Fuji Electric

Innovating Energy Technology

FUJI LOW-VOLTAGE INDUCTION MOTORS

» 3 Phase Premium Efficiency Motor [IE3 class] OUTPUT 0.75-375kW
» 3 Phase Standard Efficiency Motor [IE1 class] OUTPUT 0.1-0.4kW

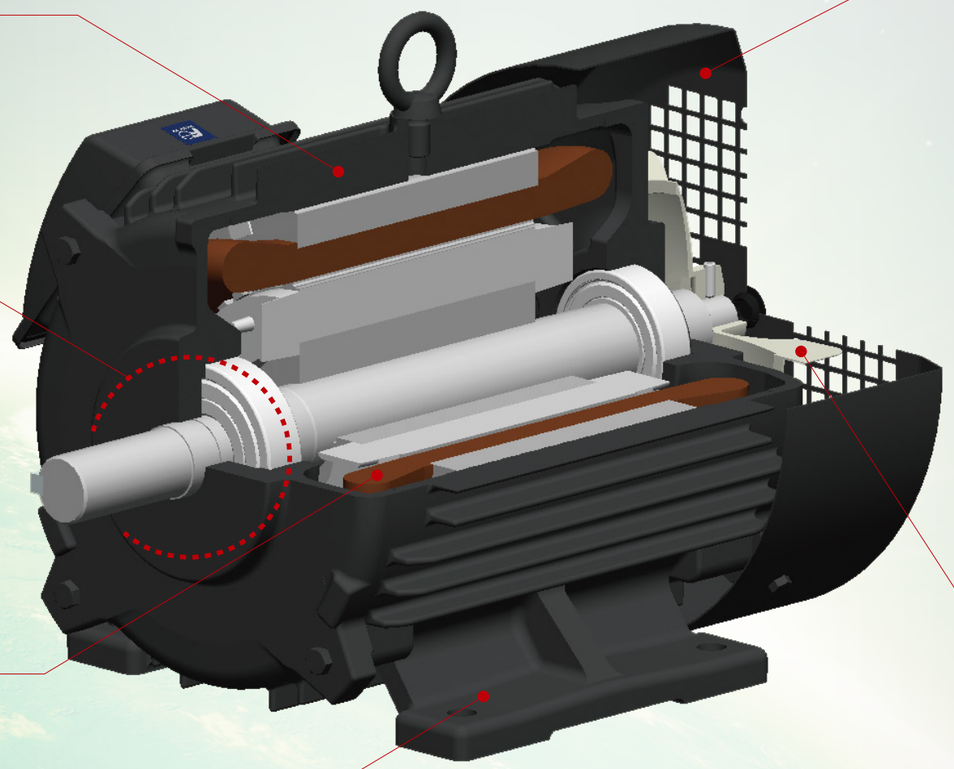
24B2-E-0087

ACCELERATES TO THE NEXT GENERATION

FUJI LOW-VOLTAGE THREE - PHASE INDUCTION MOTOR

FEATURES
[PREMIUM EFFICIENCY MOTOR]

ALL PREMIUM



High efficiency

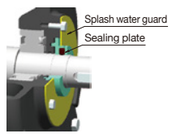
Efficiency class IE3!
*Efficiency class according to IEC60034-30

Significant reduction of the overall loss successfully achieved by using high-quality materials featuring reduced iron loss, adopting a slot shape with the optimized distribution of primary and secondary copper loss, and reviewing the mechanical loss.

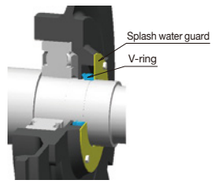
Outdoor type

Global standard protection rating: IP55

[Frame size 200L or smaller]



[Frame size 225S or larger]



Inverter driving

Constant torque operation possible at 0.5 to 60 Hz (1:120)

100% constant torque operation is possible at 0.5 to 60 Hz with vector control. (with 4P, output 45 kW or less)

Long service life

Longer service life of insulation system
*Comparison with conventional products of Fuji Electric

Longer service life realized with an ultimate design featuring a lower loss to reduce any temperature rise and Fuji Electric's independent thermal class 155 (F) adopted as a standard feature.

Easy replacement

Same frame sizes and connecting dimensions as standard motors *Comparison with conventional products of Fuji Electric

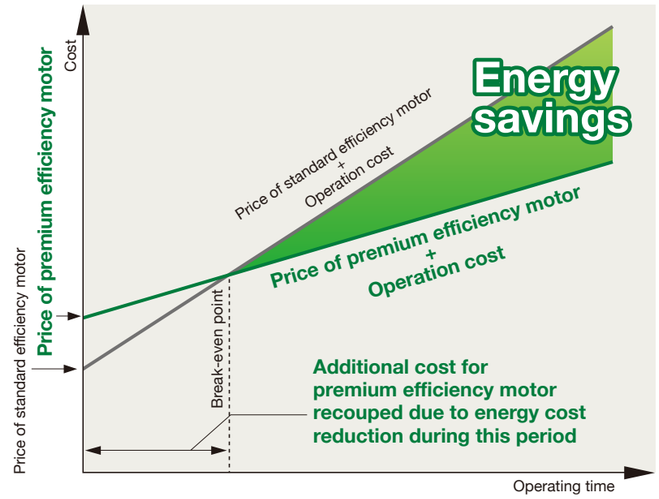
Existing motors can be easily replaced because the new products have the same motor frame sizes and connecting dimensions as those of existing standard efficiency motors.

Energy saving

Running cost greatly decreased

Premium efficiency motors have higher efficiency than standard efficiency motors and offer a higher energy-saving effect with longer-hour applications, improving economic efficiency.

Energy-saving effect



Low noise

Average noise reduction of 5 dB (A)
*Comparison with conventional products of Fuji Electric

Noise reduction achieved by improving and optimizing the cooling fan and revising the fan cover shape, not to mention reducing the motor electromagnetic force-induced noise.

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■ Totally-enclosed fan-cooled type **Indoor** **200 V class**

For products with stock indication, please provide the part number code when placing orders.
MLK1005 ○ ○ In stock (200/200-220 V)
Part number code / Stock indication

*Those without a stock indication are made to order.

Premium efficiency

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
80M	MLK1085M	0.75 MLK1002 ○	0.75 MLK1005 ○		155 (F)
90L	MLK1096M	1.5 MLK1003 ○	–	–	
	MLK1097M	2.2 MLK1004 ○	1.5 MLK1006 ○	0.75 MLK1023 ○	
100L	MLU1107A	–	2.2 MLU1007 ○	1.5 MLU1062 ○	
112M	MLU1115A	3.7 MLU1004 ○	3.7 MLU1008 ○	2.2 MLU1063 ○	
132S	MLU1132A	5.5 MLU1005 ○	–	–	
	MLU1133A	7.5 MLU1006 ○	5.5 MLU1009 ○	3.7 MLU1064 ○	
132M	MLU1135A	–	7.5 MLU1010 ○	5.5 MLU1065 ○	
160M	MLU1164A	11 MLU1033 ○	–	–	
	MLU1165A	15 MLU1034 ○	11 MLU1036 ○	7.5 MLU1066 ○	
160L	MLU1167A	18.5 MLU1035 ○	15 MLU1037 ○	11 MLU1067 ○	
180M	MLU1184A	–	18.5 MLU1089 ○	–	
	MLU1185A	22 MLU1085 ○	22 MLU1090 ○	15 MLU1094 ○	
180L	MLU1186A	–	–	18.5 MLU1095 ○	
	MLU1187A	30 MLU1086 ○	30 MLU1091 ○	22 MLU1096 ○	
200L	MLU1206A	37 MLU1087 ○	37 MLU1092 ○	30 MLU1097 ○	
	MLU1207A	45 MLU1088 ○	45 MLU1093 ○	37 MLU1098 ○	
225S	MLU1220A	55 MLU7003 ○	–	–	
	MLU1221A	–	55 MLU7004 ○	45 MLU7005 ○	
250S	MLU1250A	75	75	55	
250M	MLU1252A	90	90	75	
280S	MLU1280A	110	110	90	
280M	MLU1282A	132	132	110	

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
80M	MLK1085P	0.75 MLK1011 ○	0.75 MLK1014 ○	–	155 (F)
90L	MLK1096P	1.5 MLK1012 ○	–	–	
	MLK1097P	2.2 MLK1013 ○	1.5 MLK1015 ○	0.75 MLK1024 ○	
100L	MLU1107C	–	2.2 MLU1020 ○	1.5 MLU1068 ○	
112M	MLU1115C	3.7 MLU1017 ○	3.7 MLU1021 ○	2.2 MLU1069 ○	
132S	MLU1132C	5.5 MLU1018 ○	–	–	
	MLU1133C	7.5 MLU1019 ○	5.5 MLU1022 ○	3.7 MLU1070 ○	
132M	MLU1135C	–	7.5 MLU1023 ○	5.5 MLU1071 ○	
160M	MLU1164C	11 MLU1040 ○		–	
	MLU1165C	15 MLU1041 ○	11 MLU1042 ○	7.5 MLU1072 ○	
160L	MLU1167C	18.5	15 MLU1043 ○	11 MLU1073 ○	
180M	MLU1184C	–	18.5 MLU1099 ○	–	
	MLU1185C	22	22 MLU1100 ○	15	
180L	MLU1186C	–	–	18.5	
	MLU1187C	30	30 MLU1101 ○	22	
200L	MLU1206C	37	37 MLU1102 ○	30	
	MLU1207C	45	45	37	
225S	MLU1220C	55	–	–	
	MLU1221C	–	55	45	
250S	MLU1250C	75	75	55	
250M	MLU1252C	90	90	75	

Standard efficiency

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8062A	–	0.1 MLP1001 ○	–	120 (E)
	MLH8065M	0.2 MLH1165 ○	0.2 MLH1170 ○	–	
71M	MLH8075M	0.4 MLH1166 ○	0.4 MLH1171 ○	0.2 MLH1229 ○	
80M	MLH8085M	–	–	0.4 MLH1175 ○	

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8065P	0.2 MLH1194 ○	0.2 MLH1199 ○	–	120 (E)
71M	MLH8075P	0.4 MLH1195 ○	0.4 MLH1200 ○	0.2 MLH1231 ○	
80M	MLH8085P	–	–	0.4 MLH1204 ○	

Note) Type MLH8062A (part number code: MLP1001) is a totally-enclosed self-cooled type.

■ Totally-enclosed fan-cooled type **Indoor** **400 V class**

For products with stock indication, please provide the part number code when placing orders.
MLK1009 ○ ○ In stock (400/400-440 V) ● In stock (380-400-415/400-440-460 V)
Part number code / Stock indication

*Those without a stock indication are made to order.

