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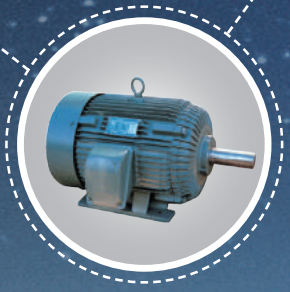
SMC
AC MOTOR
GEARED MOTOR

Extended capacity Motor 0.2kW~160kW
Geared Motor 0.2kW~22kW

SMC

Company Overview

- **Foundation** : 1958
- **Business items** : Electric motors and Geared motors
- **Head office • factory**
  - (#1813-1 Hakwoon-ri)44 Samdo-ro Yangchon-eup Gimpo-si Gyeonggi-do Korea
- **Certifications**
  - ISO 9001
  - UL, CE, high-efficiency approval
  - INNO-BIZ, Venture Company, R&D Institute
  - Clean business sites by korean administration
  - Special Company for parts & material
  - To be a good corporate chief
- **Awards**
  - Award of $ 500 million export record
  - Award of $ 1000 million export record



Company History

2016	Now	Developed high-efficiency small wind generator Selected AEO [authorized economic operator]
	2015. 11.30	Developed intelligent-type factory roof window system
	2015. 06.12	Selected high-growth company for exporting Biz by S.B.C
	2014. 11.10	Selected Innobiz (INNO-BIZ) Co., Venture Company
	2014. 02.18	Approval special Company for parts & material
2010	2014. 01.21	Award of $ 1000 million export record
	2009. 12.10	Certification of high-efficiency three phase electric induction motor
	2008. 04.14	Selected clean business sites by korean administration
	2005. 09.17	Movement of head office and factory in Gimpo
2000	2000. 10.12	Certified ISO 9001
	1999. 02.24	Selected supporting Co., for Export by Gyeonggi Small and Medium Business Adminstration
	1998. 07.17	Development New models of EP+ geared motor development.
	1997. 10.15	Export of High Effiency motors
	1997. 03.11	Founded R&D Institute.
	1995. 10.31	Movement of Head office and factory in Ansan Banwol industrial complex.
	1995. 06.15	Approval of European TUV, CE certification
	1994. 07.15	Established China Yantai Shinmyung electric Co., Ltd.
1990	1994. 03.26	UL, CSA approval for Three-phase induction motors.
	1984. 02.10	Launching geared motor production
1980	1981. 06.23	UL approval for Single-phase induction motor
	1976. 10.06	Award 2.'nd prize of Q.C standardized cometition by Commercial & industrial Ministry
	1973. 07.03	Acquired Compact AC motor manufacturer's license
1970	1973. 03.13	Shinmyung electric MFG. co. ltd. Incorporation (S.M.C)
1958	1958. 09.01	Established Shinmyung Company

Contents

Quality Motors Since 1958

Main Products

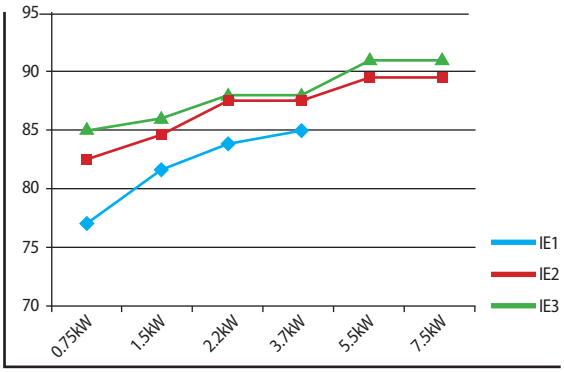
High-efficiency three-phase induction motor
Three-phase induction motor
Single-phase induction motor | EP+ Geared motor | EP2 Geared motor
SMG Geared motor | Gear reducer(Helical,Planetary reducer,Worm,Bevel)

Motor efficiency regulations

International Electrotechnical Commission (IEC) enacted IEC60034-30 that regulated efficiency classes for electric motors in October 2008 and accelerated the high efficiency of electric motors in each country of the world. In Korea, three-phase induction motors have been produced according to Minimum Energy Performance Standards meeting the criteria for high efficiency energy appliances (MOTIE Notification No. 2014-220) set according the Article 15 of Energy Use Rationalization Act and the Enforcement Degree.

Application

International Efficiency Levels (IEC 60034-30)	Korea	Motor type	Rating range		Exclusion
IE3 (Premium)	KSC 4202	Single-speed, 3 phase squirrel cage type Induction motor	Output	0.75kW~375kW	special Insulation Y-⊿ starting marine duty explosion-proof duty High slip Canned motor ,extremely low temperature duty motor etc.
IE2 (High Efficiency)			Poles	2P,4P,6P	
IE1 (Standard Efficiency)			Voltage	1,000V or lower	
			Frequency	60, 50, 60/50	
			Duty cycle	S1(continuous duty-rated) or S3(Duty cycle operation with load time factor of 80% or more)	



Application time

I Minimum high efficiency standards (IE2)

- 2P/4P/6P 0.75kW ~ 15kW: From July 2010
- 2P/4P/6P 15kW ~ 37kW: From January 2010
- 2P/4P 37kW ~ 200kW: From July 2008
- 6P 37kW ~ 160kW: From July 2008
- 8P 0.75kW ~ 37kW: From January 2011
- 8P 37kW ~ 110kW: From January 2010

I Premium efficiency (IE3)

- 37kW ~ 200kW: From October 2015
- 200kW ~ 375kW: From October 2016
- 0.75kW ~ 37kW: From October 2018

Efficiency Levels

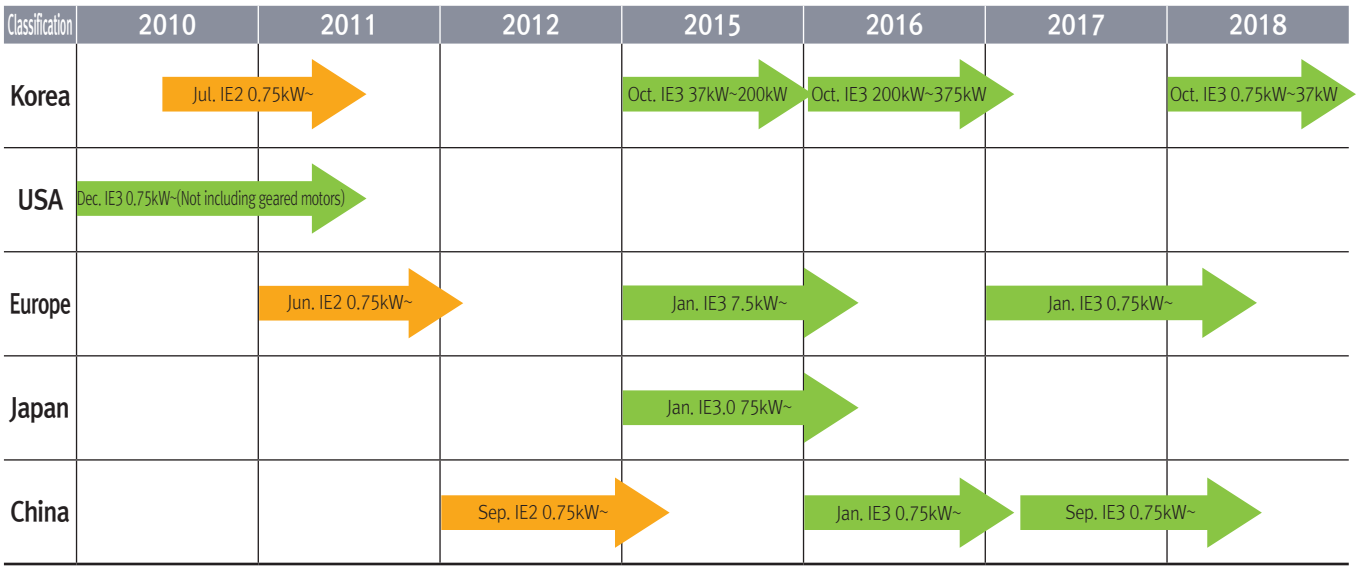
- Minimum high efficiency standards (IE2)
*MOTIE No. 2009-31

Rated output	Open drip proof				Totally Enclosed			
	2poles	4 poles	6 poles	8 poles	2 poles	4 poles	6 poles	8 poles
0.75kW	75.5	82.5	80.0	74.0	75.5	82.5	80.0	74.0
1.5kW	84.0	84.0	85.5	85.5	84.0	84.0	86.5	82.5
2.2kW	84.0	86.5	86.5	86.5	85.5	87.5	87.5	84.0
3.7kW	85.5	87.5	87.5	87.5	87.5	87.5	87.5	85.5
5.5kW	87.5	88.5	88.5	88.5	88.5	89.5	89.5	85.5
7.5kW	88.5	89.5	90.2	89.5	89.5	89.5	89.5	88.5
11kW	89.5	91.0	90.2	89.5	90.2	91.0	90.2	88.5
15kW	90.2	91.0	91.0	90.2	90.2	91.0	90.2	89.5
18.5kW	91.0	91.7	91.7	90.2	91.0	92.4	91.7	89.5
22kW	91.0	92.4	92.4	91.0	91.0	92.4	91.7	91.0
30kW	91.7	93.0	93.0	91.0	91.7	93.0	93.0	91.0
37kW	92.4	93.0	93.0	91.7	92.4	93.0	93.0	91.7
45kW	93.0	93.8	93.6	92.4	93.0	93.6	93.6	91.7
55kW	93.0	94.1	93.6	93.6	93.0	94.1	93.6	93.0
75kW	93.0	94.1	94.1	93.6	93.6	94.5	94.1	93.0
90kW	93.6	94.5	94.1	93.6	94.5	94.5	94.1	93.6
110kW	93.6	95.0	94.5	93.6	94.5	95.0	95.0	93.6
132kW	93.6	95.0	94.5	-	94.5	95.0	95.0	-
160kW	94.5	95.0	94.5	-	95.0	95.0	95.0	-
200kW	94.5	95.0	-	-	95.0	95.0	-	-

- Premium (IE3) standards
*MOTIE Notification No. 2015-28

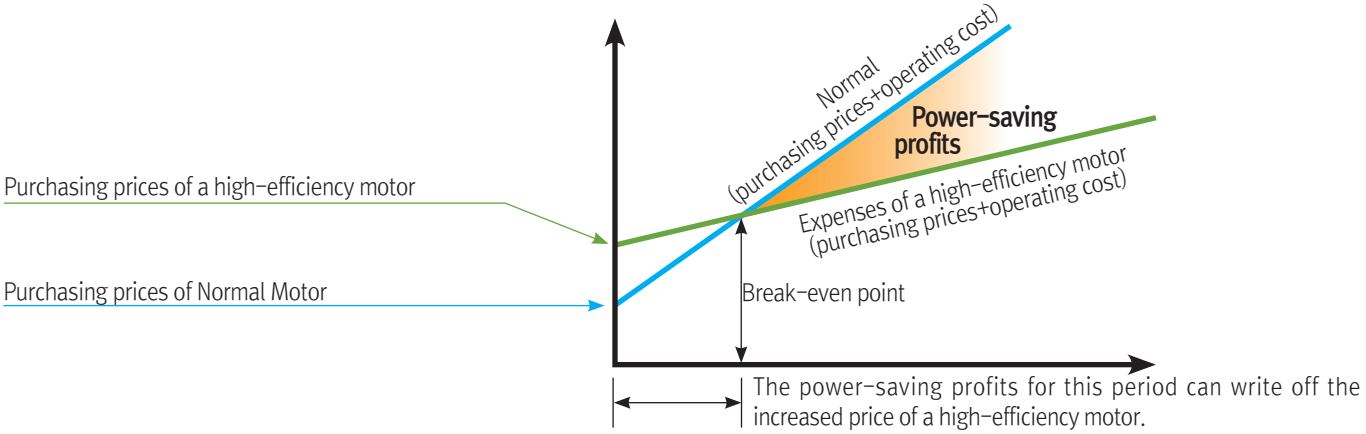
Rated output	Open drip proof				Totally Enclosed			
	2 poles	4 poles	6 poles	8 poles	2 poles	4 poles	6 poles	8 poles
0.75kW	77.0	85.5	82.5	-	77.0	85.5	82.5	75.5
1.5kW	85.5	86.5	87 5	-	85.5	86.5	88.5	84.0
2.2kW	85.5	89.5	88.5	-	86.5	89.5	89.5	85.5
3.7kW	86.5	89.5	89.5	-	88.5	89.5	89.5	86.5
5.5kW	88.5	91.0	90.2	-	89.5	91.7	91.0	86.5
7.5kW	89.5	91.7	91.7	-	90.2	91.7	91.0	89.5
11kW	90.2	93.0	91.7	-	91.0	92.4	91.7	89.5
15kW	91.0	93.0	92.4	-	91.0	93.0	91.7	90.2
18.5kW	91.7	93.6	93.0	-	91.7	93.6	93 0	90 2
22kW	91.7	94.1	93.6	-	91.7	93 6	93.0	91.7
30kW	92.4	94.1	94.1	-	92.4	94.1	94.1	91.7
37kW	93.0	94.5	94.1	-	93.0	94.5	94.1	92.4
45kW	93.6	95.0	94.5	-	93.6	95.0	94.5	92.4
55kW	93.6	95.0	94.5	-	93.6	95.4	94.5	93.6
75kW	93.6	95.4	95.0	-	94.1	95.4	95.0	93.6
90kW	94.1	95.4	95.0	-	95.0	95.4	95.0	94.1
110kW	94.1	95.8	95.4	-	95.0	95.8	95.8	94.1
132kW	94.5	95.8	95.4	-	95.4	95.8	95.8	94.5
160kW	95.0	95.8	95.4	-	95.4	96.2	95.8	94.5
200kW	95.0	95.8	95.4	-	95.8	96.2	95.8	94.5

Time and effects of motor efficiency regulation



Reason for application of high-efficiency motors : To improve the economic efficiency for a long-term period

While it is relatively expensive to buy owing to its high-efficiency design, it can save operating costs in proportion to operating time. Therefore, it is possible to offset increased prices within a short period of time.



Annual electric fee saving (KRW)

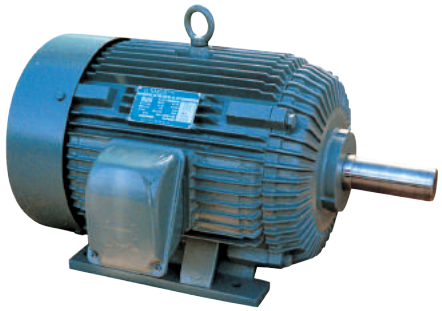
$$= \text{Output (kW)} \times \text{Operating time (hour/ year)} \times \text{Electric fee (KRW/kW)} \times \left[\frac{100}{\text{Efficiency of Normal motors (\%)}} - \frac{100}{\text{Efficiency of high-efficiency motors (\%)}} \right]$$

Example for calculation

Conditions for calculation		
Output	2.2kW	Annual electric fee saving Approx. 12,450 won
IE2 Efficiency of a high-efficiency motor	87.5%	
IE1 Efficiency of a standard motor	83%	
Annual operating time	1,600 hours (8 hours/day, 200 days)	
Electric fees	57 won/kWh	

Three Phase Induction Motor

Specification



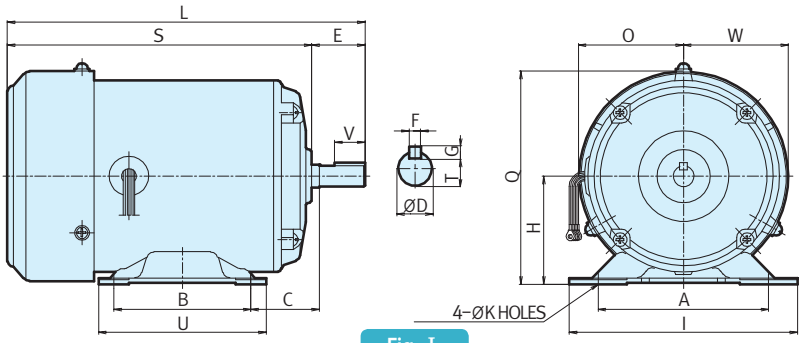


Fig Ⅰ

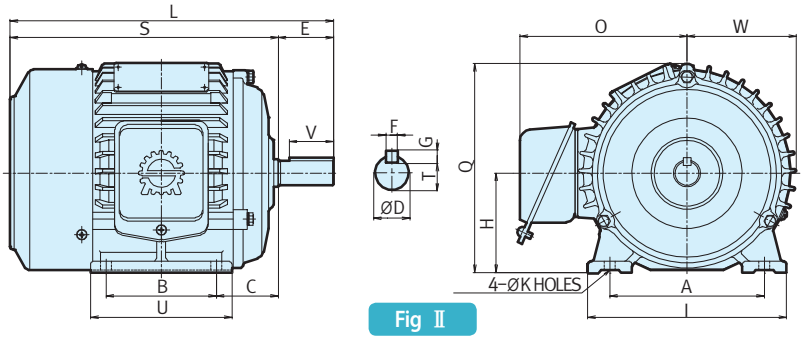


Fig Ⅱ

Frame No.	Output(kW)			Fig	DIMENSION(mm)							
	2P	4P	6P		L	S	W	Q	A	B	C	D
71	0.2	0.2		Ⅰ	235	205	69	140	112	90	45	14h6
71	0.4			Ⅰ	245	215	78	149	112	90	45	14h6
71		0.4		Ⅰ	245	215	78	149	112	90	45	14J6
80		0.4	0.2	Ⅱ	265	225	82	162	125	100	50	19j6
80M	0.75			Ⅱ	274	234	78	158	125	100	50	19h6
80M		0.75	0.4	Ⅱ	282	242	82	162	125	100	50	19J6
90S		0.75		Ⅱ	293	243	99	189	140	100	56	22h6
90L		1.5	0.75	Ⅱ	316	266	99	189	140	125	56	24h6
90	1.5			Ⅱ	329	279	94	184	140	125	56	24h6
100L		2.2	1.5	Ⅱ	352	292	107	208	160	140	63	28j6
100L	2.2			Ⅱ	358	308	94	194	160	140	63	24h6
100L	3.7			Ⅱ	355	295	99	194	160	140	63	28h6
112S		2.2	1.5	Ⅱ	343	283	114	226	190	114	70	28h6
112M		3.7	2.2	Ⅱ	375	315	114	226	190	140	70	28j6
132S	5.5	5.5	3.7	Ⅱ	440	360	139	271	216	140	89	38k6
132M	7.5	7.5	5.5	Ⅱ	478	398	139	271	216	178	89	38k6
160M	11	11	7.5	Ⅲ	566	456	159	319	254	210	108	42k6
160L	15	15	11	Ⅲ	606	496	159	319	254	254	108	42k6
180M	18.5	18.5		Ⅲ	647	537	179	359	279	241	121	48k6
180M	22	22	15	Ⅲ	647	537	179	359	279	241	121	48k6
180L		30	18.5/22	Ⅲ	669	559	179	359	279	279	121	55m6
200L		37	30/37	Ⅲ	732	592	201	401	318	305	133	60m6
200L		45		Ⅲ	787	647	201	401	318	305	133	60m6
225S		55		Ⅲ	874	734	237	462	356	311	149	65m6
250S		75	55	Ⅳ	918	778	266	516	406	311	168	75m6
250M		90	75	Ⅳ	940	800	261	700	406	349	168	75m6
280S		110	90	Ⅳ	1060	890	289	805	457	368	190	85m6
280M		132	110	Ⅳ	1115	945	289	805	457	419	190	85m6
280L		160	132	Ⅳ	1265	1095	289	805	457	457	190	85m6

▶External appearance and size can be changed without an advance notice to improve product performance.

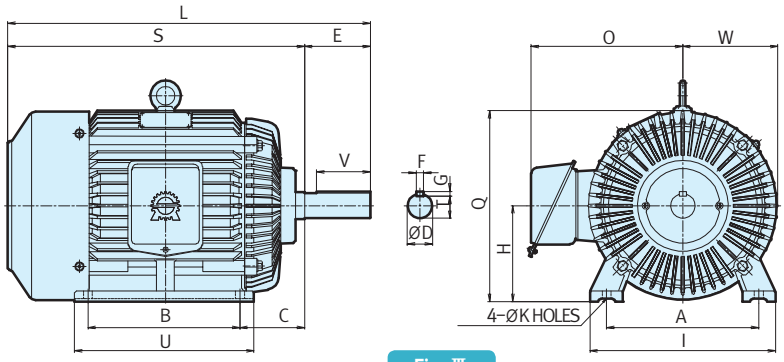


Fig Ⅲ

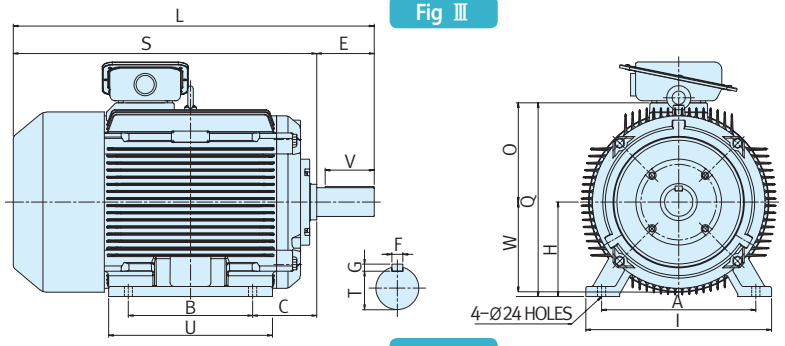


Fig Ⅳ

- Voltage :
  - 220V,220/380V,380V,220/440V,440V
- Frequency : 60Hz(50Hz)
- Poles : 2P,4P,6P,8P,2/4P,4/6P,4/8P
- rpm : 3,600(3,000),1,800(1,500)
  1,200(1,000),900(750)
- Type of Enclosure : Totally Enclosed
- Cooling System : Fan Cooled Type
- Rating : Continuous
- Insulation Class : B,F grade

DIMENSION(mm)							KEY SIZE			BEARING		WEIGHT
E	H	I	K	U	T	O	F	G	V	LOAD	UN-LOAD	(Kg)
30	71	150	7	110	11	69	5	5	20	6202zz	6202zz	7
30	71	144	7	120	11	126	5	5	20	6204zz	6202zz	13
30	71	144	7	120	11	126	5	5	20	6204zz	6202zz	13
40	80	165	10	130	16	135	5	5	30	6204zz	6203zz	13
40	80	155	10	136	16	131	5	5	30	6204zz	6203zz	15
40	80	165	10	140	15.5	135	6	6	25	6204zz	6203zz	15
50	90	180	10	128	18	152	7	7	40	6205zz	6204zz	18
50	90	180	10	148	20	152	8	7	40	6205zz	6204zz	23
50	90	170	10	150	20	147	7	7	40	6205zz	6205zz	23
60	100	208	12	170	24	174	8	7	50	6206zz	6205zz	30
50	100	198	12	175	20	147	7	7	40	6206zz	6205zz	28
60	100	200	12	176	24	152	7	7	50	6206zz	6205zz	38
60	112	230	12	146	24	179	7	7	50	6206zz	6205zz	32
60	112	230	12	170	24	179	8	7	50	6206zz	6205zz	40
80	132	265	12	177	33	224	10	8	60	6308zz	6306zz	57
80	132	265	12	215	33	224	10	8	60	6308zz	6306zz	67
110	160	310	15	260	37	249	12	8	90	6309zz	6208zz	106
110	160	310	15	300	37	249	12	8	90	6309zz	6208zz	127
110	180	349	15	295	42.5	299	14	9	90	6310zz	6309zz	160
110	180	349	15	295	42.5	299	14	9	90	6310zz	6309zz	175
110	180	349	15	318	49	299	16	10	90	6312zz	6309zz	240
140	200	390	19	350	53	323	18	11	110	6313zz	6311zz	256
140	200	390	19	380	53	323	18	11	110	6313zz	6311zz	266/256
140	225	432	19	480	58	398	18	11	110	6314zz	6311zz	320
140	250	514	24	480	67.5	430	20	12	110	6317zz	6313zz	371
140	250	500	24	480	67.5	450	20	12	110	6316zzC3	6313zzC3	550
170	280	550	24	540	76	525	22	14	125	6319zzC3	6316zzC3	690
170	280	550	24	540	76	525	22	14	125	6319zzC3	6316zzC3	810
170	280	550	24	540	76	525	22	14	130	6319zzC3	6316zzc3	1090

▶External appearance and size can be changed without an advance notice to improve product performance.

