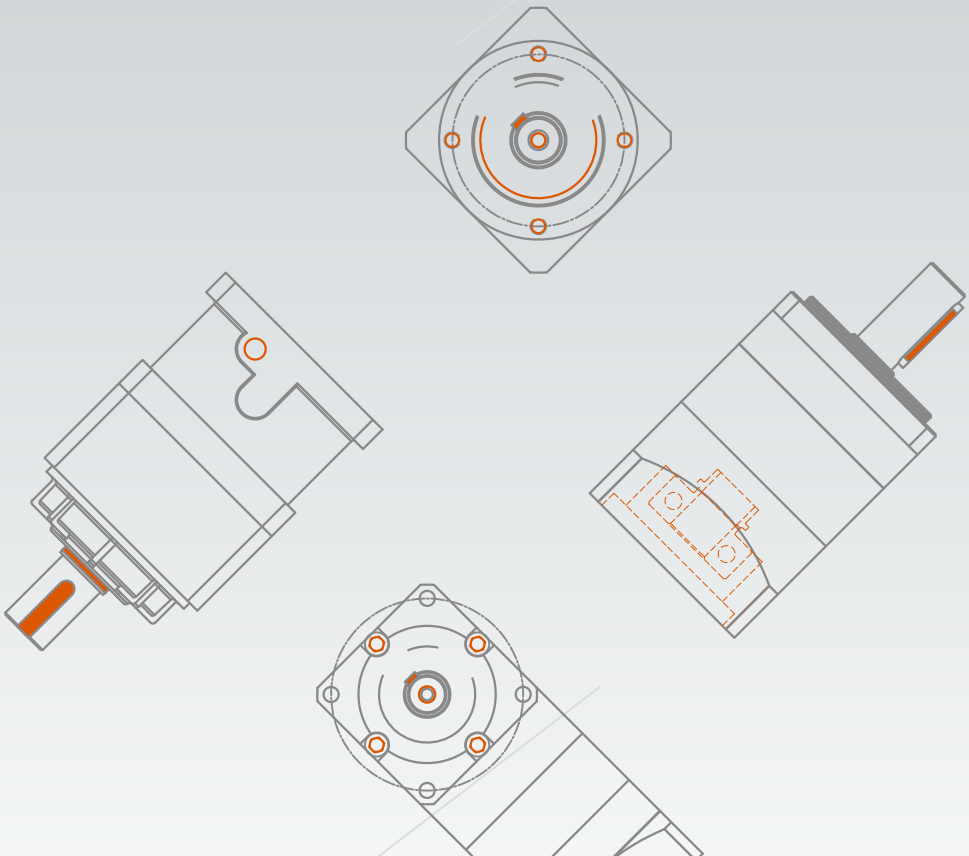
WUMA 午马传动
Dreams drive the future!

Planetary Gearbox Selection Catalogue

行星减速机目录册

2025D



SINCE 1995

DREAMS DRIVE THE FUTURE

面积
Area **60,000m²**

历史
Experience **30year**

技术人员
Technicians **30+**

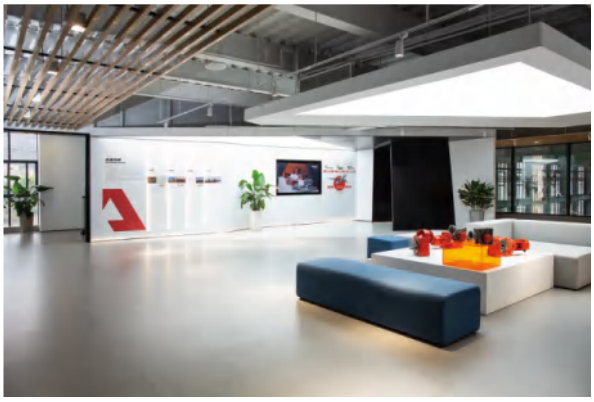
员工
Employees **300+**

年产量
Annual Output Units **500,000**

浙江午马传动有限公司是由浙江午马减速机有限公司全资投资的服务型制造企业。

公司始创于 1995 年，地处沿海经 济带，传承传动领域近三十年的制造经验，专业生产 RV 系列蜗轮蜗杆减速机，R,K,F,S 四大系列硬齿面斜齿轮减速机，准双曲面减速机等超过 10 个系列的产品，现拥有资深全职研究生，高级工程师，温州市高层次特殊支持计划人才等高水准的人才梯队，并先后参与了行业标准及团体标准的制定 12 项，拥有专利 35 件，荣获浙江工业科学技术奖，温州市重大科技创新项目，丽水市绿谷精英创新引领”计划等科研成果。

Zhejiang Wuma Drive Co., Ltd. was established in 1995. It integrates R&D, manufacturing, and sales. It specializes in the production of RV series worm gearboxes, R, K, F, and S series helical gearboxes, hypoid gearboxes, and more than 10 series of products. All products are manufactured using ISO 9001-certified processes and comply with DIN/AGMA standards.
With 30 years of technical expertise, WUMA serves multiple industries such as the food machinery Industry, the pharmaceutical machinery industry, and the ceramic machinery industry in 80 countries. We are committed to continuous innovation through strict quality assurance.



愿景 VISION

让世界爱上午马制造
Made in WUMA, make world better!

使命 MISSION

为全球提供绿色高效的传动方案
Provide a green and efficient transmission scheme for the world

价值观 VALUES

至诚至信，共创共享
Sincere and trustworthy, co-creation and sharing

Smart Workshop
智能化车间

QUALITY

Digital Factory
数字化工厂

CONTENTS 目录

行星系列减速机
Planetary Gearbox

Product features

产品特点

精密行星齿轮减速机是我公司自主研发的新一代实用性产品，具有以下一些主要特点

Precision planetary gear reducer is a new generation of practical products independently developed by our company, which has the following main characteristics

低噪音
Low noise

低于65db。
below 65db.

高输入转速
High input speed

可达5000RPM。
Up to 5000RPM.

低间隙
Low Backlash

单级可达3弧分内，双级可达5弧分内。
One stage within 3 arc minutes, Two stage with 5 arcmin.

高扭矩
High torque

比一般行星减速机扭矩高。
Higher than conventional planetary gearbox.

高效率
High efficiency

单段式在97%以上，双段式在95%以上。
One stage is exceed 97%, Two stage is exceed 95%.

高稳定性
High stability

采用高强度合金钢材，整个齿轮经硬化处理，非只有表面硬化，确保使用寿命及长期使用仍保持最初的精密度。

Using high-strength steel alloy materal .Not just hardening on gear surface, but hardening entire gear to insure the gear life time and maintain high accuracy.

Product application

产品用途

精密行星齿轮减速机被广泛应用于以下领域

Precision planetary gear reducer is widely used in the following fields

01 航空航天、军事产业。
Aerospace, military industries.

02 医疗卫生、电子信息技术产业。
Medical health care, electronic information technology industry.

03 工业机器人、生产自动化、数控机床制造产业。
Industrial robot, production automation, CNC machine tool manufacturing industry.

04 汽车制造、纺织、印刷、食品、冶金、环保工程、仓储物流等产业。
Motor, textile, printing, food, metallurgical, environmental protection engineering, warehouse and logistics industry.

Description Reducer

减速机订货说明

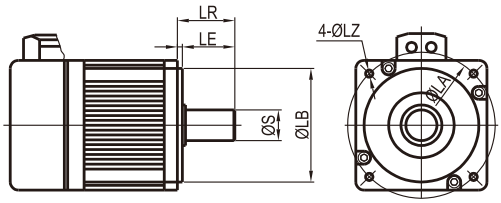
减速机型号说明

PL F 090 L1 7 20 002 YT 19

- 19: 电机输入轴径 Motor input shaft diameter
- YT: 法兰种类 The flange species
  (YT: 一体法兰Integral flange FT:分体法兰Split flange)
- 002: 连接法兰编号 Connecting flange serial number
- 20: 输出轴径 Output shaft diameter
- 7: 减速比 Ratio (详情请参阅内页 Refer to the inside page for details)
- L1: 级数 Stage(L1:一级1Stage L2:二级2Stage L3:三级3Stage)
- 090: 规格 Model(060/090/120/142/160/190/242/285/330)
- F: 系列名称 Series name
- PL: PL减速机的名称 Model name for PL reducer

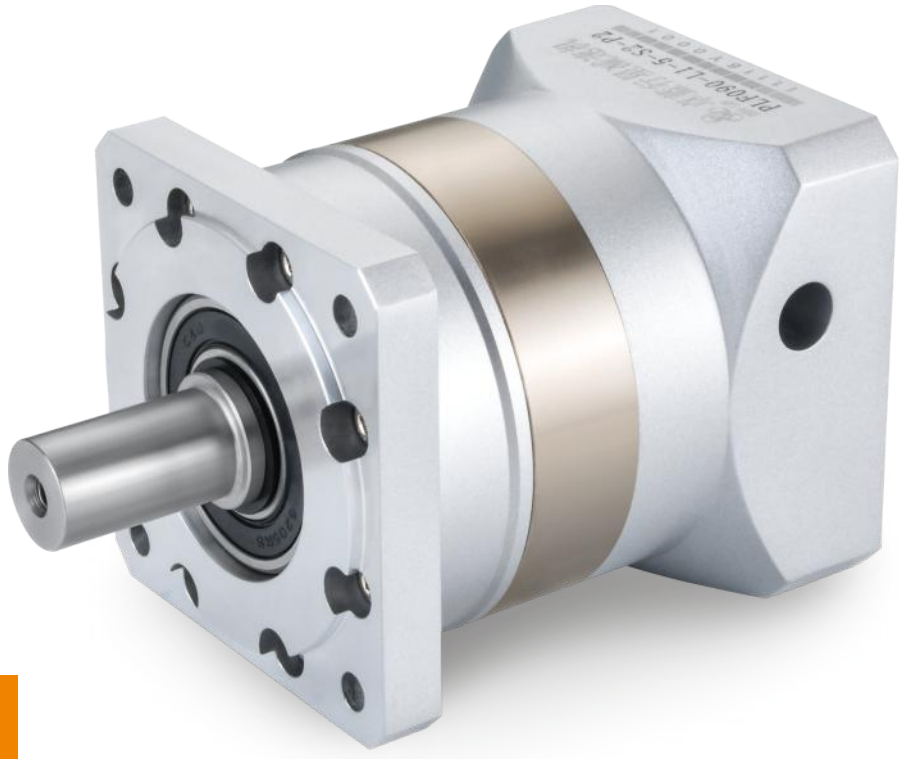
电机输出安装尺寸说明

(ΦS×LR / ΦLB×LE / 4-ΦLZ-ΦLA)



- 电机“安装孔“相关尺寸
  4: 安装孔数量，一般为4个
  ΦLZ: 安装孔的直径（注意螺纹孔时为M）
  ΦLA: 安装孔分度圆（虚拟圆）直径
- 电机”安装凸台”相关尺寸
  ΦLB: 凸台直径 LE: 凸台深度
- 电机“输出轴“相关尺寸
  ΦS: 电机轴直径 LR: 包括凸台后的长度

- PLF060
- PLF080
- PLF090
- PLF120
- PLF160



PLF

Series

PLF系列减速机核心特性

The Core Characteristics of PLF Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

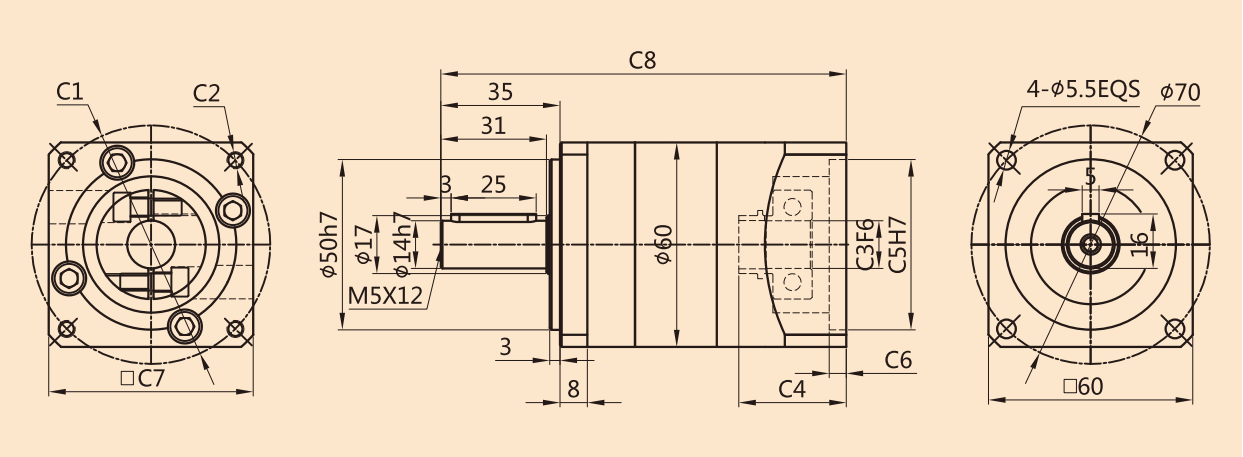
型号 Model	单位 Unit	PLF060	PLF080	PLF090	PLF120	PLF160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	60	148	310	3	1
		27	86	86	222	605	4	
		27	94.5	94.5	235	420	5	
		19.5	64	64	158	(270)	7(8)	
		8.5	39.5	39.5	93	-	10	
			96	96	250	680	12	2
			96	96	250	-	15	
		30	96	96	250	680	16	
		30	96	96	250	680	20	
		33	105.5	105.5	264	460	25	
		30	96	96	250	(680)	28(32)	
		33	105.5	105.5	264	-	35	
		30	96	96	250	460	40	
		33	105.5	105.5	264	(310)	50(64)	
		21.5	71.5	71.5	177	-	70	
		37.5	120	120	310	900	64	3
		37.5	120	120	310	900	80	
		37.5	120	120	310	900	100	
		41.0	132.5	132.5	329	580	125	
		37.5	120	120	310	(580)	140(160)	
		41.0	132.5	132.5	329	-	175	
		37.5	120	120	310	580	200	
		41.0	132.5	132.5	329	(900)	250(256)	
		37.5	120	120	310	(580)	280(320)	
		41.0	132.5	132.5	329	(400)	350(512)	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque						
额定输入转速 Norminal input speed	rmp	3000	3000	3000	2000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	6000	3500	3500		
最大径向力 Maximum radial force	N	170	1020	1020	2230	3200		
最大轴向力 Maximum axial force	N	120	850	850	1550	3000		
效率 Efficiency	%	Single [97%]			Double [95%]			
平均寿命 Average lifetime	h	20000						
重量 Weight	kg	1.4	3.7	4.7	6.9	19		1
		1.6	4.2	5.3	8.9	25		2
		1.8	4.7	5.9	11.2	31		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLF060	PLF080	PLF090	PLF120	PLF160	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	0.4	1.65	4.31	3	1
		0.094	0.309	0.309	1.22	5.15	4	
		0.092	0.291	0.291	1.15	4.93	5	
		0.091	0.285	0.285	1.13	(4.84)	7(8)	
		0.091	0.283	0.283	1.11	-	10	
			0.4	0.4	1.65	6.31	12	2
			0.309	0.309	1.65	-	15	
		0.094	0.291	0.291	1.22	5.15	16	
		0.092	0.291	0.291	1.15	4.93	20	
		0.092	0.291	0.291	1.15	4.93	25	
		0.091	0.285	0.285	1.13	(4.84)	28(32)	
		0.091	0.285	0.285	1.13	-	35	
		0.091	0.2835	0.2835	1.11	4.84	40	
		0.091	0.283	0.283	1.11	(4.84)	50(64)	
		0.091	0.283	0.283	1.11	-	70	
		0.092	0.291	0.291	1.15	4.93	64	3
		0.092	0.291	0.291	1.15	4.93	80	
		0.092	0.291	0.291	1.15	4.93	100	
		0.092	0.291	0.291	1.15	4.84	125	
		0.091	0.291	0.291	1.13	(4.84)	140(160)	
		0.091	0.291	0.291	1.13	-	175	
		0.091	0.283	0.283	1.11	4.84	200	
		0.091	0.283	0.283	1.11	(4.84)	250(256)	
		0.091	0.283	0.283	1.11	(4.84)	280(320)	
		0.091	0.283	0.283	1.11	(4.84)	350(512)	
噪音 Noise	dB	60	65	65	68	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication						
防护等级 levels of protection		IP65						

外形尺寸图表
Outline dimensional

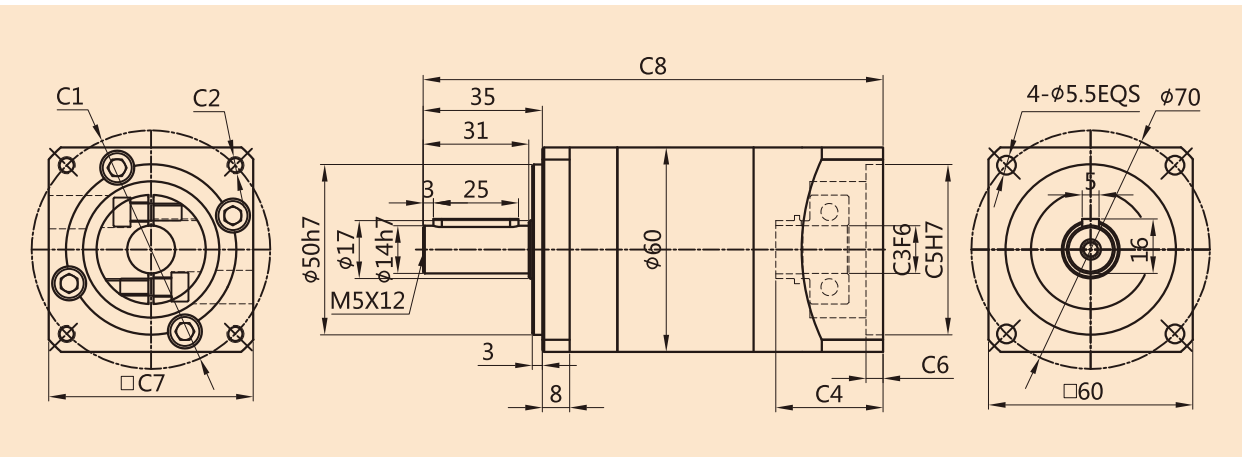
PLF-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	119
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	119
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	119
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	119

PLF-060-L2

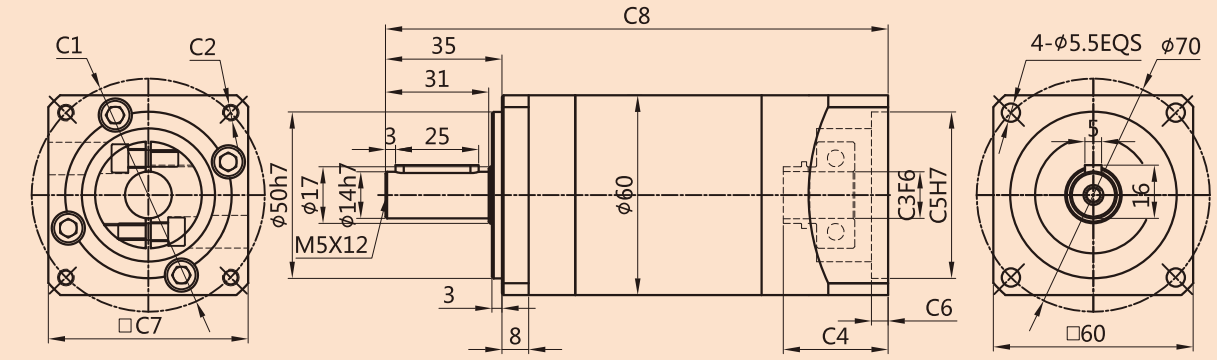


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	135
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	135
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	135
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	135

外形尺寸图表
Outline dimensional

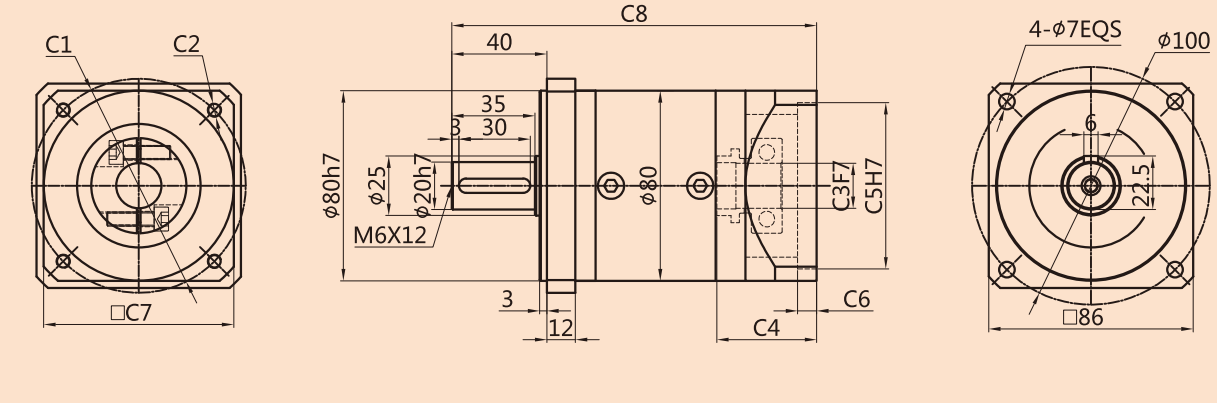
PLF-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	151
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	151
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	151
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	151

PLF-080-L1

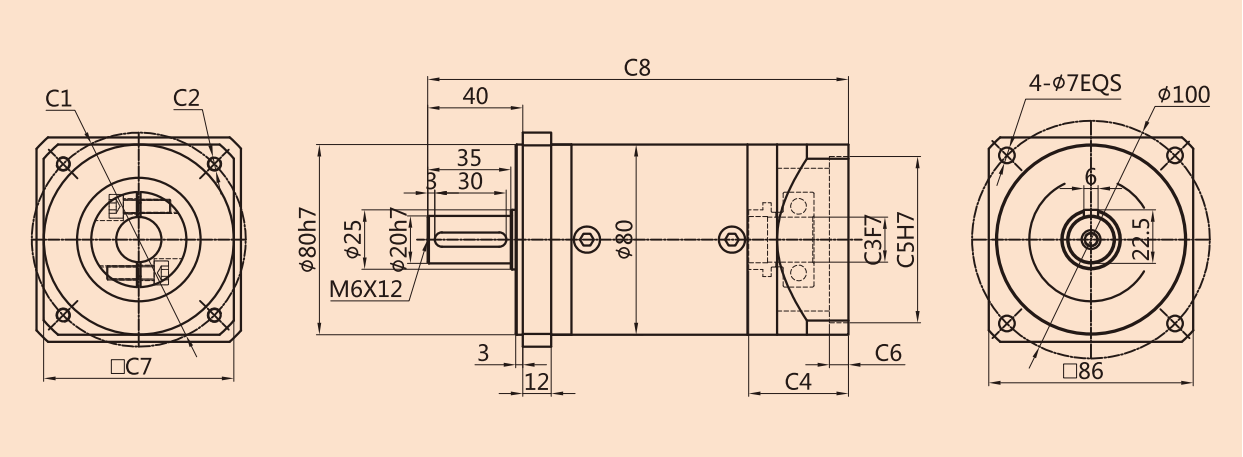


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-080-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	153
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	153
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	153

外形尺寸图表
Outline dimensional

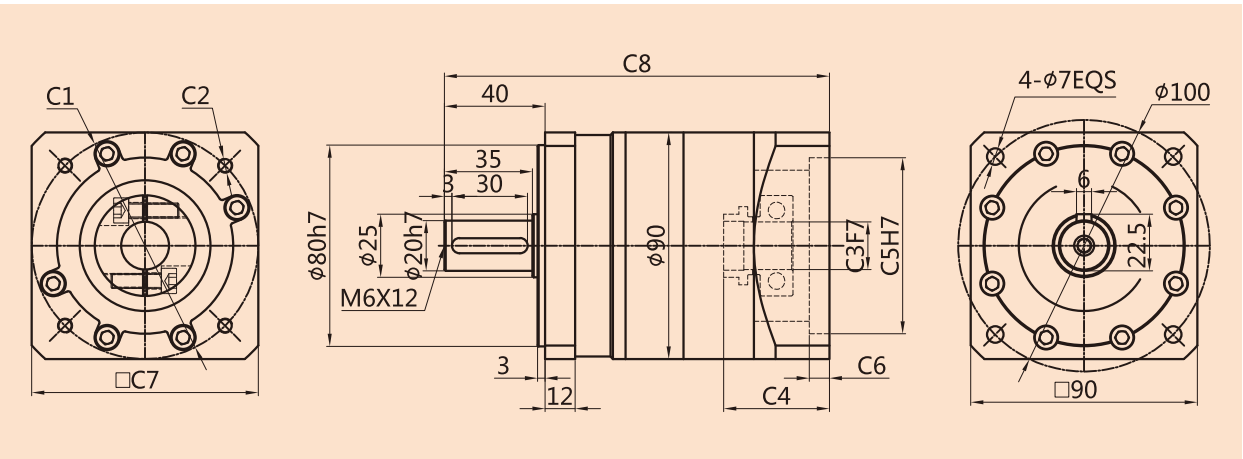
PLF-080-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-080-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	176.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	176.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	176.5

PLF-090-L1

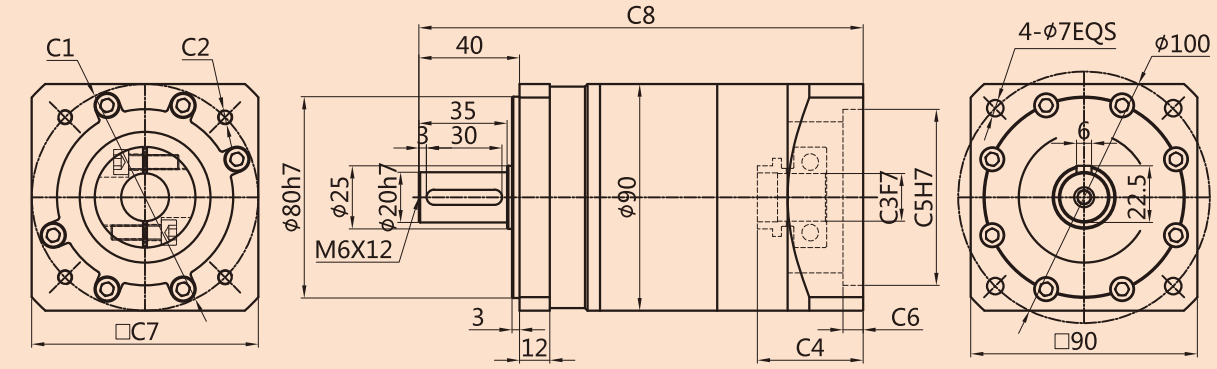


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	153
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	153
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	153

外形尺寸图表
Outline dimensional

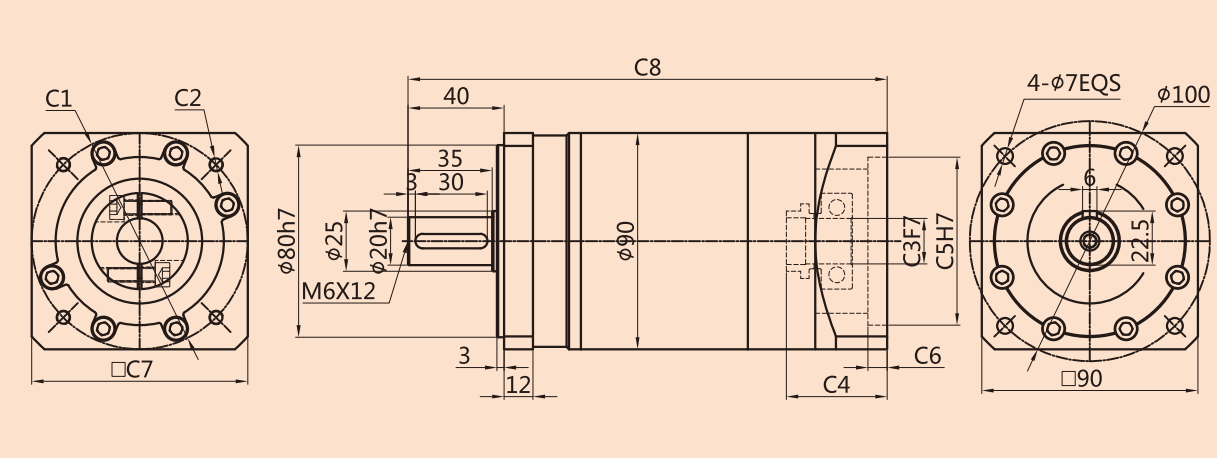
PLF-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	176.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	176.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	176.5

PLF-090-L3

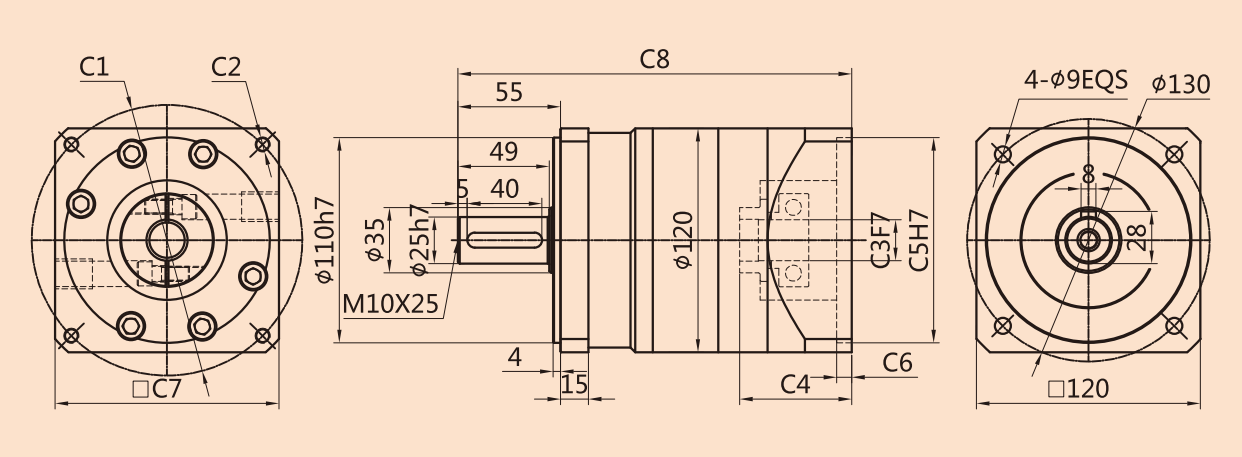


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	199.5
	69.6	4-M6	Φ14	42	Φ73	8.0	90	199.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	199.5

外形尺寸图表
Outline dimensional

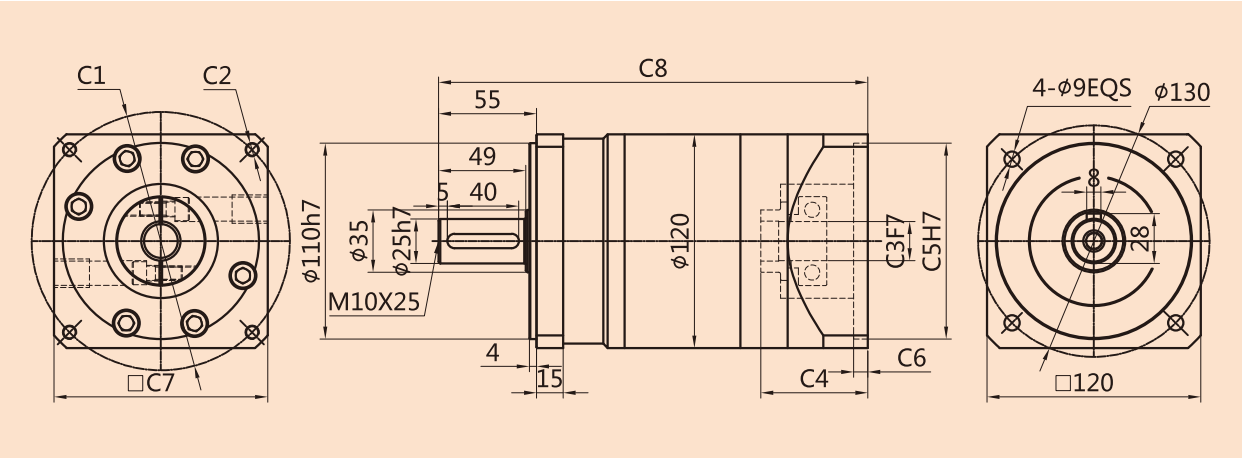
PLF-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	200
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	211
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	211
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	211

PLF-120-L2

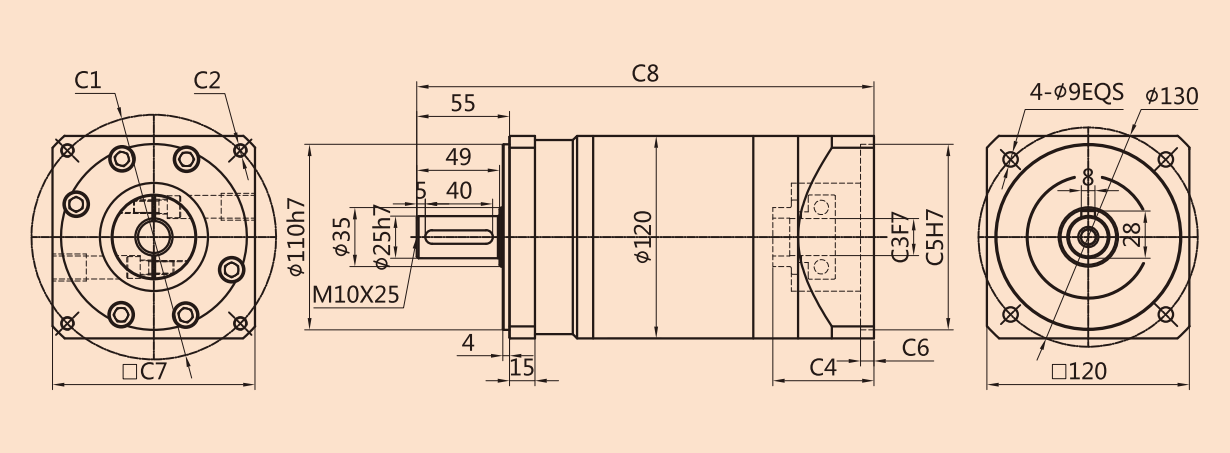


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	230
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	241
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	241
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	241

外形尺寸图表
Outline dimensional

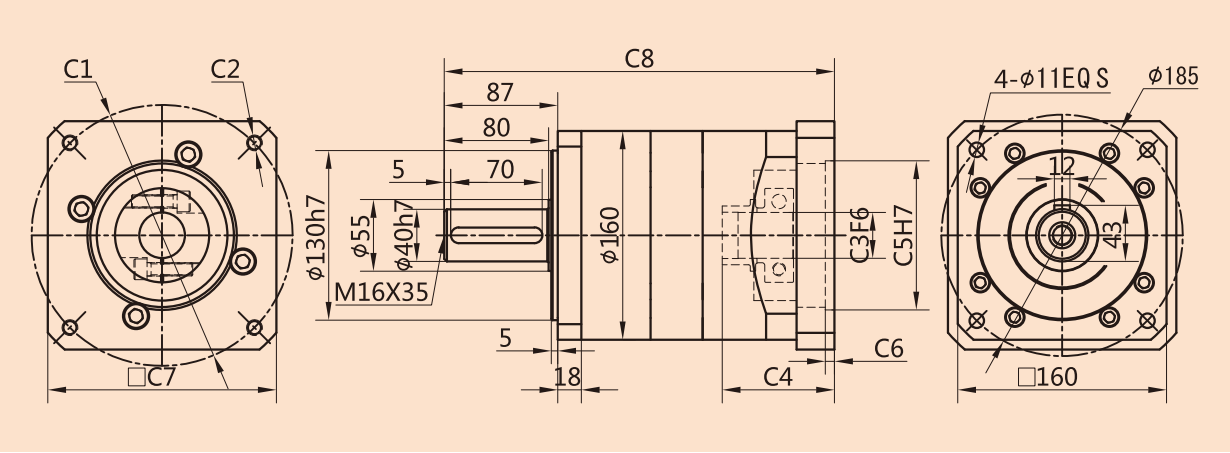
PLF-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	260
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	271
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	271
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	271

PLF-160-L1

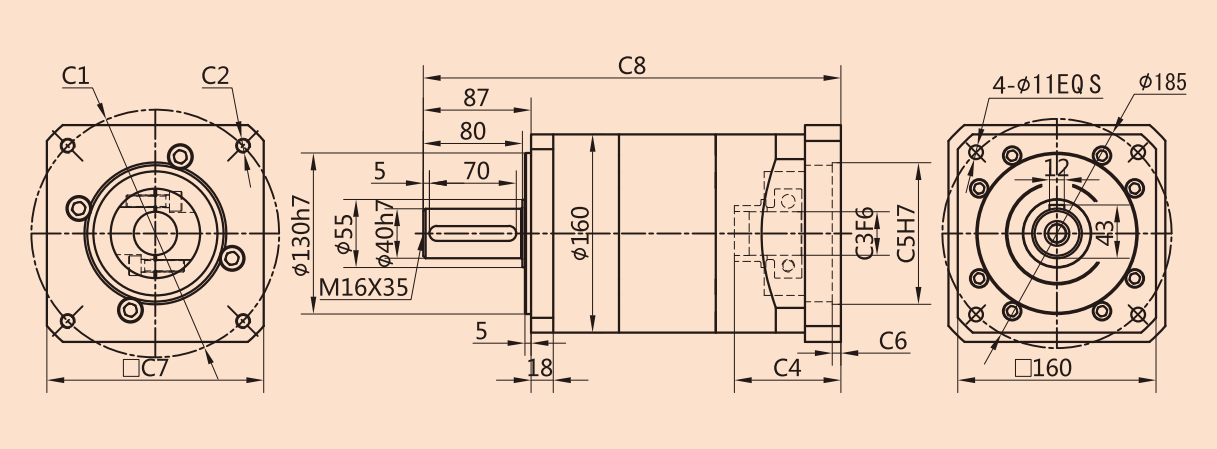


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-160-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	275
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	275
	Φ165	4-M10	Φ32	62	Φ130	7	142	275
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	299
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	330
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	299

