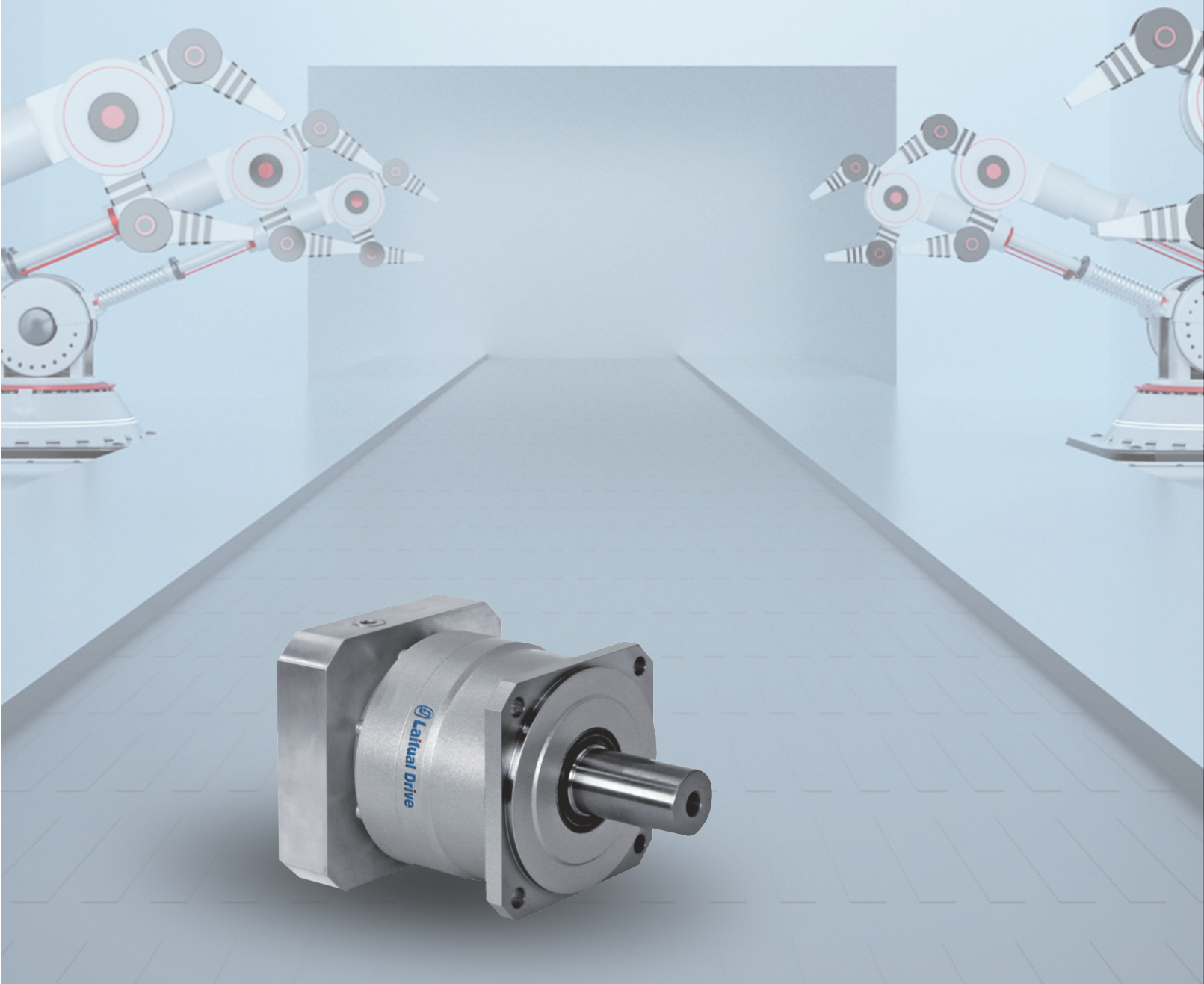
行星减速机LFB系列

LFB Series planetary gear reducer

Laifual Drive



浙江来福谐波传动股份有限公司
ZHEJIANG LAIFUAL DRIVE CO.,LTD.

公司简介 PROFILE

浙江来福谐波传动股份有限公司是一家从事高精密谐波减速器，行星减速器的研发，制造的国家高新技术企业。公司拥有30,000平方米标准厂房，在职员工300人左右，其中研发工程师30左右，拥有十几年的研发生产经验。

公司使用世界顶级的生产、检验设备，从原材料到成品的所有环节经过严格的质量把控，关注每一个生产细节，从而保证产品的优良品质。所有产品完全自主开发，公司的研发中心被认定为“省级高新技术企业研发中心”。

经过多年的勤劳耕耘，我司在谐波传动领域取得专利30项，其中重大科技专利1项，自主知识产权专利29项。并被认定为国家高新技术企业，浙江省科技型中小企业，并成功通过ISO9001质量管理体系认证。

得益于多年的研发经验，我司生产的精密谐波减速器在多方面特殊性能取得重大突破。具有低温升、低启动扭矩、高可靠性、高精度、高扭矩、高寿命、大速比、小体积等特性。产品批量运用在工业机器人、服务机器人、医疗器械、高精密自动化设备等领域。并竭诚为国内外客户提供满意的多元化定制设计服务。

来福谐波将继续砥砺前行，以品质，创新，服务客户为己任。为国内外客户提供满意的产品，让中国制造拥抱世界，共创美好未来。

Zhejiang Laifual Drive Co., Ltd is a national high-tech enterprise, mainly engaged in research and manufacture of high-precision harmonic reducers and planetary gear reducers. Total factory is 30,000 square meters. About 300 employees, including around 30 R&D Personnel, with more than 10 years experience in research and development.

Laifual uses the world's first class production and inspection equipment. Pay attention to every production details, we have very strict quality control from raw materials to the finished products, to make sure the excellent quality of all products. All products are completely developed by ourselves, Laifual's R&D center is recognized as "High-tech enterprise R&D center in Zhejiang province".

After years of hard working, Laifual has obtained 30 patents in the field of drive area. Including 1 major scientific and technological patent and 29 independent intellectual property rights patents. Laifual was recognized as a national high-tech enterprise, medium-sized enterprise in Zhejiang province, and successfully passed the ISO9001 quality management system certification.

Thanks to years of research and development experience, Laifual has made breakthroughs in many special performance. Our high precision harmonic reducer have the characteristics of low temperature rise, low starting torque, high reliability, big torque, long life time, big speed ratio, small size, etc. Which can be widely used in industrial robots, service robots, medical equipment, high precision automation equipment, etc. And we sincerely provide satisfactory and diversified custom design services for all our valued customers.

Taking professionalization, internationalization as standard, to build Laifual into the most respectable harmonic reducer brand.

企业荣誉 HONOR

ENVIRONMENTAL MANAGEMENT SYSTEM CERTIFICATE

Registration No.: 0350218E20233R1M

This is to certify that the environmental management system of

Zhejiang Laifu Harmonic Drive Limited by Share Ltd.

Ganlin Industriai Zone, Shengzhou City, Shaoxing County, Zhejiang, 321462

Social Credit Code: 91330600084278367E

is in conformity with

GB/T 24001-2016 / ISO 14001:2015 Standard

This certificate is valid to

Production and service of harmonic gear (Site Covered: Ganlin Industriai Zone, Shengzhou City, Shaoxing County, Zhejiang).

Date of issue: August 30, 2018
Date of expiry at most: August 29, 2021

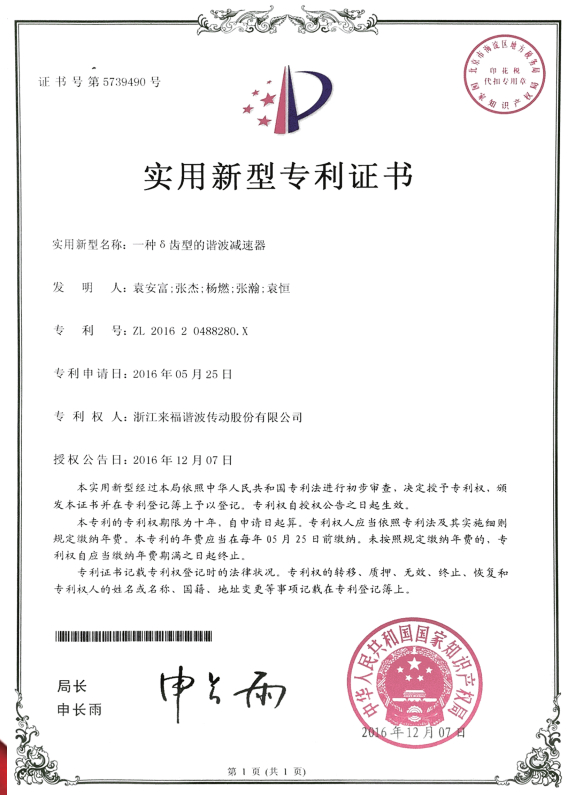
Representative: WangHonglin

XINGYUAN CERTIFICATION CENTRE CO., LTD. (XQCC)

(7FL, Tower C, Jinhua Plaza, No.9 Shangdi 3 St., Haidian, Beijing)

中国认可
国际互认
管理体系
MANAGEMENT SYSTEM
CNAS C035-M

NOTE: This certificate shall be maintained by regular surveillance audit. The validity of the certificate can be verified by scanning QR code. The information of the certificate can be available in http://www.cnca.gov.cn, the website of CNCA, and in our website http://www.xqcc.com.cn.



证书号第5739490号

实用新型专利证书

实用新型名称：一种δ齿型的谐波减速器

发　明　人：袁安富;张杰;杨燃;张瀚;袁恒

专　利　号：ZL 2016 2 0488280.X

专利申请日：2016年05月25日

专 利 权 人：浙江来福谐波传动股份有限公司

授权公告日：2016年12月07日

本实用新型经过本局依照中华人民共和国专利法进行初步审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

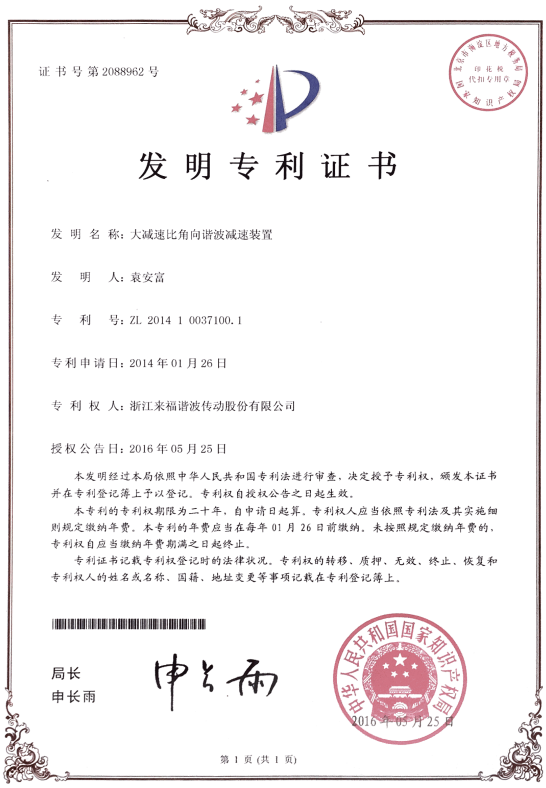
本专利的专利权期限为十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年05月25日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

专利证书记载专利权登记时的法律状况。专利权的转移、质押、无效、终止、恢复和专利权人的姓名或名称、国籍、地址变更等事项记载在专利登记簿上。

局长
申长雨

中华人民共和国国家知识产权局
2016年12月07日

第1页（共1页）



证书号第2088962号

发明专利证书

发 明 名 称：大减速比角向谐波减速装置

发　明　人：袁安富

专　利　号：ZL 2014 1 0037100.1

专利申请日：2014年01月26日

专 利 权 人：浙江来福谐波传动股份有限公司

授权公告日：2016年05月25日

本发明经过本局依照中华人民共和国专利法进行审查，决定授予专利权，颁发本证书并在专利登记簿上予以登记。专利权自授权公告之日起生效。

本专利的专利权期限为二十年，自申请日起算。专利权人应当依照专利法及其实施细则规定缴纳年费。本专利的年费应当在每年01月26日前缴纳。未按照规定缴纳年费的，专利权自应当缴纳年费期满之日起终止。

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局长
申长雨

中华人民共和国国家知识产权局
2016年05月25日

第1页（共1页）

浙江省科技型中小企业

证书

企业名称：浙江来福谐波传动股份有限公司

证书编号：20173306000176

浙江省科学技术厅

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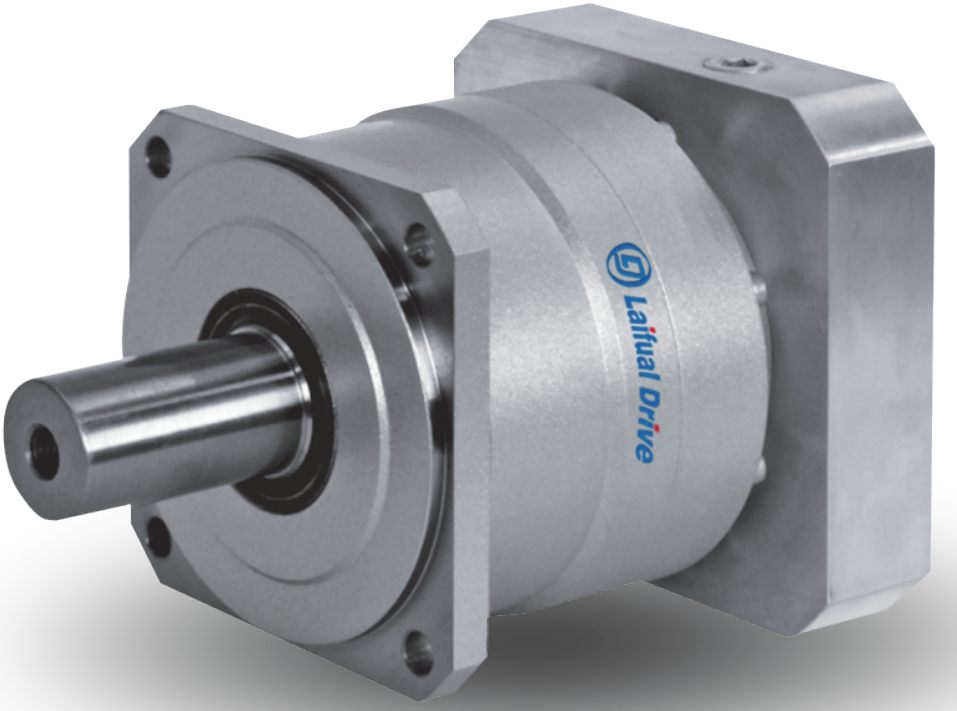


LFB SERIES

行星减速机LFB系列

LFB SERIES FEATURES

产品特点

静　音 / Quiet Operation

使用斜齿轮实现顺畅安静地运转
Helical gears contribute to reduce vibrtion and noise.

