XXXXXX
①	②		③		④		⑤

① 系列 **Model name** MM : 标准级(Standard), MM⁺ : 精密级(Reduced),
MM⁺⁺ : 特选级(Selected), MM² : 高精级(Advanced)

② 型号 **Model Number:** 外部尺寸(mm) External size (mm)

③ 减速比 **Reduction ratio:**

品名 Model name	1级 1 stage	2级 2 stage
MM050	4, 5, 7, 10	16, 20, 25, 28, 35, 40, (49), 50, 70, 100
MM065	4, 5, 7, 10	16, 20, 25, 28, 35, 40, (49), 50, 70, 100
MM085	4, 5, 7, 10	16, 20, 25, 28, 35, 40, (49), 50, 70, 100
MM120	4, 5, 7, 10	16, 20, 25, 28, 35, 40, (49), 50, 70, 100

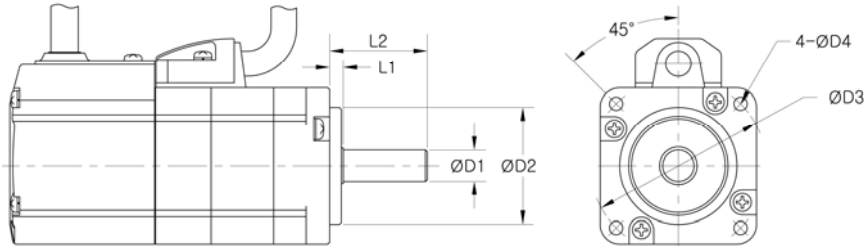


④ 输入方式 **Input style** : C2 - 夹套输入型 Clamp input, S2 - 轴输入型 Input shaft

⑤ MiniMax™ 电机代码 MiniMax™ motor code: 请看下表 See below table

⚙ MM: S2输入形式, 此项留空; MM: C2 输入形式, 不带法兰请注明'NF'.
Blank for MM S2 type input, 'NF' for C2 type input without motor flange.

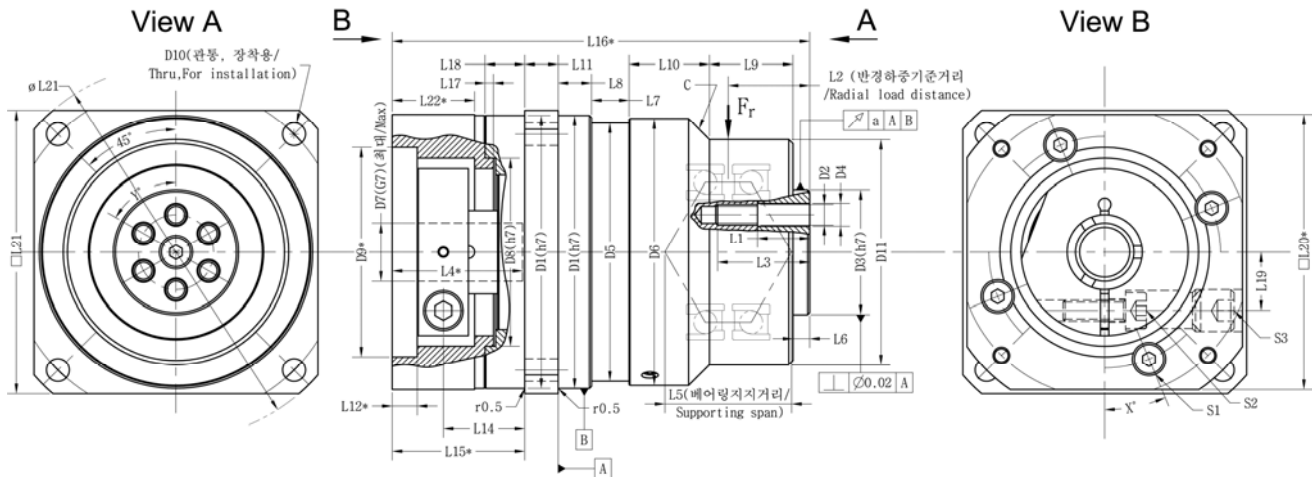
MiniMax™ 系列应用的电机代码 MiniMax™ series Applied Motor Code