Premium efficiency

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
80M	MLK1085M	0.75	0.75 MLK1009 ○	–	155 (F)
90L	MLK1096M	1.5	–	–	
	MLK1097M	2.2	1.5 MLK1010 ○	0.75	
100L	MLU1107A	–	2.2 MLU1013 ○	1.5	
112M	MLU1115A	3.7	3.7 MLU1014 ○	2.2	
132S	MLU1132A	5.5	–	–	
	MLU1133A	7.5	5.5 MLU1015 ○	3.7	
132M	MLU1135A	–	7.5 MLU1016 ○	5.5	
160M	MLU1164A	11	–	–	
	MLU1165A	15	11 MLU1038 ○	7.5	
160L	MLU1167A	18.5	15 MLU1039 ○	11	
180M	MLU1184A	–	18.5 MLU1103 ○	–	
	MLU1185A	22	22 MLU1104 ○	15	
180L	MLU1186A	–	–	18.5	
	MLU1187A	30	30 MLU1105 ○	22	
200L	MLU1206A	37	37 MLU1106 ○	30	
	MLU1207A	45	45 MLU1107 ○	37	
225S	MLU1220A	55	–	–	
	MLU1221A	–	55 MLU7006 ○	45	
250S	MLU1250A	75	75	55	
250M	MLU1252A	90	90	75	
280S	MLU1280A	110	110	90	
280M	MLU1282A	132	132	110	
280L	MLU1284A	160	160	132	
	MLU1286A	200	200	160	
315L	MLU1314A	220, 250	220, 250	200, 220	
	MLU1316A	300	300	250	
355K	MLU1350A	315	315	–	
	MLU1352A	355	355, 375	–	
	MLU1354A	375	–	300, 315	
	MLU1356A	–	–	355, 375	

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
80M	MLK1085P	0.75	0.75 MLK1016 ○	–	155 (F)
90L	MLK1096P	1.5	–	–	
	MLK1097P	2.2	1.5 MLK1017 ○	0.75	
100L	MLU1107C	–	2.2 MLU1024 ○	1.5	
112M	MLU1115C	3.7	3.7 MLU1025 ○	2.2	
132S	MLU1132C	5.5	–	–	
	MLU1133C	7.5	5.5 MLU1108 ○	3.7	
132M	MLU1135C	–	7.5 MLU1109 ○	5.5	
160M	MLU1164C	11	–	–	
	MLU1165C	15	11 MLU1110 ○	7.5	
160L	MLU1167C	18.5	15 MLU1111 ○	11	
180M	MLU1184C	–	18.5 MLU1112 ○	–	
	MLU1185C	22	22 MLU1113 ○	15	
180L	MLU1186C	–	–	18.5	
	MLU1187C	30	30 MLU1114 ○	22	
200L	MLU1206C	37	37 MLU1115 ○	30	
	MLU1207C	45	45	37	
225S	MLU1220C	55	–	–	
	MLU1221C	–	55	45	
250S	MLU1250C	75	75	55	
250M	MLU1252C	90	90	75	

Standard efficiency

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8065M	0.2	0.2 MLH1186 ●	–	120 (E)
71M	MLH8075M	0.4	0.4 MLH1187 ●	0.2	
80M	MLH8085M	–	–	0.4	

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8065P	0.2	0.2	–	120 (E)
71M	MLH8075P	0.4	0.4 MLH1206 ●	0.2	
80M	MLH8085P	–	–	0.4	

MODEL LIST

■ Totally-enclosed fan-cooled type

Outdoor 200 V class / 400 V class

Premium efficiency

For products with stock indication,please provide the part number code when placing orders.

MLK1021 ◎

Part number code / Stock indication

◎ In stock (200-400/200-400, 220-440 V)
○ In stock (200/200-220 V)
● In stock (380-400-415/400-440-460 V)

*Those without a stock indication are made to order.

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal lass
80M	MLK1085B	0.75 MLK1018 ◎	0.75 MLK1021 ◎	–	
90L	MLK1096B	1.5 MLK1019 ◎	–	–	
	MLK1097B	2.2 MLK1020 ◎	1.5 MLK1022 ◎	0.75 MLK1025 ◎	
100L	MLU1107B	–	2.2 MLU1029 ◎	1.5 MLU1074 ◎	
112M	MLU1115B	3.7 MLU1026 ◎	3.7 MLU1030 ◎	2.2 MLU1075 ◎	
132S	MLU1132B	5.5 MLU1027 ◎	–	–	
	MLU1133B	7.5 MLU1028 ◎	5.5 MLU1031 ◎	3.7 MLU1076 ◎	
132M	MLU1135B	–	7.5 MLU1032 ◎	5.5 MLU1077 ◎	
160M	MLU1164B	11 MLU1044 ◎	–	–	
	MLU1165B	15 MLU1045 ◎	11 MLU1051 ◎	7.5 MLU1078 ◎	
160L	MLU1167B	18.5 MLU1046 ◎	15 MLU1052 ◎	11 MLU1079 ◎	
180M	MLU1184B	–	18.5 MLU1053 ◎	–	
	MLU1185B	22 MLU1047 ◎	22 MLU1054 ◎	15 MLU1080 ◎	
180L	MLU1186B	–	–	18.5 MLU1081 ◎	
	MLU1187B	30 MLU1048 ◎	30 MLU1055 ◎	22 MLU1082 ◎	
200L	MLU1206B	37 MLU1049 ◎	37 MLU1056 ◎	30 MLU1083 ◎	
	MLU1207B	45 MLU1050 ◎	45 MLU1057 ◎	37 MLU1084 ◎	
225S	MLU1220B	55 MLU7000 ◎	–	–	
	MLU1221B	–	55 MLU7001 ◎	45 MLU7002 ◎	
250S	MLU1250B	75	75	55	
250M	MLU1252B	90	90	75	
280S	MLU1280B	110	110	90	
280M	MLU1282B	132	132	110	
280L	MLU1284B	160	160	132	
	MLU1286B	200	200	160	
315L	MLU1314B	220, 250	220, 250	200, 220	
	MLU1316B	300	300	250	
355K	MLU1350B	315	315	–	
	MLU1352B	355	355, 375	–	
	MLU1354B	375	–	300, 315	
	MLU1356B	–	–	355, 375	

155 (F)

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
80M	MLK1085D	0.75	0.75	–	
90L	MLK1096D	1.5	–	–	
	MLK1097D	2.2	1.5	0.75	
100L	MLU1107D	–	2.2	1.5	
112M	MLU1115D	3.7	3.7	2.2	
132S	MLU1132D	5.5	–	–	
	MLU1133D	7.5	5.5	3.7	
132M	MLU1135D	–	7.5	5.5	
160M	MLU1164D	11	–	–	
	MLU1165D	15	11	7.5	
160L	MLU1167D	18.5	15	11	
180M	MLU1184D	–	18.5	–	
	MLU1185D	22	22	15	
180L	MLU1186D	–	–	18.5	
	MLU1187D	30	30	22	
200L	MLU1206D	37	37	30	
	MLU1207D	45	45	37	
225S	MLU1220D	55	–	–	
	MLU1221D	–	55	45	
250S	MLU1250D	75	75	55	
250M	MLU1252D	90	90	75	

155 (F)

Standard efficiency

Leg mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8065B	0.2 MLH1209 ○	0.2 MLH1214 ○ MLH1225 ●	–	
71M	MLH8075B	0.4 MLH1210 ○	0.4 MLH1215 ○ MLH1226 ●	0.2	
80M	MLH8085B	–	–	0.4	

120 (E)

Flange mounting type

Frame size	Type	Output [kW] 2P	4P	6P	Thermal class
63M	MLH8065D	0.2	0.2	–	
71M	MLH8075D	0.4	0.4	0.2	
80M	MLH8085D	–	–	0.4	

120 (E)

TYPE NUMBER NOMENCLATURE

1, 2, 3 digit — Model

Code	Model
MLK	Premium efficiency type Steel frame
MLU	Premium efficiency type Cast iron frame
MLH	Standard efficiency type Steel frame (Some are of a totally-enclosed self-cooled type)

4 digit — Series No.

1 2 3	4	5 6 7	8
MLU	1	115	A

5, 6, 7 digit — Frame size

Code	Frame size	Code	Frame size
062	63M	252	250M
065		253	
075	71M	280	280S
085	80M	281	
096	90L	282	280M
097		283	
107	100L	284	280L
115	112M	285	
132	132S	286	
133		287	
135	132M	314	315L
164	160M	315	
165		316	
169	160LG	317	
184	180M	350	355K
185		351	
186	180L	352	
187		353	
206	200L	354	
207		355	
220	225S	356	
221		357	
250	250S		
251			

8 digit — Mounting method

Aluminum frame, Cast iron frame

Code	Frame size	Code	Frame size
A	Indoor IMB3 (F11)	N	Indoor IMV6 (F13)
B	Outdoor IMB3 (F11)	Q	Indoor IMV3 (L53)
C	Indoor IMV1 (L52)	R	Outdoor IMV3 (L53)
D	Outdoor IMV1 (L52)	S	Outdoor IMB35 (L81)
G	Indoor IMB5 (L51)	T	Outdoor IMV5 (F12)
H	Outdoor IMB5 (L51)	U	Outdoor IMV6 (F13)
J	Indoor IMB35 (L81)	Z	Other
L	Indoor IMV5 (F12)		

Steel frame

Code	Frame size	Code	Frame size
A	Indoor IMB3 (F11) without terminal box	M	Indoor IMB3 (F11) with terminal box
B	Outdoor IMB3 (F11)	N	Indoor IMV6 (F13) without terminal box
C	Indoor IMV1 (L52) without terminal box	P	Indoor IMV1 (L52) with terminal box
D	Outdoor IMV1 (L52)	Q	Indoor IMV3 (L53) without terminal box
E	Indoor IMV5 (F12) with terminal box	R	Outdoor IMV3 (L53)
F	Indoor IMV6 (F13) with terminal box	S	Outdoor IMB35 (L81)
G	Indoor IMB5 (L51) without terminal box	T	Outdoor IMV5 (F12)
H	Outdoor IMB5 (L51)	U	Outdoor IMV6 (F13)
J	Indoor IMB35 (L81) without terminal box	V	Indoor IMB35 (L81) with terminal box
K	Indoor IMB5 (L51) with terminal box	W	Indoor IMV3 (L53) with terminal box
L	Indoor IMV5 (F12) without terminal box	Z	Other

Note) Indications in parentheses show former symbols.

Indoor

		Premium efficiency		Standard efficiency	
Housing structure		Totally-enclosed fan-cooled		Totally-enclosed self-cooled type・Totally-enclosed fan-cooled type	
Type	Steel frame	MLK		MLP・MLH	
	Cast iron frame	MLU		—	
Output		0.75 to 375 kW		0.1 to 0.4 kW	
Frame size		80M to 355K		63M to 80M	
Rated voltage and rated frequency		200／200/220 V and 400／400/440 V・50/60Hz		200／200/220 V and 380/400/415／400/440/460 V・50/60Hz	
Time rating		S1 (continuous)		S1 (continuous)	
Protection rating		IP44		IP40・IP44	
*1 Starting method		3.7 kW or smaller: direct-on-line starting 5.5 to 55 kW: 人−△starting 75 kW or larger: Direct-on-line starting		Direct-on-line starting	
*2 Thermal class		155 (F)		120 (E)	
Direction of rotation		CCW (counterclockwise as seen from load)		CCW (counterclockwise as seen from load)	
Ambient conditions	Temperature	-30°C to *3 +40°C		-20°C to +40°C	
	Humidity	100%RH max. (no condensation)		100%RH max. (no condensation)	
	Altitude	1,000 m max.		1,000 m max.	
	Other	No corrosive or explosive gas or vapor		No corrosive or explosive gas or vapor	
Terminal box	Mounting position (Leg mounting type)	200L or smaller	225S or larger	63M・71M	80M
		Left side as seen from load	Top side	Left side as seen from load	
	Port orientation (Leg mounting type)	200L or smaller	225S or larger	—	
		Downward	Leftward as seen from load	Downward	
		Orientation changeable at intervals of 90 degrees		Upward/downward selectable	Orientation changeable at intervals of 90 degrees
	Material	Steel plate		Plastic	Steel plate
Lead wire	System	160L or smaller: Terminal strip system 180M or larger: Lug system		Terminal strip system	
	*4 No. of wires	3.7 kW or smaller: 3 5.5 to 55 kW: 6 75 kW or larger: 3		3	
Color of coating		Munsell N1.2 (black matte)		Munsell N5 (gray)	
Standard	Applicable	JIS C 4213		JIS C 4210	
	Efficiency	JIS C 4034-30:2011 (IE3-equivalent)		—	

Note 1) The manufacturable range is up to 600 V.
Note 2) The starting method (*1) is based on 4P.
Note 3) Temperature rise for insulation class (*2): frame size 112M or smaller: "E" rise, frame size 132S to 225S: "B" rise
Note 4) An atmospheric temperature (*3) of up to +50°C is acceptable only with frame sizes of 200L or smaller during commercial power supply operation.
Note 5) No. of lead wires (*4) applies to models in stock. For made-to-order products, specify the starting method and no. of lead wires.
Note 6) If you wish to export (motors as they are or installed in machines, equipment, etc.) to foreign countries,
please contact us separately to obtain information about the high-efficiency regulations enforced and implemented in the respective countries.