Three Phase Induction Motor (Flange Type)

Specification

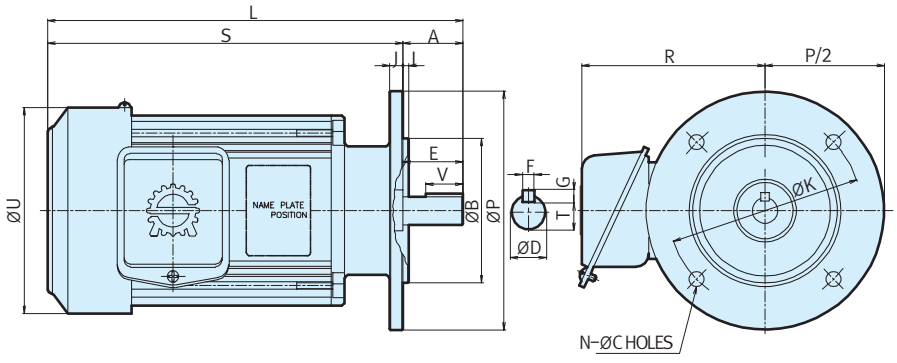


Fig Ⅰ

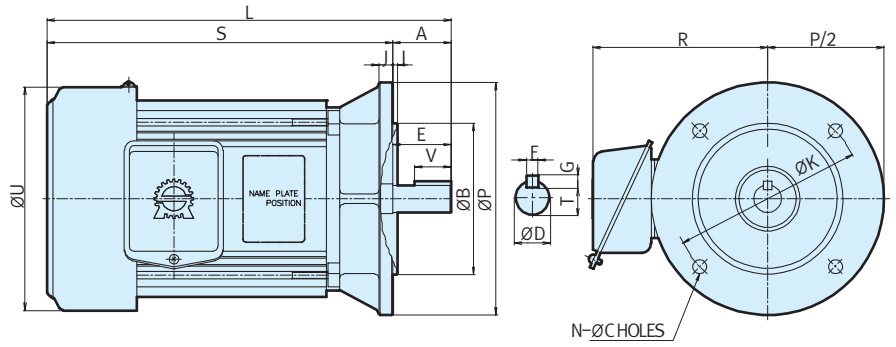


Fig Ⅱ

Frame No.	Output(kW)			Fig	DIMENSION(mm)							
	2P	4P	6P		L	S	R	A	B	C	D	E
71	0.2	0.2		Ⅰ	258	228	123	30	110	10	14	30
FF130	0.4	0.4		Ⅰ/Ⅱ	278	238	123	40	110	10	14	40
71	0.75	0.4		Ⅱ	278	238	123	40	110	12	19	40
80S		0.75	0.4	Ⅰ	297	257	127	40	110	12	19	40
FF165		0.75	0.4	Ⅰ	286	236	135	50	130	12	19	50
FF165	1.5	1.5	0.75	Ⅱ	347	297	150	50	130	12	24	50
FF165	2.2			Ⅱ	380	330	156	50	130	12	24	50
FF215		2.2	1.5	Ⅱ	379	319	170	60	180	15	28	60
FF215	3.7	3.7	2.2	Ⅱ	409	349	170	60	180	15	28	60
FF265	5.5	5.5	3.7	Ⅲ	450	370	228	80	230	15	38	80
FF265	7.5	7.5	5.5	Ⅲ	488	408	228	80	230	15	38	80
FF300		11	7.5	Ⅲ	621	511	238	110	250	19	42	110
FF300		15	11	Ⅲ	641	531	238	110	250	19	42	110
FF300		18.5/22		Ⅲ	683	573	302	110	250	19	48	110
FF300			15	Ⅲ	688	578	300	110	250	19	48	110
FF300		30	18.5/22	Ⅲ	725	615	311	110	250	19	55	110
FF350		37/45	30/37	Ⅲ	820	680	311	140	300	19	60	140
FF400		55	45	Ⅲ	867	727	375	140	350	19	65	140
FF500		75	55	Ⅲ	945	805	398	140	450	19	75	140
FF500		90	75	Ⅲ	940	800	450	140	450	19	75	140
FF500		110	90	Ⅲ	1060	890	520	170	450	24	85	170
FF500		132	110	Ⅲ	1115	945	520	170	450	24	85	170

▶External appearance and size can be changed without an advance notice to improve product performance.

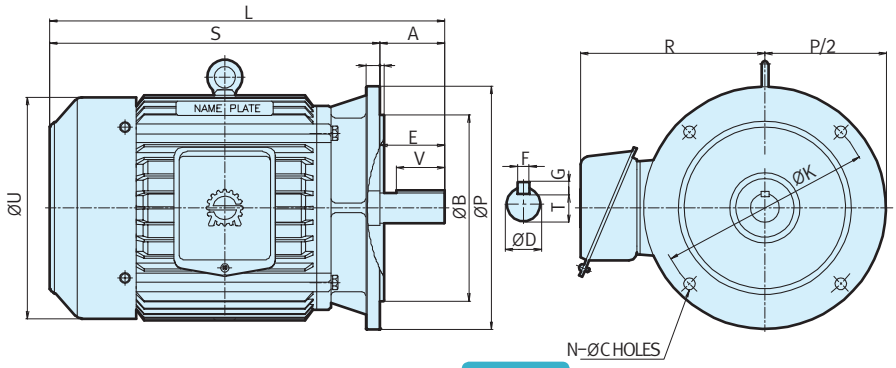


Fig Ⅲ

- Voltage : 220V,220/380V,380V,220/440V,440V
- Frequency : 60Hz(50Hz)
- Poles : 2P,4P,6P,2/4P,4/6P,4/8P
- rpm : 3,600(3,000), 1,800(1,500), 1,200(1,000), 900(750)
- Type of Enclosure : Totally Enclosed
- Cooling System : Fan Cooled Type
- Rating : Continuous
- Insulation Class : B,F grade

DIMENSION(mm)							KEY SIZE			BEARING		WEIGHT
I	J	K	N	P	T	U	F	G	V	LOAD	UN-LOAD	(Kg)
4	9	130	4	160	11	138	5	5	20	6204zz	6202zz	6
4	9	130	4	160	16	138	5	5	25	6202zz	6202zz	8
4	9	130	4	160	16	138	5	5	30	6204zz	6203zz	14
4	9	130	4	160	16	158	5	5	30	6204zz	6203zz	13
4	12	165	4	200	18	160	6	6	35	6205zz	6203zz	16
4	12	165	4	200	20	192	8	7	40	6205zz	6204zz	25
4	10	165	4	200	20	182	8	7	40	6205zz	6204zz	34
4	12	215	4	250	24	232	8	7	50	6206zz	6205zz	37
5	15	215	4	250	24	232	8	7	50	6206zz	6205zz	45
5	17	265	4	300	33	274	10	8	60	6308zz	6306zz	51/63
5	17	265	4	300	33	274	10	8	60	6308zz	6306zz	63/73
5	20	300	4	350	37	315	12	8	90	6310zz	6208zz	128
5	20	300	4	350	37	315	12	8	90	6310zz	6208zz	135
5	24	300	4	350	42.5	358	14	9	90	6311zz	6309zz	171/184
5	26	300	4	350	43	358	14	9	90	6311zz	6309zz	248
5	26	300	4	350	49	398	16	10	90	6312zz	6311zz	248
5	26	350	8	400	53	398	18	11	110	6313zz	6311zz	268/274
5	30	400	8	400	58	441	18	11	110	6315zzC3	6311zzC3	332
5	30	500	8	550	67.5	480	20	12	110	6317zzC3	6313zzC3	381/394
5	22	500	8	550	67.5	480	20	12	110	6316zzC3	6313zzC3	550
6	25	500	8	550	76	540	22	14	130	6319zzC3	6316zzC3	690
6	25	500	8	550	76	540	22	14	130	6319zzC3	6316zzC3	810

▶External appearance and size can be changed without an advance notice to improve product performance.

Three Phase Induction Motor (For Wood Work)

Specification

- Voltage : 220V,220/380V,380V,220/440V,440V
- Frequency : 60Hz(50Hz)
- Poles : 2P
- rpm : 3,600(3,000)
- Type of Enclosure : Totally Enclosed
- Cooling System : Fan Cooled Type
- Rating : Continuous
- Insulation Class : B,F grade

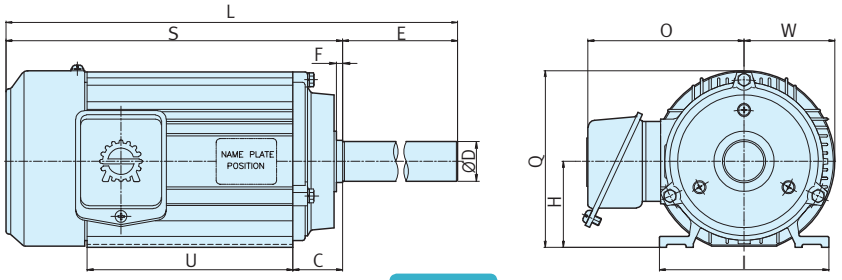


Fig I

Frame No.	Output(kW)		Fig	DIMENSION(mm)												BEARING		WEIGHT (Kg)
	POLE	Kw		L	S	W	C	Q	D	E	F	H	I	U	O	LOAD	UN-LOAD	
71S	2	0.75	I	411	278	75	41	146	33	133	5	71	140	170	129	6207zz	6204zz	16
71L	2	1.5	I	436	303	75	41	146	33	133	5	71	140	195	129	6207zz	6204zz	18
90S	2	2.2	I	467	334	91	39	181	33	133	5	90	170	210	143	6208zz	6205zz	25
90M	2	3.7	I	508	354	91	39	181	33	154	5	90	170	230	143	6208zz	6205zz	28
90L	2	5.5	I	528	374	91	39	181	33	154	5	90	170	250	143	6208zz	6205zz	33

▶External appearance and size can be changed without an advance notice to improve product performance.

Three Phase Induction Motor (For Hydraulic Pump Type)

- Voltage : 220V,220/380V,380V,220/440V,440V
- Frequency : 60Hz(50Hz)
- Poles : 4P
- rpm : 1,800(1,500)
- Type of Enclosure : Totally Enclosed
- Cooling System : Fan Cooled Type
- Rating : Continuous
- Insulation Class : B,F grade

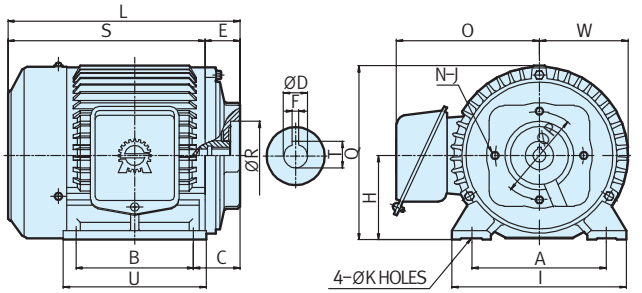


Fig Ⅰ

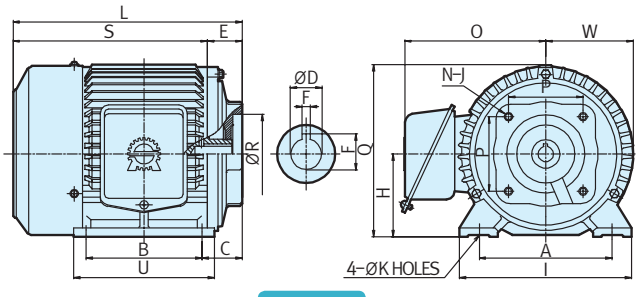


Fig Ⅱ

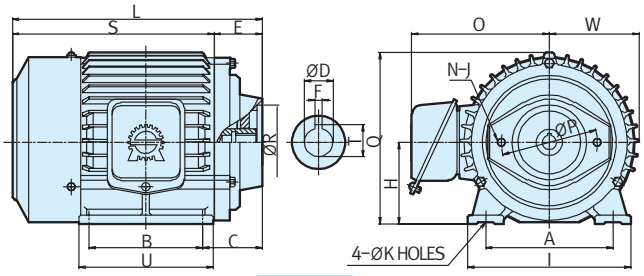


Fig Ⅲ

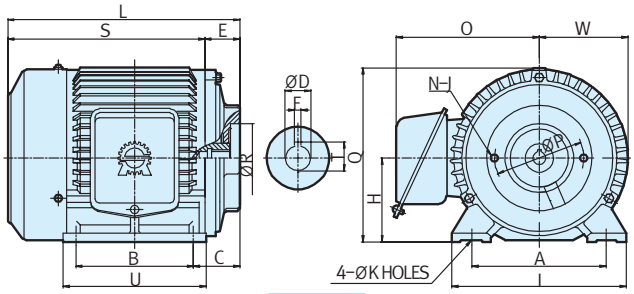


Fig Ⅳ

Frame No.	Output		FIG	DIMENSION(mm)																					BEARING		WEIGHT (Kg)
	POLE	Kw		L	S	E	A	B	C	D	O	W	P	H	Q	R	N	J	I	K	U	T	F	LOAD	UN-LOAD	
80	4	0.75	Ⅳ	239	205	34	125	100	56.5	15.88	134.5	82	106.4	80	162	82.55	2	M10	165	10	140	17.74	3.98	6206zz	6203zz	20
90S	4	0.75	Ⅲ	249	202	47	140	100	62	12.7	152	99	82	90	189	50.8	2	M10	180	10	128	14.5	3.2	6205zz	6204zz	20
90S	4	0.75	Ⅲ	255	202	53	140	100	68	15.88	152	99	106.4	90	189	82.55	2	M10	180	10	128	17.74	3.98	6206zz	6204zz	20
90L	4	1.5	Ⅱ	261	222	39	140	125	51.5	19.05	152	99	90	90	189	95.02	4	M10	180	10	148	21.5	4.77	6207zz	6204zz	23
90L	4	1.5	Ⅳ	275	222	50	140	125	65.5	19.05	152	99	106.4	90	189	82.55	2	M10	180	10	148	21.5	4.77	6207zz	6204zz	23
90L	4	1.5	Ⅳ	275	222	53	140	125	65.5	15.88	152	99	106.4	90	189	82.55	2	M10	180	10	148	17.74	4	6207zz	6205zz	23
90L	4	1.5	Ⅲ	275	222	53	140	125	65.5	12.7	152	99	106.4	90	189	82.55	2	M10	180	10	148	14.5	3.2	6206zz	6204zz	24
90L	4	1.5	Ⅰ	261	222	39	140	125	51.5	19.05	152	99	105.6	90	189	82.55	4	M10	180	10	148	21.5	4.77	6207zz	6204zz	23
100L	4	2.2	Ⅱ	276.5	234.5	42	160	140	48.5	19.05	170	106.5	90	100	207.5	95.02	4	M10	208	12	170	21.5	4.77	6207zz	6205zz	30
100L	4	2.2	Ⅳ	293	244	49	160	140	55.5	19.05	173	108	106.4	100	208	82.55	2	M10	208	12	170	21.5	4.77	6207zz	6205zz	30
100L	4	2.2	Ⅳ	293	244	49	160	140	55.5	15.88	173	108	106.4	100	208	82.55	2	M10	208	12	170	17.74	3.98	6207zz	6205zz	30
112S	4	2.2	Ⅱ	270	228	42	190	114	57	19.05	177	115	90	112	227	95.02	4	M10	230	12	146	21.5	4.77	6207zz	6205zz	32
112S	4	2.2	Ⅰ	270	228	42	190	114	57	19.05	177	115	105.6	112	227	82.55	4	M10	230	12	146	21.5	4.77	6207zz	6205zz	32
112M	4	3.7	Ⅲ	318	258	60	190	140	75	22.23	177	115	146	112	227	101.6	2	M14	230	12	170	25.12	6.38	6008zz	6205zz	40
112M	4	3.7	Ⅰ	300	258	42	190	140	57	15.88	177	115	106.4	112	227	82.55	4	M10	230	12	170	17.74	3.98	6207zz	6205zz	39
112M	4	3.7	Ⅰ	300	258	42	190	140	57	19.05	177	115	106.4	112	227	82.55	4	M10	230	12	170	21.5	4.77	6207zz	6205zz	39
112M	4	3.7	Ⅱ	300	258	42	190	140	57	19.05	177	115	90	112	227	95.02	4	M10	230	12	170	21.5	4.77	6207zz	6205zz	39
132S	4	5.5	Ⅴ	337	292	45	216	140	66	19.05	224	139	146	132	271	101.6	4	M12	265	12	177	25.12	6.38	6308zz	6306zz	57
132M	4	7.5	Ⅴ	375	330	45	216	178	66	19.05	224	139	146	132	271	101.6	4	M12	265	12	215	25.12	6.38	6308zz	6306zz	67

▶External appearance and size can be changed without an advance notice to improve product performance.

Single Phase Induction Motor

Specification

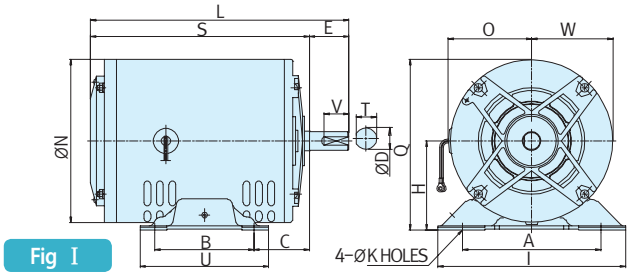


Fig Ⅰ

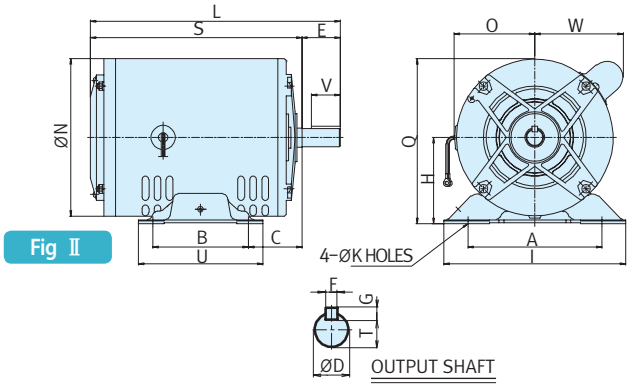


Fig Ⅱ

Starting Method	FRAME No.	OUTPUT		Fig	DIMENSION(mm)							
		POLE	kW		L	S	A	B	C	D	E	H
Split phase starting	71	4	0.2	Ⅰ	230	200	112	90	45	14h6	30	71
Capacitor starting	71	4	0.25	Ⅱ	240	210	112	90	45	14h6	30	71
	90	4	0.4	Ⅱ	261	221	140	100	56	19j6	40	90
	90	4	0.55	Ⅱ	276	236	140	100	56	19j6	40	90
	90L	4	0.75	Ⅱ	291	251	140	125	56	19j6	40	90
	90L	4	1.1	Ⅱ	311	271	140	125	56	19j6	40	90
	114	4	1.1	Ⅱ	314	264	190	114	70	22h6	50	114.3
	114S	4	1.5	Ⅱ	329	279	190	114	70	22h6	50	114.3
Capacitor Starting & Run	90L	4	1.5	Ⅲ	324	246	140	100	56	22h6	78	90
	114M	4	2.2	Ⅳ	349	289	190	140	70	28h6	60	114.3
	114L	4	3.7	Ⅳ	359	299	190	140	70	28h6	60	114.3

▶External appearance and size can be changed without an advance notice to improve product performance.

Fig Ⅲ

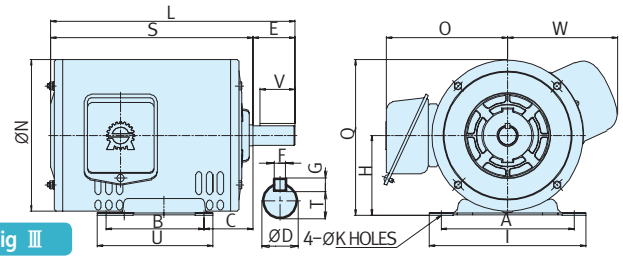
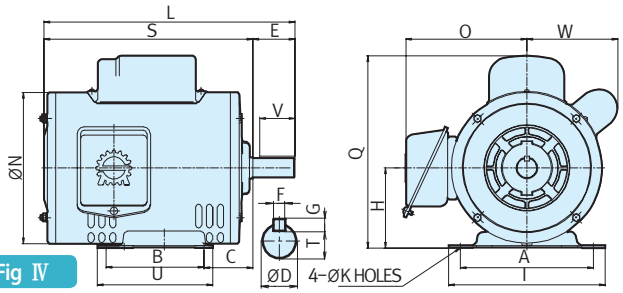


Fig Ⅳ



- Voltage : 220V
- Frequency : 60Hz(50Hz)
- Poles : 4P
- rpm : 1,800(1,500)
- Type of Enclosure : Open Drip-Proof
- Rating : Continuous
- Insulation Class : B,F grade
- Starting Method :

– Split Phase Starting
– Capacitor Starting
– Capacitor Starting & Run

DIMENSION(mm)								KEY SIZE			BEARING		WEIGHT
Q	I	K	O	W	N	U	T	F	G	V	LOAD	UN-LOAD	(Kg)
138	150	7	69	67	134	110	13			25	6202zz	6202zz	7
138	150	7	69	85	134	110	13			25	6202zz	6202zz	8
172.3	190	10	84	92	165	130	16	6	6	30	6204zz	6203zz	11
173	190	10	139	97	165	155	16	6	6	30	6204zz	6203zz	13
172.3	190	10	84	97	165	155	16	6	6	30	6204zz	6203zz	16
178	190	10	84	100.7	165	155	16	6	6	30	6204zz	6203zz	28
172.5	190	12	84.8	123.5	165	155	20	7	7	45	6205zz	6203zz	32
222.5	224	12	173	122	216.4	165	18	7	7	40	6206zz	6204zz	21
222.5	224	12	173	125	216.4	165	18	7	7	40	6206zz	6204zz	32
222.5	224	12	173	157	216.4	165	24	7	7	50	6206zz	6204zz	35
275	224	12	173	130	216.4	165	24	7	7	50	6206zz	6204zz	38

▶External appearance and size can be changed without an advance notice to improve product performance.

