



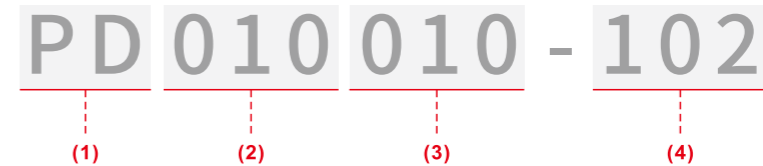
# STANDARD PLANETARY GEARBOXES

Wide range of precision planetary gearboxes, diameter: 3.4, 4, 6, 8, 10, 12, 16, 20, 22, 24, 28, 32, 38 mm, output speed: 5–2000 rpm, reduction ratio: 5–1500, output torque: 1 gf.cm ~ 80 kgf.cm.

## Choose Your Planetary Gearbox



### PRODUCT MODEL DEFINITION



- (1) PD represents plastic gearboxes  
MD represents metal gearboxes
- (2) Gearbox outer diameter
- (3) Motor outer diameter
- (4) Reduction ratio

### PLANETARY GEARBOX MODULE

① Output Shaft  
可选轴型 Optional shaft shape:

- D型轴 D-shape
- 圆形轴 Circular
- 双扁形轴 Double flat
- 六边形轴 Hexagon
- 五边形轴 Pentagon
- 方形轴 Square

② 轴承 Bearing

- 含油轴承 Porous bearing
- 滚动轴承 Rolling bearing

③ 外壳 Housing

- 五金外壳 Metal housing
- 塑料外壳 Plastic housing

④ 行星齿轮 Planetary Gears

可选材质: Optional material

- 塑胶齿轮 Plastic
- 粉末冶金 Powder metallurgy
- 五金加工 Metal processing

可选齿型: Optional gear type

- 斜齿 Helical gears
- 直齿 Spur gears

⑤ 太阳齿轮 Sun Gears

可选材质: Optional material

- 塑胶齿轮 Plastic
- 粉末冶金 Powder metallurgy
- 五金加工 Metal processing

可选齿型: Optional gear type

- 斜齿 Helical gears
- 直齿 Spur gears

⑥ 齿轮箱级数 Gearbox Stages

- 1级 1-stage
- 2级 2-stage
- 3级 3-stage
- 4级 4-stage

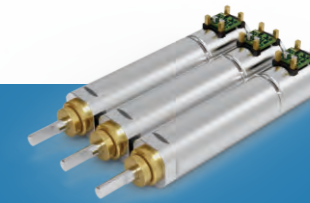
⑦ 输出轴 Output Shaft  
可选轴型 Optional shaft:

- D型轴 D-shape
- 圆形轴 Circular
- 双扁形轴 Double flat
- 滚花轴 Knurling

⑧ 马达 Motors

- 直流有刷电机 Brushed DC motor
- 直流无刷电机 Brushless DC motor
- 步进电机 Stepper motor
- 空心杯电机 Coreless motor

# Planetary Gearbox Structure



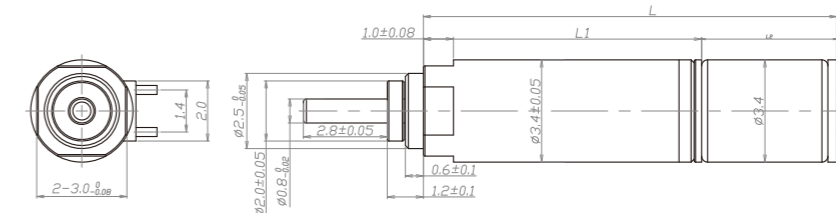
## MD003003

### Gearbox Specifications

外径 Outer diameter	3.4mm	轴承 Bearing	含油轴承 Porous bearing
材质 Material	五金 Metal	轴向窜动 Axial endplay	≤0.3mm
旋转方向 Direction of rotation	cw & ccw	输出轴径向负载 Radial loading on output shaft	≤0.3N
齿轮箱回程差 Gear backlash	≤3°	工作温度 Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	5	25	125	625
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	50	50	50	50
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	150	150	150	150
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	6	7.5	9	10.5

### Technical Drawing



### Motor Specifications

马达(可选择) Motor type (optional)	步进电机 Stepper motor	输入速度 Input speed	≤10000rpm
电压(可选择) Voltage (optional)	1.5-5V	负载电流 Current	50mA max

型号 Model	Rated Speed 额定转速	Max Rated Torque 额定容许力矩	Max Instant Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
MD003003-5	300.0	50	150	5	6.0	10.75
MD003003-25	60.0	50	150	25	7.5	12.25
MD003003-125	12.0	50	150	125	9.0	13.75
MD003003-625	2.4	50	150	625	10.5	15.25



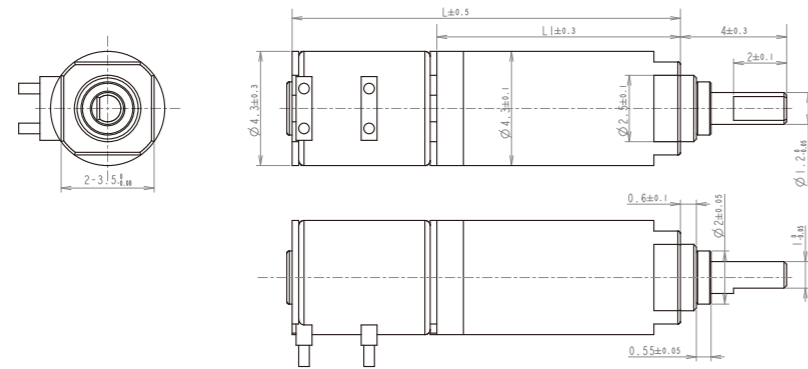
# PD004004

## Gearbox Specifications

外径	Outer diameter	4.3mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤0.3N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	6	36	216	1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	70	70	70	70
瞬间容许力矩 (gf.cm)	Instant torque of gearbox (gf.cm)	200	200	200	200
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	6.18	7.67	9.17	10.72

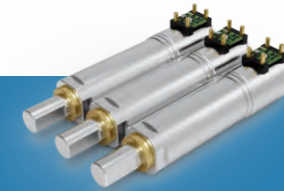
## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	步进电机 Stepper motor	输入速度 Input speed	≤10000rpm
电压(可选择) Voltage (optional)	1.5-5V	负载电流 Current	50mA max

型号 Model	Rated Speed 额定转速	Max Rated Torque 额定容许力矩	Max Instant Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
PD004004-6	250.0	70	200	6	6.18	11.78
PD004004-36	41.6	70	200	36	7.67	13.27
PD004004-216	6.9	70	200	216	9.17	14.77
PD004004-1296	1.1	70	200	1296	10.72	16.32



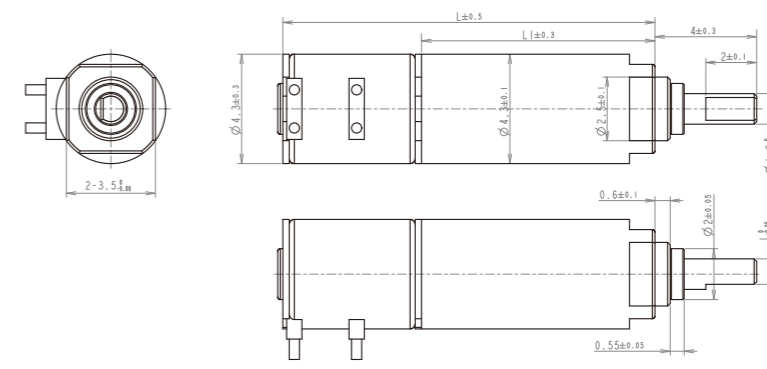
# MD004004

## Gearbox Specifications

外径	Outer diameter	4.3mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤0.3N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	6	36	216	1296
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	70	70	70	70
瞬间容许力矩 (gf.cm)	Instant torque of gearbox (gf.cm)	200	200	200	200
齿轮箱效率 (%)	Gearbox efficiency (%)	85	73	65	58
长度 (mm)	Gearbox length L1 (mm)	6.18	7.67	9.17	10.72