Outdoor

		Premium efficiency		Standard efficiency
Housing structure		Totally-enclosed fan-cooled		Totally-enclosed fan-cooled
Type	Steel frame	MLK		MLH
	Cast iron frame	MLU		—
Output		0.75 to 375 kW		0.2 to 0.4 kW
Frame size		80M to 355K		63M to 80M
*1 Rated voltage and rated frequency		200-400／200-400/220-440 V, 50/60 Hz		200-400／200-400/220-440 V, 50/60 Hz
Time rating		S1 (continuous)		S1 (continuous)
Protection rating		IP55		IP44
*2 Starting method		3.7 kW or smaller: direct-on-line starting 5.5 to 55 kW: 人−△starting 75 kW or larger: direct-on-line starting		Direct-on-line starting
*3 Thermal class		155 (F)		120 (E)
Direction of rotation		CCW (counterclockwise as seen from load)		CCW (counterclockwise as seen from load)
Ambient conditions	Temperature	-30°C to *4 +50°C		-20°C to +40°C
	Humidity	100%RH max. (no condensation)		100%RH max. (no condensation)
	Altitude	1,000m max.		1,000m max.
	Other	No corrosive or explosive gas or vapor		No corrosive or explosive gas or vapor
Terminal box	Mounting position (Leg mounting type)	200L or smaller	225S or larger	—
		Left side as seen from load	Top side	Left side as seen from load
	Port orientation (Leg mounting type)	200L or smaller	225S or larger	—
		Toward opposite operation side	Leftward as seen from load	Toward opposite operation side
		Orientation changeable at intervals of 90 degrees		Orientation changeable at intervals of 90 degrees
	Material	Steel plate		Steel plate
Lead wire	System	Lug system		Terminal strip system
	*5 No. of wires	3.7 kW or smaller: 9 5.5 to 55 kW: 12 75 to 132 kW: 9 160 kW or larger: 3		3
Color of coating		Munsell N1.2 (black matte)		Munsell N5 (gray)
Standard	Applicable	JIS C 4213		JIS C 4210
	Efficiency	JIS C 4034-30:2011 (IE3-equivalent)		—

Note 1) The manufacturable range is up to 600 V.
Note 2) Rated voltage and rated frequency (*1): output 132 kW or or less: dual voltage, output over 132 kW: single voltage (with 4P)
Note 3) The starting method (*2) is based on 4P.
Note 4) Temperature rise for insulation class (*3): frame size 112M or smaller: "E" rise, frame size 132S to 225S: "B" rise
Note 5) An atmospheric temperature (*4) of up to +50°C is acceptable only with frame sizes of 200L or smaller during commercial power supply operation.
Note 6) No. of lead wires (*5) applies to models in stock. For made-to-order products, specify the starting method and no. of lead wires.
Note 7) If you wish to export products (motors as they are or installed in machines, equipment, etc.) to foreign countries,
please contact us separately to obtain information about the high-efficiency regulations enforced and implemented in the respective countries.

DIMENSIONAL OUTLINE DRAWINGS

Indoor | **Leg mounting type**

Fig. A

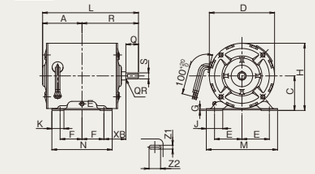


Fig. B

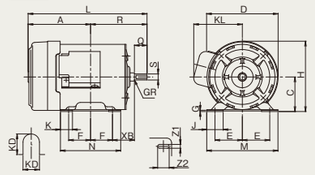


Fig. C

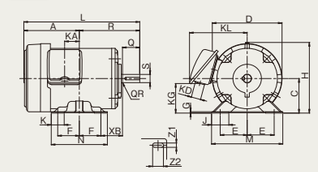


Fig. D

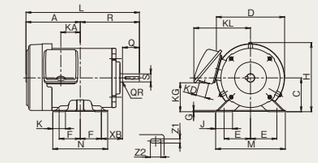


Fig. E

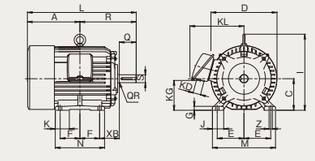


Fig. F

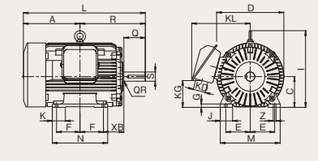


Fig. G

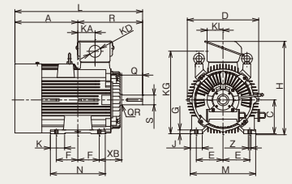


Fig. H

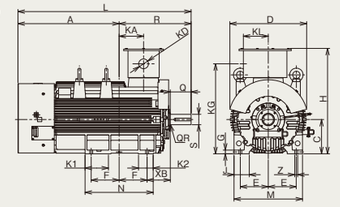
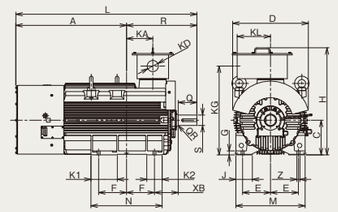
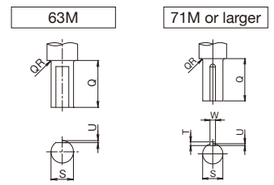


Fig. I



Shaft end detail



Premium efficiency

[Unit: mm]

Frame size	Type		Output [kW] 2P	4P	6P	Drawing No.	A	C	D	E	F	G	H	I	J	K	K1	K2	KA	KD	KG	KL	L	M	N	R	XB	Z (Z1 × Z2)	Shaft end Q	QR	S	T	U	W	Bearing Operation side 2P	Operation side 4P·6P	Opposite operation side 2P	Opposite operation side 4P·6P	Approximate mass [kg]
80M	MLK	1085M	0.75	0.75	–	D	129	80	162	62.5	50	3.1	164	–	40	30	–	–	46	22	68.5	134	269	165	130	140	50	10X25	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	14
90L		1096M	1.5	–	–		149.5	90	187	70	62.5	4.2	187	–	40	30	–	–	49	22	82	146	318	180	155	168.5	56	10X25	50	0.5	24j6	7	4	8	6205ZZ	–	6205ZZ	–	19
		1097M	2.2	1.5	0.75																															6205ZZ		6205ZZ	22
100L		1107A	–	2.2	1.5	E	173	100	202	80	70	12.5	–	238	40	40	–	–	–	27	82.5	159	366	195	170	193	63	12	60	0.5	28j6	7	4	8	–	6206ZZ	–	6205ZZ	36
112M		1115A	3.7	3.7	2.2		187	112	235	95	70	14	–	270	40	50	–	–	–	27	105	185	387	224	175	200	70	12	60	0.5	28j6	7	4	8	6306ZZ	6306ZZ	6206ZZ	6206ZZ	48
132S		1132A	5.5	–	–		204	132	272	108	70	17	–	311	45	50	–	–	–	34	110	212	443	250	180	239	89	12	80	0.5	38k6	8	5	10	6308ZZ	–	6207ZZ	–	63
		1133A	7.5	5.5	3.7																															6308ZZ		6207ZZ	70
132M		1135A	–	7.5	5.5		223	132	272	108	89	17	–	311	45	50	–	–	–	34	110	212	481	250	212	258	89	12	80	0.5	38k6	8	5	10	–	6308ZZ	–	6207ZZ	82
160M		1164A	11	–	–		270	160	319	127	105	18	–	376	50	63	–	–	–	48	144	272	593	300	250	323	108	14.5	110	1	42k6	8	5	12	6310ZZC3	–	6308ZZ	–	116
		1165A	15	11	7.5																															6310ZZ		6308ZZ	130
160L		1167A	18.5	15	11		292	160	319	127	127	18	–	376	50	63	–	–	–	48	144	272	637	300	300	345	108	14.5	110	1	42k6	8	5	12	6310ZZC3	6310ZZ	6308ZZ	6308ZZ	158
180M		1184A	–	18.5	–	F	314.5	180	410	139.5	120.5	18	–	438	75	75	–	–	–	48	178	318	666	350	292	351.5	121	14.5	110	1.5	48k6	9	5.5	14	–	6312ZZ	–	6310ZZ	205
		1185A	22	22	15																															6312ZZC3		6310ZZC3	228
180L		1186A	–	–	18.5		333.5	180	410	139.5	139.5	18	–	438	75	75	–	–	–	60	178	318	704	350	330	370.5	121	14.5	110	1.5	55m6	10	6	16	–	6312ZZC3	–	6310ZZC3	218
		1187A	30	30	22																															6312ZZC3		6310ZZC3	260
200L		1206A	37	–	–		368.5	200	439	159	152.5	22	–	499	80	85	–	–	–	80	174	381	764	390	360	395.5	133	18.5	110	2	55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	335
			–	37	30																		794			425.5			140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
		1207A	45	–	–																		764			395.5			110		55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	370
			–	45	37																		794			425.5			140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
225S		1220A	55	–	–	G	429	225	476	178	143	25	617	–	80	95	–	–	115	80	548	106	831	436	366	402	149	18.5	110	1	55m6	10	6	16	6312ZZC3	6315ZZC3	6312ZZC3	6312ZZC3	400
		1221A	–	55	45												–	–					861			432			140	2	65m6	11	7	18					460
250S		1250A	75	–	–		579.5	250	519	203	155.5	30	658	–	100	–	158	120	143.5	80	589	106	1013	506	449	433.5	168	24	110	1	55m6	10	6	16	6314C3	6318	6314C3	6314	590
			–	75	55		578.5																1042			463.5			140	2	75m6	12	7.5	20					640
250M		1252A	90	–	–		560.5	250	519	203	174.5	30	658	–	100	–	158	120	162.5	80	589	106	1013	506	449	452.5	168	24	110	1	55m6	10	6	16	6314C3	6318	6314C3	6314	620
			–	90	75		559.5																1042			482.5			140	2	75m6	12	7.5	20					680
280S	MLU	1280A	110	–	–	H	658	280	628	228.5	184	45	861	–	160	225	–	–	155.5	80	735	203	1142	630	570	484	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	920
			–	110	90		657					30			125	–	172	120					1201	560	519	544	190	24	170	2	85m6	14	9	22					950
280M		1282A	132	–	–		632.5	280	628	228.5	209.5	45	861	–	160	225	–	–	181	80	735	203	1142	630	570	509.5	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	940
			–	132	110		631.5					30			125	–	172	120					1201	560	519	569.5	190	24	170	2	85m6	14	9	22					1050
280L		1284A	160	–	–		843.5	280	628	228.5	228.5	45	861	–	160	–	450	225	200	102	735	203	1372	630	800	528.5	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	1250
			–	160	132		842.5					30			125	–	210	120					1431	560	557	588.5	190	24	170	1	95m6	14	9	25					1200
		1286A	200	–	–		843.5					45			160	–	450	225					1372	630	800	528.5	190	24	110	1	55m6	10	6	16					1300
			–	200	160		842.5					30			125	–	210	120					1431	560	557	588.5	190	24	170	1	95m6	14	9	25					1300
315L		1314A	220	–	–	I	1008	315	689	254	254	45	975	–	190	–	500	250	239	*1	808	303	1618	730	900	610	216	28	140	1	65m6	11	7	18	6314C3	6222	*2	NU314	1550
			–	220	–							36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
			250	–	–							45			190	–	500	250					1618	730	900	610			140	1	65m6	11	7	18					1550
			–	250	200							36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
			–	–	220							36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
		1316A	300	–	–							45			190	–	500	250					1618	730	900	610			140	1	65m6	11	7	18					1600
			–	300	250							36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1700
355K		1350A	315	–	–		987	355	778	305	355	55	1059	–	190	–	360	250	375	*1	893	413	1736	810	950	749	254	28	140	1	65m6	11	7	18	6316C3	6222	*2	NU314	2000
			–	315	–							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2000
		1352A	355	–	–							55			190	–	360	250					1736	810	950	749			140	1	65m6	11	7	18					2100
			–	355,375	–							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2100
		1354A	375	–	–							55			190	–	360	250					1736	810	950	749			140	1	65m6	11	7	18					2200
			–	–	300,315							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2150
		1356A	–	–	–							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2300
			–	–	355,375							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2300

Standard efficiency

63M	MLH	8062A	–	0.1	–	A	72	63	120	50	40	2.3	123	–	30	22	–	–	–	–	–	–	175	130	110	103	40	7 × 21	23	1	11h6	–	1	–	6202ZZ	6202ZZ	6202ZZ	6202ZZ	4.5
		8065M	0.2	0.2	–	B	115	63	131	50	40	2.3	129	–	30	22	–	–	–	12 × 15	–	89	218	130	110	103	40	7 × 21	23	1	11h6	–	1	–					6
71M		8075M	0.4	0.4	0.2		122	71	131	56	45	2.3	137	–	33	22	–	–	–	12 × 15	–	89	242	142	115	120	45	7 × 21	30	0.5	14j6	5	3	5	6202ZZ	6202ZZ	6202ZZ	6202ZZ	8
80M		8085M	–	–	0.4	C	129	80	162	62.5	50	3.1	164	–	40	30	–	–	34	22	68.5	134	269	165	130	140	50	10 × 25	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	10.5

Note 1) Steel frames are used for frame sizes 63M to 90L and cast iron frames for 100 L or larger.
Note 2) Only those with 100 W output are of the totally-enclosed self-cooled type
Note 3) The standard mounting method is IMB3 (F11: frame mounting). Please contact us for other mounting methods.
Note 4) Dimensional tolerance: height of rotating shaft C ≦ 250 mm: $^{0}_{-0.5}$ mm,
C > 250 mm: $^{0}_{-1}$ mm, shaft end key groove (W) dimensional tolerance: average class (N9).
Note 5) The 2-pole models are for direct connection only.
Note 6) Bearing nos. beginning with *63* represent a single row deep groove ball bearing, *NU* a cylindrical roller bearing, *ZZ* a grease-filled shielded ball bearing and *C3* a bearing with the radial gap of C3.
Note 7) *1: Please contact us for the individual dimensions. *2: NU314MCCG50
Note 8) The dimensions are subject to change. Please request dimensional outline drawings for designing.