Single Phase Induction Motor (Cradle Base Type)

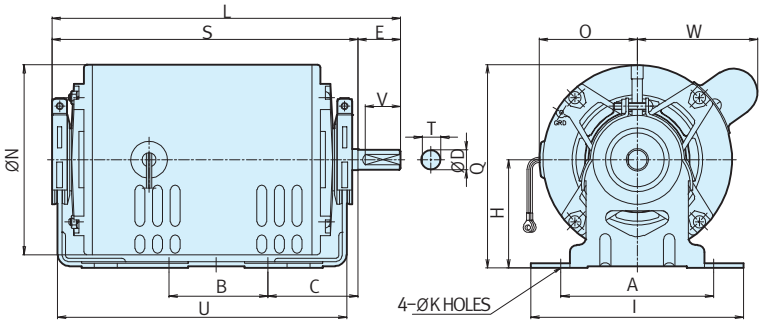


Fig Ⅰ

FRAME No.	OUTPUT		FIG	DIMENSION(mm)															KEY SIZE			BEARING		WEIGHT (Kg)
	POLE	kW		L	S	A	B	C	D	E	H	Q	I	K	O	W	N	U	T	F	G	V	LOAD	UN-LOAD	
48	4	0.2	Ⅰ	246	216	107.7	69.85	63.5	14h6	30	76.2	143.2	150	9	69	85	134	204	13	-	-	25	6202zz	6202zz	7
48	4	0.25	Ⅰ	246	216	107.7	69.85	63.5	14h6	30	76.2	143.2	150	9	69	85	134	204	13	-	-	25	6202zz	6202zz	9
56	4	0.4	Ⅱ	301	261	124	76.2	70	19j6	40	94	176.3	165	10	84	97	165	248	15.5	6	6	30	6204zz	6203zz	12
56	4	0.55	Ⅱ	301	261	124	76.2	70	19j6	40	94	176.3	165	10	84	97	165	248	15.5	6	6	30	6204zz	6203zz	14
56	4	0.75	Ⅱ	301	261	124	76.2	70	19j6	40	94	176.3	165	10	84	97	165	248	15.5	6	6	30	6204zz	6203zz	16

Single Phase Induction Motor (Agricultural Dryer & Fan Type)

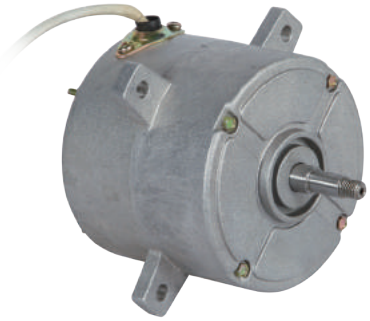


Fig Ⅰ

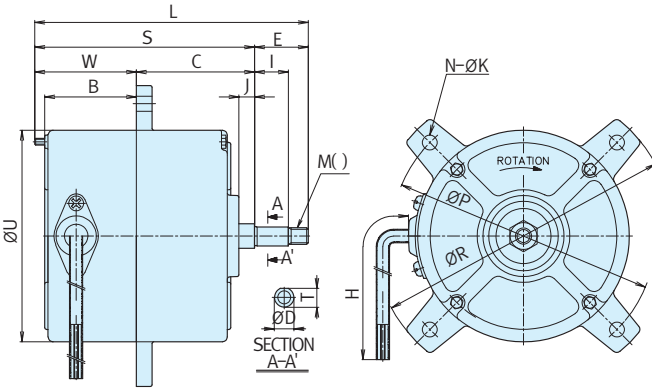
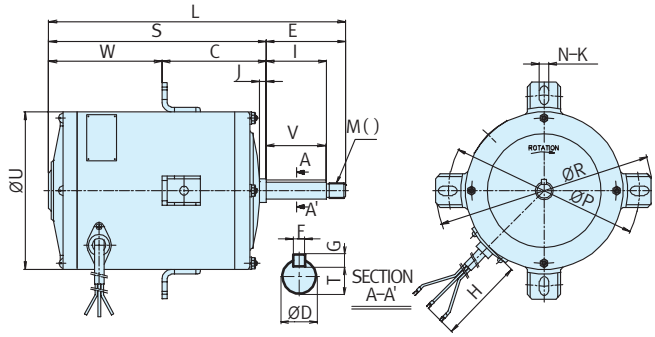


Fig Ⅱ



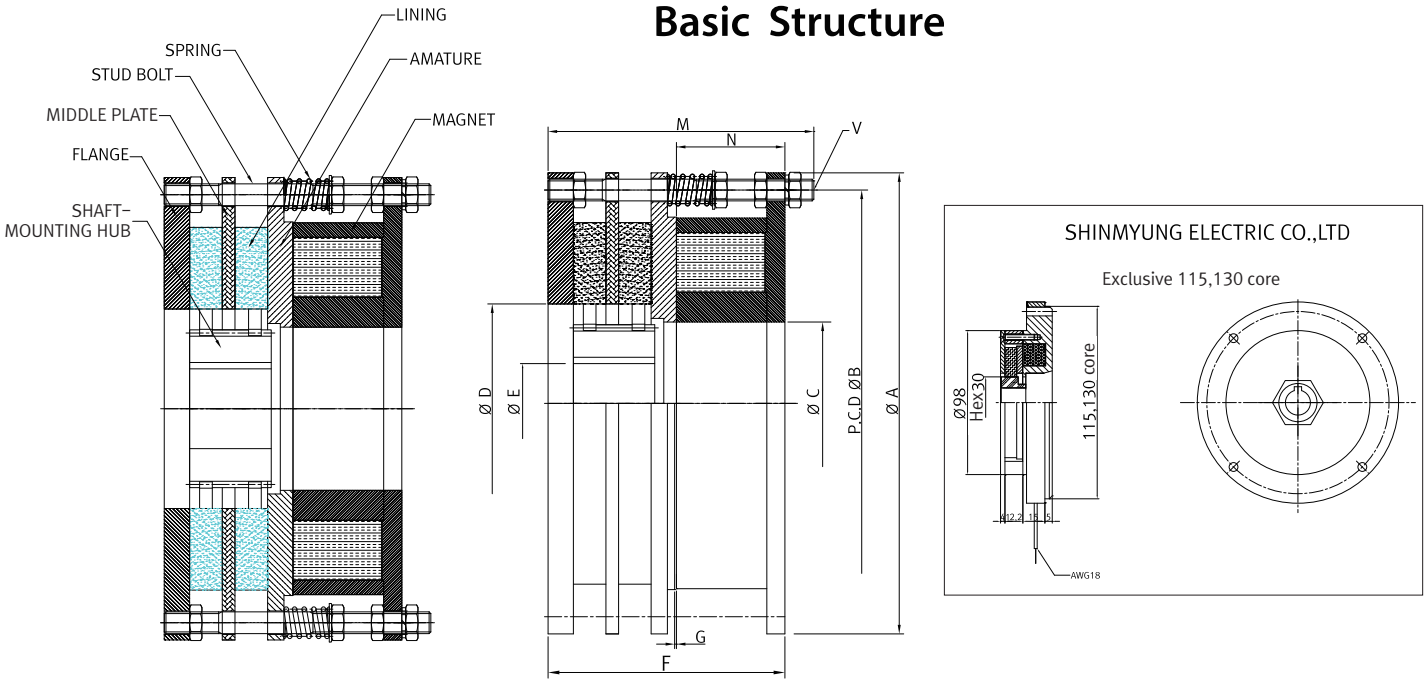
FRAME No.	OUTPUT		FIG	DIMENSION(mm)																	KEY SIZE			BEARING		WEIGHT (Kg)
	POLE	kW		L	S	E	C	W	B	J	M	U	D	H	N	K	P	R	T	F	G	V	LOAD	UN-LOAD	
71M	4	0.25	Ⅰ	165.4	133	32.4	71.5	61.5	55.5	9.5	10(Left)	128	12	1100	4	9	160	182	11.5	-	-	-	6202zz	6202zz	5
·	4	0.75																							
·	4	1.01																							
·	4	1.1																							
·	4	1.35																							
·	4	1.5																							
·	4	2.2																							

For order production of the above-mentioned size-information requests expected

▶External appearance and size can be changed without an advance notice to improve product performance.

Brake Option

Basic Structure



Features

1. Best as a safety brake
2. Large braking torque
3. Controllable torque and easy attachment
4. Long life and easy repairing
5. Beautiful external appearance with DC power supply system attached in terminal box
6. Good response and durability

HDB Type Brake Dimension

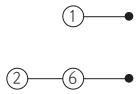
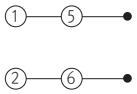
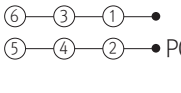
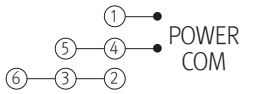
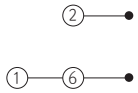
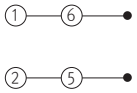
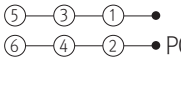
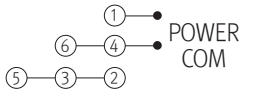
No.	A	B	C	D	E	F	G	N	M	V	Motor
HDB-02	105	95	30	40	13	68	0.3	35	75	3-M6	0.4kw
HDB-03	130	115	39	44	15	73	0.3	38	84	3-M8	0.75kw
HDB-04	145	130	50	55	17	77	0.3	40	90	3-M10	1.5kw
HDB-05	165	147	55	70	21	77	0.3	40	90	3-M10	2.2kw
HDB-06	165	147	55	70	23	92	0.5	40	105	3-M10	3.7kw
HDB-07	210	198	72	90	23	94	0.5	45	105	6-M10	5.5kw
HDB-08	210	198	72	90	25	117	0.7	45	130	6-M10	7.5kw
HDB-09	255	236	90	110	44	132	0.7	60	150	6-M12	15kw
HDB-10	255	236	90	110	50	132	0.7	60	150	6-M12	22kw
HDB-11	280	255	90	120	55	132	0.7	60	150	6-M12	30kw
HDB-12	280	255	90	120	58	132	0.7	60	150	6-M12	37kw

Type	HDB-02	HDB-03	HDB-04	HDB-05	HDB-06	HDB-07	HDB-08	HDB-09	HDB-10	HDB-11	HDB-12	HDB-13	HDB-14
Torque(kg.m)	0.8	1.6	3.0	3.5	8.0	12	16	30	36	48	60		
Voltage(DC V)	DC 90 (DC190, DC24)												
Current(DC A)	0.21	0.31	0.45	0.59	0.59	1.33	1.36	1.65	1.65	1.85	1.85		
Capacity(Watt)	19.6	28.0	40	53	53	120	122	150	150	166	166		

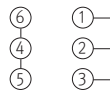
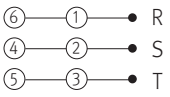
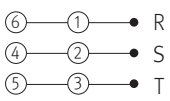
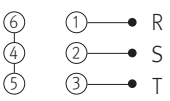
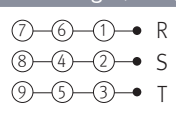
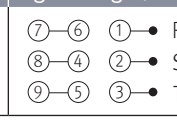
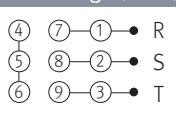
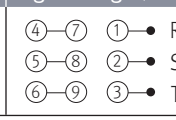
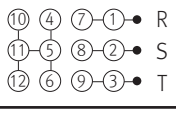
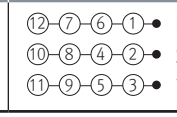
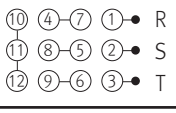
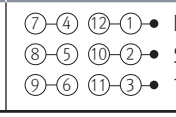
▶External appearance and size can be changed without an advance notice to improve product performance.

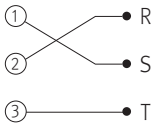
Motor Connection Diagram

1) Single-phase connection

	SINGLE VOLTAGE		DOUBLE VOLTAGE	
	3 Leads out	4 leads out	Low voltage	High Voltage
Normal rotation				
Reversal rotation				

2) Three-phase connection

	3 Leads Out	6 Leads out		Reversal Rotation
	Direct starting	Y- Starting	ΔOperation (Direct Starting)	
Single Voltage				
	Low-voltage 220V (Δ Connection)		High-voltage: 380V (Y Connection)	
Dual Voltage 220V/380V	 Y-Δ Start-up possible 6 strands for connection Same except for retrieval		 Y- ΔStartup impossible	
	9 Leads out			
	Low voltage (220V)	High Voltage (440V)	Low voltage (220V)	High Voltage (440V)
Double Voltage(1) 220V/440V *Y-ΔStartup impossible				
	Connections within electronic motor (Δ Connection)		Connections within electronic motor (Y Connection)	
	12 leads out			
	Low voltage (220V)		High Voltage (440V)	
	Y Startup	ΔOperation (direct startup)	Y Startup	ΔOperation (direct startup)
Double Voltage(2) 220V/440V *Y-Δ Startup				

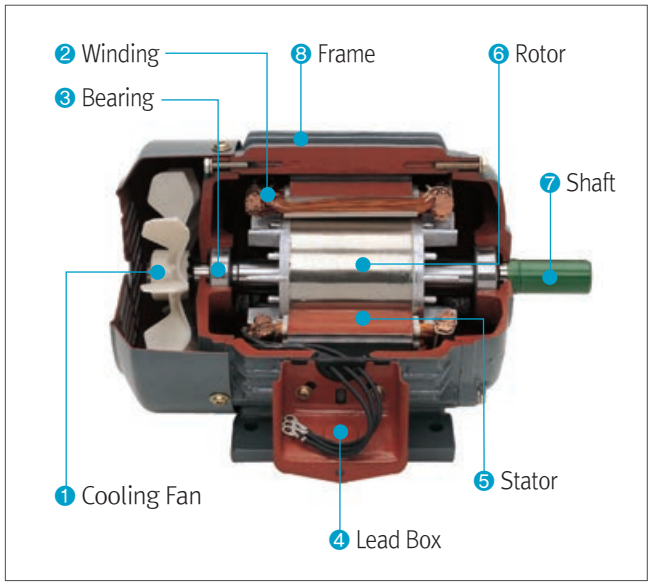


Electric motor troubles and checking List

Phenomenon	Cause	Checking list
Starting Troubles	• Frost formation (poor power supply checkup, coil disconnection) • Less of Starting torque & Over Loading	• Check power supply • Check winding resistance • Check load condition • Check bearing constrain state
Overheating	• Overload • Power supply trouble (like overvoltage) • Winding trouble • Rotor hit Stator ID • Bad ventilation	• Check electric current (same with or less than electric current written on rating plate) • Check voltage, frequency • Measure winding • Measure air gap • Check factors preventing ventilation
Rapid speed drop under loading	• Voltage drop • Overload • Incorrect Y-⊿ Connection	• Check power line • Check load condition • Check contact
Serious vibration	• Incorrect Loading connection • Bearing failure • Disconnected 1 phase operating • Shaking fixing supporter	• Check load connection, replace bearings • Check power supply and measure winding resistance • Strong mounting
Bearing overheating and noise	• Incorrect load connection • Grease shortage • Excessive tension	• Check load connection • Supplement grease • Adjust tension

Motor Instruction Manual

1 Configuration of parts



I sincerely thank customers for buying products of Shinmyung Electric. Shinmyung equipped with competent technical workers and ultra-precision machinery does its best to make high-quality products by strictly managing quality. We ask customers to be fully aware of this instruction before testing and using our products in order to prevent safety accidents and maintain the best performance of the products.

2 Installation place and suggestions for installation

Installation place

- Install the products at places where ambient temperature is 40℃ or lower.
- To use the products for long, they should be installed in dry and well-ventilated places.

Suggestions for installation

- Please check if there are something that can cause problems before operating electric motors
- Bolts for fixing motors should fit motor base holes and washers should be used for connecting bolts to prevent them from being loosened by vibration.
- Be careful not to put high strain to the shaft while connecting a pulley and a coupling. If a shock is given to the shaft, bearings can be damaged and there can be strange sound.
- While conveying turning force using a belt, the load point should be inside the shaft end, or close to the motor.
- The pulley and the coupling should be balanced while being used. If they are not balanced, bearings can be worn and there can be vibration.

3 Matters to be observed

- Wiring should be done following standards for electric facilities, wiring rules and KEPCO regulations.
- Grounding should be done using attached earth bolts.
- Be careful not to drop insulation efficiency by rain or water while installing or keeping the products at outdoor places and to prevent rust from being formed in shafts and outside and inside of electronic motors.
- For using the products for long time, the level of electric current should be lower than that written on the rating plate.
- Don't put inflammable substances on the surface of electric motors or around them to prevent fires.
- Be sure to equip devices to protect electric motors.
- It is highly dangerous to change motors arbitrarily to use them for special purposes.
- While operating motors of 3Ø 4P 7.5kW(6P 5.5kW) or higher, right Y-△ switches and starting compensators should be chosen.

4 Check before operation and right operation method

Check before operation

- Check if supplied power is same with that of the rating plate.
- Check if connection was done following the circuit diagram of the rating plate.
- Check if shafts of electric motors by turning them with hands.
- Check if capacities of switches and breakers are same with those of electric motors.

Right operation method

- Check the rotation direction. If the rotation direction is wrong, power supply should be cut and the direction should be changed according to connection of the rating plate and instructions.
- Check if the electric current in full load is same or less than that of the rating plate. If the electric current is higher than that of the rating plate, it can cause problems in motors due to overload. In that case, load should be adjusted.
- Check if there is noise or serious vibration in bearings during operation.
- While opening or closing switches, connection or blocking should be done rapidly. If connection is not complete while injecting switches, power facilities and motors can be affected.
- Load should be light as much as possible and load should be put when motors rotate in full speed. If load is put before motors rotate in full speed, motors may stop because they don't bear load.
- During a blackout, switches should be turned off.

5 Spot check and regular check

Spot check

- Check if the electric current is same with or lower than rating electric current of the rating plate during operation. If the figure is higher than that written on the rating plate, there can be overload.
- Check if there are no problems in bearing noise and vibration.
- Check if there are loose motor fixing bolts.
- Check if belt tension is proper while using belts.

Regular check

- Dust or dirt inside and outside of motors can cause troubles in cooling effects or insulation performance, so they should be cleaned using clean cloth or brushes.
- Precaution: Windings should not be cleaned with matters affecting insulation, such as solvent, thinner and water.
- Parts loosened from vibration should be perfectly connected to prevent motor troubles.
- Winding connection and insulation conditions should be checked regularly to prevent electric leakage and shock which may cause property damages and casualties.
- Proper lubricants should be injected regularly in bearings and sealed bearings should be replaced regularly.

6 Electric Motor troubles and measures for them

Trouble	Cause	Measure
No Starting and Troubles	1.Power switches are blocked. 2.Rating voltage is low 3.Winding or circuits are disconnected. 4.The fuse is blown. 5.There is overloading. 6.Starters have problems. 7.Bearings are worn or have troubles. 8.There are troubles in centrifugal switches. (in case of single-phase) 9.Capacitor has problems. (in case of single-phase)	1.Connect power switches. 2.Check if it is the rating voltage. 3.Measure the resistance and check circuits. 4.Replace with a right fuse. 5.Check load conditions and adjust load. 6.Check if there are problems in starter connection. 7.Replace bearings. 8.Check centrifugal switches. 9.Check if there are problems in Capacitor and their connection.
Electric motors are heated	1.Ventilation is not smooth. 2.There are problems in the power voltage and frequency. 3.There is the over current in the state of overload. 4.There are problems in connection and joining of leader lines. 5.Windings or circuits have problems.	1.Remove dust or foreign substances from the wind course. 2.Check the power voltage and frequency. 3.Adjust the load to lower than the rating electric current. 4.Check joining, connection and disconnection. 5.Measure resistance to check problems.
The rotation speed rapidly drops during operation.	1.There is overload during operation. 2.The power voltage rapidly dropped. 3.Coils are disconnected or circuit joining is bad.	1.Check load and adjust it. 2.Check the power voltage. 3.Measure the resistance and check disconnection and joining.
There are serious vibration and noise.	1.The shaft center is not straight. 2.Fixing bolts are loosened. 3.Pulleys and couplings are not well balanced. 4.Bearings are worn. 5.The abnormal voltage is supplied. 6.Leader lines are wrongly connected. 7.Three-phase motors are operated in the single phase.	1.Fix the shaft center correctly. 2.Tighten fixing bolts. 3.Balance driving systems. 4.Replace bearings. 5.Check the power voltage. 6.Check connections. 7.Check if there are open power circuits and joining parts.

7 Warranty information

1. Warranty of this product is valid for a year from the delivery date or 2000 hours of cumulative running time, whichever comes first.
2. Warranty is about standard matters. If there are differences from conditions of the purchase contract, the purchase contract shall be applied.
3. About following cases, customers should pay for service even during the guarantee term.
   A. Problems caused by users' faults or careless treatment and transportation
   B. Problems caused by excessive use beyond purposes and visual fields of goods
   C. Damage caused by operation of unlicensed workers
   D. Problems caused by disjoining, repairing or remodeling without getting service from our company
   E. Problems caused after using components which were not made by Shinmyung
   F. Problems caused by natural disasters (such as floods, earthquakes, fires and riots)
   G. When goods are modified differently from delivered ones
   H. Problems caused after not following the instruction manual
   I. Other problems caused by outside reasons, not faults of goods
4. Warranty is limited to repairing, in principle. If repairing is impossible, products with problems shall be replaced with new ones.
5. Guarantee matters are applicable only when products are installed in the nation. When products are used out of the nation, there should be a separate contract.
6. Standards of guaranteed performance shall be limited to the catalogue and submitted specifications.
7. Regarding following cases, there should be advanced contracts and discussion with the main office before purchase. For receiving compensation for spread damage, the purchase contract should have a separate compensation scope and limitation.
   A. In case of installing products out of the nation or on islands
   B. In case that contracts and permissions for special equipment or special workers are necessary for installing products in high places or in water or that there are many risks
8. Responsibility for products should basically follow related laws. About derivative losses caused after not following safety devices and emergency measures, the company has no responsibility.
9. Consumers should have about 10~20% reserve stocks of the operating quantity in preparation for unexpected troubles.
10. When products are operated to intentionally cause troubles even if troubles are expected or problems are detected, the company has no responsibility for losses.
11. Consumers should pay for investigating trouble reasons and repairing after the guarantee term. Even during the guarantee term, troubles caused by situations not mentioned in warranty shall be investigated and repaired at a cost. In that case, please request to agencies of the main office.

8 Product warranty

Product name			Model name	
Model number			Production number	
Serial number			Production date	
Customer	Name		Telephone	
	Address			
Salesclerk	Company name		Telephone	
	Selling date		Term of guarantee	One year
	Seller			(Signature or seal)
Manufacturer		SHINMYUNG ELECTRIC CO., LTD.		

How to write the warranty

1. The guarantee term on the warranty is that of the seller.
2. Products are guaranteed according to the warranty.
3. There is no guarantee if there are not the selling date or the seller's signature or seal.
4. Please write all details of the warranty.
5. This warranty won't be provided again.

1. Please understand that parts of this instruction manual can be changed without an advance notice.
2. Some or all of this instruction manual shouldn't be copied without permission.
3. We do our best to make details of this instruction manual perfect. If there are mistakes or unclear parts, please contact the main office.

GEARED MOTOR SERIES

EP+ Geared Motor

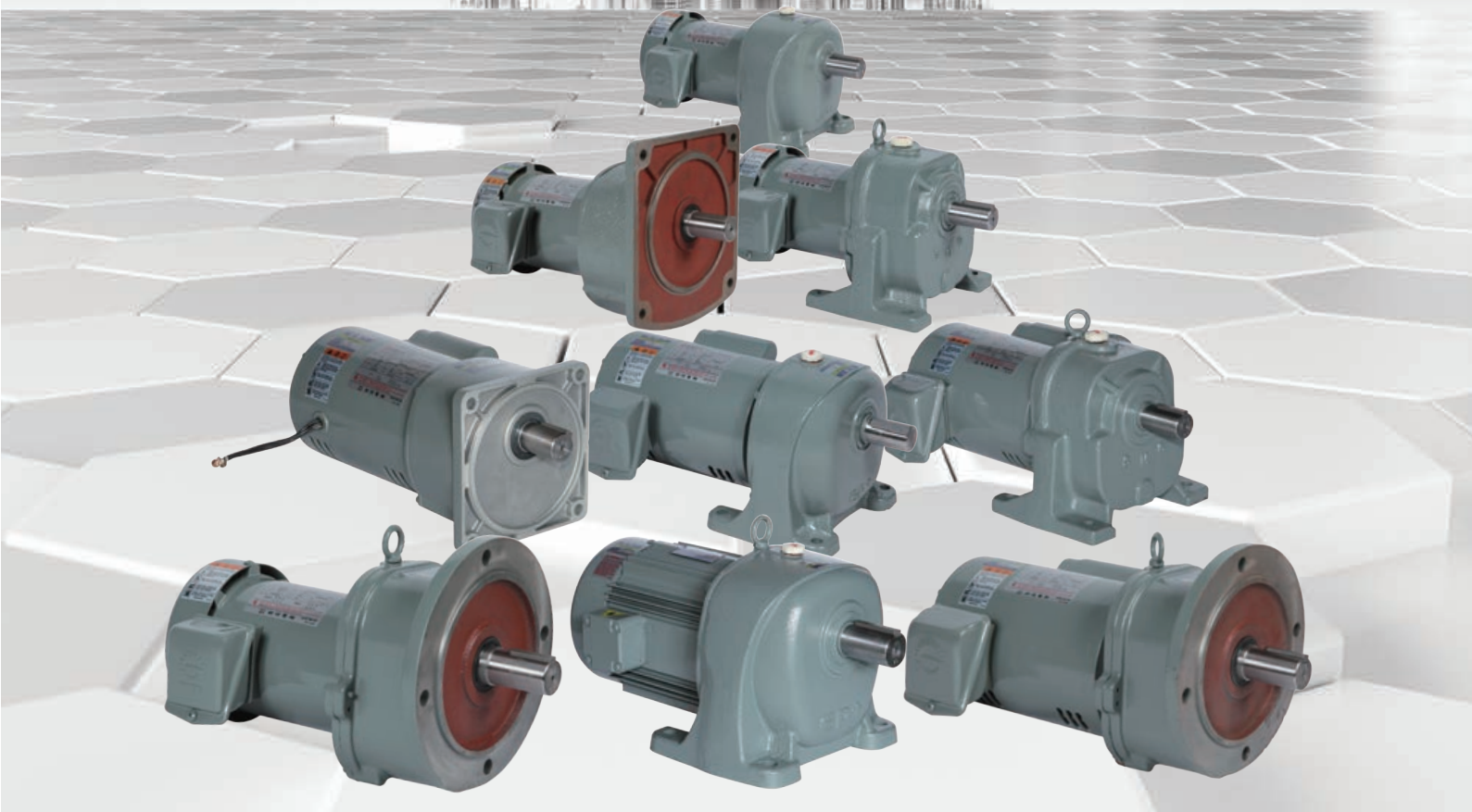
| Three Phase 0.2kw~ 22kw | Single phase 0.2kw~ 1.5kw |
| Dia meter of Output shaft Φ22~ Φ90 | Ratio range 1/5~ 1/100 |