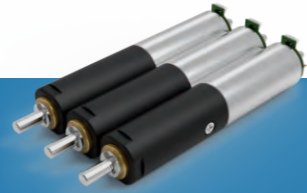
## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	步进电机 Stepper motor	输入速度 Input speed	≤10000rpm
电压(可选择) Voltage (optional)	1.5-5V	负载电流 Current	50mA max

型号 Model	Rated Speed 额定转速	Max Rated Torque 额定容许力矩	Max Instant Torque 瞬间容许力矩	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1	Overall Length 总长 L
	rpm	gf.cm	gf.cm		mm	mm
MD004004-6	250.0	70	200	6	6.18	11.78
MD004004-36	41.6	70	200	36	7.67	13.27
MD004004-216	6.9	70	200	216	9.17	14.77
MD004004-1296	1.1	70	200	1296	10.72	16.32



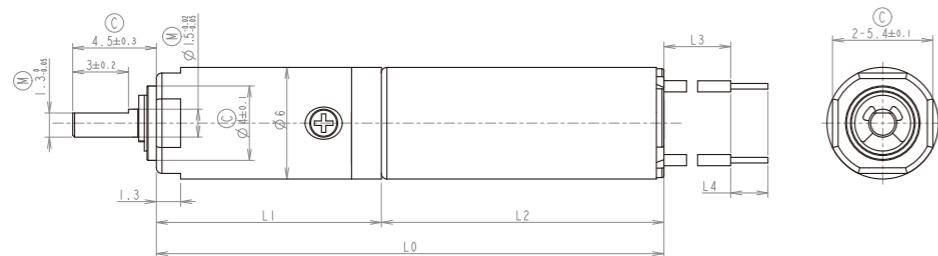
# PD006006

## Gearbox Specifications

外径	Outer diameter	6mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤0.3N	≤4N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	5/6	23/31/41	110/148/198/266	531/711/952/1275/1708
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	250	250	250	250
瞬间容许力矩 (gf.cm)	Instant torque of gearbox (gf.cm)	600	600	600	600
齿轮箱效率 (%)	Gearbox efficiency (%)	85	72	57	49
长度 (mm)	Gearbox length L1 (mm)	9.7	12.1	14.5	16.9

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	空心杯电机、步进电机 Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-12V	负载电流 Current	100mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD006006-5	1563	6250	250	600	4.8	9.7	23.7
PD006006-6	1166	4666	250	600	6.43		
PD006006-23	326	1302	250	600	23.04	12.1	26.1
PD006006-31	243	972	250	600	30.86		
PD006006-41	181	726	250	600	41.33		
PD006006-110	68	271	250	600	110.6	14.5	28.5
PD006006-148	51	203	250	600	148.1		
PD006006-198	38	151	250	600	198.4		
PD006006-266	28	113	250	600	265.7		
PD006006-531	14	57	250	600	530.8	16.9	30.9
PD006006-711	11	42	250	600	711.0		
PD006006-952	8	32	250	600	952.2		
PD006006-1275	6	24	250	600	1275.2		
PD006006-1708	4	18	250	600	1707.9		



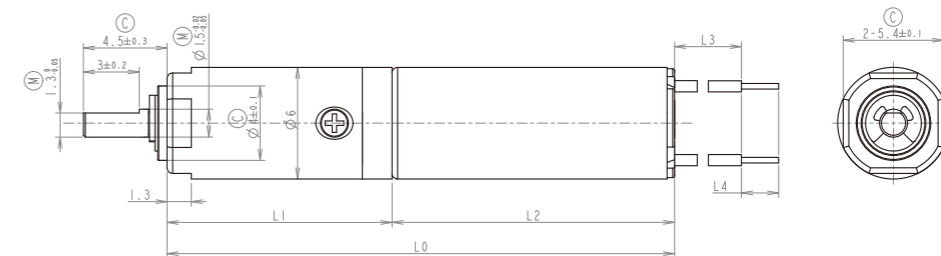
# MD006006

## Gearbox Specifications

外径	Outer diameter	6mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤0.5N	≤5N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数	Gearbox Stages	1	2	3	4
减速比	Reduction ratio	5/6	23/31/41	110/148/198/266	531/711/952/1275/1708
最大容许扭力 (gf.cm)	Max rated torque of gearbox (gf.cm)	330	330	330	600
瞬间容许力矩 (gf.cm)	Instant torque of gearbox (gf.cm)	800	800	800	1500
齿轮箱效率 (%)	Gearbox efficiency (%)	87	74	63	56
长度 (mm)	Gearbox length L1 (mm)	9.7	12.1	14.5	16.9

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	空心杯电机、步进电机 Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-12V	负载电流 Current	100mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD006006-5	1563	6250	330	800	4.8	9.7	23.7
MD006006-6	1166	4666	330	800	6.43		
MD006006-23	326	1302	330	800	23.04	12.1	26.1
MD006006-31	243	972	330	800	30.86		
MD006006-41	181	726	330	800	41.33		
MD006006-110	68	271	330	800	110.6	14.5	28.5
MD006006-148	51	203	330	800	148.1		
MD006006-198	38	151	330	800	198.4		
MD006006-266	28	113	330	800	265.7		
MD006006-531	14	57	600	1500	530.8	16.9	30.9
MD006006-711	11	42	600	1500	711.0		
MD006006-952	8	32	600	1500	952.2		
MD006006-1275	6	24	600	1500	1275.2		
MD006006-1708	4	18	600	1500	1707.9		



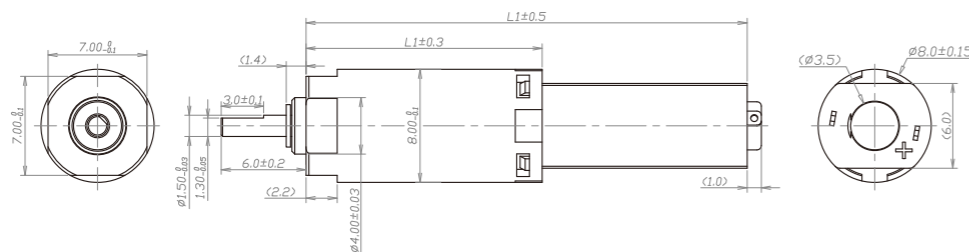
# PD008008

## Gearbox Specifications

外径	Outer diameter	8mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤0.8N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 5	13 / 19 / 28	47 / 69 / 102 / 152	168 / 249 / 369 / 546 / 809
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	50	100	200	400
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	200	300	600	900
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	8.6	11.3	14	16.7

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、步进电机 Brushed DC motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-12V	负载电流 Current	150mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD008008-4	3111	4233	50	200	3.6	8.6	23.1
PD008008-5	2100	2857	50	200	5.3		
PD008008-13	864	1122	100	300	13.0	11.3	25.8
PD008008-19	583	758	100	300	19.2		
PD008008-28	394	511	100	300	28.4		
PD008008-47	240	306	200	600	46.7	14.0	28.5
PD008008-69	162	207	200	600	69.1		
PD008008-102	109	140	200	600	102.4		
PD008008-152	74	94	200	600	151.7		
PD008008-168	67	84	300	900	168.0	16.7	31.2
PD008008-249	45	56	300	900	248.8		
PD008008-369	30	38	300	900	368.6		
PD008008-546	21	26	300	900	546.1		
PD008008-809	14	17	300	900	809.1		