Fig. A

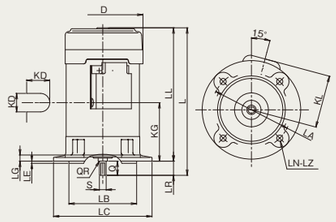


Fig. B

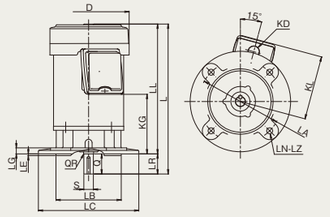


Fig. C

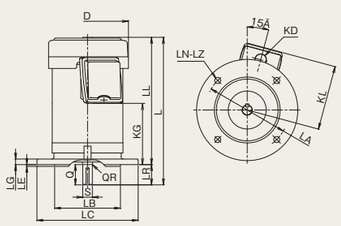


Fig. D

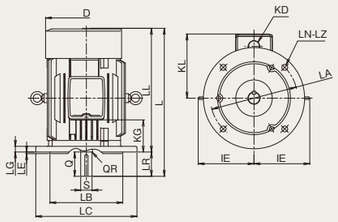


Fig. E

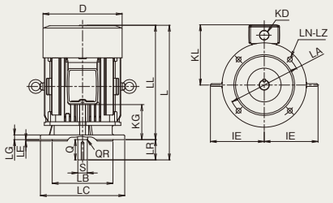


Fig. F

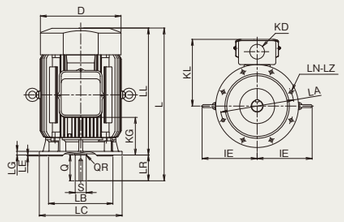


Fig. G

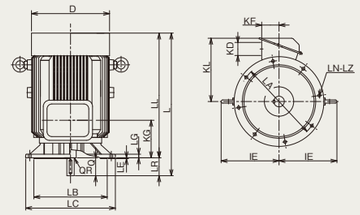
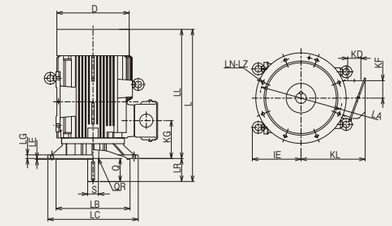
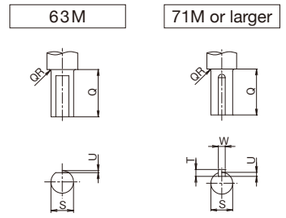


Fig. H



Shaft end detail



Premium efficiency

[Unit: mm]

Flange No.	Frame size	Type		Output [kW] 2P	4P	6P	Drawing No.	D	L	IE	LL	LR	KL	KD	KF	KG	LA	LB	LC	LE	LG	LN	LZ	Shaft end Q	QR	S	T	U	W	Bearing: Operation side 2P	Operation side 4P·6P	Opposite operation side 2P	Opposite operation side 4P·6P	Approximate mass [kg]
FF165	80M	MLK	1085P	0.75	0.75	—	C	162	292	—	252	40	127	22	—	129	165	130j6	200	3.5	11	4	12	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	17
	90L		1096P	1.5	—	—		187	345	—	295	50	140	22	—	154	165	130j6	200	3.5	11	4	12	50	0.5	24j6	7	4	8	6205ZZ	—	6205ZZ	—	21
			1097P	2.2	1.5	0.75																									6205ZZ		6205ZZ	24
FF215	100L	MLU	1107C	—	2.2	1.5	D	202	366	138	306	60	159	27	—	85	215	180j6	250	4	14	4	14.5	60	0.5	28j6	7	4	8	—	6206ZZ	—	6205ZZ	37
	112M		1115C	3.7	3.7	2.2		235	399	160	339	60	179	27	—	109	215	180j6	250	4	14	4	14.5	60	0.5	28j6	7	4	8	6306ZZ	6306ZZ	6206ZZ	6206ZZ	50
FF265	132S		1132C	5.5	—	—		272	450	179	370	80	200	34	—	112	265	230j6	300	4	17	4	14.5	80	0.5	38k6	8	5	10	6308ZZ	—	6207ZZ	—	65
			1133C	7.5	5.5	3.7																									6308ZZ		6207ZZ	72
	132M		1135C	—	7.5	5.5		272	488	179	408	80	200	34	—	131	265	230j6	300	4	17	4	14.5	80	0.5	38k6	8	5	10	—	6308ZZ	—	6207ZZ	84
FF300	160M		1164C	11	—	—	E	319	614	216	504	110	261	48	—	178	300	250j6	350	5	20	4	18.5	110	1	42k6	8	5	12	6310ZZC3	—	6308ZZ	—	121
			1165C	15	11	7.5																									6310ZZ		6308ZZ	135
	160L		1167C	18.5	15	11		319	644	216	534	110	261	48	—	193	300	250j6	350	5	20	4	18.5	110	1	42k6	8	5	12	6310ZZC3	6310ZZ	6308ZZ	6308ZZ	163
FF350	180M		1184C	—	18.5	—		410	678	258	568	110	310	48	—	207	350	300j6	400	5	20	4	18.5	110	1.5	48k6	9	5.5	14	—	6312ZZ	—	6310ZZ	215
			1185C	22	22	15																									6312ZZC3		6310ZZC3	238
	180L		1186C	—	—	18.5		410	718	258	608	110	310	60	—	227	350	300j6	400	5	20	4	18.5	110	1.5	55m6	10	6	16	—	6312ZZC3	—	6310ZZC3	228
			1187C	30	30	22																									6312ZZC3		6310ZZC3	270
FF400	200L		1206C	37	—	—	F	439	800	299	690	110	363	80	—	220	400	350j6	450	5	20	8	18.5	110	2	55m6	10	6	16	6312ZZC3	—	6311ZZC3	—	360
				—	37	30			830		690	140											140		60m6	11	7	18	—	6313ZZC3	—	6311ZZC3	
			1207C	45	—	—			800		690	110											110		55m6	10	6	16	6312ZZC3	—	6311ZZC3	—	385
				—	45	37			830		690	140											140		60m6	11	7	18	—	6313ZZC3	—	6311ZZC3	
FF500	225S		1220C	55	—	—	G	479	884	355	774	110	392	80	106	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6312C3	6315	6312C3	6312	440
			1221C	—	55	45			914			140											140	2	65m6	11	7	18					500
	250S		1250C	75	—	—	H	509	1062	340	952	110	408	G2 1/2	106	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6312C3	6318	6212C3	6314	630
				—	75	55			1092			140											140	2	75m6	12	7.5	20					680
	250M		1252C	90	—	—		509	1062	340	952	110	408	G2 1/2	106	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6312C3	6318	6212C3	6314	660
				—	90	75			1092			140											140	2	75m6	12	7.5	20					720

Standard efficiency

FF130	63M	MLH	8065C	0.2	0.2	—	A	131	240	—	217	23	86	12 × 15	—	95	130	110j6	160	3.5	10	4	10	23	1	11h6	—	1	—	6202ZZ	6202ZZ	6202ZZ	6202ZZ	7
	71M		8075C	0.4	0.4	0.2		131	262	—	232	30	86	12 × 15	—	110	130	110j6	160	3.5	10	4	10	30	0.5	14j6	5	3	5	6202ZZ	6202ZZ	6202ZZ	6202ZZ	9
FF165	80M		8085P	—	—	0.4	B	162	299	—	259	40	127	22	—	124	165	130j6	200	3.5	12	4	12	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	14

Note 1) Steel frames are used for frame sizes 63M to 90L and cast iron frames for 100 L or larger.
Note 2) The standard mounting method is IMV1 (L52: vertical shaft end bottom). Please contact us for details of other mounting methods.
Note 3) The allowable dimensional tolerance of the shaft end key groove (W) is coarse (N9).
Note 4) Use with non-direct connection requires consideration of the bearing lifespan. Please contact us for details.
Note 5) Bearing nos. beginning with "63" represent a single row deep groove ball bearing, "NU" a cylindrical roller bearing, "ZZ" a grease-filled shielded ball bearing and "C3" a bearing with the radial gap of C3.
Note 6) The dimensions are subject to change. Please request dimensional outline drawings for designing.

DIMENSIONAL OUTLINE DRAWINGS

Outdoor | **Leg mounting type**

Fig. A

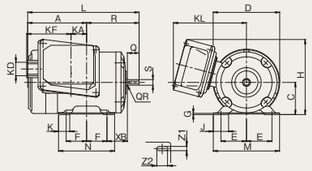


Fig. B

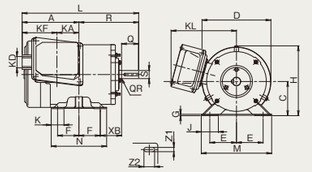


Fig. C

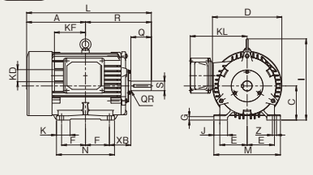


Fig. D

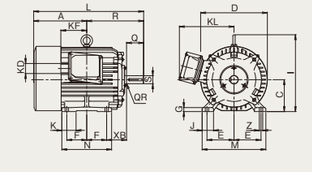


Fig. E

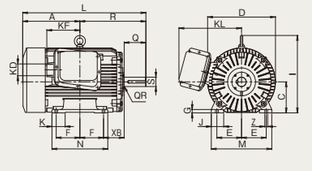


Fig. F

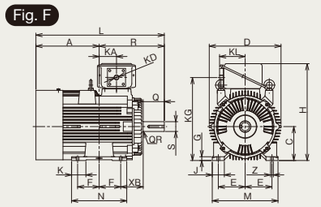


Fig. G

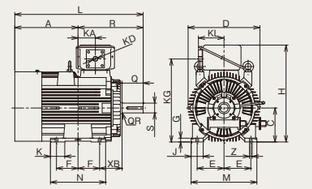


Fig. H

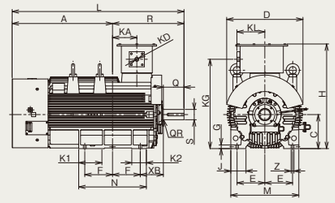
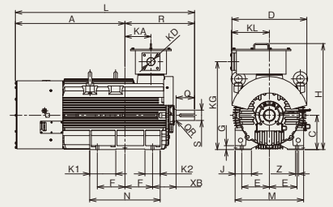
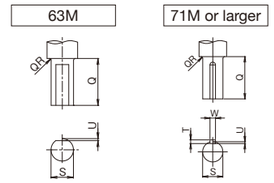