EP2 Geared Motor

| Three Phase 0.2kw~ 15kw | Dia meter of Output shaft Φ22~ Φ70 | Ratio range 1/5~ 1/100

SMG Geared Motor

| Three Phase 0.2kw~ 1.5kw | Single phase 0.2kw~ 0.75kw |
| Dia meter of Output shaft Φ22~ Φ38 | Ratio range 1/5~ 1/75 |



EP+ Geared Motor

① Three Phase Horizontal / 3Ph 4P 0.2kW~22kW

② Three Phase Vertical / 3Ph 4P 0.2kW~15kW

③ Single Phase Horizontal / 1Ph 4P 0.2kW~0.75kW

④ Single Phase Vertical / 1Ph 4P 0.2kW~0.75kW

EP2 Geared Motor

⑨ Three Phase Horizontal 3Ph 4P 0.2kW~15kW

SMG Geared Motor

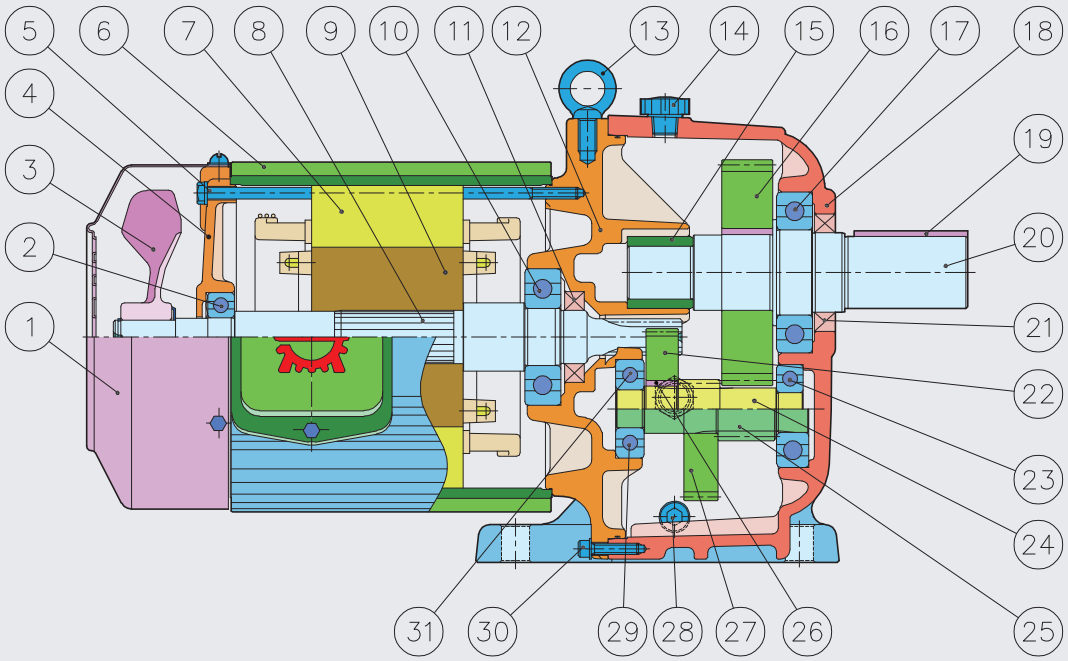
⑤ Three Phase Horizontal / 3Ph 4P 0.2kW~1.5kW

⑥ Three Phase Vertical / 3Ph 4P 0.2kW~0.75kW

⑦ Single Phase Horizontal / 1Ph 4P 0.2kW~0.75kW

⑧ Single Phase Vertical / 1Ph 4P 0.2kW~0.75kW

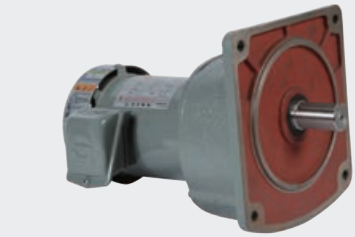
EP+ Type Geared Motor Series Construction and name of each part

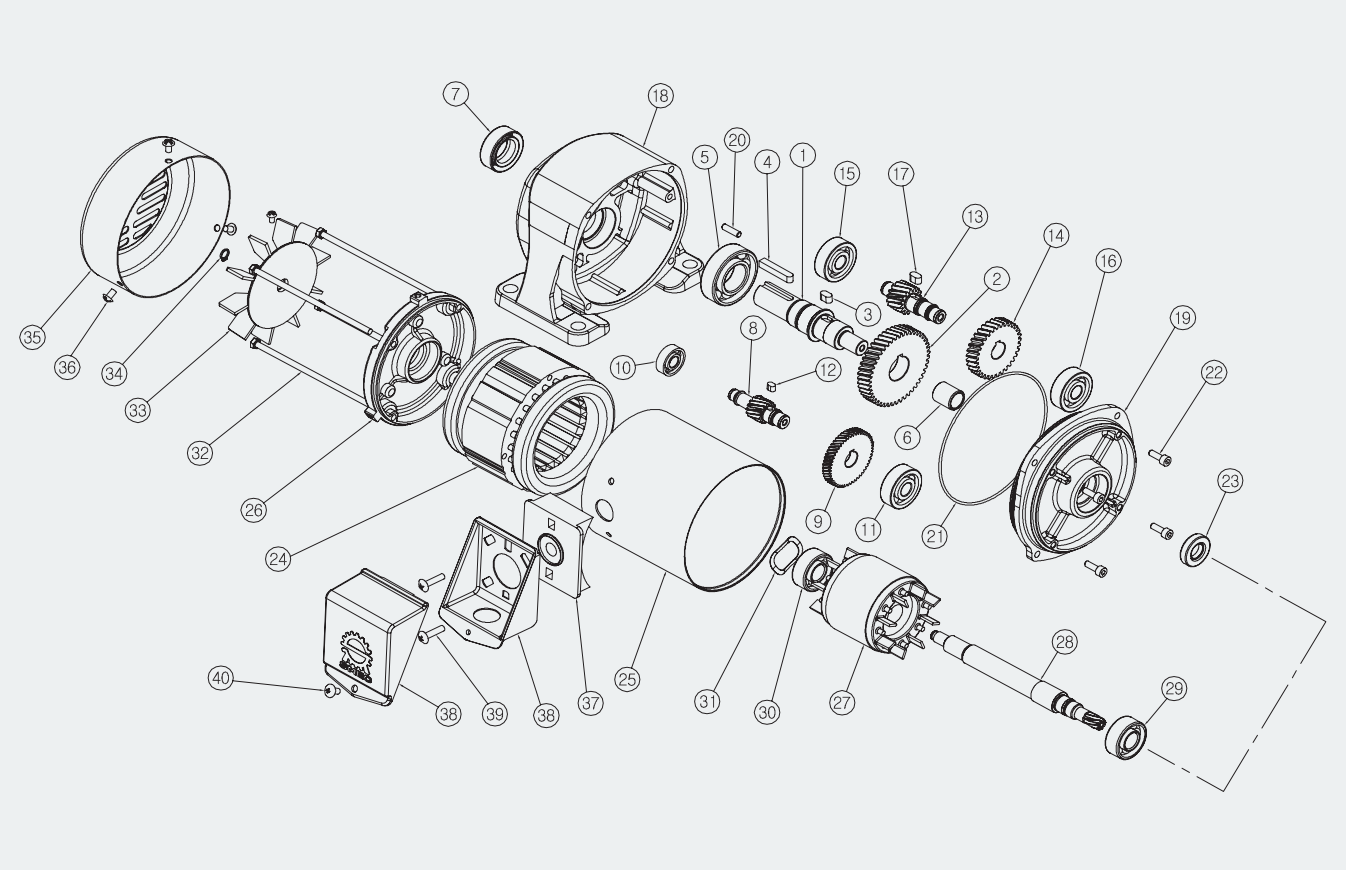


1. FAN COVER
2. REAR BEARING
3. FAN
4. REAR BRACKET
5. ASS'Y BOLT
6. FRAME
7. STATOR
8. SHAFT
9. ROTOR
10. FRONT BEARING
11. OIL SEAL
12. FRONT BRACKET
13. EYE-BOLT
14. AIR VENT
15. BUSH BEARING
16. 3RD GEAR
17. BEARING
18. GEAR CASE
19. KEY
20. OUTPUT SHAFT
21. OIL SEAL
22. 1ST GEAR
23. BEARING
24. 2ND PINION GEAR
25. 3RD PINION GEAR
26. KEY
27. 2ND GEAR
28. DRAIN PLUG
29. BEARING
30. SOCKET BOLT
31. BEARING

Characteristics and advantages

- Designed for high torque and high output duty by plasma Models heat-treat and SCM.
- Series material gears.
- Excellent appearances with less size and weight
- Needless to change lubricating oil.
- Low vibration, Noise and models.
- Various ratios and Models.
- High quality of 63 series bearings.
- Easy to disassemble by precision processing.
- 92% High efficiency.
- Application of high efficiency Motor.





22-type exploded view (3PH-4P-0.2~0.4kW)

No.	DESCRIPTION	Q'T	No.	DESCRIPTION	Q'T	No.	DESCRIPTION	Q'T	No.	DESCRIPTION	Q'T
1	2ND,3RD GEAR SHAFT	1	11	BALL BEARING	1	21	O-RING	1	31	WAVE WASHER	1
2	2ND,3RD GEAR	1	12	KEY	1	22	SOKET BOLT	4	32	HEX BOLT	4
3	KEY	1	13	3RD PINION GEAR	1	23	OIL SEAL	1	33	FAN	1
4	KEY	1	14	2ND GEAR	1	24	STATOR SUB ASS'Y	1	34	RETAINING RING	1
5	BALL BEARING	1	15	BALL BEARING	1	25	FRAME	1	35	FAN COVER	1
6	OILLESS BEARING	1	16	BALL BEARING	1	26	REAR BRACKET	1	36	TRUSS BOLT	3
7	OIL SEAL	1	17	KEY	1	27	ROTOR	1	37	LEAD BOX PAKING	1
8	2ND PINION GEAR	1	18	GEAR CASE	1	28	SHAFT	1	38	LEAD BOX	1
9	1ST GEAR	1	19	FRONT BRACKET	1	29	BEARING	2	39	LEAD BOX SCREW	2
10	BALL BEARING	1	20	DOWEL PIN	1	30	BEARING	2	40	LEAD BOX ASS'Y BOLT	1

Specifications of reference standard

	Phase number	Three phase	Single phase
Electric motor	Capacity	0.2kW ~ 15kW	0.2kW ~ 0.75kW
	Power supply	220/380V, 60Hz(50hz)	220V, 60Hz(50hz)
	Insulation grade	B-grade, F-grade	B-grade, F-grade
	Starting type	Y△type	Split-phase Starting, Capacitor starting
	Cooling type	Totally enclosed fan cooled type	Open drip proof tyoe
	Pole number	4pole	4pole
	Rating	Continuous	Continuous
Geared motor	Deceleration type	Helical gear	
	Lubricating type	Grease lubrication, oil lubrication	
	Output shaft	Key (KS B 1311 -99 ordinary level)	
	Output material	SM45C	
	Case material	#22 ~ #28 Aluminum die casting, #32 ~ #70 cast iron	
Ambient condition	Ambient temperature	-10℃ ~ 40℃	
	Ambient humidity	85% or less (when there is no frost formed)	
	Altitude	1,000m or less	
	Environment	Place without gas, vapor, dust and explosion in principle	
	Installation place	Indoor	
Coating	Coating method	Enamel coating	
	Coating color	DSL-4560(grey)	
Attachment direction		Horizontal, vertical, inclination angle	

EP+ Type Geared Motor technical data

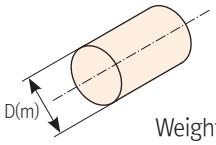
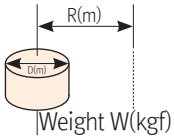
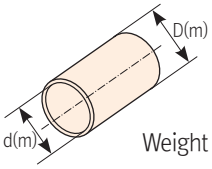
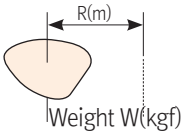
How to calculate the inertia moment I GD^2 (fly-wheel effect)

The inertia is shown as an ordinary inertia moment I(kg.m^2), it is more convenient to use GD^2(kgf.m^2) for actually using it for industrial purposes.

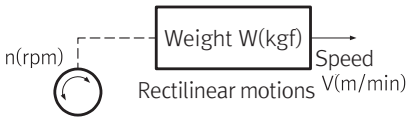
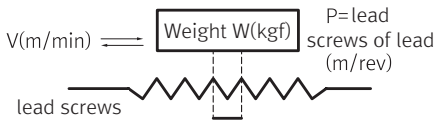
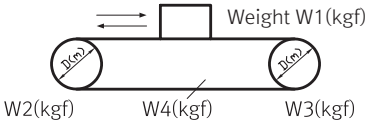
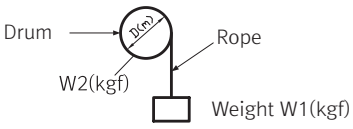
$$I = \frac{GD^2}{4}$$

G : Weight (kgf)
D : Rotating diameter (m)
I : Moment of inertia (kg.m^2)

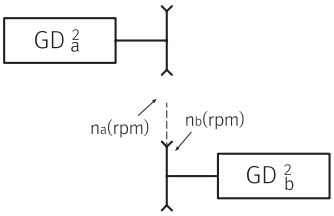
GD^2 of rotating objects

When the rotation center is same with the gravity center		When the rotation center is not same with the gravity center	
	$GD^2 = \frac{1}{2} WD^2$ (kg.m^2)		$GD^2 = \frac{1}{2} WD^2 + 4WR^2$ (kg.m^2)
	$GD^2 = \frac{1}{2} W(D^2 + d^2)$ (kg.m^2)		(When the size can be disregarded) $GD^2 = 4WR^2$ (kg.m^2)

GD^2 in case of rectilinear motions

Ordinary cases		$GD^2 = W \cdot (\frac{V}{\pi \cdot n})^2$ (kgf.m^2)
Cases of horizontal rectilinear motions (in case of moving things with lead screws)		$GD^2 = W \cdot (\frac{P}{\pi})^2 = W \cdot (\frac{V}{\pi \cdot n})^2$ (kgf.m^2)
Cases of horizontal rectilinear motions (such as conveyors)		$GD^2 = W_1 D^2 + \frac{1}{2} W_2 D^2$ (kgf.m^2)
Cases of vertical rectilinear motions (such as cranes and winches		$GD^2 = W_1 D^2 + \frac{1}{2} W_2 D^2$ (kgf.m^2)

GD^2 in case of rectilinear motions



Conversion of load shaft inertia (GD^2_b) to n a shaft

$$GD^2 = GD^2_a + (\frac{n_b}{n_a})^2 \times GD^2_b$$

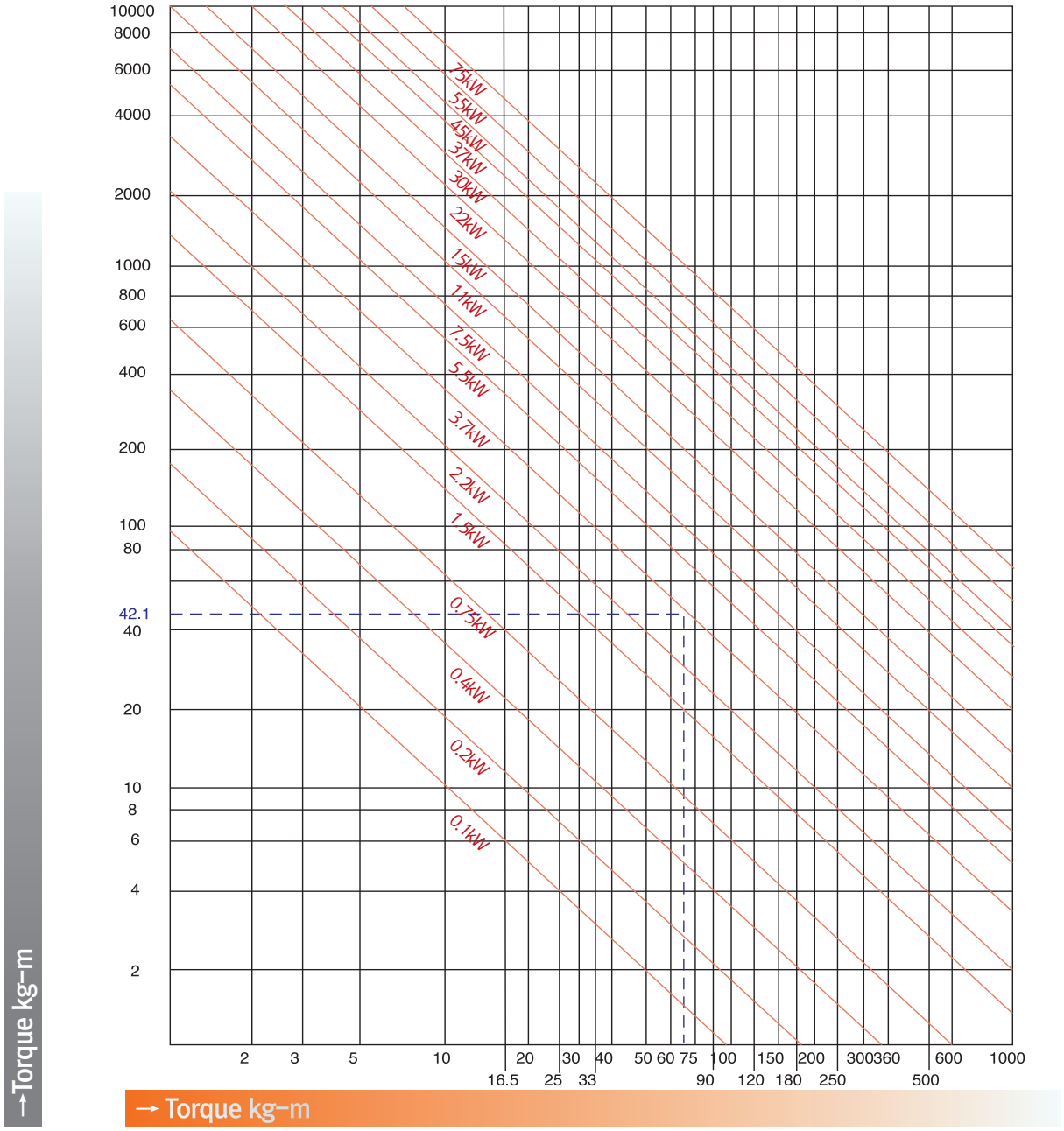
SELECTION OF MOTOR SPECIFICATION

1. Calculation of field torque by load.
   (Put equivalent torque in case of certain load cycle or max touque in case of uncertain cycle)
2. Calculation of motor field torque by geared part Efficiency

$$\text{Motor field torque} = \frac{\text{field torque by load}}{\text{geared parts efficiency}}$$

3. Calculation of EXCHANGE TABLE OF TORQUE-kW

4. $T = 974 \times \frac{P}{N}$ **T** : torque (kg m) **P** : capacity (kW)
   N : revolutions per minute (RPM)



EP+ T ype Geared Motor Coding System

CAPACITY

Phase \ kW	0.2kW	0.4kW	0.75kW	1.5kW	2.2kW	3.7kW	5.5kW	7.5kW	11kW	15kW
Three Phase	T020	T040	T075	T150	T220	T370	T550	T750	T1100	T1500
Single Phase	S200	S400	S750	S1500	–	–	–	–	–	–

TYPE	SHAFT	RATIO	kW)	
H	28	50	T040	
F	32	100	T075	W

- (blank) Standard Voltage
  - Three Phase 220V/380V, 50Hz, 60Hz
  - Single Phase 220V, 50Hz, 60Hz
- W High Voltage
  - Three Phase 380V, 440V, 50Hz, 60Hz
- kW
  - T010 :Three Phase 0.1kW
  - T020 : Three Phase 0.2kW
  - T040 : Three Phase 0.4kW
  - S200 : Single Phase 0.2kW
  - S400 : Single Phase 0.4kW
  - S750 : Single Phase 0.75kW
- RATIO
  - 05 : 1/5
  - 100 :1/100
- Dia of output shaft
- Mounting type
  - H: FOOT MOUNTING(H/T)
  - F: FLANGE MOUNTING(V/T)

TABLE OF MOTOR OUTPUT PER TYPE MODEL

Electronic balance	0.2kW	0.4kW		0.75kW			1.5kW		2.2kW		3.7kW			5.5kW		7.5kW		11kW	15kW
5 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
10 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
15 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
20 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
30 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
40 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
50 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
60 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
75 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
80 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
90 : 1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70
100 :1	22	22	28	28	32	38	38	45	45	50	45	50	55	55	65	55	65	70	70

EP+ Type Geared Motor Series

EP+ Geared motor Performance data table Ⅰ

Motor specification	Dia meter of Output shaft	Reduction ratio	Real reduction ratio	Output shaft rpm		The Limit torque for output shaft (kgf.m)	
				50Hz	60Hz	50Hz	60Hz
Single phase 0.2kW	22	1 / 5	1 / 4.9	300	360	0.6	0.5
		1 / 10	1 / 10.1	150	180	1.2	1
		1 / 15	1 / 15.4	100	120	1.9	1.5
		1 / 20	1 / 20.7	75	90	2.5	2
		1 / 25	1 / 25.2	60	72	3.1	2.6
		1 / 30	1 / 28.6	50	60	3.7	3.1
		1 / 40	1 / 39.7	37.5	45	4.8	4
		1 / 50	1 / 48.9	30	36	6	5
		1 / 60	1 / 58.0	25	30	7.2	6
		1 / 75	1 / 77.5	20	24	8.9	7.5
		1 / 80	1 / 79.1	18.8	22.5	9.5	8
		1 / 90	1 / 88.1	16.7	20	10.7	9
		1 / 100	1 / 97.8	15	18	11.8	10
Single phase 0.4kW	28	1 / 5	1 / 5	300	360	1.2	1
		1 / 10	1 / 10.3	150	180	2.5	2.1
		1 / 15	1 / 15.2	100	120	3.7	3.1
		1 / 20	1 / 20.5	75	90	4.9	4.1
		1 / 30	1 / 27.8	50	60	7.5	6.2
		1 / 40	1 / 40.1	37.5	45	9.7	8
		1 / 50	1 / 51.4	30	36	12	10
		1 / 60	1 / 58.2	25	30	144	12
		1 / 75	1 / 74	20	24	17.9	15
		1 / 80	1 / 80.2	18.8	22.5	19.1	16
		1 / 90	1 / 87.5	16.7	20	21.6	18
		1 / 100	1 / 97.4	15	18	24.1	20
Single phase 0.75kW	32	1 / 5	1 / 4.9	300	360	2.3	1.9
		1 / 10	1 / 9.6	150	180	4.6	3.9
		1 / 15	1 / 15	100	120	6.9	5.8
		1 / 20	1 / 20.3	75	90	9.3	7.7
		1 / 30	1 / 28.9	50	60	13.9	11.6
		1 / 40	1 / 39.1	37.5	45	17.9	14.9
		1 / 50	1 / 49.1	30	36	22.4	18.8
		1 / 60	1 / 59.2	25	30	26.9	22.5
		1 / 75	1 / 75.4	20	24	33.6	28.2
		1 / 80	1 / 83.1	18.8	22.5	35.8	30
		1 / 90	1 / 92	16.7	20	40.3	33.8
		1 / 100	1 / 98.3	15	18	44.8	37.4
Three phase 0.2kW	22	1 / 5	1 / 4.9	300	360	0.6	0.5
		1 / 10	1 / 10.1	150	180	1.2	1
		1 / 15	1 / 15.4	100	120	1.9	1.5
		1 / 20	1 / 20.7	75	90	2.5	2
		1 / 30	1 / 28.6	50	60	3.7	3.1
		1 / 40	1 / 39.7	37.5	45	4.8	4
		1 / 50	1 / 48.9	30	36	6.0	5
		1 / 60	1 / 58.0	25	30	7.2	6
		1 / 75	1 / 77.5	20	24	8.9	7.5
		1 / 80	1 / 79.1	18.8	22.5	9.5	8
		1 / 90	1 / 88.1	16.7	20	10.7	9
		1 / 100	1 / 97.8	15	18	11.8	10
	28	1 / 150	1 / 152.0	10	12	17.8	14.9
		1 / 200	1 / 199.4	7.5	9	23.7	20
Three phase 0.4kW	22	1 / 5	1 / 4.9	300	360	1.2	1
		1 / 10	1 / 10.1	150	180	2.5	2.1
		1 / 15	1 / 15.4	100	120	3.7	3.1
		1 / 20	1 / 20.7	75	90	4.8	4.1
		1 / 30	1 / 28.6	50	60	7.3	6.2
		1 / 40	1 / 39.7	37.5	45	9.5	8.0
		1 / 50	1 / 48.9	30	36	11.6	9.9
		1 / 60	1 / 58.0	25	30	14.1	11.8
		1 / 75	1 / 77.5	20	24	17.6	14.8
		1 / 80	1 / 79.1	18.8	22.5	18.8	15.8
		1 / 90	1 / 88.1	16.7	20	21.1	17.7
		1 / 100	1 / 97.8	15	18	23.5	19.7
	28	1 / 5	1 / 5.0	300	360	1.2	1
		1 / 10	1 / 10.3	150	180	2.5	2.1
		1 / 15	1 / 15.2	100	120	3.7	3.1
		1 / 20	1 / 20.5	75	90	4.9	4.1
		1 / 30	1 / 27.8	50	60	7.5	6.2
		1 / 40	1 / 40.1	37.5	45	9.7	7
		1 / 50	1 / 51.4	30	36	12.0	10
		1 / 60	1 / 58.2	25	30	14.4	11.9
		1 / 75	1 / 74	20	24	17.9	15
		1 / 80	1 / 80.2	18.8	22.5	19.1	16
		1 / 90	1 / 87.5	16.7	20	21.6	18
		1 / 100	1 / 97.4	15	18	24.1	20
		1 / 120	1 / 120	12.5	15	28.1	23.8
		1 / 150	1 / 152	10	12	35.6	29.7
		1 / 200	1 / 199.4	7.5	9	47.5	39.8