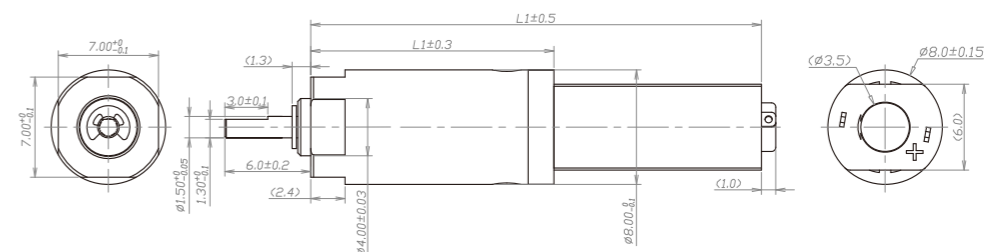
# MD008008

## Gearbox Specifications

外径	Outer diameter	8mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤2N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 5	13 / 19 / 28	47 / 69 / 102 / 152	168 / 249 / 369 / 546 / 809
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	250	400	600	750
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	500	800	1200	1500
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	62	55
长度 (mm) Gearbox length L1 (mm)	11.6	14.3	17	19.7

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、步进电机 Brushed DC motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-12V	负载电流 Current	150mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD008008-4	3361	4630	250	500	3.6	11.6	26.1
MD008008-5	2269	3125	250	500	5.3		
MD008008-13	934	1228	400	800	13.0	14.3	28.8
MD008008-19	630	829	400	800	19.2		
MD008008-28	425	559	400	800	28.4		
MD008008-47	259	335	600	1200	46.7	17.0	31.5
MD008008-69	175	226	600	1200	69.1		
MD008008-102	118	153	600	1200	102.4		
MD008008-152	80	103	600	1200	151.7		
MD008008-168	72	91	750	1500	168.0	19.7	34.2
MD008008-249	49	62	750	1500	248.8		
MD008008-369	33	42	750	1500	368.6		
MD008008-546	22	28	750	1500	546.1		
MD008008-809	15	19	750	1500	809.1		



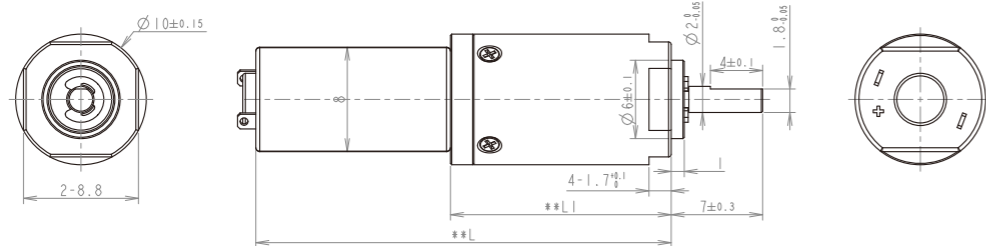
# PD010010

## Gearbox Specifications

外径	Outer diameter	10mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤1N	≤7N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	3/5	13/19/28	46/69/102/151	168/249/368/546/809
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	500	500	500	500
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	1000	1000	1000	1000
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	9.7	12.8	15.9	19

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、空心杯电机、步进电机 Brushed DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	150mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD010010-3	3917	7500	500	1000	3	9.7	24.7
PD010010-5	2645	5000	500	1000	5		
PD010010-13	1085	2308	500	1000	13	12.8	27.8
PD010010-19	742	1579	500	1000	19		
PD010010-28	504	1071	500	1000	28		
PD010010-46	307	652	500	1000	46	15.9	30.9
PD010010-69	204	435	500	1000	69		
PD010010-102	138	294	500	1000	102		
PD010010-151	93	199	500	1000	151		
PD010010-168	84	179	500	1000	168	19	34
PD010010-249	57	120	500	1000	249		
PD010010-368	38	82	500	1000	368		
PD010010-546	26	55	500	1000	546		
PD010010-809	17	37	500	1000	809		



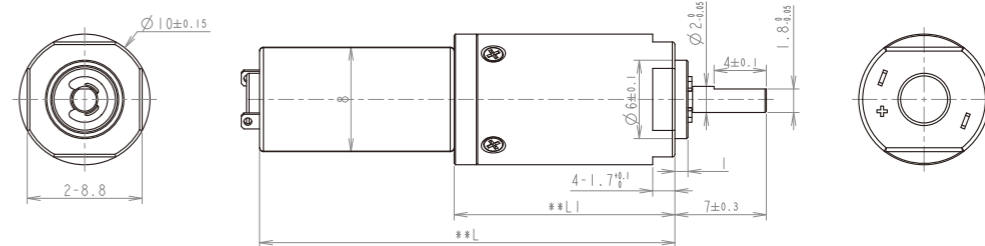
# MD010010

## Gearbox Specifications

外径	Outer diameter	10mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤2N	≤7N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	3/5	13/19/28	46/69/102/151	168/249/368/546/809
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	1000	1000	1000	1000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	2000	2000	2000	2000
齿轮箱效率 (%) Gearbox efficiency (%)	87	74	63	56
长度 (mm) Gearbox length L1 (mm)	9.7	12.8	15.9	19

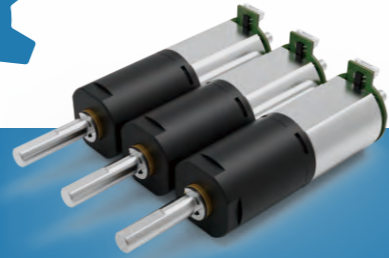
## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、空心杯电机、步进电机 Brushed DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	150mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD010010-3	3917	7500	1000	2000	3	9.7	24.7
MD010010-5	2645	5000	1000	2000	5		
MD010010-13	1085	2308	1000	2000	13	12.8	27.8
MD010010-19	742	1579	1000	2000	19		
MD010010-28	504	1071	1000	2000	28		
MD010010-46	307	652	1000	2000	46	15.9	30.9
MD010010-69	204	435	1000	2000	69		
MD010010-102	138	294	1000	2000	102		
MD010010-151	93	199	1000	2000	151		
MD010010-168	84	179	1000	2000	168	19	34
MD010010-249	57	120	1000	2000	249		
MD010010-368	38	82	1000	2000	368		
MD010010-546	26	55	1000	2000	546		
MD010010-809	17	37	1000	2000	809		



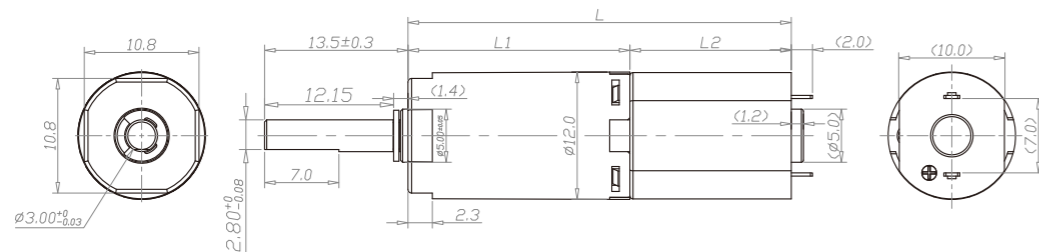
# PD012012

## Gearbox Specifications

外径	Outer diameter	12mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤5N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	200	400	600	850
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	500	800	1200	1700
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	9.5	13.3	17.1	20.9

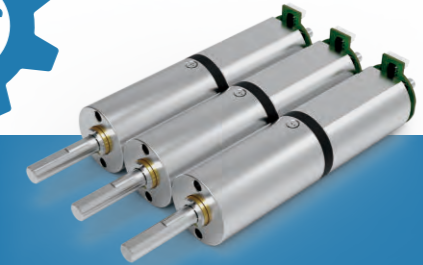
## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	250mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD012012-4	1875	7500	200	500	4	9.5	24.5
PD012012-6	1250	5000	200	500	6		
PD012012-16	469	1875	400	800	16	13.3	28.3
PD012012-24	313	1250	400	800	24		
PD012012-36	208	833	400	800	36		
PD012012-64	117	469	600	1200	64	17.1	32.1
PD012012-96	78	313	600	1200	96		
PD012012-144	52	208	600	1200	144		
PD012012-216	35	139	600	1200	216		
PD012012-256	29	117	850	1700	256	20.9	35.9
PD012012-384	20	78	850	1700	384		
PD012012-576	13	52	850	1700	576		
PD012012-864	9	35	850	1700	864		
PD012012-1296	6	23	850	1700	1296		