Fig. I



Shaft end detail



Premium efficiency

[Unit: mm]

Frame size	Type		Output [kW] 2P	4P	6P	Drawing No.	A	C	D	E	F	G	H	I	J	K	K1	K2	KA	KD	KF(KG)	KL	L	M	N	R	XB	Z (Z1 × Z2)	Shaft end Q	QR	S	T	U	W	Bearing Operation side 2P	4P·6P	Opposite operation side 2P	4P·6P	Approximate mass [kg]
80M	MLK	1085B	0.75	0.75	–	B	129	80	162	62.5	50	3.1	164	–	40	30	–	–	46	G3/4	87	154	269	165	130	140	50	10X25	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	14
90L		1096B	1.5	–	–		149.5	90	187	70	62.5	4.2	187	–	40	30	–	–	49	G3/4	87	166	318	180	155	168.5	56	10X25	50	0.5	24j6	7	4	8	6205ZZ	–	6205ZZ	–	19
		1097B	2.2	1.5	0.75																															6205ZZ		6205ZZ	22
100L		1107B	–	2.2	1.5	C	173	100	202	80	70	12.5	–	238	40	40	–	–	–	G1	91	166	366	195	170	193	63	12	60	0.5	28j6	7	4	8	–	6206ZZ	–	6205ZZ	36
112M		1115B	3.7	3.7	2.2	D	187	112	235	95	70	14	–	270	40	50	–	–	–	G1	91	193	387	224	175	200	70	12	60	0.5	28j6	7	4	8	6306ZZ	6306ZZ	6206ZZ	6206ZZ	48
132S		1132B	5.5	–	–		204	132	272	108	70	17	–	311	45	50	–	–	–	G1 1/4	121	248	443	250	180	239	89	12	80	0.5	38k6	8	5	10	6308ZZ	–	6207ZZ	–	63
		1133B	7.5	5.5	3.7																															6308ZZ		6207ZZ	70
132M		1135B	–	7.5	5.5		223	132	272	108	89	17	–	311	45	50	–	–	–	G1 1/4	121	248	481	250	212	258	89	12	80	0.5	38k6	8	5	10	–	6308ZZ	–	6207ZZ	82
160M		1164B	11	–	–		270	160	319	127	105	18	–	376	50	63	–	–	–	G1 1/2	123	272	593	300	250	323	108	14.5	110	1	42k6	8	5	12	6310ZZC3	–	6308ZZ	–	116
		1165B	15	11	7.5																															6310ZZ		6308ZZ	130
160L		1167B	18.5	15	11		292	160	319	127	127	18	–	376	50	63	–	–	–	G1 1/2	123	272	637	300	300	345	108	14.5	110	1	42k6	8	5	12	6310ZZC3	6310ZZ	6308ZZ	6308ZZ	158
180M		1184B	–	18.5	–	E	314.5	180	410	139.5	120.5	18	–	438	75	75	–	–	–	G1 1/2	123	318	666	350	292	351.5	121	14.5	110	1.5	48k6	9	5.5	14	–	6312ZZ	–	6310ZZ	205
		1185B	22	22	15																															6312ZZC3		6310ZZC3	228
180L		1186B	–	–	18.5		333.5	180	410	139.5	139.5	18	–	438	75	75	–	–	–	G2	214	387	704	350	330	370.5	121	14.5	110	1.5	55m6	10	6	16	–	6312ZZC3	–	6310ZZC3	218
		1187B	30	30	22																															6312ZZC3		6310ZZC3	260
200L		1206B	37	–	–		368.5	200	439	159	152.5	22	–	499	80	85	–	–	–	G2 1/2	214	404	764	390	360	395.5	133	18.5	110	2	55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	335
		–	37	30																			794			425.5			140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
		1207B	45	–	–																		764			395.5			110		55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	370
		–	45	37																			794			425.5			140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
225S		1220B	55	–	–	F	429	225	476	178	143	25	642	–	80	95	–	–	115	G2 1/2	550	170	831	436	366	402	149	18.5	110	1	55m6	10	6	16	6312ZZC3	6315ZZC3	6312ZZC3	6312ZZC3	400
		1221B	–	55	45												–	–					861			432			140	2	65m6	11	7	18					460
250S		1250B	75	–	–	G	579.5	250	519	203	155.5	30	683	–	100	–	158	120	143.5	G2 1/2	591	170	1013	506	449	433.5	168	24	110	1	55m6	10	6	16	6314C3	6318	6314C3	6314	590
		–	75	55			578.5																1042			463.5			140	2	75m6	12	7.5	20					640
250M		1252B	90	–	–		560.5	250	519	203	174.5	30	683	–	100	–	158	120	162.5	G2 1/2	591	170	1013	506	449	452.5	168	24	110	1	55m6	10	6	16	6314C3	6318	6314C3	6314	620
		–	90	75			559.5																1042			482.5			140	2	75m6	12	7.5	20					680
280S	MLU	1280B	110	–	–	H	658	280	628	228.5	184	45	861	–	160	225	–	–	155.5	G2 1/2	735	230	1142	630	570	484	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	920
		–	110	90			657					30			125	–	172	120					1201	560	519	544	190	24	170	2	85m6	14	9	22					950
280M		1282B	132	–	–		632.5	280	628	228.5	209.5	45	861	–	160	225	–	–	181	G2 1/2	735	230	1142	630	570	509.5	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	940
		–	132	110			631.5					30			125	–	172	120					1201	560	519	569.5	190	24	170	2	85m6	14	9	22					1050
280L		1284B	160	–	–		843.5	280	628	228.5	228.5	45	861	–	160	–	450	225	200	G2 1/2	735	230	1372	630	800	528.5	190	24	110	1	55m6	10	6	16	6314C3	6320	*2	NU314	1250
		–	160	132			842.5					30			125	–	210	120					1431	560	557	588.5	190	24	170	1	95m6	14	9	25					1200
		1286B	200	–	–		843.5					45			160	–	450	225					1372	630	800	528.5	190	24	110	1	55m6	10	6	16					1300
		–	200	160			842.5					30			125	–	210	120					1431	560	557	588.5	190	24	170	1	95m6	14	9	25					1300
315L		1314B	220	–	–	I	1008	315	689	254	254	45	975	–	190	–	500	250	239	*1	808	350	1618	730	900	610	216	28	140	1	65m6	11	7	18	6314C3	6222	*2	NU314	1550
		–	220	–								36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
		250	–	–								45			190	–	500	250					1618	730	900	610			140	1	65m6	11	7	18					1550
		–	250	200								36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
		–	–	220								36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1600
		1316B	300	–	–							45			190	–	500	250					1618	730	900	610			140	1	65m6	11	7	18					1600
		–	300	250								36			150	–	240	140					1648	630	648	640			170	2	95m6	14	9	25					1700
355K		1350B	315	–	–		987	355	778	305	355	55	1059	–	190	–	360	250	375	*1	893	460	1736	810	950	749	254	28	140	1	65m6	11	7	18	6316C3	6222	*2	NU314	2000
		–	315	–								36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2000
		1352B	355	–	–							55			190	–	360	250					1736	810	950	749			140	1	65m6	11	7	18					2100
		–	355,375	–								36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2100
		1354B	375	–	–							55			190	–	360	250					1736	810	950	749			140	1	65m6	11	7	18					2200
		–	–	300,315								36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2150
		1356B	–	–	–							36			160	–	330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2300
		–	–	355,375								36			160		330	180					1806	730	890	819			210	2.5	100m6	16	10	28					2300

Standard efficiency

63M	MLH	8065B	0.2	0.2	–	A	116	63	131	50	40	2.3	148	–	30	22	–	–	30.5	G3/4	87	144	219	130	110	103	40	7 × 21	23	1	11h6	–	1	–	6202ZZ	6202ZZ	6202ZZ	6202ZZ	6
71M		8075B	0.4	0.4	0.2		124	71	131	56	45	2.3	156	–	30	22	–	–	38	G3/4	87	144	244	142	115	120	45	7 × 21	30	0.5	14j6	5	3	5	6202ZZ	6202ZZ	6202ZZ	6202ZZ	8
80M		8085B	–	–	0.4		129	80	162	62.5	50	3.1	167	–	35	30	–	–	34	G3/4	87	154	269	165	130	140	50	10 × 25	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	10.5

Note 1) Steel frames are used for frame sizes 63M to 90L and cast iron frames for 100 L or larger.
Note 2) The standard mounting method is IMB3 (F11: frame mounting). Please contact us for other mounting methods.
Note 3) Dimensional tolerance: height of rotating shaft C ≦ 250 mm: $^{0}_{-0.5}$ mm, C > 250 mm: $^{0}_{-1}$ mm, shaft end key groove (W) dimensional tolerance: average class (N9).
Note 4) The 2-pole models are for direct connection only.
Note 5) Bearing nos. beginning with "63" represent a single row deep groove ball bearing, "NU" a cylindrical roller bearing, "ZZ" a grease-filled shielded ball bearing and "C3" a bearing with the radial gap of C3.
Note 6) *1: Please contact us for the individual dimensions. *2: NU314MCCG50
Note 7) The dimensions are subject to change. Please request dimensional outline drawings for designing.

DIMENSIONAL OUTLINE DRAWINGS

Outdoor | **Flange mounting type**

Fig. A

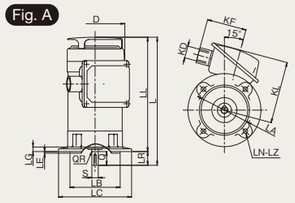


Fig. B

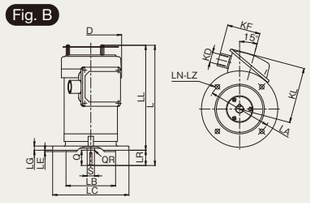


Fig. C

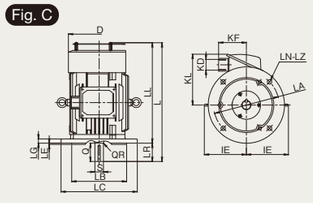


Fig. D

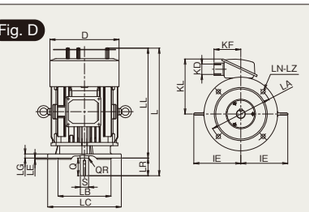


Fig. E

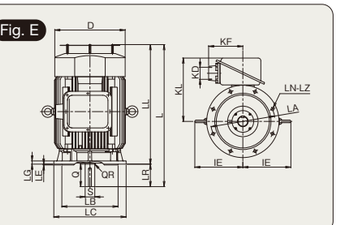


Fig. F

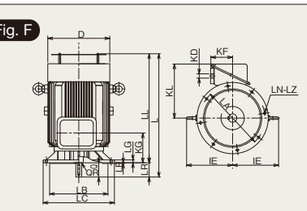


Fig. G

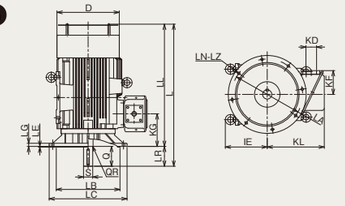
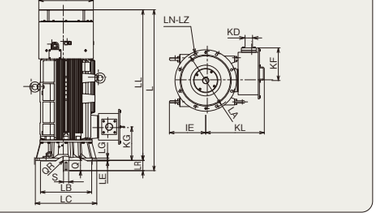
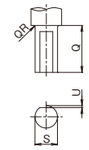


Fig. H

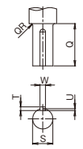


Shaft end detail

63M



71M or larger



Premium efficiency

[Unit: mm]