高精度 / High Precision

背隙低于3分、定位精确
Standard backlash is 3 arc-min, ideal for precision control.

高刚性　高扭矩 / High Rigidity & Torque

使用整体式滚子轴承，大大提高了刚性和扭矩
High rigidity & high torque were achived by uncaged needle roller bearings.

法兰　连接器方式 / Adapter-bushing Connection

可以安装到世界上任何一台马达上
Can be attached to any motor all over the world.

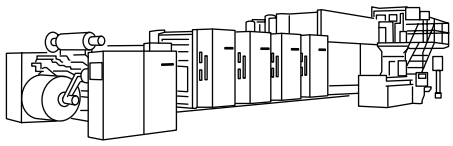
无润滑脂泄漏 / No Grease Leakage

使用高粘度、不易分离的润滑脂，有效防止润滑脂泄漏
Perfect solution using high viscosity anti-separation grease.

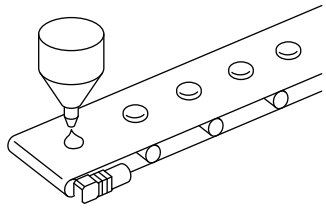
维护方便 / Maintenance-free

在产品寿命期内无需更换润滑脂，安装更便捷
No need to replace the grease for the life of the unit. Can be attached in any position.

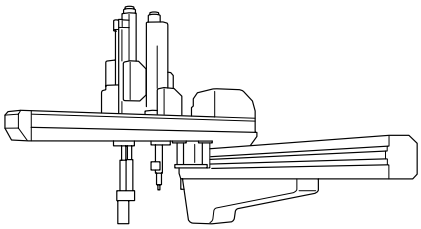
APPLICATION AREA /应用领域



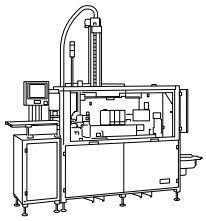
印刷机 / Printer



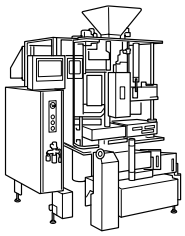
传送带 / Conveyer belt



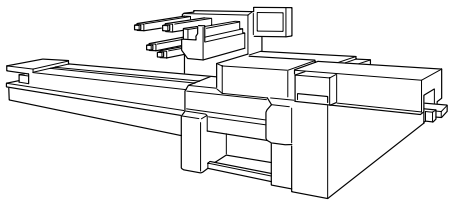
龙门机器人 / Gantry robot



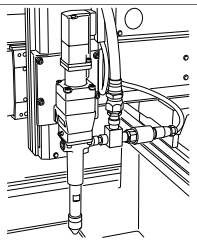
自动装箱机 /Auto packing sealing machine



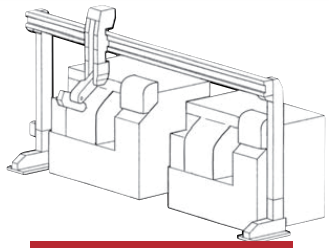
包装机(纵型轴衬) / Packing machine(vertical pillow)



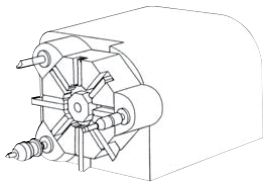
包装机(横型轴衬) /Packing machine(horizontal pillow)



分配机器人 / Dispenser robot



装料机器人 / Loader robot



回转头 / Turret head

设备有各种实例
可在各种装置上安装

Attachable and applicable to a range of applications and devices

MODEL NUMBER

机种、型号代码

LF B - 090 - 7 - K 3 - 19HB16

- 19HB16：连接器编号 Mount Code
- 3：背隙 Backlash
  - 3· · · 3分 3arc-min
- K：输出方式 Output Style
  - K· · · 附带输出轴键 Shaft With Key
  - S· · · 无输出轴键 Smooth Shaft
- 7：减速比 Ratio
  - 1段 Single：3、4、5、6、7、8、9、10
  - 2段 Double：15、16、20、25、28、30、35、40、45、50、60、70、80、90、100
- 090：尺寸 Frame Size：042、060、090、115、140、180、220
- B：系列名称 Series Name：LFB 系列 LFB Series
- LF：LF 减速机的名称 Model name for LF reducer

LFB-042

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
042	1段 Single	3	6	12	30	4000	8000	240	270
		4	9	18	35	4000	8000	270	300
		5	9	18	35	4000	8000	290	330
		6	9	18	35	4000	8000	310	360
		7	9	18	35	4000	8000	320	380
		8	9	18	35	4000	8000	340	410
		9	6	12	30	4000	8000	350	430
		10	6	12	30	4000	8000	360	450
	2段 Double	15	6	12	30	4000	8000	410	540
		16	9	18	35	4000	8000	420	550
		20	9	18	35	4000	8000	460	610
		25	9	18	35	4000	8000	490	640
		28	9	18	35	4000	8000	510	640
		30	6	12	30	4000	8000	520	640
		35	9	18	35	4000	8000	550	640
		40	9	18	35	4000	8000	570	640
		45	6	12	30	4000	8000	600	640
		50	9	18	35	4000	8000	620	640
		60	9	18	35	4000	8000	660	640
		70	9	18	35	4000	8000	690	640
		80	9	18	35	4000	8000	710	640
		90	6	12	30	4000	8000	710	640
		100	6	12	30	4000	8000	710	640

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ8) [Kgcm²]	惯性力矩 Moment of inertia (≤φ14) [Kgcm²]
042	1段 Single	3	710	640	0.6	0.053	0.170
		4	710	640		0.041	0.160
		5	710	640		0.036	0.150
		6	710	640		0.034	0.150
		7	710	640		0.032	0.150
		8	710	640		0.031	0.150
		9	710	640		0.031	0.150
		10	710	640		0.030	0.150
	2段 Double	15	710	640	0.7	0.035	-
		16	710	640		0.038	-
		20	710	640		0.034	-
		25	710	640		0.034	-
		28	710	640		0.038	-
		30	710	640		0.030	-
		35	710	640		0.034	-
		40	710	640		0.030	-
		45	710	640		0.034	-
		50	710	640		0.030	-
		60	710	640		0.030	-
		70	710	640		0.030	-
		80	710	640		0.030	-
		90	710	640		0.030	-
		100	710	640		0.030	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-060

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
060	1段 Single	3	18	35	80	3000	6000	430	310
		4	27	50	100	3000	6000	470	360
		5	27	50	100	3000	6000	510	390
		6	27	50	100	3000	6000	540	430
		7	27	50	100	3000	6000	570	460
		8	27	50	100	3000	6000	600	480
		9	18	35	80	3000	6000	620	510
		10	18	35	80	3000	6000	640	530
	2段 Double	15	18	35	80	3000	6000	740	630
		16	27	50	100	3000	6000	750	650
		20	27	50	100	3000	6000	810	720
		25	27	50	100	3000	6000	870	790
		28	27	50	100	3000	6000	910	830
		30	18	35	80	3000	6000	930	860
		35	27	50	100	3000	6000	980	920
		40	27	50	100	3000	6000	1000	970
		45	18	35	80	3000	6000	1100	1000
		50	27	50	100	3000	6000	1100	1100
		60	27	50	100	3000	6000	1200	1100
		70	27	50	100	3000	6000	1200	1100
		80	27	50	100	3000	6000	1200	1100
		90	18	35	80	3000	6000	1200	1100
		100	18	35	80	3000	6000	1200	1100

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ8) [Kgcm²]	惯性力矩 Moment of inertia (≤φ14) [Kgcm²]	惯性力矩 Moment of inertia (≤φ19) [Kgcm²]
060	1段 Single	3	1200	1100	1.4	0.14	0.22	0.43
		4	1200	1100		0.095	0.17	0.38
		5	1200	1100		0.077	0.16	0.36
		6	1200	1100		0.068	0.15	0.36
		7	1200	1100		0.062	0.14	0.35
		8	1200	1100		0.059	0.14	0.35
		9	1200	1100		0.057	0.14	0.34
		10	1200	1100		0.056	0.14	0.34
	2段 Double	15	1200	1100	1.6	0.055	0.14	-
		16	1200	1100		0.057	0.14	-
		20	1200	1100		0.054	0.13	-
		25	1200	1100		0.053	0.13	-
		28	1200	1100		0.055	0.14	-
		30	1200	1100		0.049	0.13	-
		35	1200	1100		0.053	0.13	-
		40	1200	1100		0.049	0.13	-
		45	1200	1100		0.053	0.13	-
		50	1200	1100		0.049	0.13	-
		60	1200	1100		0.049	0.13	-
		70	1200	1100		0.049	0.13	-
		80	1200	1100		0.049	0.13	-
		90	1200	1100		0.049	0.13	-
		100	1200	1100		0.049	0.13	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-090

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
090	1段 Single	3	50	80	200	3000	6000	810	930
		4	75	125	250	3000	6000	890	1100
		5	75	125	250	3000	6000	960	1200
		6	75	125	250	3000	6000	1000	1300
		7	75	125	250	3000	6000	1100	1300
		8	75	125	250	3000	6000	1100	1400
		9	50	80	200	3000	6000	1200	1500
		10	50	80	200	3000	6000	1200	1600
	2段 Double	15	50	80	200	3000	6000	1400	1900
		16	75	125	250	3000	6000	1400	1900
		20	75	125	250	3000	6000	1500	2100
		25	75	125	250	3000	6000	1600	2200
		28	75	125	250	3000	6000	1700	2200
		30	50	80	200	3000	6000	1700	2200
		35	75	125	250	3000	6000	1800	2200
		40	75	125	250	3000	6000	1900	2200
		45	50	80	200	3000	6000	2000	2200
		50	75	125	250	3000	6000	2100	2200
		60	75	125	250	3000	6000	2200	2200
		70	75	125	250	3000	6000	2300	2200
		80	75	125	250	3000	6000	2400	2200
		90	50	80	200	3000	6000	2400	2200
		100	50	80	200	3000	6000	2400	2200

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ8) [Kgcm²]	惯性力矩 Moment of inertia (≤φ14) [Kgcm²]	惯性力矩 Moment of inertia (≤φ19) [Kgcm²]	惯性力矩 Moment of inertia (≤φ28) [Kgcm²]
090	1段 Single	3	2400	2200	3.7	-	0.72	1.2	3.2
		4	2400	2200		-	0.49	0.95	3.0
		5	2400	2200		-	0.40	0.86	2.9
		6	2400	2200		-	0.36	0.82	2.8
		7	2400	2200		-	0.32	0.79	2.8
		8	2400	2200		-	0.31	0.77	2.8
		9	2400	2200		-	0.29	0.76	2.8
		10	2400	2200		-	0.29	0.75	2.8
	2段 Double	15	2400	2200	4.2	0.13	0.28	0.72	-
		16	2400	2200		0.15	0.30	0.74	-
		20	2400	2200		0.13	0.28	0.72	-
		25	2400	2200		0.12	0.28	0.71	-
		28	2400	2200		0.14	0.29	0.73	-
		30	2400	2200		0.10	0.25	0.70	-
		35	2400	2200		0.12	0.27	0.71	-
		40	2400	2200		0.099	0.25	0.70	-
		45	2400	2200		0.12	0.27	0.71	-
		50	2400	2200		0.098	0.25	0.69	-
		60	2400	2200		0.098	0.25	0.69	-
		70	2400	2200		0.097	0.25	0.69	-
		80	2400	2200		0.097	0.25	0.69	-
		90	2400	2200		0.097	0.25	0.69	-
		100	2400	2200		0.097	0.25	0.69	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-115

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
115	1段 Single	3	120	225	500	3000	6000	1300	1500
		4	120	330	625	3000	6000	1500	1700
		5	180	330	625	3000	6000	1600	1900
		6	180	330	625	3000	6000	1700	2000
		7	180	330	625	3000	6000	1800	2100
		8	180	330	625	3000	6000	1900	2300
		9	120	225	500	3000	6000	1900	2400
		10	120	225	500	3000	6000	2000	2500
	2段 Double	15	120	225	500	3000	6000	2300	3000
		16	180	330	625	3000	6000	2300	3100
		20	180	330	625	3000	6000	2500	3400
		25	180	330	625	3000	6000	2700	3700
		28	180	330	625	3000	6000	2800	3900
		30	120	225	500	3000	6000	2900	3900
		35	180	330	625	3000	6000	3000	3900
		40	180	330	625	3000	6000	3200	3900
		45	120	225	500	3000	6000	3300	3900
		50	180	330	625	3000	6000	3400	3900
		60	180	330	625	3000	6000	3600	3900
		70	180	330	625	3000	6000	3800	3900
		80	180	330	625	3000	6000	4000	3900
		90	120	225	500	3000	6000	4200	3900
		100	120	225	500	3000	6000	4300	3900

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ14) [Kgcm²]	惯性力矩 Moment of inertia (≤φ19) [Kgcm²]	惯性力矩 Moment of inertia (≤φ28) [Kgcm²]	惯性力矩 Moment of inertia (≤φ38) [Kgcm²]
115	1段 Single	3	4300	3900	8	-	3.3	5.3	13
		4	4300	3900		-	2.0	4.1	12
		5	4300	3900		-	1.6	3.6	11
		6	4300	3900		-	1.3	3.3	11
		7	4300	3900		-	1.1	3.2	11
		8	4300	3900		-	1.0	3.1	11
		9	4300	3900		-	0.98	3.0	11
		10	4300	3900		-	0.95	3.0	11
	2段 Double	15	4300	3900	8.9	0.43	0.86	2.8	-
		16	4300	3900		0.48	0.92	2.9	-
		20	4300	3900		0.40	0.83	2.8	-
		25	4300	3900		0.38	0.82	2.8	-
		28	4300	3900		0.44	0.88	2.8	-
		30	4300	3900		0.29	0.74	2.7	-
		35	4300	3900		0.37	0.81	2.7	-
		40	4300	3900		0.28	0.73	2.7	-
		45	4300	3900		0.37	0.80	2.7	-
		50	4300	3900		0.28	0.73	2.7	-
		60	4300	3900		0.28	0.73	2.7	-
		70	4300	3900		0.28	0.73	2.7	-
		80	4300	3900		0.28	0.73	2.7	-
		90	4300	3900		0.27	0.73	2.7	-
		100	4300	3900		0.27	0.73	2.7	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-140