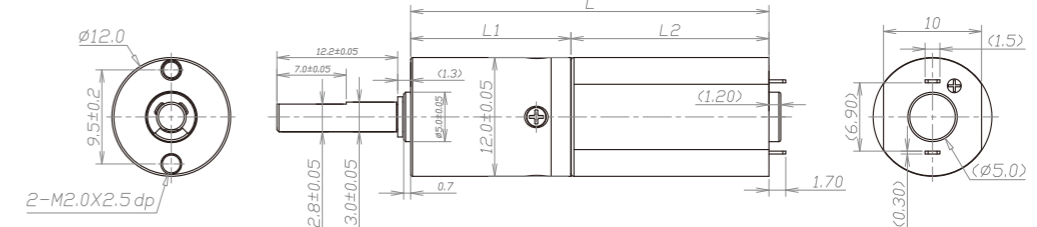
# MD012012

## Gearbox Specifications

外径	Outer diameter	12mm	轴承	Bearing	含油轴承 Porous bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤10N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	300	1000	1500	2000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	1000	3000	4500	5000
齿轮箱效率 (%) Gearbox efficiency (%)	87	74	63	56
长度 (mm) Gearbox length L1 (mm)	12.4	16.2	20	23.8

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤30000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	250mA max

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD012012-4	1875	7500	300	1000	4	12.4	32.4
MD012012-6	1250	5000	300	1000	6		
MD012012-16	469	1875	1000	3000	16	16.2	36.2
MD012012-24	313	1250	1000	3000	24		
MD012012-36	208	833	1000	3000	36		
MD012012-64	117	469	1500	4500	64	20	40
MD012012-96	78	313	1500	4500	96		
MD012012-144	52	208	1500	4500	144		
MD012012-216	35	139	1500	4500	216		
MD012012-256	29	117	2000	5000	256	23.8	43.8
MD012012-384	20	78	2000	5000	384		
MD012012-576	13	52	2000	5000	576		
MD012012-864	9	35	2000	5000	864		
MD012012-1296	6	23	2000	5000	1296		



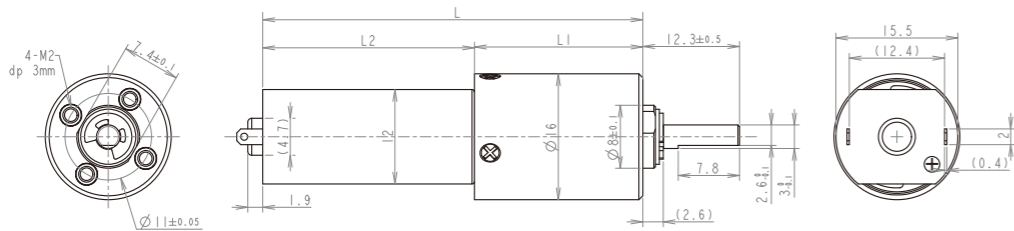
# PD016016

## Gearbox Specifications

外径	Outer diameter	16mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤10N	≤20N
齿轮箱回程差	Gear backlash	≤3°	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	3000	3000	3000	3000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	6000	6000	6000	6000
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	11.5	14.8	18.1	21.4

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 6V 8000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 6V & 8000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD016016-4	1875	7500	3000	6000	4	11.5	38.4
PD016016-6	1250	5000	3000	6000	6		
PD016016-16	469	1875	3000	6000	16	14.8	41.7
PD016016-24	313	1250	3000	6000	24		
PD016016-36	208	833	3000	6000	36		
PD016016-64	117	469	3000	6000	64	18.1	45.0
PD016016-96	78	313	3000	6000	96		
PD016016-144	52	208	3000	6000	144		
PD016016-216	35	139	3000	6000	216		
PD016016-256	29	117	3000	6000	256	21.4	48.3
PD016016-384	20	78	3000	6000	384		
PD016016-576	13	52	3000	6000	576		
PD016016-864	9	35	3000	6000	864		
PD016016-1296	6	23	3000	6000	1296		



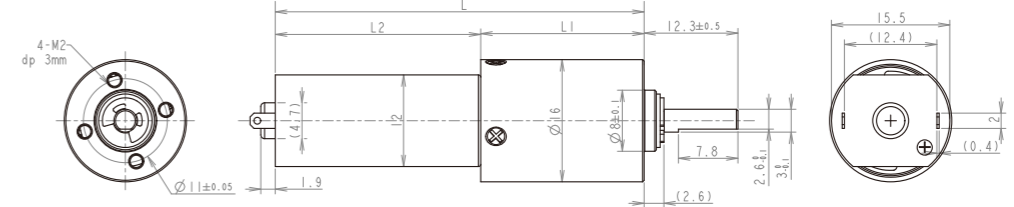
# MD016016

## Gearbox Specifications

外径	Outer diameter	16mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤20N	≤30N
齿轮箱回程差	Gear backlash	≤2°	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	5000	5000	5000	5000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	10000	10000	10000	10000
齿轮箱效率 (%) Gearbox efficiency (%)	90	85	80	75
长度 (mm) Gearbox length L1 (mm)	11.5	14.8	18.1	21.4

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 6V 8000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 6V & 8000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD016016-4	1875	7500	5000	10000	4	11.5	38.4
MD016016-6	1250	5000	5000	10000	6		
MD016016-16	469	1875	5000	10000	16	14.8	41.7
MD016016-24	313	1250	5000	10000	24		
MD016016-36	208	833	5000	10000	36		
MD016016-64	117	469	5000	10000	64	18.1	45.0
MD016016-96	78	313	5000	10000	96		
MD016016-144	52	208	5000	10000	144		
MD016016-216	35	139	5000	10000	216		
MD016016-256	29	117	5000	10000	256	21.4	48.3
MD016016-384	20	78	5000	10000	384		
MD016016-576	13	52	5000	10000	576		
MD016016-864	9	35	5000	10000	864		
MD016016-1296	6	23	5000	10000	1296		



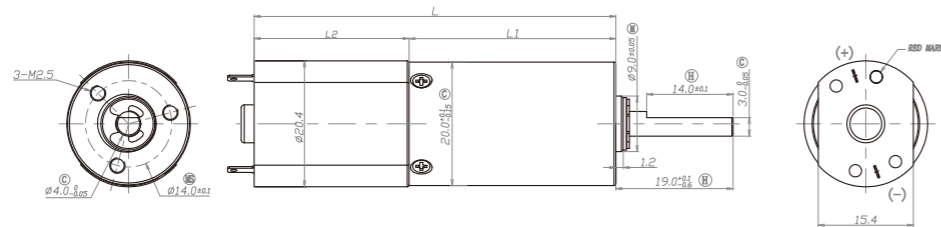
# PD020020

## Gearbox Specifications

外径	Outer diameter	20mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤30N	≤50N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	6000	6000	6000	6000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	15000	15000	15000	15000
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	17.6	22.9	28.2	33.5

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 12V 7200rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 7200rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD020020-4	1875	7500	6000	15000	4	17.6	42.7
PD020020-6	1250	5000	6000	15000	6		
PD020020-16	469	1875	6000	15000	16	22.9	48
PD020020-24	313	1250	6000	15000	24		
PD020020-36	208	833	6000	15000	36		
PD020020-64	117	469	6000	15000	64	28.2	53.3
PD020020-96	78	313	6000	15000	96		
PD020020-144	52	208	6000	15000	144		
PD020020-216	35	139	6000	15000	216		
PD020020-256	29	117	6000	15000	256	33.5	58.6
PD020020-384	20	78	6000	15000	384		
PD020020-576	13	52	6000	15000	576		
PD020020-864	9	35	6000	15000	864		
PD020020-1296	6	23	6000	15000	1296		