MM 系列 Model		尺寸Dimensions	L1	L2		D1	D2	D3	D4
1级 stage	2级 stage	电机代码 Motor Code	最大 (Max)	最小 Min	最大 Max				
MM050	MM050	A040PP	4.0	20	28	8	30	45	3.5(M3)
MM050	MM050	A040PM	4.0	20	28	8	30	46	4.5(M4)
{MM050}	{MM050}	A040PF	7.0	22	28	8	30	46	4.5(M4)
MM050, MM065	{MM050}, MM065	A060PQ	5.0	20	28	8	50	70	4.5(M4)
MM050, MM065	{MM050}, MM065	A060PU	5.0	20	28	8	50	70	5.5(M5)
MM050, MM065	{MM050}, MM065	A060P2	5.0	20	30	11	50	70	4.5(M4)
{MM050}, MM065	{MM050}, MM065	A060PP	5.0	20	30	14	50	70	4.5(M4)
{MM050}, MM065	{MM050}, MM065	A060PM	5.0	20	30	14	50	70	5.5(M5)
{MM065}, MM085	{MM065}, MM085	A080P2	9.0	27	30	11	70	90	5.5(M5)
{MM065}, MM085	{MM065}, MM085	A080PQ	9.0	27	30	14	70	90	5.5(M5)
{MM065}, MM085	{MM065}, MM085	A080PU	9.0	27	30	14	70	90	6.6(M6)
{MM065}, MM085	{MM065}, MM085	A080PY	9.0	30	40	16	70	90	6.6(M6)
{MM065}, MM085	{MM065}, MM085	A080PP	9.0	30	40	19	70	90	5.5(M5)
{MM065}, MM085	{MM065}, MM085	A080PM	9.0	30	40	19	70	90	6.6(M6)
{MM085}, MM120	{MM085}, MM120	A090PP	9.0	40	55	19	80	100	6.6(M6)
{MM085}, MM120	{MM085}, MM120	A100PG	9.0	30	40	16	95	115	9(M8)
{MM085}, MM120	{MM085}, MM120	A100PP	9.0	40	55	19	95	115	9(M8)
MM120	MM120	A100PM	9.0	40	58	24	95	115	9(M8)
MM120	MM120	A120PY	9.0	40	58	16	110	145	9(M8)
MM120	MM120	A120PS	9.0	40	58	19	110	145	9(M8)
MM120	MM120	A120PP	9.0	40	58	22	110	145	9(M8)
{MM120}	{MM120}	A130PM	9.0	40	58	24	110	145	9(M8)
{MM120}	{MM120}	A130PP	9.0	40	58	22	110	145	9(M8)
{MM120}	{MM120}	A130PY	9.0	40	58	19	110	145	9(M8)

 上列电机尺寸仅考虑安装所需的最小尺寸, 并不代表实际所需对电机所需的扭矩范围。 Listed motor and MiniMax combinations are only considering mechanical dimensions with smallest MM, not actual available torque range.

 在不同的应用下, 电机与法兰尺寸可能需要安装前灵活考虑, 比如: 附加适配座等辅助件。 {} 表示可选电机法兰尺寸。 Installable motor size may be varied by installing conditions, such as additional adaptor. {} shows optional motor flange combinations.



*由应用电机而定。 * Depends on applied motor.

MiniMax™ C2型 输入方式尺寸表 MiniMax™ C2 input style Dimensions (mm)