Flange No.	Frame size	Type		Output [kW] 2P	Output [kW] 4P	Output [kW] 6P	Drawing No.	D	L	IE	LL	LR	KL	KD	KF	KG	LA	LB	LC	LE	LG	LN	LZ	Shaft end Q	Shaft end QR	Shaft end S	Shaft end T	Shaft end U	Shaft end W	Bearing Operation side 2P	Bearing Operation side 4P·6P	Bearing Opposite operation side 2P	Bearing Opposite operation side 4P·6P	Approximate mass [kg]
FF165	80M	MLK	1085D	0.75	0.75	–	B	162	316	–	276	40	147	G3/4	87	–	165	130j6	200	3.5	11	4	12	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	17
	90L		1096D	1.5	–	–		187	369	–	319	50	159	G3/4	87	–	165	130j6	200	3.5	11	4	12	50	0.5	24j6	7	4	8	6205ZZ	–	6205ZZ	–	21
			1097D	2.2	1.5	0.75																									6205ZZ		24
FF215	100L		1107D	–	2.2	1.5	C	202	390	138	330	60	167	G1	91	–	215	180j6	250	4	14	4	14.5	60	0.5	28j6	7	4	8	–	6206ZZ	–	6205ZZ	37
	112M		1115D	3.7	3.7	2.2	D	235	433	160	373	60	187	G1	91	–	215	180j6	250	4	14	4	14.5	60	0.5	28j6	7	4	8	6306ZZ	6306ZZ	6206ZZ	6206ZZ	50
FF265	132S		1132D	5.5	–	–		272	484	179	404	80	239	G1 1/4	121	–	265	230j6	300	4	17	4	14.5	80	0.5	38k6	8	5	10	6308ZZ	–	6207ZZ	–	65
			1133D	7.5	5.5	3.7																									6308ZZ		6207ZZ	72
	132M		1135D	–	7.5	5.5		272	523	179	443	80	239	G1 1/4	121	–	265	230j6	300	4	17	4	14.5	80	0.5	38k6	8	5	10	–	6308ZZ	–	6207ZZ	84
FF300	160M		1164D	11	–	–		319	648	216	538	110	263	G1 1/2	123	–	300	250j6	350	5	20	4	18.5	110	1	42k6	8	5	12	6310ZZC3	–	6308ZZ	–	121
			1165D	15	11	7.5																									6310ZZ		6308ZZ	135
	160L		1167D	18.5	15	11		319	678	216	568	110	263	G1 1/2	123	–	300	250j6	350	5	20	4	18.5	110	1	42k6	8	5	12	6310ZZC3	6310ZZ	6308ZZ	6308ZZ	163
FF350	180M		1184D	–	18.5	–		410	732	258	622	110	311	G1 1/2	122	–	350	300j6	400	5	20	4	18.5	110	1.5	48k6	9	5.5	14	–	6312ZZ	–	6310ZZ	215
			1185D	22	22	15																									6312ZZC3		6310ZZC3	238
	180L		1186D	–	–	18.5		410	772	258	662	110	377	G2	214	–	350	300j6	400	5	20	4	18.5	110	1.5	55m6	10	6	16	–	6312ZZC3	–	6310ZZC3	228
			1187D	30	30	22																									6312ZZC3		6310ZZC3	270
FF400	200L		1206D	37	–	–	E	439	855	299	745	110	395	G2 1/2	214	–	400	350j6	450	5	20	8	18.5	110	2	55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	360
				–	37	30			885		745	140												140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
			1207D	45	–	–			855		745	110												110		55m6	10	6	16	6312ZZC3	–	6311ZZC3	–	385
				–	45	37			885		745	140												140		60m6	11	7	18	–	6313ZZC3	–	6311ZZC3	
FF500	225S	MLU	1220D	55	–	–	F	479	961	355	851	110	417	G2 1/2	170	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6312C3	6315	6312C3	6312	440
			1221D	–	55	45			991			140												140	2	65m6	11	7	18					500
	250S		1250D	75	–	–	G	509	1144	340	1034	110	433	G2 1/2	170	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6314C3	6318	6214C3	6314	630
				–	75	55			1174			140												140	2	75m6	12	7.5	20					680
	250M		1252D	90	–	–		509	1144	340	1034	110	433	G2 1/2	170	230	500	450	550	5	22	8	18.5	110	1	55m6	10	6	16	6314C3	6318	6214C3	6314	660
				–	90	75			1174			140												140	2	75m6	12	7.5	20					720
FF600	280L		1280B	110	–	–	H	586	1727	390	1617	110	629	G2 1/2	350	360	600	550	660	6	25	8	24	110	0.5	55m6	10	6	16	6316C3	6322C3	*2	NU216	1200
				–	110	90			1787			170												170		95m6	14	9	25					1250
			1282B	132	–	–			1727			110												110		55m6	10	6	16					1250
				–	132	110			1787			170												170		95m6	14	9	25					1350
			1284B	160	–	–			1727			110												110		55m6	10	6	16					1500
				–	160	132			1787			170												170		95m6	14	9	25					1400
			1286B	200	–	–			1727			110												110		55m6	10	6	16					1550
				–	200	160			1787			170												170		95m6	14	9	25					1500
FF740	315L		1314B	220	–	–		634	1898	447	1758	140	658	*1	460	360	740	680	800	6	25	8	24	140	0.5	65m6	11	7	18	*3	6322C3	*2	NU216	1850
				–	220	185			1928			170												170		95m6	14	9	25					1900
			1316B	250	–	–			1898			140												140		65m6	11	7	18					1850
				–	250	200			1928			170												170		95m6	11	7	18					1900
				–	–	220			1928			170												170		95m6	11	7	18					1900
				300	–	–			1898			140												140		65m6	11	7	18					1900
				–	300	250			1928			170												170		95m6	11	7	18					1950
	355K		1350B	315	–	–		720	2013	506	1873	140	703	*1	460	360	740	680	800	6	30	8	24	140	0.5	65m6	11	7	18	*3	6324C3	*2	NU216	2350
				–	315	–			2083			210												210	2	100m6	16	10	28					2300
			1352B	355	–	–			2013			140												140	0.5	65m6	11	7	18					2450
				–	375	280			2083			210												210	2	100m6	16	10	28					2400
			1354B	375	–	–			2013			140												140	0.5	65m6	11	7	18					2500
				–	–	315			2083			210												210	2	100m6	16	10	28					2500
			1356B	–	–	355			2083			210												210	2	100m6	16	10	28					2600
				–	–	375			2083			210												210	2	100m6	16	10	28					2600

Standard efficiency

FF130	63M	MLH	8065D	0.2	0.2	–	A	131	259	–	236	23	137	G3/4	87	–	130	110j6	160	3.5	10	4	10	23	1	11h6	–	1	–	6202ZZ	6202ZZ	6202ZZ	6202ZZ	7
	71M		8075D	0.4	0.4	0.2		131	281	–	251	30	137	G3/4	87	–	130	110j6	160	3.5	10	4	10	30	0.5	14j6	5	3	5	6202ZZ	6202ZZ	6202ZZ	6202ZZ	9
FF165	80M		8085D	–	–	0.4		162	316	–	276	40	147	G3/4	87	–	165	130j6	200	3.5	12	4	12	40	0.5	19j6	6	3.5	6	6204ZZ	6204ZZ	6203ZZ	6203ZZ	14

Note 1) Steel frames are used for frame sizes 63M to 90L and cast iron frames for 100 L or larger.
Note 2) The standard mounting method is IMB3 (F11: frame mounting). Please contact us for other mounting methods.
Note 3) Dimensional tolerance: height of rotating shaft C ≦ 250 mm: $^{0}_{-0.5}$ mm, C > 250 mm: $^{0}_{-1}$ mm, shaft end key groove (W) dimensional tolerance: average class (N9).
Note 4) The 2-pole models are for direct connection only.
Note 5) Bearing nos. beginning with "63" represent a single row deep groove ball bearing, "NU" a cylindrical roller bearing, "ZZ" a grease-filled shielded ball bearing and "C3" a bearing with the radial gap of C3.
Note 6) *1: Please contact us for the individual dimensions. *2: NU216MCCG50 *3: 7314ATDB + KL20J1C3U432
Note 7) The dimensions are subject to change. Please request dimensional outline drawings for designing.

Premium efficiency 200 V class 2P

Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min⁻¹]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1085	0.75	200	50	3.1	2850	1.89	81.0	70.7	2.42	82.4	81.5	3.07	81.5	86.7		21.5	288	284	0.060
		200	60	3	3420	1.73	80.9	77.5	2.31	82.1	85.7	3.00	81.1	89.1	IE3	19.5	254	254	0.053
		220	60	2.8	3455	1.71	79.9	71.9	2.19	82.2	82.1	2.76	82.5	86.6		21.5	323	316	0.061
MLK1096	1.5	200	50	5.6	2865	3.15	86.9	79.0	4.27	87.2	87.2	5.58	85.8	90.4		43	294	322	0.139
		200	60	5.6	3435	3.03	85.4	83.8	4.22	85.8	89.6	5.58	85.6	90.6	IE3	39	256	293	0.132
		220	60	5.1	3470	2.91	84.8	79.8	3.93	86.3	87.1	5.06	86.0	90.5		43	310	355	0.109
MLK1097	2.2	200	50	8.3	2890	4.87	85.7	76.1	6.46	86.6	85.2	8.25	86.0	89.5		76	384	355	0.128
		200	60	8.1	3465	4.50	85.8	82.3	6.20	86.6	88.7	8.07	86.8	90.7	IE3	67	306	314	0.135
		220	60	7.4	3490	4.38	85.4	77.2	5.81	87.0	85.6	7.40	86.9	89.8		73	374	377	0.094
MLU1115	3.7	200	50	13	2930	7.35	88.6	82.0	10.1	89.3	88.5	13.2	88.8	91.2		139	325	263	0.279
		200	60	13	3510	7.06	86.4	87.6	9.90	88.4	91.3	13.0	88.5	92.6	IE3	111	288	310	0.256
		220	60	12	3530	6.68	87.2	83.3	9.20	89.1	89.4	11.9	89.3	91.6		124	348	375	0.221
MLU1132	5.5	200	50	20	2935	11.5	88.8	77.8	15.5	89.9	85.7	19.9	89.7	89.1		194	353	345	0.270
		200	60	19.5	3525	10.8	88.5	82.7	15.0	89.6	88.4	19.6	89.5	90.5	IE3	169	288	299	0.310
		220	60	18	3540	10.5	88.0	78.0	14.0	89.7	85.9	18.0	90.0	89.2		187	355	366	0.300
MLU1133	7.5	200	50	26.5	2940	14.7	89.9	82.1	20.3	90.6	88.3	26.4	90.3	90.7		252	334	334	0.236
		200	60	26.5	3525	14.1	89.2	86.0	20.0	90.0	90.3	26.3	90.2	91.3	IE3	220	269	291	0.306
		220	60	24	3540	13.5	88.9	82.2	18.5	90.3	88.6	24.0	90.4	90.9		243	339	355	0.249
MLU1164	11	200	50	38	2950	20.5	90.7	85.3	28.9	91.6	90.1	37.9	91.3	91.7		373	271	317	0.512
		200	60	38	3540	19.9	90.1	88.5	28.5	91.1	91.7	37.9	91.1	92.0	IE3	319	211	270	0.598
		220	60	34	3550	18.7	89.8	85.8	26.2	91.3	90.6	34.3	91.4	92.0		355	262	331	0.536
MLU1165	15	200	50	51	2955	26.8	92.2	87.6	38.2	92.8	91.6	50.6	92.0	93.0		524	264	327	0.512
		200	60	51	3545	26.4	91.3	90.0	38.1	92.1	92.6	50.8	91.8	93.0	IE3	453	213	282	0.627
		220	60	46	3555	24.6	91.1	87.9	34.8	92.4	91.9	45.8	92.5	92.9		513	276	352	0.713
MLU1167	18.5	200	50	62	2950	32.4	92.7	88.8	46.7	93.1	92.2	62.0	92.5	93.1		594	307	327	0.717
		200	60	62	3540	31.8	92.7	90.6	46.6	92.6	93.0	62.7	91.7	92.9	IE3	464	243	276	0.706
		220	60	56	3550	29.7	91.9	88.9	42.5	92.6	92.5	56.4	92.3	93.3		510	294	334	0.734
MLU1185	22	200	50	74	2960	39.1	93.2	87.1	55.7	93.6	91.4	73.6	93.3	92.5		658	201	324	0.992
		200	60	74	3550	38.8	91.2	89.6	55.8	92.3	92.5	74.2	92.4	92.6	IE3	564	159	275	0.993
		220	60	67	3560	36.2	91.3	87.4	51.0	92.7	91.7	67.1	93.0	92.5		623	196	336	1.091
MLU1187	30	200	50	100	2960	52.6	94.6	87.1	75.1	94.7	91.4	99.5	94.2	92.5		922	212	347	1.216
		200	60	100	3550	51.9	93.2	89.5	74.9	93.8	92.4	99.8	93.6	92.8	IE3	789	171	282	1.346
		220	60	90	3560	47.9	93.0	88.5	68.2	93.8	92.3	90.3	93.7	93.1		850	207	341	1.247
MLU1206	37	200	50	123	2970	66.2	93.5	86.3	93.5	94.2	91.0	123	94.0	92.2		1190	197	338	1.224
		200	60	124	3565	65.4	91.7	89.0	93.5	92.9	92.3	124	93.0	92.6	IE3	1020	153	287	1.372
		220	60	112	3570	61.1	91.6	86.8	86.1	93.1	90.9	112	93.6	92.5		1130	186	349	1.434
MLU1207	45	200	50	149	2975	79.3	93.8	87.3	113	94.4	91.5	149	94.3	92.5		1410	203	321	1.844
		200	60	150	3565	78.4	92.8	89.3	113	93.6	92.3	150	93.6	92.5	IE3	1210	153	263	1.483
		220	60	135	3575	73.3	92.7	87.0	104	93.8	91.0	136	94.0	92.5		1340	185	318	1.555
MLU1220	55	200	50	184	2965	101	93.8	83.8	141	94.4	89.5	184	94.3	91.5	IE3	1710	156	342	2.315
		200	60	180	3560	97.0	91.9	89.1	140	92.2	92.3	180	93.0	94.9	IE2	1330	102	271	1.366
		220	60	166	3565	91.0	92.0	86.2	129	93.3	89.9	166	93.6	92.9	IE3	1520	133	338	1.613
MLU1250	75	200	50	244	2970	136	93.9	84.7	192	94.8	89.3	244	94.8	93.6	IE3	2140	129	281	1.792
		200	60	244	3565	132	92.5	88.7	190	93.5	91.4	244	93.7	94.7	IE2	1748	93	231	1.657
		220	60	222	3570	124	92.6	85.7	174	93.9	90.3	222	94.2	94.1	IE3	1942	115	282	1.904
MLU1252	90	200	50	292	2970	162	94.3	85.1	228	95.0	90.0	292	95.1	93.6	IE3	2580	135	281	2.346
		200	60	290	3565	156	93.7	88.9	224	94.4	92.2	290	94.5	94.8	IE2	2100	97	230	2.694
		220	60	264	3570	146	93.8	86.3	206	94.8	90.8	264	95.0	94.2	IE3	2320	120	281	3.089
MLU1280	110	200	50	364	2970	208	94.7	80.7	288	95.3	86.8	364	95.4	91.4	IE3	2920	122	259	3.230
		200	60	358	3570	194	94.1	87.0	278	94.7	90.4	358	94.7	93.7	IE2	2340	86	210	2.763
		220	60	328	3575	186	94.1	82.5	258	95.0	88.3	328	95.2	92.5	IE3	2620	107	257	3.244
MLU1282	132	200	50	446	2975	260	94.8	77.3	354	95.5	84.6	446	95.4	89.6	IE3	3800	142	278	3.114
		200	60	428	3570	234	94.5	86.1	334	95.1	90.0	428	95.1	93.6	IE2	2980	94	222	3.440
		220	60	396	3575	226	94.5	81.1	312	95.4	87.3	396	95.5	91.6	IE3	3360	120	274	3.716