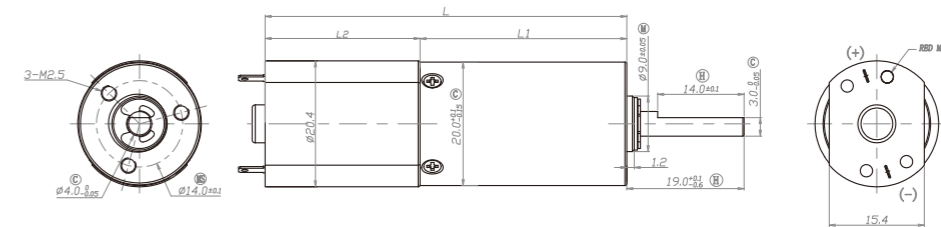
# MD020020

## Gearbox Specifications

外径	Outer diameter	20mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤50N	≤75N
齿轮箱回程差	Gear backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	10000	10000	10000	10000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	25000	25000	25000	25000
齿轮箱效率 (%) Gearbox efficiency (%)	90	81	72	65
长度 (mm) Gearbox length L1 (mm)	17.6	22.9	28.2	33.5

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 12V 7200rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 7200rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD020020-4	1875	7500	10000	25000	4	17.6	42.7
MD020020-6	1250	5000	10000	25000	6		
MD020020-16	469	1875	10000	25000	16	22.9	48
MD020020-24	313	1250	10000	25000	24		
MD020020-36	208	833	10000	25000	36		
MD020020-64	117	469	10000	25000	64	28.2	53.3
MD020020-96	78	313	10000	25000	96		
MD020020-144	52	208	10000	25000	144		
MD020020-216	35	139	10000	25000	216		
MD020020-256	29	117	10000	25000	256	33.5	58.6
MD020020-384	20	78	10000	25000	384		
MD020020-576	13	52	10000	25000	576		
MD020020-864	9	35	10000	25000	864		
MD020020-1296	6	23	10000	25000	1296		



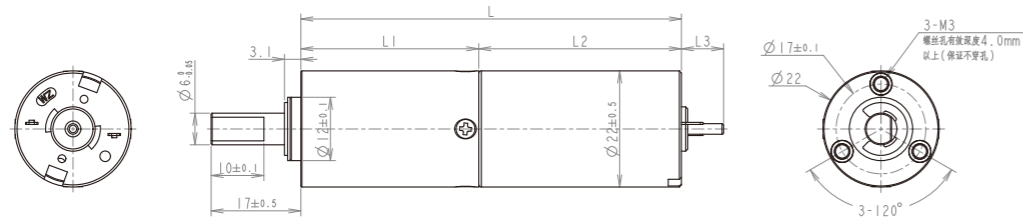
# PD022022

## Gearbox Specifications

外径	Outer diameter	22mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤50N	≤100N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	8000	8000	8000	8000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	20000	20000	20000	20000
齿轮箱效率 (%) Gearbox efficiency (%)	85	73	65	58
长度 (mm) Gearbox length L1 (mm)	19.1	26.4	33.7	41

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流无刷电机、空心杯电机、步进电机 Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 24V 8300rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 8300rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD022022-4	1875	7500	8000	20000	4	19.1	57.5
PD022022-6	1250	5000	8000	20000	6		
PD022022-16	469	1875	8000	20000	16	26.4	64.8
PD022022-24	313	1250	8000	20000	24		
PD022022-36	208	833	8000	20000	36		
PD022022-64	117	469	8000	20000	64	33.7	72.1
PD022022-96	78	313	8000	20000	96		
PD022022-144	52	208	8000	20000	144		
PD022022-216	35	139	8000	20000	216		
PD022022-256	29	117	8000	20000	256	41	79.4
PD022022-384	20	78	8000	20000	384		
PD022022-576	13	52	8000	20000	576		
PD022022-864	9	35	8000	20000	864		
PD022022-1296	6	23	8000	20000	1296		



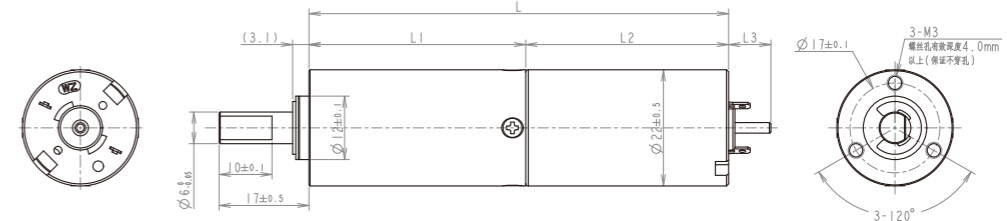
# MD022022

## Gearbox Specifications

外径	Outer diameter	22mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤120N	≤170N
齿轮箱回程差	Gear backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	15000	15000	15000	15000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	36000	36000	36000	36000
齿轮箱效率 (%) Gearbox efficiency (%)	90	85	80	75
长度 (mm) Gearbox length L1 (mm)	19.1	26.4	33.7	41

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流无刷电机、空心杯电机、步进电机 Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 24V 8300rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 8300rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD022022-4	1875	7500	15000	36000	4	19.1	57.5
MD022022-6	1250	5000	15000	36000	6		
MD022022-16	469	1875	15000	36000	16	26.4	64.8
MD022022-24	313	1250	15000	36000	24		
MD022022-36	208	833	15000	36000	36		
MD022022-64	117	469	15000	36000	64	33.7	72.1
MD022022-96	78	313	15000	36000	96		
MD022022-144	52	208	15000	36000	144		
MD022022-216	35	139	15000	36000	216		
MD022022-256	29	117	15000	36000	256	41	79.4
MD022022-384	20	78	15000	36000	384		
MD022022-576	13	52	15000	36000	576		
MD022022-864	9	35	15000	36000	864		
MD022022-1296	6	23	15000	36000	1296		



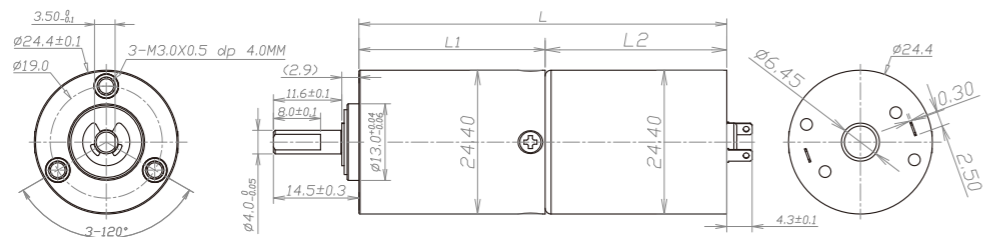
# PD024024

## Gearbox Specifications

外径	Outer diameter	24mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.2mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤100N	≤272N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4/6	16/24/36	64/96/144/216	256/384/576/864/1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	15000	15000	15000	15000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	45000	45000	45000	45000
齿轮箱效率 (%) Gearbox efficiency (%)	80	65	53	47
长度 (mm) Gearbox length L1 (mm)	18.5	24.5	31.5	38.65

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 12V 6000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 6000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD024024-4	1150	1500	15000	45000	4	18.5	49.3
PD024024-6	767	1000	15000	45000	6		
PD024024-16	288	375	15000	45000	16	24.5	55.3
PD024024-24	192	250	15000	45000	24		
PD024024-36	128	167	15000	45000	36		
PD024024-64	72	94	15000	45000	64	31.5	62.3
PD024024-96	48	63	15000	45000	96		
PD024024-144	32	42	15000	45000	144		
PD024024-216	21	38	15000	45000	216		
PD024024-256	18	23	15000	45000	256	38.65	69.45
PD024024-384	12	16	15000	45000	384		
PD024024-576	8	10	15000	45000	576		
PD024024-864	5	7	15000	45000	864		
PD024024-1296	4	5	15000	45000	1296		