外形尺寸图表
Outline dimensional

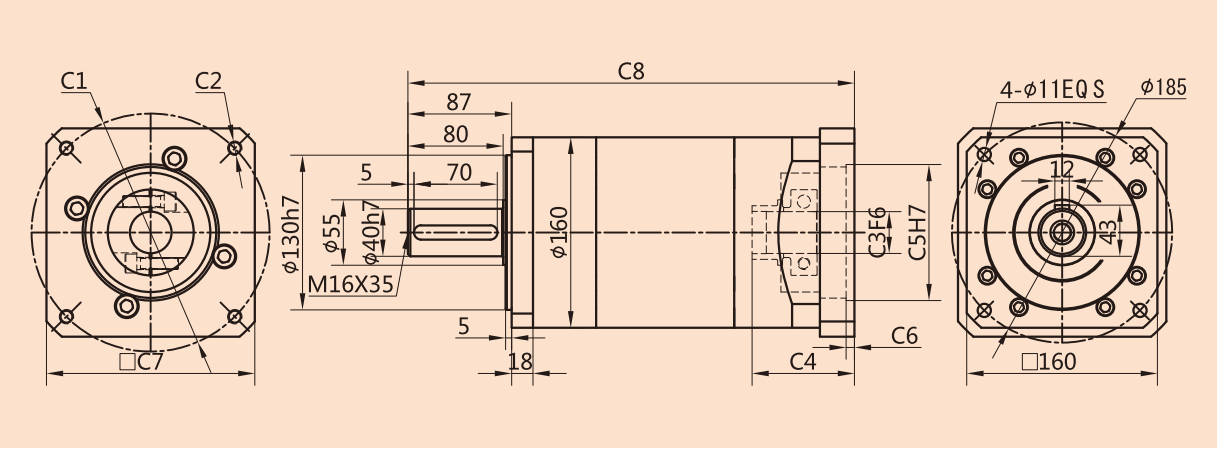
PLF-160-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-160-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	313
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	313
	Φ165	4-M10	Φ32	62	Φ130	7	142	313
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	337
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	368
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	337

PLF-160-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLF-160-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	351
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	351
	Φ165	4-M10	Φ32	62	Φ130	7	142	351
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	375
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	406
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	375

- PLE060
- PLE080
- PLE090
- PLE120
- PLE160

PLE

Series

PLE系列减速机核心特性

The Core Characteristics of PLE Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

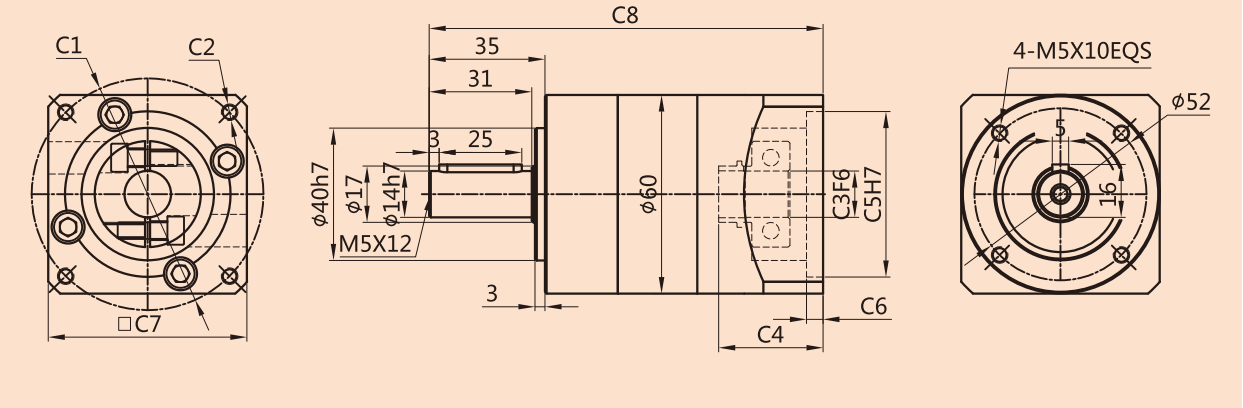
型号 Model	单位 Unit	PLE060	PLE080	PLE090	PLE120	PLE160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	60	148	310	3	1
		27	86	86	222	605	4	
		27	94.5	94.5	235	420	5	
		19.5	64	64	158	(270)	7(8)	
		8.5	39.5	39.5	93	-	10	
			96	96	250	680	12	2
			96	96	250	-	15	
		30	96	96	250	680	16	
		30	96	96	250	680	20	
		33	105.5	105.5	264	460	25	
		30	96	96	250	(680)	28(32)	
		33	105.5	105.5	264	-	35	
		30	96	96	250	460	40	
		33	105.5	105.5	264	(310)	50(64)	
		21.5	71.5	71.5	177	-	70	
		37.5	120	120	310	900	64	3
		37.5	120	120	310	900	80	
		37.5	120	120	310	900	100	
		41.0	132.5	132.5	329	580	125	
		37.5	120	120	310	(580)	140(160)	
		41.0	132.5	132.5	329	-	175	
		37.5	120	120	310	580	200	
		41.0	132.5	132.5	329	(900)	250(256)	
		37.5	120	120	310	(580)	280(320)	
		41.0	132.5	132.5	329	(400)	350(512)	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque						
额定输入转速 Norminal input speed	rmp	3000	3000	3000	2000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	6000	3500	3500		
最大径向力 Maximum radial force	N	170	1020	1020	2230	3200		
最大轴向力 Maximum axial force	N	120	850	850	1550	3000		
效率 Efficiency	%	Single [97%]			Double [95%]			
平均寿命 Average lifetime	h	20000						
重量 Weight	kg	1.4	3.7	4.7	6.9	19		1
		1.6	4.2	5.3	8.9	25		2
		1.8	4.7	5.9	11.2	31		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLE060	PLE080	PLE090	PLE120	PLE160	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	0.4	1.65	4.13	3	1
		0.094	0.309	0.309	1.22	5.15	4	
		0.092	0.291	0.291	1.15	4.93	5	
		0.091	0.285	0.285	1.13	(4.84)	7(8)	
		0.091	0.283	0.283	1.11	-	10	
			0.4	0.4	1.65	6.13	12	2
			0.309	0.309	1.65	-	15	
		0.094	0.291	0.291	1.22	5.15	16	
		0.092	0.291	0.291	1.15	4.93	20	
		0.092	0.291	0.291	1.15	4.93	25	
		0.091	0.285	0.285	1.13	(4.84)	28(32)	
		0.091	0.285	0.285	1.13	-	35	
		0.091	0.2835	0.2835	1.11	4.84	40	
		0.091	0.283	0.283	1.11	-	50	
		0.091	0.283	0.283	1.11	(4.84)	70(64)	
		0.092	0.291	0.291	1.15	4.93	64	3
		0.092	0.291	0.291	1.15	4.93	80	
		0.092	0.291	0.291	1.15	4.93	100	
		0.092	0.291	0.291	1.15	4.84	125	
		0.091	0.291	0.291	1.13	(4.84)	140(160)	
		0.091	0.291	0.291	1.13	-	175	
		0.091	0.283	0.283	1.11	4.84	200	
		0.091	0.283	0.283	1.11	(4.84)	250(256)	
		0.091	0.283	0.283	1.11	(4.84)	280(320)	
		0.091	0.283	0.283	1.11	(4.84)	350(512)	
噪音 Noise	dB	60	65	65	68	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication						
防护等级 levels of protection		IP65						

外形尺寸图表
Outline dimensional

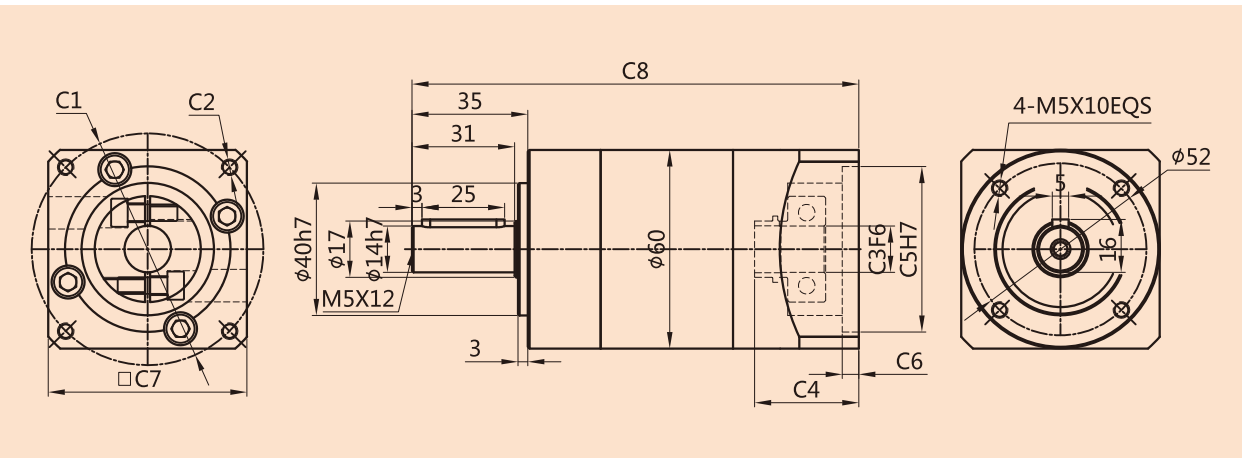
PLE-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	119
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	119
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	119
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	119

PLE-060-L2

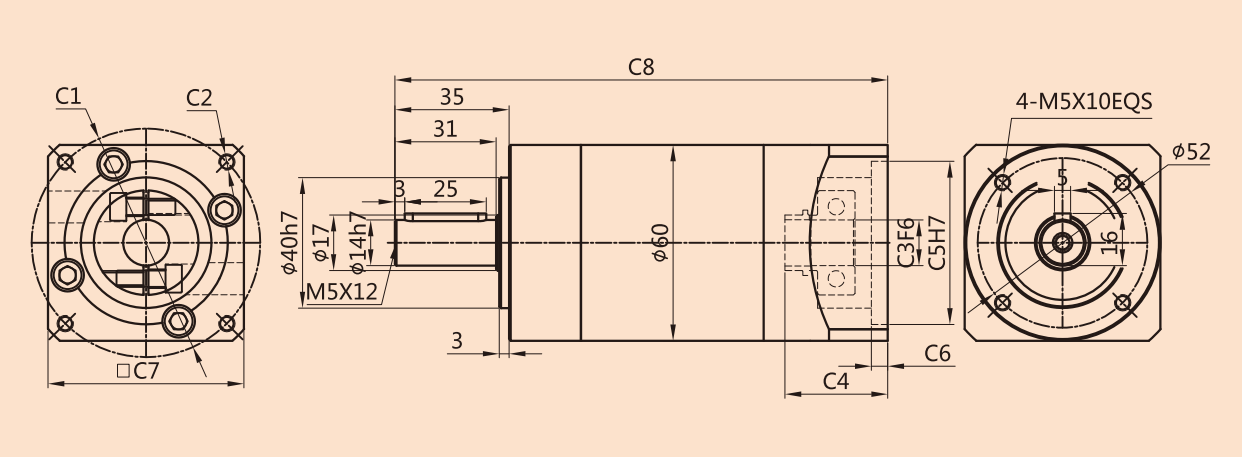


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	135
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	135
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	135
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	135

外形尺寸图表
Outline dimensional

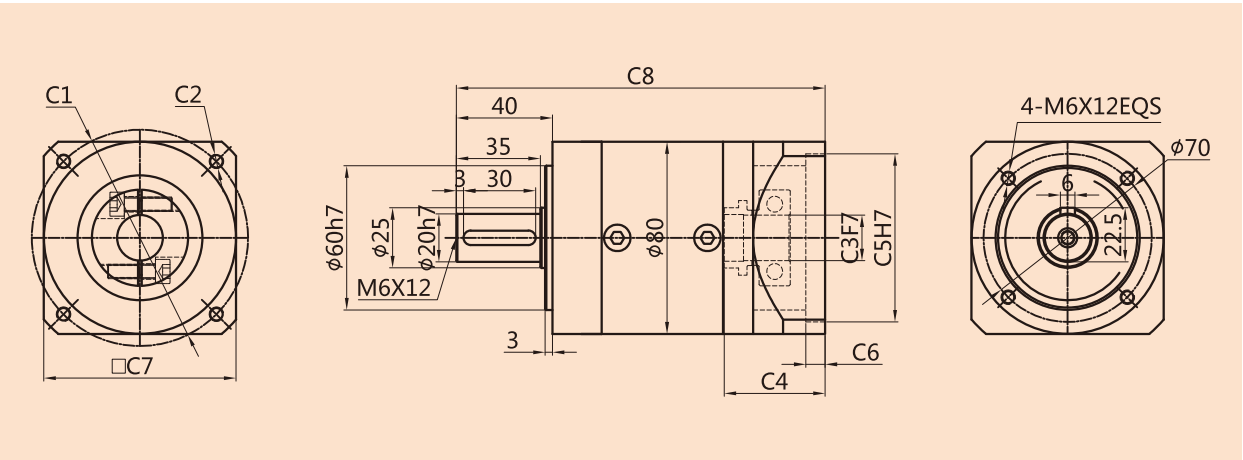
PLE-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	151
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	151
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	151
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	151

PLE-080-L1

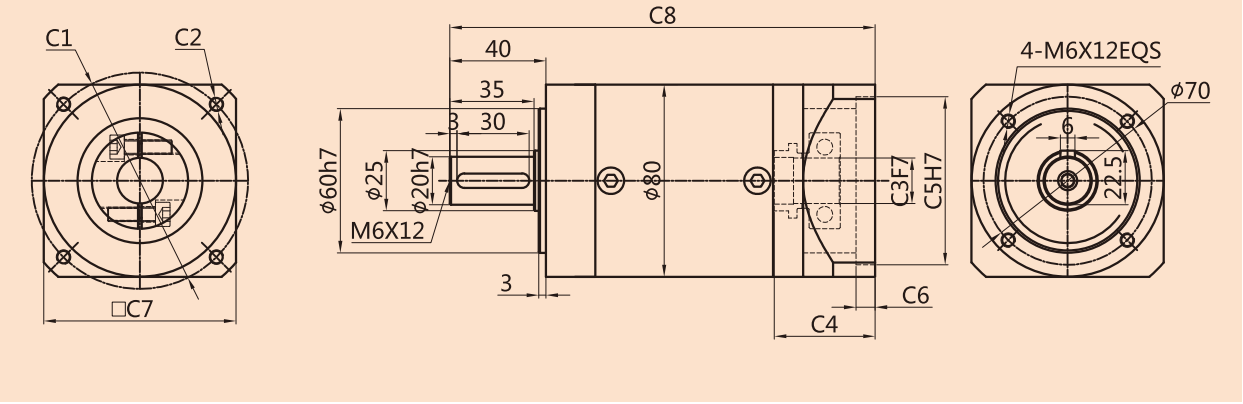


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-080-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	153
	69.6	4-M6	Φ14	42	Φ73	8.0	80	153
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	153

外形尺寸图表
Outline dimensional

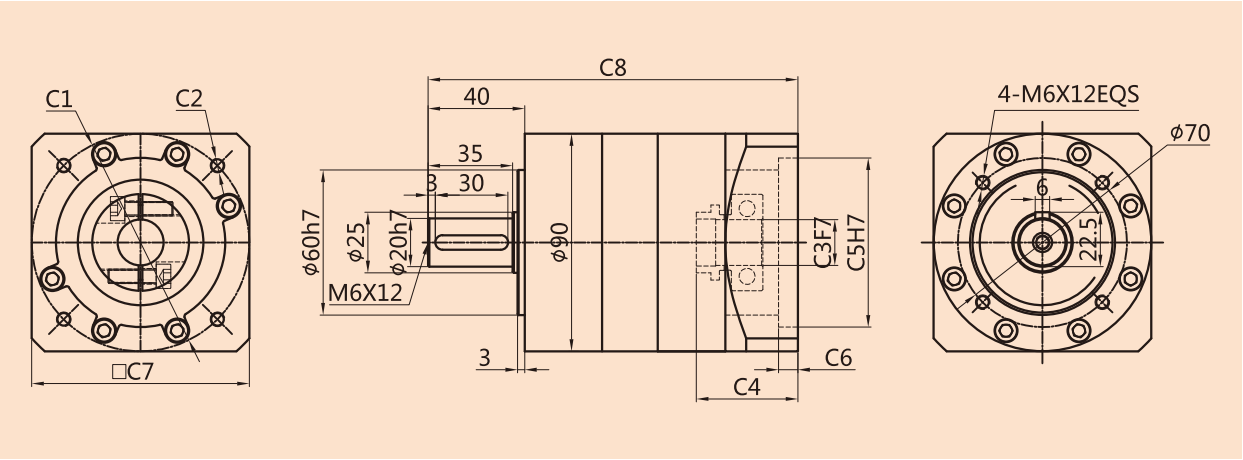
PLE-080-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-080-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	176.5
	69.6	4-M6	Φ14	42	Φ73	8.0	80	176.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	176.5

PLE-090-L1

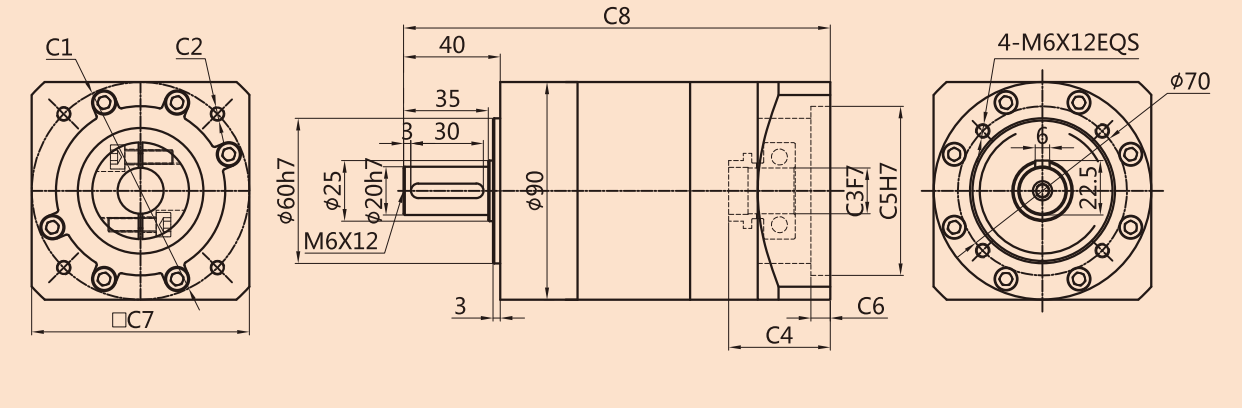


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	153
	69.6	4-M6	Φ14	42	Φ73	8.0	90	153
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	153

外形尺寸图表
Outline dimensional

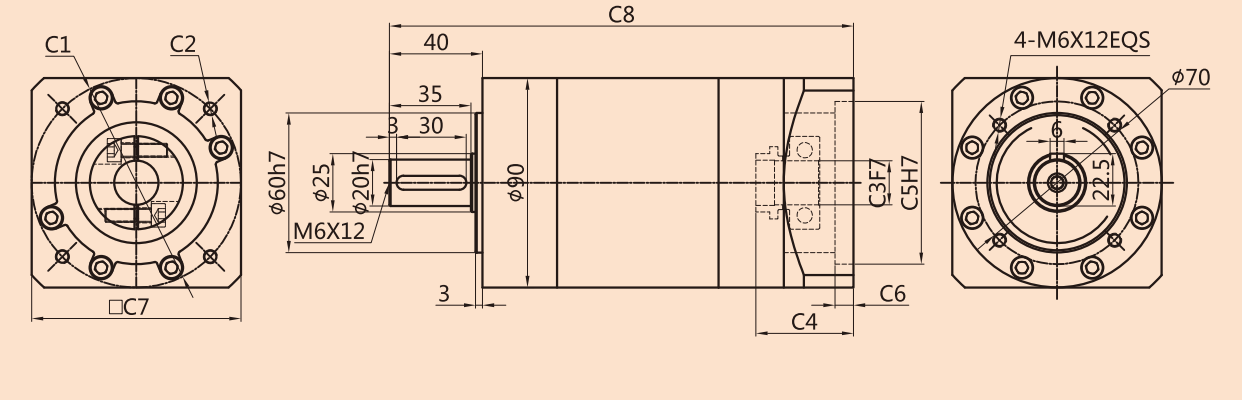
PLE-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	176.5
	69.6	4-M6	Φ14	42	Φ73	8.0	90	176.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	176.5

PLE-090-L3

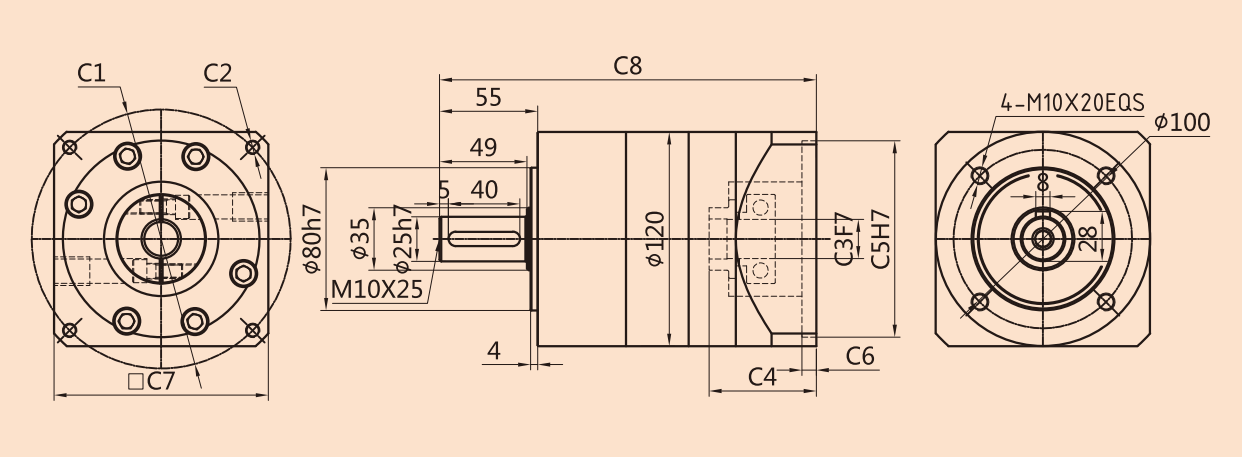


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	199.5
	69.6	4-M6	Φ14	42	Φ73	8.0	90	199.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	199.5

外形尺寸图表
Outline dimensional

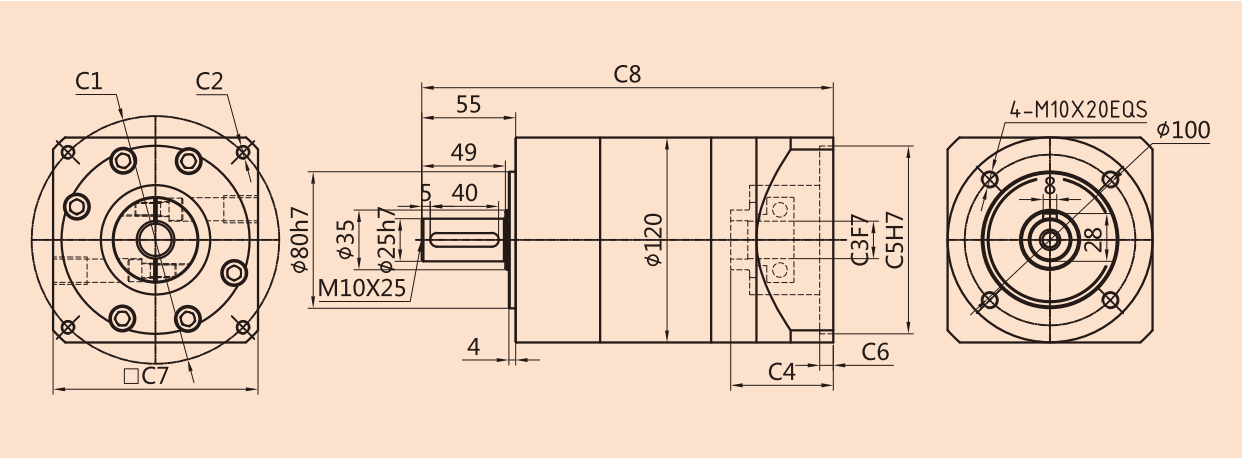
PLE-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	200
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	211
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	211
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	211

PLE-120-L2

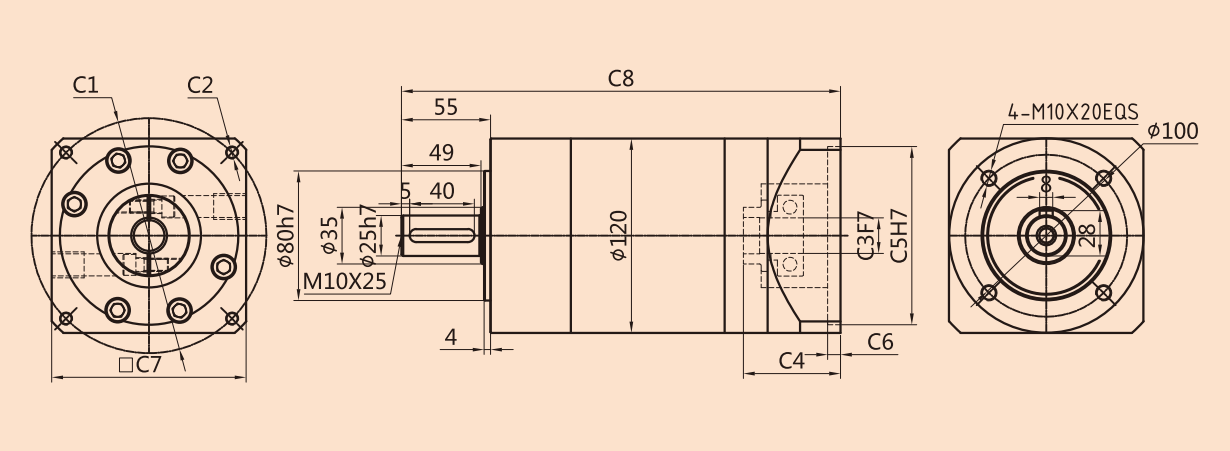


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	230
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	241
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	241
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	241

外形尺寸图表
Outline dimensional

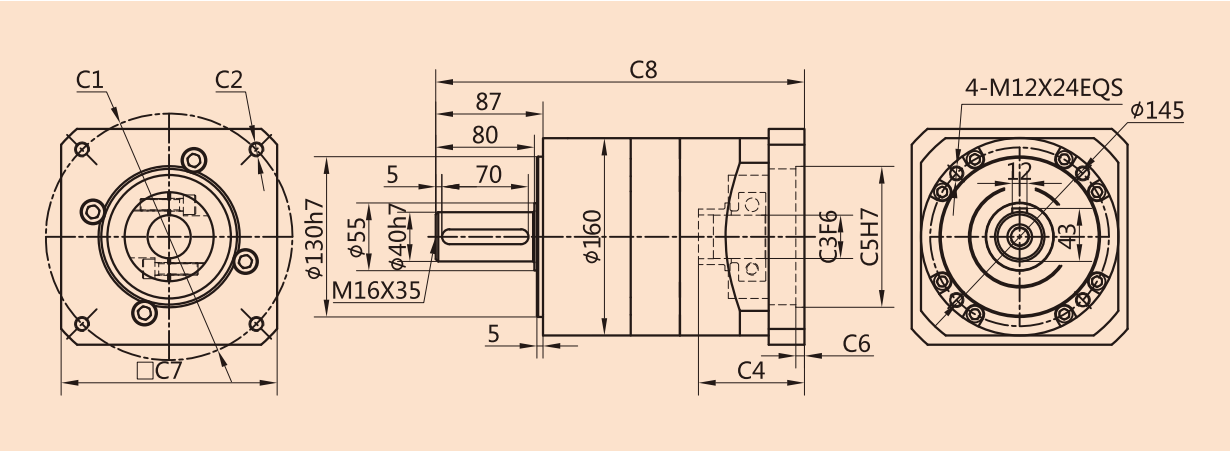
PLE-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	260
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	271
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	271
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	271

PLE-160-L1

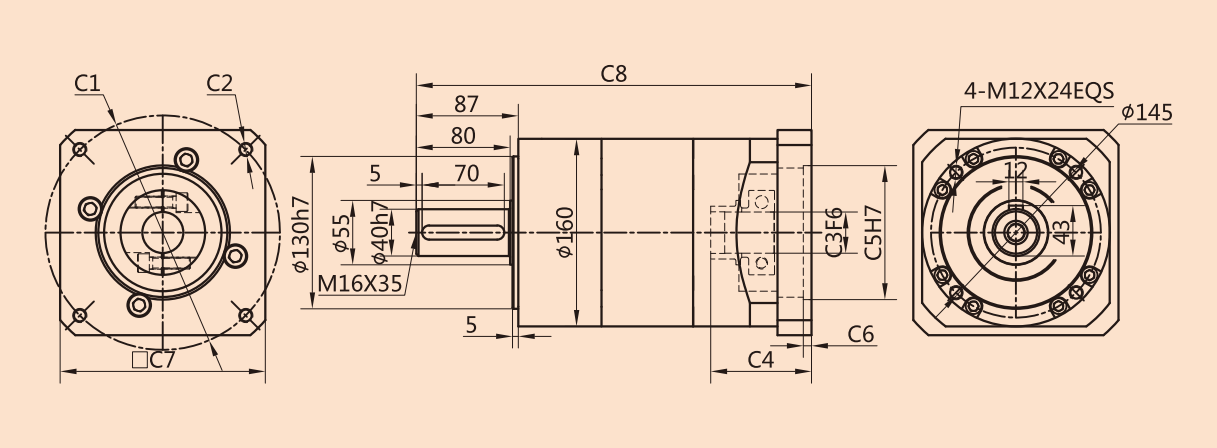


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-160-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	275
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	275
	Φ165	4-M10	Φ32	62	Φ130	7	142	275
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	299
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	330
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	299

外形尺寸图表
Outline dimensional

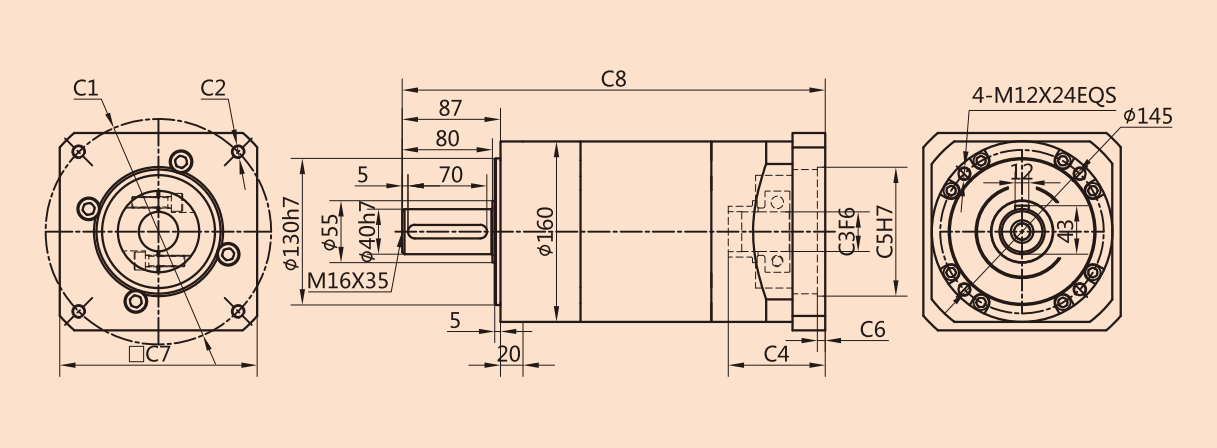
PLE-160-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-160-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	313
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	313
	Φ165	4-M10	Φ32	62	Φ130	7	142	313
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	337
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	368
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	337

PLE-160-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLE-160-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	351
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	351
	Φ165	4-M10	Φ32	62	Φ130	7	142	351
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	375
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	406
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	375

- ZPLF060
- ZPLF090
- ZPLF120

ZPLF

Series

ZPLF系列减速机核心特性

The Core Characteristics of ZPLF Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

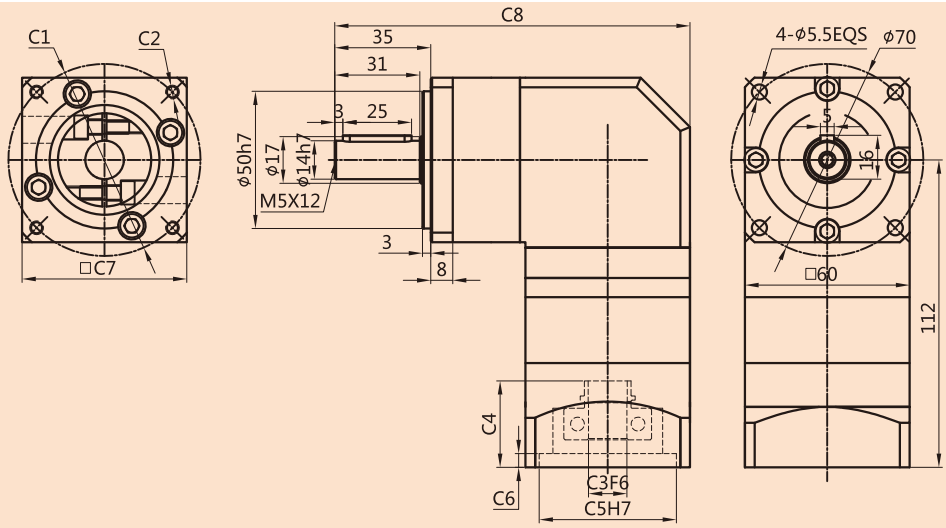
型号 Model	单位 Unit	ZPLF060	ZPLF090	ZPLF120	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	3	1
		27	86	222	4	
		27	94.5	235	5	
		19.5	64	158	7	
		8.5	39.5	93	10	
			96	250	12	2
			96	250	15	
		30	96	250	16	
		30	96	250	20	
		33	105.5	264	25	
		30	96	250	28	
		33	105.5	264	35	
		30	96	250	40	
		33	105.5	264	50	
		21.5	71.5	177	70	
		37.5	120	310	64	3
		37.5	120	310	80	
		37.5	120	310	100	
		41.0	132.5	329	125	
		37.5	120	310	140	
		41.0	132.5	329	175	
		37.5	120	310	200	
		41.0	132.5	329	250	
		37.5	120	310	280	
		41.0	132.5	329	350	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	3000	3000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500		
最大径向力 Maximum radial force	N	170	1020	2230		
最大轴向力 Maximum axial force	N	120	850	1550		
效率 Efficiency	%	Single [97%]		Double [95%]		
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	2.2	4.7	11.5		1
		2.5	5.3	13.5		2
		2.8	5.9	15.7		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	ZPLF060	ZPLF090	ZPLF120	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	1.65	3	1
		0.094	0.309	1.22	4	
		0.092	0.291	1.15	5	
		0.091	0.285	1.13	7	
		0.091	0.283	1.11	10	
			0.4	1.65	12	2
			0.309	1.65	15	
		0.094	0.291	1.22	16	
		0.092	0.291	1.15	20	
		0.092	0.291	1.15	25	
		0.091	0.285	1.13	28	
		0.091	0.285	1.13	35	
		0.091	0.2835	1.11	40	
		0.091	0.283	1.11	50	
		0.091	0.283	1.11	70	
		0.092	0.291	1.15	64	3
		0.092	0.291	1.15	80	
		0.092	0.291	1.15	100	
		0.092	0.291	1.15	125	
		0.091	0.291	1.13	140	
		0.091	0.291	1.13	175	
		0.091	0.283	1.11	200	
		0.091	0.283	1.11	250	
		0.091	0.283	1.11	280	
		0.091	0.283	1.11	350	
噪音 Noise	dB	60	65	68		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

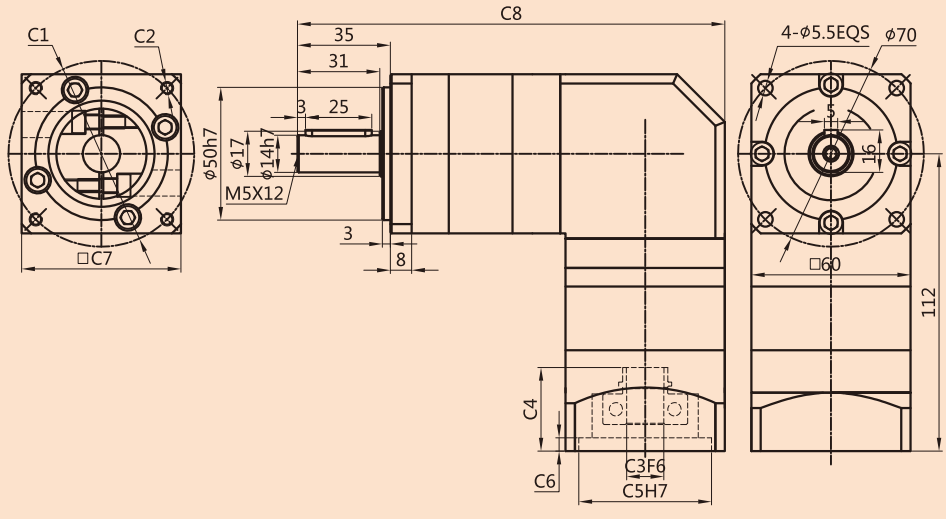
ZPLF-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	129.5
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	129.5
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	129.5
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	129.5

ZPLF-060-L2

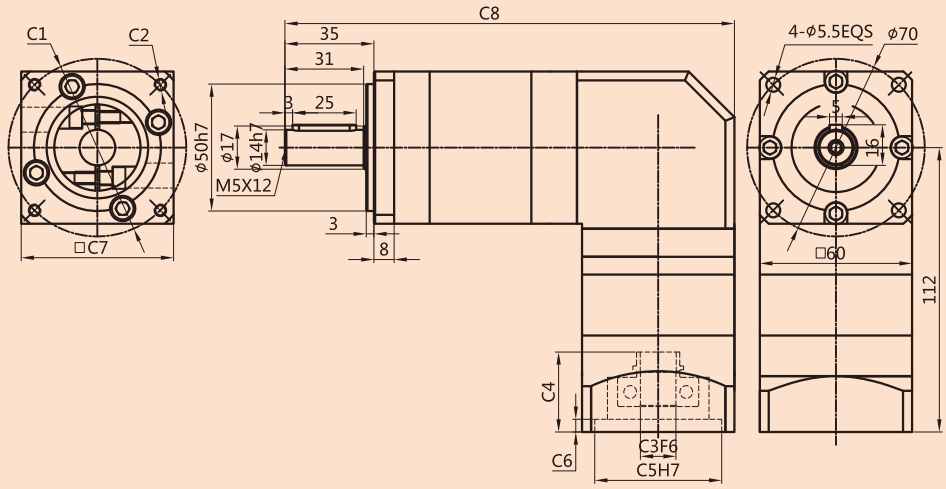


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	161
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	161
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	161
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	161