Motor specification	Dia meter of Output shaft	reduction ratio	Real reduction ratio	Output shaft rpm		The Limit torque for output shaft (kgf.m)	
				50Hz	60Hz	50Hz	60Hz
Three phase 0.75kW	28	1 / 5	1 / 5.0	300	360	2.1	1.9
		1 / 10	1 / 10.3	150	180	4.5	3.9
		1 / 15	1 / 15.2	100	120	6.8	5.8
		1 / 20	1 / 20.5	75	90	9	7.6
		1 / 30	1 / 27.8	50	60	13.7	11.5
		1 / 40	1 / 40.1	37.5	45	17.7	14.9
		1 / 50	1 / 51.4	30	36	21.8	18.6
		1 / 60	1 / 58.2	25	30	26.4	22.1
		1 / 75	1 / 74	20	24	33.1	27.7
		1 / 80	1 / 80.2	18.8	22.5	35.3	29.6
		1 / 90	1 / 87.5	16.7	20	39.7	33.3
		1 / 100	1 / 97.4	15	18	44.1	37
	32	1 / 5	1 / 4.9	300	360	2.3	1.9
		1 / 10	1 / 9.6	150	180	4.6	3.9
		1 / 15	1 / 15	100	120	6.9	5.8
		1 / 20	1 / 20.3	75	90	9.3	7.7
		1 / 30	1 / 28.9	50	60	13.9	11.6
		1 / 40	1 / 39.1	37.5	45	17.9	14.9
		1 / 50	1 / 49.1	30	36	22.4	18.8
		1 / 60	1 / 59.2	25	30	26.9	22.5
		1 / 75	1 / 75.4	20	24	33.6	28.2
		1 / 80	1 / 83.1	18.8	22.5	35.8	30
		1 / 90	1 / 92	16.7	20	40.3	33.8
		1 / 100	1 / 98.3	15	18	44.8	37.4
	38	1 / 5	1 / 4.8	300	360	2.5	1.9
		1 / 10	1 / 9.7	150	180	4.6	3.9
		1 / 15	1 / 14.4	100	120	6.9	5.8
		1 / 20	1 / 19.4	75	90	9.3	7.7
		1 / 30	1 / 28.0	50	60	13.9	11.6
		1 / 40	1 / 39.4	37.5	45	17.9	14.9
		1 / 50	1 / 50.6	30	36	22.4	18.8
		1 / 60	1 / 59.3	25	30	26.9	22.5
		1 / 75	1 / 74.3	20	24	33.6	28.1
		1 / 80	1 / 82.4	18.8	22.5	35.8	30
		1 / 90	1 / 87.1	16.7	20	40.3	33.8
		1 / 100	1 / 97.3	15	18	44.8	37.4
Three phase 1.5kW	38	1 / 5	1 / 4.8	300	360	4.6	3.9
		1 / 10	1 / 9.7	150	180	9.3	7.7
		1 / 15	1 / 14.4	100	120	13.8	11.6
		1 / 20	1 / 19.4	75	90	18.4	15.4
		1 / 30	1 / 28	50	60	27.7	23.2
		1 / 40	1 / 39.4	37.5	45	35.7	30
		1 / 50	1 / 50.6	30	36	44.8	37.4
		1 / 60	1 / 59.3	25	30	53.8	45
		1 / 75	1 / 74.3	20	24	67.2	56.3
		1 / 80	1 / 82.4	18.8	22.5	71.6	60
		1 / 90	1 / 87.1	16.7	20	80.6	67.5
		1 / 100	1 / 97.3	15	18	89.6	75
	45	1 / 5	1 / 5.1	300	360	4.6	3.9
		1 / 10	1 / 9.8	150	180	9.3	7.7
		1 / 15	1 / 15.6	100	120	13.8	11.6
		1 / 20	1 / 21	75	90	18.4	15.4
		1 / 30	1 / 30.9	50	60	27.7	23.2
		1 / 40	1 / 38.6	37.5	45	35.7	30
		1 / 50	1 / 49.2	30	36	44.8	37.4
		1 / 60	1 / 61.5	25	30	53.8	45
		1 / 75	1 / 75.8	20	24	67.2	56.3
		1 / 80	1 / 82.1	18.8	22.5	71.6	60
		1 / 90	1 / 89.7	16.7	20	80.6	67.5
		1 / 100	1 / 100.4	15	18	89.6	75

- A reference data for Domestic voltage 220v / 380V, frequency 50Hz, 60Hz
- All other voltages and frequencies can be applied by customer order

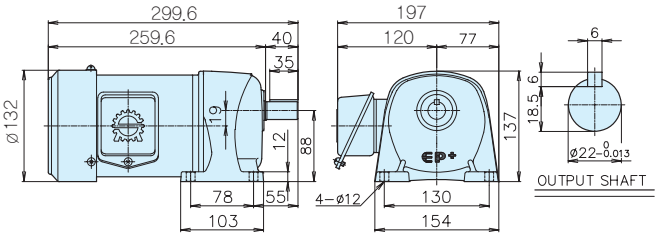
EP+ Geared motor Performance data table Ⅱ

Motor specification	Dia meter of Output shaft	Reduction ratio	Real reduction ratio	Output shaft rpm		The Limit torque for output shaft (kgf.m)	
				50Hz	60Hz	50Hz	60Hz
Three phase 2.2kW	45	1 / 5	1 / 5.1	300	360	6.7	5.7
		1 / 10	1 / 9.8	150	180	13.6	11.2
		1 / 15	1 / 15.6	100	120	20.3	16.8
		1 / 20	1 / 21	75	90	27.1	22.4
		1 / 30	1 / 30.9	50	60	40.7	33.7
		1 / 40	1 / 38.6	37.5	45	52.5	43.5
		1 / 50	1 / 49.2	30	36	65.7	54.5
		1 / 60	1 / 61.5	25	30	78.9	65.3
		1 / 75	1 / 75.8	20	24	98.5	81.6
		1 / 80	1 / 82.1	18.8	22.5	105	87.1
		1 / 90	1 / 89.7	16.7	20	118	100
		1 / 100	1 / 100.4	15	18	131	109
		1 / 120	1 / 121.1	12.5	15	158	131
	50	1 / 5	1 / 5.2	300	360	6.7	5.7
		1 / 10	1 / 9.8	150	180	13.4	11.2
		1 / 15	1 / 15.0	100	120	20.1	16.8
		1 / 20	1 / 20.2	75	90	26.7	22.4
		1 / 30	1 / 30.9	50	60	40.1	33.7
		1 / 40	1 / 39.8	37.5	45	51.8	43.5
		1 / 50	1 / 49.6	30	36	64.8	54.5
		1 / 60	1 / 59.3	25	30	77.7	65.3
		1 / 75	1 / 73.1	20	24	97.1	81.6
		1 / 80	1 / 79.1	18.8	22.5	103	87.1
		1 / 90	1 / 89	16.7	20	116	100
		1 / 100	1 / 96.4	15	18	123	109
	55	1 / 5	1 /	300	360	6.7	5.7
		1 / 10	1 / 10.4	150	180	13.4	11.2
		1 / 15	1 / 14.7	100	120	20.1	16.8
		1 / 20	1 / 19.8	75	90	26.7	22.4
		1 / 30	1 / 29.1	50	60	40.1	33.7
		1 / 40	1 / 39.6	37.5	45	51.8	43.5
		1 / 50	1 / 50.6	30	36	64.8	54.5
		1 / 60	1 / 60.6	25	30	77.7	65.3
		1 / 75	1 / 72.9	20	24	97.1	81.6
		1 / 80	1 / 80.3	18.8	22.5	103	87.1
		1 / 90	1 / 89	16.7	20	116	100
		1 / 100	1 / 98.4	15	18	123	109
Three phase 3.7kW	45	1 / 5	1 / 5.1	300	360	11.2	9.5
		1 / 10	1 / 9.8	150	180	22.5	18.8
		1 / 15	1 / 15.6	100	120	33.8	28.4
		1 / 20	1 / 21	75	90	44.9	37.7
		1 / 30	1 / 30.9	50	60	67.5	56.6
		1 / 40	1 / 38.6	37.5	45	87.1	73.2
		1 / 50	1 / 49.2	30	36	108	91.6
		1 / 60	1 / 61.5	25	30	130	109
		1 / 75	1 / 75.8	20	24	163	137
		1 / 80	1 / 82.1	18.8	22.5	174	146
		1 / 90	1 / 89.7	16.7	20	195	164
		1 / 100	1 / 100.4	15	18	207	183
	50	1 / 5	1 / 5.2	300	360	11.2	9.5
		1 / 10	1 / 9.8	150	180	22.5	18.8
		1 / 15	1 / 15	100	120	33.8	28.4
		1 / 20	1 / 20.2	75	90	44.9	37.7
		1 / 30	1 / 30.9	50	60	67.5	56.6
		1 / 40	1 / 39.8	37.5	45	87.1	73.2
		1 / 50	1 / 49.6	30	36	108	91.6
		1 / 60	1 / 59.3	25	30	130	109
		1 / 75	1 / 73.1	20	24	163	137
		1 / 80	1 / 79.1	18.8	22.5	174	146
		1 / 90	1 / 89	16.7	20	195	164
		1 / 100	1 / 96.4	15	18	207	183
	55	1 / 5	1 / 5	300	360	11.2	9.5
		1 / 10	1 / 10.4	150	180	22.5	18.8
		1 / 15	1 / 14.7	100	120	33.8	28.4
		1 / 20	1 / 19.8	75	90	44.9	37.7
		1 / 30	1 / 29.1	50	60	67.5	56.6
		1 / 40	1 / 39.6	37.5	45	87.1	73.2
		1 / 50	1 / 50.6	30	36	108	91.6
		1 / 60	1 / 60.6	25	30	130	109
		1 / 75	1 / 72.9	20	24	163	137
		1 / 80	1 / 80.3	18.8	22.5	174	146
		1 / 90	1 / 89	16.7	20	195	164
		1 / 100	1 / 98.4	15	18	207	183

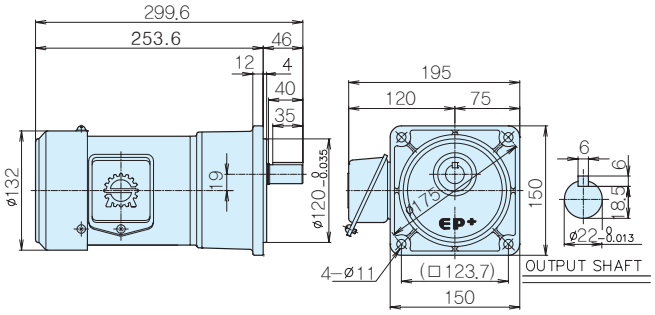
Motor specification	Dia meter of Output shaft	Reduction ratio	Real reduction ratio	Output shaft rpm		The Limit torque for output shaft (kgf.m)	
				50Hz	60Hz	50Hz	60Hz
Three phase 5.5kW	55	1 / 5	1 /	300	360	16.7	14.1
		1 / 10	1 / 10.4	150	180	33.5	28.1
		1 / 15	1 / 14.7	100	120	50.2	42.2
		1 / 20	1 / 19.8	75	90	66.8	56.1
		1 / 30	1 / 29.1	50	60	100	84.2
		1 / 40	1 / 39.6	37.5	45	129	108
		1 / 50	1 / 50.6	30	36	162	136
		1 / 60	1 / 60.6	25	30	194	163
		1 / 75	1 / 72.9	20	24	242	204
		1 / 80	1 / 80.3	18.8	22.5	258	217
		1 / 90	1 / 89	16.7	20	291	244
		1 / 100	1 / 98.4	15	18	307	273
	65	1 / 5	1 / 4.9	300	360	16.7	14.1
		1 / 10	1 / 10.6	150	180	33.5	28.1
		1 / 15	1 / 14.9	100	120	50.2	42.2
		1 / 20	1 / 20.1	75	90	66.8	56.1
		1 / 30	1 / 29.6	50	60	100	84.2
		1 / 40	1 / 41.7	37.5	45	129	108
		1 / 50	1 / 49.8	30	36	162	136
		1 / 60	1 / 58.9	25	30	194	163
		1 / 75	1 / 75.9	20	24	242	204
		1 / 80	1 / 83.6	18.8	22.5	258	217
		1 / 90	1 / 92.5	16.7	20	291	244
		1 / 100	1 / 102.3	15	18	307	273
Three phase 7.5kW	70	1 / 5	1 /	300	360	22.8	19.3
		1 / 10	1 / 10.4	150	180	45.7	38.3
		1 / 15	1 / 14.7	100	120	68.5	57.5
		1 / 20	1 / 19.8	75	90	91.1	76.6
		1 / 30	1 / 29.1	50	60	136.8	114
		1 / 40	1 / 39.6	37.5	45	176.7	148
		1 / 50	1 / 50.6	30	36	220.9	185
		1 / 60	1 / 60.6	25	30	265.1	222
		1 / 75	1 / 72.9	20	24	331	278
		1 / 80	1 / 80.3	18.8	22.5	353.1	296
		1 / 90	1 / 89.0	16.7	20	397.2	334
		1 / 100	1 / 98.4	15	18	419.9	372
	65	1 / 5	1 / 4.9	300	360	22.8	19.3
		1 / 10	1 / 10.6	150	180	45.7	38.3
		1 / 15	1 / 14.9	100	120	68.5	57.5
		1 / 20	1 / 20.1	75	90	91.1	76.6
		1 / 30	1 / 29.6	50	60	136.8	114
		1 / 40	1 / 41.7	37.5	45	176.7	148
		1 / 50	1 / 49.8	30	36	220.9	185
		1 / 60	1 / 58.9	25	30	265.1	222
		1 / 75	1 / 75.9	20	24	331	278
		1 / 80	1 / 83.6	18.8	22.5	353.1	296
		1 / 90	1 / 92.5	16.7	20	397.2	334
		1 / 100	1 / 102.3	15	18	419.9	372
Three phase 11kW	70	1 / 5	1 / 5.2	300	360	33.5	28.3
		1 / 10	1 / 10.3	150	180	67.1	56.1
		1 / 15	1 / 14.3	100	120	100	84.4
		1 / 20	1 / 19.3	75	90	133	112
		1 / 30	1 / 28.5	50	60	200	168
		1 / 40	1 / 40.8	37.5	45	259	217
		1 / 50	1 / 52.3	30	36	324	272
		1 / 60	1 / 61.9	25	30	388	326
		1 / 75	1 / 74.5	20	24	485	408
		1 / 80	1 / 81.9	18.8	22.5	517	435
		1 / 90	1 / 90.6	16.7	20	582	489
		1 / 100	1 / 100.8	15	18	615	546
Three phase 15kW	70	1 / 5	1 / 5.2	300	360	45.7	38.6
		1 / 10	1 / 10.3	150	180	91.4	76.6
		1 / 15	1 / 14.3	100	120	137	115
		1 / 20	1 / 19.3	75	90	182	153
		1 / 30	1 / 28.5	50	60	273	229
		1 / 40	1 / 40.8	37.5	45	353	296
		1 / 50	1 / 52.3	30	36	441	371
		1 / 60	1 / 61.9	25	30	530	445
		1 / 75	1 / 74.5	20	24	662	556
		1 / 80	1 / 81.9	18.8	22.5	706	593
		1 / 90	1 / 90.6	16.7	20	794	668
		1 / 100	1 / 100.8	15	18	839	745

3PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	9.5
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

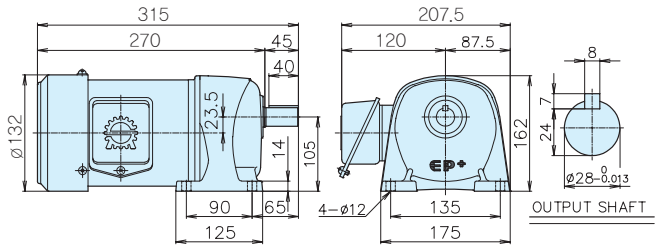


	Output(kW)	0.2kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	9.5
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

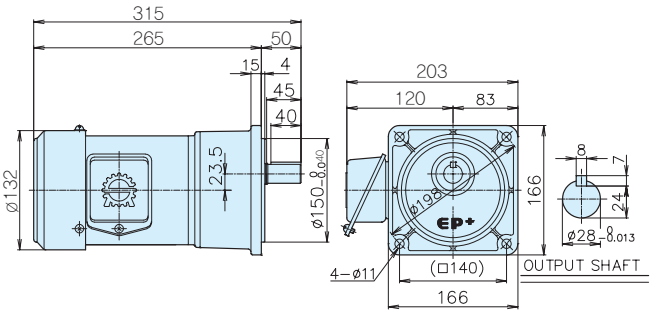


3PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW														Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	13
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	14.9	20	

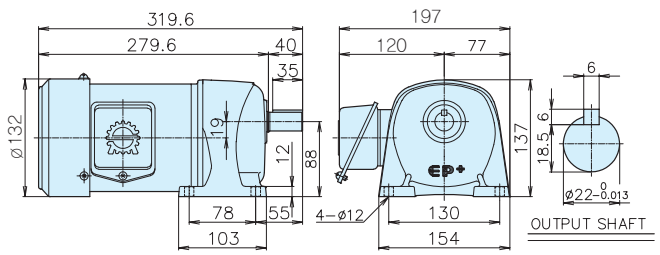


	Output(kW)	0.2kW														Weight (kg)
28V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	13
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	14.9	20	

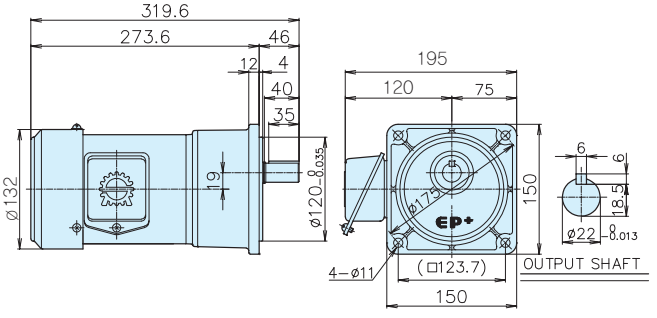


3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10.5
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8	10	12	15	16	18	20	



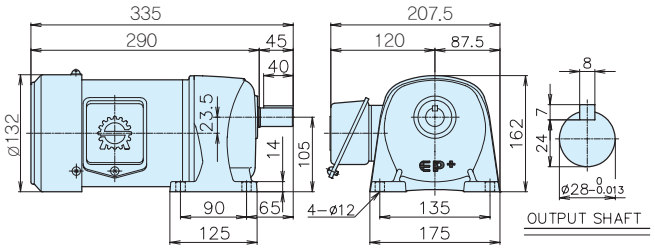
	Output(kW)	0.4kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10.5
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8	10	12	15	16	18	20	



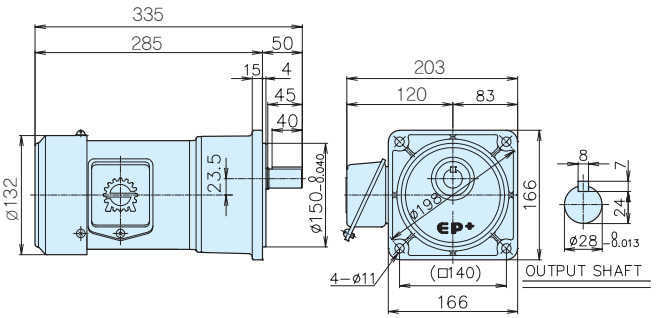
▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW														Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	13
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	7	10	11.9	15	16	18	20	29.7	39.8	

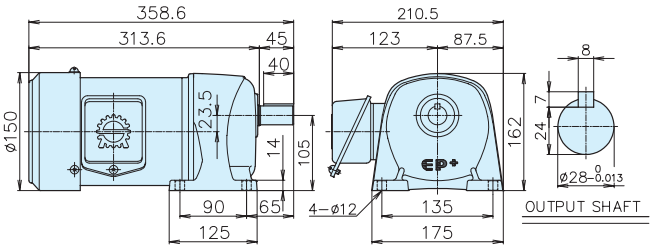


	Output(kW)	0.4kW														Weight (kg)
28V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	13
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	7	10	11.9	15	16	18	20	29.7	39.8	

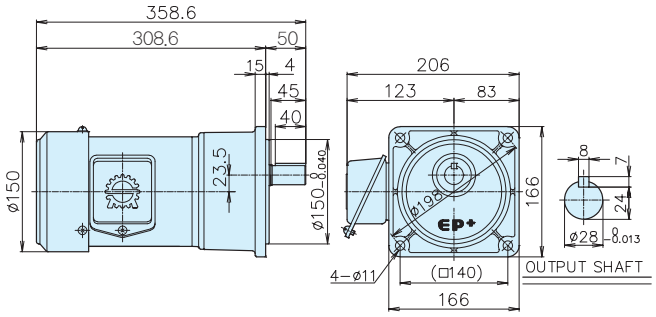


3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW													Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	16
	Torque(kgf.m)	1.8	3.7	5.6	7.5	11.2	15	18.7	22.5	28.1	30	33.7	37.5	45	

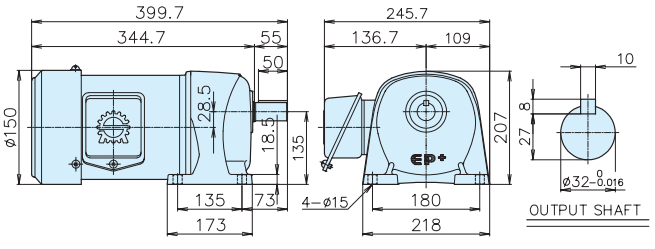


	Output(kW)	0.75kW													Weight (kg)
28V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	16
	Torque(kgf.m)	1.8	3.7	5.6	7.5	11.2	15	18.7	22.5	28.1	30	33.7	37.5	45	

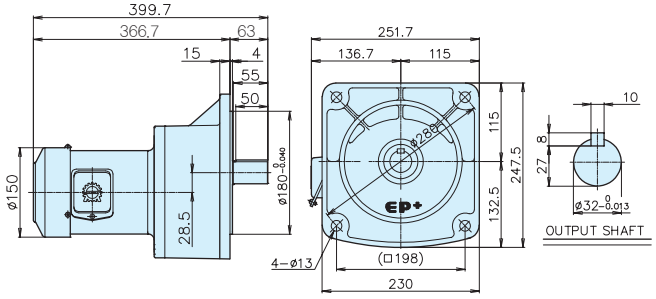


3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
32H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	28
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	



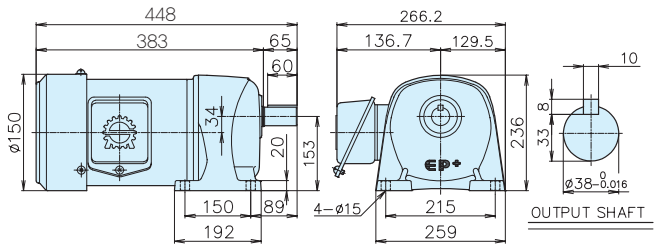
	Output(kW)	0.75kW												Weight (kg)
32V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	28
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	