尺寸 Size 符号 Symbol	MM050		MM065		MM085		MM120	
	1级 Stage	2级 Stage	1级 Stage	2级 Stage	1级 Stage	2级 Stage	1级 Stage	2级 Stage
a	0.03		0.03		0.035		0.04	
D1 (h7)	52		65.5		86		120	
D2	6XM3 (B.C.D12)		6XM5 (B.C.D18)		8XM6 (B.C.D30)		8XM8 (B.C.D37)	
D3 (h7)	20		30		45		58	
D4	6X3.5 (B.C.D12)		6X5.5 (B.C.D18)		8X6.6 (B.C.D30)		8X9 (B.C.D37)	
D5	48		62		81		114	
D6	50		64		84		117	
D7 (G7) (最大值 / Max)	11 [14]	11 [14]	14 [19]	11 [14]	11 [14]	11 [14]	14 [19]	11 [14]
D8 (h7) (H7)	39	39	45	37(H7)	39	39	45	37(H7)
D9 *	30.2 [50.2]	30.2 [50.2]	50.2 [70.2]	30.2 [50.2]	30.2 [50.2]	30.2 [50.2]	50.2 [70.2]	30.2 [50.2]
D10	4X4.5 (B.C.D64)		4X5.5 (B.C.D80)		4X6.6 (B.C.D100)		4X9 (B.C.D145)	
D11	40		54		74		100	
L1	12		12.5		15.5		16.5	
L2	17.5		19.5		25		30.5	
L3	17		22		27		32	
L4 *	28 [30]	28 [30]	30 [40]	28 [30]	28 [30]	28 [30]	30 [40]	28 [30]
L5	19.96		27.6		38.8		57.6	
L6	4		4		4		4	
L7	6	22	9	9	6	22	9	9
L8	7		8		10		11.5	
L9	12		20		31		37	
L10	17.5		19.3		21		28.5	
L11	6		8		10		12	
L12 *	4 [5]	4 [5]	5 [12]	4 [5]	4 [5]	4 [5]	5 [12]	4 [5]
L14	17	17	19.5 [20]	31.75	17	17	19.5 [20]	31.75
L15 *	27.5 [28.5]	27.5 [28.5]	31.8 [42.3]	42.3 [43.3]	27.5 [28.5]	27.5 [28.5]	31.8 [42.3]	42.3 [43.3]
L16 *	80 [81]	96 [97]	100 [110.5]	110.5 [111.5]	80 [81]	96 [97]	100 [110.5]	110.5 [111.5]
L17	2.5 [2]	2.5 [2]	2 [2]	(-)4.5 [(-)5]	2.5 [2]	2.5 [2]	2 [2]	(-)4.5 [(-)5]
L18	7		7		9.5		9.5	
L19	11 [12]	11 [12]	14 [17]	11 [12]	11 [12]	11 [12]	14 [17]	11 [12]
L20 *	50 [60]	50 [60]	66 [80]	50 [60]	50 [60]	50 [60]	66 [80]	50 [60]
L21 (øL21)	54 (ø73)		68 (ø 90)		90 (ø 114)		124 (ø162)	
L22 *	20.5 [18.5]	20.5 [18.5]	19.8 [28.7]	27.5 [18.5]	20.5 [18.5]	20.5 [18.5]	19.8 [28.7]	27.5 [18.5]
S1 (BCD)	4[8]XM3(45)	4[8]XM3(45)	4XM4(55.5)	4[8]XM3(45)	4[8]XM3(45)	4[8]XM3(45)	4XM4(55.5)	4[8]XM3(45)
S2	M4	M4	M5	M4	M4	M4	M5	M4
S3 (Set screw)	M6 [M8]	M6 [M8]	M10	M6 [M8]	M6 [M8]	M6 [M8]	M10	M6 [M8]
X °	22.5°		22.5°		22.5°		22.5°	
Y °	30°		30°		45°		45°	
C	5		5		5		8.5	

[] 是可供选择的电机法兰。 [] shows optional motor flange.