外形尺寸图表
Outline dimensional

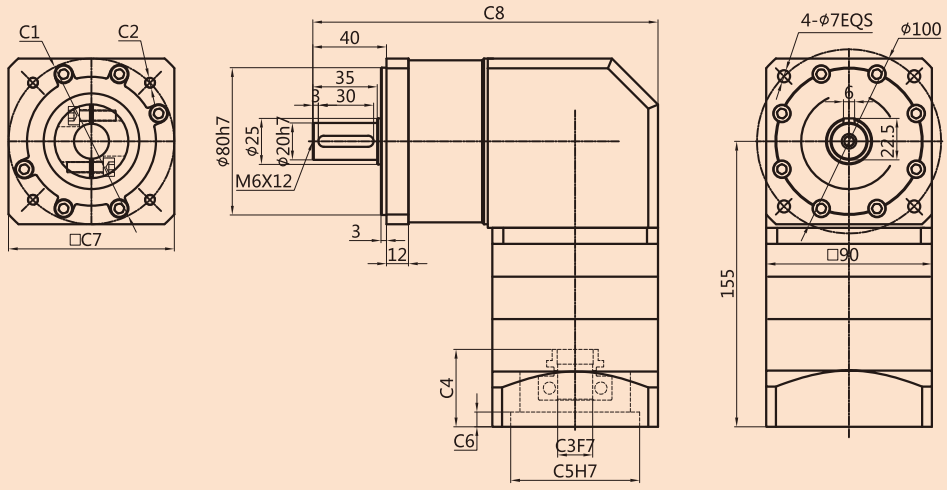
ZPLF-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	177
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	177
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	177
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	177

ZPLF-090-L1

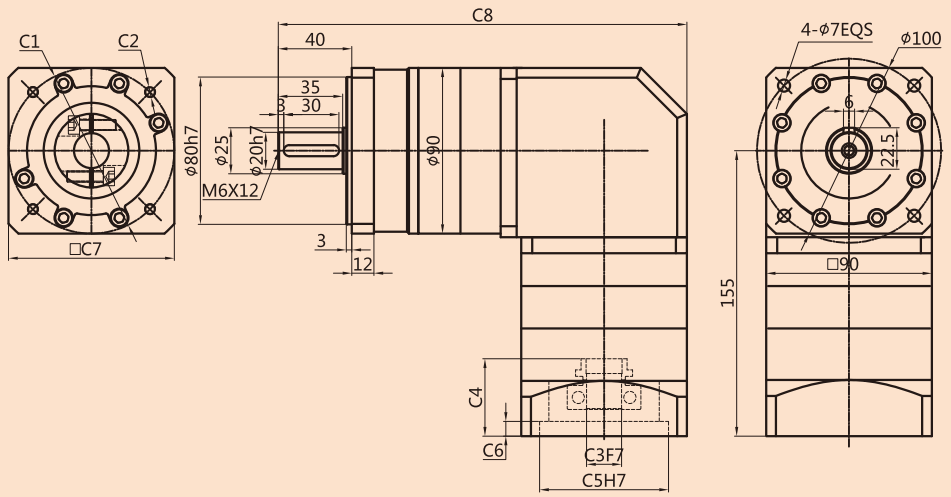


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	187.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	187.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	187.5

外形尺寸图表
Outline dimensional

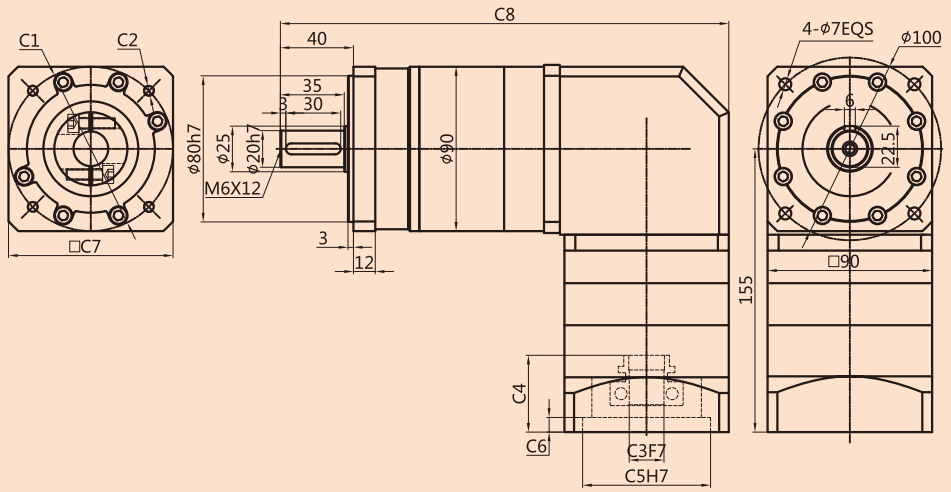
ZPLF-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	222
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	222
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	222

ZPLF-090-L3

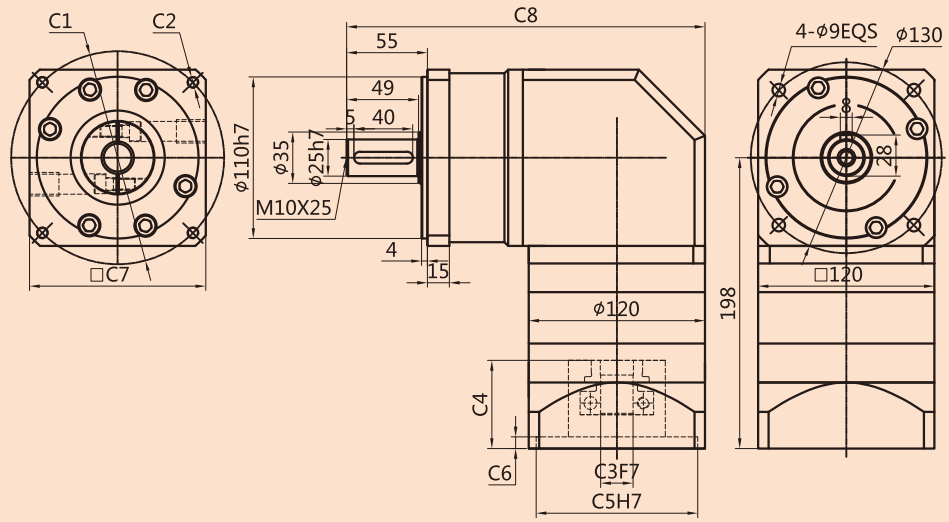


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	245.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	245.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	245.5

外形尺寸图表
Outline dimensional

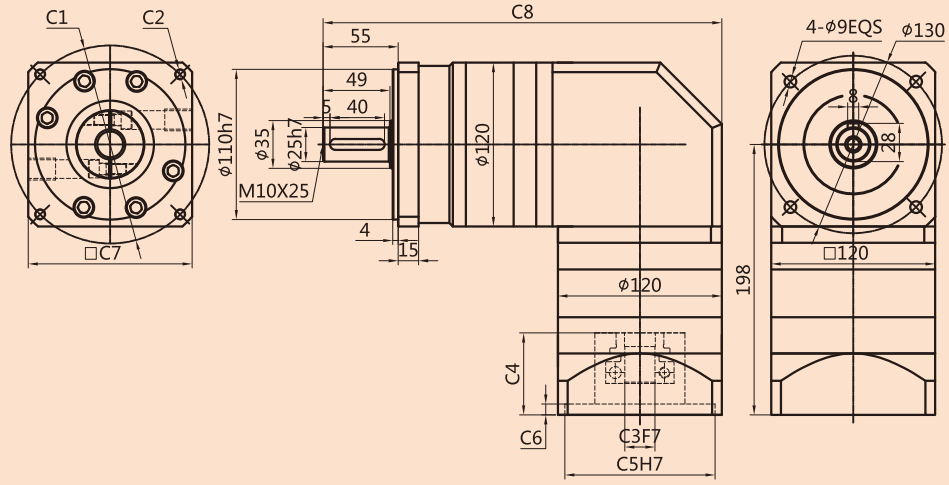
ZPLF-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	244
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	244
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	244
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	244

ZPLF-120-L2

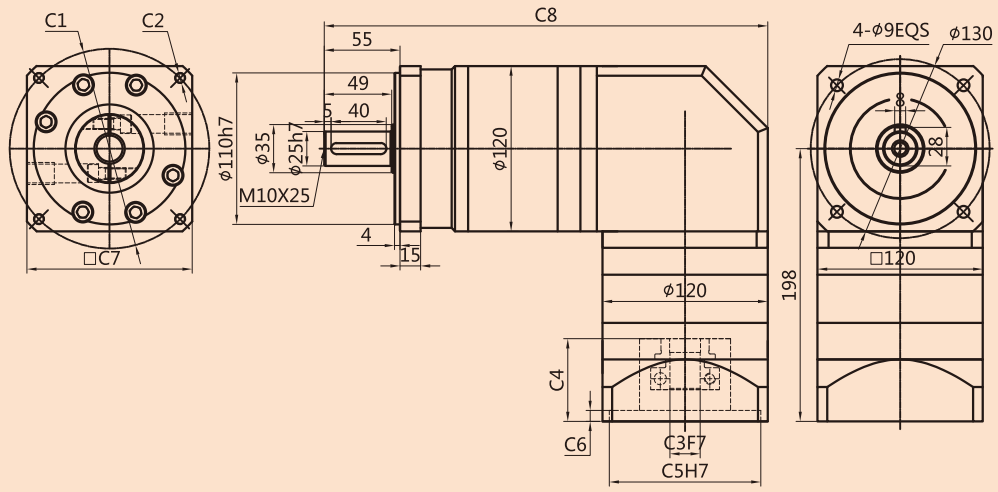


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	292
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	292
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	292
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	292

外形尺寸图表
Outline dimensional

ZPLF-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	322
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	322
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	322
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	322

- ZPLE060
- ZPLE090
- ZPLE120

ZPLE

Series

ZPLE系列减速机核心特性

The Core Characteristics of ZPLE Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

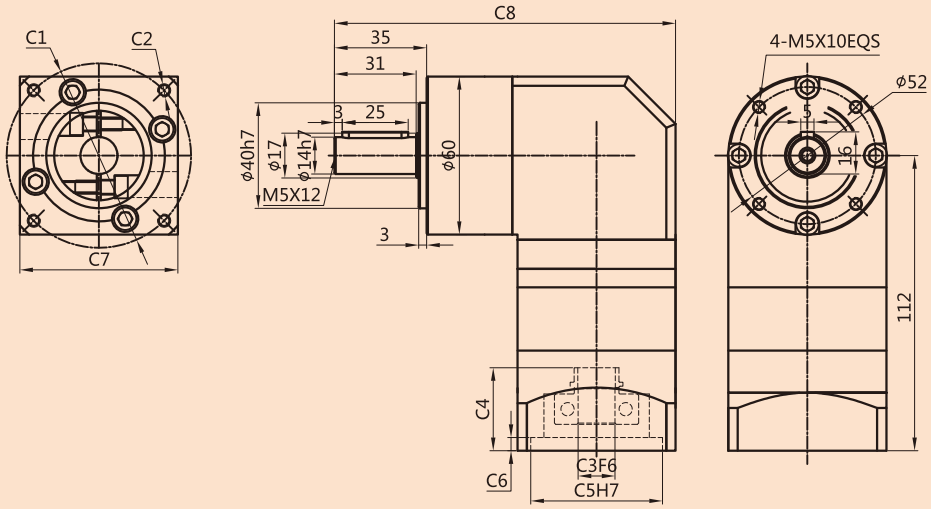
型号 Model	单位 Unit	ZPLE060	ZPLE090	ZPLE120	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	3	1
		27	86	222	4	
		27	94.5	235	5	
		19.5	64	158	7	
		8.5	39.5	93	10	
			96	250	12	2
			96	250	15	
		30	96	250	16	
		30	96	250	20	
		33	105.5	264	25	
		30	96	250	28	
		33	105.5	264	35	
		30	96	250	40	
		33	105.5	264	50	
		21.5	71.5	177	70	
		37.5	120	310	64	3
		37.5	120	310	80	
		37.5	120	310	100	
		41.0	132.5	329	125	
		37.5	120	310	140	
		41.0	132.5	329	175	
		37.5	120	310	200	
		41.0	132.5	329	250	
		37.5	120	310	280	
		41.0	132.5	329	350	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	3000	3000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500		
最大径向力 Maximum radial force	N	170	1020	2230		
最大轴向力 Maximum axial force	N	120	850	1550		
效率 Efficiency	%	Single [97%]		Double [95%]		
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	2.2	4.7	11.5		1
		2.5	5.3	13.5		2
		2.8	5.9	15.7		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	ZPLE060	ZPLE090	ZPLE120	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	1.65	3	1
		0.094	0.309	1.22	4	
		0.092	0.291	1.15	5	
		0.091	0.285	1.13	7	
		0.091	0.283	1.11	10	
			0.4	1.65	12	2
			0.309	1.65	15	
		0.094	0.291	1.22	16	
		0.092	0.291	1.15	20	
		0.092	0.291	1.15	25	
		0.091	0.285	1.13	28	
		0.091	0.285	1.13	35	
		0.091	0.2835	1.11	40	
		0.091	0.283	1.11	50	
		0.091	0.283	1.11	70	
		0.092	0.291	1.15	64	3
		0.092	0.291	1.15	80	
		0.092	0.291	1.15	100	
		0.092	0.291	1.15	125	
		0.091	0.291	1.13	140	
		0.091	0.291	1.13	175	
		0.091	0.283	1.11	200	
		0.091	0.283	1.11	250	
		0.091	0.283	1.11	280	
		0.091	0.283	1.11	350	
噪音 Noise	dB	60	65	68		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

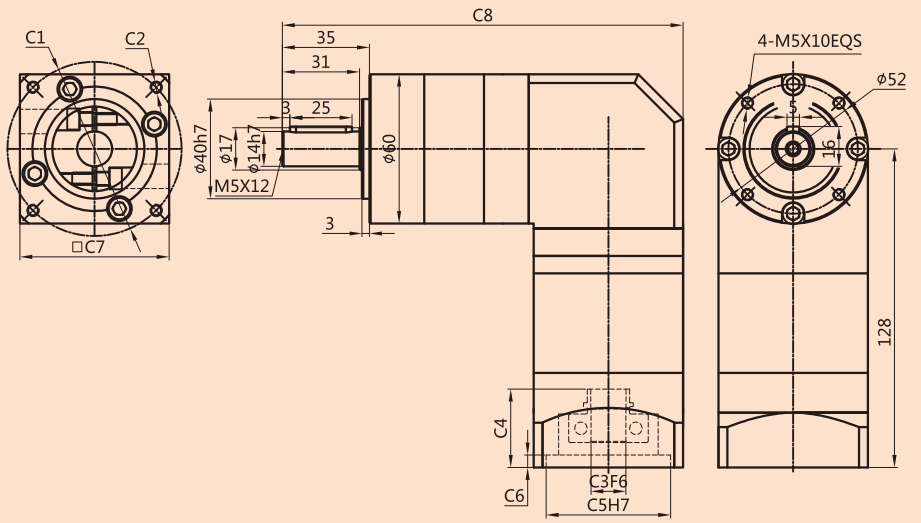
ZPLE-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	129.5
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	129.5
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	129.5
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	129.5

ZPLE-060-L2

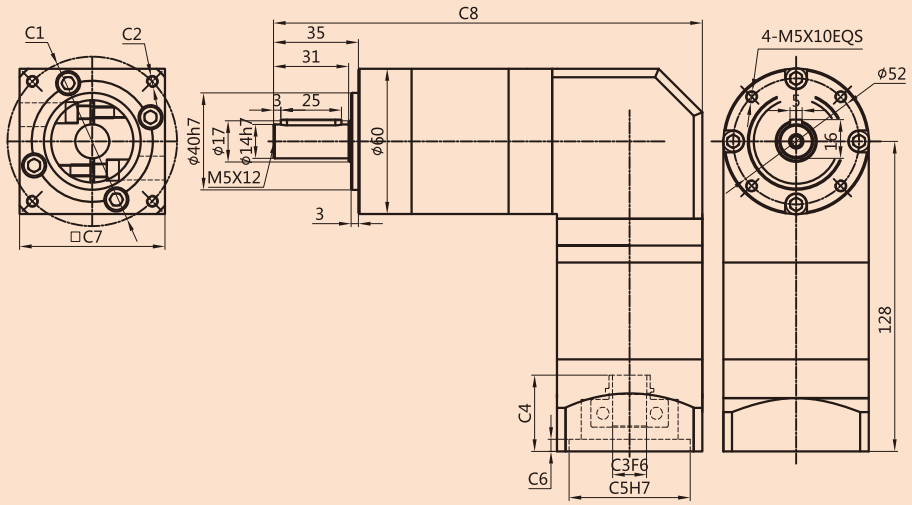


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	161
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	161
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	161
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	161

外形尺寸图表
Outline dimensional

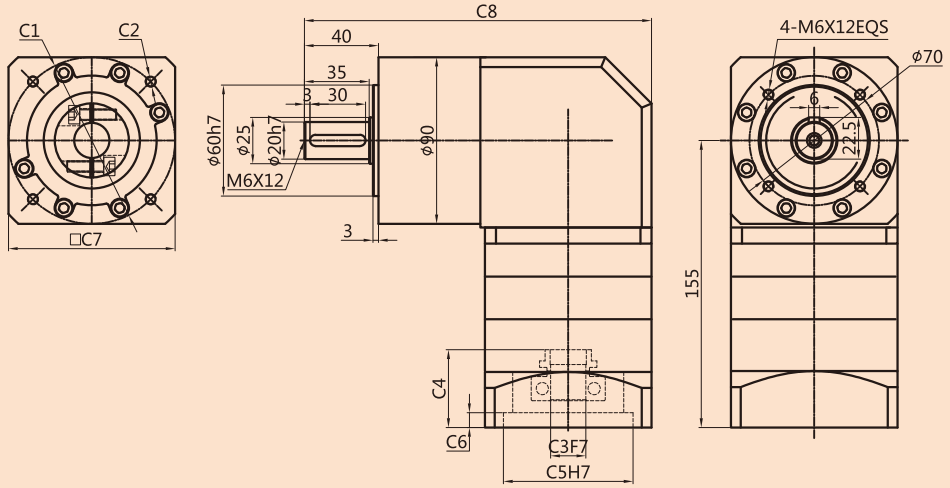
ZPLE-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	177
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	177
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	177
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	177

ZPLE-090-L1

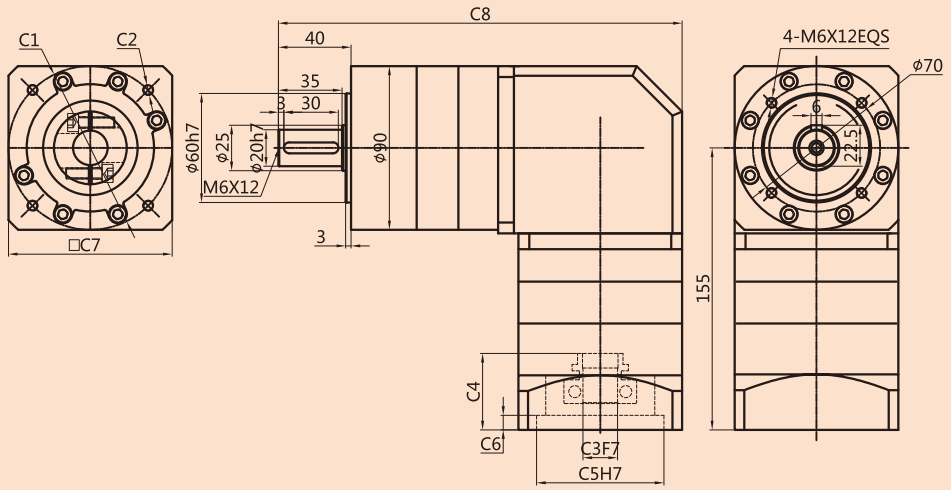


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	187.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	187.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	187.5

外形尺寸图表
Outline dimensional

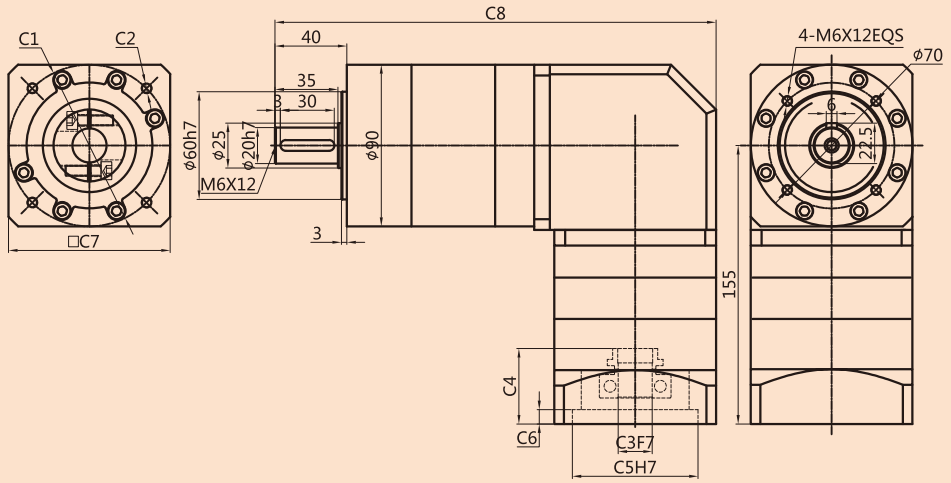
ZPLE-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	222
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	222
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	222

ZPLE-090-L3

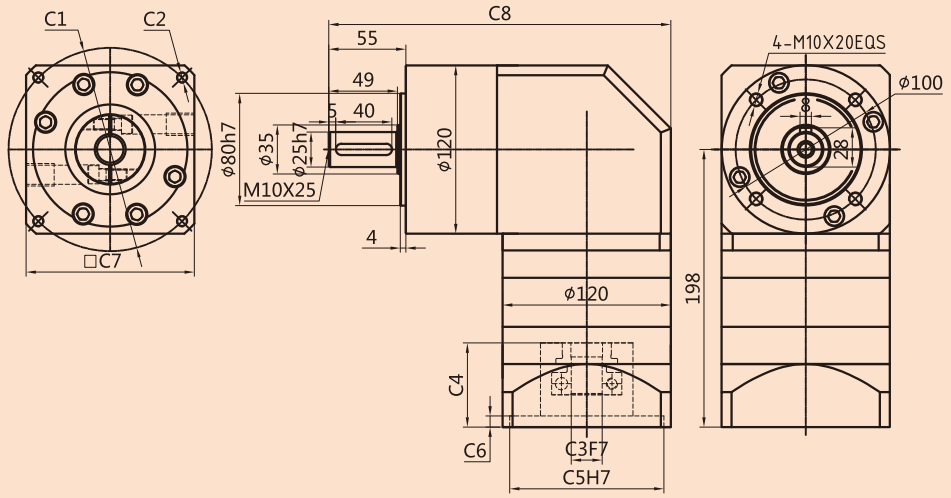


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	245.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	245.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	245.5

外形尺寸图表
Outline dimensional

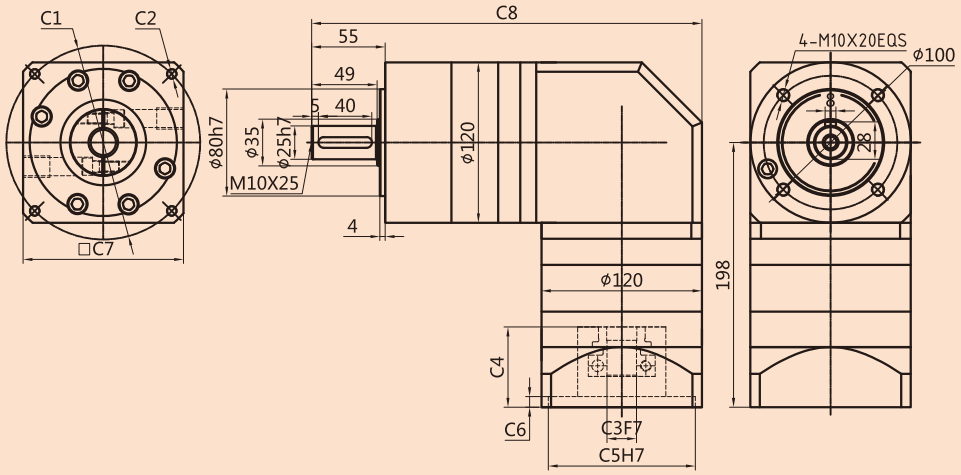
ZPLE-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	244
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	244
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	244
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	244

ZPLE-120-L2

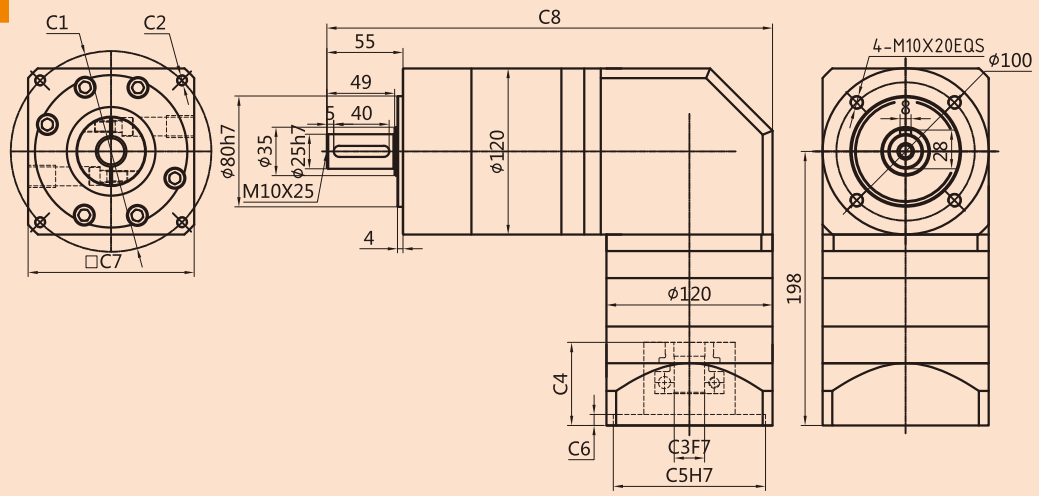


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	292
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	292
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	292
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	292

外形尺寸图表
Outline dimensional

ZPLE-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	322
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	322
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	322
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	322

减速机性能资料
Gear box performance information

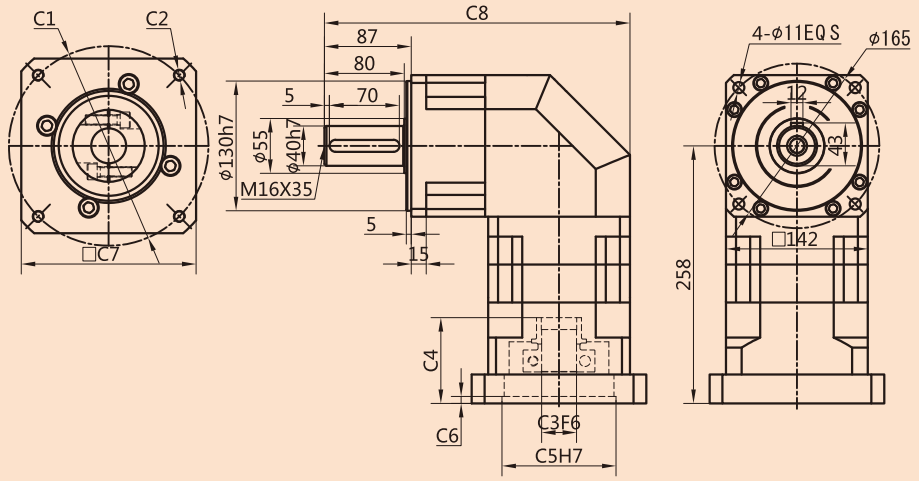
型号 Model	单位 Unit	ZPLX142	ZPLF160	ZPLE160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	310	310	310	3	1
		605	605	605	4	
		420	420	420	5	
		270	270	270	8	
		680	680	680	12	2
		680	680	680	16	
		680	680	680	20	
		460	460	460	25	
		680	680	680	32	
		460	460	460	40	
		310	310	310	64	
		900	900	900	64	3
		900	900	900	80	
		900	900	900	100	
		580	580	580	125	
		580	580	580	160	
		580	580	580	200	
		900	900	900	256	
		580	580	580	320	
		400	400	400	512	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	2000	2000	2000		
最大输入转速 Maximum input speed	rmp	3500	3500	3500		
最大径向力 Maximum radial force	N	3200	3200	3200		
最大轴向力 Maximum axial force	N	3000	3000	3000		
效率 Efficiency	%	Single [97%]			Double [95%]	
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	26.5	26.5	26.5		1
		31.5	31.5	31.5		2
		37.5	37.5	37.5		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	ZPLX142	ZPLF160	ZPLE160	减速比 Ratio	Stage
转动惯量 Moment of inertia	kgcm^2	4.31	4.31	4.31	3	1
		5.15	5.15	5.15	4	
		4.93	4.93	4.93	5	
		4.84	4.84	4.84	8	
		6.31	6.31	6.31	12	2
		5.15	5.15	5.15	16	
		4.93	4.93	4.93	20	
		4.93	4.93	4.93	25	
		4.84	4.84	4.84	32	
		4.84	4.84	4.84	40	
		4.84	4.84	4.84	64	
		4.93	4.93	4.93	64	3
		4.93	4.93	4.93	80	
		4.93	4.93	4.93	100	
		4.84	4.84	4.84	125	
		4.84	4.84	4.84	160	
		4.84	4.84	4.84	200	
		4.84	4.84	4.84	256	
		4.84	4.84	4.84	320	
		4.84	4.84	4.84	512	
噪音 Noise	dB	70	70	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

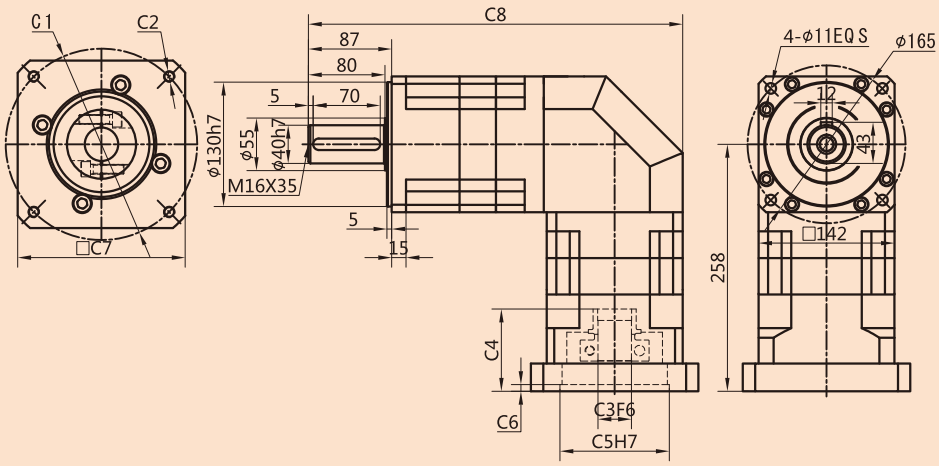
ZPLX-142-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLX-142-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	306
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	306
	Φ165	4-M10	Φ32	62	Φ130	7	142	306
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	306
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	306
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	306

ZPLX-142-L2

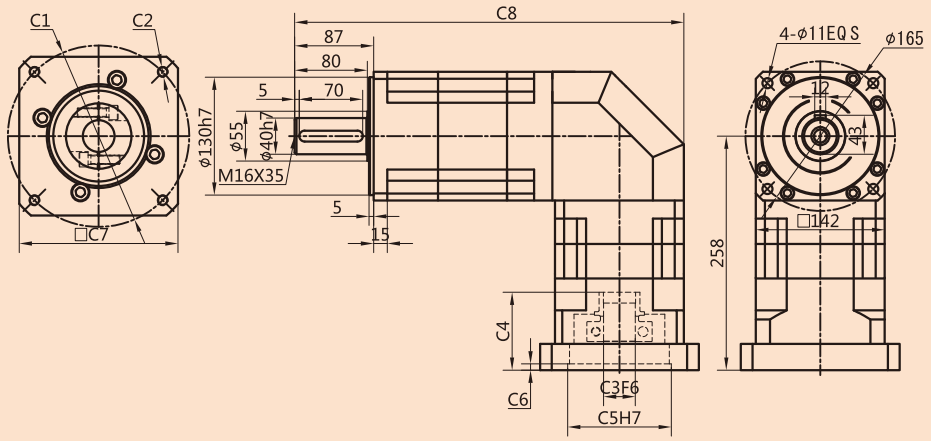


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLX-142-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	391
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	391
	Φ165	4-M10	Φ32	62	Φ130	7	142	391
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	391
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	391
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	391

外形尺寸图表
Outline dimensional

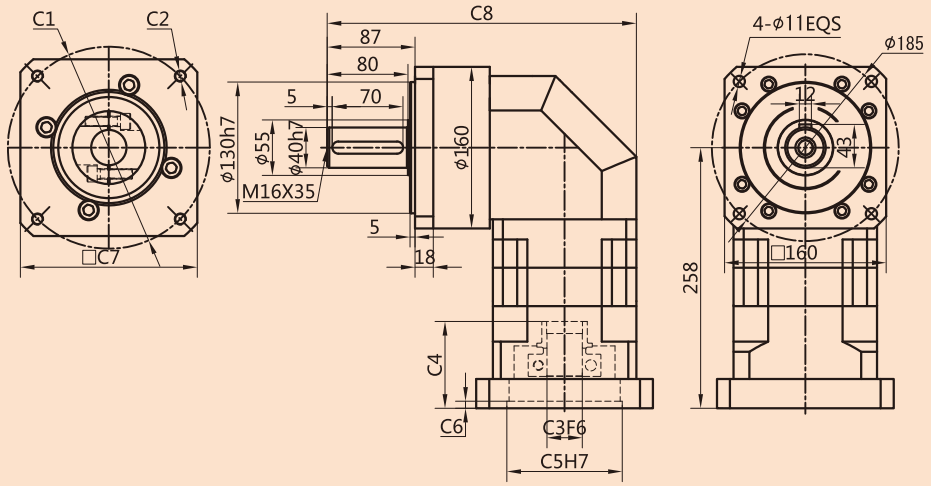
ZPLX-142-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLX-142-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	429
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	429
	Φ165	4-M10	Φ32	62	Φ130	7	142	429
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	429
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	429
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	429

ZPLF-160-L1

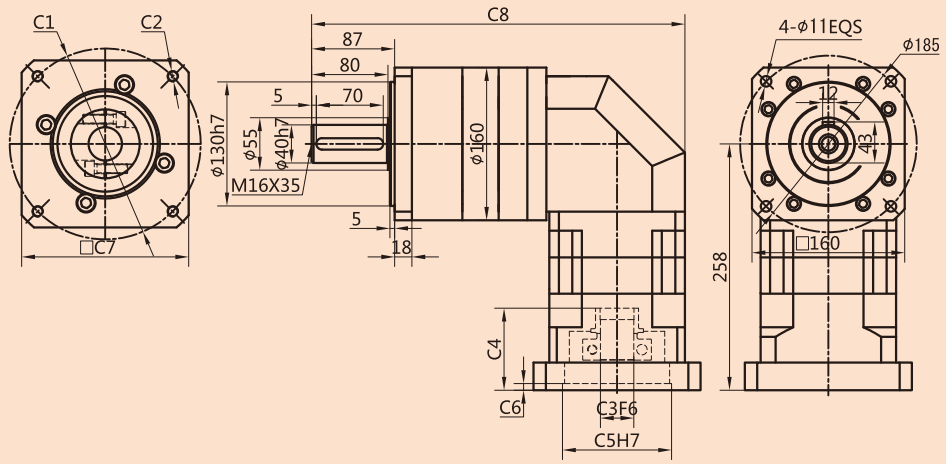


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-160-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	306
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	306
	Φ165	4-M10	Φ32	62	Φ130	7	142	306
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	306
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	306
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	306

外形尺寸图表
Outline dimensional

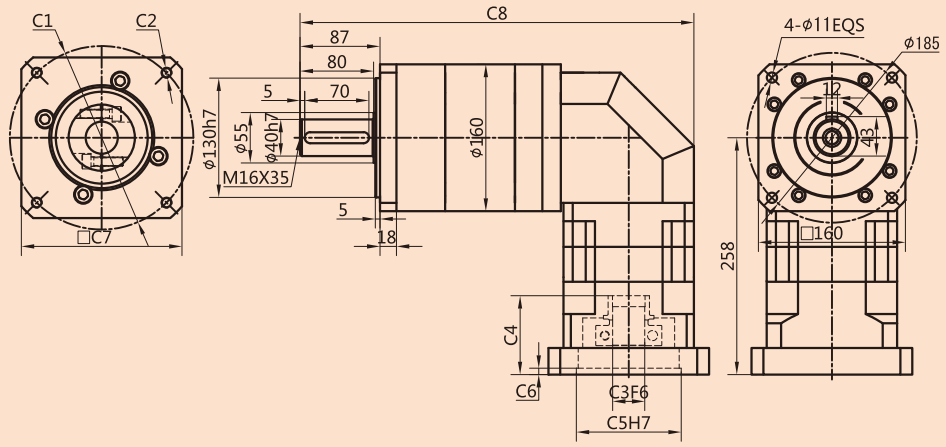
ZPLF-160-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-160-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	391
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	391
	Φ165	4-M10	Φ32	62	Φ130	7	142	391
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	391
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	391
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	391

ZPLF-160-L3

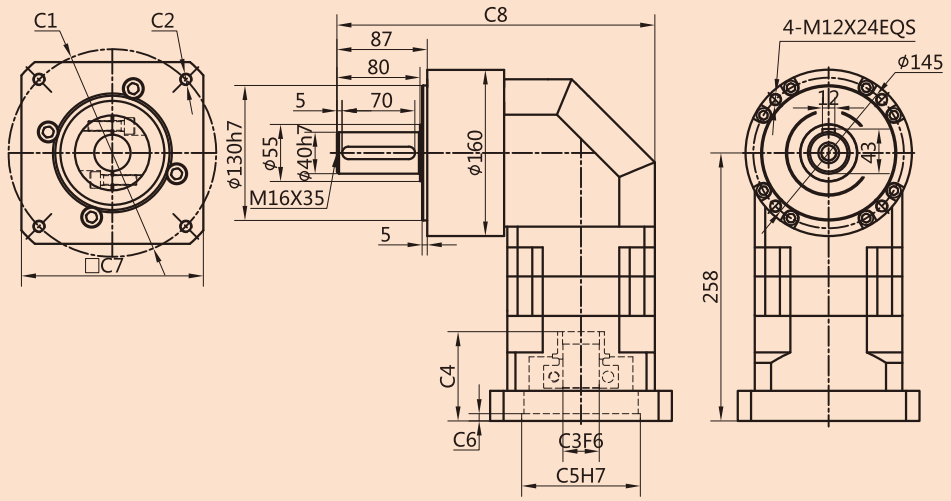


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLF-160-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	429
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	429
	Φ165	4-M10	Φ32	62	Φ130	7	142	429
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	429
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	429
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	429