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

Standard efficiency 2P

■ 200 V class

Type	Output [kW]	Rated current [A]			Rated speed [min⁻¹]		
		50Hz	60Hz		50Hz	60Hz	
		200V	200V	220V	200V	200V	220V
MLH8065	0.2	1.1	1.0	1.0	2900	3475	3500
MLH8075	0.4	1.9	1.7	1.7	2900	3475	3500

■ 400 V class

Type	Output [kW]	Rated current [A]						Rated speed [min⁻¹]					
		50Hz			60Hz			50Hz			60Hz		
		380V	400V	415V	400V	440V	460V	380V	400V	415V	400V	440V	460V
MLH8065	0.2	–	0.55	0.56	0.5	0.5	0.51	–	2900	2905	3475	3500	3510
MLH8075	0.4	–	0.95	0.95	0.85	0.85	0.85	–	2900	2905	3475	3500	3510

Premium efficiency 200 V class 4P

Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min⁻¹]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1085	0.75	200	50	3.5	1440	2.32	80.4	58.0	2.75	83.0	71.1	3.28	83.2	79.2		23	317	315	0.075
		200	60	3.2	1725	1.98	83.8	65.2	2.49	85.1	76.7	3.07	85.5	82.5	IE3	20	263	272	0.072
		220	60	3.1	1740	2.06	83.0	57.5	2.46	85.4	70.4	2.94	85.8	78.1		22	335	339	0.068
MLK1097	1.5	200	50	6.9	1450	4.83	83.6	53.7	5.66	85.7	67.0	6.68	85.8	75.6		56	243	323	0.180
		200	60	6.1	1740	3.74	87.1	66.4	4.78	87.7	77.5	6.00	86.9	83.1	IE3	44	193	263	0.135
		220	60	5.9	1755	4.07	85.8	56.3	4.86	87.7	69.3	5.82	87.8	77.1		51	264	337	0.134
MLU1107	2.2	200	50	9.5	1450	6.74	85.6	55.0	7.97	87.5	68.3	9.49	88.5	75.6		77	253	340	0.274
		200	60	8.5	1740	5.26	88.7	68.0	6.78	89.4	78.6	8.54	89.5	83.1	IE3	59	195	271	0.222
		220	60	8.3	1755	5.70	87.3	58.0	6.86	89.2	70.8	8.26	89.9	77.7		69	270	344	0.197
MLU1115	3.7	200	50	15.5	1465	10.7	86.7	57.4	12.9	88.4	70.4	15.5	88.5	78.0		139	256	328	0.348
		200	60	14	1755	8.71	88.9	69.0	11.3	89.6	79.3	14.2	89.5	83.9	IE3	115	205	262	0.297
		220	60	13.5	1765	9.17	87.8	60.3	11.2	89.5	72.7	13.6	90.0	79.3		126	248	336	0.273
MLU1133	5.5	200	50	21	1470	14.1	90.0	62.7	17.4	91.0	75.0	21.5	90.8	81.5		203	286	376	0.375
		200	60	20	1760	11.8	91.6	73.7	15.7	92.0	82.7	20.0	91.7	86.5	IE3	178	222	325	0.274
		220	60	18.5	1770	12.1	90.7	66.0	15.2	91.8	77.4	18.9	92.0	83.0		196	269	393	0.293
MLU1135	7.5	200	50	27.5	1470	17.2	90.7	69.3	22.3	91.3	80.0	28.0	90.7	85.1		258	242	327	0.364
		200	60	26.5	1760	15.2	91.7	77.8	20.7	91.8	85.4	26.9	91.8	87.6	IE3	210	197	267	0.314
		220	60	24.5	1765	15.0	91.3	71.7	19.7	92.0	81.6	24.9	92.2	85.6		235	238	332	0.292
MLU1165	11	200	50	40	1470	23.9	92.2	72.2	31.6	92.7	81.3	40.4	92.0	85.4		380	293	347	0.445
		200	60	39	1765	21.5	92.6	79.9	29.9	92.9	85.8	39.2	92.4	87.6	IE3	304	207	279	0.525
		220	60	36	1770	21.0	92.5	74.4	28.0	93.3	82.9	35.9	92.8	86.6		342	262	346	0.492
MLU1167	15	200	50	54	1475	31.2	93.7	74.0	42.0	93.9	82.4	54.1	93.0	86.0		516	284	350	0.744
		200	60	53	1770	28.7	93.4	80.7	40.3	93.6	86.2	53.0	93.1	87.8	IE3	421	210	287	0.704
		220	60	48	1775	27.9	93.4	75.6	37.5	94.0	83.8	48.3	93.7	86.9		471	263	354	0.751
MLU1184	18.5	200	50	68	1480	41.8	94.1	68.0	54.0	94.5	78.5	68.3	93.8	83.4		548	253	317	0.879
		200	60	66	1775	37.7	94.6	74.9	51.1	94.8	82.7	66.3	93.9	85.8	IE3	448	194	259	1.085
		220	60	62	1780	37.1	94.1	69.6	48.3	94.7	79.7	61.1	94.2	84.3		502	244	319	0.916
MLU1185	22	200	50	84	1475	51.4	94.4	65.4	66.2	94.8	75.9	83.4	94.0	81.0		670	266	326	0.956
		200	60	78	1770	44.8	94.3	75.1	60.7	94.5	83.0	78.7	94.0	85.8	IE3	541	200	263	0.719
		220	60	72	1775	44.3	94.3	69.1	57.6	94.9	79.3	72.8	94.6	83.8		612	255	327	0.841
MLU1187	30	200	50	116	1475	70.7	94.4	64.9	91.0	94.7	75.3	115	94.1	80.0		921	280	340	1.122
		200	60	106	1770	60.1	94.7	76.1	81.9	94.8	83.7	106	94.2	86.7	IE3	720	209	266	1.048
		220	60	102	1775	61.6	94.6	67.6	80.2	95.1	77.4	102	94.7	81.5		792	253	322	1.022
MLU1206	37	200	50	137	1480	86.7	93.0	66.3	111	94.1	77.0	135	94.2	83.8	IE3	1170	220	294	1.235
		200	60	133	1775	76.4	93.3	74.9	103	94.0	83.1	132	94.0	85.9	IE2	960	170	240	1.253
		220	60	124	1780	75.2	93.0	69.3	97.1	94.2	79.7	122	94.6	84.1	IE3	1070	212	295	1.105
MLU1207	45	200	50	166	1480	103	94.0	66.8	133	94.6	77.4	163	94.5	84.1	IE3	1380	204	290	1.797
		200	60	161	1775	91.0	93.8	76.2	123	94.3	83.8	160	94.0	86.4	IE2	1120	157	229	0.957
		220	60	149	1780	89.0	93.9	70.7	116	94.8	80.5	147	95.0	84.6	IE3	1260	190	277	1.017
MLU1221	55	200	50	200	1475	138	94.2	61.0	171	94.8	73.3	200	94.6	83.9	IE3	1670	167	336	1.821
		200	60	188	1770	109	95.8	76.1	147	95.9	84.2	188	95.4	88.5	IE2	1290	110	263	2.176
		220	60	176	1775	115	95.3	65.6	147	95.6	77.0	176	95.4	86.0	IE3	1480	147	330	2.090
MLU1250	75	200	50	272	1480	172	94.7	66.4	222	95.4	76.7	272	95.4	83.5	IE3	2080	132	262	2.277
		200	60	258	1775	148	94.8	77.2	202	95.3	84.4	258	95.2	88.2	IE2	1622	88	208	2.348
		220	60	242	1780	148	94.6	70.3	194	95.3	79.8	241	95.6	85.1	IE3	1858	115	259	2.541
MLU1252	90	200	50	332	1480	214	95.0	63.9	272	95.4	75.1	332	95.4	82.1	IE3	2600	143	271	2.185
		200	60	310	1775	178	95.0	76.8	244	95.4	83.7	310	95.3	88.0	IE2	2000	93	213	2.208
		220	60	292	1780	182	94.8	68.4	236	95.5	78.6	291	95.7	84.6	IE3	2300	123	267	2.376
MLU1280	110	200	50	380	1485	228	95.6	72.9	304	96.0	81.6	380	95.9	87.1	IE3	2980	121	252	3.219
		200	60	372	1780	208	95.0	80.4	290	95.5	86.0	372	95.4	89.5	IE2	2380	84	203	3.307
		220	60	342	1785	204	94.9	74.5	274	95.7	82.6	342	95.9	88.1	IE3	2680	107	250	3.264
MLU1282	132	200	50	450	1485	264	95.8	75.3	356	96.2	83.5	450	96.1	88.1	IE3	3460	119	245	3.225
		200	60	442	1780	244	95.5	81.8	344	95.9	86.7	442	95.8	90.0	IE2	2780	84	199	3.355
		220	60	406	1785	236	95.4	76.9	322	96.0	84.0	406	96.2	88.7	IE3	3120	106	244	3.458