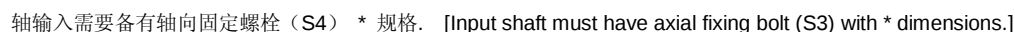
CP

XP

MM

SS

XQ



符号 Symbol	尺寸 Size	MM050		MM065		MM085		MM120	
		1级 Stage	2级 Stage	1级 Stage	2级 Stage	1级 Stage	2级 Stage	1级 Stage	2级 Stage
a		0.03		0.03		0.035		0.04	
b		0.03		0.03		0.03		0.035	
D1 (h7)		52		65.5		86		120	
D2		6XM3 (B.C.D12)		6XM5 (B.C.D18)		8XM6 (B.C.D30)		8XM8 (B.C.D37)	
D3 (h7)		20		30		45		58	
D4		6X3.5 (B.C.D12)		6X5.5 (B.C.D18)		8X6.6 (B.C.D30)		8X9 (B.C.D37)	
D5		48		62		81		114	
D6		50		64		84		117	
D7 (h7)		8	8	10	8	8	8	10	8
D8 (h7)		32	32	45	32	32	32	45	32
D9		15	15	20	15	15	15	20	15
D10		4X4.5 (B.C.D64)		4X5.5 (B.C.D80)		4X6.6 (B.C.D100)		4X9 (B.C.D145)	
L1		12		12.5		15.5		16.5	
L2		17.5		19.5		25		30.5	
L3		17		22		27		32	
L4		16	16	20	16	16	16	20	16
L5		19.96		27.6		38.8		57.6	
L6		4		4		4		4	
L7		6	22	9	9	6	22	9	9
L8		7		8		10		11.5	
L9		12		20		31		37	
L10		17.5		19.3		21		28.5	
L11		6		8		10		12	
L12		3	3	3.5	3	3	3	3.5	3
L14		10	10	13	10	10	10	13	10
L15		17	17	21	17	17	17	21	17
L16		80	96	100.8	110.5	80	96	100.8	110.5
L17		3.5	3.5	2	8	3.5	3.5	2	8
L18		7		9.5		10		12	
L19 (øL19)		54 (ø73)		68(ø 90)		90(ø 114)		124 (ø162)	
L20		3	3	4	3	3	3	4	3
L21		9.2	9.2	11.5	9.2	9.2	9.2	11.5	9.2
L22		16.4)	16.4	20.25	16.4	16.4)	16.4	20.25	16.4
S1 (BCD)		4XM4-7(41)	4XM4-7(41)	4XM4-7(55.5)	4XM4-7(41)	4XM4-7(41)	4XM4-7(41)	4XM4-7(55.5)	4XM4-7(41)
S2 (Depth)		M2.5 (5)	M2.5 (5)	M3 (6)	M2.5 (5)	M2.5 (5)	M2.5 (5)	M3 (6)	M2.5 (5)
S3*(Depth)		M2.5 (5)	M2.5 (5)	M3 (6)	M2.5 (5)	M2.5 (5)	M2.5 (5)	M3 (6)	M2.5 (5)
U * (min.)		12	12	14	12	12	12	14	12
V * (min.)		16.5	16.5	20.5	16.5	16.5	16.5	20.5	16.5
X °		45°		45°		22.5°		22.5°	
Y °		30°		30°		45°		45°	
C		5		5		5		8.5	

综合载荷 Combined (@n _i =2000rpm)	MM050	MM065	MM085	MM120
径向负载(2级) [Radial Load (2 stage)]	165N (165N)	250N (165N)	730N (250N)	910N (730N)
轴向负载(2级) [Axial Load (2 stage)]	165N (165N)	250N (165N)	730N (250N)	910N (730N)

MiniMax™ 安装指导 MiniMax™ Series Assembly Instructions

注意 General: 遵循以下安装指导可以快速有效的把电机与齿轮箱配合得坚实，同时摆脱安装后的间隙。 A torsionally rigid and backlash free connection between motor and *MiniMax™* can quickly and easily be achieved by using the following assembly instructions.

Note 注: 请仅应用带安装法兰并表面跳动精度符合 **DIN 42955 N** 或者 **DIN 42955 R** 标准的电机。 Please only use motors with a flange face and run out accuracy class DIN 42955 N or DIN 42955 R

为避免转动系安装的中心位移问题，MM 输入端应用了‘开放式同心自动校正’设计以规避了传统中心位移问题。首先，把齿轮箱倒立置放在桌面上，电机输出轴从上往下植入齿轮箱输入联轴节内⑥，拧紧夹套⑤上的拉紧螺丝⑦，最后把将电机与齿轮箱固定⑧。 To avoid misalignment inside the power train, the standard *MiniMax™* utilizes our new “Open Centering” design making the laborious task of centering with the flange and pilot obsolete. Place *MiniMax™* upside down, simply insert the motor shaft into the *MiniMax™* hollow shaft ⑥, tightens the clamping bolt ⑦ on the compression coupling ⑤, and attaches the *MiniMax™* to the motor using the mounting holes.

MM系列 齿轮箱不需要周期维护，并且属于永久性润滑型。

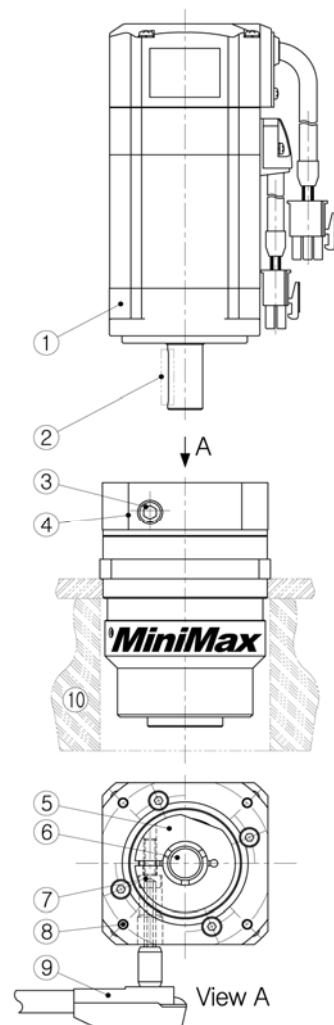
The *MiniMax™* series are maintenance free and have lifetime lubrication.