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
140	1段 Single	3	240	470	1000	2000	4000	3200	2400
		4	240	700	1250	2000	4000	3500	2700
		5	360	700	1250	2000	4000	3800	3000
		6	360	700	1250	2000	4000	4000	3300
		7	360	700	1250	2000	4000	4200	3500
		8	360	700	1250	2000	4000	4400	3700
		9	240	470	1000	2000	4000	4600	3900
		10	240	470	1000	2000	4000	4700	4100
	2段 Double	15	240	470	1000	2000	4000	5400	4900
		16	360	700	1250	2000	4000	5500	5000
		20	360	700	1250	2000	4000	6000	5500
		25	360	700	1250	2000	4000	6400	6100
		28	360	700	1250	2000	4000	6700	6400
		30	240	470	1000	2000	4000	6800	6600
		35	360	700	1250	2000	4000	7200	7000
		40	360	700	1250	2000	4000	7500	7500
		45	240	470	1000	2000	4000	7800	7900
		50	360	700	1250	2000	4000	8100	8200
		60	360	700	1250	2000	4000	8600	8200
		70	360	700	1250	2000	4000	9100	8200
		80	360	700	1250	2000	4000	9100	8200
		90	240	470	1000	2000	4000	9100	8200
		100	240	470	1000	2000	4000	9100	8200

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ19 [Kgcm²]	惯性力矩 Moment of inertia (≤φ28) [Kgcm²]	惯性力矩 Moment of inertia (≤φ38) [Kgcm²]	惯性力矩 Moment of inertia (≤φ48) [Kgcm²]
140	1段 Single	3	9100	8200	16	-	12	20	42
		4	9100	8200		-	7.5	15	37
		5	9100	8200		-	5.8	14	36
		6	9100	8200		-	4.9	13	35
		7	9100	8200		-	4.1	12	34
		8	9100	8200		-	3.8	12	34
		9	9100	8200		-	3.6	11	34
		10	9100	8200		-	3.5	11	34
	2段 Double	15	9100	8200	17	1.3	3.2	11	-
		16	9100	8200		1.5	3.5	11	-
		20	9100	8200		1.2	3.1	11	-
		25	9100	8200		1.1	3.1	11	-
		28	9100	8200		1.4	3.3	11	-
		30	9100	8200		0.85	2.8	10	-
		35	9100	8200		1.1	3.1	11	-
		40	9100	8200		0.83	2.8	10	-
		45	9100	8200		1.1	3.0	11	-
		50	9100	8200		0.81	2.8	10	-
		60	9100	8200		0.81	2.8	10	-
		70	9100	8200		0.80	2.8	10	-
		80	9100	8200		0.80	2.8	10	-
		90	9100	8200		0.80	2.8	10	-
		100	9100	8200		0.80	2.8	10	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-180

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
180	1段 Single	3	500	970	2200	1500	3000	5600	4300
		4	750	1400	2750	1500	3000	6200	4900
		5	750	1400	2750	1500	3000	6700	5400
		6	750	1400	2750	1500	3000	7100	5800
		7	750	1400	2750	1500	3000	7400	6300
		8	750	1400	2750	1500	3000	7800	6600
		9	500	2200	2200	1500	3000	8100	7000
		10	500	970	2200	1500	3000	8400	7300
	2段 Double	15	500	970	2200	1500	3000	9600	8700
		16	750	1400	2750	1500	3000	9800	8900
		20	750	1400	2750	1500	3000	11000	9900
		25	750	1400	2750	1500	3000	11000	11000
		28	750	1400	2750	1500	3000	12000	11000
		30	500	970	2200	1500	3000	12000	12000
		35	750	1400	2750	1500	3000	13000	13000
		40	750	1400	2750	1500	3000	13000	13000
		45	500	970	2200	1500	3000	14000	14000
		50	750	1400	2750	1500	3000	14000	14000
		60	750	1400	2750	1500	3000	15000	14000
		70	750	1400	2750	1500	3000	15000	14000
		80	750	1400	2750	1500	3000	15000	14000
		90	500	970	2200	1500	3000	15000	14000
		100	500	970	2200	1500	3000	15000	14000

尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ28) [Kgcm²]	惯性力矩 Moment of inertia (≤φ38) [Kgcm²]	惯性力矩 Moment of inertia (≤φ48) [Kgcm²]	惯性力矩 Moment of inertia (≤φ65) [Kgcm²]
180	1段 Single	3	15000	14000	36	-	44	66	130
		4	15000	14000		-	28	50	110
		5	15000	14000		-	22	44	100
		6	15000	14000		-	18	41	100
		7	15000	14000		-	16	38	99
		8	15000	14000		-	15	37	97
		9	15000	14000		-	14	36	97
		10	15000	14000		-	14	36	96
	2段 Double	15	15000	14000	37	4.7	12	34	-
		16	15000	14000		5.4	13	35	-
		20	15000	14000		4.4	12	34	-
		25	15000	14000		4.2	12	34	-
		28	15000	14000		4.9	13	35	-
		30	15000	14000		3.2	11	33	-
		35	15000	14000		4.1	12	34	-
		40	15000	14000		3.2	11	33	-
		45	15000	14000		4.0	12	34	-
		50	15000	14000		3.1	11	33	-
		60	15000	14000		3.1	11	33	-
		70	15000	14000		3.1	11	33	-
		80	15000	14000		3.1	11	33	-
		90	15000	14000		3.1	11	33	-
		100	15000	14000		3.1	11	33	-

1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

LFB-220

尺寸 Frame Size	段位 Stage	减速比 Ratio	1 容许平均扭矩 Nominal output torque [Nm]	2 容许最大扭矩 Maximum output torque [Nm]	3 紧急时最大扭矩 Emergency stop torque [Nm]	4 容许平均输入转速 Nominal input speed [rpm]	5 容许最高输入转速 Maximum input speed [rpm]	6 容许径向负荷 Permitted radial load [N]	7 容许轴向负荷 Permitted axial load [N]
220	1段 Single	3	1000	1600	4000	1000	2000	5800	6400
		4	1500	2300	5000	1000	2000	6400	7200
		5	1500	2300	5000	1000	2000	6900	7900
		6	1500	2300	5000	1000	2000	7300	8600
		7	1500	2300	5000	1000	2000	7700	9200
		8	1500	2200	5000	1000	2000	8000	9700
		9	1000	1900	4000	1000	2000	8400	10000
		10	1000	1600	4000	1000	2000	8700	11000
	2段 Double	15	1000	1600	4000	1000	2000	9900	13000
		16	1500	2300	5000	1000	2000	10000	13000
		20	1500	2300	5000	1000	2000	11000	14000
		25	1500	2300	5000	1000	2000	12000	14000
		28	1500	2300	5000	1000	2000	12000	14000
		30	1000	1600	4000	1000	2000	13000	14000
		35	1500	2300	5000	1000	2000	13000	14000
		40	1500	2300	5000	1000	2000	14000	14000
		45	1000	1300	4000	1000	2000	14000	14000
		50	1500	2300	5000	1000	2000	15000	14000
		60	1500	2300	5000	1000	2000	15000	14000
		70	1500	2300	5000	1000	2000	15000	14000
		80	1500	1800	5000	1000	2000	15000	14000
		90	1000	1300	4000	1000	2000	15000	14000
		100	1000	1200	4000	1000	2000	15000	14000

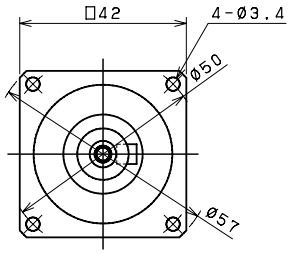
尺寸 Frame Size	段位 Stage	减速比 Ratio	8 容许最大径向负荷 Maximum radial load [N]	9 容许最大轴向负荷 Maximum axial load [N]	10 重量 Weight [Kg]	惯性力矩 Moment of inertia (≤φ38) [Kgcm²]	惯性力矩 Moment of inertia (≤φ48) [Kgcm²]	惯性力矩 Moment of inertia (≤φ65) [Kgcm²]
220	1段 Single	3	15000	14000	53	-	90	150
		4	15000	14000		-	62	120
		5	15000	14000		-	52	110
		6	15000	14000		-	47	110
		7	15000	14000		-	42	100
		8	15000	14000		-	40	100
		9	15000	14000		-	39	99
		10	15000	14000		-	38	98
	2段 Double	15	15000	14000	54	14	36	-
		16	15000	14000		16	37	-
		20	15000	14000		14	35	-
		25	15000	14000		14	35	-
		28	15000	14000		15	36	-
		30	15000	14000		12	34	-
		35	15000	14000		13	35	-
		40	15000	14000		12	33	-
		45	15000	14000		13	35	-
		50	15000	14000		12	33	-
		60	15000	14000		12	33	-
		70	15000	14000		12	33	-
		80	15000	14000		12	33	-
		90	15000	14000		12	33	-
		100	15000	14000		12	33	-

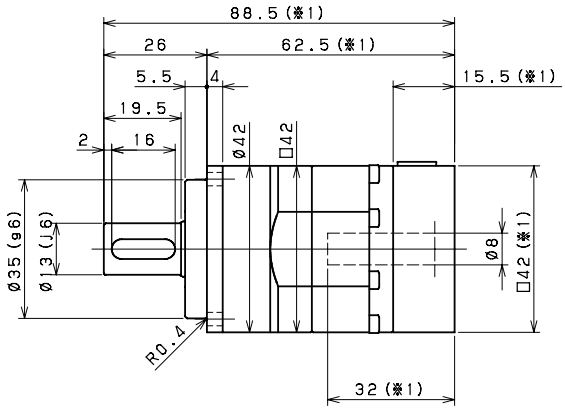
1 输入容许转速时使用寿命为20000小时
2 启动、停止时容许的最大值
3 发生撞击时容许的最大值（频率最高为1000次）
4 运转过程中，平均输入转速的容许最大值
5 在非连续运转条件下容许的最高输入转速
6 输入容许转速时使用寿命为20000小时（作用于轴中央，轴向负荷为0）
7 输入容许转速时使用寿命为20000小时（作用于轴芯，径向负荷为0）
8 径向负荷的容许最大值
9 轴向负荷的容许最大值
10 因减速比和输入轴尺寸的不同而有所不同

1 With nominal input speed,service life is 20,000 hours.
2 The maximum torque when starting and stopping.
3 The maximum torque when it receives shock(up to 1,000times)
4 The maximum average input speed.
5 The maximum momentary input speed.
6 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output shaft center ,at axial load 0)
7 With this load and nominal input speed,service life will be 20,000 hours. (Applied to the output side bearing ,at radial load 0)
8 The maximum radial load the reducer can accept.
9 The maximum axial load the reducer can accept.
10 The weight may vary slightly model to model.

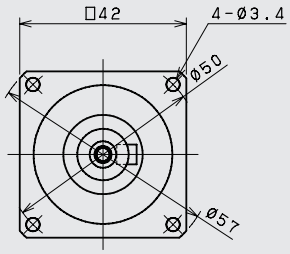
LFB-042 1段 | 1 Stage

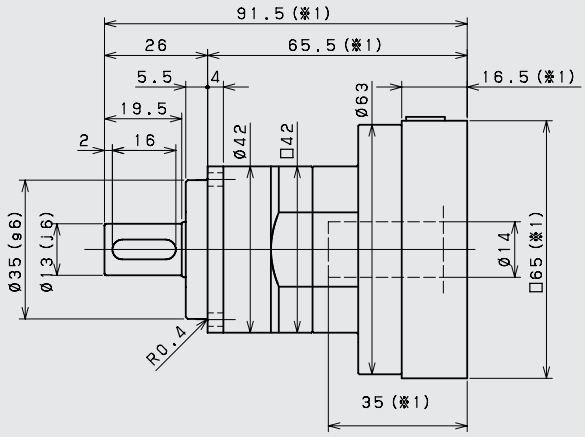
输入轴内径 Input shaft bore ≤ φ8





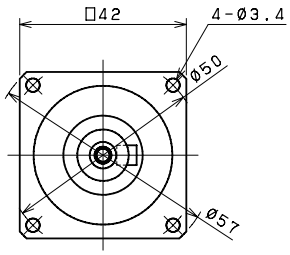
输入轴内径 Input shaft bore ≤ φ14

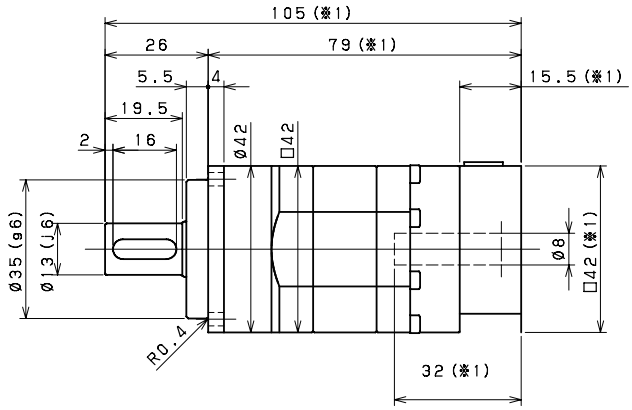


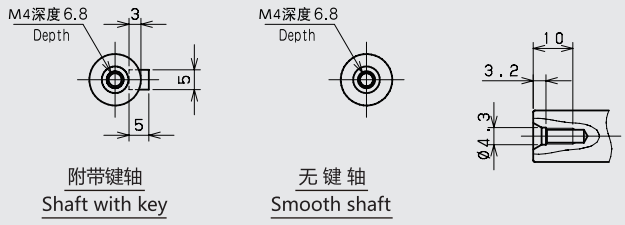


LFB-042 2段 | 2 Stage

输入轴内径 Input shaft bore ≤ φ 8





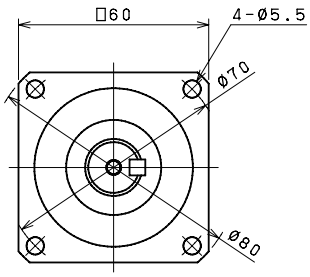


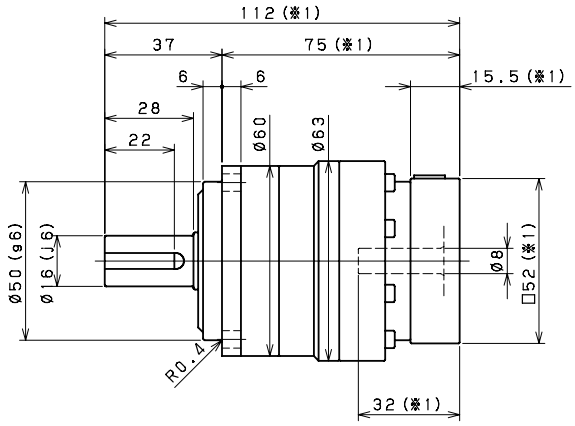
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