外形尺寸图表
Outline dimensional

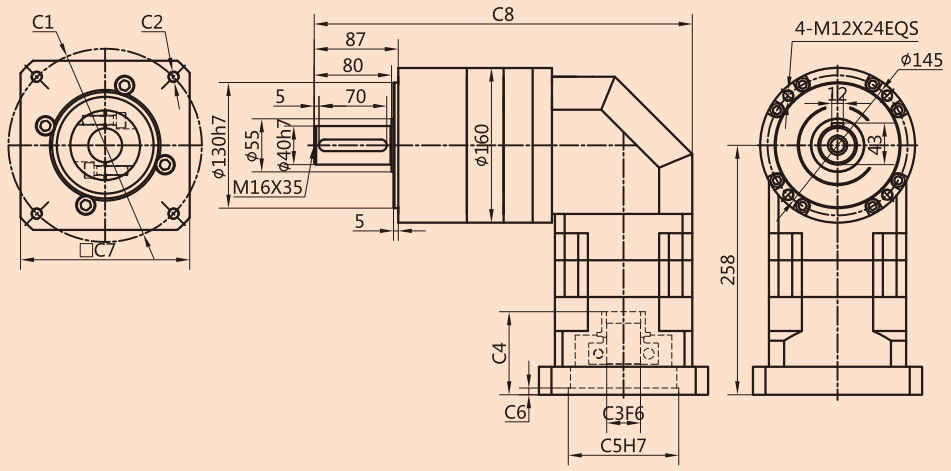
ZPLE-160-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-160-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	306
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	306
	Φ165	4-M10	Φ32	62	Φ130	7	142	306
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	306
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	306
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	306

ZPLE-160-L2

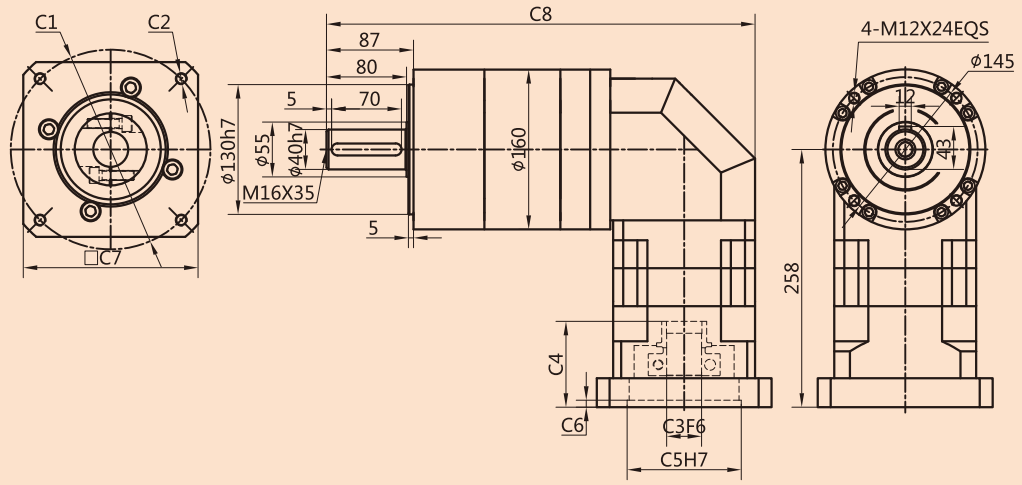


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-160-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	391
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	391
	Φ165	4-M10	Φ32	62	Φ130	7	142	391
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	391
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	391
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	391

外形尺寸图表
Outline dimensional

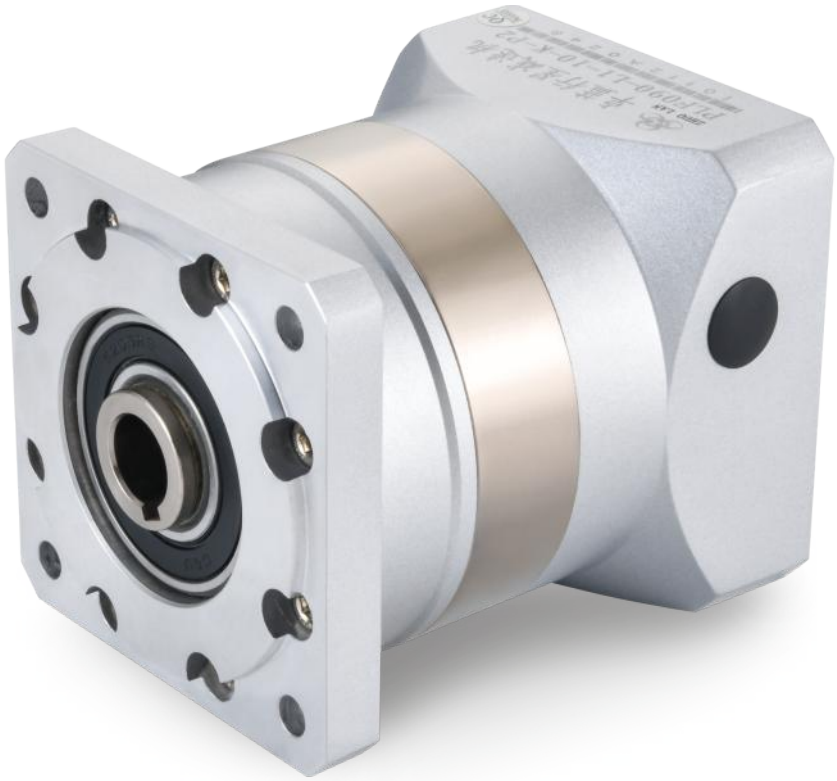
ZPLE-160-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLE-160-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	429
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	429
	Φ165	4-M10	Φ32	62	Φ130	7	142	429
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	429
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	429
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	429

- PLFK060
- PLFK090
- PLFK120



PLFK

Series

PLFK系列减速机核心特性

The Core Characteristics of PLFK Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

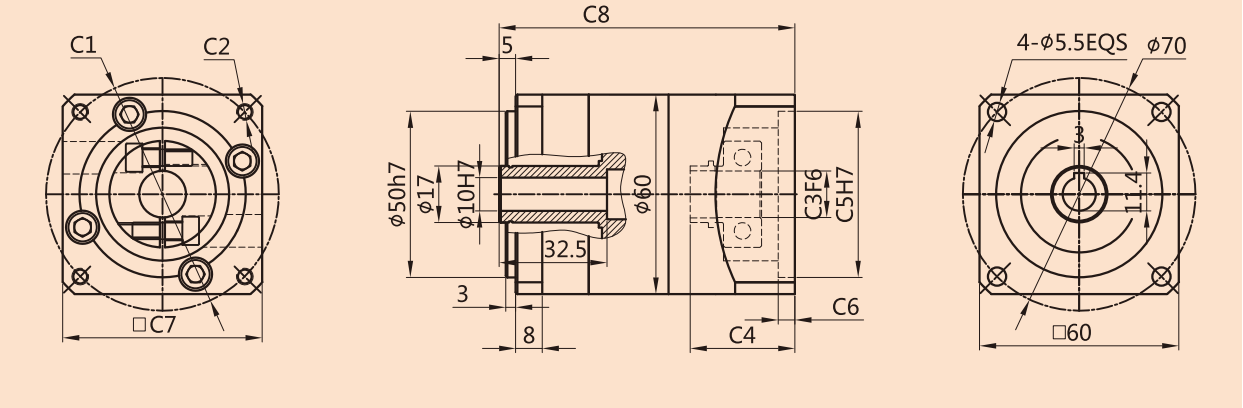
型号 Model	单位 Unit	PLFK060	PLFK090	PLFK120	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	3	1
		27	86	222	4	
		27	94.5	235	5	
		19.5	64	158	7	
		8.5	39.5	93	10	
			96	250	12	2
			96	250	15	
		30	96	250	16	
		30	96	250	20	
		33	105.5	264	25	
		30	96	250	28	
		33	105.5	264	35	
		30	96	250	40	
		33	105.5	264	50	
		21.5	71.5	177	70	
		37.5	120	310	64	3
		37.5	120	310	80	
		37.5	120	310	100	
		41.0	132.5	329	125	
		37.5	120	310	140	
		41.0	132.5	329	175	
		37.5	120	310	200	
		41.0	132.5	329	250	
		37.5	120	310	280	
		41.0	132.5	329	350	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	3000	3000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500		
最大径向力 Maximum radial force	N	170	1020	2230		
最大轴向力 Maximum axial force	N	120	850	1550		
效率 Efficiency	%	Single [97%]		Double [95%]		
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	1.4	4.7	6.9		1
		1.6	5.3	8.9		2
		1.8	5.9	11.2		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLFK060	PLFK090	PLFK120	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	1.65	3	1
		0.094	0.309	1.22	4	
		0.092	0.291	1.15	5	
		0.091	0.285	1.13	7	
		0.091	0.283	1.11	10	
			0.4	1.65	12	2
			0.309	1.65	15	
		0.094	0.291	1.22	16	
		0.092	0.291	1.15	20	
		0.092	0.291	1.15	25	
		0.091	0.285	1.13	28	
		0.091	0.285	1.13	35	
		0.091	0.2835	1.11	40	
		0.091	0.283	1.11	50	
		0.091	0.283	1.11	70	
		0.092	0.291	1.15	64	3
		0.092	0.291	1.15	80	
		0.092	0.291	1.15	100	
		0.092	0.291	1.15	125	
		0.091	0.291	1.13	140	
		0.091	0.291	1.13	175	
		0.091	0.283	1.11	200	
		0.091	0.283	1.11	250	
		0.091	0.283	1.11	280	
		0.091	0.283	1.11	350	
噪音 Noise	dB	60	65	68		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

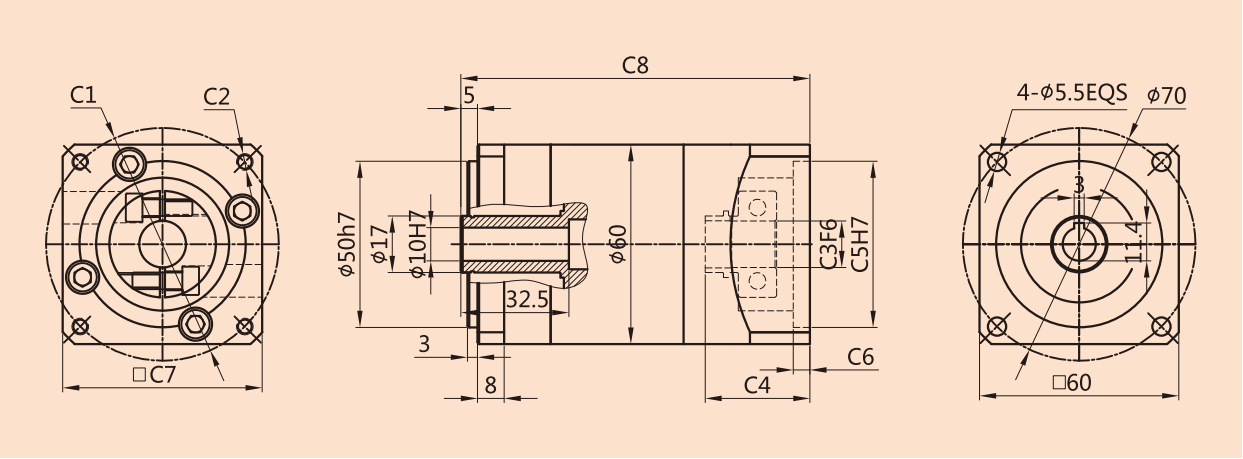
PLFK-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	89
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	89
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	89
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	89

PLFK-060-L2

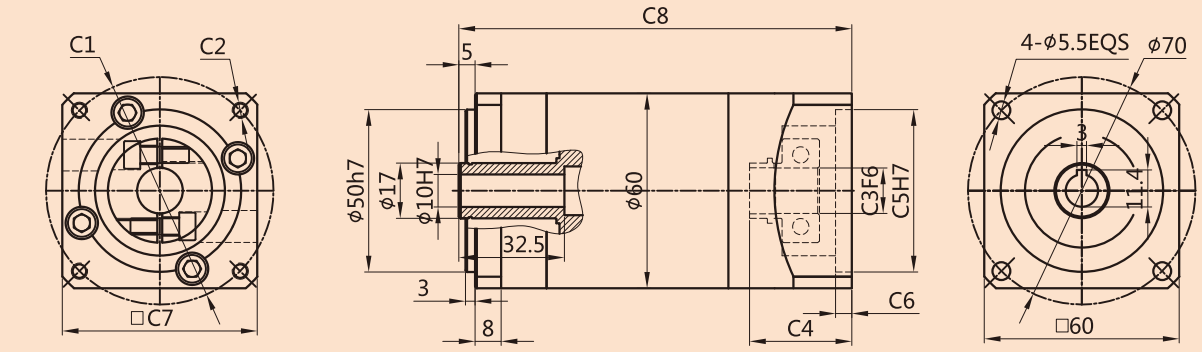


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	105
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	105
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	105
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	105

外形尺寸图表
Outline dimensional

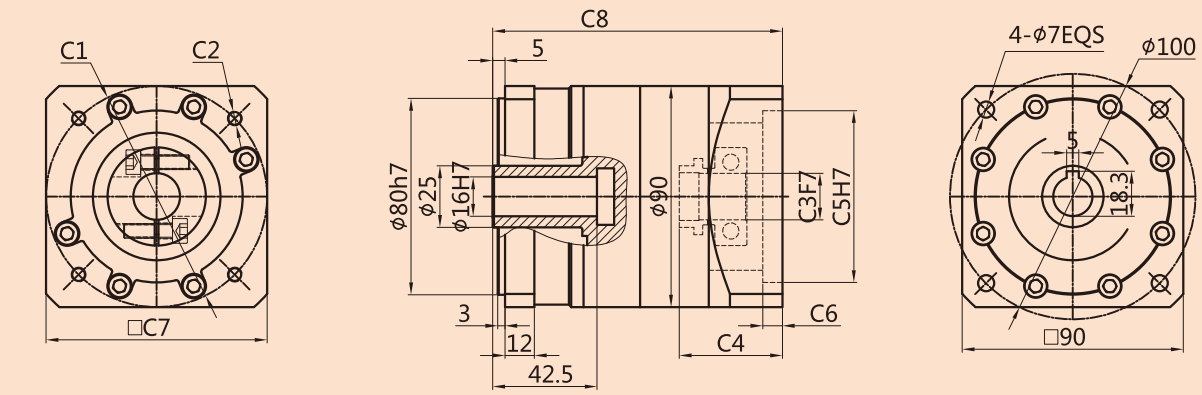
PLFK-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	121
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	121
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	121
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	121

PLFK-090-L1

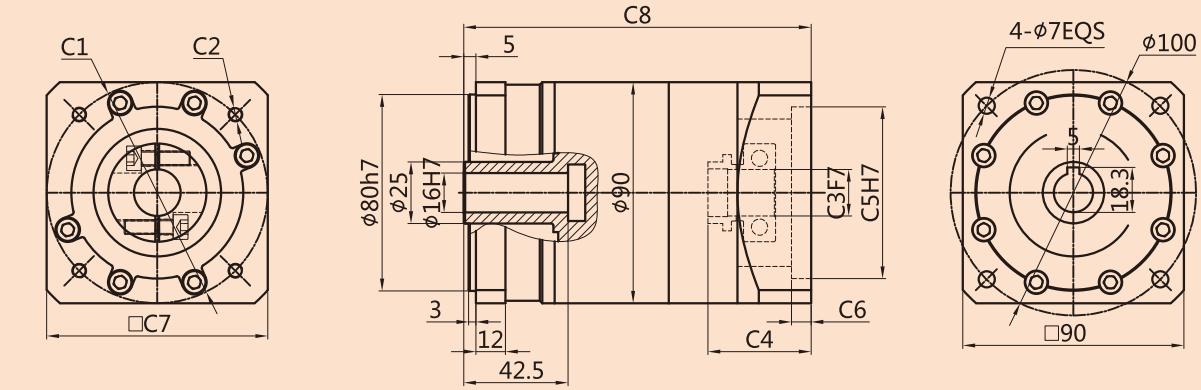


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	118
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	118
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	118

外形尺寸图表
Outline dimensional

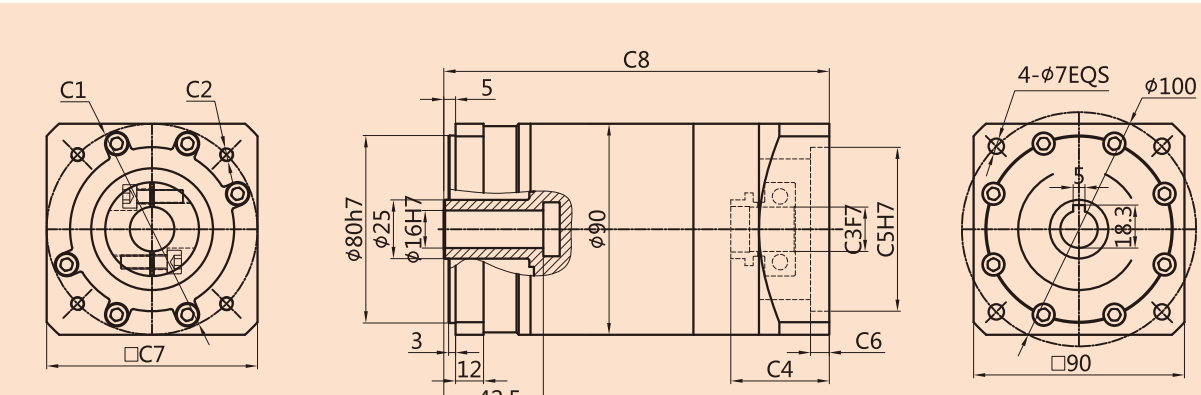
PLFK-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	141.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	141.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	141.5

PLFK-090-L3

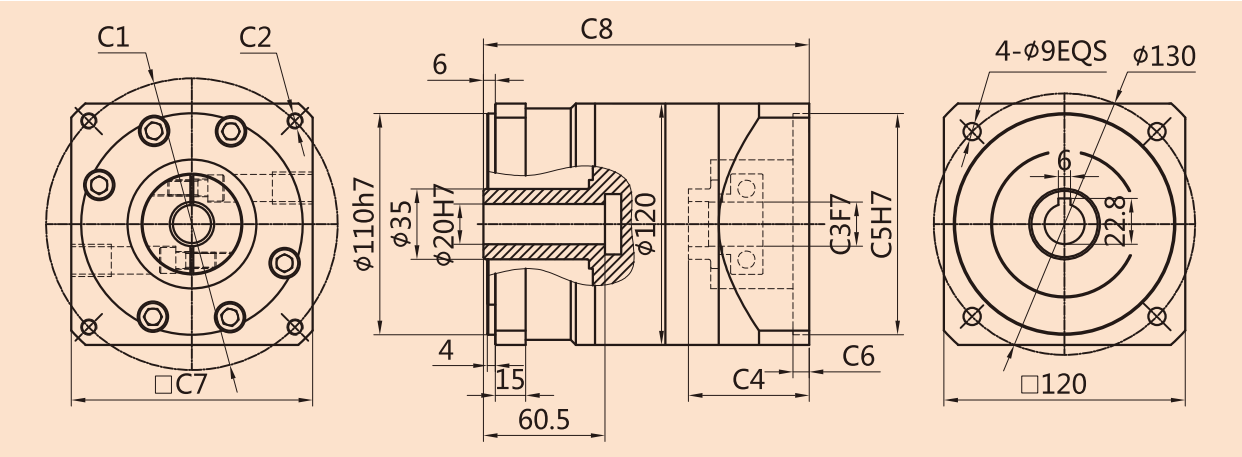


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	164.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	164.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	164.5

外形尺寸图表
Outline dimensional

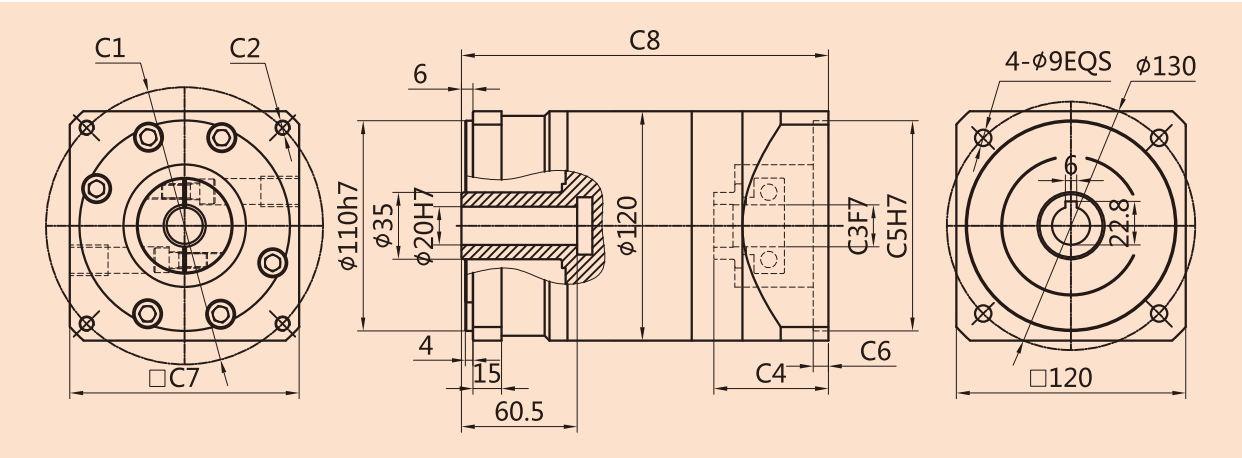
PLFK-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	151
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	162
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	162
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	162

PLFK-120-L2

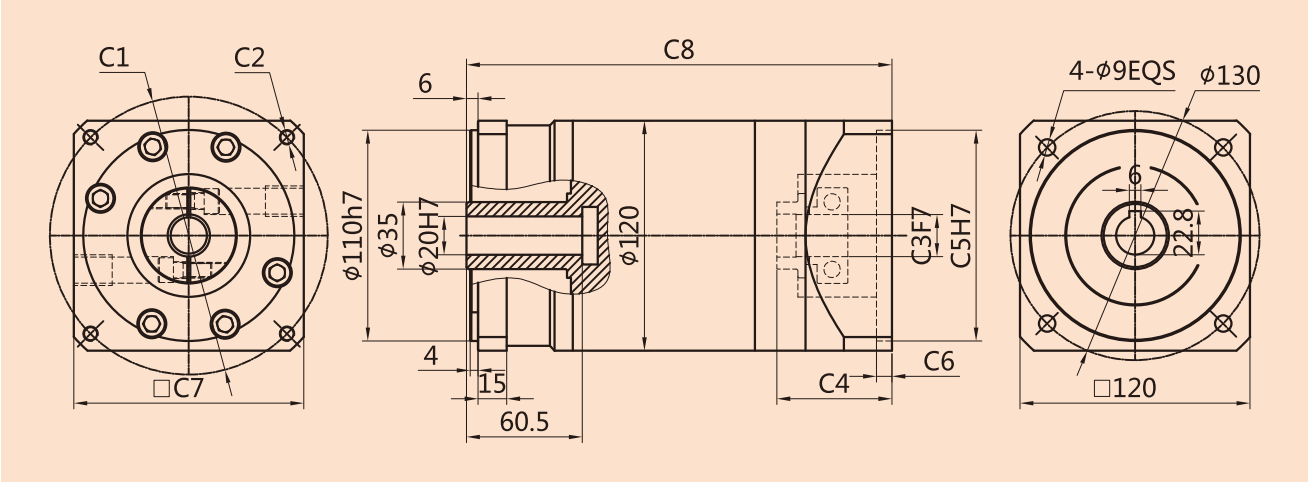


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	181
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	192
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	192
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	192

外形尺寸图表
Outline dimensional

PLFK-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	211
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	222
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	222
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	222

减速机性能资料
Gear box performance information

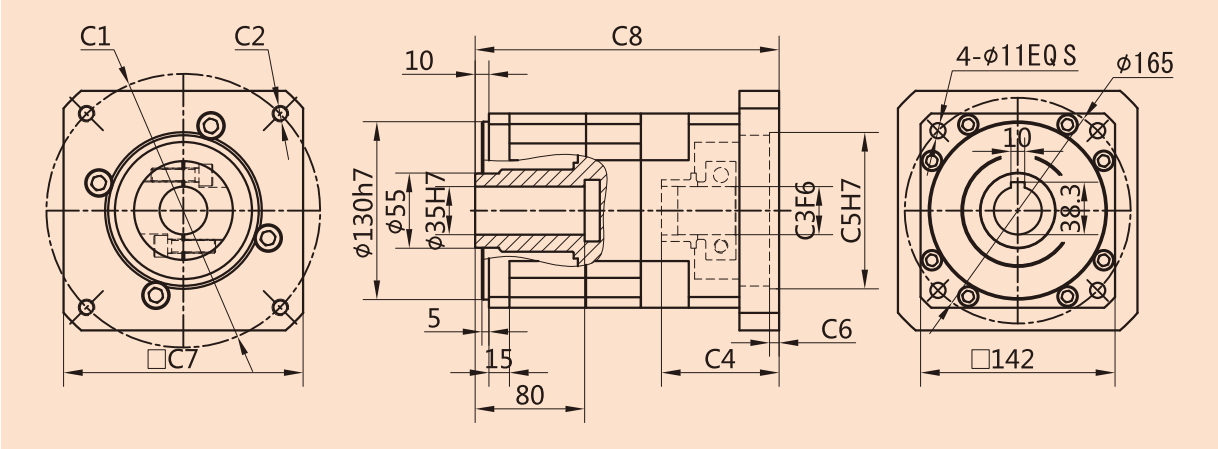
型号 Model	单位 Unit	PLXK142	PLFK160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	310	310	3	1
		605	605	4	
		420	420	5	
		270	270	8	
		680	680	12	2
		680	680	16	
		680	680	20	
		460	460	25	
		680	680	32	
		460	460	40	
		310	310	64	
		900	900	64	3
		900	900	80	
		900	900	100	
		580	580	125	
		580	580	160	
		580	580	200	
		900	900	256	
		580	580	320	
		400	400	512	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque			
额定输入转速 Norminal input speed	rmp	2000	2000		
最大输入转速 Maximum input speed	rmp	3500	3500		
最大径向力 Maximum radial force	N	3200	3200		
最大轴向力 Maximum axial force	N	3000	3000		
效率 Efficiency	%	Single [97%]		Double [95%]	
平均寿命 Average lifetime	h	20000			
重量 Weight	kg	17	19		1
		23	25		2
		29	31		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLXK142	PLFK160	减速比 Ratio	Stage
转动惯量 Moment of inertia	kgcm²	4.31	4.31	3	1
		5.15	5.15	4	
		4.93	4.93	5	
		4.84	4.84	8	
		6.31	6.31	12	2
		5.15	5.15	16	
		4.93	4.93	20	
		4.93	4.93	25	
		4.84	4.84	32	
		4.84	4.84	40	
		4.84	4.84	64	
		4.93	4.93	64	3
		4.93	4.93	80	
		4.93	4.93	100	
		4.84	4.84	125	
		4.84	4.84	160	
		4.84	4.84	200	
		4.84	4.84	256	
		4.84	4.84	320	
		4.84	4.84	512	
噪音 Noise	dB	70	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication			
防护等级 levels of protection		IP65			

外形尺寸图表
Outline dimensional

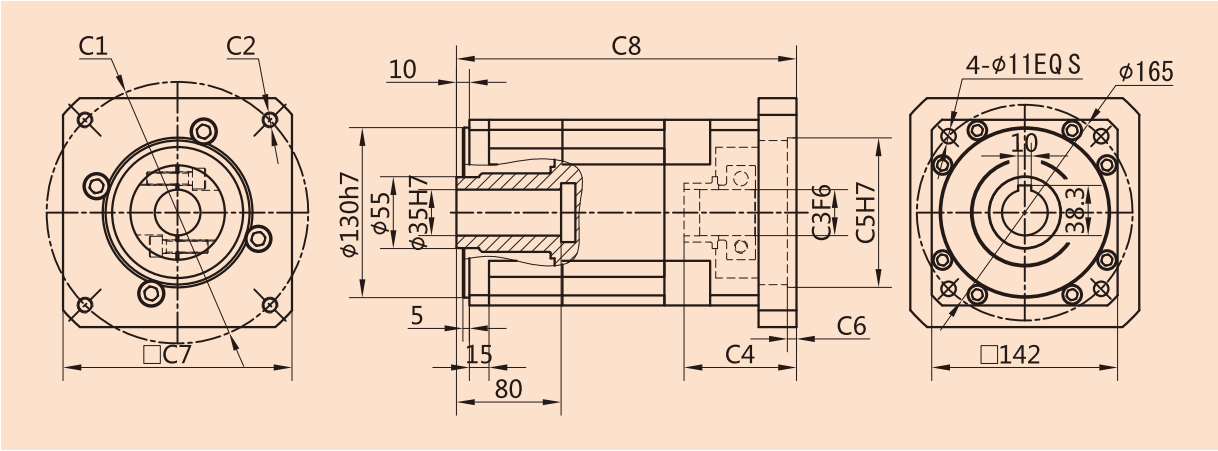
PLXK-142-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLXK-142-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	198
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	198
	Φ165	4-M10	Φ32	62	Φ130	7	142	198
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	222
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	253
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	222

PLXK-142-L2

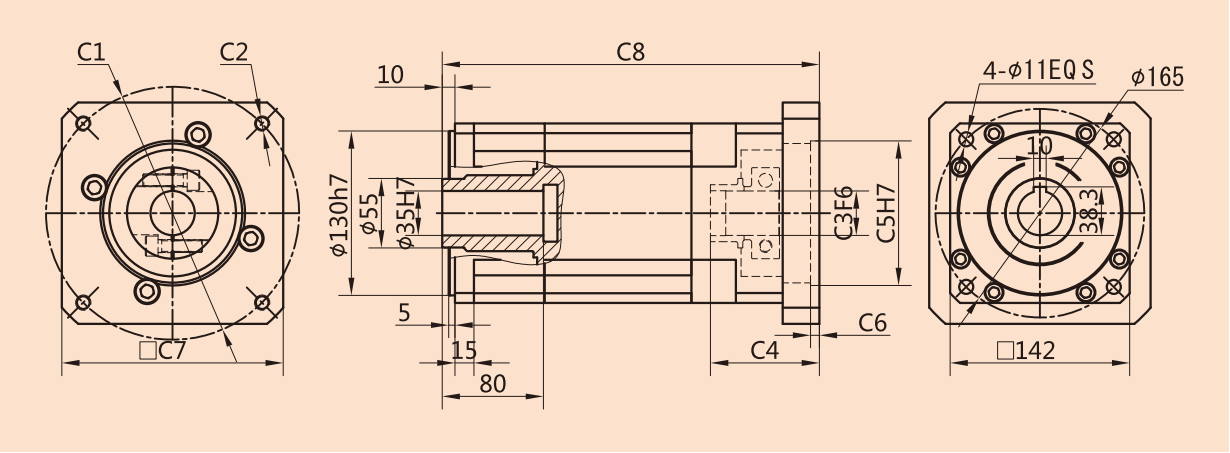


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLXK-142-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	236
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	236
	Φ165	4-M10	Φ32	62	Φ130	7	142	236
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	260
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	291
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	260

外形尺寸图表
Outline dimensional

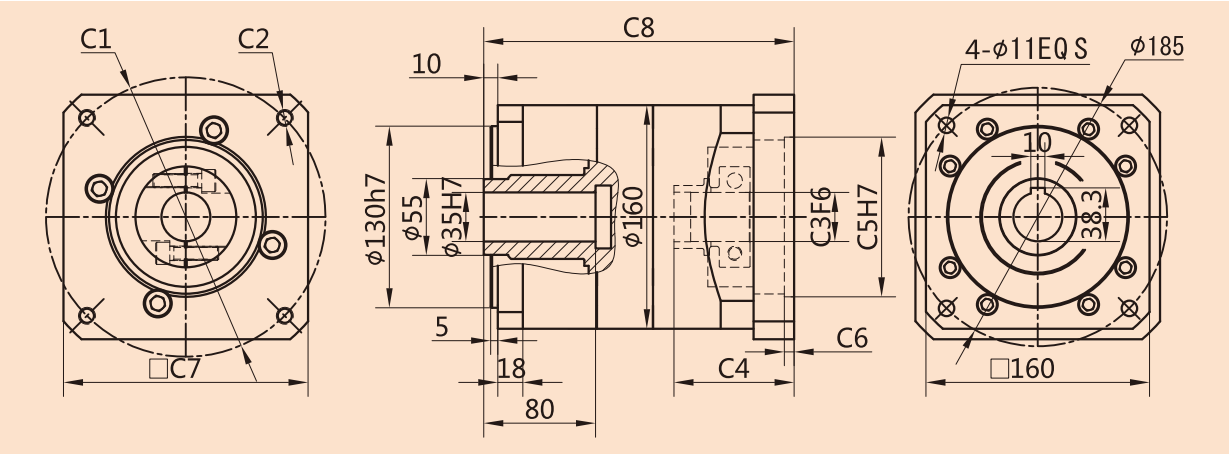
PLXK-142-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
ZPLX-142-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	274
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	274
	Φ165	4-M10	Φ32	62	Φ130	7	142	274
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	298
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	329
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	298

PLFK-160-L1

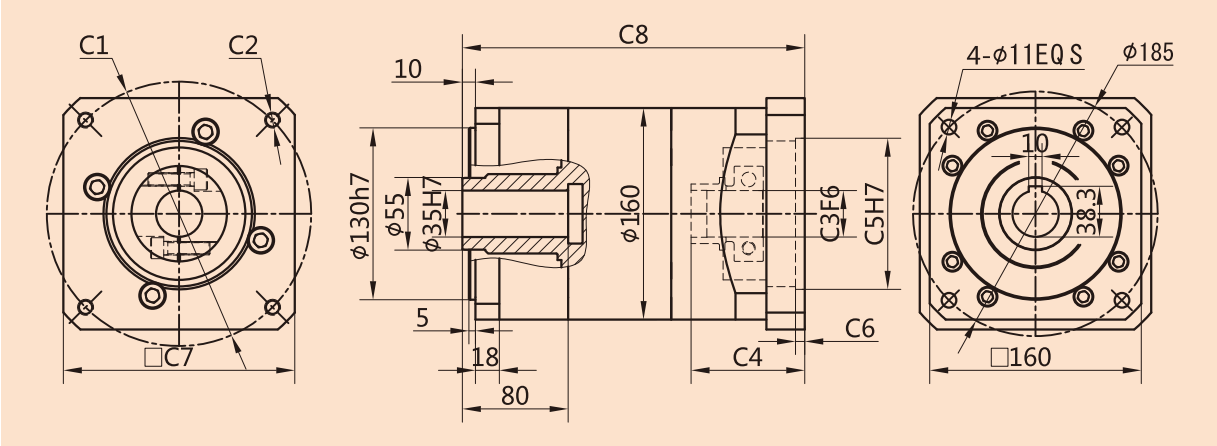


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-160-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	198
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	198
	Φ165	4-M10	Φ32	62	Φ130	7	142	198
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	222
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	253
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	222

外形尺寸图表
Outline dimensional

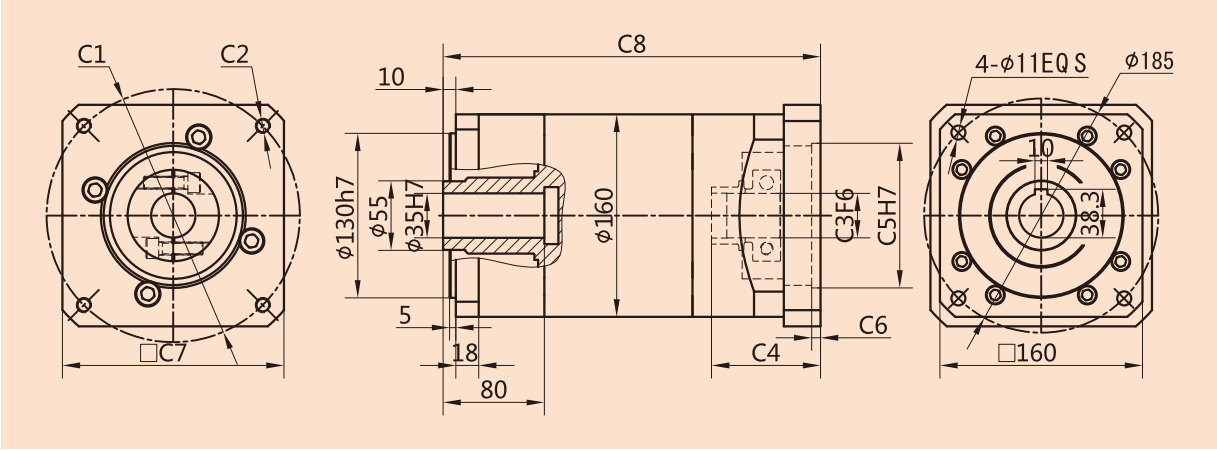
PLFK-160-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-160-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	236
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	236
	Φ165	4-M10	Φ32	62	Φ130	7	142	236
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	260
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	291
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	260

PLFK-160-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLFK-160-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	274
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	274
	Φ165	4-M10	Φ32	62	Φ130	7	142	274
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	298
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	329
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	298

- PLEK060
- PLEK090
- PLEK120

PLEK

Series

PLEK系列减速机核心特性

The Core Characteristics of PLEK Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