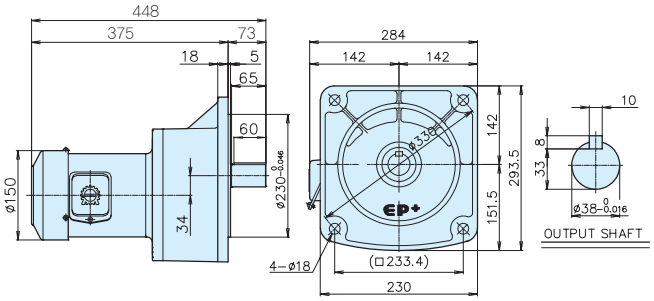
▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	40
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

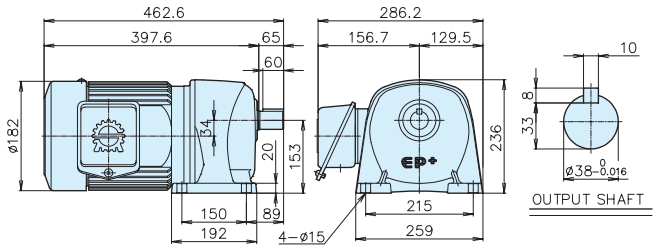


	Output(kW)	0.75kW												Weight (kg)
38V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	40
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

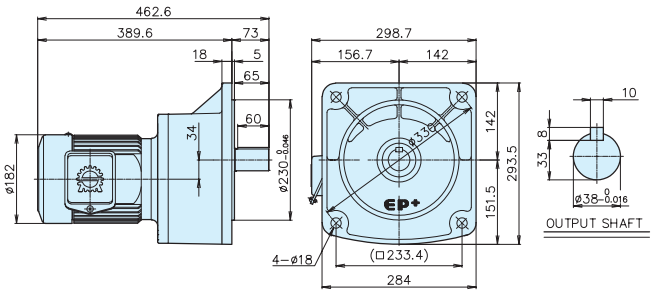


3PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	45
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	

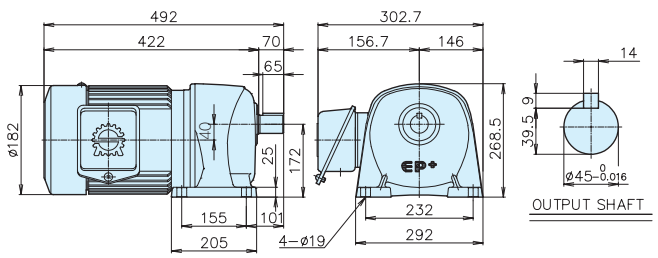


	Output(kW)	1.5kW												Weight (kg)
38V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	45
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	

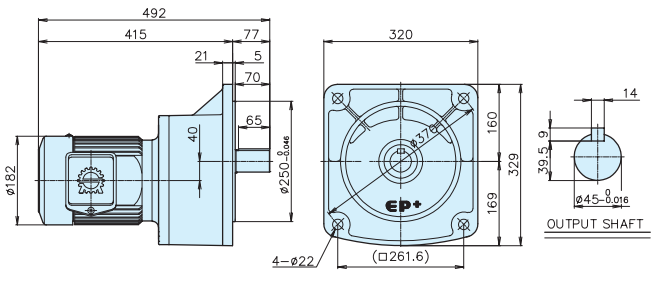


3PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW													Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	50
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	97.4	



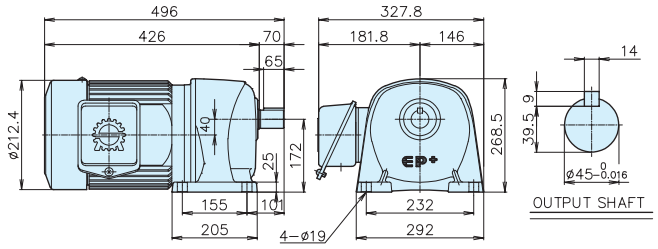
	Output(kW)	1.5kW													Weight (kg)
45V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	50
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	97.4	



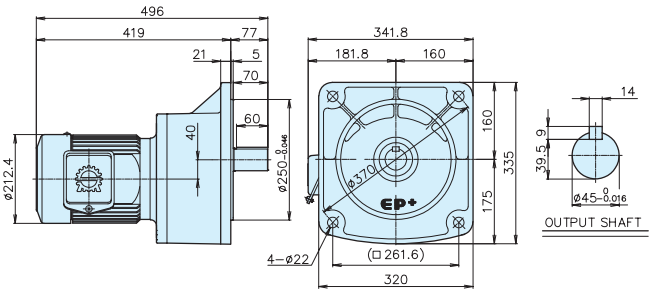
▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

3PH 4P 2.2kW(3HP)

	Output(kW)	2.2kW													Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	60
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	142.8	

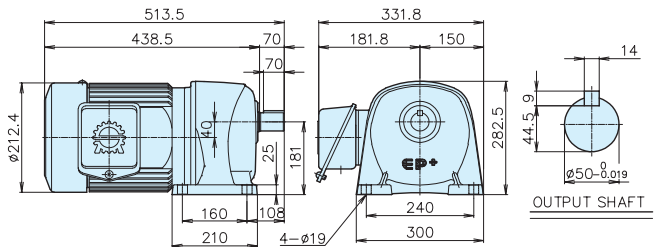


	Output(kW)	2.2kW													Weight (kg)
45V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	60
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	142.8	

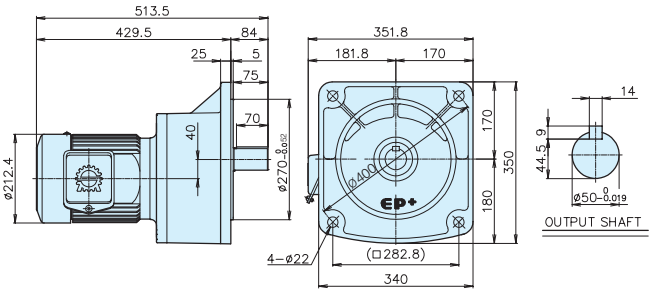


3PH 4P 2.2kW(3HP)

	Output(kW)	2.2kW												Weight (kg)
50H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	78
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	

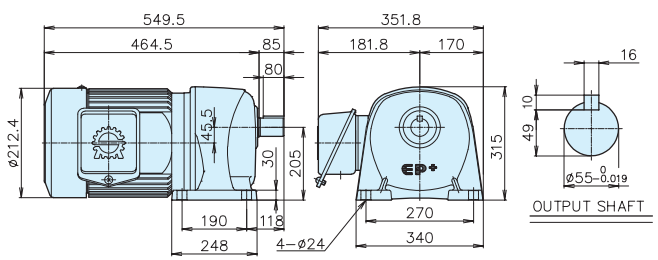


	Output(kW)	2.2kW												Weight (kg)
50V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	78
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	

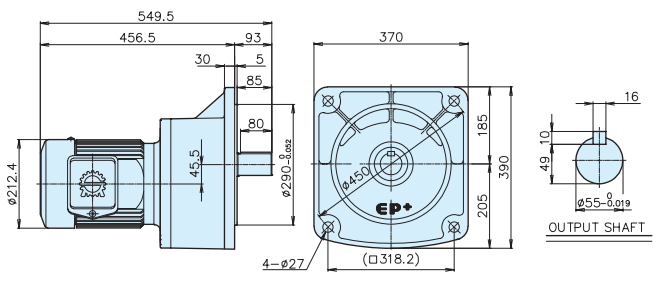


3PH 4P 2.2kW(3HP)

	Output(kW)	2.2kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	103
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	

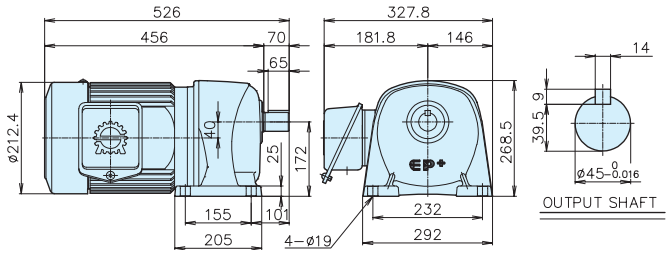


	Output(kW)	2.2kW												Weight (kg)
55V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	103
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	

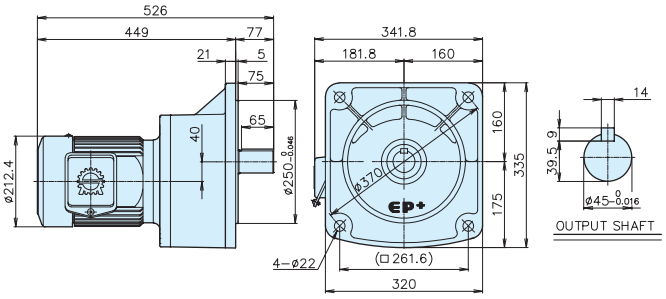


3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	70
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	

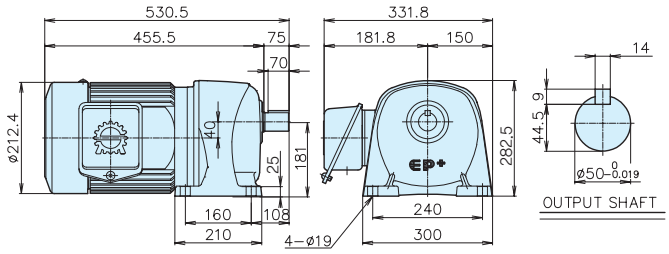


	Output(kW)	3.7kW												Weight (kg)
45V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	70
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	

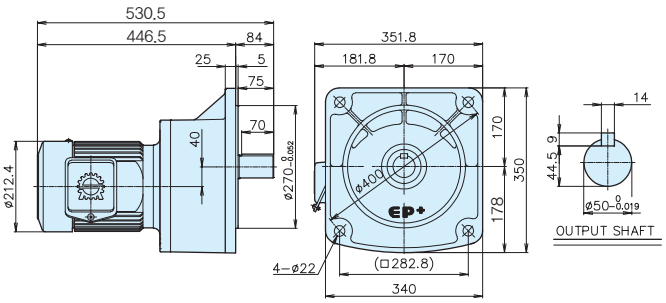


3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
50H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	88
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	

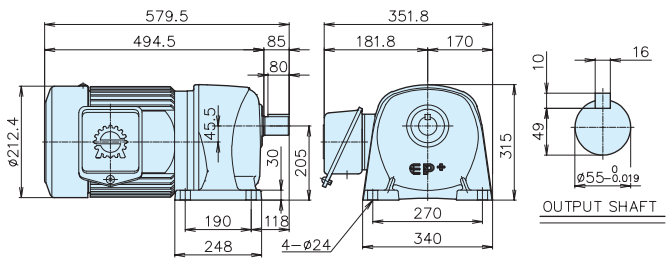


	Output(kW)	3.7kW												Weight (kg)
50V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	88
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	

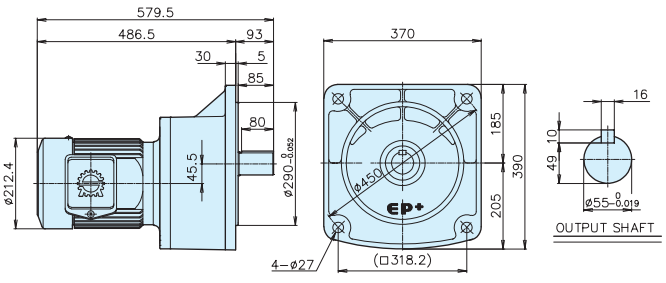


3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	108
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	

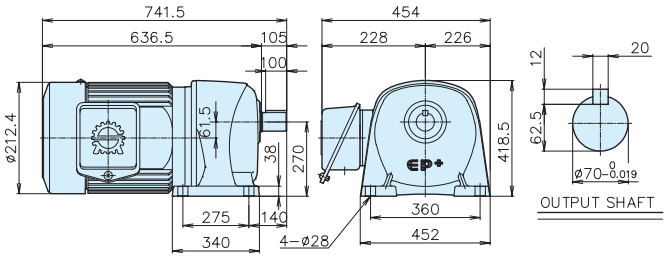


	Output(kW)	3.7kW												Weight (kg)
55V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	108
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	



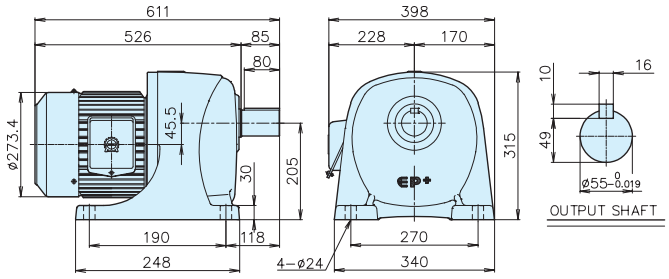
3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	148
	Torque(kgf.m)	9.2	18.5	27.7	37	55.5	74	92.5	111	138.7	148	166.5	185	

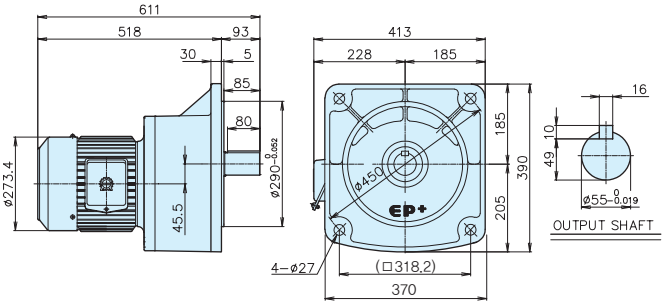


3PH 4P 5.5kW(7.5HP)

	Output(kW)	5.5kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	125
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	

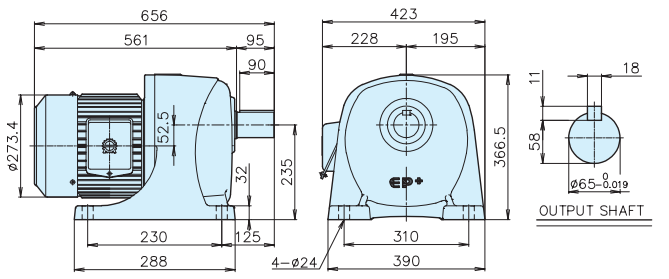


	Output(kW)	5.5kW												Weight (kg)
55V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	125
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	

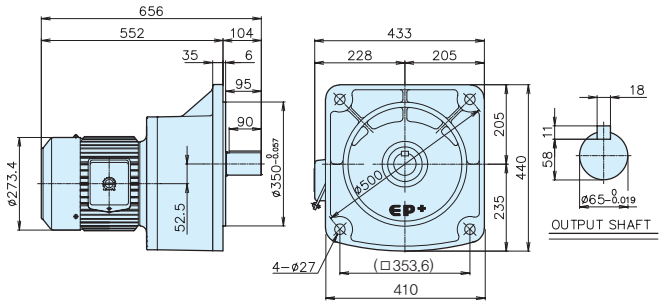


3PH 4P 5.5kW(7.5HP)

	Output(kW)	5.5kW												Weight (kg)
65H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	140
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	

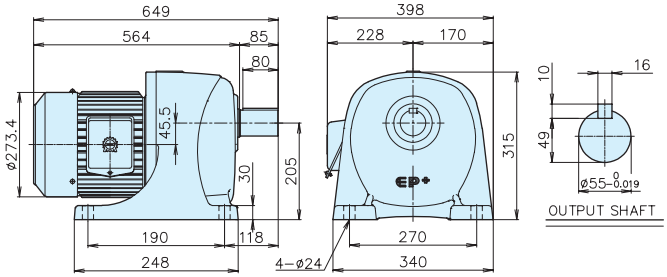


	Output(kW)	5.5kW												Weight (kg)
65V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	140
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	

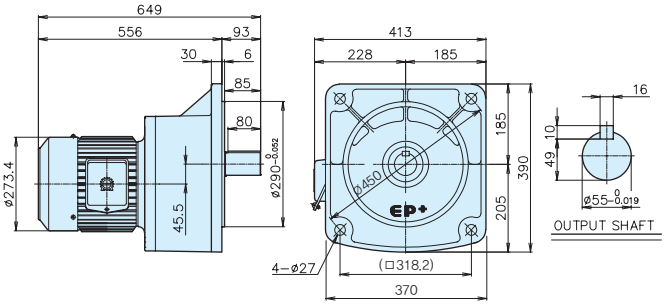


3PH 4P 7.5kW(10HP)

55H	Output(kW)	7.5kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	139
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	

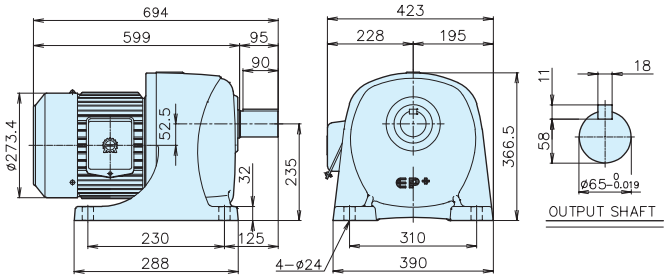


55V	Output(kW)	7.5kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	139
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	

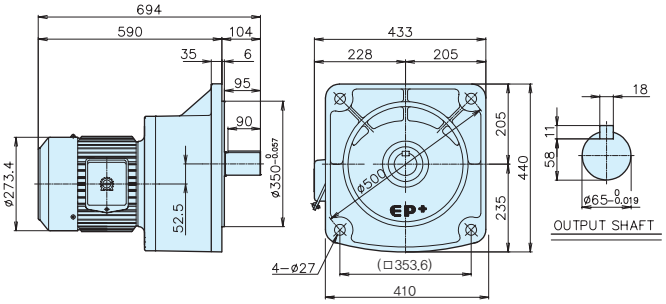


3PH 4P 7.5kW(10HP)

65H	Output(kW)	7.5kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	152
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	

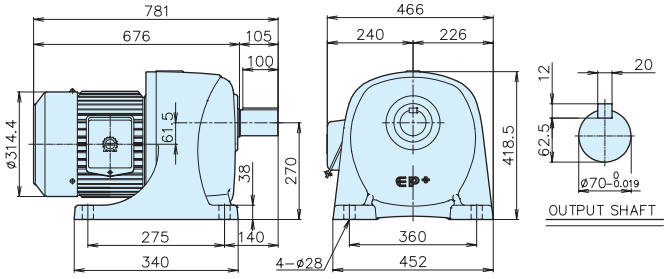


65V	Output(kW)	7.5kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	152
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	

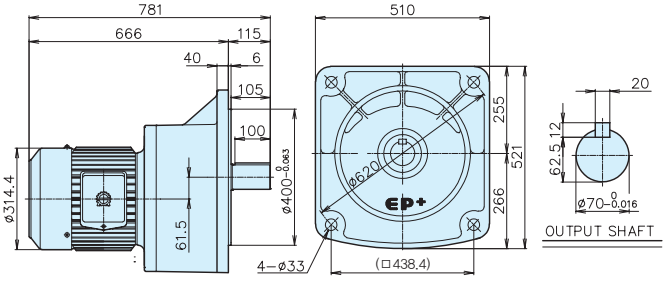


3PH 4P 11kW(15HP)

70H	Output(kW)	11kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	210
	Torque(kgf.m)	28.3	56.1	84.4	112	168	217	272	326	408	435	489	546	

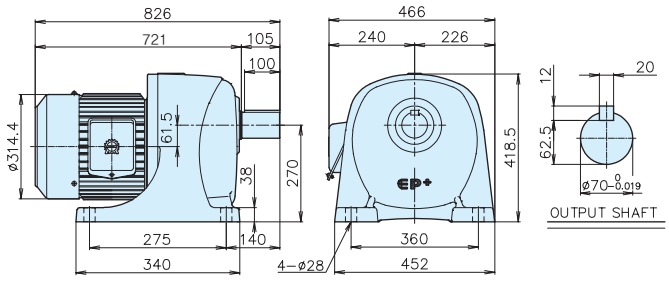


70V	Output(kW)	11kW												Weight (kg)
	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	210
	Torque(kgf.m)	28.3	56.1	84.4	112	168	217	272	326	408	435	489	546	

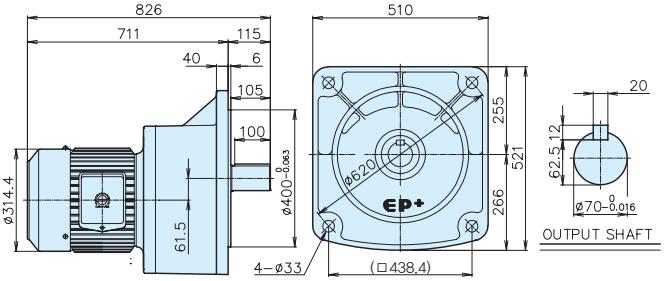


3PH 4P 15kW(20HP)

	Output(kW)	15kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	230
	Torque(kgf.m)	38.6	76.6	115	153	229	296	371	445	556	593	668	745	

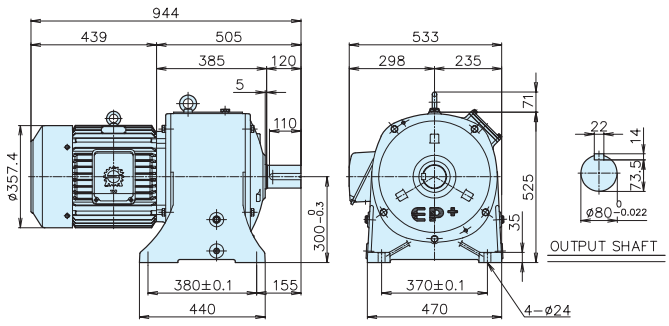


	Output(kW)	15kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	230
	Torque(kgf.m)	38.6	76.6	115	153	229	296	371	445	556	593	668	745	



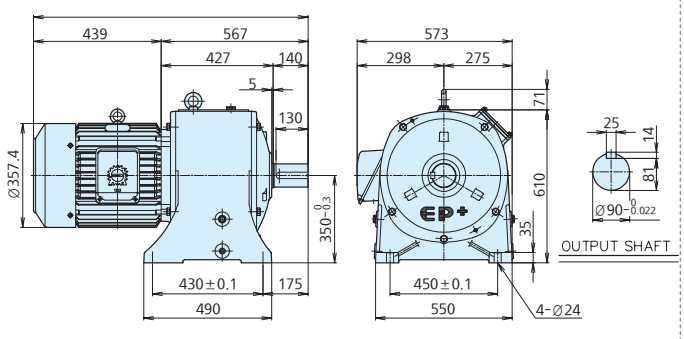
3PH 4P 18.5kW(25HP)

	Output(kW)	18.5kW									Weight (kg)
80H	Gear Ratio	1/10	1/30								
	rpm	180	60								465
	Torque(kgf.m)	92.5	277.5								



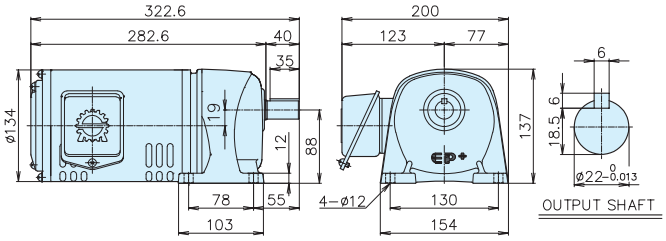
3HP 4P 22kW(30HP)

	Output(kW)	22kW									Weight (kg)
90H	Gear Ratio	1/30									
	rpm	60									525
	Torque(kgf.m)	321.4									

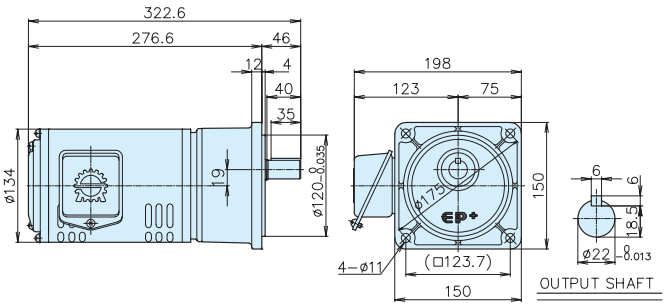


1PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10.5
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

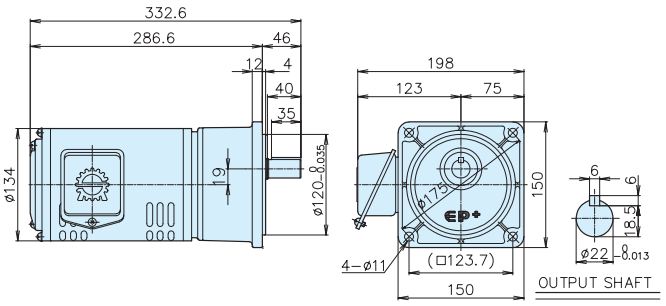


	Output(kW)	0.2kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10.5
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	