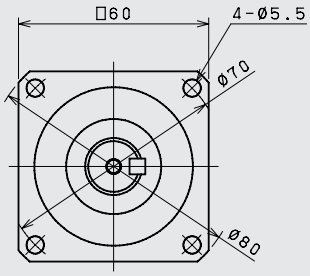
LFB–060 1段 | 1 Stage

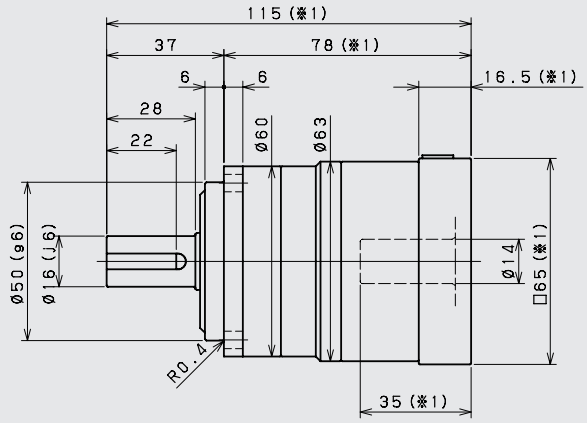
输入轴内径 Input shaft bore ≤ φ8



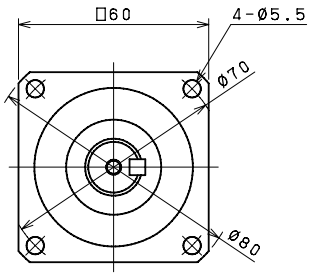


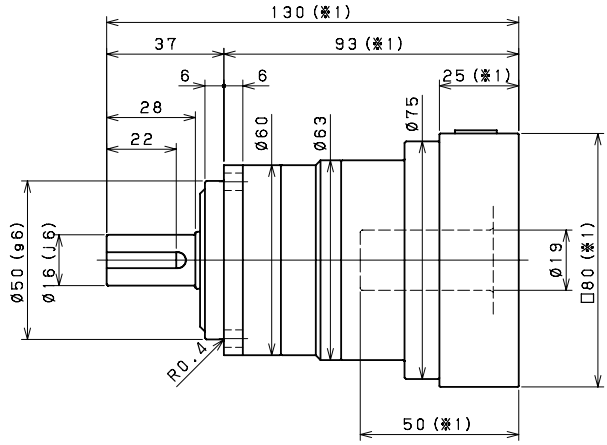
输入轴内径 Input shaft bore ≤ φ14

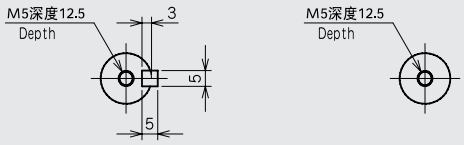




输入轴内径 Input shaft bore ≤ φ19







附带键轴
Shaft with key

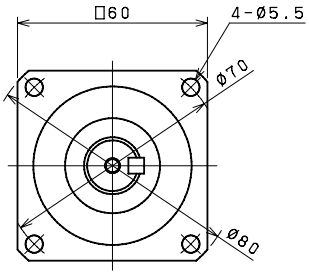
无 键 轴
Smooth shaft

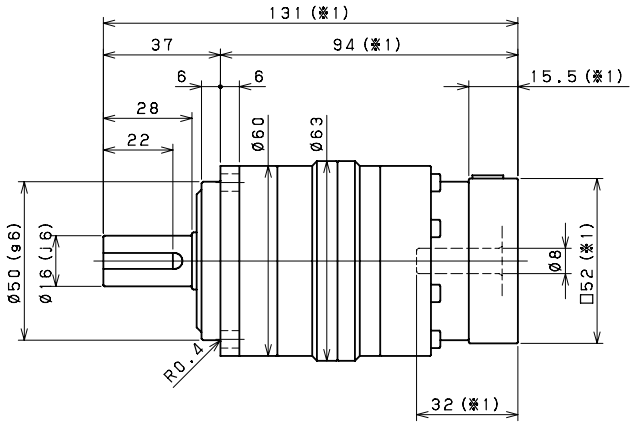
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

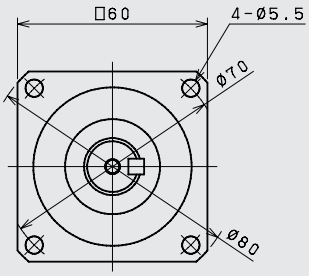
LFB–060 2段 | 2 Stage

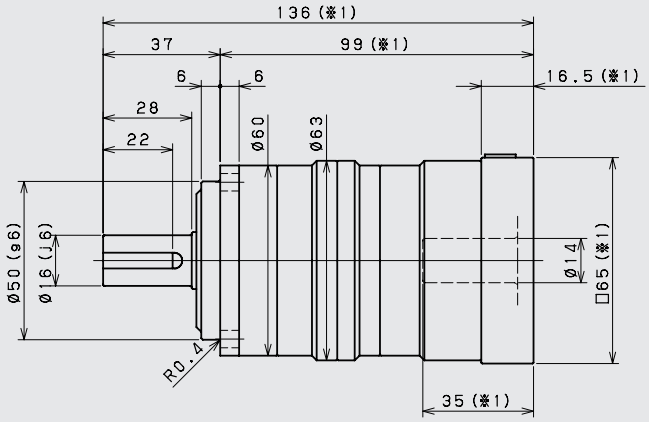
输入轴内径 Input shaft bore ≤ φ8

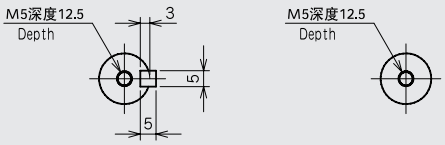




输入轴内径 Input shaft bore ≤ φ14







附带键轴
Shaft with key

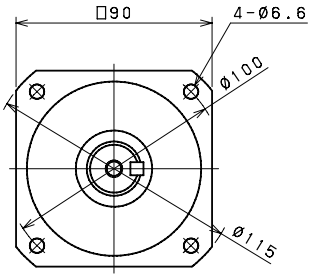
无 键 轴
Smooth shaft

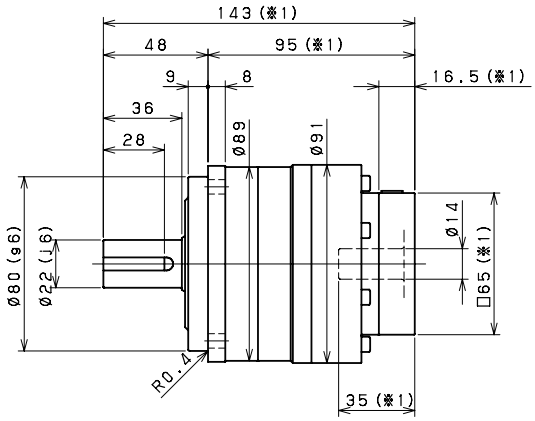
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

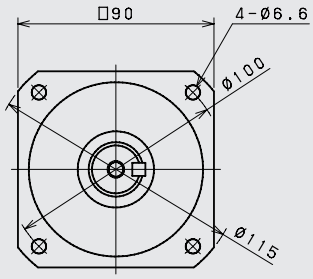
LFB-090 1段 | 1 Stage

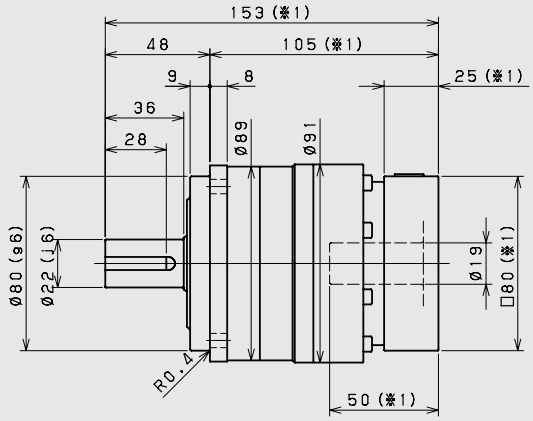
输入轴内径 Input shaft bore ≤ φ14



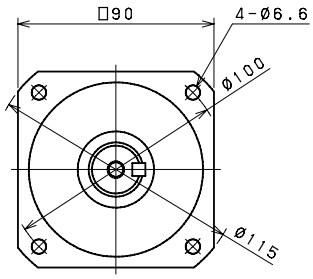


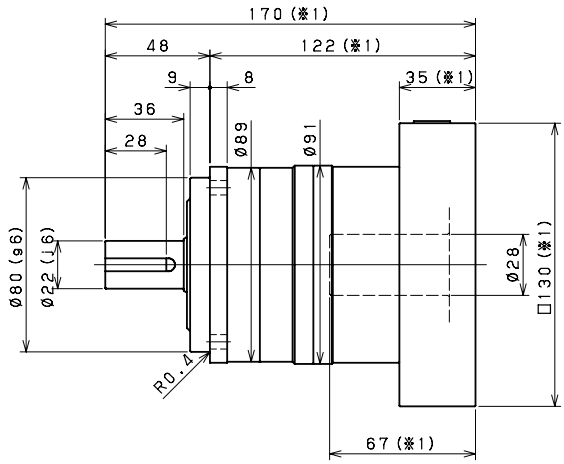
输入轴内径 Input shaft bore ≤ φ19

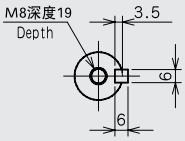




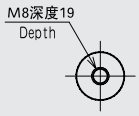
输入轴内径 Input shaft bore ≤ φ28







附带键轴
Shaft with key



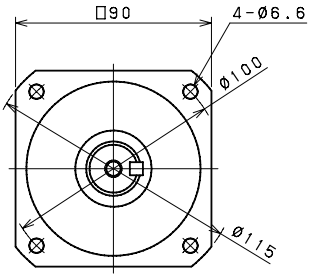
无 键 轴
Smooth shaft

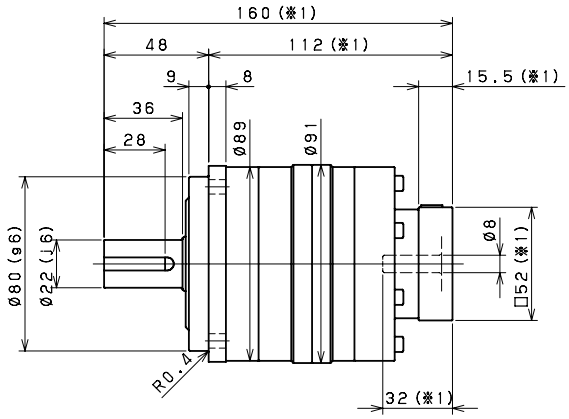
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

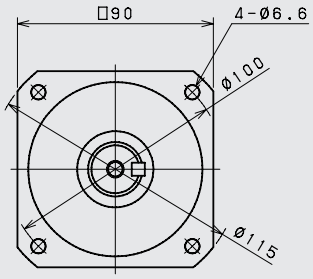
LFB-090 2段 | 2 Stage

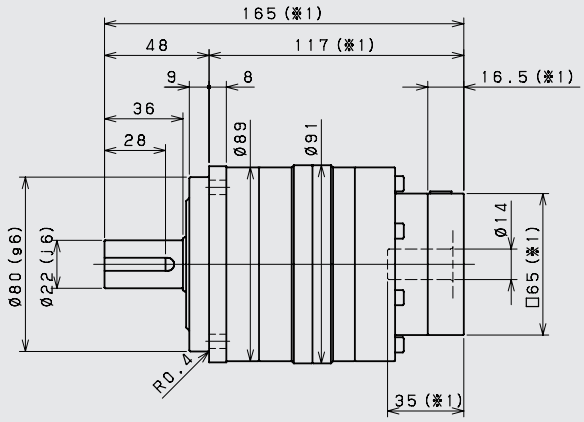
输入轴内径 Input shaft bore ≤ φ8



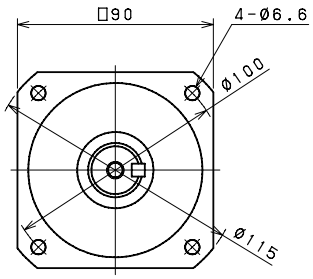


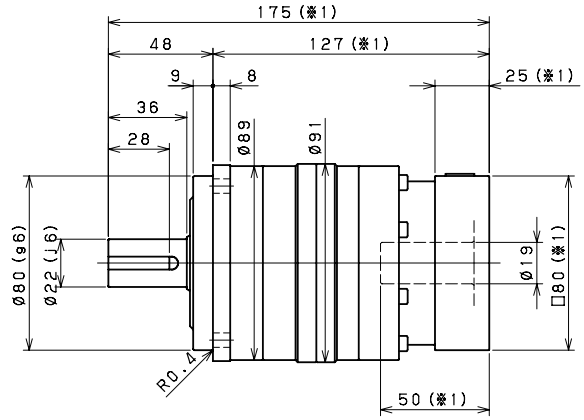
输入轴内径 Input shaft bore ≤ φ14

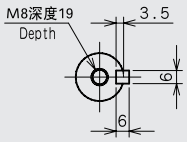




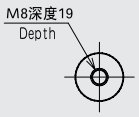
输入轴内径 Input shaft bore ≤ φ 19







附带键轴
Shaft with key



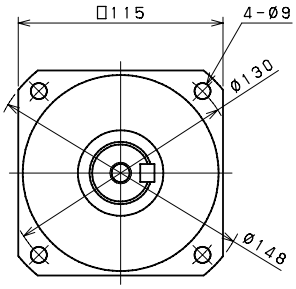
无 键 轴
Smooth shaft

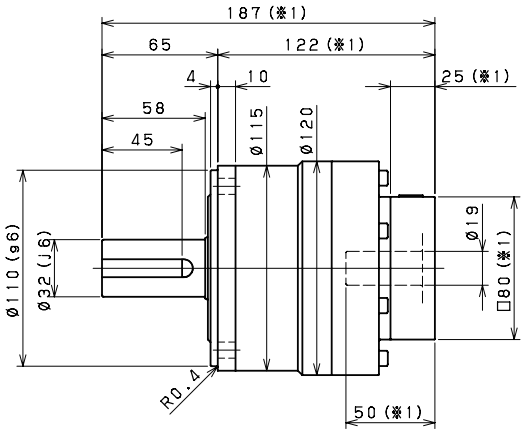
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