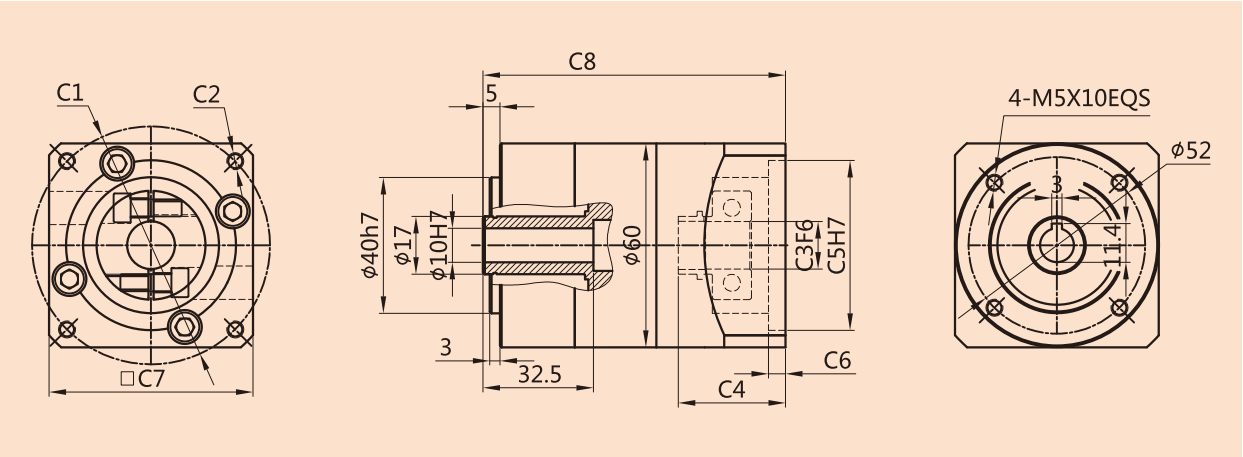
型号 Model	单位 Unit	PLEK060	PLEK090	PLEK120	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	3	1
		27	86	222	4	
		27	94.5	235	5	
		19.5	64	158	7	
		8.5	39.5	93	10	
			96	250	12	2
			96	250	15	
		30	96	250	16	
		30	96	250	20	
		33	105.5	264	25	
		30	96	250	28	
		33	105.5	264	35	
		30	96	250	40	
		33	105.5	264	50	
		21.5	71.5	177	70	
		37.5	120	310	64	3
		37.5	120	310	80	
		37.5	120	310	100	
		41.0	132.5	329	125	
		37.5	120	310	140	
		41.0	132.5	329	175	
		37.5	120	310	200	
		41.0	132.5	329	250	
		37.5	120	310	280	
		41.0	132.5	329	350	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	3000	3000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500		
最大径向力 Maximum radial force	N	170	1020	2230		
最大轴向力 Maximum axial force	N	120	850	1550		
效率 Efficiency	%	Single [97%]		Double [95%]		
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	1.4	4.7	6.9		1
		1.6	5.3	8.9		2
		1.8	5.9	11.2		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLEK060	PLEK090	PLEK120	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	1.65	3	1
		0.094	0.309	1.22	4	
		0.092	0.291	1.15	5	
		0.091	0.285	1.13	7	
		0.091	0.283	1.11	10	
			0.4	1.65	12	2
			0.309	1.65	15	
		0.094	0.291	1.22	16	
		0.092	0.291	1.15	20	
		0.092	0.291	1.15	25	
		0.091	0.285	1.13	28	
		0.091	0.285	1.13	35	
		0.091	0.2835	1.11	40	
		0.091	0.283	1.11	50	
		0.091	0.283	1.11	70	
		0.092	0.291	1.15	64	3
		0.092	0.291	1.15	80	
		0.092	0.291	1.15	100	
		0.092	0.291	1.15	125	
		0.091	0.291	1.13	140	
		0.091	0.291	1.13	175	
		0.091	0.283	1.11	200	
		0.091	0.283	1.11	250	
噪音 Noise	dB	60	65	68		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

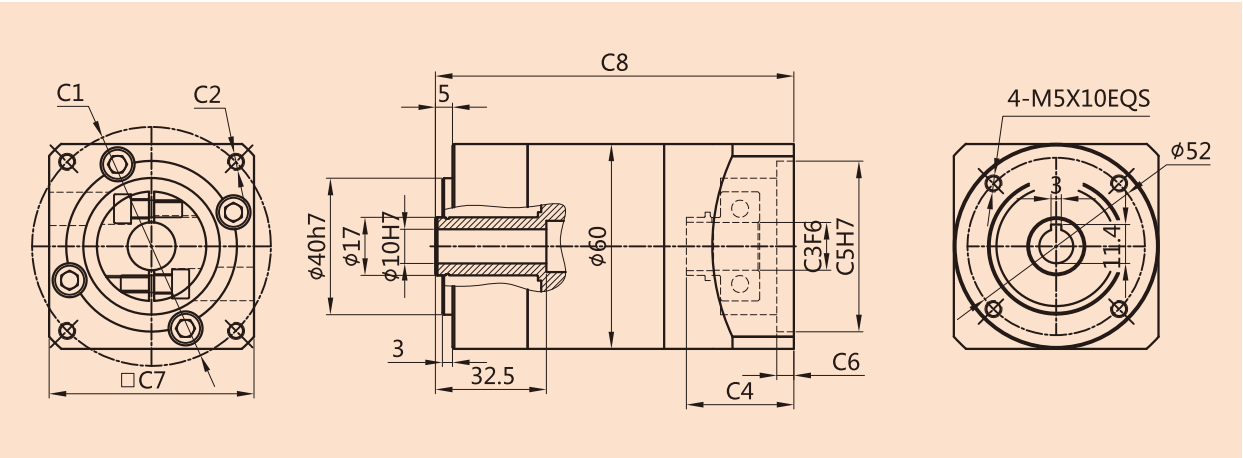
PLEK-060-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-060-L1	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	89
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	89
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	89
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	89

PLEK-060-L2

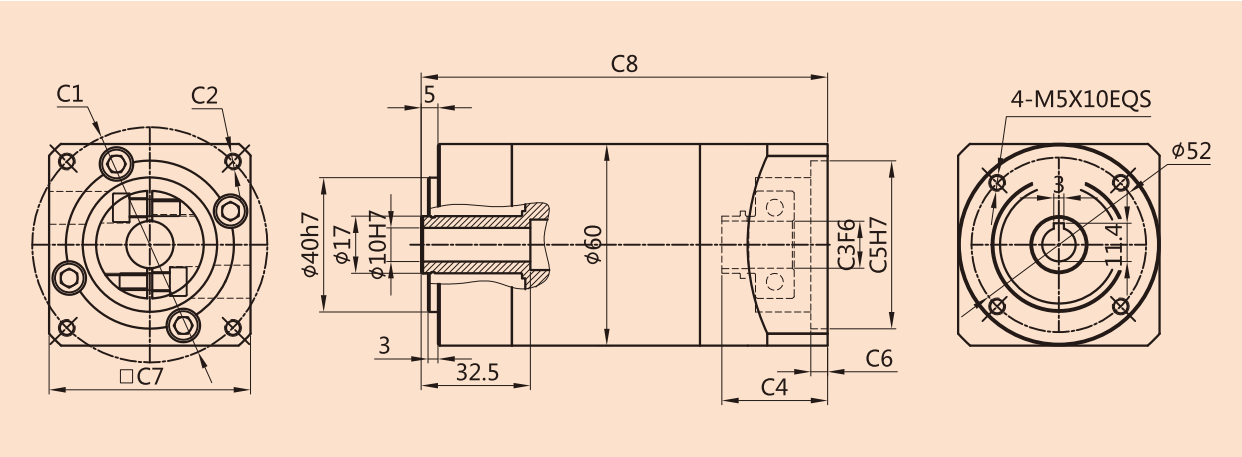


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-060-L2	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	105
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	105
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	105
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	105

外形尺寸图表
Outline dimensional

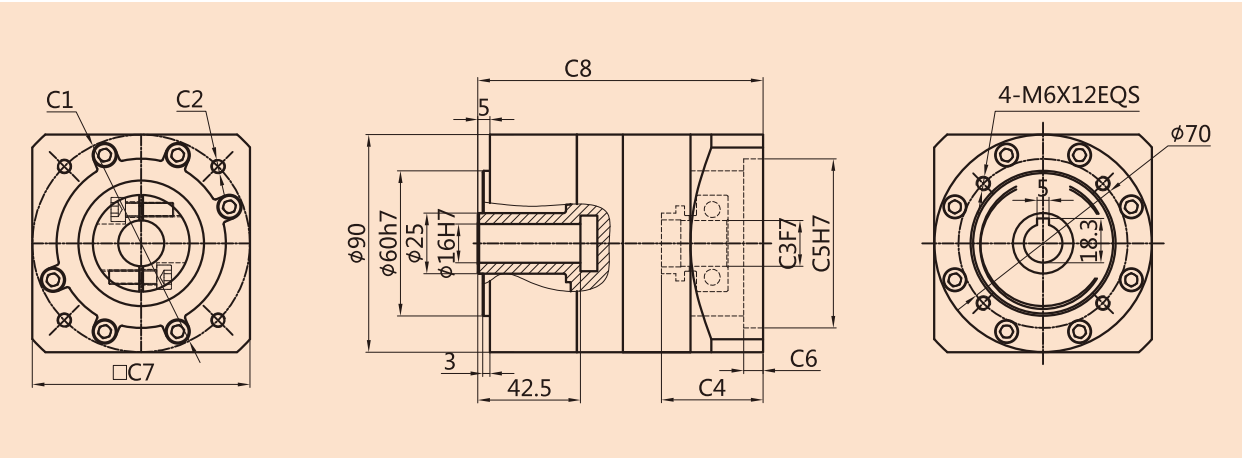
PLEK-060-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-060-L3	□47.14	4-M4	Φ8	31.5	Φ38.1	5.0	60	121
	Φ46	4-M4	Φ8	31.5	Φ30	5.0	60	121
	Φ45	4-M3	Φ8	31.5	Φ30	5.0	60	121
	Φ70	4-M4/4-M5	Φ14	31.5	Φ50	5.0	60	121

PLEK-090-L1

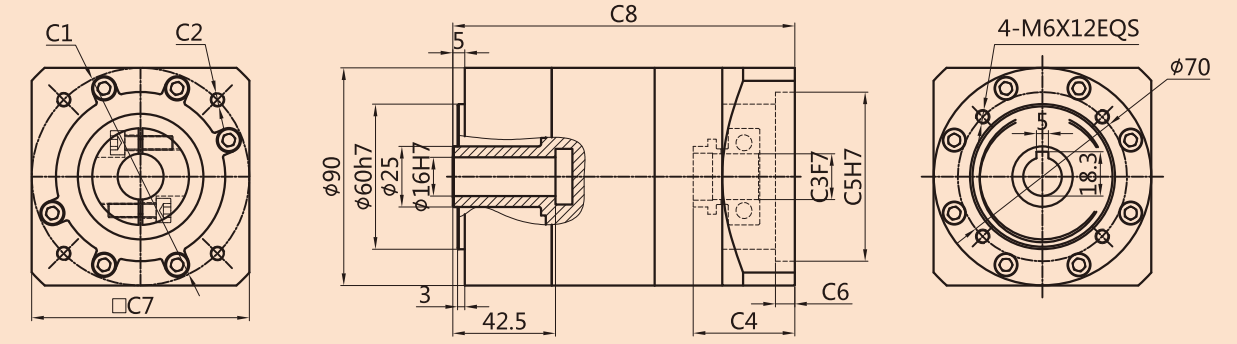


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-090-L1	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	118
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	118
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	118

外形尺寸图表
Outline dimensional

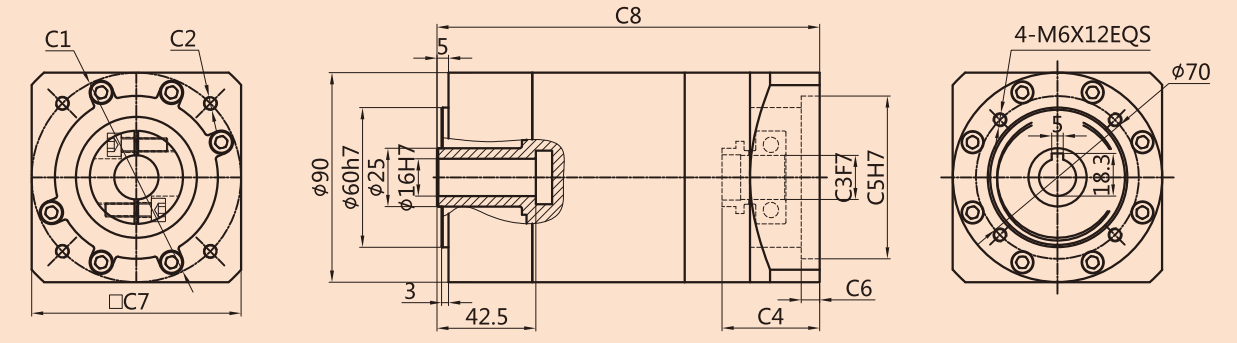
PLEK-090-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-090-L2	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	80	141.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	80	141.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	80	141.5

PLEK-090-L3

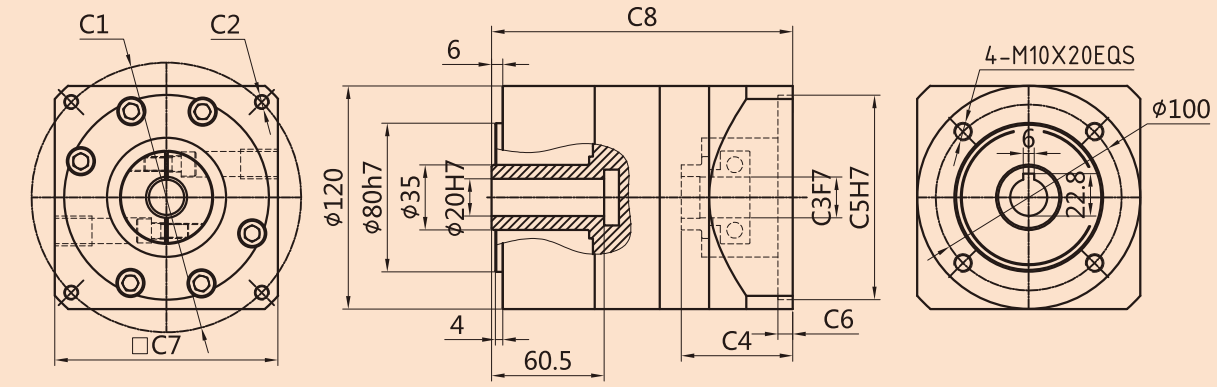


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-090-L3	Φ70	4-M4/4-M5	Φ14	42	Φ50	8.0	90	164.5
	□69.6	4-M6	Φ14	42	Φ73	8.0	90	164.5
	Φ90	4-M5/4-M6	Φ19	42	Φ70	8.0	90	164.5

外形尺寸图表
Outline dimensional

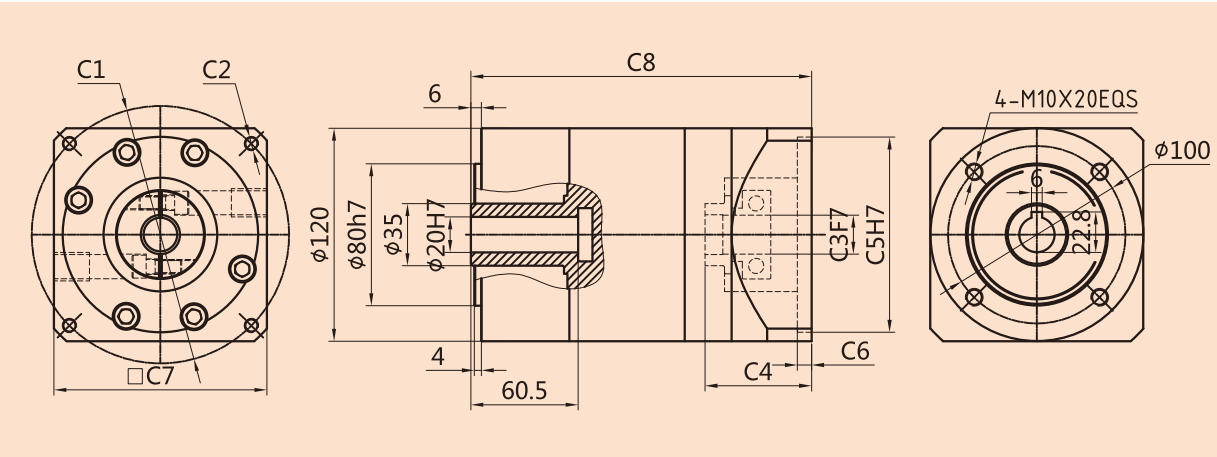
PLEK-120-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-120-L1	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	151
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	162
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	162
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	162

PLEK-120-L2

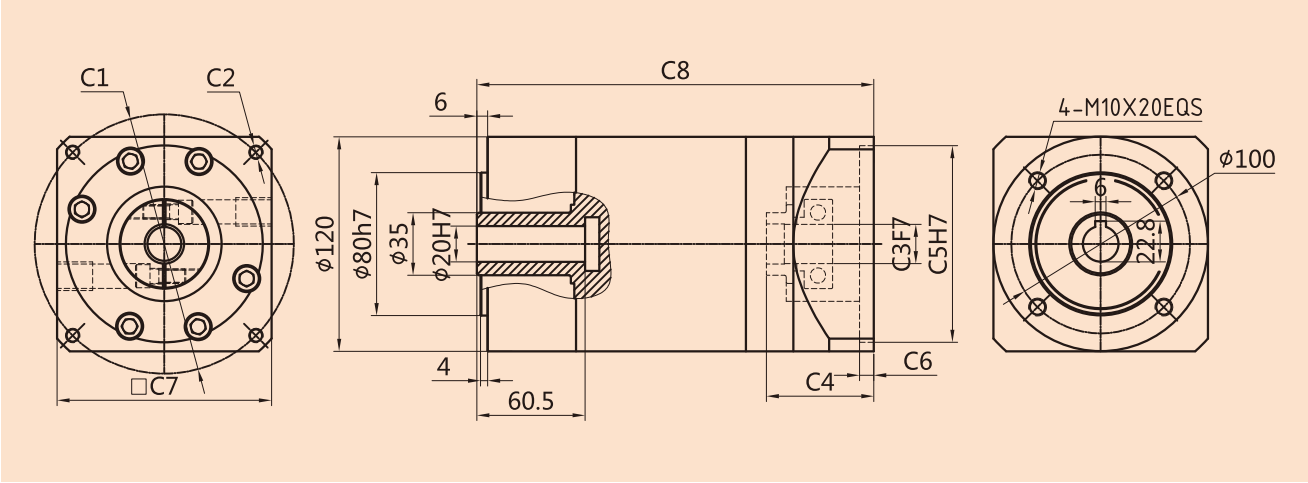


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-120-L2	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	181
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	192
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	192
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	192

外形尺寸图表
Outline dimensional

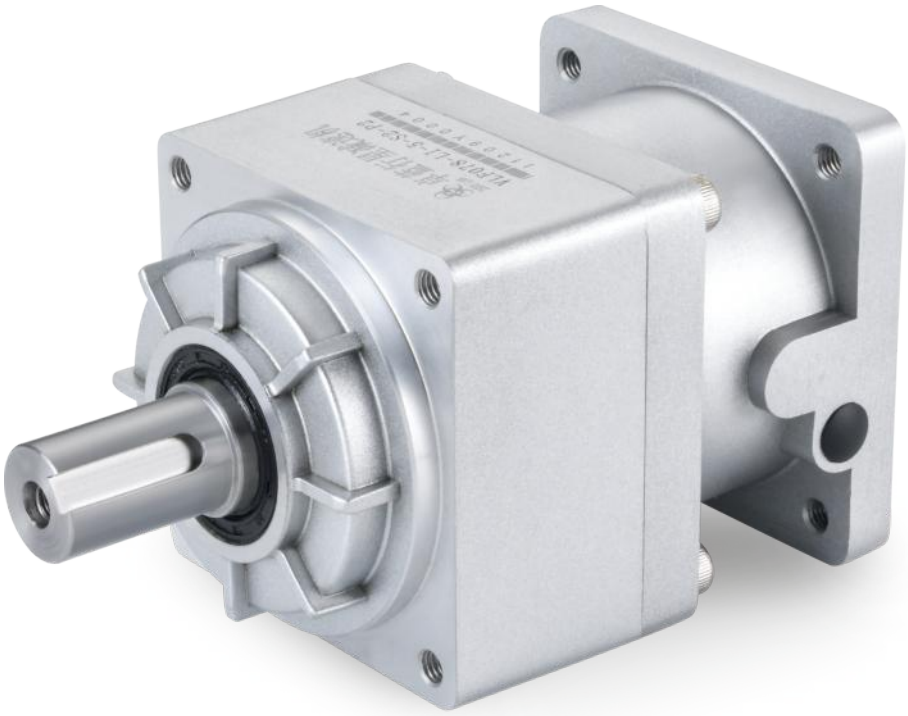
PLEK-120-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLEK-120-L3	Φ90	4-M5/4-M6	Φ19	47	Φ70	8	90	211
	Φ115	4-M8	Φ19/Φ22	60	Φ95	8	130	222
	Φ130	4-M8	Φ19/Φ22	60	Φ95	8	130	222
	Φ145	4-M8	Φ19/Φ22/Φ24	60	Φ110	8	180	222

VLF078



VLF

Series

VLF系列减速机核心特性

The Core Characteristics of VLF Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

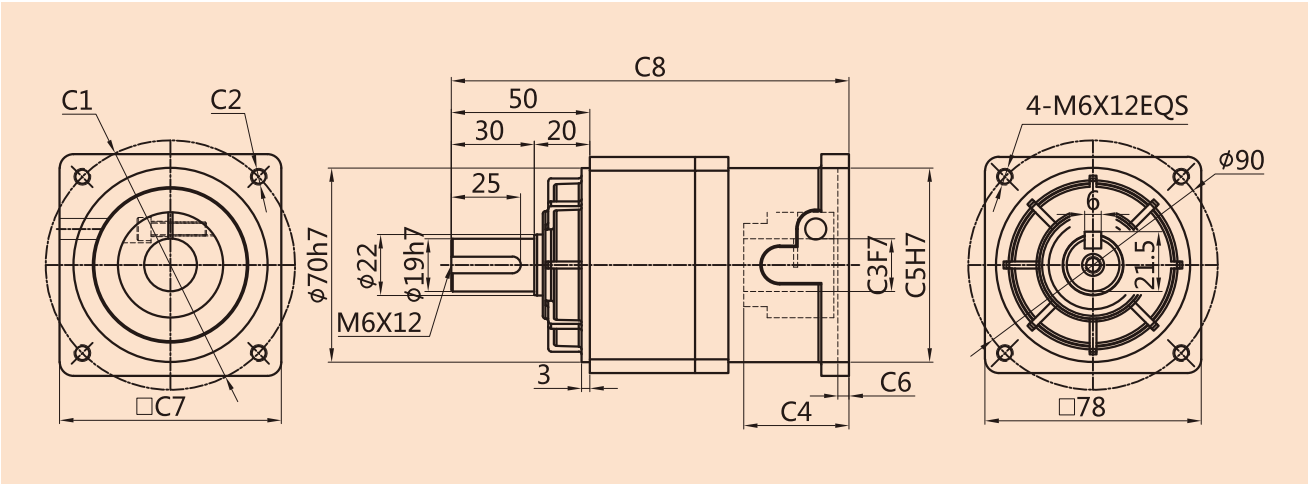
1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	VLF078	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	92	5	1
		41	9	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque		
额定输入转速 Norminal input speed	rmp	3000		
最大输入转速 Maximum input speed	rmp	6000		
最大径向力 Maximum radial force	N	2000		
最大轴向力 Maximum axial force	N	1800		
效率 Efficiency	%	Single [97%]		
平均寿命 Average lifetime	h	2000		
重量 Weight	kg	3.7		1
转动惯量 Moment of inertia	$kgcm^2$	0.291	5	1
		0.12	9	
噪音 Noise	dB	65		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication		
防护等级 levels of protection		IP65		

外形尺寸图表
Outline dimensional

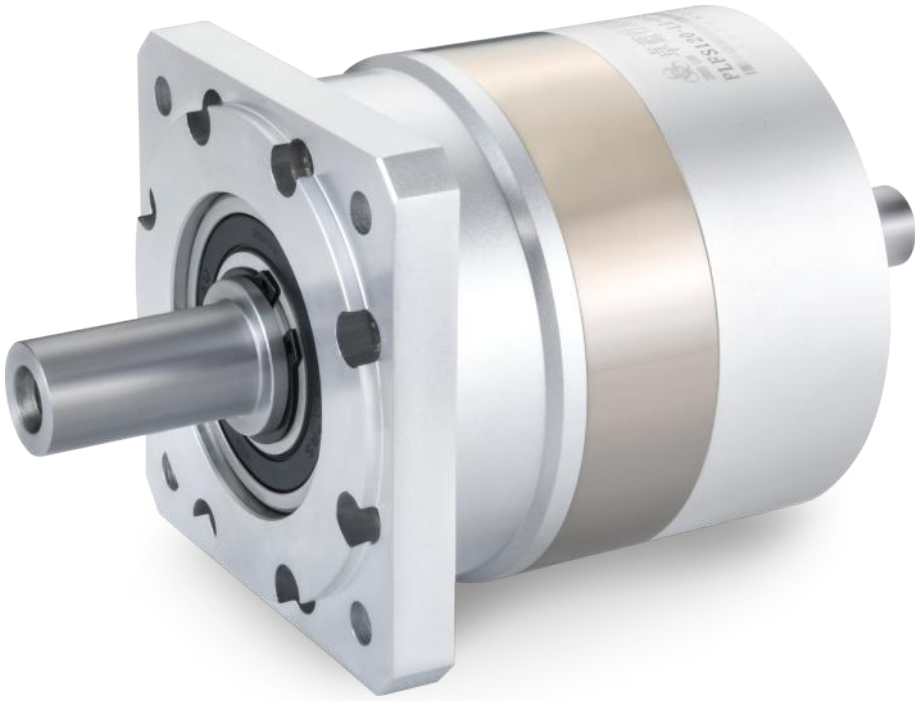
VLF078



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
VLF078	Φ70	4-M4/4-M5	Φ14	35	Φ50	8.0	90	139.5
	Φ90	4-M5/4-M6	Φ19	38	Φ70	8.0	90	143.5

- PLFS060
- PLFS090
- PLFS120
- PLFS160



PLFS

Series

PLFS系列减速机核心特性

The Core Characteristics of PLFS Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

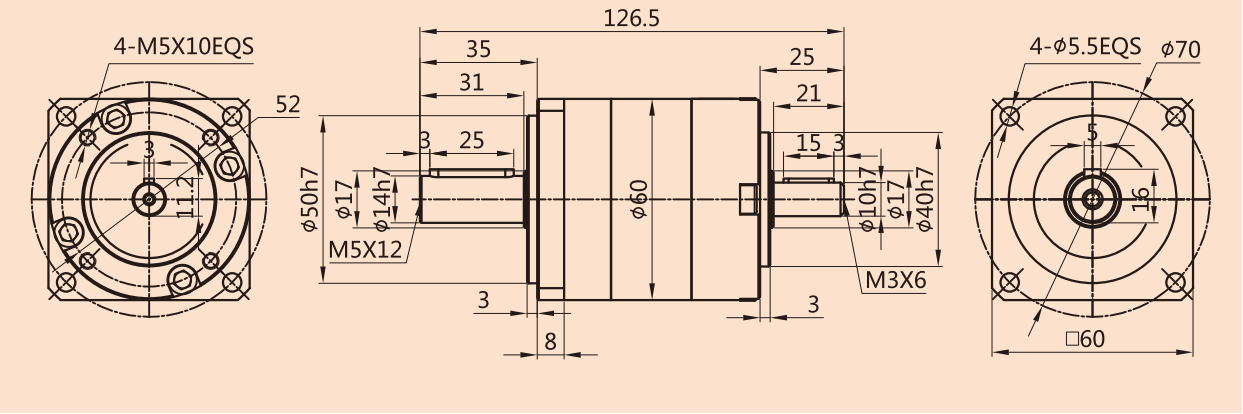
型号 Model	单位 Unit	PLFS060	PLFS090	PLFS120	PLFS160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	310	3	1
		27	86	222	605	4	
		27	94.5	235	420	5	
		19.5	64	158	270	7(8)	
		8.5	39.5	93	-	10	
			96	250	680	12	2
			96	250	-	15	
		30	96	250	680	16	
		30	96	250	680	20	
		33	105.5	264	460	25	
		30	96	250	680	28(32)	
		33	105.5	264	-	35	
		30	96	250	460	40	
		33	105.5	264	-	50	
		21.5	71.5	177	310	70(64)	
		37.5	120	310	900	64	3
		37.5	120	310	900	80	
		37.5	120	310	900	100	
		41.0	132.5	329	580	125	
		37.5	120	310	-	140	
		41.0	132.5	329	580	175(160)	
		37.5	120	310	580	200	
		41.0	132.5	329	900	250(256)	
		37.5	120	310	580	280(320)	
		41.0	132.5	329	400	350(512)	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque					
额定输入转速 Norminal input speed	rmp	3000	3000	2000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500	3500		
最大径向力 Maximum radial force	N	170	1020	2230	3200		
最大轴向力 Maximum axial force	N	120	850	1550	3000		
效率 Efficiency	%	Single [97%]		Double [95%]			
平均寿命 Average lifetime	h	20000					
重量 Weight	kg	1.4	4.7	6.9	19		1
		1.6	5.3	8.9	25		2
		1.8	5.9	11.2	31		3

减速机性能资料
Gear box performance information

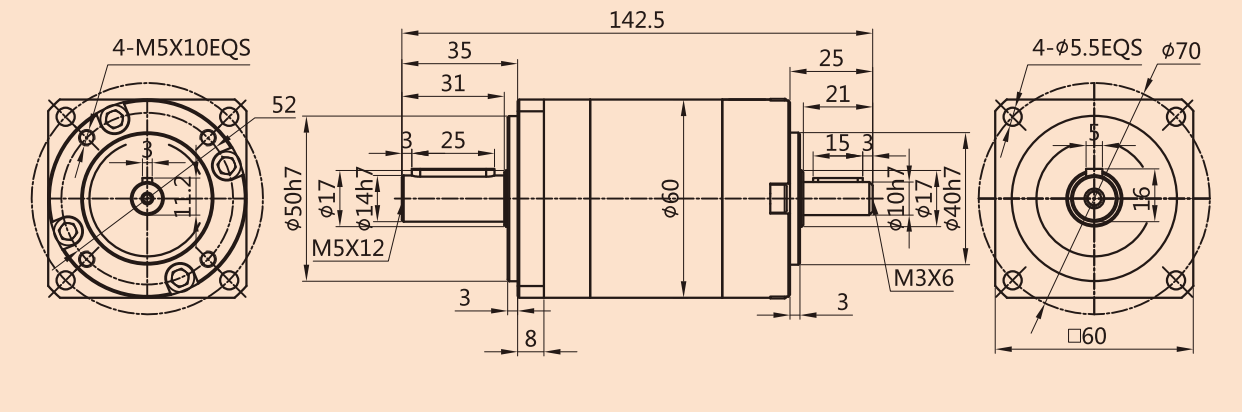
型号 Model	单位 Unit	PLFS060	PLFS090	PLFS120	PLFS160	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	0.107	0.4	1.65	4.31	3	1
		0.094	0.309	1.22	5.15	4	
		0.092	0.291	1.15	4.93	5	
		0.091	0.285	1.13	4.84	7(8)	
		0.091	0.283	1.11	-	10	
			0.4	1.65	6.31	12	2
			0.309	1.65	-	15	
		0.094	0.291	1.22	5.15	16	
		0.092	0.291	1.15	4.93	20	
		0.092	0.291	1.15	4.93	25	
		0.091	0.285	1.13	4.84	28(32)	
		0.091	0.285	1.13	-	35	
		0.091	0.2835	1.11	4.84	40	
		0.091	0.283	1.11	-	50	
		0.091	0.283	1.11	4.84	70(64)	
		0.092	0.291	1.15	4.93	64	3
		0.092	0.291	1.15	4.93	80	
		0.092	0.291	1.15	4.93	100	
		0.092	0.291	1.15	4.84	125	
		0.091	0.291	1.13	-	140	
		0.091	0.291	1.13	4.84	175(160)	
		0.091	0.283	1.11	4.84	200	
		0.091	0.283	1.11	4.84	250(256)	
		0.091	0.283	1.11	4.84	280(320)	
		0.091	0.283	1.11	4.84	350(512)	
噪音 Noise	dB	60	65	68	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication					
防护等级 levels of protection		IP65					