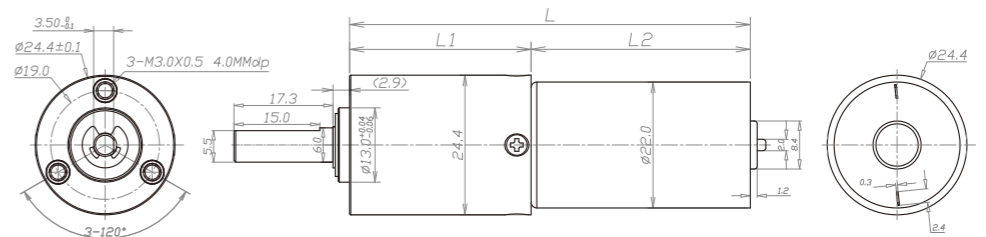
# MD024024

## Gearbox Specifications

外径	Outer diameter	24mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.2mm	≤0.2mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤100N	≤272N
齿轮箱回程差	Gear backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4/6	16/24/36	64/96/144/216	256/384/576/864/1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	20000	20000	20000	20000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	60000	60000	60000	60000
齿轮箱效率 (%) Gearbox efficiency (%)	85	75	65	55
长度 (mm) Gearbox length L1 (mm)	19	25	32	39

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、空心杯电机、步进电机 Brushed DC motor, Brushless DC motor, Coreless motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 12V 6000rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 12V & 6000rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD024024-4	1150	1500	20000	60000	4	19.0	49.8
MD024024-6	767	1000	20000	60000	6		
MD024024-16	288	375	20000	60000	16	25.0	55.8
MD024024-24	192	250	20000	60000	24		
MD024024-36	128	167	20000	60000	36		
MD024024-64	72	94	20000	60000	64	32.0	62.8
MD024024-96	48	63	20000	60000	96		
MD024024-144	32	42	20000	60000	144		
MD024024-216	21	38	20000	60000	216		
MD024024-256	18	23	20000	60000	256	39.0	69.8
MD024024-384	12	16	20000	60000	384		
MD024024-576	8	10	20000	60000	576		
MD024024-864	5	7	20000	60000	864		
MD024024-1296	4	5	20000	60000	1296		



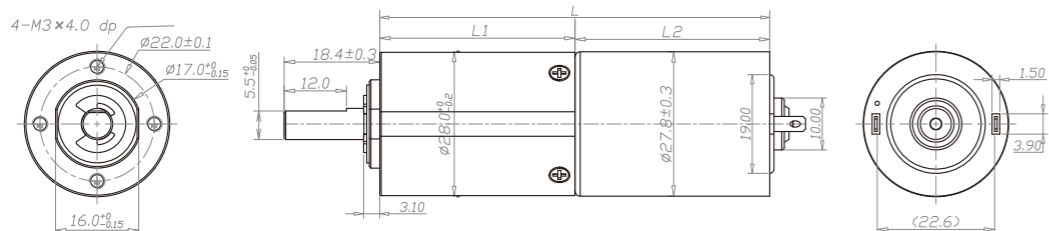
# PD028028

## Gearbox Specifications

外径	Outer diameter	28mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤50N	≤100N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +85°C	

齿轮级数 Gearbox Stages	2	3	4
减速比 Reduction ratio	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	15000	15000	15000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	60000	60000	60000
齿轮箱效率 (%) Gearbox efficiency (%)	76	66	57
长度 (mm) Gearbox length L1 (mm)	29.1	37.6	46.1

## Technical Drawing

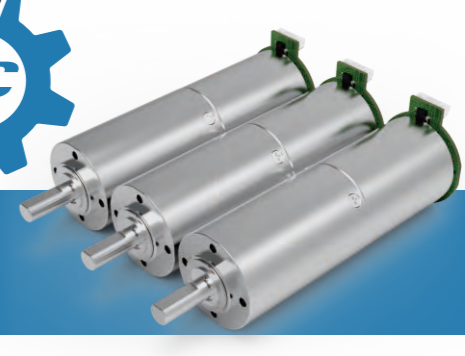


## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、步进电机 Brushed DC motor, Brushless DC motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	400mA max

参考数据(马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD028028-16	413	472	15000	60000	16	29.1	66.6
PD028028-24	276	312	15000	60000	24		
PD028028-36	181	211	15000	60000	36		
PD028028-64	104	119	15000	60000	64	37.6	75.1
PD028028-96	69	79	15000	60000	96		
PD028028-144	46	54	15000	60000	144		
PD028028-216	31	35	15000	60000	216		
PD028028-256	26	30	15000	60000	256	46.1	83.6
PD028028-384	17	19	15000	60000	384		
PD028028-576	12	13	15000	60000	576		
PD028028-864	8	9	15000	60000	864		
PD028028-1296	5	6	15000	60000	1296		



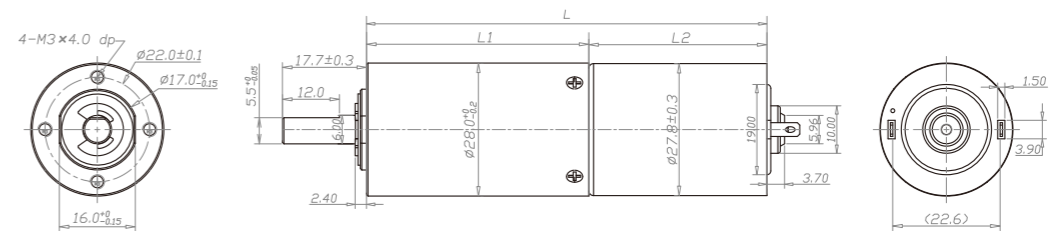
# MD028028

## Gearbox Specifications

外径	Outer diameter	28mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.1mm	≤0.1mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤120N	≤170N
齿轮箱回程差	Gear backlash	≤2° 可定制 Customizable	工作温度	Operating temperature range	-30 ~ +100°C	

齿轮级数 Gearbox Stages	1	2	3	4
减速比 Reduction ratio	4 / 6	16 / 24 / 36	64 / 96 / 144 / 216	256 / 384 / 576 / 864 / 1296
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	40000	40000	40000	40000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	120000	120000	120000	120000
齿轮箱效率 (%) Gearbox efficiency (%)	87	64	51	41
长度 (mm) Gearbox length L1 (mm)	21.3	29.8	38.3	46.8

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机、步进电机 Brushed DC motor, Brushless DC motor, Stepper motor	输入速度 Input speed	≤15000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	400mA max

参考数据(马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD028028-4	1658	1925	40000	120000	4	21.3	58.8
MD028028-6	1105	1283	33000	100000	6		
MD028028-16	413	472	40000	120000	16	29.8	67.3
MD028028-24	276	312	40000	120000	24		
MD028028-36	181	211	33000	100000	36		
MD028028-64	104	119	40000	120000	64	38.3	75.8
MD028028-96	69	79	40000	120000	96		
MD028028-144	46	54	40000	120000	144		
MD028028-216	31	35	33000	100000	216		
MD028028-256	26	30	40000	120000	256	46.8	84.3
MD028028-384	17	19	40000	120000	384		
MD028028-576	12	13	40000	120000	576		
MD028028-864	8	9	40000	120000	864		
MD028028-1296	5	6	33000	100000	1296		



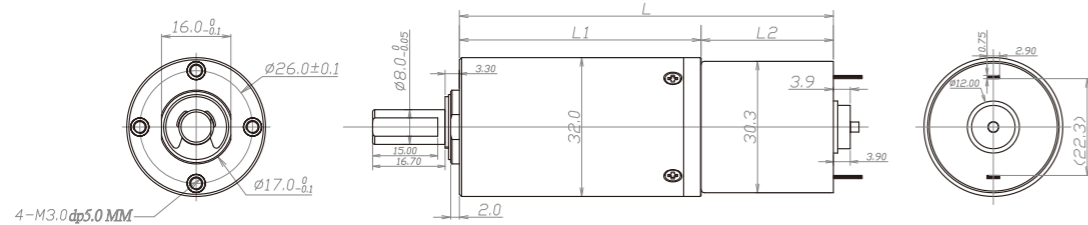
# PD032032

## Gearbox Specifications

外径	Outer diameter	32mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	塑料 Plastic	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤50N	≤100N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +75°C	