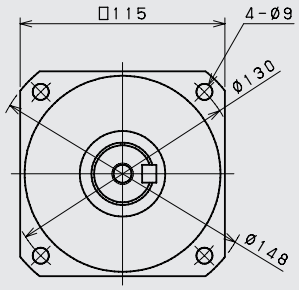
LFB–115 1段 | 1 Stage

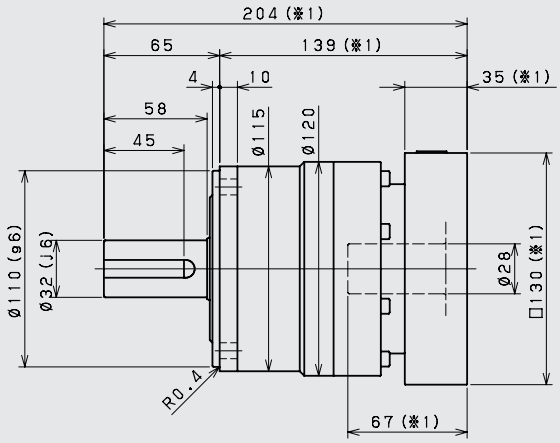
输入轴内径 Input shaft bore ≤ φ19



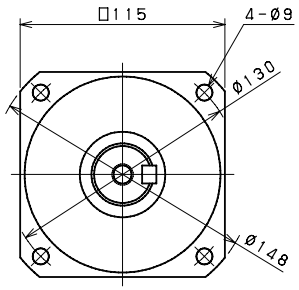


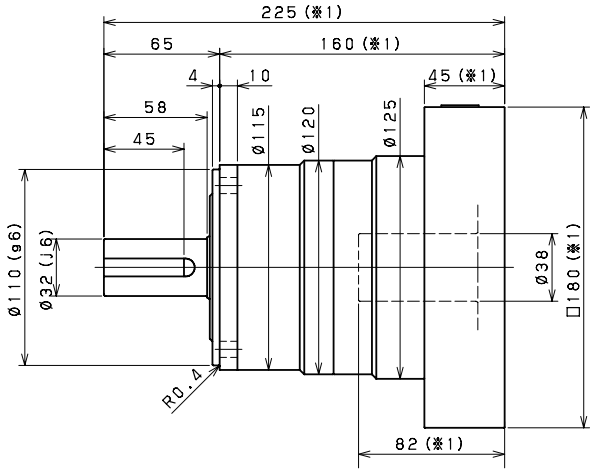
输入轴内径 Input shaft bore ≤ φ28

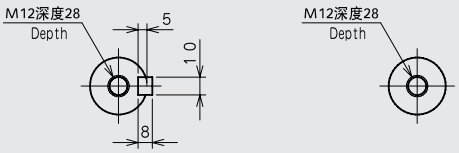




输入轴内径 Input shaft bore ≤ φ38







附带键轴
Shaft with key

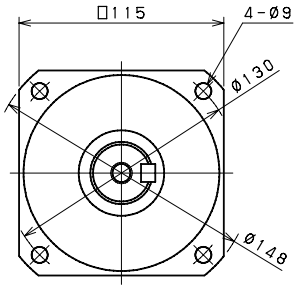
无 键 轴
Smooth shaft

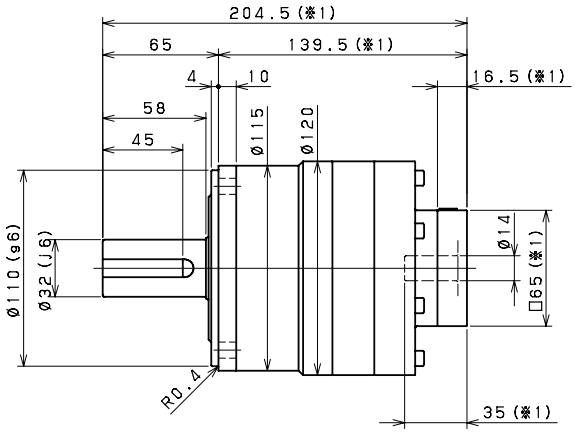
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

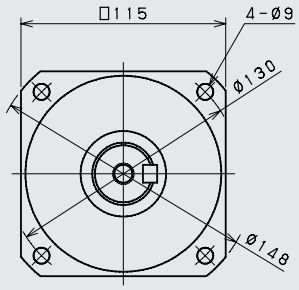
LFB-115 2段 | 2 Stage

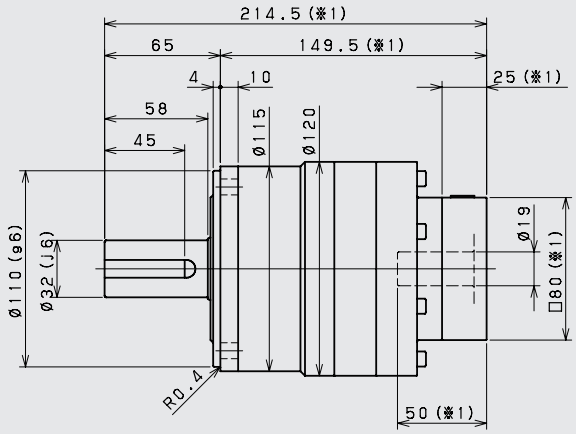
输入轴内径 Input shaft bore ≤ φ14



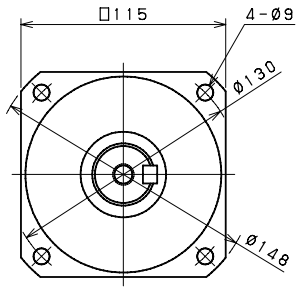


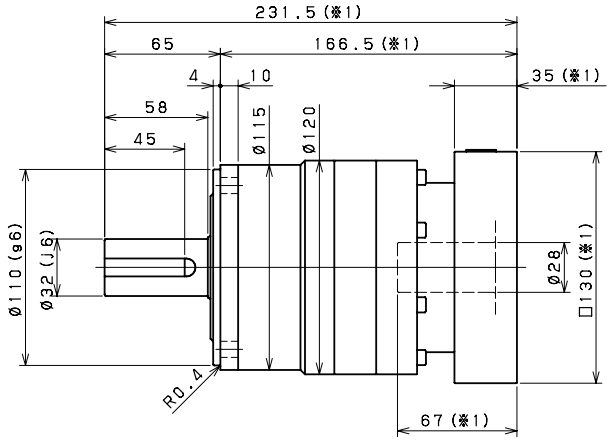
输入轴内径 Input shaft bore ≤ φ19

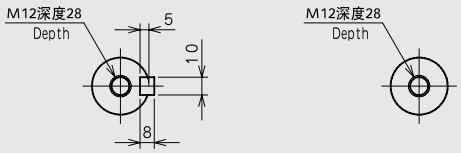




输入轴内径 Input shaft bore ≤ φ 28







附带键轴
Shaft with key

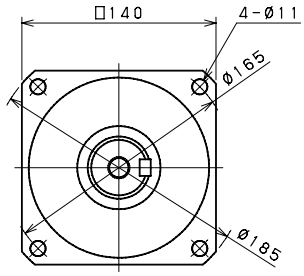
无 键 轴
Smooth shaft

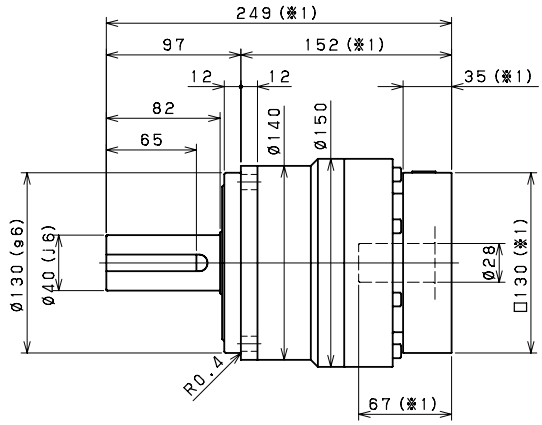
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

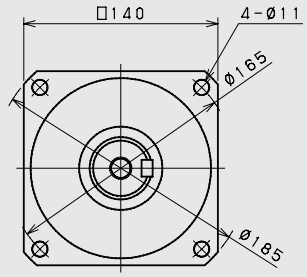
LFB–140 1段 | 1 Stage

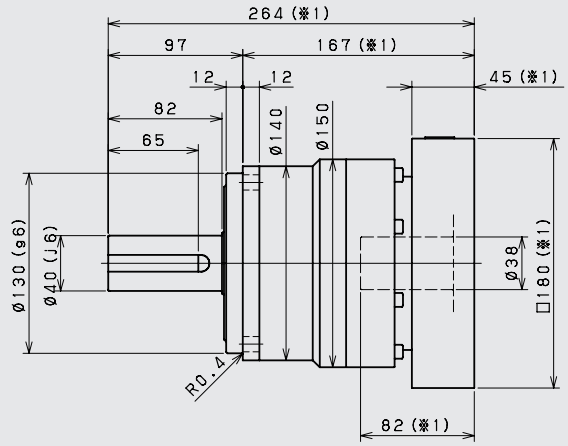
输入轴内径 Input shaft bore ≤ φ28



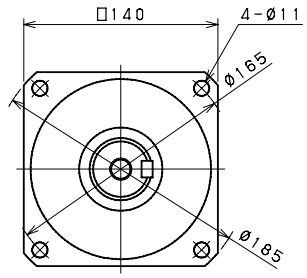


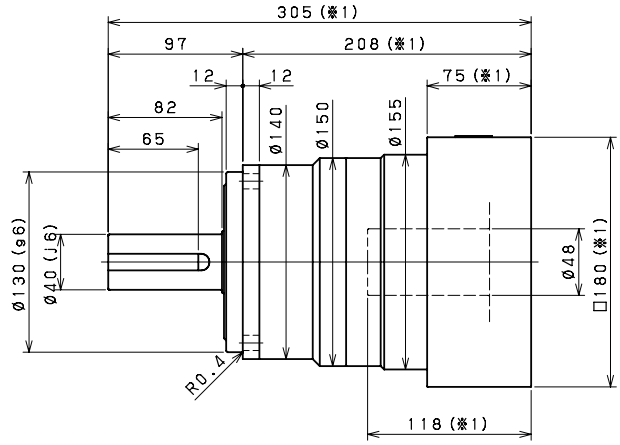
输入轴内径 Input shaft bore ≤ φ38

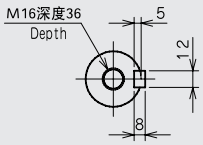




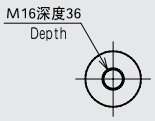
输入轴内径 Input shaft bore ≤ φ48







附带键轴
Shaft with key



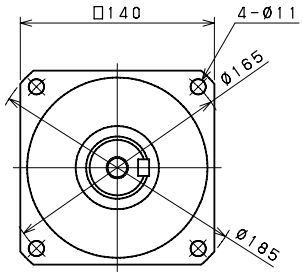
无 键 轴
Smooth shaft

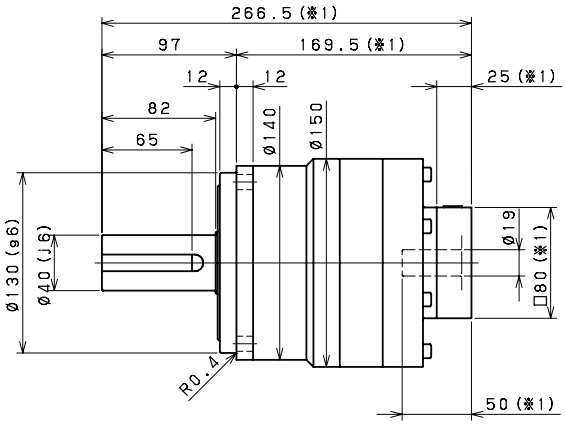
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

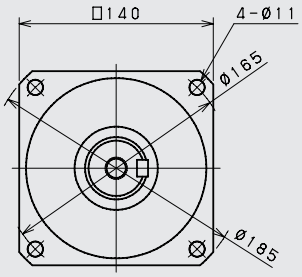
LFB-140 2段 | 2 Stage

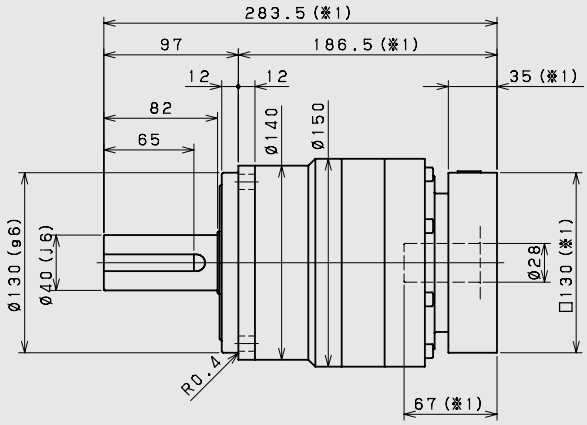
输入轴内径 Input shaft bore ≤ φ19



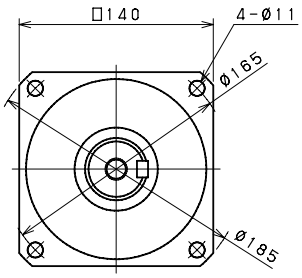


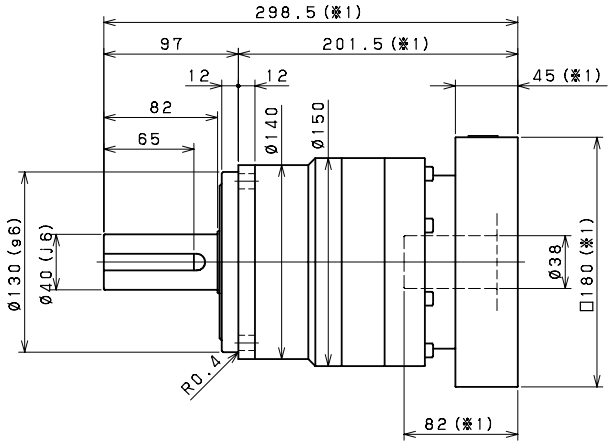
输入轴内径 Input shaft bore ≤ φ28

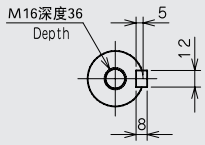




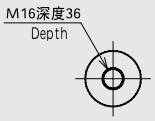
输入轴内径 Input shaft bore ≤ φ 38







附带键轴
Shaft with key



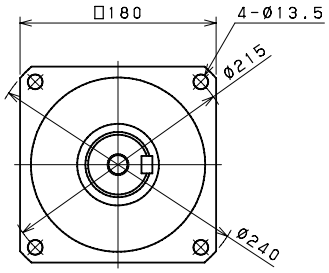
无 键 轴
Smooth shaft

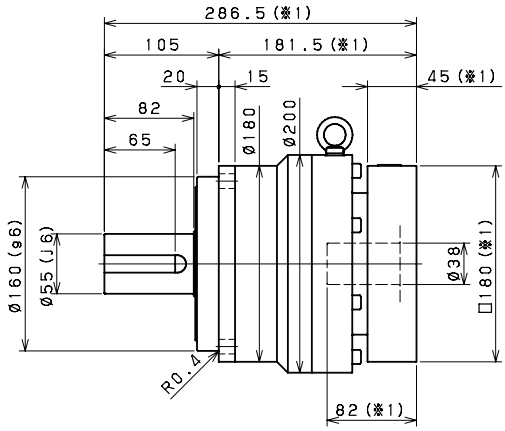
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