电机安装顺序 Motor Mounting Instructions:

1. 如电机输出轴上自带平键 ②，请取出弃用；在实际使用转速高于3000rpm的情况下，我方建议把电机轴径上的键槽用同等材质堵上，比如改装该平键（填平后不能突出弧面），以避免偏心震动。 If the motor shaft has a key ②, remove it. For applications with motor speeds over 3000 rpm, we recommend using a half key to completely fill the key way. The key may not stand out above the height of the motor shaft.
2. 把电机法兰 ④ 里（堵孔用）止动螺丝 ③ 取出。 Remove set screw ③ on the adapter flange ④, put it aside, reserving it for later use.
3. 旋转夹套⑤，直到拉紧螺丝 ⑦ 的头部对准扳手让位孔③ Turn the compression coupling ⑤ until the head of the clamping bolt ⑦ is visible through the access hole ③.
4. 检查电机法兰与安装法兰 ④ 以确保表面干净，同时也务必检查电机输出轴 ② 和齿轮箱夹套输入端口 ⑥，确定表面没有毛刺或铁屑等障碍物。 Examine all contact surfaces on the motor flange and the adapter flange ④ to ensure they are clean and grease free. Also inspect the motor shaft and the hub to ensure they are free from damage (burrs, scoring, etc.).
5. 把齿轮箱以输入端口向上的方式平放在桌面上，确定电机输出轴键槽部分180° 背对夹套的切缝。 Place *MiniMax™* upside down (input side upward) and secure it from falling. (Recommends using suitable assembly assistance structure ⑩) Ensure that the key way in the motor shaft (if there is) is positioned opposite the slit (180°) in the compression coupling when assembled.
6. 如果输入端必须使用变径轴套的话，确定变径轴套的切缝与减速机夹套 ⑤ 的切缝保持在相同方向，呈直线。 If a reduction bushing is used, ensure the slit in the bushing is aligned with the compression coupling ⑤ slit.
7. 把电机输出轴轻轻放入减速机输入端孔 ⑥ 直至电机法兰平面与减速机法兰面相接合。切勿使劲将输出轴压入输入端孔。如果减速机或电机过重，请考虑使用轻型起重机。 Insert the motor shaft into *MiniMax™* hollow shaft ⑥, until the motor flange naturally mates with the adapter flange over its entire surface. Do not strike *MiniMax™* or use excessive force to ensure a good fit.
8. 把夹套螺丝 ⑦ 拉紧（关于夹套螺丝的拉紧扭矩 请参考以上螺丝拉紧扭矩表），务必使用恰当的工具，比如扭矩扳手 ⑨。 Tighten the clamping bolt ⑦ to the prescribed torque (see table tightening torque) using a suitable torque wrench ⑨.
9. 接着以对角顺序的方式用螺丝将电机 ① 与减速机 ⑧ 固定。 Now bolt *MiniMax™* and motor ① together using the mounting holes ⑧ in the adapter flange. The bolts must be diagonally transferred and uniformly tightened.
10. 最后把（堵孔用）止动螺丝 ③（看步骤-2）拧入齿轮箱法兰 ④。 Tightening access hole set screw ③ into adapter flange ④.

Note 注: 违反或忽视以上安装步骤可能会给电机或齿轮箱造成损坏，并且将会违反质保条件。 Failure to follow assembly instructions may lead to *MiniMax™* and/or motor damage and will void any warranty either explicit or implied.

螺丝拉紧扭矩表 ⑦	
Tightening Torque for Clamping bolt ⑦	
螺丝规格 Clamping screw (DIN 912)	拉紧扭矩 Tightening torque
M3	2 Nm
M4	4.5 Nm
M5	9 Nm
M6	16 Nm
M8	39 Nm



CP
XP
MM
SS
XQ

Minimum Space **Maximum Performance** ●-----● be precise with



Notes

CP

XP

MM

SS

XQ