齿轮级数 Gearbox Stages	2	3	4
减速比 Reduction ratio	16 / 23 / 33	67 / 94 / 133 / 188	272 / 383 / 541 / 764 / 1078
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	30000	30000	30000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	80000	80000	80000
齿轮箱效率 (%) Gearbox efficiency (%)	73	65	58
长度 (mm) Gearbox length L1 (mm)	35.7	45.7	55.7

## Technical Drawing



## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机 Brushed DC motor, Brushless DC motor	输入速度 Input speed	≤12000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
PD032032-16	469	1875	30000	80000	16	35.7	78.2
PD032032-23	313	1250	30000	80000	23		
PD032032-33	227	909	30000	80000	33		
PD032032-67	112	448	30000	80000	67	45.7	88.2
PD032032-94	80	319	30000	80000	94		
PD032032-133	56	226	30000	80000	133		
PD032032-188	40	160	30000	80000	188		
PD032032-272	28	110	30000	80000	272	55.7	98.2
PD032032-383	20	78	30000	80000	383		
PD032032-541	14	56	30000	80000	541		
PD032032-764	10	39	30000	80000	764		
PD032032-1078	7	28	30000	80000	1078		



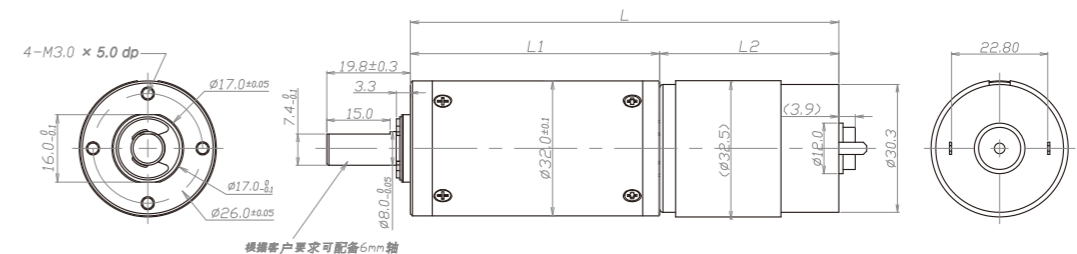
# MD032032

## Gearbox Specifications

外径	Outer diameter	32mm	轴承	Bearing	含油轴承 Porous bearing	滚动轴承 Rolling bearing
材质	Material	五金 Metal	轴向窜动	Axial endplay	≤0.3mm	≤0.3mm
旋转方向	Direction of rotation	cw & ccw	输出轴径向负载	Radial loading on output shaft	≤120N	≤180N
齿轮箱回程差	Gear backlash	≤3° 可定制 Customizable	工作温度	Operating temperature range	-20 ~ +75°C	

齿轮级数 Gearbox Stages	2	3	4
减速比 Reduction ratio	16 / 23 / 33	67 / 94 / 133 / 188	272 / 383 / 541 / 764 / 1078
最大容许扭力 (gf.cm) Max rated torque of gearbox (gf.cm)	50000	50000	50000
瞬间容许力矩 (gf.cm) Instant torque of gearbox (gf.cm)	150000	150000	150000
齿轮箱效率 (%) Gearbox efficiency (%)	85	80	75
长度 (mm) Gearbox length L1 (mm)	39.1	49.1	59.1

## Technical Drawing



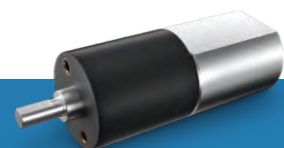
## 马达规格参数 Motor Specifications

马达(可选择) Motor type (optional)	直流有刷电机、直流无刷电机 Brushed DC motor, Brushless DC motor	输入速度 Input speed	≤12000rpm
电压(可选择) Voltage (optional)	3-24V	负载电流 Current	300mA max

参考数据(马达定义值: 24V 7700rpm) 下表根据马达定义值测试, 数据只作为参考值。 Parameter (values at 24V & 7700rpm) The following data is for reference only.

型号 Model	Rated Speed 额定转速 rpm	Max Speed 最高转速 rpm	Max Rated Torque 额定容许力矩 gf.cm	Max Instant Torque 瞬间容许力矩 gf.cm	Reduction Ratio 减速比	Gearbox Length 减速箱长 L1 mm	Overall Length 总长 L mm
MD032032-16	469	1875	50000	150000	16	39.1	81.6
MD032032-23	313	1250	50000	150000	23		
MD032032-33	227	909	50000	150000	33		
MD032032-67	112	448	50000	150000	67	49.1	91.6
MD032032-94	80	319	50000	150000	94		
MD032032-133	56	226	50000	150000	133		
MD032032-188	40	160	50000	150000	188		
MD032032-272	28	110	50000	150000	272	59.1	101.6
MD032032-383	20	78	50000	150000	383		
MD032032-541	14	56	50000	150000	541		
MD032032-764	10	39	50000	150000	764		
MD032032-1078	7	28	50000	150000	1078		

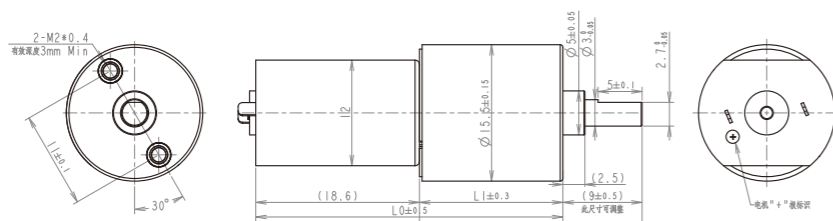




# MC016

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash										
塑料 Plastic	含油轴承 Porous bearing	≤0.4Kgf	≤0.2Kgf	≤2Kgf	≤0.06mm	≤0.3mm	≤1.5°										
齿轮级数 Gearbox Stages		3		4		5		6		7							
减速比 Reduction ratio		13	20	30	41	55	84	113	154	210	255	283	384	525	707	1064	
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		0.2	0.2	0.3	0.3	0.3	0.5	0.8	0.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		0.6	0.6	0.9	0.9	0.9	1.5	2.4	2.4	3.6	3.6	3.6	3.6	3.6	3.6	3.6	
效率 (%) Gearbox efficiency (%)		73	73	65	65	65	59	59	59	53	53	53	53	47	47	47	
齿轮箱长度 L1 (mm) Gearbox length L1 (mm)		13.1		14.7		16.3		17.9		19.5							
总长 L0 (mm) Overall Length L0 (mm)		32.3		33.3		34.9		36.5		38.1							

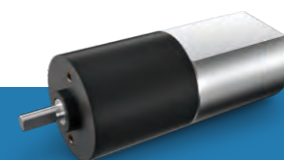
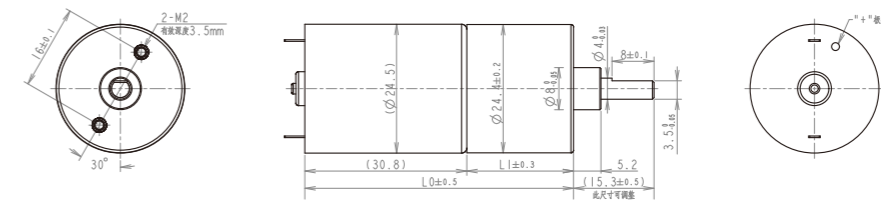
使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.