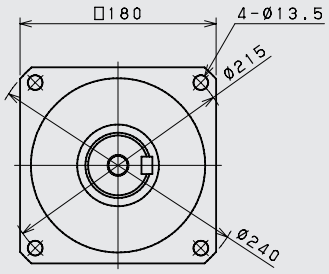
LFB–180 1段 | 1 Stage

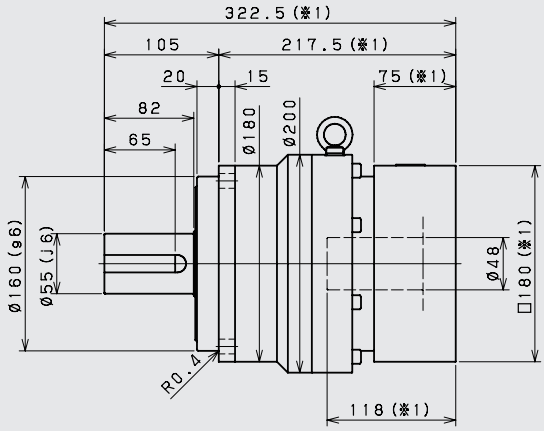
输入轴内径 Input shaft bore ≤ φ38



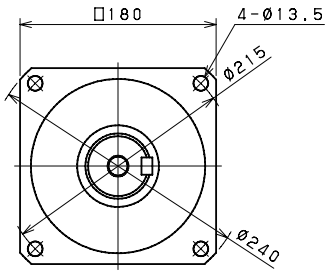


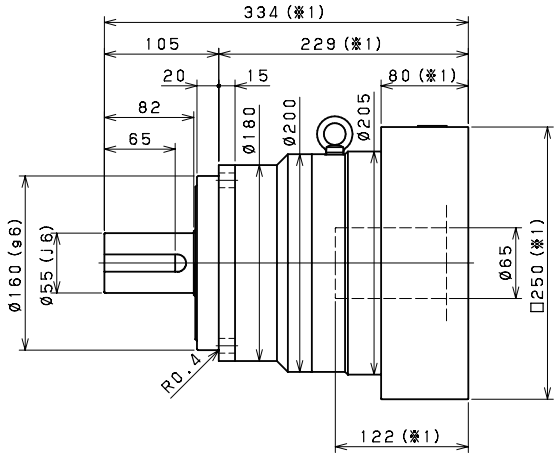
输入轴内径 Input shaft bore ≤ φ48

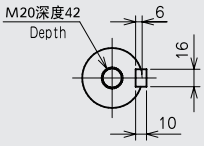




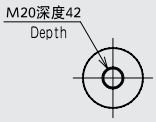
输入轴内径 Input shaft bore ≤ φ65







附带键轴
Shaft with key



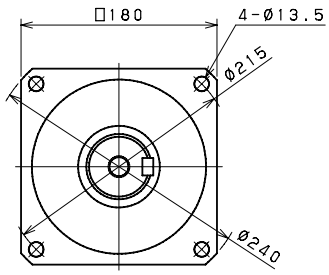
无 键 轴
Smooth shaft

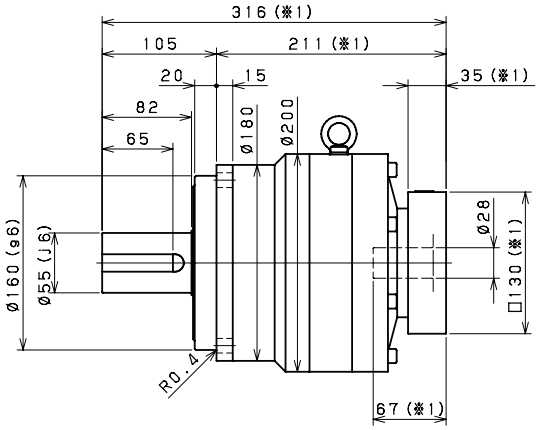
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

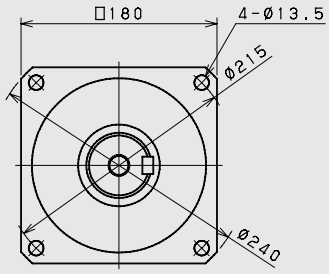
LFB-180 2段 | 2 Stage

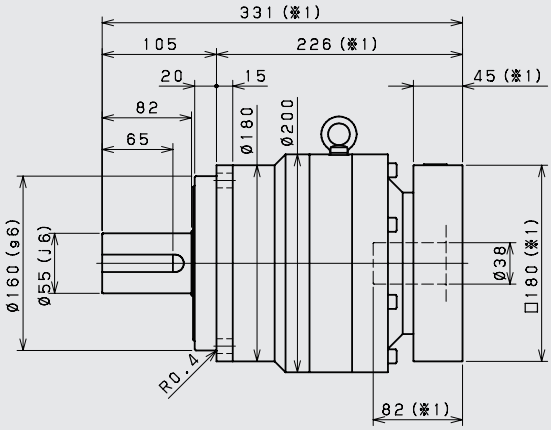
输入轴内径 Input shaft bore ≤ φ28



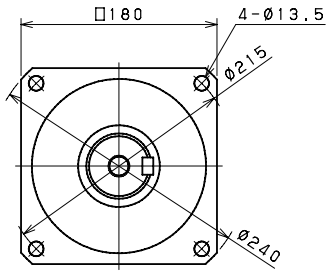


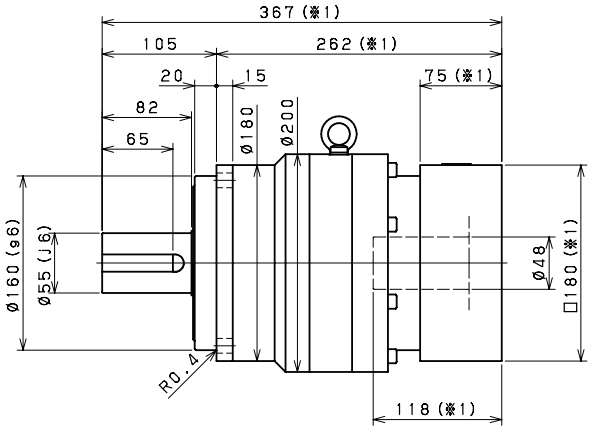
输入轴内径 Input shaft bore ≤ φ38

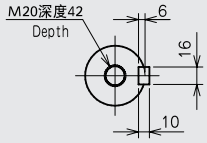




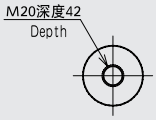
输入轴内径 Input shaft bore ≤ φ 48







附带键轴
Shaft with key



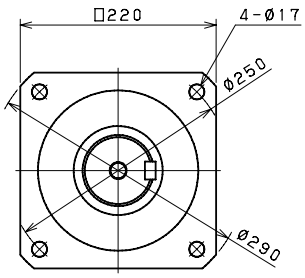
无 键 轴
Smooth shaft

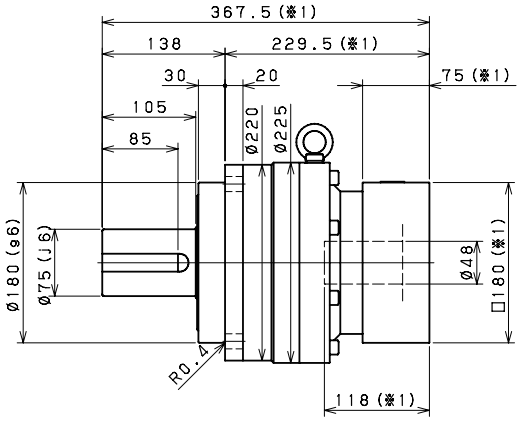
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

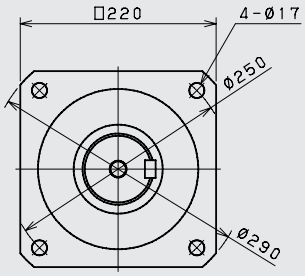
LFB–220 1段 | 1 Stage

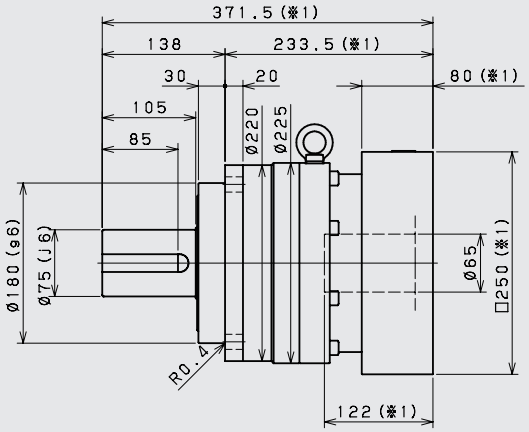
输入轴内径 Input shaft bore ≤ φ48

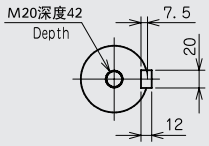




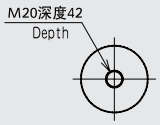
输入轴内径 Input shaft bore ≤ φ65







附带键轴
Shaft with key



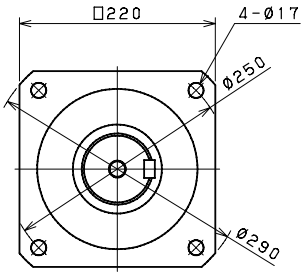
无 键 轴
Smooth shaft

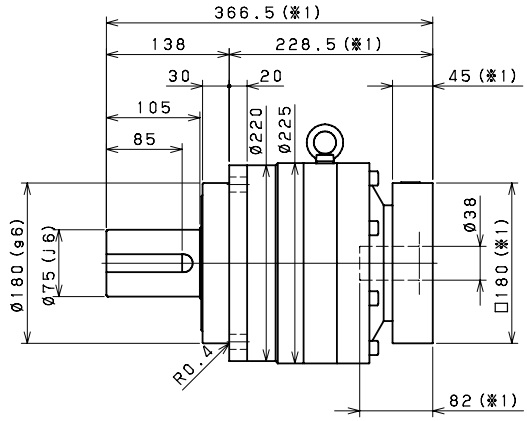
※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

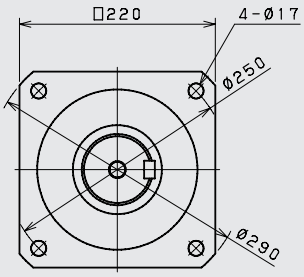
LFB-220 2段 | 2 Stage

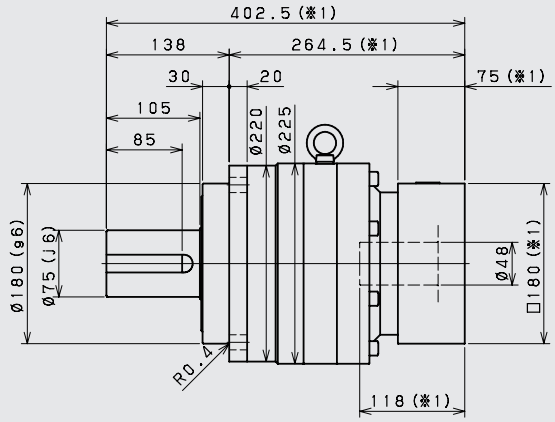
输入轴内径 Input shaft bore ≤ φ38

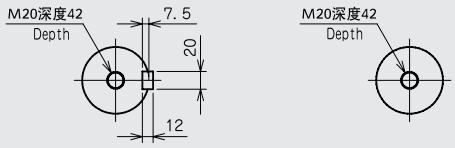




输入轴内径 Input shaft bore ≤ φ48







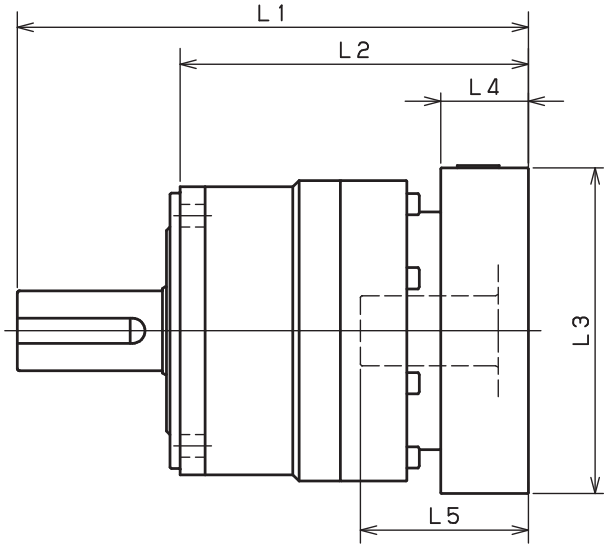
附带键轴
Shaft with key

无 键 轴
Smooth shaft

※1 随安装马达的不同而有所差异。
※2 马达轴径与输入轴径不同时，可插入轴套。

※1 Length will vary depending on motor.
※2 Bushing will be inserted to adapt to motor shaft.