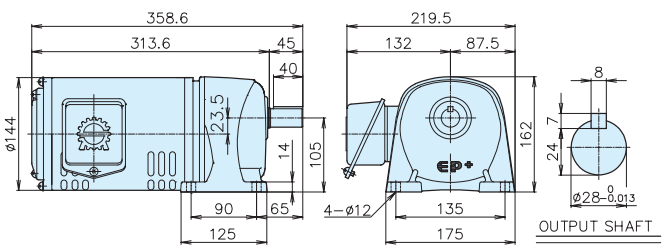
1PH 4P 0.25kW(1/3HP)

	Output(kW)	0.25kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12
	Torque(kgf.m)	0.6	1.2	1.8	2.5	3.7	5	6.2	7.5	9.3	10	11.2	12.5	

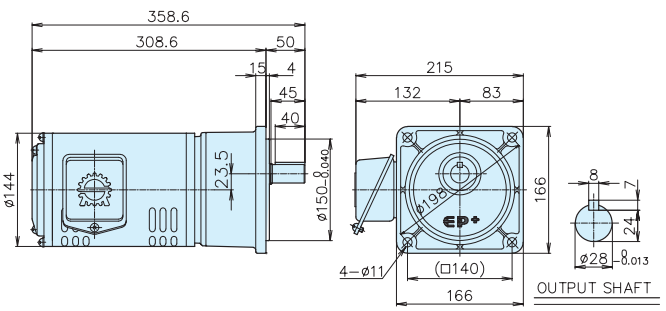


1PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW												Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	16
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8	10	12	15	16	18	20	

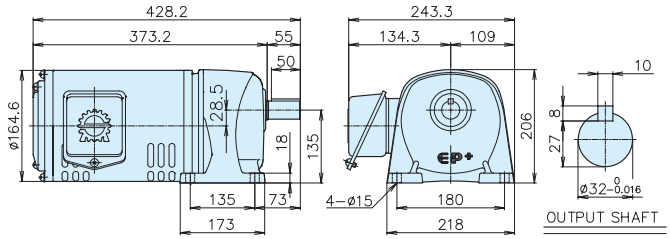


	Output(kW)	0.4kW												Weight (kg)
28V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	16
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8	10	12	15	16	18	20	

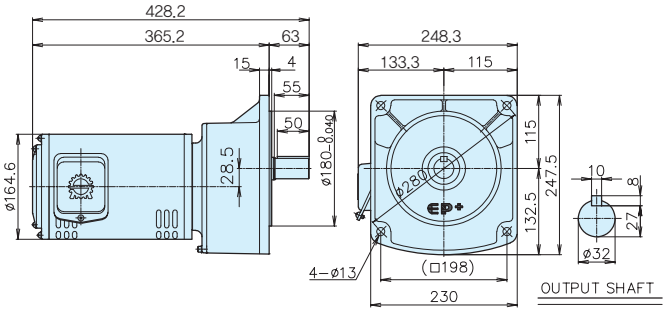


1PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
32H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	29
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

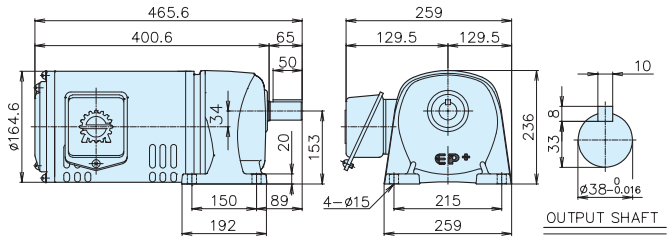


	Output(kW)	0.75kW												Weight (kg)
32V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	29
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

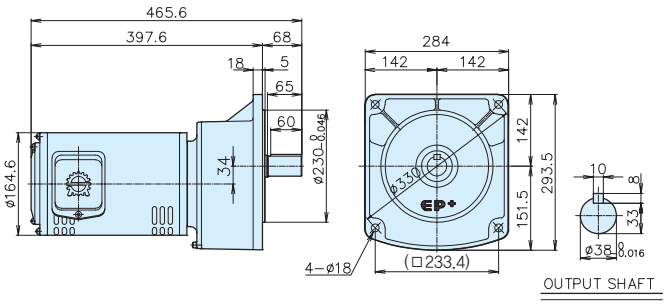


1PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	48
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	

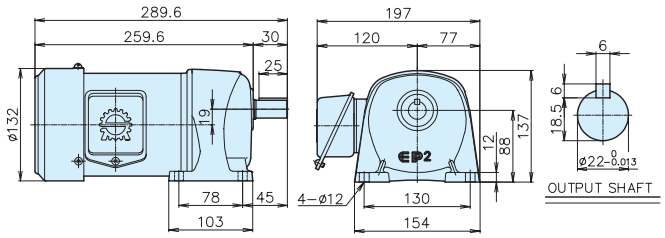


	Output(kW)	1.5kW												Weight (kg)
38V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	48
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	



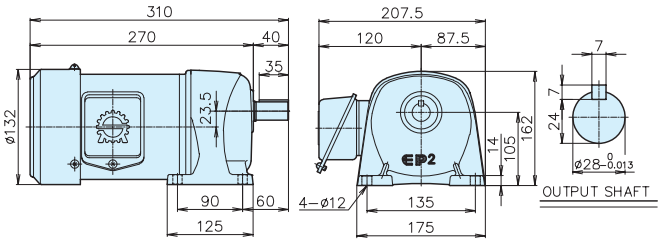
3PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	8.5
	Torque(kgf.m)	0.5	1	1.5	2.0	3.1	4.0	5.0	6.0	7.5	8.0	9.0	10.0	



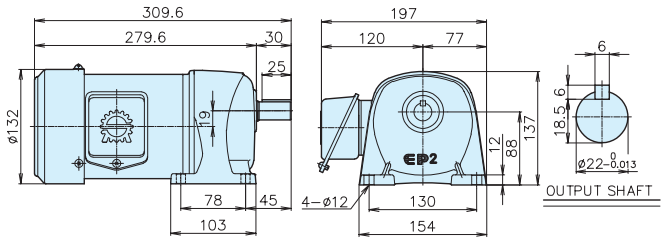
3PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW														Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	12
	Torque(kgf.m)	0.5	1	1.5	2.0	3.1	4.0	5.0	6.0	7.5	8.0	9.0	10.0	15	20	



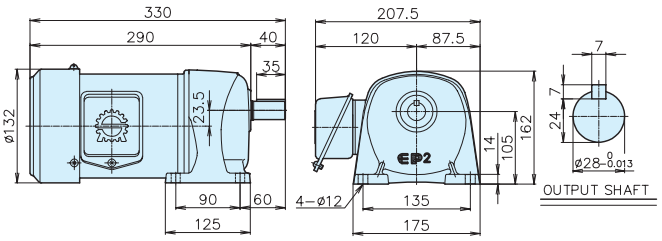
3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10.5
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	10.0	12.0	15.0	16.0	18	20	



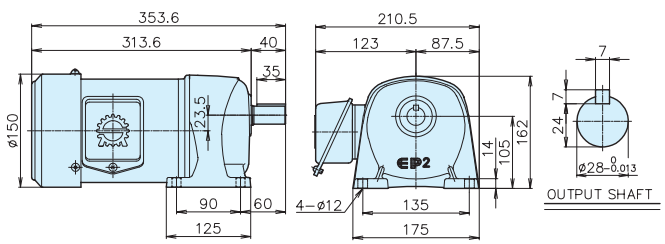
3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW														Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/150	1/200	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	12	9	13
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	10.0	12.0	15.0	16.0	18	20	30	40	



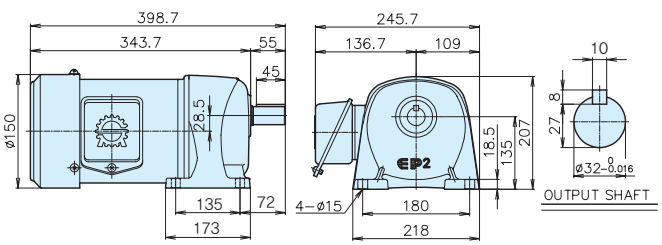
3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW													Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	16
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30.0	33.8	37.4	45	



3PH 4P 0.75kW(1HP)

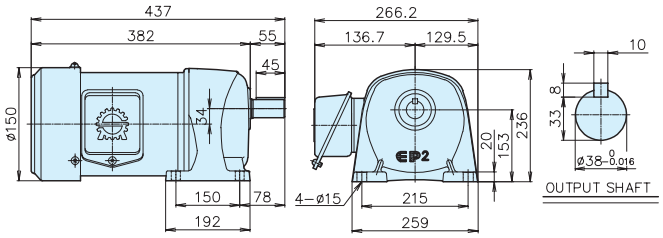
	Output(kW)	0.75kW												Weight (kg)
32H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	28
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30.0	33.8	37.4	



▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

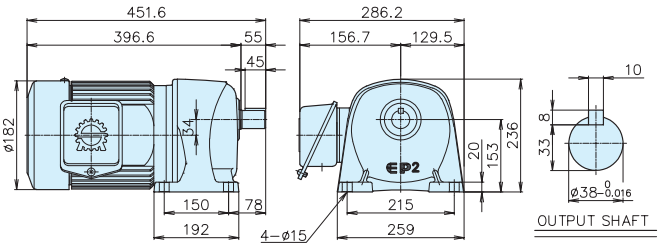
3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	39
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.1	30.0	33.8	37.4	



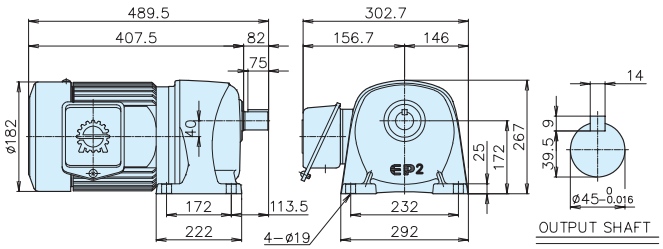
3PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	45
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30.0	37.4	45	56.3	60	67.5	75	



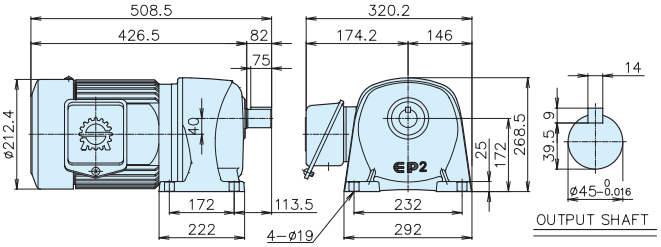
3PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW												Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	50
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30.0	37.4	45	56.3	60	67.5	75	



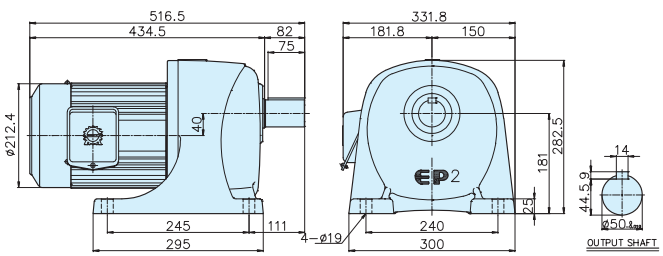
3PH 4P 2.2kW(3HP)

	Output(kW)	2.2kW													Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	61
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	131	



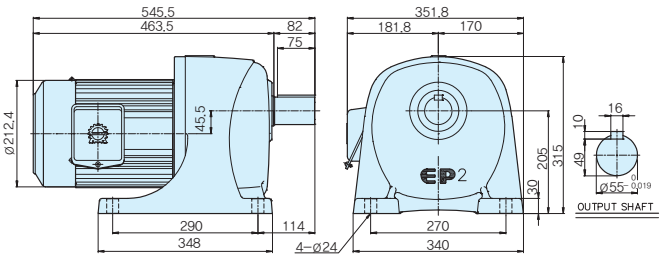
3PH 4P 2.2kW(3HP)

	Output(kW)	2.2kW													Weight (kg)
50H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	80
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	131	



3PH 4P 2.2kW(3HP)

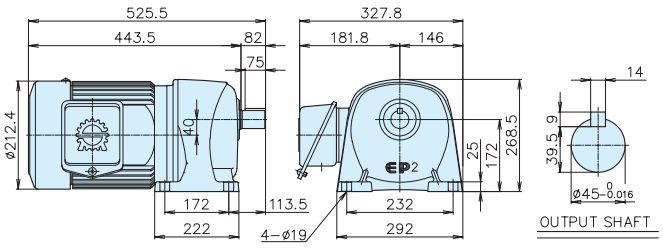
	Output(kW)	2.2kW													Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	1/120	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	15	105
	Torque(kgf.m)	5.7	11.2	16.8	22.4	33.7	43.5	54.5	65.3	81.6	87.1	100	109	131	



▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

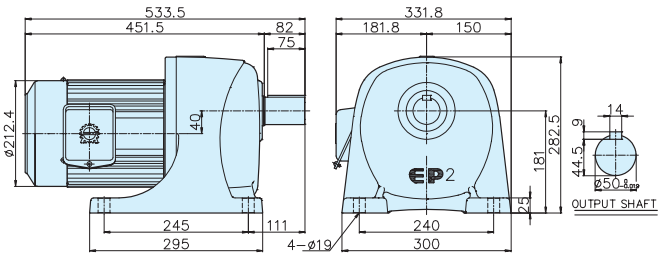
3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
45H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	72
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	



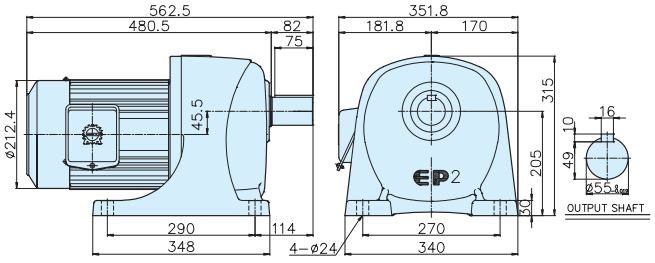
3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
50H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	90
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	



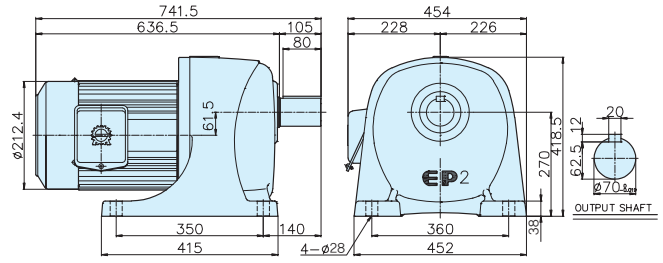
3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/10	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	180	90	60	45	36	30	24	22.5	20	18	109
	Torque(kgf.m)	9.5	18.8	18.8	37.7	56.6	73.2	91.6	109	137	146	164	183	



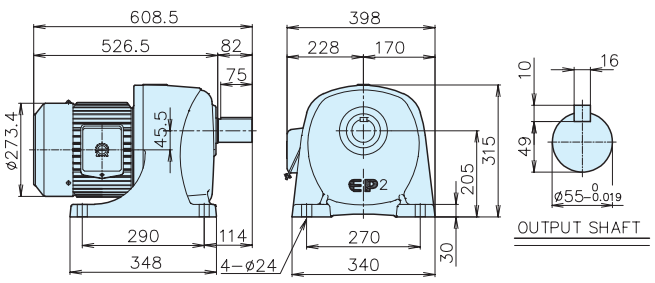
3PH 4P 3.7kW(5HP)

	Output(kW)	3.7kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	148
	Torque(kgf.m)	9.5	18.8	28.4	37.7	56.6	73.2	91.6	109	137	146	164	183	



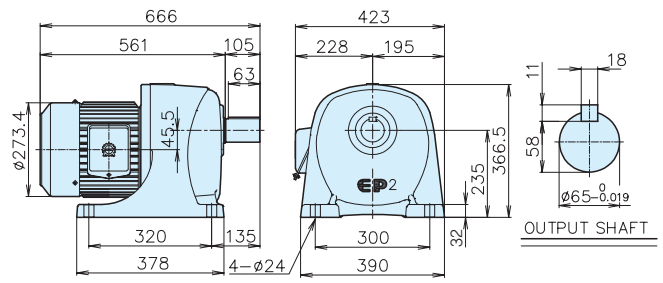
3PH 4P 5.5kW(7.5HP)

	Output(kW)	5.5kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	125
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	



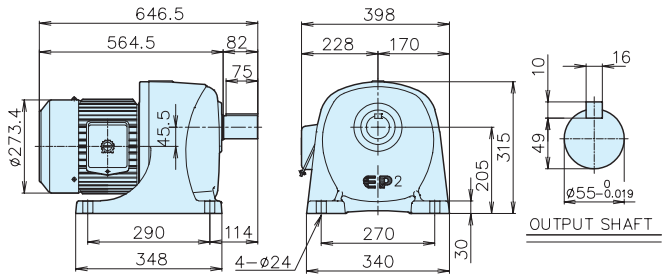
3PH 4P 5.5kW(7.5HP)

	Output(kW)	5.5kW												Weight (kg)
65H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	140
	Torque(kgf.m)	14.1	28.1	42.2	56.1	84.2	108	136	163	204	217	244	273	



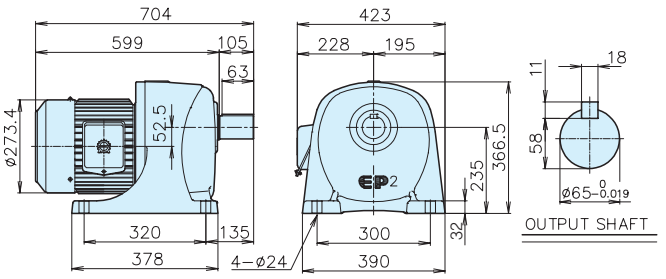
3PH 4P 7.5kW(10HP)

	Output(kW)	7.5kW												Weight (kg)
55H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	139
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	



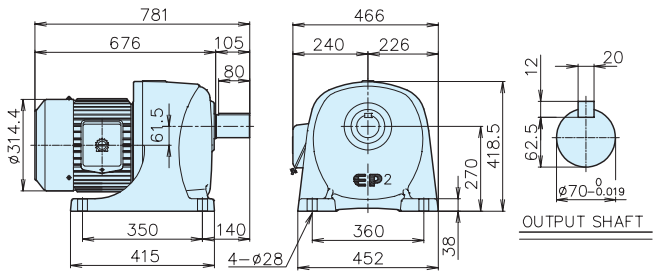
3PH 4P 7.5kW(10HP)

	Output(kW)	7.5kW												Weight (kg)
65H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	155
	Torque(kgf.m)	19.3	38.3	57.5	76.6	114	148	185	222	278	296	334	372	



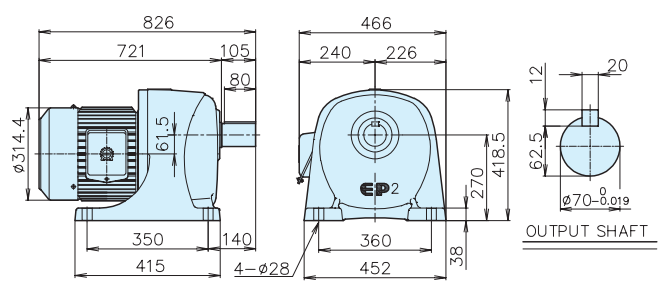
3PH 4P 11kW(15HP)

	Output(kW)	11kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	210
	Torque(kgf.m)	28.3	56.1	84.4	112	168	217	272	326	408	435	489	546	



3PH 4P 15kW(20HP)

	Output(kW)	15kW												Weight (kg)
70H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	230
	Torque(kgf.m)	38.6	76.6	115	153	229	296	371	445	556	593	668	745	



SMG Geared motor Type Classification Table

CODING SYSTEM

CAPACITY

Phase \ kW	0.2kW 200W	0.4kW 400W	0.75kW 750W	1.5kW 1500W	2.2kW 2200W	3.7kW 3700W	5.5kW 5500W	7.5kW 7500W	11kW 11000W	15kW 1500W
Three Phase	T020	T040	T075	T150	T220	T370	T550	T750	T1100	T1500
Single Phase	S200	S400	S750	S1500	S2200	–	–	–	–	–

TYPE	SHAFT	RATIO	kW	
H	28	50	T040	
F	32	100	T075	W

- kW
  - T010 : Three Phase 0.1kW
  - T020 : Three Phase 0.2kW
  - T040 : Three Phase 0.4kW
  - S200 : Single Phase 0.2kW
  - S400 : Single Phase 0.4kW
  - S750 : Single Phase 0.75kW
- RATIO
  - 05 : 1/5
  - 100 :1/100
- Dia of output shaft
- Mounting type
  - H: FOOT MOUNTING(H/T)
  - F: FLANGE MOUNTING(V/T)

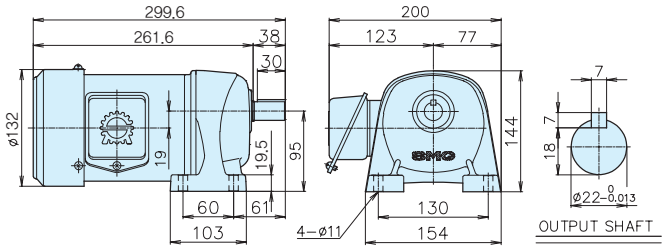
- Standard Voltage
  - Three Phase 220V/380V, 50Hz, 60Hz
  - Single Phase 220V, 50Hz, 60Hz
- W: High Voltage
  - Three Phase 380V, 440V, 50Hz, 60Hz

SMG TABLE OF MOTOR OUTPUT PER TYPE MODEL

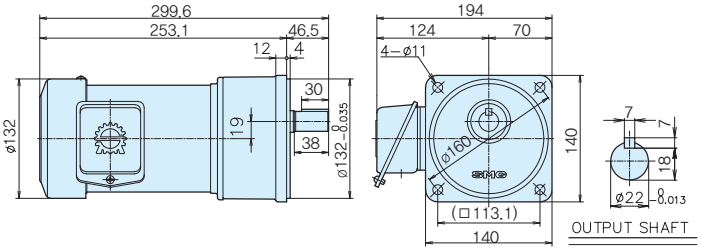
RATIO \ HP	1/4HP				1/2HP(L:22 M:28)				1HP				2HP	
	FOOT		FLANGE		FOOT		FLANGE		FOOT		FLANGE		FOOT	
5 : 1	22		22		22	28	22	28	32		32		38	
10 : 1	22		22		22	28	22	28	32		32		38	
15 : 1	22		22		22	28	22	28	32		32		38	
20 : 1	22		22		22	28	22	28	32		32		38	
30 : 1	22		22		22	28	22	28	32		32		38	
40 : 1	22		22		22	28	22		32	38	32	38	38	
50 : 1	22		22		22	28	22		32	38	32	38	38	
60 : 1	22		22		22	28	22		32	38	32	38	38	
75 : 1	22		22		22	28	22		32	38	32	38	38	
80 : 1						28								
90 : 1						28								
100 : 1						28								
120 : 1		28		28		28								
150 : 1		28		28		28								
200 : 1		28		28		28								

3PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

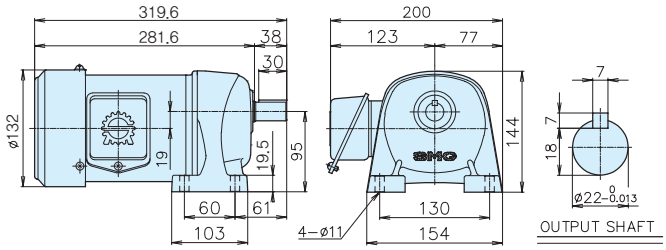


	Output(kW)	0.2kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	10
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

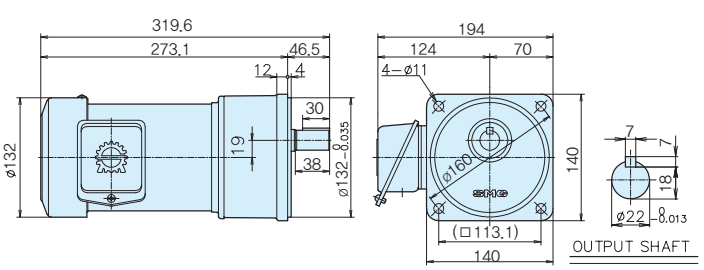


3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	16
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	9.9	11.8	14.8	15.8	17.7	19.7	