# MC024

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash										
塑料 Plastic	含油轴承 Porous bearing	≤0.5Kgf	≤0.4Kgf	≤4Kgf	≤0.06mm	≤0.3mm	≤2°										
齿轮级数 Gearbox Stages		3		4		5		6		7							
减速比 Reduction ratio		13	20	30	46	62	94	128	174	235	319	434	591	783	1064		
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		0.7	0.7	1.5	1.5	1.5	2.5	2.5	2.5	3	3	3	3	3	3		
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		2.1	2.1	4.5	4.5	4.5	7.5	7.5	7.5	9	9	9	9	9	9		
效率 (%) Gearbox efficiency (%)		73	73	65	65	65	59	59	59	53	53	53	53	47	47		
齿轮箱长度 L1 (mm) Gearbox length L1 (mm)		12.9		15.5		17.1		18.7		20.3							
总长 L0 (mm) Overall Length L0 (mm)		43.7		46.3		47.9		49.5		51.1							

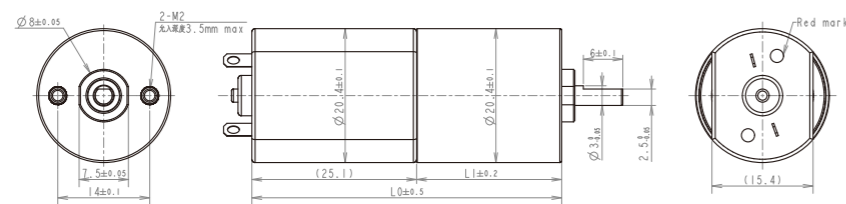
使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.



# MC020

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash																
塑料 Plastic	含油轴承 Porous bearing	≤0.4Kgf	≤0.2Kgf	≤2Kgf	≤0.06mm	≤0.3mm	≤1.5°																
齿轮级数 Gearbox Stages		3		4		5		6		7													
减速比 Reduction ratio		10	13	21	28	36	52	67	88	99	125	162	188	212	270	301	393	454	512	652	736		
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		0.5	0.5	0.7	0.7	0.7	1.5	1.5	1.5	1.5	2	2	2	2	2	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		1.5	1.5	2.1	2.1	2.1	4.5	4.5	4.5	4.5	6	6	6	6	6	7.5	7.5	7.5	7.5	7.5	7.5	7.5	
效率 (%) Gearbox efficiency (%)		73	73	65	65	65	59	59	59	59	53	53	53	53	53	47	47	47	47	47	47	47	
齿轮箱长度 L1 (mm) Gearbox length L1 (mm)		14.5		16.4		18.3		20.2		22.1													
总长 L0 (mm) Overall Length L0 (mm)		39.6		41.5		43.4		45.3		47.2													

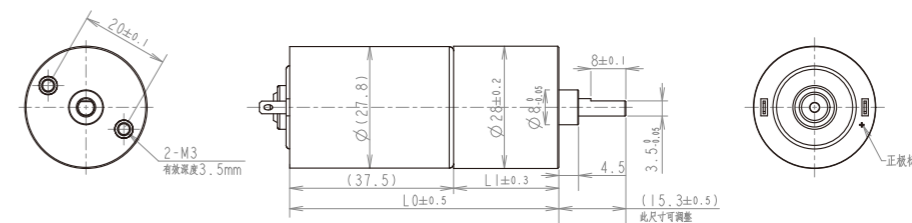
使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.

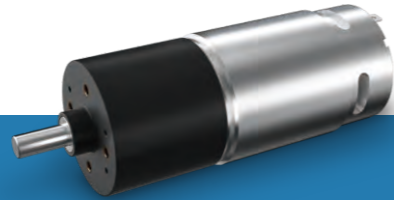


# MC028

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash										
塑料 Plastic	含油轴承 Porous bearing	≤0.5Kgf	≤0.4Kgf	≤4Kgf	≤0.06mm	≤0.3mm	≤2°										
齿轮级数 Gearbox Stages		3		4		5		6		7							
减速比 Reduction ratio		13	16	29	35	42	62	81	110	156	199	227	290	363	438	599	764
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		1	1	2	2	2	3	3	3	4	4	4	4	4	4	4	4
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		3	3	6	6	6	9	9	9	12	12	12	12	12	12	12	12
效率 (%) Gearbox efficiency (%)		73	73	65	65	65	59	59	59	53	53	53	53	47	47	47	47
齿轮箱长度 L1 (mm) Gearbox length L1 (mm)		14.9		17.2		19.5		21.8		24.1							
总长 L0 (mm) Overall Length L0 (mm)		52.7		55		57.3		59.6		61.9							

使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.

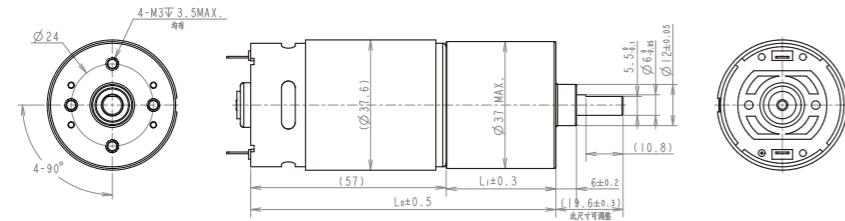
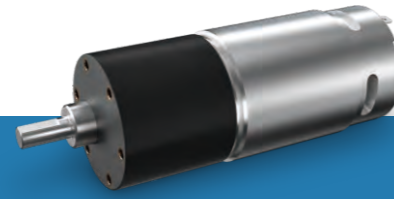


**37**  
mmPlastic  
**P**

# MC037

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压入力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash
塑料 Plastic	含油轴承 Porous bearing	≤1Kgf	≤0.7Kgf	≤5Kgf	≤0.06mm	≤0.35mm	≤2°
齿轮级数 Gearbox Stages		2	3	4	5	6	7
减速比 Reduction ratio		6 9 14 20	29 42 53 80 101 128 166 218 282 350 452 583 753 953 1232 1591 1809				
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		2 2 3 3	4.5 4.5 4.5 6 6 6 6 7.5 7.5 7.5 7.5 9 9 9 9 9				
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		6 6 9 9 9 9 9 15 15 18 18 18 18 18 18 18 18 18 18 18					
效率 (%) Gearbox efficiency (%)		81 81 73 73 65 65 65 59 59 59 59 53 53 53 53 48 48 48 48 48					
齿轮箱长度L1 (mm) Gearbox length L1 (mm)		19.5	22	24.5	27	29.5	32
总长L0 (mm) Overall Length L0 (mm)		76.5	79	81.5	84	86.5	89

使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.

**37**  
mmPlastic  
**P**

# MC037E

外壳材质 Material	输出轴承类型 Bearing	径向负荷 Radial load	轴向负荷 Axial load	输出轴最大承受压入力 Output shaft max press-in force	输出轴径向间隙 Output shaft radial clearance	输出轴轴向间隙 Output shaft axial clearance	空载背隙 No-load backlash
塑料 Plastic	含油轴承 Porous bearing	≤1Kgf	≤0.7Kgf	≤5Kgf	≤0.06mm	≤0.35mm	≤2°
齿轮级数 Gearbox Stages		3	4	5	6	7	
减速比 Reduction ratio		23 33 49 62 79 101 134 169 214 277 364 461 584 755 975 1258 1593 2059 2660 3023					
额定负载力矩 (Kgf.cm max) Max rated torque (kgf.cm)		2 2 3 3 3 3 4 4 4 4 5 5 5 5 5 6 6 6 6 6					
瞬间负载力矩 (Kgf.cm max) Max Instant torque (kgf.cm)		6 6 9 9 9 9 12 12 12 12 15 15 18 18 18 18 18 18 18 18 18					
效率 (%) Gearbox efficiency (%)		73 73 65 65 65 65 59 59 59 59 53 53 53 53 53 48 48 48 48 48					
齿轮箱长度L1 (mm) Gearbox length L1 (mm)		22	24.5	27	29.5	32	
总长L0 (mm) Overall Length L0 (mm)		79	81.5	84	86.5	89	

使用相对湿度:20%~85%RH, 使用温度范围:-15°C ~ 85°C。 Relative humidity: 20%~85%RH, Temperature range: -15°C ~ 85°C.