LFB-060

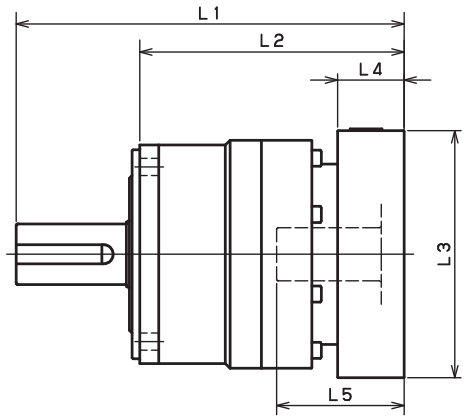


型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-060-□-□-8** 输入轴内径 Input shaft bore ≤φ8	AA·AC·AD·AF·AG	112	75	□52	15.5	32	131	94	□52	15.5	32
	AB·AE·AH·AJ·AK	117	80	□52	20.5	37	136	99	□52	20.5	37
	BA·BB·BD·BE	112	75	□60	15.5	32	131	94	□60	15.5	32
	BC·BF	117	80	□60	20.5	37	136	99	□60	20.5	37
	CA	117	80	□70	20.5	37	136	99	□70	20.5	37
LFB-060-□-□-14** 输入轴内径 Input shaft bore ≤φ14	BA·BB·BD·BE·BF·BG·BJ·BK	115	78	□65	16.5	35	136	99	□65	16.5	35
	BC·BH·BM	120	83	□65	21.5	40	141	104	□65	21.5	40
	BL	125	88	□65	26.5	45	146	109	□65	26.5	45
	CA	115	78	□70	16.5	35	136	99	□70	16.5	35
	CB	120	83	□70	21.5	40	141	104	□70	21.5	40
	DA·DB·DC·DD·DF·DH	115	78	□80	16.5	35	136	99	□80	16.5	35
	DE	120	83	□80	21.5	40	141	104	□80	21.5	40
	DG	125	88	□80	26.5	45	146	109	□80	26.5	45
	EA·EB·EC	115	78	□90	16.5	35	136	99	□90	16.5	35
	ED	125	88	□90	26.5	45	146	109	□90	26.5	45
	FA	115	78	□100	16.5	35	136	99	□100	16.5	35
	GA	115	78	□115	16.5	35	136	99	□115	16.5	35
LFB-060-□-□-19** 输入轴内径 Input shaft bore ≤φ19	DA·DB·DC	130	93	□80	25	50	-	-	-	-	-
	DD	140	103	□80	35	60	-	-	-	-	-
	DE	135	98	□80	30	55	-	-	-	-	-
	EA	135	98	□90	30	55	-	-	-	-	-
	EB	130	93	□90	25	50	-	-	-	-	-
	EC	140	103	□90	35	60	-	-	-	-	-
	FA	130	93	□100	25	50	-	-	-	-	-
	FB	140	103	□100	35	60	-	-	-	-	-
	GA·GC	135	98	□115	30	55	-	-	-	-	-
	GB·GD	130	93	□115	25	50	-	-	-	-	-
	HA	130	93	□130	25	50	-	-	-	-	-
	HB	145	108	□130	40	65	-	-	-	-	-
	HC·HD·HE	135	98	□130	30	55	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

LFB-090

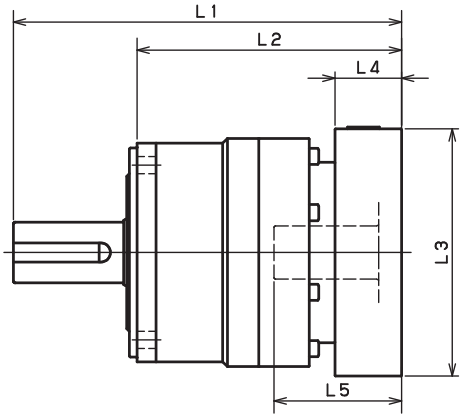


型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-090-□-□-8** 输入轴内径 Input shaft bore ≤φ8	AA·AC·AD·AF·AG	-	-	-	-	-	160	112	□52	15.5	32
	AB·AE·AH·AJ·AK	-	-	-	-	-	165	117	□52	20.5	37
	BA·BB·BD·BE	-	-	-	-	-	160	112	□60	15.5	32
	BC·BF	-	-	-	-	-	165	117	□60	20.5	37
	CA	-	-	-	-	-	165	117	□70	20.5	37
LFB-090-□-□-14** 输入轴内径 Input shaft bore ≤φ14	BA·BB·BD·BE·BF·BG·BJ·BK	143	95	□65	16.5	35	165	117	□65	16.5	35
	BC·BH·BM	148	100	□65	21.5	40	170	122	□65	21.5	40
	BL	153	105	□65	26.5	45	175	127	□65	26.5	45
	CA	143	95	□70	16.5	35	165	117	□70	16.5	35
	CB	148	100	□70	21.5	40	170	122	□70	21.5	40
	DA·DB·DC·DD·DF·DH	143	95	□80	16.5	35	165	117	□80	16.5	35
	DE	148	100	□80	21.5	40	170	122	□80	21.5	40
	DG	153	105	□80	26.5	45	175	127	□80	26.5	45
	EA·EB·EC	143	95	□90	16.5	35	165	117	□90	16.5	35
	ED	153	105	□90	26.5	45	175	127	□90	26.5	45
	FA	143	95	□100	16.5	35	165	117	□100	16.5	35
	GA	143	95	□115	16.5	35	165	117	□115	16.5	35
LFB-090-□-□-19** 输入轴内径 Input shaft bore ≤φ19	DA·DB·DC	153	105	□80	25	50	175	127	□80	25	50
	DD	163	115	□80	35	60	185	137	□80	35	60
	DE	158	110	□80	30	55	180	132	□80	30	55
	EA	158	110	□90	30	55	180	132	□90	30	55
	EB	153	105	□90	25	50	175	127	□90	25	50
	EC	163	115	□90	35	60	185	137	□90	35	60
	FA	153	105	□100	25	50	175	127	□100	25	50
	FB	163	115	□100	35	60	185	137	□100	35	60
	GA·GC	158	110	□115	30	55	180	132	□115	30	55
	GB·GD	153	105	□115	25	50	175	127	□115	25	50
	HA	153	105	□130	25	50	175	127	□130	25	50
	HB	168	120	□130	40	65	190	142	□130	40	65
	HC·HD·HE	158	110	□130	30	55	180	132	□130	30	55
LFB-090-□-□-28** 输入轴内径 Input shaft bore ≤φ28	FA·FB·FC	170	122	□100	35	67	-	-	-	-	-
	GA·GB·GC·GD·GE·GF·GG	170	122	□115	35	67	-	-	-	-	-
	HA·HC·HD	170	122	□130	35	67	-	-	-	-	-
	HB	180	132	□130	45	77	-	-	-	-	-
	JA·JB·JC	170	122	□150	35	67	-	-	-	-	-
	KA·KB	170	122	□180	35	67	-	-	-	-	-
	KD	180	132	□180	45	77	-	-	-	-	-
	LA	170	122	□200	35	67	-	-	-	-	-
	MA	170	122	□220	35	67	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

LFB-115

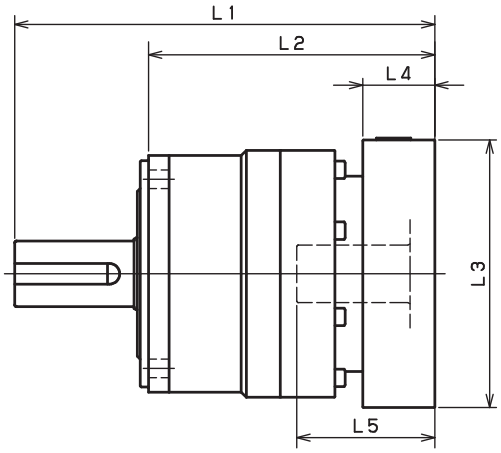


型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-115-□-□-14** 输入轴内径 Input shaft bore ≤φ14	BA·BB·BD·BE·BF·BG·BJ·BK	-	-	-	-	-	204.5	139.5	□65	16.5	35
	BC·BH·BM	-	-	-	-	-	209.5	144.5	□65	21.5	40
	BL	-	-	-	-	-	214.5	149.5	□65	26.5	45
	CA	-	-	-	-	-	204.5	139.5	□70	16.5	35
	CB	-	-	-	-	-	209.5	144.5	□70	21.5	40
	DA·DB·DC.DD·DF·DH	-	-	-	-	-	204.5	139.5	□80	16.5	35
	DE	-	-	-	-	-	209.5	144.5	□80	21.5	40
	DG	-	-	-	-	-	214.5	149.5	□80	26.5	45
	EA·EB.EC	-	-	-	-	-	204.5	139.5	□90	16.5	35
	ED	-	-	-	-	-	214.5	149.5	□90	26.5	45
	FA	-	-	-	-	-	204.5	139.5	□100	16.5	35
	GA	-	-	-	-	-	204.5	139.5	□115	16.5	35
LFB-115-□-□-19** 输入轴内径 Input shaft bore ≤φ19	DA·DB·DC	187	122	□80	25	50	214.5	149.5	□80	25	50
	DD	197	132	□80	35	60	224.5	159.5	□80	35	60
	DE	192	127	□80	30	55	219.5	154.5	□80	30	55
	EA	192	127	□90	30	55	219.5	154.5	□90	30	55
	EB	187	122	□90	25	50	214.5	149.5	□90	25	50
	EC	197	132	□90	35	60	224.5	159.5	□90	35	60
	FA	187	122	□100	25	50	214.5	149.5	□100	25	50
	FB	197	132	□100	35	60	224.5	159.5	□100	35	60
	GA·GC	192	127	□115	30	55	219.5	154.5	□115	30	55
	GB·GD	187	122	□115	25	50	214.5	149.5	□115	25	50
	HA	187	122	□130	25	50	214.5	149.5	□130	25	50
	HB	202	137	□130	40	65	229.5	164.5	□130	40	65
	HC·HD·HE	192	127	□130	30	55	219.5	154.5	□130	30	55
LFB-115-□-□-28** 输入轴内径 Input shaft bore ≤φ28	FA·FB·FC	204	139	□100	35	67	231.5	166.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	204	139	□115	35	67	231.5	166.5	□115	35	67
	HA·HC·HD	204	139	□130	35	67	231.5	166.5	□130	35	67
	HB	214	149	□130	45	77	241.5	176.5	□130	45	77
	JA·JB·JC	204	139	□150	35	67	231.5	166.5	□150	35	67
	KA·KB	204	139	□180	35	67	231.5	166.5	□180	35	67
	KD	214	149	□180	45	77	241.5	176.5	□180	45	77
	LA	204	139	□200	35	67	231.5	166.5	□200	35	67
	MA	204	139	□220	35	67	231.5	166.5	□220	35	67
LFB-115-□-□-38** 输入轴内径 Input shaft bore ≤φ38	HA	225	160	□130	45	82	-	-	-	-	-
	HB	220	155	□130	40	77	-	-	-	-	-
	JA	225	160	□150	45	82	-	-	-	-	-
	KA·KB·KC	225	160	□180	45	82	-	-	-	-	-
	LA	225	160	□200	45	82	-	-	-	-	-
	LB	235	170	□200	55	92	-	-	-	-	-
	MA·MB	225	160	□220	45	82	-	-	-	-	-
	NA	225	160	□250	45	82	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

LFB-140

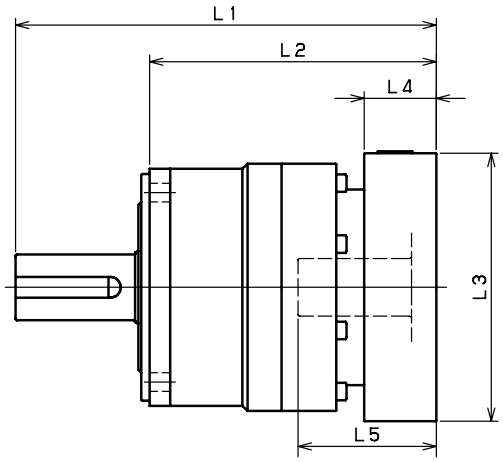


型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-140-□-□-19** 输入轴内径 Input shaft bore ≤φ19	DA·DB·DC	-	-	-	-	-	266.5	169.5	□80	25	50
	DD	-	-	-	-	-	276.5	179.5	□80	35	60
	DE	-	-	-	-	-	271.5	174.5	□80	30	55
	EA	-	-	-	-	-	271.5	174.5	□90	30	55
	EB	-	-	-	-	-	266.5	169.5	□90	25	50
	EC	-	-	-	-	-	276.5	179.5	□90	35	60
	FA	-	-	-	-	-	266.5	169.5	□100	25	50
	FB	-	-	-	-	-	276.5	179.5	□100	35	60
	GA·GC	-	-	-	-	-	271.5	174.5	□115	30	55
	GB·GD	-	-	-	-	-	266.5	169.5	□115	25	50
	HA	-	-	-	-	-	266.5	169.5	□130	25	50
	HB	-	-	-	-	-	281.5	184.5	□130	40	65
	HC·HD·HE	-	-	-	-	-	271.5	174.5	□130	30	55
LFB-140-□-□-28** 输入轴内径 Input shaft bore ≤φ28	FA·FB·FC	249	152	□100	35	67	283.5	186.5	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	249	152	□115	35	67	283.5	186.5	□115	35	67
	HA·HC·HD	249	152	□130	35	67	283.5	186.5	□130	35	67
	HB	259	162	□130	45	77	293.5	196.5	□130	45	77
	JA·JB·JC	249	152	□150	35	67	283.5	186.5	□150	35	67
	KA·KB	249	152	□180	35	67	283.5	186.5	□180	35	67
	KD	259	162	□180	45	77	293.5	196.5	□180	45	77
	LA	249	152	□200	35	67	283.5	186.5	□200	35	67
	MA	249	152	□220	35	67	283.5	186.5	□220	35	67
LFB-140-□-□-38** 输入轴内径 Input shaft bore ≤φ38	HA	264	167	□130	45	82	298.5	201.5	□130	45	82
	HB	259	162	□130	40	77	293.5	196.5	□130	40	77
	JA	264	167	□150	45	82	298,5	201.5	□150	45	82
	KA·KB·KC	264	167	□180	45	82	298.5	201.5	□180	45	82
	LA	264	167	□200	45	82	298.5	201.5	□200	45	82
	LB	274	177	□200	55	92	308.5	211.5	□200	55	92
	MA·MB	264	167	□220	45	82	298.5	201.5	□220	45	82
	NA	264	167	□250	45	82	298.5	201.5	□250	45	82
LFB-140-□-□-48** 输入轴内径 Input shaft bore ≤φ48	KB·KC	285	188	□180	55	98	-	-	-	-	-
	KA	305	208	□180	75	118	-	-	-	-	-
	LA	285	188	□200	55	98	-	-	-	-	-
	MA	285	188	□220	55	98	-	-	-	-	-
	MB	305	208	□220	75	118	-	-	-	-	-
	NA	305	208	□250	75	118	-	-	-	-	-
	PA	305	208	□280	75	118	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