外形尺寸图表
Outline dimensional

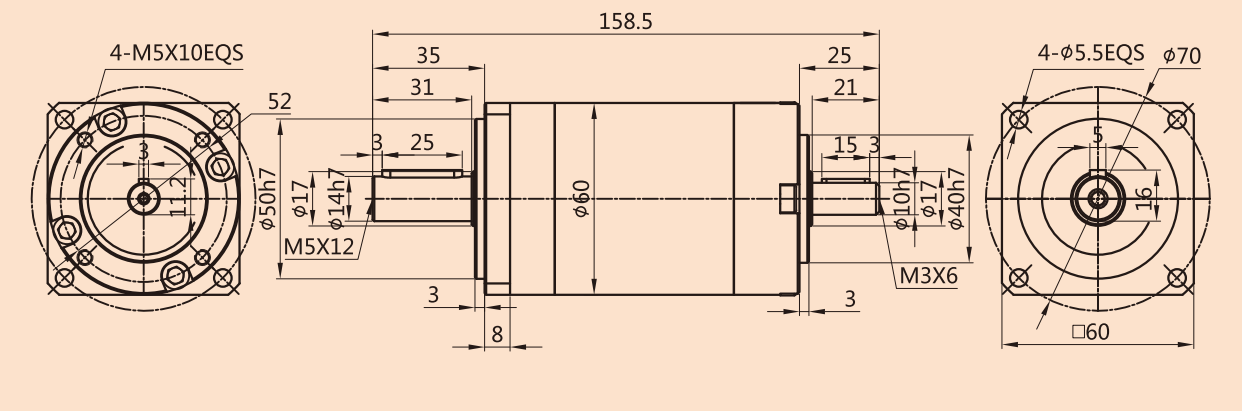
PLFS060-L1



PLFS060-L2

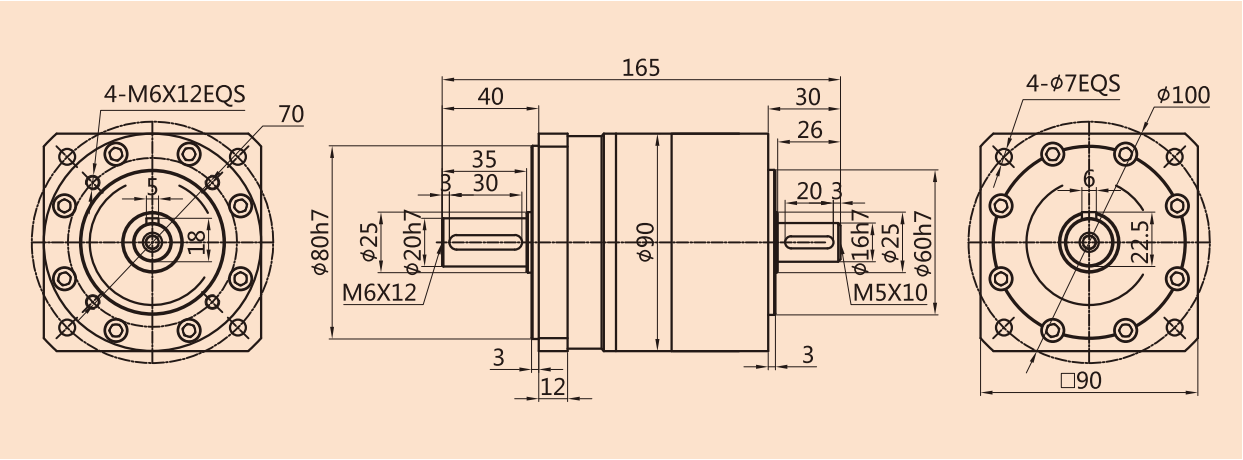


PLFS060-L3

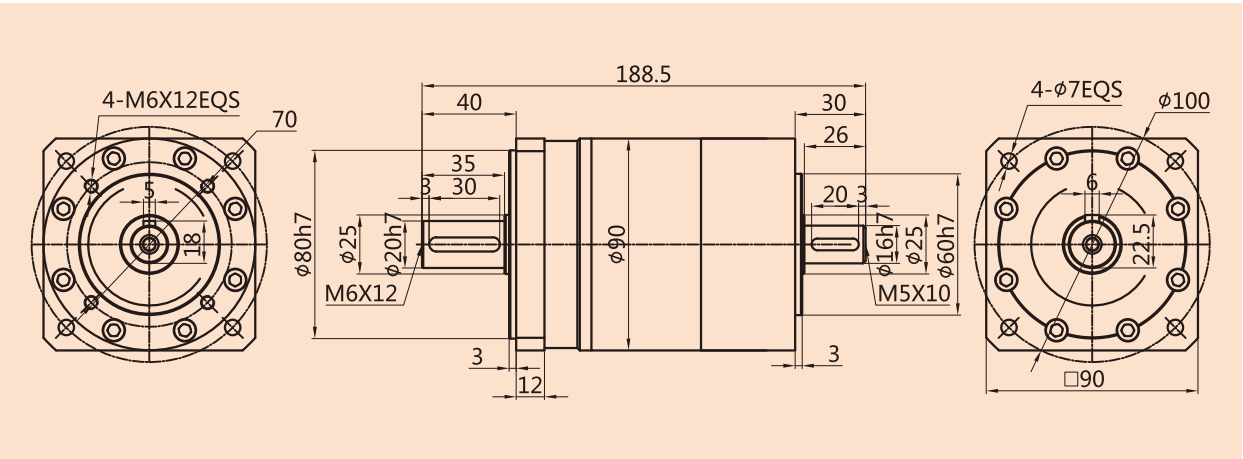


外形尺寸图表
Outline dimensional

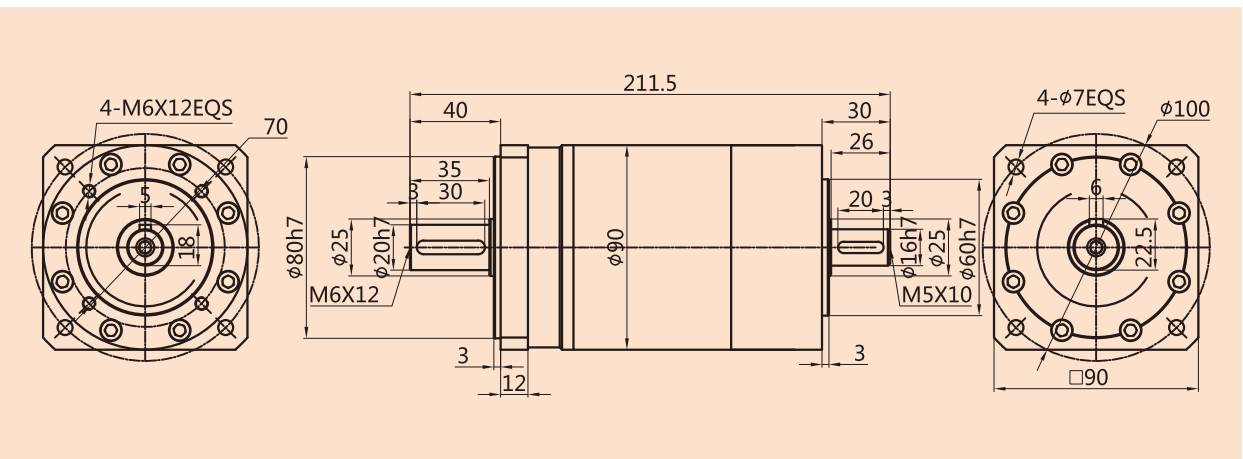
PLFS090-L1



PLFS090-L2

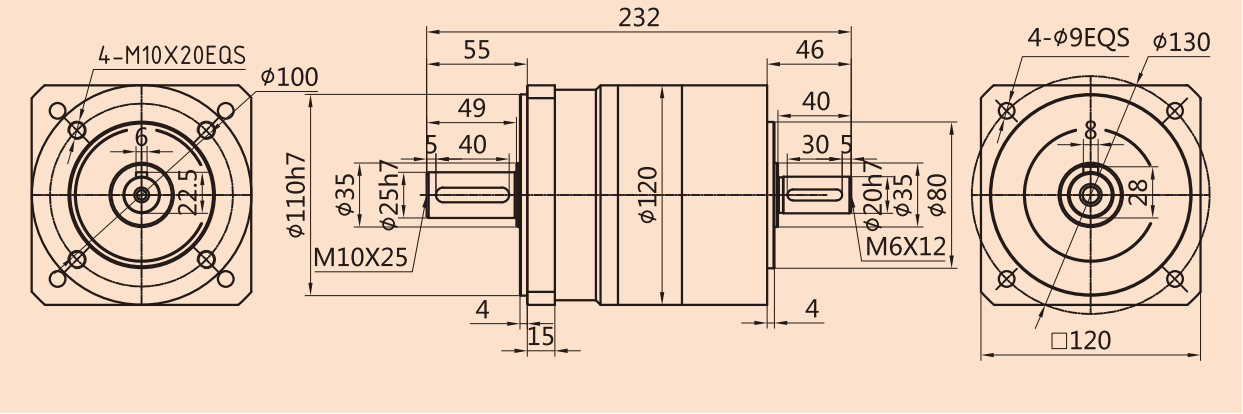


PLFS090-L3

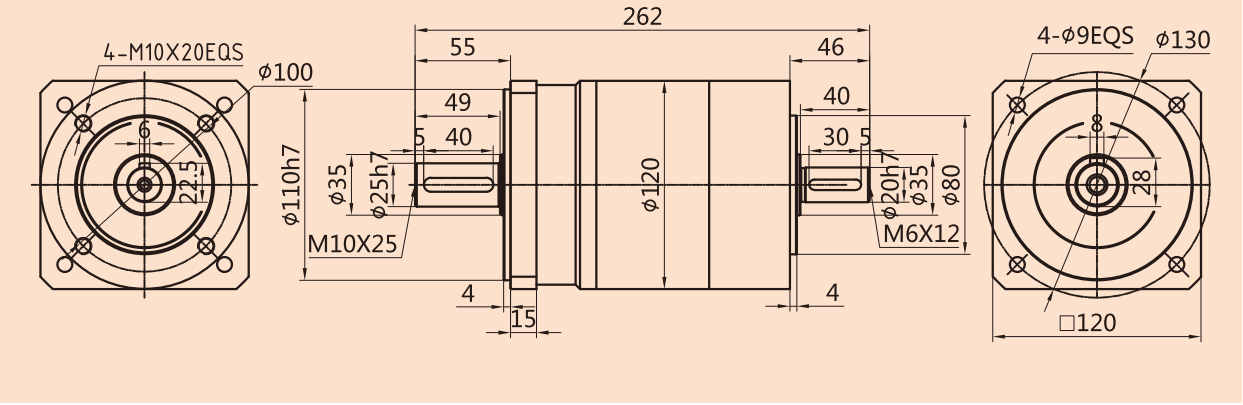


外形尺寸图表
Outline dimensional

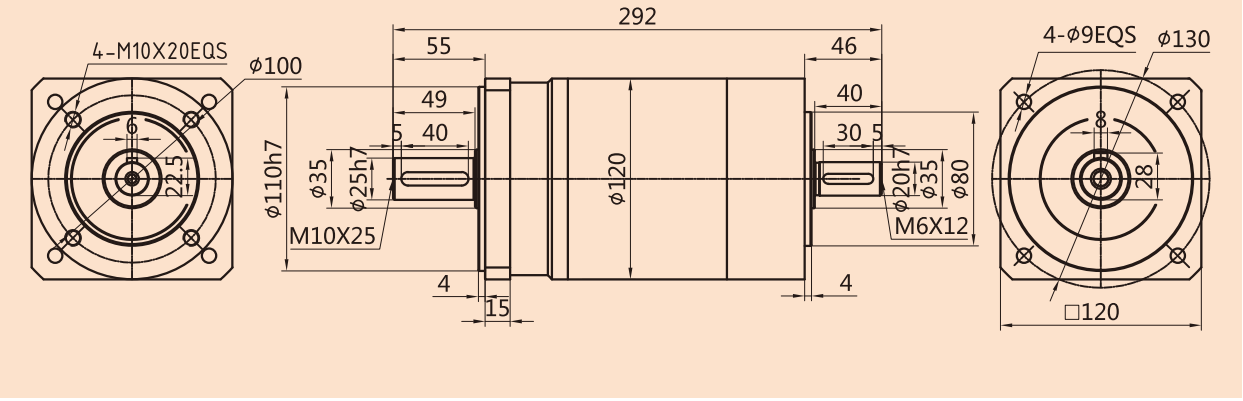
PLFS120-L1



PLFS120-L2

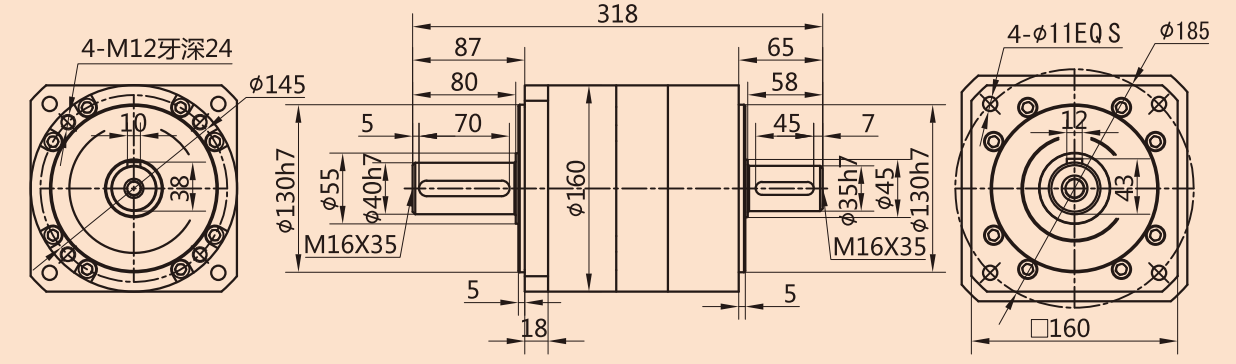


PLFS120-L3

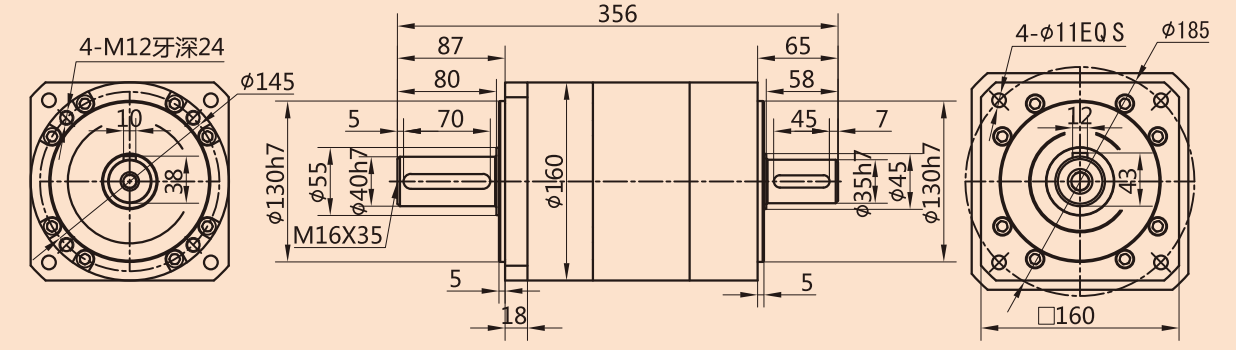


外形尺寸图表
Outline dimensional

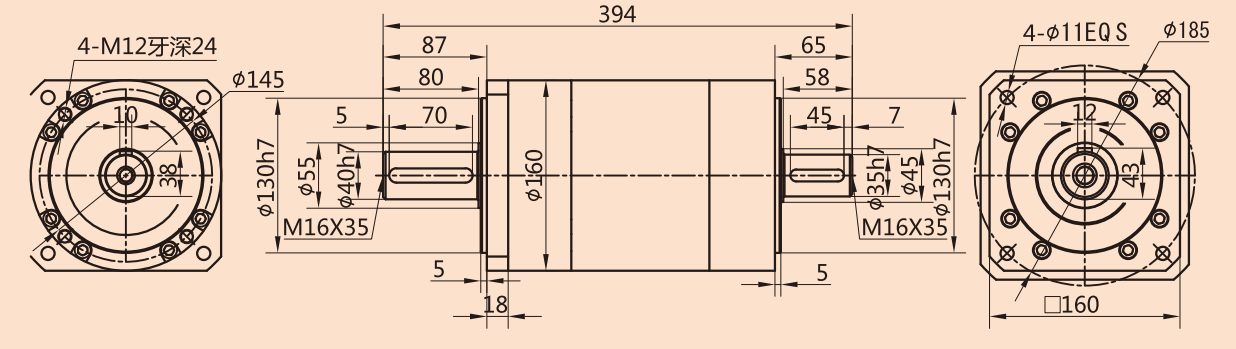
PLFS160-L1



PLFS160-L2



PLFS160-L3



- PLS060
- PLS090
- PLS120
- PLS160

PLS

Series

PLS系列减速机核心特性

The Core Characteristics of PLS Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

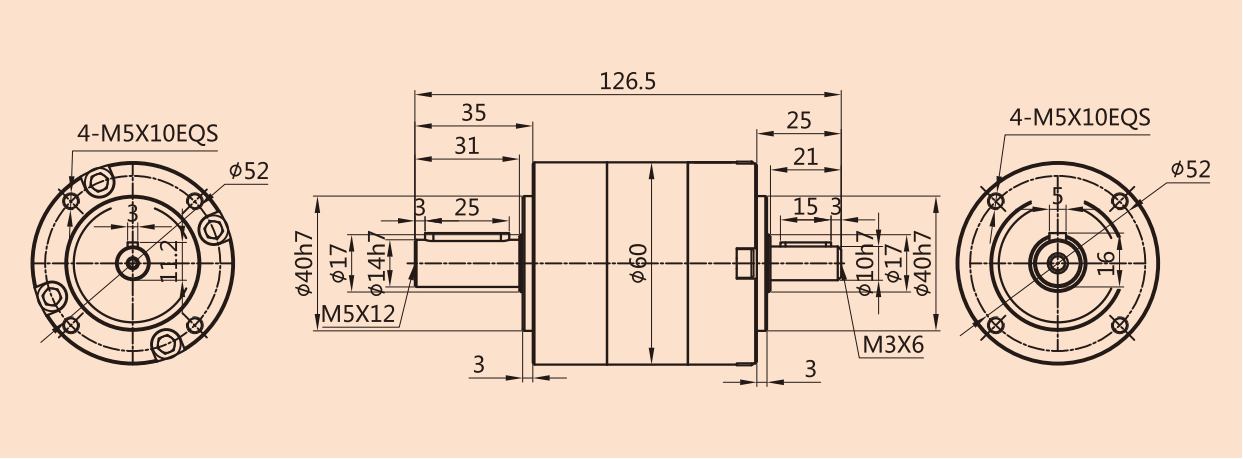
型号 Model	单位 Unit	PLS060	PLS090	PLS120	PLS160	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	16.5	60	148	310	3	1
		27	86	222	605	4	
		27	94.5	235	420	5	
		19.5	64	158	270	7(8)	
		8.5	39.5	93	-	10	
			96	250	680	12	2
			96	250	-	15	
		30	96	250	680	16	
		30	96	250	680	20	
		33	105.5	264	460	25	
		30	96	250	680	28(32)	
		33	105.5	264	-	35	
		30	96	250	460	40	
		33	105.5	264	-	50	
		21.5	71.5	177	310	70(64)	
		37.5	120	310	900	64	3
		37.5	120	310	900	80	
		37.5	120	310	900	100	
		41.0	132.5	329	580	125	
		37.5	120	310	-	140	
		41.0	132.5	329	580	175(160)	
		37.5	120	310	580	200	
		41.0	132.5	329	900	250(256)	
		37.5	120	310	580	280(320)	
		41.0	132.5	329	400	350(512)	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque					
额定输入转速 Norminal input speed	rmp	3000	3000	2000	2000		
最大输入转速 Maximum input speed	rmp	6000	6000	3500	3500		
最大径向力 Maximum radial force	N	170	1020	2230	3200		
最大轴向力 Maximum axial force	N	120	850	1550	3000		
效率 Efficiency	%	Single [97%]		Double [95%]			
平均寿命 Average lifetime	h	20000					
重量 Weight	kg	1.4	4.7	6.9	19		1
		1.6	5.3	8.9	25		2
		1.8	5.9	11.2	31		3

减速机性能资料
Gear box performance information

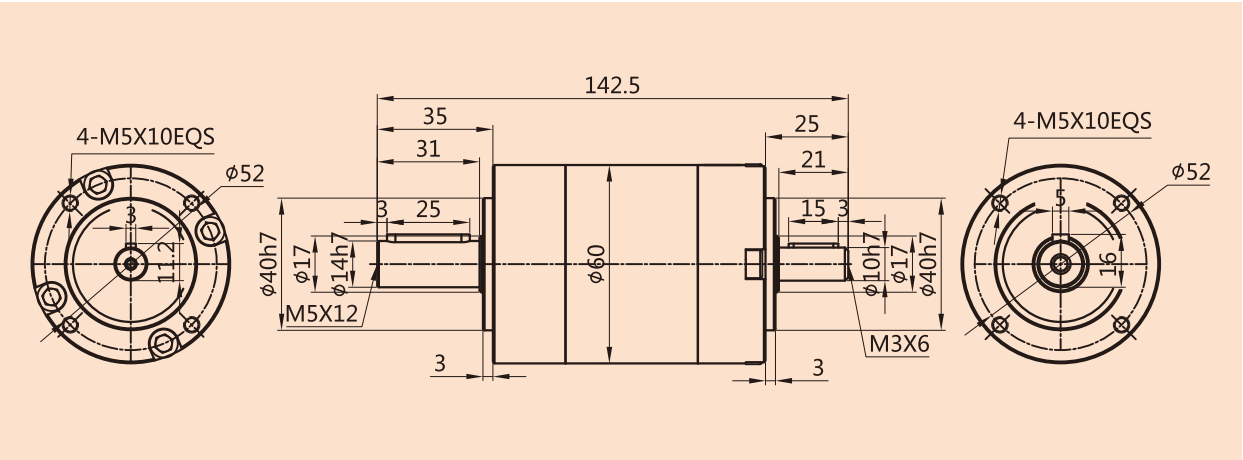
型号 Model	单位 Unit	PLS060	PLS090	PLS120	PLS160	减速比 Ratio	Stage
转动惯量 Moment of inertia	kgcm²	0.107	0.4	1.65	4.31	3	1
		0.094	0.309	1.22	5.15	4	
		0.092	0.291	1.15	4.93	5	
		0.091	0.285	1.13	4.84	7(8)	
		0.091	0.283	1.11	-	10	
			0.4	1.65	6.31	12	2
			0.309	1.65	-	15	
		0.094	0.291	1.22	5.15	16	
		0.092	0.291	1.15	4.93	20	
		0.092	0.291	1.15	4.93	25	
		0.091	0.285	1.13	4.84	28(32)	
		0.091	0.285	1.13	-	35	
		0.091	0.2835	1.11	4.84	40	
		0.091	0.283	1.11	-	50	
		0.091	0.283	1.11	4.84	70(64)	
		0.092	0.291	1.15	4.93	64	3
		0.092	0.291	1.15	4.93	80	
		0.092	0.291	1.15	4.93	100	
		0.092	0.291	1.15	4.84	125	
		0.091	0.291	1.13	-	140	
		0.091	0.291	1.13	4.84	175(160)	
		0.091	0.283	1.11	4.84	200	
		0.091	0.283	1.11	4.84	250(256)	
		0.091	0.283	1.11	4.84	280(320)	
		0.091	0.283	1.11	4.84	350(512)	
噪音 Noise	dB	60	65	68	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication					
防护等级 levels of protection		IP65					

外形尺寸图表
Outline dimensional

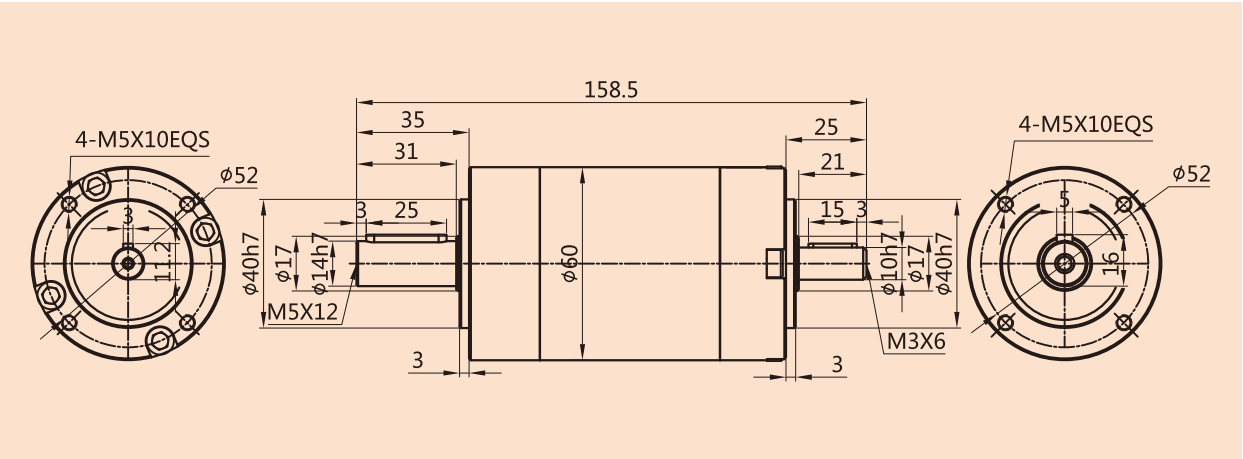
PLS060-L1



PLS060-L2

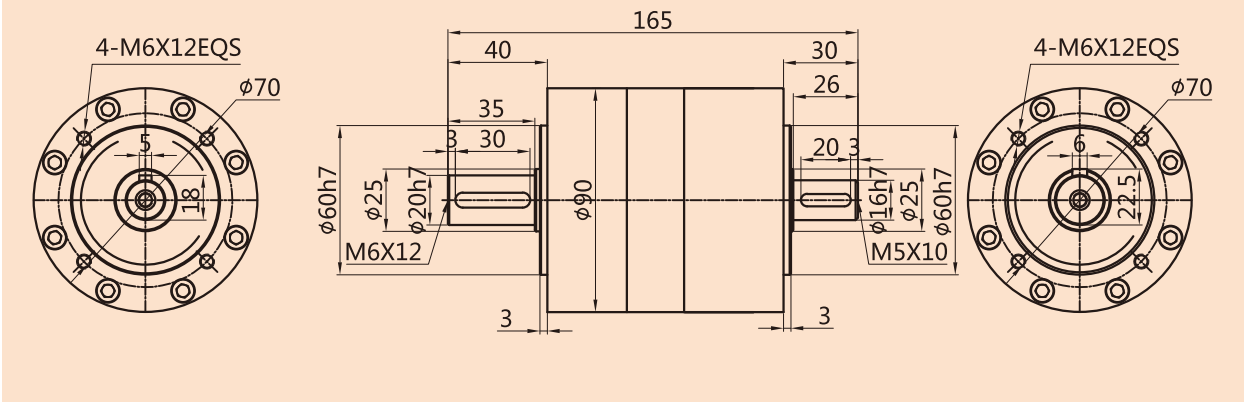


PLS060-L3

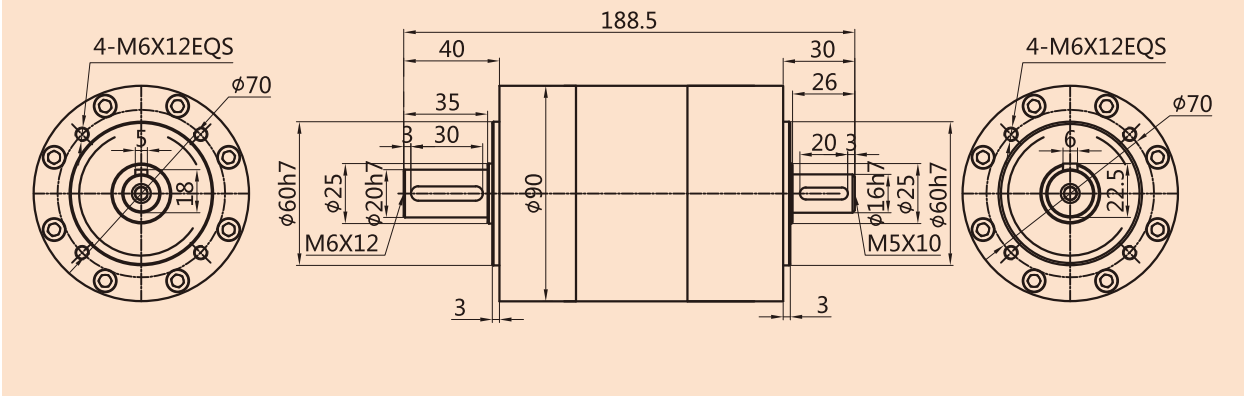


外形尺寸图表
Outline dimensional

PLS090-L1



PLS090-L2



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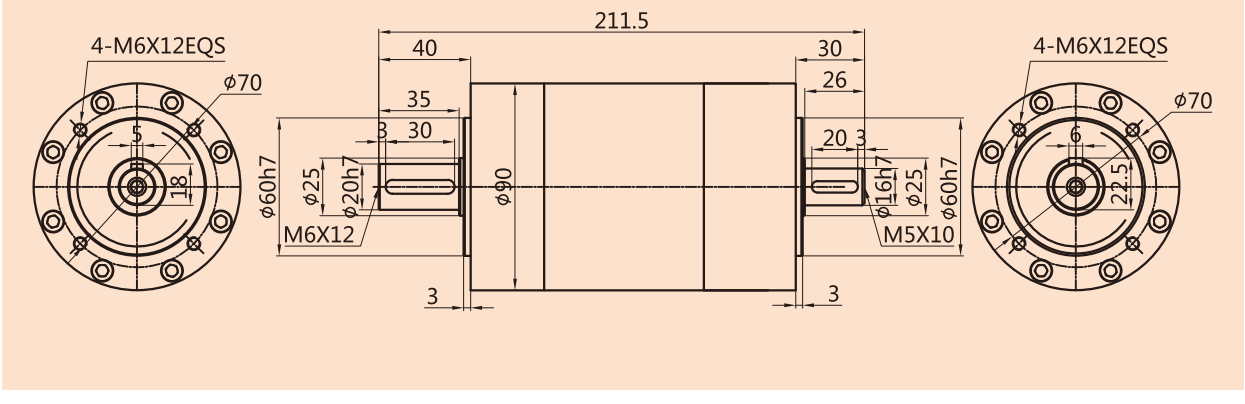
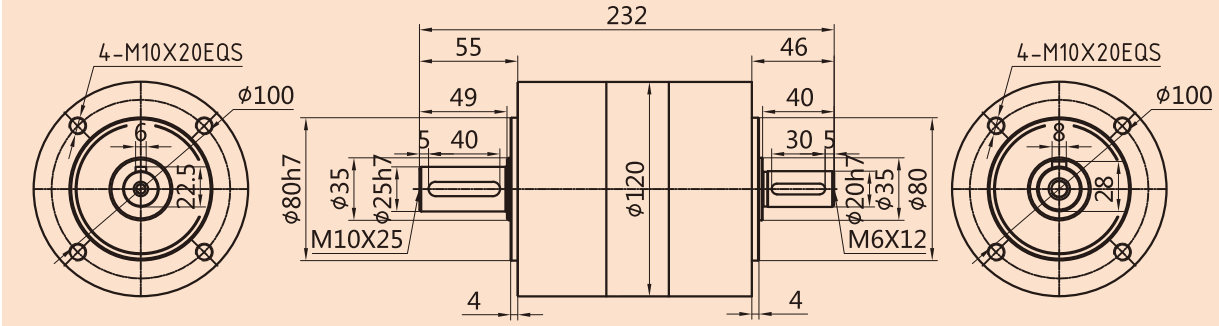
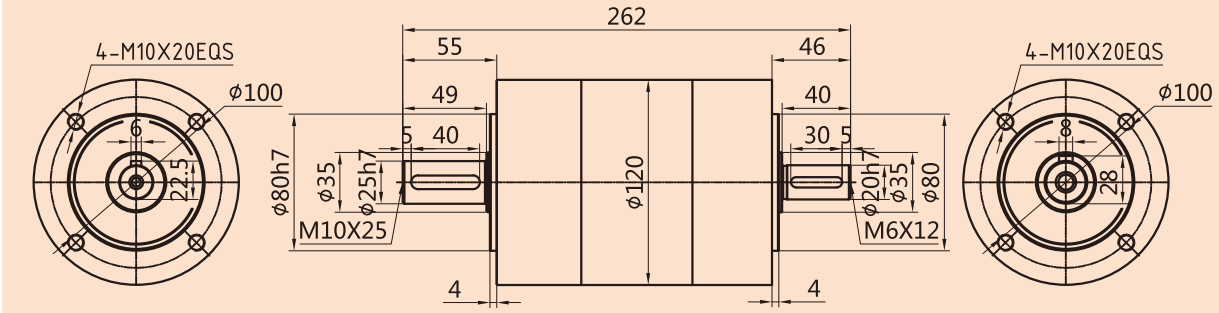


外形尺寸图表
Outline dimensional

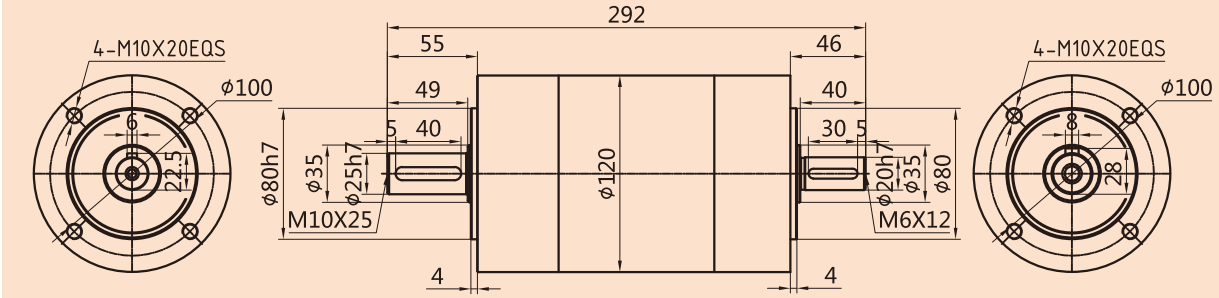
PLS120-L1



PLS120-L2

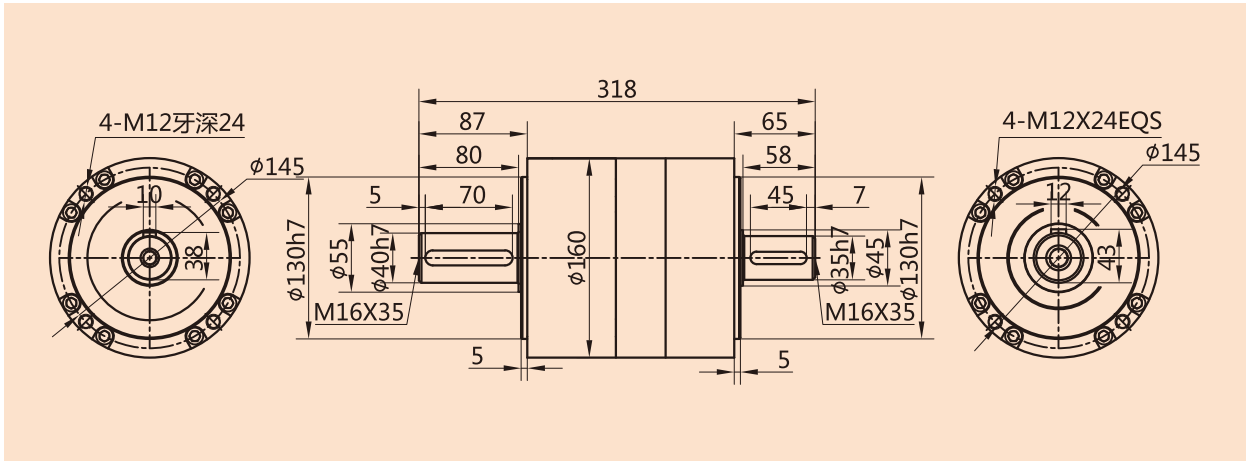


PLS120-L3

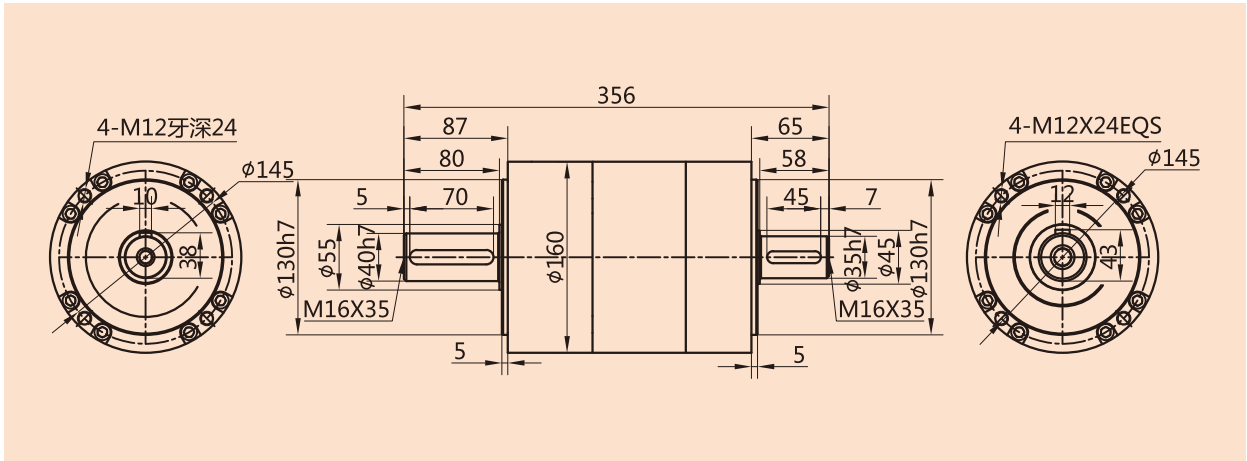


外形尺寸图表
Outline dimensional

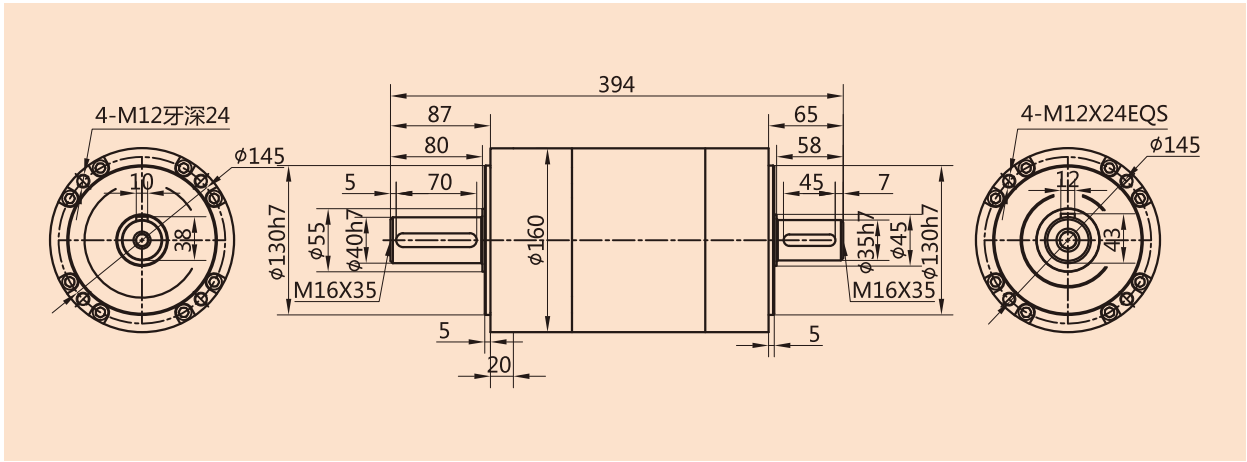
PLS160-L1



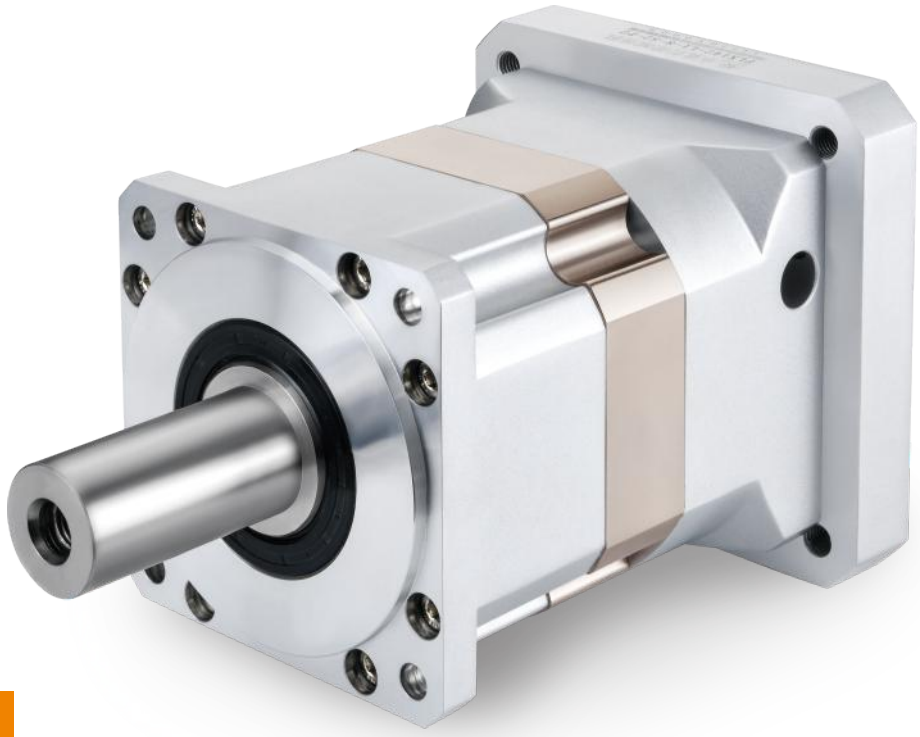
PLS160-L2



PLS160-L3



- PLX042
- PLX142
- PLX190
- PLX242
- PLX285
- PLX330



PLX

Series

PLX系列减速机核心特性

The Core Characteristics of PLX Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

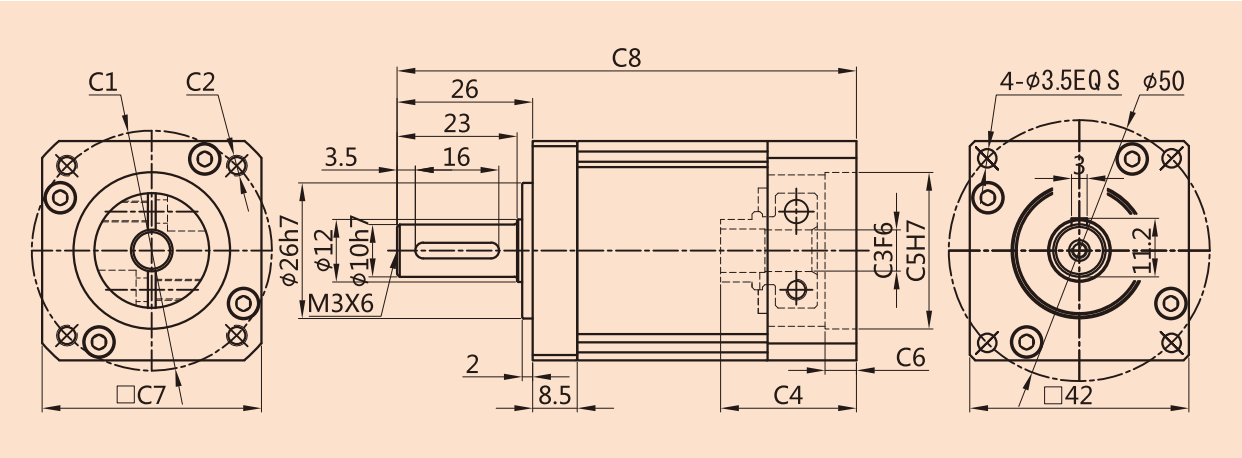
型号 Model	单位 Unit	PLX042	PLX142	PLX190	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	8	310	–	3	1
		9	605	1780	4	
		9	420	1345	5	
		7	270	745	8	
			680	2035	12	2
		12	680	2035	16	
		12	680	2035	20	
		10.5	460	1485	25	
		12	680	2035	32	
		10.5	460	1485	40	
		8	310	840	64	
		15.5	900	2035	64	3
		15.5	900	2590	80	
		15.5	900	2590	100	
		15.5	580	1855	125	
		15.5	580	2590	160	
		13.5	580	1855	200	
		15.5	900	2590	256	
		13.5	580	1855	320	
		9.5	400	1070	512	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	3000	2000	1500		
最大输入转速 Maximum input speed	rmp	6000	3500	2500		
最大径向力 Maximum radial force	N	185	3200	13000		
最大轴向力 Maximum axial force	N	150	3000	20000		
效率 Efficiency	%	Single [97%]			Double [95%]	
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	0.5	17	42		1
		0.6	23	50		2
		0.7	29	58		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLX042	PLX142	PLX190	减速比 Ratio	Stage
转动惯量 Moment of inertia	kgcm²	0.022	4.31	–	3	1
		0.022	5.15	15.6	4	
		0.019	4.93	15.6	5	
		0.017	4.84	15.6	8	
			6.31	6.31	12	2
		0.022	5.15	5.15	16	
		0.019	4.93	4.93	20	
		0.019	4.93	4.93	25	
		0.017	4.84	4.84	32	
		0.016	4.84	4.84	40	
		0.016	4.84	4.84	64	
		0.019	4.93	4.93	64	3
		0.019	4.93	4.93	80	
		0.019	4.93	4.93	100	
		0.029	4.84	4.84	125	
		0.016	4.84	4.84	160	
		0.016	4.84	4.84	200	
		0.016	4.84	4.84	256	
		0.016	4.84	4.84	320	
		0.016	4.84	4.84	512	
噪音 Noise	dB	60	70	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