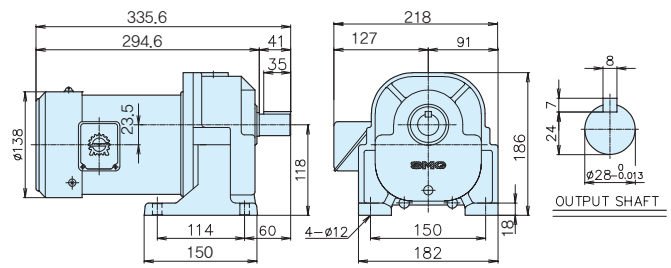


	Output(kW)	0.4kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	16
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	9.9	11.8	14.8	15.8	17.7	19.7	

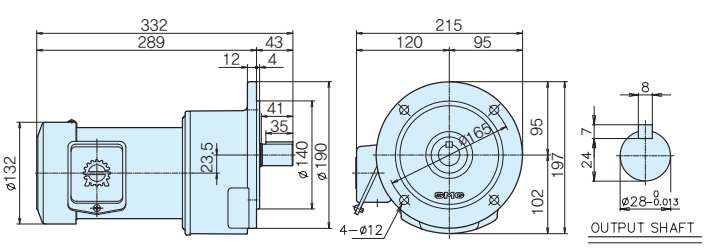


3PH 4P 0.4kW(1/2HP)

	Output(kW)	0.4kW												Weight (kg)
28H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	20
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	9.9	11.8	14.8	15.8	17.7	19.7	



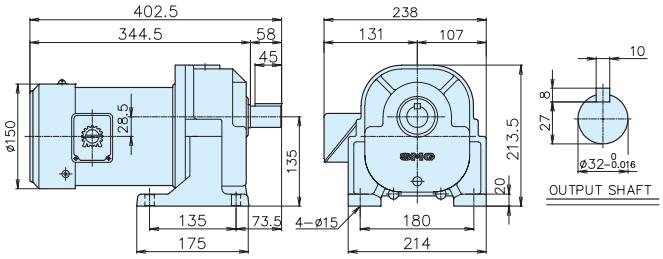
	Output(kW)	0.4kW												Weight (kg)
28V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	20
	Torque(kgf.m)	1	2.1	3.1	4.1	6.2	8.0	9.9	11.8	14.8	15.8	17.7	19.7	



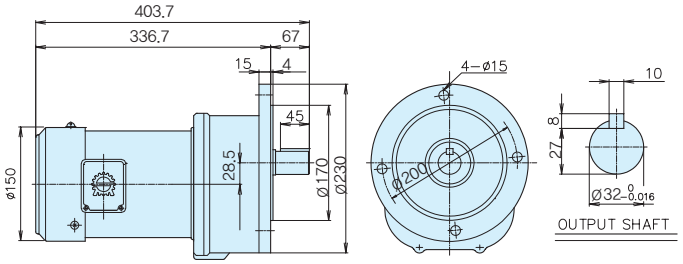
▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
32H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	27
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

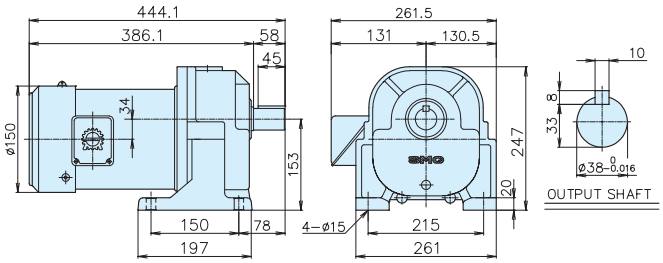


	Output(kW)	0.75kW												Weight (kg)
32V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	27
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.1	30	33.8	37.4	

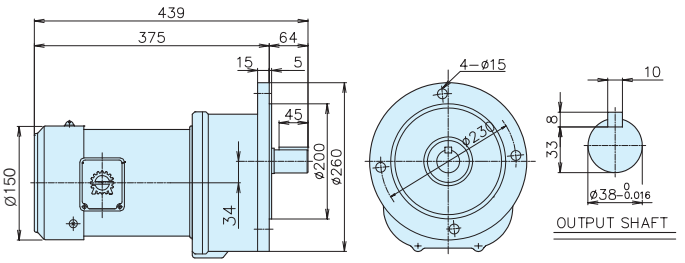


3PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	41
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.1	30	33.8	37.4	

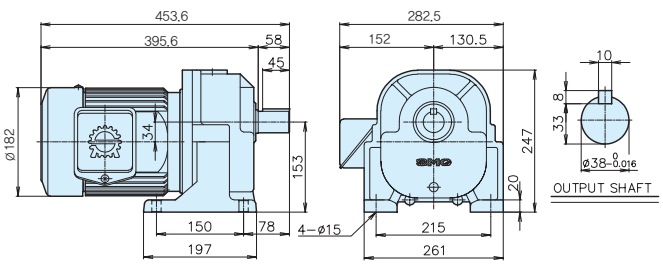


	Output(kW)	0.75kW												Weight (kg)
38V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	41
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.1	30	33.8	37.4	

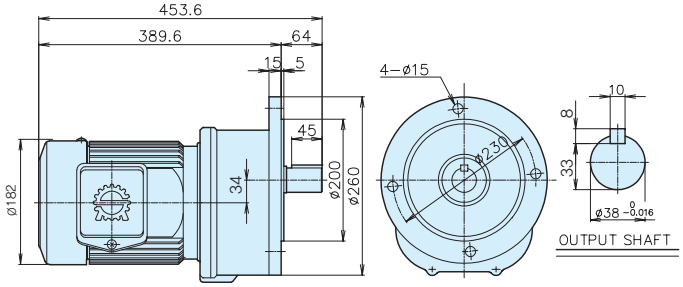


3PH 4P 1.5kW(2HP)

	Output(kW)	1.5kW												Weight (kg)
38H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	47
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	



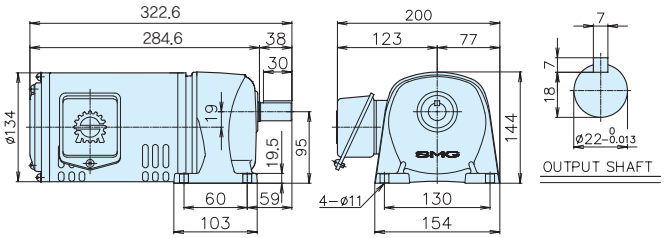
	Output(kW)	1.5kW												Weight (kg)
38V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	47
	Torque(kgf.m)	3.9	7.7	11.6	15.4	23.2	30	37.4	45	56.3	60	67.5	75	



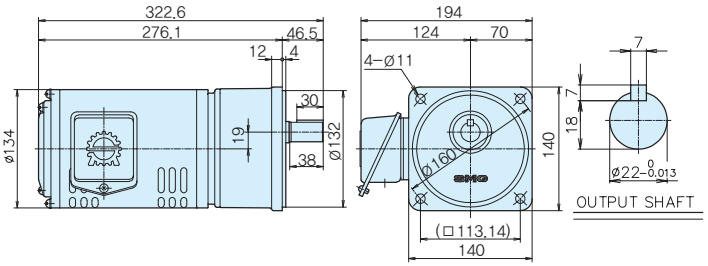
▶Both steel and aluminum frames can be made for products of 0.2kW ~ 0.75kW.

1PH 4P 0.2kW(1/4HP)

	Output(kW)	0.2kW												Weight (kg)
22H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	9
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

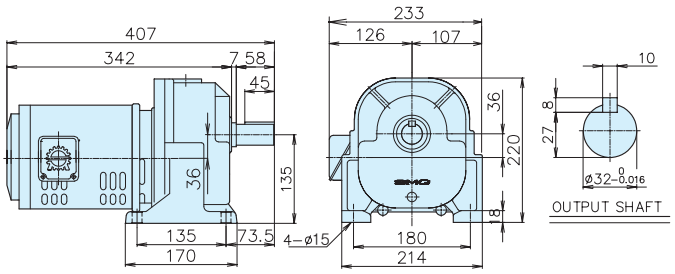


	Output(kW)	0.2kW												Weight (kg)
22V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	9
	Torque(kgf.m)	0.5	1	1.5	2	3.1	4	5	6	7.5	8	9	10	

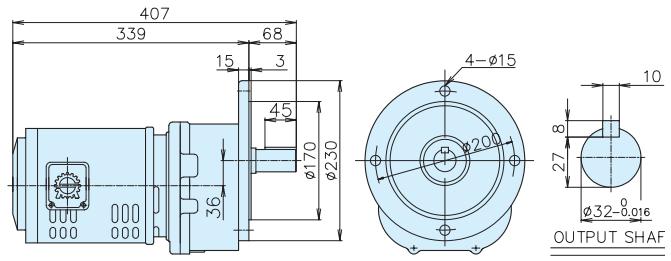


1PH 4P 0.75kW(1HP)

	Output(kW)	0.75kW												Weight (kg)
32H	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	29
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	

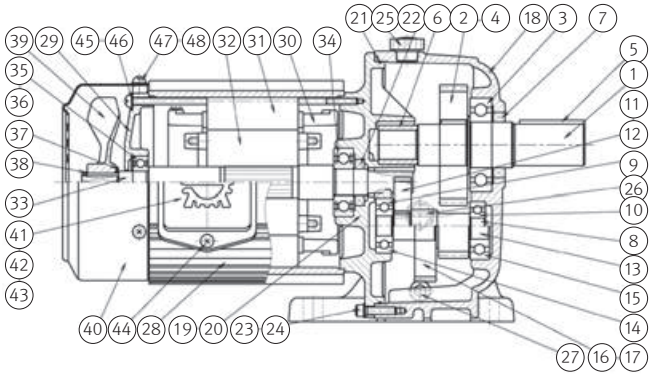


	Output(kW)	0.75kW												Weight (kg)
32V	Gear Ratio	1/5	1/10	1/15	1/20	1/30	1/40	1/50	1/60	1/75	1/80	1/90	1/100	
	rpm	360	180	120	90	60	45	36	30	24	22.5	20	18	29
	Torque(kgf.m)	1.9	3.9	5.8	7.7	11.6	14.9	18.8	22.5	28.2	30	33.8	37.4	



Geared Motor Instruction Manual

1 Configuration of parts



1. 2ND,3RD GEAR SHAFT	14. BALL BEARING	27. SOCKET TPTER BOLT	40. FAN COVER
2. 2ND,3RD GEAR	15. BALL BEARING	28. MOTOR FRAME	41. LEAD BOX
3. BALL BEARING	16. 2ND GEAR	29. REAR BRACKET	42. LEAD BOX PACKING
4. KEY	17. KEY	30. WINDING	43. LEAD BOX TAP SCREW
5. KEY	18. GEAR CASE	31. STATOR ASSEMBLY	44. LEAD BOX ASS'Y BOLT
6. OILLESS BEARING	19. FRONT BRACKET	32. ROTOR ASSEMBLY	45. ASSEMBLY BOLT
7. OIL SEAL	20. DOWEL PIN	33. SHAFT	46. SPRING WASHER
8. 2ND PINION GEAR	21. O-RING	34. BALL BEARING	47. FAN COVER BOLT
9. BALL BEARING	22. OIL SEAL	35. BALL BEARING	48. SPRING WASHER
10. BALL BEARING	23. SOCKET BOLT	36. WAVE WASHER	49. MOTOR NAME PLATE
11. 1ST GEAR	24. SPRING WASHER	37. TENSION WASHER	
12. KEY	25. AIR VENT	38. RETAINING RING	
13. 3RD PINION GEAR	26. OIL GAUGE	39. FAN	

I sincerely thank customers for buying products of Shinmyung Electric. Shinmyung equipped with competent technical workers and ultra-precision machinery does its best to make high-quality products by strictly managing quality. We ask customers to be fully aware of this instruction before testing and using our products in order to prevent safety accidents and maintain the best performance of the products.

2 Safety

To highlight some of the most important safety concerns, this manual provides [precautions] and [warnings].
Be sure to be fully aware of [warnings] and [precautions] of this instruction manual before use.

Precautions: Wrong use of products can cause dangerous situations, minor and severe injuries and material harm.

Warnings: Wrong use of products can cause dangerous situations and fatal accidents are expected to occur.

Precautions

1. As oil or grease is filled in decelerators, please be careful to prevent environmental pollution caused by oil leakage.
2. Please select places that have good ventilation and little dust and water and can be easily checked for installing the products.
3. Please keep matters regarding spot and regular checks
4. Be sure to install inlets and exhausts of motors over 20cm from walls or other obstacles. Otherwise, the cooling effect can drop and cause fire damage.
5. Choose clean, dry and well-ventilated indoor places with little vibration and no temperature change for installing and keeping the products.
6. Regarding oil and grease supply, ask the A/S team of the main office.
7. Don't give a shock to, tread on or cling to the products.
8. When troubles are detected, please cut the power supply immediately.
9. Be sure to ask professionals to repair and disjoint the products.

Warnings

1. Never use the products for other purposes.
2. Don't use the products surpassing the capacity stated in the product specifications and the rating plate.
3. Don't correct or delete the items mentioned in the rating plate arbitrarily.
4. As the products are heavy, wear a safety gear and observe safety rules for using them.
5. As temperature of surface of decelerators and motors in operation is high, be careful not to let them touch the body or inflammable matters.
6. Be sure to install insulation guard nets to prevent rotating parts of motors (motor fans, output shafts, pulleys, belts) from touching the body or other things.
7. Be sure to cut the power supply while disjointing or repairing the products.
8. If there is a blackout during operation, be sure to turn off the power switch. Otherwise, unexpected accidents can happen because the products automatically work when the power is supplied again.
9. Be sure to check the rotation direction before operating the products.
10. Be sure to check if there are problems through idle running before using the products.
11. Be careful not to use the products in the state of overload of higher than the electric current stated in the rating plate. Don't operate the power supply when electric safety isn't secured before installing the products in the right position.
12. Electric connection using motors should be made following electric system technique criteria or consumers' electrical installation guides and exact capacities of decelerators and motors should be confirmed.

3 Test operation

❶ After oil supply and connection, be sure to check if there are problems through idle running for three or five minutes before loading.
❷ Check following matters under No load operating
❸ Noise and strange sound
❹ Vibration
❺ Rapid temperature raising
❻ Oil leakage
❼ Tightness of each part
❽ Alignment of connection shafts
❾ Check unload electric current:Overload connections, friction resistance of Geared Motor

4 Measures for reasons of troubles and checks

Checks and measures should be taken about reasons of troubles as following to maintain the best condition of products and troubles should be fixed before damage gets worsened.

1. Measures for reasons of troubles

Trouble	Cause		Measure
Case overheating	1. Operation in the state of overload 2. Excessive or deficient lubricant 3. Poor and old lubricant 4. Blocked air hole 5. Loose belts 6. Wrong connection of electric motors/ decelerators		1. Control load/ replace with large capacity 2. Check the oil gauge 3. Replace oil 4. Clean air holes 5. Replace belts/ attach tension rollers 6. Do parallelism and center work exactly
Noise	Regular noise	1. Bad gear contact surface 2. Bearing damage	1. Contact the manufacturer 2. Replace bearings
	High metal sound	1. Lubricant shortage 2. Little bear backlash	1. Supplement the lubricant 2. Contact the manufacturer
	Irregular noise	1. Intrusion of foreign substances 2. Bearing damage	1. Remove foreign substances and remove oil 2. Replace bearings
Vibration	1. Gear wearing 2. Intrusion of foreign substances 3. Bearing damage 4. Poor bolt connection		1. Replace gears and pinions 2. Remove foreign substances and remove oil 3. Replace bearings 4. Tighten bolts
Oil leakage	1. Oil seal damage 2. O-ring breakdown		1. Replace oil seals 2. Replace O-rings

Trouble	Cause	Measure
Gear wearing	1. Overload operation 2. Bad and aging oil 3. Oil shortage 4. Damage by intrusion of foreign substances 5. Large impulsive load during startup 6. High operation temperature	1. Control load/ replace with large capacity 2. Replace with new oil 3. Supplement oil 4. Replace components 5. Replace with large capacity 6. Improve ventilation

2. Regular checklist

Item	Check point	Important reasons
Electric insulation	Insulation resistance value and changing development	Life, insulation damage, motors of dirt Inside intrusion
Gear / pinion	Progress of gear wearing Forms of wearing	Life, overload, lubricant deterioration / shortage, intrusion of foreign substances
Oil deterioration	Such as oil color, penetration, viscosity, among others	Life, temperature hike, dirt, mixing of different kinds of oil

5 Warranty information

1. This product is guaranteed for one year after delivery or within the accumulated operating time of 2000 hours.
2. Warranty is about standard matters. If there are differences from conditions of the purchase contract, the purchase contract shall be applied.
3. About following cases, customers should pay for service even during the guarantee term.
   - **A.** Problems caused by users' faults or careless treatment and transportation
   - **B.** Problems caused by excessive use beyond purposes and visual fields of goods
   - **C.** Damage caused by operation of unlicensed workers
   - **D.** Problems caused by disjoining, repairing or remodeling without getting service from our company
   - **E.** Problems caused after using components which were not made by Shinmyung
   - **F.** Problems caused by natural disasters (such as floods, earthquakes, fires and riots)
   - **G.** When goods are modified differently from delivered ones
   - **H.** Problems caused after not following the instruction manual
   - **I.** Other problems caused by outside reasons, not faults of goods
4. Warranty is limited to repairing, in principle. If repairing is impossible, products with problems shall be replaced with new ones.
5. Warranty is applicable only when products are installed in the nation. When products are used out of the nation, there should be a separate contract.
6. Standards of guaranteed performance shall be limited to the catalogue and submitted specifications.
7. Regarding following cases, there should be advanced contracts and discussion with the main office before purchase. For receiving compensation for spread damage, the purchase contract should have a separate compensation scope and limitation.
   - **A.** In case of installing products out of the nation or on islands
   - **B.** In case that contracts and permissions for special equipment or special workers are necessary for installing products in high places or in water or that there are many risks
8. Responsibility for products should basically follow related laws. About derivative losses caused after not following safety devices and emergency measures, the company has no responsibility.
9. Consumers should have about 10~20% reserve stocks of the operating quantity in preparation for unexpected troubles.
10. When products are operated to intentionally cause troubles even if troubles are expected or problems are detected, the company has no responsibility for losses.
11. Consumers should pay for investigating trouble reasons and repairing after the guarantee term. Even during the guarantee term, troubles caused by situations not mentioned in warranty shall be investigated and repaired at a cost. In that case, please request to agencies of the main office.

6 Warranty information

The rating plate is attached to each of the decelerator part and the motor part. While accepting products, consumers should check if ordered specifications are same with the rating plate. When damaged parts are found during delivery, consumers should not use the products and should contact the customer support team of the company.

Decelerator part: Model, type number, gear rate, capacity, among others
Ex) H-22-30-0.4(1/2) → H/T, 22-type, 30:1, 0.4kW(1/2HP)

Motor part: Electric power, power supply (voltage, frequency, constant, among others) pole and rotation speed brake system

[Contacts]

Address: (1813-1, Hagun-ri) 44, Samdo-ro, Yangchon-eup, Gimpo City, Gyeonggi Province
Tel: +82-31-988-4102, +82-31-988-4862
Fax: +82-31-988-4101, +82-31-988-4863

7 Product warranty

Produce name		Model name	
Model number		Production number	
Serial number		Production date	
Customer: Name		Telephone	
Customer: Address			
Salesclerk: Store name		Telephone	
Salesclerk: Selling date		Term of guarantee	
Salesclerk: Seller	(Signature or seal)		
Manufacturer	**Shinmyung Electric Co.Ltd.**		

How to write the warranty

1. The guarantee term on the warranty is that of the seller.
2. Products are guaranteed according to the warranty.
3. There is no guarantee if there are not the selling date or the seller's signature or seal.
4. Please write all details of the warranty.
5. This warranty won't be provided again.

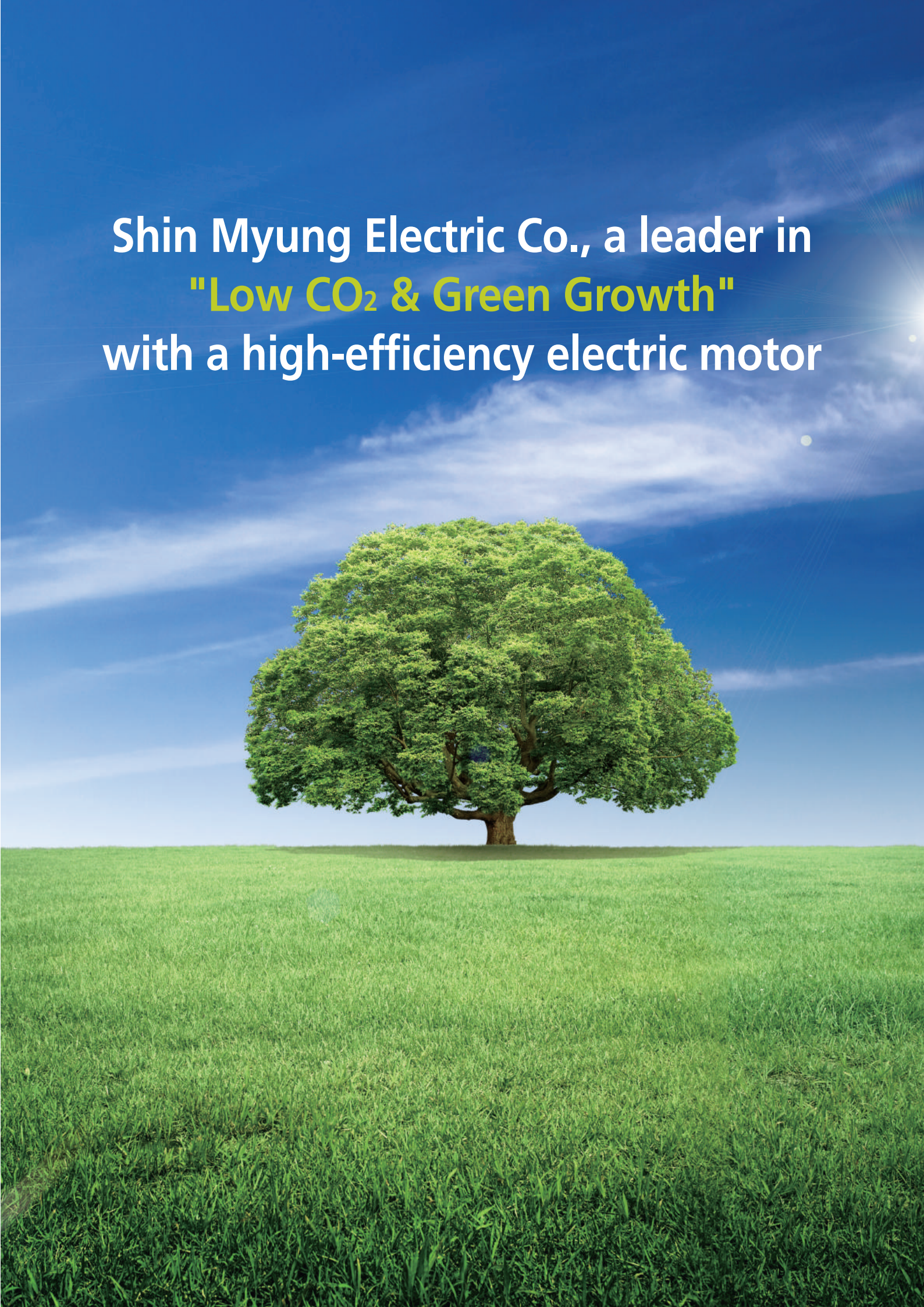
1. Please understand that parts of this instruction manual can be changed without an advance notice.
2. Some or all of this instruction manual shouldn't be copied without permission.
3. We do our best to make details of this instruction manual perfect. If there are mistakes or unclear parts, please contact the main office.

Geared motor instruction manual

SMC

Main office · factory: (1813-1, Hagun-ri) 44, Samdo-ro, Yangchon-eup, Gimpo City, Gyeonggi Province
TEL: +82-31-988-4102, +82-31-988-4862
FAX: +82-31-988-4101, +82-31-988-4863
Seoul office: #912, STX W-Tower, 615-3, Guro-dong, Guro-gu, Seoul
TEL: +82-2-6927-9696
FAX: +82-2-6124-4124
Chinese factory: Qixia Economic Development Zone, Yantai City, Shandong Province, China

SHIN MYUNG MOTORS


Shin Myung Electric Co., a leader in
"Low CO_2 & Green Growth"
with a high-efficiency electric motor

고효율기자재인증

TÜV

ISO 9001

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