LFB-180

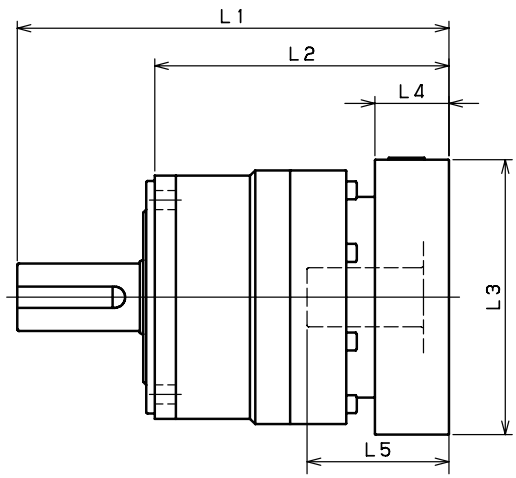


型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-180-□-□-28** 输入轴内径 Input shaft bore ≤φ28	FA·FB·FC	-	-	-	-	-	316	211	□100	35	67
	GA·GB·GC·GD·GE·GF·GG	-	-	-	-	-	316	211	□115	35	67
	HA·HC·HD	-	-	-	-	-	316	211	□130	35	67
	HB	-	-	-	-	-	326	221	□130	45	77
	JA·JB·JC	-	-	-	-	-	316	211	□150	35	67
	KA·KB	-	-	-	-	-	316	211	□180	35	67
	KD	-	-	-	-	-	326	221	□180	45	77
	LA	-	-	-	-	-	316	211	□200	35	67
	MA	-	-	-	-	-	316	211	□220	35	67
LFB-180-□-□-38** 输入轴内径 Input shaft bore ≤φ38	HA	286.5	181.5	□130	45	82	331	226	□130	45	82
	HB	281.5	176.5	□130	40	77	326	221	□130	40	77
	JA	286.5	181.5	□150	45	82	331	226	□150	45	82
	KA·KB·KC	286.5	181.5	□180	45	82	331	226	□180	45	82
	LA	286.5	181.5	□200	45	82	331	226	□200	45	82
	LB	296.5	191.5	□200	55	92	341	236	□200	55	92
	MA·MB	286.5	181.5	□220	45	82	331	226	□220	45	82
	NA	286.5	181.5	□250	45	82	331	226	□250	45	82
LFB-180-□-□-48** 输入轴内径 Input shaft bore ≤φ48	KB·KC	302.5	197.5	□180	55	98	347	242	□180	55	98
	KA	322.5	217.5	□180	75	118	367	262	□180	75	118
	LA	302.5	197.5	□200	55	98	347	242	□200	55	98
	MA	302.5	197.5	□220	55	98	347	242	□220	55	98
	MB	322.5	217.5	□220	75	118	367	262	□220	75	118
	NA	322.5	217.5	□250	75	118	367	262	□250	75	118
	PA	322.5	217.5	□280	75	118	367	262	□280	75	118
LFB-180-□-□-65** 输入轴内径 Input shaft bore ≤φ65	MA·MB·MC·MD	334	229	□220	80	122	-	-	-	-	-
	NA	334	229	□250	80	122	-	-	-	-	-
	PA	354	249	□280	100	142	-	-	-	-	-
	PB	364	259	□280	110	152	-	-	-	-	-
	QA	354	249	□320	100	142	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

LFB-220



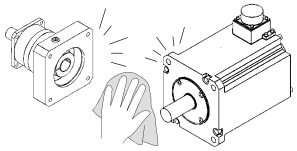
型 号 Model number	**：连接器编号 **：Adapter code	1段 Single					2段 Double				
		L1	L2	L3	L4	L5	L1	L2	L3	L4	L5
LFB-220-□-□-38** （输入轴内径 Input shaft bore ≤φ38）	HA	-	-	-	-	-	366.5	228.5	□130	45	82
	HB	-	-	-	-	-	361.5	223.5	□130	40	77
	JA	-	-	-	-	-	366.5	228.5	□150	45	82
	KA·KB·KC	-	-	-	-	-	366.5	228.5	□180	45	82
	LA	-	-	-	-	-	366.5	228.5	□200	45	82
	LB	-	-	-	-	-	376.5	238.5	□200	55	92
	MA·MB	-	-	-	-	-	366.5	228.5	□220	45	82
	NA	-	-	-	-	-	366.5	228.5	□250	45	82
LFB-220-□-□-48** （输入轴内径 Input shaft bore ≤φ48）	KB·KC	347.5	209.5	□180	55	98	382.5	244.5	□180	55	92
	KA	367.5	229.5	□180	75	118	402.5	264.5	□180	75	118
	LA	347.5	209.5	□200	55	98	382.5	244.5	□200	55	98
	MA	347.5	209.5	□220	55	98	382.5	244.5	□220	55	98
	MB	367.5	229.5	□220	75	118	402.5	264.5	□220	75	118
	NA	367.5	229.5	□250	75	118	402.5	264.5	□250	75	118
	PA	367.5	229.5	□280	75	118	402.5	264.5	□280	75	118
LFB-220-□-□-65** （输入轴内径 Input shaft bore ≤φ65）	MA·MB·MC·MD	371.5	233.5	□220	80	122	-	-	-	-	-
	NA	371.5	233.5	□250	80	122	-	-	-	-	-
	PA	391.5	253.5	□280	100	142	-	-	-	-	-
	PB	401.5	263.5	□280	110	152	-	-	-	-	-
	QA	391.5	253.5	□320	100	142	-	-	-	-	-

- 1段减速：1/3 ~ 1/10；2段减速：1/15 ~ 1/100
- 马达轴径与输入轴径不同时，可插入连接器。

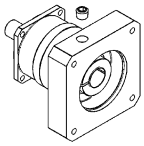
- Single reductiong：1/3 ~ 1/10，Double reductiong：1/15 ~ 1/100
- Bushing will be inserted to adapt to motor shaft.

第一部分：马达安装步骤 Mounting procedure to the motor

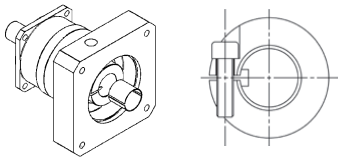
1 擦拭马达轴上的防锈剂、润滑脂等。
Wipe off anti-rust agent and oil on the motor shaft.



2 取下橡皮栓
Remove the plug

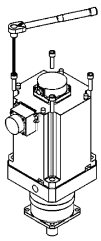


3 旋转输入轴使紧固螺栓的头对准塞孔，此时，请确认紧固螺栓是松动的。
Turn the input shaft until the cap screw is seen,Make sure the cap screw is loosened.

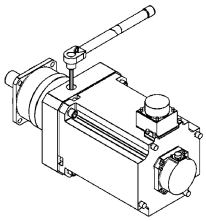


如带有轴套，安装方法如图所示。
In case the bushing has been attached ,Please fix it to the reducer as the drawing below.

4 将减速机垂直放置在平坦的地方，使减速机的马达安装面朝上侧，将马达轴慢慢地插入输入轴，注意避免撞击到输入轴，请确认马达的法兰面紧靠减速机的法兰面。按指定的紧固扭矩拧紧马达安装螺栓。（参考表1）
Please place reducer vertically on the flat surface, so the motor mounting part faces up. Carefully insert the motor shaft into the input shaft.(It should be inserted smoothly) Make sure the motor flange is perfectly fit to the reducer's flange.Tighten the motor installing bolts to the proper torque. (See table 1)



5 使用转矩扳手等按照指定的紧固扭矩拧紧紧固螺栓。(参考表1)
Tighten the clamping bolt of the input shaft with torque wrench to the proper torque.(See table 1)



6 安装上橡皮栓，安装完成。
Reinstall the plug,The procedure is done.

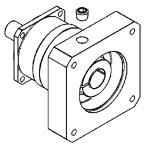


表1 Table 1

螺栓尺寸 Bolt size	马达安装螺栓 Motor installing bolts		紧固螺栓 Clamping bolt	
	Nm	kgfm	Nm	kgfm
M3	1.1	0.11	1.9	0.18
M4	2.5	0.26	4.3	0.44
M5	5.1	0.52	8.7	0.89
M6	8.7	0.89	15	1.5
M8	21	2.1	36	3.7
M10	42	4.3	71	7.2
M12	72	7.3	125	13
M16	134	14	–	–

第二部分：减速机的安装 Reducer installation

要将减速机安装到设备上时，请先确认安装面平坦且没有毛刺等，然后使用转矩扳手按照指定的紧固扭矩拧紧螺栓。（参考表2）
After confirming the installation surface is flat and clean,tighten the bolt using a torque wrench to the proper torque.(See table 2)

表2 Table 2

螺栓尺寸 Bolt size	紧固扭矩 Tightening torque	
	Nm	kgfm
M3	1.9	0.18
M4	4.3	0.44
M5	8.7	0.89
M6	15	1.5
M8	36	3.7
M10	71	7.2
M12	125	13
M16	310	32
M20	603	62

※推荐螺栓： 强度12.9以上
※Recommended bolt：Strength 12.9

保管时的注意事项

需要暂时保管本产品时
请遵照下列要领进行

① 放在清洁干燥的场所进行保管。
② 若放在室外或有潮气的场所保管时，应装入箱内并用塑料等严密包裹，以避免受雨淋或外气的侵蚀（采取防结露、生锈措施）。

运行时的注意事项

减速机到厂后…

- 减速机到货后请确认减速机型号是否与订购的型号相同。
- 减速机输出轴、输入轴上涂有防锈剂，请擦拭后使用。
- 取下输入轴的橡胶栓，擦拭防锈剂。
- 减速机上已充填完润滑油（油脂）。

本机到厂后即可使用

安装、设置

- 请勿在会直接接触到雨或水的场所使用。
- 需要在室外或受粉尘、水滴影响的场所使用时，请事先与本公司联系。
- 温度设置为0℃-40℃ 。
- 如在上述温度范围外使用本机时， 必须与本公司联系。
- 将本机设置在不会振动且坚固的安装台上. 并用螺栓紧固。
- 设置时应考虑到保养维修的便利性。

运行开始前的注意事项

- 本公司产品出货时已填充了规定量的润滑脂，到货后可
- 直接使用。
  初次运行时，应先确认输出轴的旋转方向后，再慢慢地增加负荷

运行中的注意事项

- 请注意不要超负荷。
- 输入转速不得越过规定以上的转速。
- 发生下列情况时，请暂停运行立即进行检查。
  1. 温度突然上升
  2. 突然出现很大的异常声
  3. 转速突然变得不稳定
- 如果这些原因是由下列事项造成，应马上采取应对措施或与本公司联系。
  1. 是否处于超负荷状态？
  2. 是否润滑油不足、老化或使用不同品种的润滑油？
  3. 轴承、齿轮、传动面有无损伤？
  4. 是否与关联机械连接等的条件不良？

分 解

- LF减速机为不能分解的结构。

保 修

- 保修期间为交付产品后起1年。

润滑油管理

- LF减速机的全部机种均采用润滑脂润滑密封方式。出厂前已填充了定量的润滑油，到厂后即可使用。
- 不能更换润滑脂。
- 在周围温度常时0℃~40℃以外的环境使用时，请先咨询本公司。

每天检查

- 运行中的减速机的外壳温度有无异常增高。
  （如果周围温度在±50℃以内的话，没有大问题）
- 轴承、齿部等有无异常。
- 减速机有无异常振动。
  *如果发生这些现象时，请立即停机并与本公司联系。
- 润滑油有无泄漏
  *发生油脂泄漏时，请与本公司联系。

定期检查

- 有无超负荷或异常旋转。
  滑轮、链轮、减速机安装螺栓等有无松动。
- 电气系统有无异常。
- 主要部件的检查和维护
  *发生异常现象时，请立即停机并与本公司联系。
  润滑油的问题
  *发生油脂泄露时，请与本公司联系。

废弃方法

废弃LF减速机时，应根据法令和各自治体的条例等，将部件按材料分类，作为产业废弃物进行处理。

部件材料分成以下4种。

① 橡胶制部件：油封、密封垫圈、橡胶盖、马达法兰侧的轴承上使用的密封部件。
② 铝制部件：马达法兰、输出轴座。
③ 润滑脂：用干布等擦拭附在部件上的润滑脂，作为油类废弃。
④ 铁质部件：上述以外的部件。

保修规定

保修范围只限交付产品单体。
以下费用和损害不在保修范围内。
1) 本产品的运输费。
2) 本产品与其他装置等连接或装入后从该装置等上拆下、安装或其他附带施工的费用。
3) 因本产品的故障，发生了使利用者失去使用机会或业务中断等造成的间接损害。
4) 其他所有派生的或伴随的损害。

Cautions for storage

Whenever temporarily keeping the product Keep the following directions:

① Keep in a clean and dry place.
② Whenever storingoutdoors or in a humid place,put in a box so that it does not directly contact rain or external air and cover with a vinyl sheet(Take a measure to prevent rust).

Cautions for operation

When the reducer is delivered to you···

- When the product delivered,please confirm that you received the exact same model you have ordered.
- Please wipe out the input and output shaft of the reducer which is covered by anti-corrosive oil.
- Please remove the rubber cap on the input shaft before you wipe the shafts.
- Lubricant(grease) is already filled in the reducer.
  It is available as it is.

Fixatuion & installation

- Avoid use in a place where rain or water drops directly.
  * In case of use outdoors or in a place where dust and water drops, consult in advance.
- Install at 0℃-40℃ of surrounding temperature.
  * In case of use at temperature out of the above-mentioned range,contact the headquarters and consult on this.
- Firmly fix with a bolt onto a solid stand without vibration.
- Install in consideration of convenience in repair and inspection.

Cautions prior to starting the operation

- Reducer can be used soon after arrival,since it has already been filled out with lubrication.
- At initial operation,check the rotating direction of the output shaft and then gradually apply load.

Cautions during operation

- Avoid overload.
- Ensure that input speed shall not be the number of revolutions beyond the specification.
- In the following cases,stop the operation and check the following points:
  - If temperature sharply increases
  - If an abnormal noise appears sharply
  - If the number of revolutions becomes unstable sharply
- These may be caused by the following matters, so rapidly respond to it or contact us.
  - Is it under overload condition?
  - Is lubricant insufficient or deteriorated, or is lubricant of other type used?
  - Is the axis, gear, and motor side damaged?
  - Is jointing with other machines poor?

Disassembly

- LF REDUCER is designed not to allow disassembly.

Warranty

- A warranty period is one year after the product is delivered to you.

Lubricant use

- The LF REDUCER is of grease-seal type in all models. A specified amount of grease is filled at factory release, so you can use as soon as it is delivered to you.
- It is impossible to exchange grease.
- In case of use at 0℃-40℃ of surrounding temperature at usual times, consider this in advance.

Daily check points

- Is reducer case temperature excessively high during operation? (Up to + 50℃ is not significant.)
- Is there an abnormal noise in the bearing, gear, etc?
- Is there abnormal vibration in the reducer?
  * Upon an abnormal phenomenon,immediately stop the operation and contact us.
- Is there a lubricant leak?
  *Upon an oil leak, contact us.

Periodic check points

- Are there overload and abnormal rotation?
- Are free, sprocket, and reducer assembling bolts loose?
- Is there an abnormal condition in the electric system?
- Checkup and repair of major parts
  *Upon an abnormal condition, immediately stop the operation and contact us.
- Oil leak
  *Upon an oil leak, contact us.

Scrapping

Whenever scrapping the LF REDUCER, classify the parts by material into industrial wastes as specified in the laws and regulations of self-governing bodies. Material of parts can be divided into four:

① Rubber parts: Oil seal, seat packing, rubber cap, seal used For bearing on the motor flang, etc.
② Aluminum parts: Motor flange, output shaft holder
③ Grease: Wipe off grease attached to parts with dry cloth And scrap into oils.
④ Iron parts: Parts other than those mentioned in the above.

WARRANTY PROVISION

·Warranty scope is the delivered product only.

THE EXPENSES AND LOSSES THAT MENTIONED BELOW ARE NOT INCLUDED IN WARRANTY

1) The transport charges for repairing of our products.
2) The fee for the removal operation,reinstallation and other related operation in case our product is installed to other machine.
3) The loss of the chances of use and indirect damages caused by the interruption of the services caused by our product 's defects.
4) All other secondary expenses and losses.

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