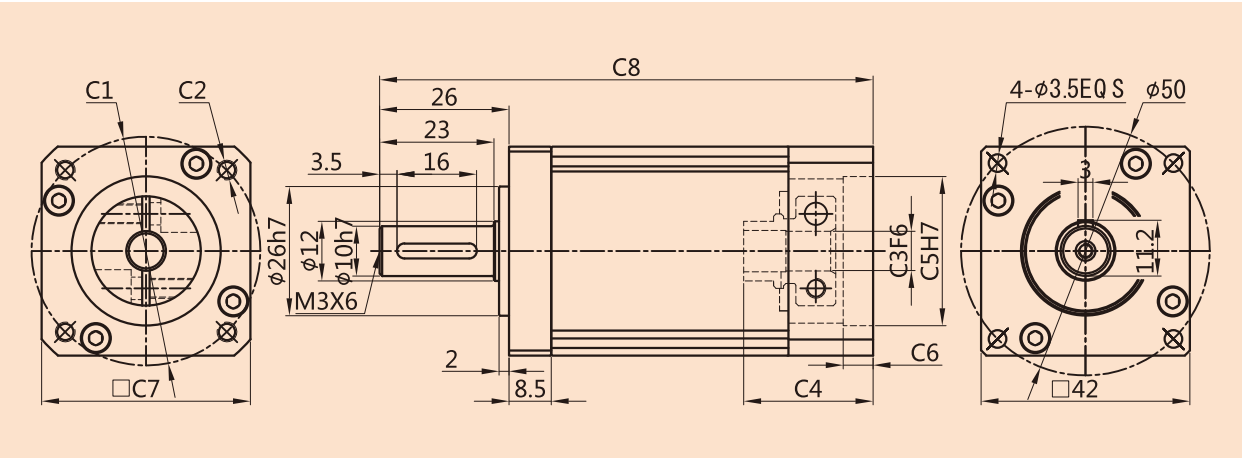
PLX-042-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-042-L1	Φ46	4-M4	Φ8	26	Φ30	6	42	88
	Φ45	4-M3	Φ8	26	Φ30	6	42	88

PLX-042-L2

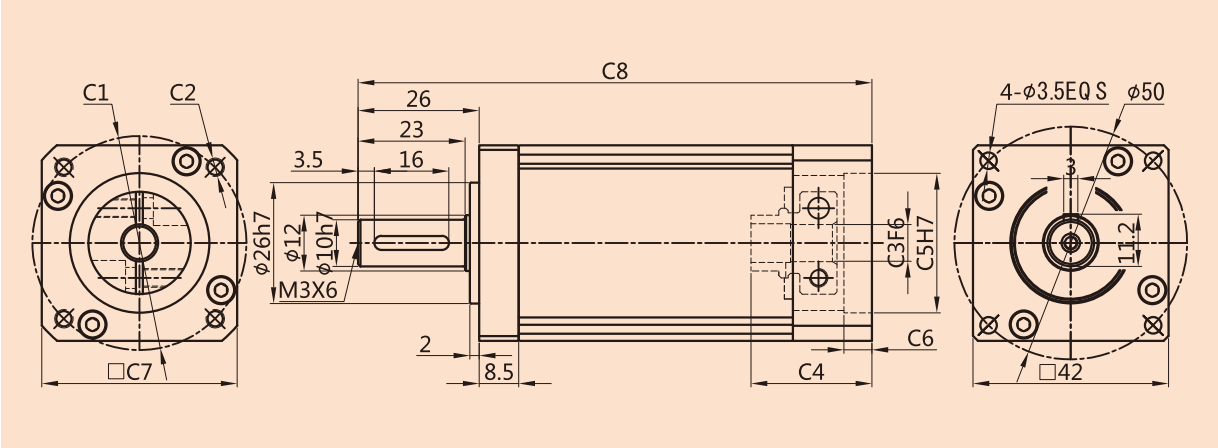


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-042-L2	Φ46	4-M4	Φ8	26	Φ30	6	42	99.2
	Φ45	4-M3	Φ8	26	Φ30	6	42	99.2

外形尺寸图表
Outline dimensional

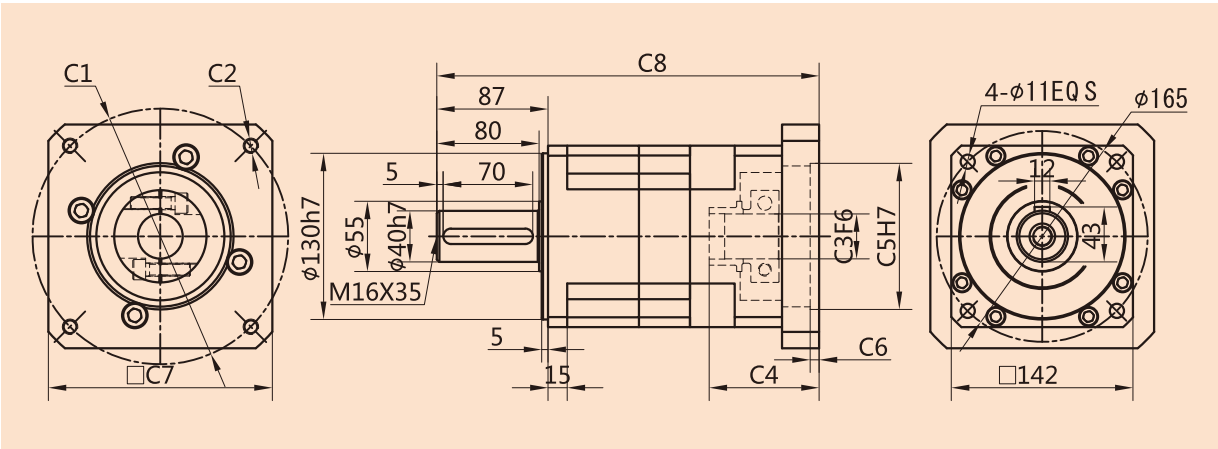
PLX-042-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-042-L3	Φ46	4-M4	Φ8	26	Φ30	6	42	110.4
	Φ45	4-M3	Φ8	26	Φ30	6	42	110.4

PLX-142-L1

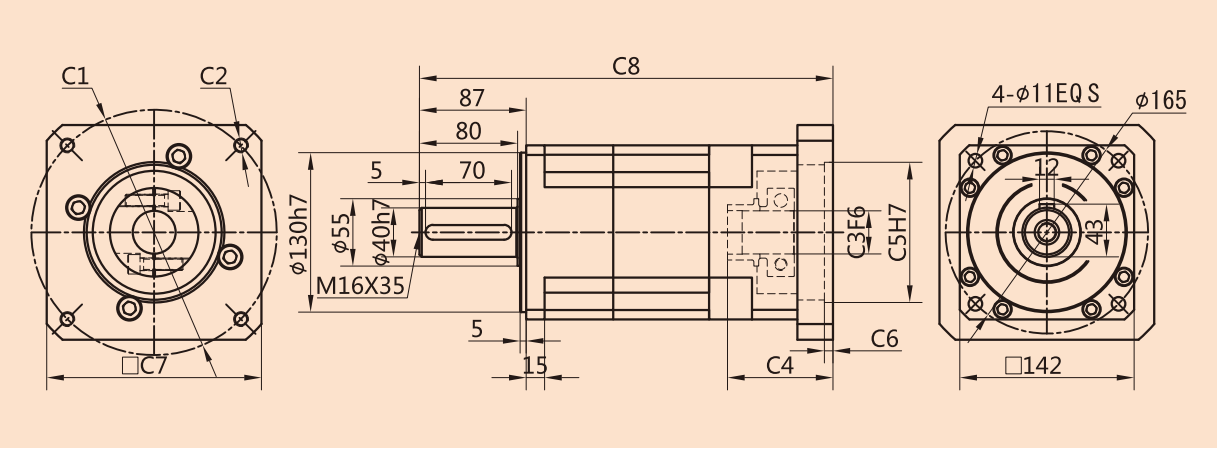


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-142-L1	Φ130	4-M8	Φ22	62	Φ95	7	142	275
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	275
	Φ165	4-M10	Φ32	62	Φ130	7	142	275
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	299
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	330
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	299

外形尺寸图表
Outline dimensional

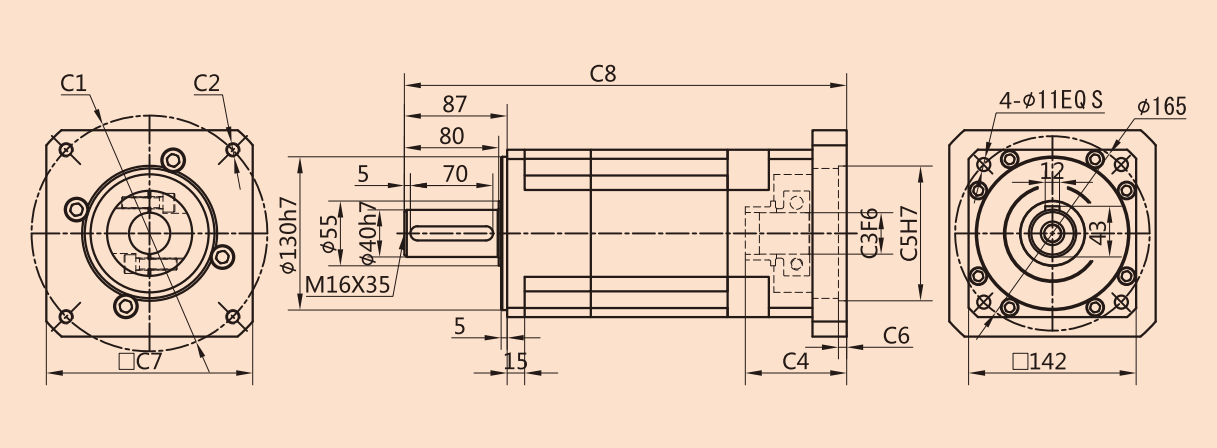
PLX-142-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-142-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	313
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	313
	Φ165	4-M10	Φ32	62	Φ130	7	142	313
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	337
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	368
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	337

PLX-142-L3

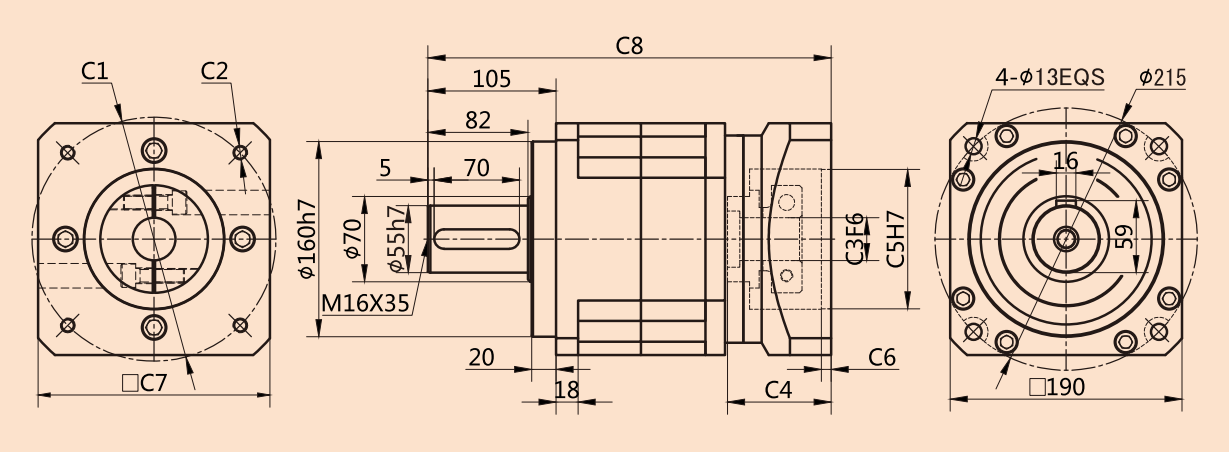


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-142-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	351
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	351
	Φ165	4-M10	Φ32	62	Φ130	7	142	351
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	375
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	406
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	375

外形尺寸图表
Outline dimensional

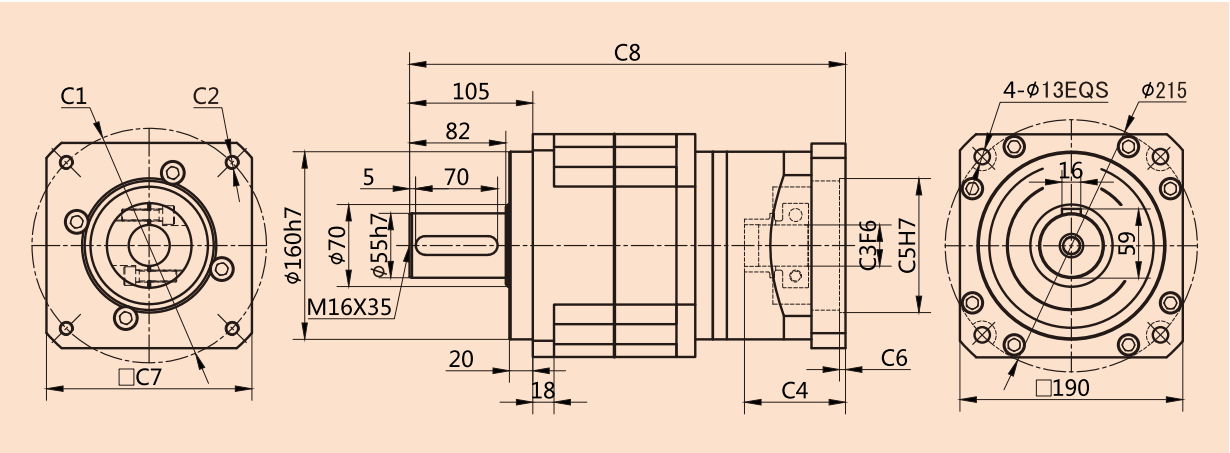
PLX-190-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-190-L1	Φ215	4-M12	Φ38/Φ42	85	Φ180	7	150	159.5
	Φ200	4-M12	Φ35	115	Φ114.3	7	150	159.5
	Φ235	4-M12	Φ38/Φ42	120	Φ200	7	150	184.5
	Φ200	4-M12	Φ35	85	Φ114.3	7	180	184.5

PLX-190-L2

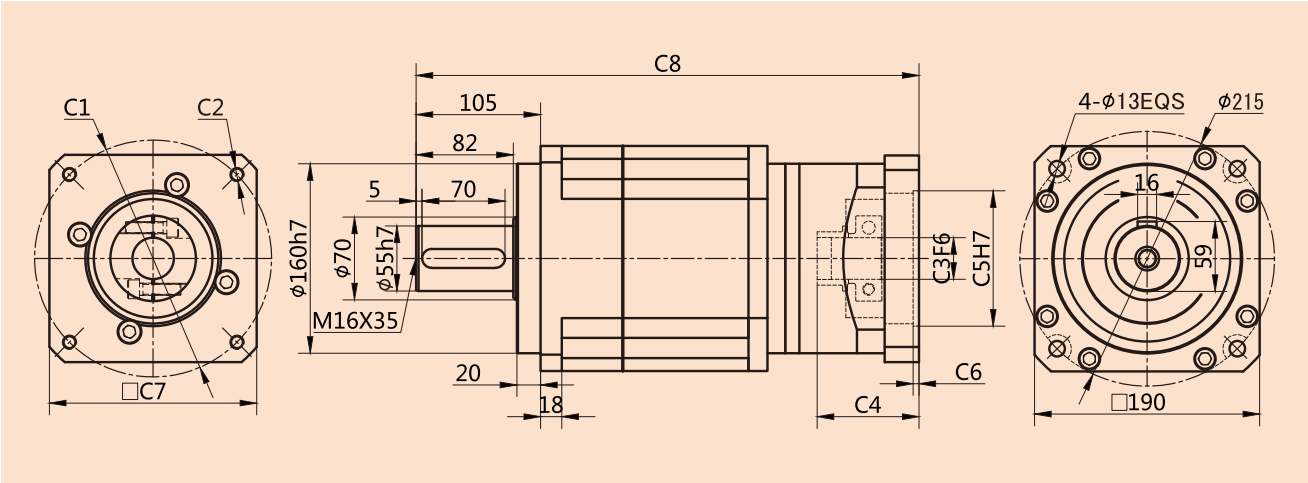


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-190-L2	Φ130	4-M8	Φ22	62	Φ95	7	142	351
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	351
	Φ165	4-M10	Φ32	62	Φ130	7	142	351
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	375
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	406
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	375

外形尺寸图表
Outline dimensional

PLX-190-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-190-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	351
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	351
	Φ165	4-M10	Φ32	62	Φ130	7	142	351
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	375
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	406
	Φ215	4-M12	Φ38/Φ42	86	Φ180	7	190	375

减速机性能资料
Gear box performance information

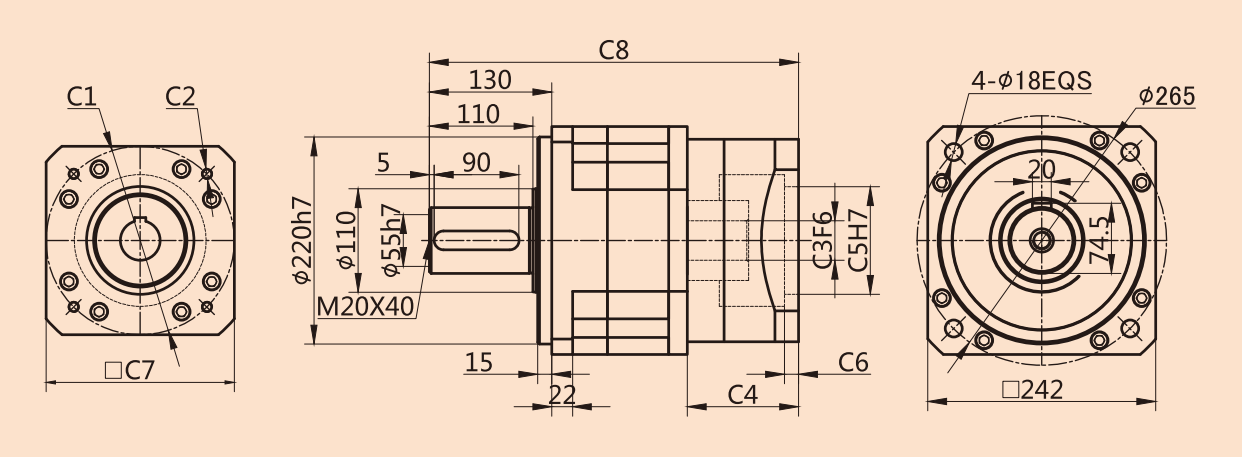
型号 Model	单位 Unit	PLX242	PLX285	PLX330	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m	3200	5800	10190	4	1
		2500	4400	7180	5	
		1360	2595	4080	8	
		3390	6400	10800	16	2
		3390	6400	10800	20	
		2650	4710	7550	25	
		3390	6400	10800	32	
		2650	4710	7550	40	
		1450	4710	4430	64	
		3390	8130	13700	64	3
		4420	8130	13700	80	
		3420	9130	13700	100	
		3420	6030	9800	125	
		4420	8130	13700	160	
		3420	6030	9800	200	
		4420	6030	9800	256	
		3420	6030	9800	320	
		1840	3560	8450	512	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque				
额定输入转速 Norminal input speed	rmp	1000	1000	1000		
最大输入转速 Maximum input speed	rmp	1500	1500	1500		
最大径向力 Maximum radial force	N	12000	15000	17000		
最大轴向力 Maximum axial force	N	6400	12000	15000		
效率 Efficiency	%	Single [97%]			Double [95%]	
平均寿命 Average lifetime	h	20000				
重量 Weight	kg	71	113	245		1
		75	136	290		2
		92	140	326		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	PLX242	PLX285	PLX330	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$	34.6	34.5	65.4	4	1
		34.6	34.5	65.4	5	
		34.6	34.5	65.4	8	
		15.6	38.5	68.5	16	
		15.6	38.5	68.5	20	
		15.6	38.5	68.5	25	
		15.6	38.5	68.5	32	
		15.6	38.5	68.5	40	
		15.6	38.5	68.5	64	
		15.6	38.5	73.4	64	3
		15.6	38.5	73.4	80	
		15.6	38.5	73.4	100	
		15.6	38.5	73.4	125	
		15.6	38.5	73.4	160	
		15.6	38.5	73.4	200	
		15.6	38.5	73.4	256	
		15.6	38.5	73.4	320	
		15.6	38.5	73.4	512	
噪音 Noise	dB	70	70	70		
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication				
防护等级 levels of protection		IP65				

外形尺寸图表
Outline dimensional

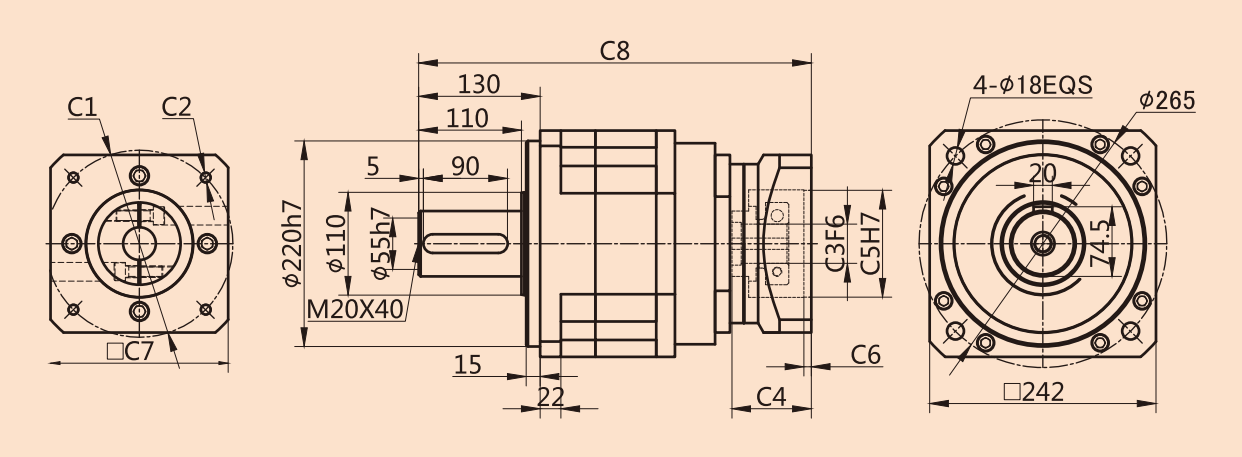
PLX-242-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-242-L1	Φ200	4-M12	Φ42	118	Φ114.3	15	220	392
	Φ235	4-M12	Φ42	118	Φ200	15	220	392

PLX-242-L2

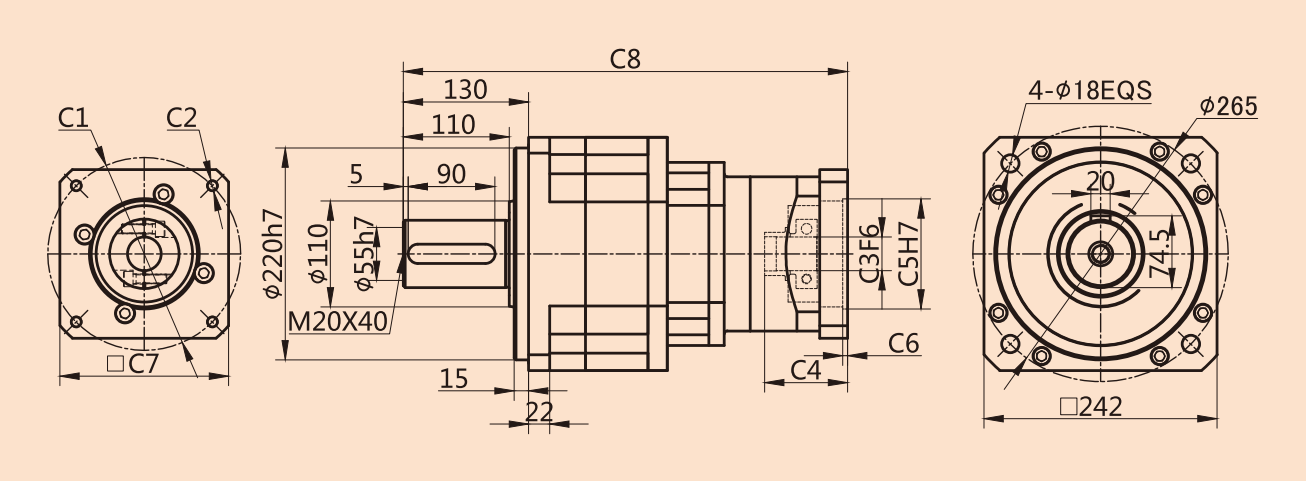


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-242-L2	Φ215	4-M12	Φ38/Φ42	85	Φ180	7	150	420
	Φ200	4-M12	Φ35	115	Φ114.3	7	150	450
	Φ235	4-M12	Φ38/Φ42	120	Φ200	7	150	455
	Φ200	4-M12	Φ35	85	Φ114.3	7	180	420

外形尺寸图表
Outline dimensional

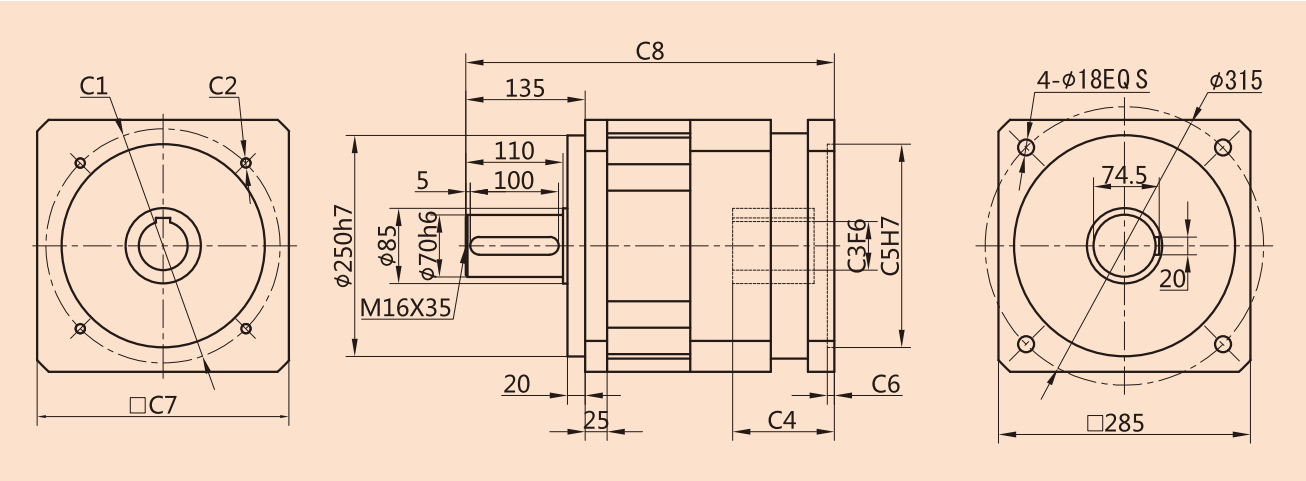
PLX-242-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-242-L3	Φ130	4-M8	Φ22	62	Φ95	7	142	437
	Φ145	4-M8	Φ22/Φ24	62	Φ110	7	142	437
	Φ165	4-M10	Φ32	62	Φ130	7	142	437
	Φ200	4-M12	Φ35	86	Φ114.3	7	175	461
	Φ200	4-M12	Φ35	117	Φ114.3	7	175	492

PLX-285-L1

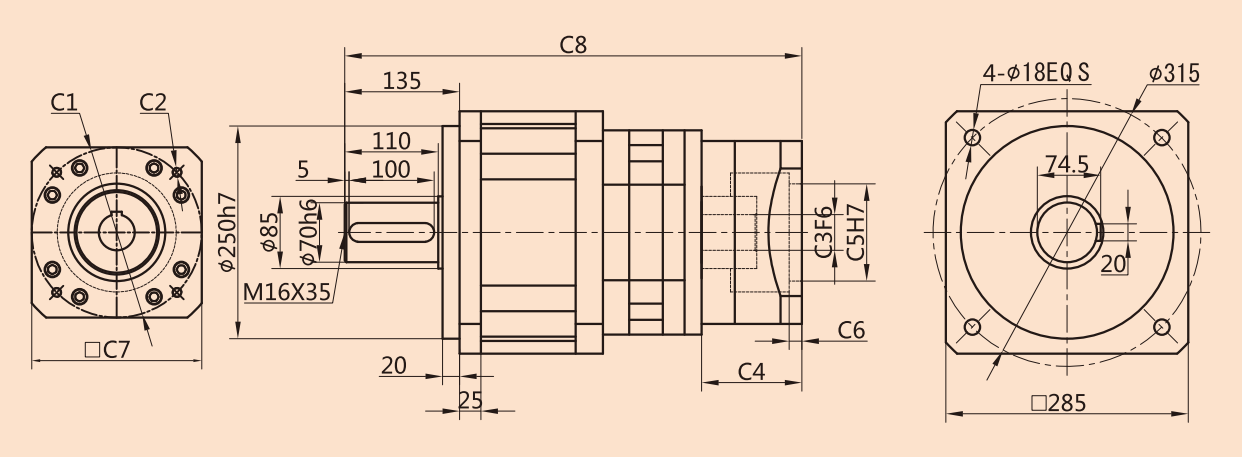


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-285-L1	Φ235	4-M12	Φ55	115	Φ200	7	285	417

外形尺寸图表
Outline dimensional

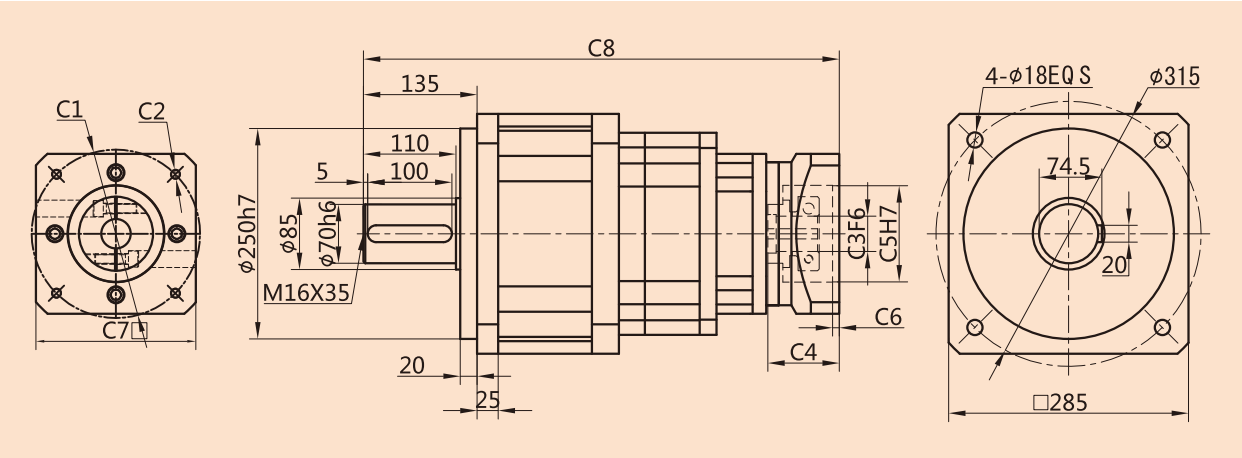
PLX-285-L2



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-285-L2	Φ200	4-M12	Φ42	118	Φ114.3	15	220	537.5
	Φ235	4-M12	Φ42	118	Φ200	15	220	537.5

PLX-285-L3

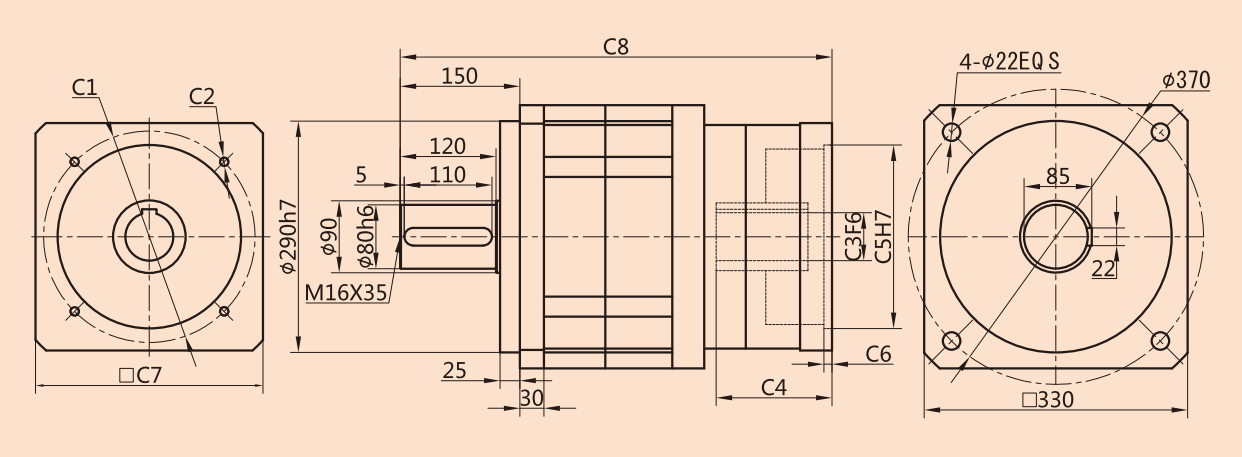


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-285-L3	Φ215	4-M12	Φ38/Φ42	85	Φ180	7	150	565.5
	Φ200	4-M12	Φ35	115	Φ114.3	7	150	595.5
	Φ235	4-M12	Φ38/Φ42	120	Φ200	7	150	600.5
	Φ200	4-M12	Φ35	85	Φ114.3	7	180	565.5

外形尺寸图表
Outline dimensional

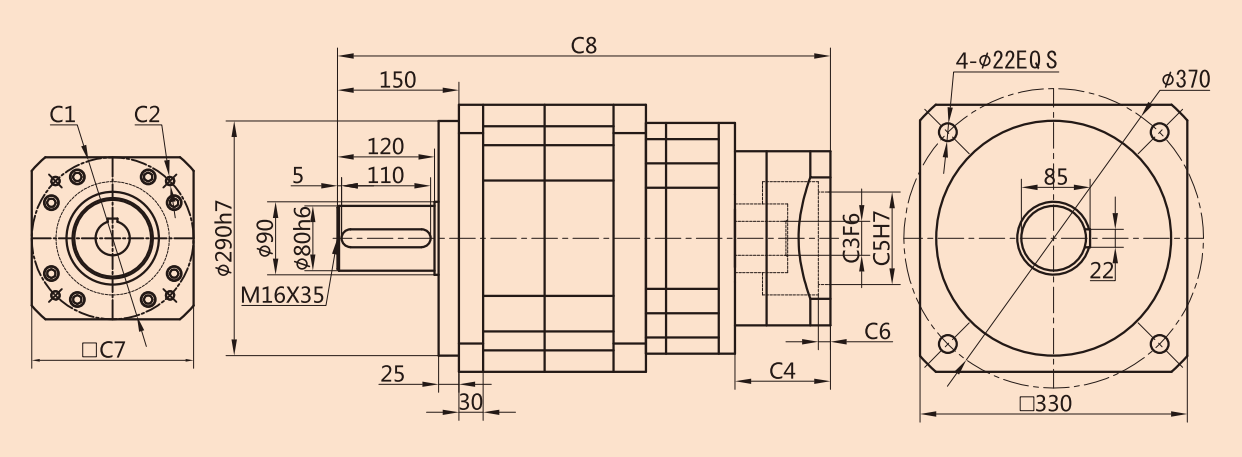
PLX-330-L1



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-330-L1	Φ265	4-M12	Φ60	145	Φ230	10	150	541

PLX-330-L2

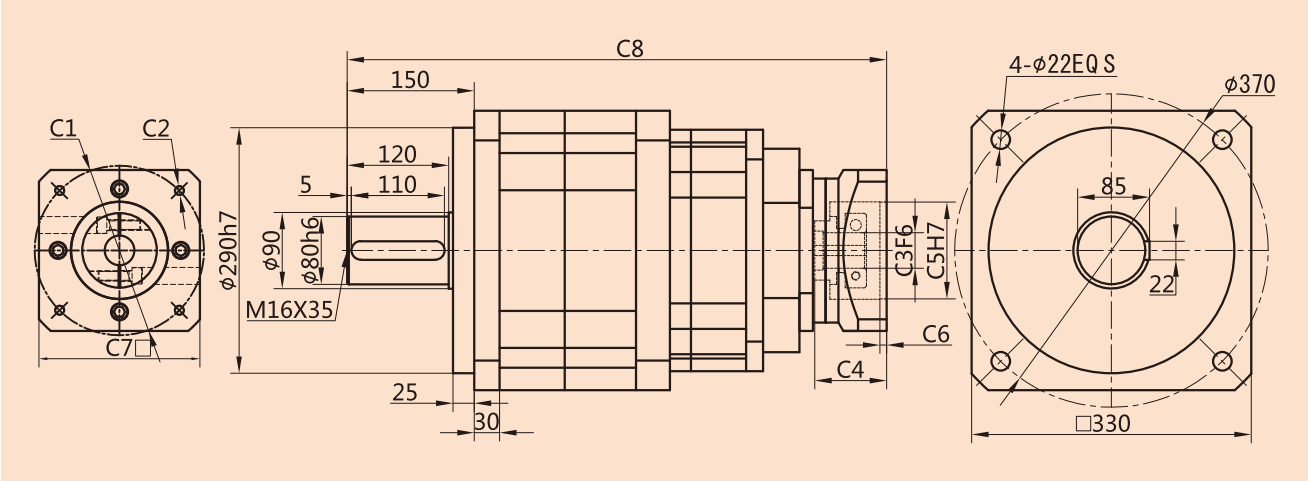


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-330-L2	Φ200	4-M12	Φ42	118	Φ114.3	15	220	609
	Φ235	4-M12	Φ42	118	Φ200	15	220	609

外形尺寸图表
Outline dimensional

PLX-330-L3



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size	C1	C2	C3	C4	C5	C6	C7	C8
PLX-330-L3	Φ215	4-M12	Φ38/Φ42	85	Φ180	7	150	637
	Φ200	4-M12	Φ35	115	Φ114.3	7	150	667
	Φ235	4-M12	Φ38/Φ42	120	Φ200	7	150	673
	Φ200	4-M12	Φ35	85	Φ114.3	7	180	637

- ZPT070
- ZPT090
- ZPT110
- ZPT140

ZPT

Series

ZPT系列减速机核心特性

The Core Characteristics of ZPT Series Reducer

1. 采用直齿齿轮传动，经渗碳淬火处理，齿向齿廓修形处理，确保运行平稳，噪音小；
2. 结构简单，可大批量生产，且交货期快性价比高；
3. 减速机种类齐全，可以满足市场上绝大多数减速机的配合。

1. Adopt straight tooth gear transmission, through carburizing and quenching treatment, tooth profile modification treatment, ensure smooth operation, low noise.
2. Simple structure, mass production, and fast delivery time and high cost performance.
3. Reducer has a complete range, which can meet the needs of most reducer in the market.

减速机性能资料
Gear box performance information

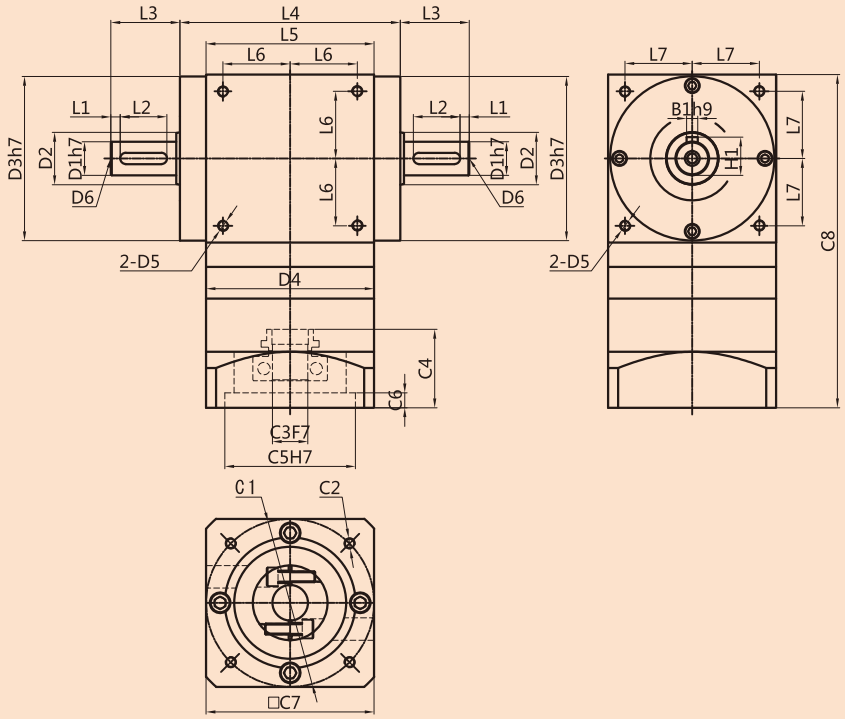
型号 Model	单位 Unit	ZPT070	ZPT090	ZPT110	ZPT140	减速比 Ratio	Stage
额定输出扭矩 Rated output torque	N·m		45	80	170	1	1
		35				2	
			45	80	170	3	
			45	80	170	4	
			45	80	170	5	
			45	80	170	7	
		35				8	
		35	45	80	170	10	
			45	80	170	12	2
		35				14	1
			45	80	170	15	2
			45	80	170	16	
		35	45	80	170	20	1
			45	80	170	25	2
			45	80	170	28	
		35				32	2
			45	80	170	35	2
		35	45	80	170	40	
		35	45	80	170	50	
		35				56	2
		35	45	80	170	70	
			45	80	170	64	3
		35	45	80	170	80	
		35	45	80	170	100	
			45	80	170	125	
		35	45	80	170	140	
			45	80	170	175	
			45	80	170	200	
			45	80	170	250	
			45	80	170	280	
			45	80	170	350	
故障停滞扭矩 Emergency stop torque	N·m	2倍额定输出扭矩 2 times Rated output torque					
额定输入转速 Norminal input speed	rmp	3000	2500	2000	2000		
最大输入转速 Maximum input speed	rmp	4000	3500	3000	3000		
最大径向力 Maximum radial force	N	950	1450	2100	2700		
最大轴向力 Maximum axial force	N	425	725	1050	1350		
效率 Efficiency	%	Single [97%]			Double [95%]		
平均寿命 Average lifetime	h	20000					
重量 Weight	kg	4.2	6.8	11.6	19.8		1
		4.6	7.4	13.8	23.9		2
			8.0	16.0	28.0		3

减速机性能资料
Gear box performance information

型号 Model	单位 Unit	ZPT070	ZPT090	ZPT110	ZPT140	减速比 Ratio	Stage
转动惯量 Moment of inertia	$kgcm^2$		0.4	0.4	1.65	3	1
			0.309	0.309	1.22	4	
			0.291	0.291	1.15	5	
			0.285	0.285	170	7	
		0.094				8	
		0.092	0.283	0.283	1.13	10	
			0.4	0.4	1.65	12	2
		0.092				14	1
			0.309	0.309	1.22	15	2
			0.291	0.291	1.22	16	
		0.091	0.291	0.291	1.15	20	1
			0.291	0.291	1.15	25	2
			0.285	0.285	1.13	28	
		0.094				32	2
			0.285	0.285	1.13	35	2
		0.092	0.283	0.283	1.11	40	
		0.092	0.285	0.285	1.11	50	
		0.091				56	2
		0.091	0.285	0.285	1.11	70	
			0.291	0.291	1.15	64	3
		0.091	0.291	0.291	1.15	80	
		0.091	0.291	0.291	1.15	100	
			0.291	0.291	1.15	125	
		0.091	0.285	0.285	1.13	140	
			0.285	0.285	1.13	175	
			0.283	0.283	1.11	200	
			0.283	0.283	1.11	250	
			0.283	0.283	1.11	280	
			0.283	0.283	170	350	
噪音 Noise	dB	70	70	70	70	70	
润滑 Lubricating		合成油脂润滑 Synthetic grease lubrication					
防护等级 levels of protection		IP65					

外形尺寸图表
Outline dimensional

ZPT

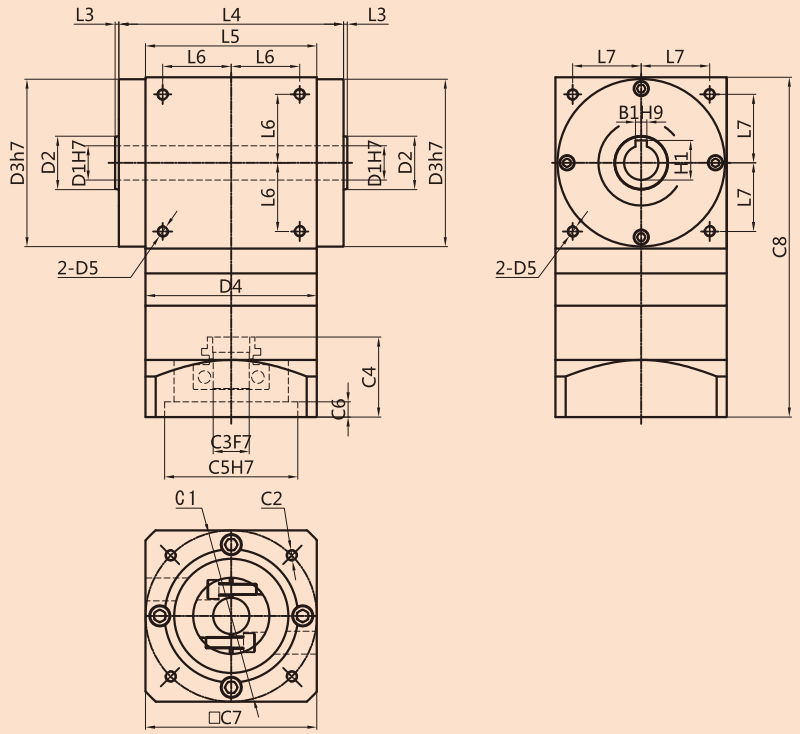


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size		ZPT070	ZPT090	ZPT110	ZPT140
C1		Φ70	Φ90	Φ90	Φ145
C2		4-M4/4-M5	4-M5/4-M6	4-M5/4-M6	4-M8
C3		Φ14	Φ19	Φ19	Φ19/Φ22/Φ24
C4		31.5	42	42	60
C5		Φ50	Φ70	Φ70	Φ110
C6		5	8	8	8
C7		60	90	90	120
C8	Stage1	143	177.5	198.5	269
	Stage2	159	201	222	299.5
	Stage3		224	245	329.5
L1		3	5	3	5
L2		25	25	30	40
L3		36	37	37	52
L4		77	118	134	170
L5		70	90	110	140
L6		26.5	36	44	55
L7		21.2	36	44	55
L8					
L9					
D1		16	18	22	32
D2		25	28	35	45
D3		60	88	108	135
D5		4-M5	4-M6	4-M8	4-M10
D6		M5X10	M6X12	M6X12	M10X20
H1		18	20.5	24.5	35
H2					
B1		5	6	6	10
B2					

外形尺寸图表
Outline dimensional

ZPTK

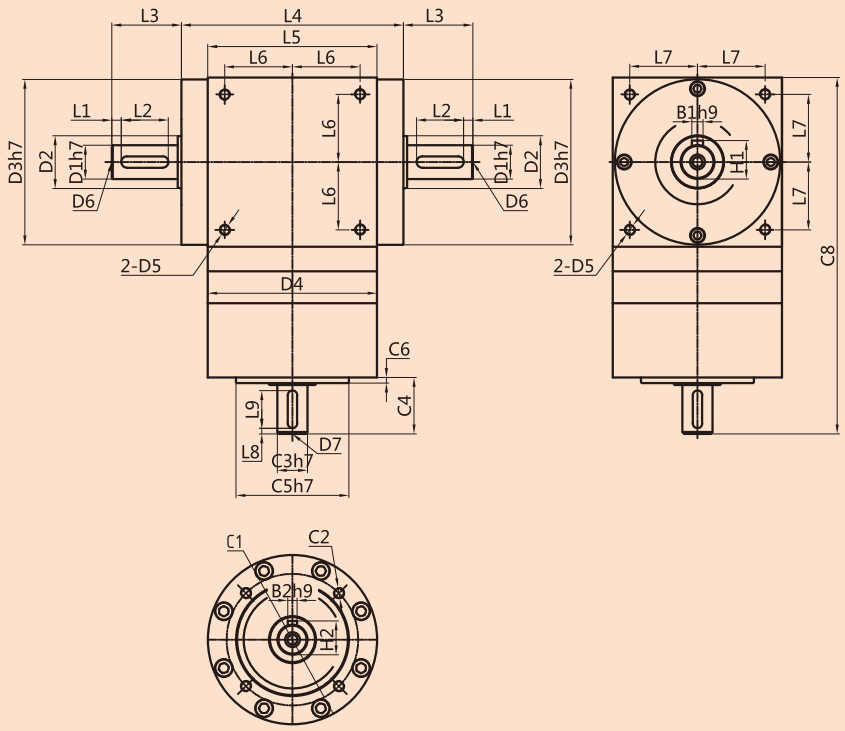


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size		ZPTK070	ZPTK090	ZPTK110	ZPTK140
C1		Φ70	Φ90	Φ90	Φ145
C2		4-M4/4-M5	4-M5/4-M6	4-M5/4-M6	4-M8
C3		Φ14	Φ19	Φ19	Φ19/Φ22/Φ24
C4		31.5	42	42	60
C5		Φ50	Φ70	Φ70	Φ110
C6		5	8	8	8
C7		60	90	90	120
C8	Stage1	143	177.5	198.5	269
	Stage2	159	201	222	299.5
	Stage3		224	245	329.5
L1					
L2					
L3		2	2	2	2
L4		77	118	134	170
L5		70	90	110	140
L6		26.5	36	44	55
L7		21.2	36	44	55
L8					
L9					
D1		14	18	22	28
D2		25	28	35	45
D3		60	88	108	135
D5		4-M5	4-M6	4-M8	4-M10
D6		M5X10	M6X12	M6X12	M10X20
H1		16.3	22.8	24.8	31.3
H2					
B1		5	6	6	8
B2					

外形尺寸图表
Outline dimensional

ZPTS

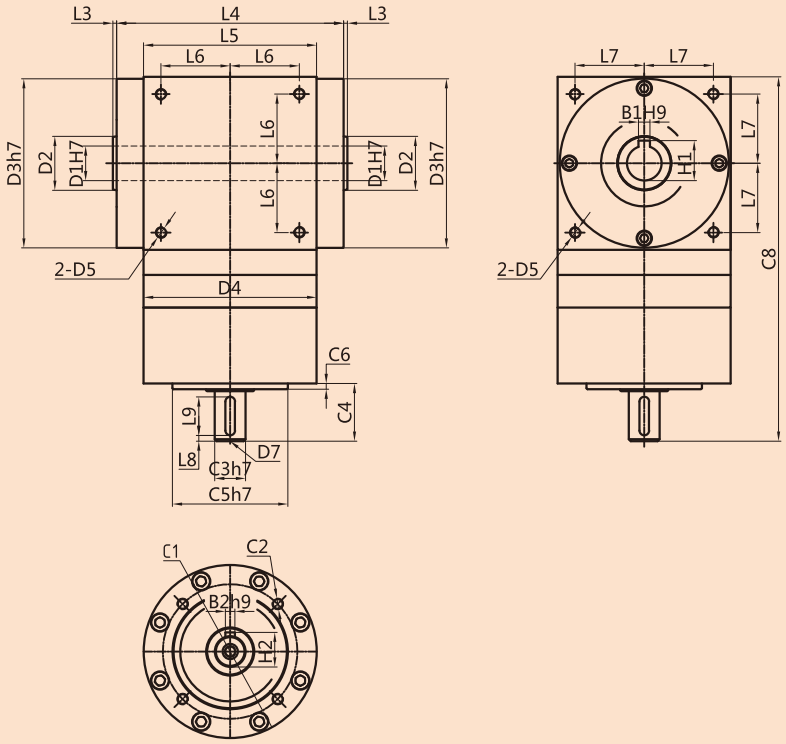


适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size		ZPTS070	ZPTS090	ZPTS110	ZPTS140
C1		Φ52	Φ70	Φ70	Φ100
C2		4-M5	4-M6	4-M6	4-M10
C3		Φ10	Φ16	Φ16	Φ20
C4		25	30	30	46
C5		Φ40	Φ60	Φ60	Φ8
C6		5	8	8	8
C7					
C8	Stage1	151.5	189.5	210	216
	Stage2	167.5	213	233.5	246
	Stage3		236	256.5	276
L1		3	5	3	5
L2		25	25	30	40
L3		36	37	37	52
L4		77	118	134	170
L5		70	90	110	140
L6		26.5	36	44	55
L7		21.2	36	44	55
L8		3	3	3	5
L9		15	20	20	30
D1		16	18	22	32
D2		25	28	35	45
D3		60	88	108	135
D5		4-M5	4-M6	4-M8	4-M10
D6		M5X10	M6X12	M6X12	M10X20
H1		18	20.5	24.5	35
H2		12.3	18	18	22.5
B1		5	6	6	10
B2		3	6	6	6

外形尺寸图表
Outline dimensional

ZPTSK



适配电机输入接口尺寸(左端为输入尺寸)
Adapter motor input interface size (The left end is the input size)

尺寸 Size		ZPTSK	ZPTSK	ZPTSK	ZPTSK
C1		Φ52	Φ70	Φ70	Φ100
C2		4-M5	4-M6	4-M6	4-M10
C3		Φ10	Φ16	Φ16	Φ20
C4		25	30	30	46
C5		Φ40	Φ60	Φ60	Φ8
C6		5	8	8	0
C7					8
C8	Stage1	151.5	189.5	210	
	Stage2	167.5	213	233.5	216
	Stage3		236	256.5	246
L1					276
L2					
L3		2	2	2	2
L4		77	118	134	170
L5		70	90	110	140
L6		26.5	36	44	55
L7		21.2	36	44	55
L8		3	3	3	5
L9		15	20	20	30
D1		14	18	22	28
D2		25	28	35	45
D3		60	88	108	135
D5		4-M5	4-M6	4-M8	4-M10
D6		M5X10	M6X12	M6X12	M10X20
H1		16.3	22.8	24.8	31.3
H2		12.3	18	18	22.5
B1		5	6	6	8
B2		3	6	6	6

Basic Concepts Related to Type Selection

选型相关的基本概念

减速比
Ratio

输入转速/输出转速

Input speed / Output speed

额定输入转速
Rated input speed
n_1[rpm]

减速机的驱动速度，若减速机与电机转速相同。本书中的额定输入转速是在环境温度为20℃的条件下测得的。环境温度较高时请降低转速n_1。

The drive speed of the reducer is the same as that of the motor. The rated input speed in this book is measured at ambient temperature of 20 degrees Celsius. Reduce speed n_1 at higher ambient temperature.

输出转速
Output speed
n_2[rpm]

输出转速按照下列公式通过输入转速n_1 和传动比i 计算出来：$n_2=n_1/i$

The output speed is calculated in accordance with the following formula from the input speed n_1 and the transmission ratio I.

段/级数
Poles

行星减速机的套数。由于一套行星减速机无法满足较大的传比，有时需要两套或来满足用户对较大传动比的求，也就是说，减速比越大段/级数越多。由于增加了行星齿轮的数量，所以二级减速机的长度有所增加，效率会有所下降。

The number of Sets of planetary gear. Owing to one set planetary can't satisfy bigger transmission ratio, two sets can meet Users' requirements of bigger transmission ratio, Since increasing the gear quality, the length of the two poles motor will increase accordingly, the efficiency will reduce accordingly.

传动效率
Efficiency

指在额定负载情况下，减速机的传动效率。减速比越大，级数越多，效率越低。

If refers to the gearing efficiency of the gearboxes in the case of the largest load.

平均寿命
Average lifetime

指减速机在额定负载下，额定输入转速是减速机的连续工作时间。

The rated input speed is the continuous working time of the reducer under the rated load.

定位精度
Prise Positioning

在高速机械往复运动中做到精确定位的关键在于尽量减少通过运动产生的角偏差。定位精度取决于两个值，一个与加载有关的偏转角，涉及回程间隙和扭转刚度；另一个是与运动控制有关的偏转角，涉及到同步偏差问题。

In high-speed reciprocating mechanical movement achieve precise Positioning , is the key to minimizing the movement through the angular deviation,positioning accuracy depends on the two values, with a load of the ration angle, involving partial synchronization the problem worse.

回程间隙背隙
Backlash

减速机输出轴与输入轴的最大角偏差，测量时先将齿轮输入轴固定住，然后在输出轴用力矩仪加载一定力矩（2%T_N）,以克服减速机内的摩擦力。

The maximum angular deviation between the output shaft and the input shaft of the reducer is measured by fixing the gear input shaft, and then loading a certain moment (2%T_N) on the output shaft with a torquer to overcome the friction in the reducer.

迟滞曲线
hysteresis cycle

迟滞曲线是为了得出减速的扭转刚度，通过检测到迟滞曲线 。检测时，先将减速机输入端固定住，然后在输出端的两个旋转方向分别持续地加载到T_{2B}最大输出力矩。继而逐步卸载，用仪器记录下力矩的仿差角，得到的曲线是一条闭合曲线，从中可以计算出减速机回程间隙(j_t)和扭转刚度(C_{t21}).

The hysteresis curve is used to obtain the torsional stiffness of deceleration, and the hysteresis curve is detected. During the detection, the input end of the reducer is fixed, and then the maximum output torque of T_{2B} is continuously loaded in the two rotating directions of the output end. Then unloading step by step and recording the imitation angle of the moment with the instrument, the curve obtained is a closed curve from which the return clearance (j_t) and torsional stiffness (C_{t21}) of the reducer can be calculated.

转动惯性
Inertia

本说明书中的该值均指输入端。表示一个物体尽力保持转动状态（或机静止或转动）特征的一个值。

This value in this specification refers to the input end. A value representing the characteristic of an object trying to maintain its rotational state (or the machine being stationary or rotating).

惯量比
The proportion of ratio

是指负载惯量与传动系统惯量（电机加上减速机）之间的比值。这个比值决定了系统的可控性。值越大，也就是个转动惯量差值越大，高动态的动作过程就越难精确控制，建议尽可能将值控制在<5。齿轮箱可以将负载惯量降低1/i^2。

It refers to the ratio between load inertia and transmission inertia (motor plus reducer). This ratio determines the controllability of the system. The greater the value, that is, the greater the difference of inertia, the more difficult it is to accurately control the high dynamic motion process. It is suggested that the value be controlled at < 5 as far as possible. Gearbox can reduce load inertia by 1/i^2.

噪音
Noise

单位是分贝(dB)。此数值是在输入转速为3000转/分时，不带负载，距离减速机一米距离是测量的。

The unit is decibel(dB). This value is measured at the input speed of 3000 rpm without load and one meter away from the reducer.

额定输出扭矩
Rated output torque
T_N[Nm]

T_N[Nm]减速机长时间（连续工作制）可以加载的力矩（无磨损），条件应满足负载均匀，安全系数S=1，AF140以下机型，理论寿命为20000小时：AF180以上机型理论寿命为10000小时：T_N值遵守ISODP6336齿轮标准与ISO281轴承标准。

T_N[Nm] reducer can be loaded for a long time (continuous working system) without wear and tear. The condition should satisfy the uniform load, safety factor S=1, AF140 model, theoretical life is 20 000 hours: AF180 model, theoretical life is 10 000 hours: T value conforms to ISODP6336 gear standar

Basic Concepts Related to Type Selection

选型相关的基本概念

加速扭矩
Accelerating Torque
T_{2B}[Nm]

指工作周期每小时少于1000次时允许短时间加载到输出端的最大力矩。工作周期每小时大于1000次时，须考虑冲击因素，加载扭矩是周期工作制选型时的一个最大值，实际使用中的加速力矩必须小T_{2B},否则会缩短减速机的寿命。

It refers to the maximum moment that can be loaded to the output in a short time when the working cycle is less than 1000 times per hour. When the working cycle is more than 1000 times per hour, the impact factor must be considered. Loading torque is the maximum value in the selection of periodic working system. The acceleration moment in actual use must be smaller than T_{2B} , otherwise the life of reducer will be shortened.

紧急制动扭矩
Emergency braking torque
T_{2NOT}[Nm]

指减速机输出端所能加载的最大力矩，这个力矩可在减速机寿命期内加载1000次，绝对不能超过1000次。（备注：AF140以下机型为$T_{2NOT}=2*T_{2B}$, AF180以上机型为$T_{2HOT}=1.5*T_{2B}$)

It refers to the maximum moment that can be loaded at the output end of the reducer. This moment can be loaded 1000 times in the lifetime of the reducer, absolutely not more than 1000 times.(Note: The models below AF140 are $T_{2NOT}=2*T_{2B}$, AF180 model above are $T_{2HOT}=1.5*T_{2B}$)

空载扭矩
No-load Torque
T_{012}[Nm]

指加载到减速机上的以克服减速机内摩擦力的力矩。

Refers to the moment loaded on the reducer to overcome friction in the reducer.

最大输出扭矩
Maximum output torque
T_{2max}

指减速机在静态条件或频繁启动条件下所能承受的输出扭矩，通常指峰值负载或启动负载。

Refers to the gearbox output torque can ba loaded under static conditions or frequent starts conditions,usually refers to the peak load or the start load.

实际所需扭矩
Actual required torque
T_2[Nm]

所需扭矩取决于应用场合的实际工况，拟选减速机的额定扭矩T_{2N}必须大于这个扭矩。

The required torque depends on the actual conditions of the applications, to be selected rated torque T_{2N} must be greater than the required torque.

计算扭矩
Computational Torque
T_{C2}[Nm]

会在选择减速机时被用到，可以由实际所需扭矩T_2和系数f_S，按以下公式得出$T_{C2}=T_2*f_S \leqslant T_N$

$T_{C2}=T_2*f_S \leq T_N$ can be obtained from the following formulas, which can be used to select the reducer. The actual required torque T_2 and coefficient f_S can be used to calculate the $T_{C2}=T_2*f_S \leq T_N$.

轴向力
axial force
F_a[N]

是指平行于轴心的一个力，它的作用点与输出轴端有一定的轴向偏差(Y_2)时，会形成一个额外的弯绕力矩。轴向力超过样本所示的额定值时，须用联轴节来抵消这种弯绕力。

It refers to a force parallel to the axis. When its action point has a certain axial deviation (Y_2) from the output shaft end, it will form an additional bending moment. When the axial force exceeds the rated value shown in the sample, the bending force shall be offset by the coupling.

径向力
radial force
F_r[N]

指垂直作用于轴向力的一个力，它平行于输出轴，它的作用点与轴端有一定的轴向距离(X_2)。这个点成一个杠杆点，横向力形成一个弯绕力矩。

A force acting perpendicularly on the axial force, parallel to the output axis, has an axial distance (X_2) between the action point and the end of the axis. This point is a lever point, and the lateral force forms a bending moment.

轴伸径向载荷、轴向载荷
Axis Extension Radial Load and Axis Load

选择减速机的附加依据是输出轴伸出端上的径向载荷和轴向载荷。轴的强度和轴承的承载能力决定了许用轴伸的的径向载荷。产品样本中给出的最大允许值是指在最不利的方向作用轴伸出端中点（即1/2L处）的力。当作用力不在中点时，越接近轴肩，允许的径向载荷就越大；相反，作用点离轴肩越远，允许的径向载荷就越小。

The additional basis for selecting the reducer is the radial and axial loads on the extension end of the output shaft. The strength of the shaft and the bearing capacity determine the allowable radial load of the axle extension. The maximum allowable value given in the product sample refers to the force at the midpoint (i.e. 1/2L) where the axis extends in the most disadvantageous direction. When the force is not at the midpoint, the closer to the shoulder, the greater the allowable radial load; on the contrary, the farther the action point is from the shoulder, the smaller the allowable radial load.

安全系数 S
safety factor

安全系数等于减速机的额定输入功率的比值。

The safety factor is equal to the ratio of the rated input power of the reducer.

使用系数 f_s
Coefficient of use

使用系数表现减速机的应用特征，它考虑发哦减速机的负载类型和每日工作时间。

The coefficient of use represents the application characteristics of the reducer. It considers the load type and working time of the reducer.

扭转刚度 C_{t21}
Torsional stiffness
[Nm/Arcmin]

由加载力矩和所产生的扭转角之间的比率来定义。$C_{t21}=\triangle T/\triangle \phi$ 它说明需要用多大的力矩才能把输出轴转动一弧分。扭转刚度是从迟滞曲线得出的。在曲线图上只需要关注T_{2B}的50%到100%这个范围，在这个范围内，曲线可看成是一条直线。

It is defined by the ratio between the loading moment and the resulting torsion angle. $C_{t21}=\triangle T/\triangle \phi$ indicates how much torque is required to rotate the output shaft in an arc. Torsional stiffness is derived from hysteresis curve. In the graph, only 50% to 100% of T_{2B} is needed to be concerned. In this range, the curve can be regarded as a straight line.

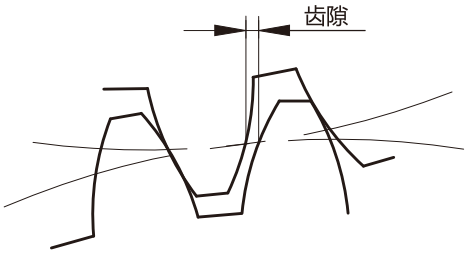
安装力矩
Installation Torque
[Nm]

减速机的组装以及电机与减速机连接安装（输入轴采用弹性联轴器要求），都是有力矩要求。建议使用力矩扳手来完成安装步骤。

The assembly of reducer and the connection between motor and reducer (the requirement of elastic coupling for input shaft) are all strong moment requirements. It is recommended to use the moment wrench to complete the installation steps.

减速机专用名词解释

Explanation of special terms for reducer



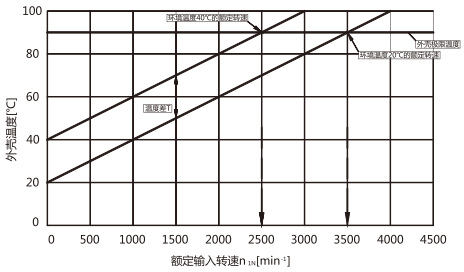
[如]

定位精确度：在高速机械往复运动中做到精确定位的关键在于尽量减小通过运动产生的角偏差，定位精确度取决于两个值，一个是与加载有关的偏转角，涉及到回程间隙与扭转刚度，另一个是与运动控制有关偏转角，涉及到同步偏差问题。

转动惯量J[Kgcm²]：表示一个物体尽力保持自己转动状态(或静止或转动)特性的一个值。样本中的值均指输入端。

弧分［Arcmin]：一度分为60弧分(=60 Arcmin=60’).如回程间隙标为1 Arcmin时,意思是说齿轮箱转一圈,输出端的角偏差为1/60° 。在实际应用中，这个角偏差与轴直径有关b=2・π・r・a° /360° 。就是说，输出端半径为500mm时，齿轮箱精度为jt=3’时，齿轮箱转一圈的偏差为b=0.44mm。

回程间隙jt［Arcmin]：指减速机输出轴与输入端的最大偏差角.测量时先将齿轮输入端固定住,然后在输出端用力矩仪加载一定力矩(2%T2B)，以克服减速机内的磨擦力。



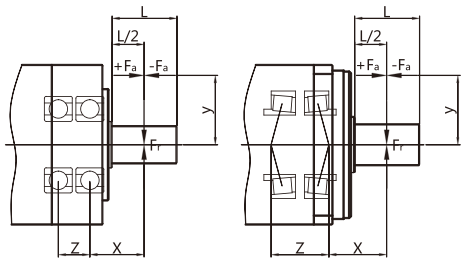
[如]

速比i：表示减速机改变某一运动的三个主要参数值的值，即通过减速机的速比来改变转速、扭矩和惯性力矩。

噪音[dB]：成套设备选用低噪音减速机，有助于环境保护和健康保护。速比与转速直接影响到噪音水平，一般是转速越高，噪音越大；速比越大噪音越小。样本中的值是在输入转速为3000rpm/min时，不带负载，离减速机一米距离时测量的。

平均寿命[h]：指减速机在额定负载下，额定输入转速时的连续工作时间。

转速（n）：减速机选型时必须要考虑的两个转速是最大输入转速和额定输入转速。为间歇工作制选用减速机时，要考虑不能超过最大输入转速n1max。为连续工作制选用减速机时，要考虑不能超出最大额定转速n1N。额定转速受到减速机外壳温度的限制，这个温度不能超过90℃。从下图中可以看出，环境温度越高时，减速机的温度也提前达到额定温度。换句话说，在环境温度高时必须降低转速。



[如]

额定输入转速n_1[rpm]：减速机的驱动速度，如减速机与电机直接相连，则转速值与电机转速相同。本书中的额定输入转速是在环境温度为20° C的条件下测得的，环境温度较高时请降低转速n_1。

传动效率η：由于摩擦引起的损失总是使有效率小于1，也就是少于100%。样本上的效率是齿轮箱在满负荷运动情况下，减速机的传输效率。

额定输出扭矩［Nm]：指减速机长时间（连续工作制）可以加载的力矩（无磨损），条件应满足负载均匀，安全系数S=1，理论寿命为20000小时；T2N值遵守ISO DP 6336齿轮标准与ISO 281轴承标准。

空载扭矩［Nm]：指加载到减速机上以克服齿轮箱内的摩擦力的力矩。样本所标值是在转速为3000rpm，环境温度在20℃时的测得的。

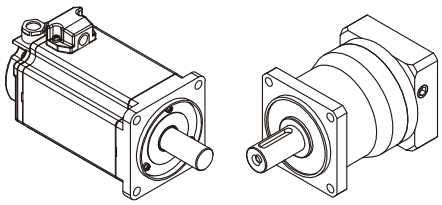
轴向力FaMax[N]：是指平行于轴心的一个力。它平行于输出轴。它的作用点与输出轴端有一定的轴向偏差（y）时，会形成一个额外的弯挠力矩。轴向力超过样本所示的额定值时，须用联轴节来抵消这种弯挠力 。

径向力FrMax[N]：指垂直作用于轴向力的一个力。它的作用点与轴端有一定的轴向距离（x），这个点成一个杠杆点。横向力形成一个弯挠力矩。

工作温度/ Operating temp	℃	(-40)-25bis/to+90(+120)
保护等级 / Degree of protection		IP65
润滑 / Lubrication		长效润滑 / Life time lubrication
安装方式 / Mounting position		任意 / Any
法兰标准 / Motor flange precision		Din 42955-N

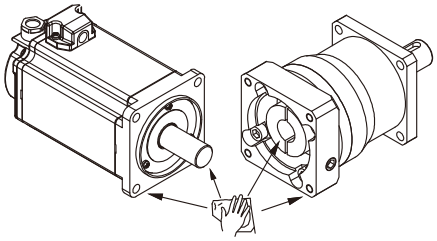
减速机安装指南
Speed reducer installation guide

第一步
确认电机和减速机是否完好（若有电机轴键，需移走）



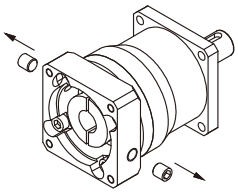
安装前确认电机和减速机是否完好无损，并且严格检查电机与减速机相连接的各部位尺寸是否匹配，主要指电机的凸台尺寸与减速机凹槽等尺寸及配合公差。

第二步
将电机轴和减速机的连接部分清洁干净



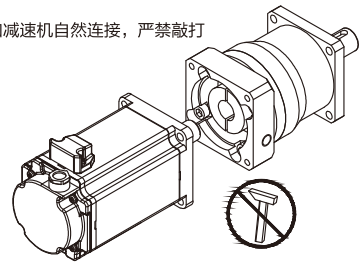
将电机输出轴、定位凸台及减速机连接部位的防锈油用汽油或锌钠水擦拭干净，其目的是保证连接的紧密性及运转的灵活性，并且防止不必要的磨损。

第三步
旋掉减速机法兰外侧的螺钉，插入内六角扳手



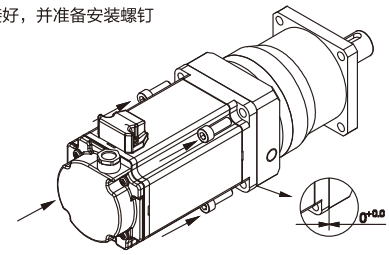
取下减速机法兰外侧工艺孔上的防尘盖，调整减速机输入轴弹性夹紧装置使其紧固螺栓与工艺孔对齐，插入内六角扳手。此步骤适合筒夹式锁紧机构联接。

第四步
将电机和减速机自然连接，严禁敲打



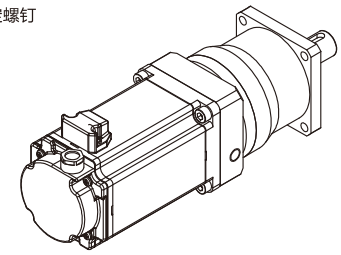
连接时必须保证减速机输出轴与电机输入轴同轴度一致，且二者外侧法兰平行，如果轴度不一致，会导致电机轴折断或减速机齿轮磨损。另外，在安装时，严禁用铁锤等击打，防止轴向力或径向力过大损坏轴承或齿轮。

第五步
试连接好，并准备安装螺钉



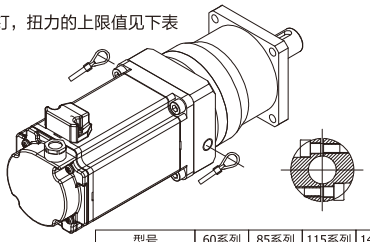
在电机与减速机连接前，请先将减速机锁紧螺钉对准工艺孔，便于扳手介入。

第六步
锁紧固定螺钉



为保证受力均匀，请先将任意对角位置的安装螺钉旋上，但不要旋紧，再旋上另外两个对角位置的安装螺钉，最后逐个旋紧四个安装螺钉。

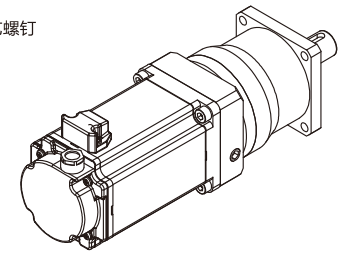
第七步
锁紧抱紧螺钉，扭力的上限值见下表



型号	60系列	85系列	115系列	140系列
螺钉规格	M5	M6	M8	M10
锁紧扭矩(Nm)	9.5	16.5	40	80

减速机抱紧螺钉有两颗，请逐步加力，均匀锁紧。

第八步
安装工艺螺钉



工艺螺钉的安装可以更好的达到防护等级。

午马公司售后服务
WUMA Companyafter-sales service

尊敬的客户，感谢您选用 WUMA 品牌的产品，您在使用过程中如出现质量问题，请不要先拆卸零件，应说明具体情况后与本公司售后服务部联系，说明现象后，确认问题所在，以便我们更好地为您服务。

Dear respected clients, thank you for choosing products of WUMA brand. If you come across any quality problems during your use, please do not demount accessories and should report specific circumstances to our after sales department so that we are able to offer better service for you.

型号规格/Model and specification _____

出厂日期/Ex-factory date _____

编　号/NO. _____

已使用时间/Time used _____

使用场合和主机名称
Application scope and name of host machine _____

主机生产单位/Production unit of host machine _____

用户单位/User unit _____

地址/ADD _____

电话/Tel _____

传真/Fax _____

邮编/P.C _____

联系人/Contact person _____

质量问题 Quality problems

备忘录