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

Standard efficiency 4P

■ 200 V class

Type	Output [kW]	Rated current [A]			Rated speed [min⁻¹]		
		50Hz	60Hz		50Hz	60Hz	
		200V	200V	220V	200V	200V	220V
MLH8062	0.1	0.68	0.62	0.62	1440	1720	1740
MLH8065	0.2	1.3	1.1	1.1	1425	1710	1725
MLH8075	0.4	2.3	2.0	2.0	1425	1710	1725

■ 400 V class

Type	Output [kW]	Rated current [A]						Rated speed [min⁻¹]					
		50Hz			60Hz			50Hz			60Hz		
		380V	400V	415V	400V	440V	460V	380V	400V	415V	400V	440V	460V
MLH8065	0.2	0.63	0.65	0.68	0.55	0.55	0.57	1420	1425	1430	1710	1725	1730
MLH8075	0.4	1.2	1.15	1.2	1.0	1.0	1.0	1415	1425	1430	1710	1725	1730

Premium efficiency 200 V class 6P

Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min⁻¹]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1097	0.75	200	50	4.2	965	3.48	76.7	40.5	3.79	79.8	53.7	4.20	80.1	64.4	IE3	27	313	320	0.044
		200	60	3.8	1155	2.91	79.9	46.6	3.30	82.2	60.0	3.80	82.5	69.1		24	250	264	0.069
		220	60	3.7	1165	3.05	79.1	40.8	3.36	82.3	53.4	3.70	83.1	64.0		27	312	332	0.068
MLU1107	1.5	200	50	7.5	970	5.72	85.4	44.3	6.54	87.1	57.0	7.50	86.7	66.6	IE3	46	245	249	0.157
		200	60	6.6	1160	4.44	88.0	55.4	5.41	88.7	67.7	6.60	88.5	74.1		36	164	198	0.190
		220	60	6.5	1170	4.79	86.8	47.3	5.46	88.5	61.1	6.50	88.7	68.3		41	213	249	0.163
MLU1115	2.2	200	50	11	975	8.49	86.0	43.5	9.64	88.1	56.0	11.0	88.4	65.3	IE3	77	273	350	0.198
		200	60	9.6	1170	6.47	89.1	55.2	7.92	90.0	66.9	9.60	89.6	73.8		63	207	293	0.215
		220	60	9.5	1175	6.99	86.5	47.7	8.20	88.9	59.4	9.50	90.1	67.5		69	250	354	0.184
MLU1133	3.7	200	50	18	975	13.2	84.9	47.8	15.4	86.5	60.0	18.0	86.5	68.6	IE3	120	256	333	0.170
		200	60	15.5	1170	9.90	89.5	60.2	12.5	90.2	71.0	15.5	89.5	77.0		95	200	268	0.302
		220	60	15	1175	10.6	87.9	52.3	12.7	89.5	64.1	15.0	89.6	72.3		109	267	340	0.234
MLU1135	5.5	200	50	25.5	975	18.6	87.1	49.1	21.8	88.7	61.6	25.5	88.8	70.1	IE3	181	281	361	0.209
		200	60	22.5	1170	14.4	90.5	61.1	18.1	91.3	72.0	22.5	91.0	77.5		145	213	290	0.411
		220	60	22	1175	15.4	89.2	52.5	18.6	90.8	64.0	22.0	91.1	72.0		176	258	351	0.373
MLU1165	7.5	200	50	33	980	23.5	88.7	51.8	28.0	90.2	64.4	33.0	90.3	72.7	IE3	238	288	303	0.236
		200	60	30	1175	19.1	90.5	62.5	24.3	91.3	73.3	30.0	91.0	79.3		189	236	246	0.379
		220	60	29.5	1180	20.4	89.6	54.0	24.8	91.2	65.3	29.5	91.4	73.0		212	299	305	0.336
MLU1167	11	200	50	45	980	30.8	90.3	57.2	37.6	91.0	69.6	45.0	90.5	78.0	IE3	327	293	294	0.417
		200	60	43	1175	26.4	90.9	66.2	34.1	91.2	76.5	43.0	90.9	81.2	IE2	270	236	244	0.300
		220	60	40	1180	26.6	90.7	59.7	33.2	91.8	71.1	40.0	91.7	78.7	IE3	298	286	296	0.322
MLU1185	15	200	50	60	980	40.8	91.4	58.0	50.1	92.1	70.4	60.0	91.8	78.6	IE3	457	312	288	0.552
		200	60	57	1175	34.9	92.3	67.3	45.4	92.5	77.3	57.0	91.9	82.7		365	218	230	0.570
		220	60	53	1180	35.3	91.9	60.6	44.1	92.9	72.1	53.0	92.9	79.9		414	280	286	0.689
MLU1186	18.5	200	50	76	985	51.4	92.1	56.4	63.2	92.7	68.3	76.0	92.5	76.0	IE3	568	315	292	0.787
		200	60	71	1180	43.0	93.5	66.3	56.1	93.7	76.2	71.0	93.0	80.9		490	221	233	0.663
		220	60	67	1185	44.1	92.7	59.4	55.2	93.6	70.5	67.0	93.5	77.5		552	282	290	0.701
MLU1187	22	200	50	89	985	60.6	92.4	56.7	74.4	93.1	68.7	89.0	92.7	77.0	IE3	673	327	303	0.849
		200	60	83	1180	50.4	93.5	67.4	65.8	93.7	77.2	83.0	93.1	82.2		544	258	237	0.679
		220	60	78	1185	51.1	93.2	60.6	64.0	93.9	72.1	78.0	93.7	79.0		598	312	287	0.697
MLU1206	30	200	50	124	985	87.7	92.2	53.6	105	93.0	66.5	124	93.0	75.1	IE3	930	194	291	1.001
		200	60	116	1185	74.0	93.1	62.9	93.4	93.6	74.3	116	93.3	80.0	IE2	745	135	235	0.633
		220	60	111	1190	76.3	92.8	55.6	92.9	93.8	67.7	111	94.1	75.4	IE3	845	174	292	0.834
MLU1207	37	200	50	155	985	108	92.8	53.3	130	93.5	65.9	155	93.4	73.8	IE3	1100	190	241	1.090
		200	60	144	1185	89.7	93.6	63.6	115	93.8	74.3	144	93.3	79.5	IE2	870	130	191	0.869
		220	60	137	1190	93.1	93.4	55.9	114	94.1	67.8	137	94.2	75.2	IE3	1000	173	231	1.071
MLU1221	45	200	50	190	980	144	92.1	49.0	168	93.4	62.0	190	93.7	73.0	IE3	1400	219	311	1.787
		200	60	170	1180	110	94.3	62.5	139	94.4	74.0	170	95.1	80.4	IE2	1080	142	243	2.355
		220	60	164	1180	120	94.0	52.3	143	94.9	65.4	164	95.0	75.8	IE3	1250	191	306	2.157
MLU1250	55	200	50	218	985	150	94.0	56.3	184	94.8	68.3	218	94.3	77.2	IE3	1614	172	263	1.851
		200	60	204	1180	126	93.9	67.1	164	94.6	76.8	204	94.3	82.5	IE2	1262	115	208	1.588
		220	60	194	1185	130	93.7	59.3	162	94.7	70.5	194	94.7	78.6	IE3	1442	150	259	1.770
MLU1252	75	200	50	284	980	182	94.4	63.0	232	94.8	73.8	283	94.6	80.6	IE3	1828	144	219	2.686
		200	60	272	1180	158	94.4	72.6	214	94.7	80.1	272	94.3	84.4	IE2	1436	97	174	1.988
		220	60	254	1180	158	94.4	66.0	206	95.0	75.4	254	95.0	81.6	IE3	1636	126	216	2.486
MLU1280	90	200	50	344	990	228	94.5	60.3	286	95.2	71.6	343	95.1	79.4	IE3	2500	138	234	3.189
		200	60	322	1185	190	94.6	72.3	256	95.2	80.0	322	94.9	85.0	IE2	1866	84	180	2.356
		220	60	304	1190	194	94.4	64.5	248	95.3	75.0	304	95.4	81.4	IE3	2160	115	227	3.063
MLU1282	110	200	50	410	990	264	94.9	63.4	336	95.6	74.2	410	95.3	81.3	IE3	2960	134	229	2.474
		200	60	388	1185	226	94.9	74.0	308	95.5	81.0	387	95.3	85.9	IE2	2220	83	176	2.348
		220	60	364	1190	228	94.7	66.8	296	95.6	76.5	364	95.8	82.8	IE3	2600	113	223	2.825

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

Standard efficiency 6P

■ 200 V class

Type	Output [kW]	Rated current [A]			Rated speed [min⁻¹]		
		50Hz	60Hz		50Hz	60Hz	
		200V	200V	220V	200V	200V	220V
MLH8075	0.2	1.3	1.2	1.2	920	1100	1125
MLH8085	0.4	2.5	2.2	2.2	930	1120	1135

■ 400 V class

Type	Output [kW]	Rated current [A]						Rated speed [min⁻¹]					
		50Hz			60Hz			50Hz			60Hz		
		380V	400V	415V	400V	440V	460V	380V	400V	415V	400V	440V	460V
MLH8075	0.2	0.65	0.65	0.68	0.6	0.6	0.62	910	920	925	1100	1125	1130
MLH8085	0.4	1.2	1.3	1.4	1.1	1.1	1.2	920	930	935	1120	1135	1140

Premium efficiency 400 V class 2P

Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min⁻¹]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1085	0.75	400	50	1.6	2850	0.95	81.0	70.7	1.21	82.4	81.5	1.53	81.5	86.7	IE3	10.5	288	284	0.060
		400	60	1.5	3420	0.86	80.9	77.5	1.15	82.1	85.7	1.50	81.1	89.1		9.8	254	254	0.053
		440	60	1.4	3455	0.86	79.9	71.9	1.09	82.2	82.1	1.38	82.5	86.6		10.5	323	316	0.061
MLK1096	1.5	400	50	2.8	2865	1.58	86.9	79.0	2.14	87.2	87.2	2.79	85.8	90.4	IE3	21.5	294	322	0.139
		400	60	2.8	3435	1.51	85.4	83.8	2.11	85.8	89.6	2.79	85.6	90.6		19.5	256	293	0.132
		440	60	2.6	3470	1.45	84.8	79.8	1.97	86.3	87.1	2.53	86.0	90.5		21.5	310	355	0.109
MLK1097	2.2	400	50	4.2	2890	2.43	85.7	76.1	3.23	86.6	85.2	4.12	86.0	89.5	IE3	38	384	355	0.128
		400	60	4.1	3465	2.25	85.8	82.3	3.10	86.6	88.7	4.03	86.8	90.7		34	306	314	0.135
		440	60	3.7	3490	2.19	85.4	77.3	2.91	87.0	85.6	3.70	86.9	89.8		37	374	377	0.094
MLU1115	3.7	400	50	6.5	2930	3.67	88.6	82.0	5.10	89.3	88.5	6.60	88.8	91.2	IE3	70	325	263	0.279
		400	60	6.5	3510	3.53	86.4	87.6	5.00	88.4	91.3	6.50	88.5	92.6		56	288	310	0.256
		440	60	6	3530	3.34	87.2	83.3	4.60	89.1	89.4	5.90	89.3	91.6		62	348	375	0.221
MLU1132	5.5	400	50	10	2935	5.80	88.8	77.8	7.70	89.9	85.7	9.90	89.7	89.1	IE3	97	353	345	0.270
		400	60	9.8	3525	5.40	88.5	82.7	7.50	89.6	88.4	9.80	89.5	90.5		85	288	299	0.310
		440	60	9	3540	5.30	88.0	78.0	7.00	89.7	85.9	9.00	90.0	89.2		94	355	366	0.300
MLU1133	7.5	400	50	13	2940	7.30	89.9	82.1	10.2	90.6	88.3	13.2	90.3	90.7	IE3	126	334	334	0.236
		400	60	13	3525	7.10	89.2	86.0	10.0	90.0	90.3	13.2	90.2	91.3		110	269	291	0.306
		440	60	12	3540	6.70	88.9	82.2	9.20	90.3	88.6	12.0	90.4	90.9		122	339	355	0.249
MLU1164	11	400	50	19	2950	10.3	90.7	85.3	14.4	91.6	90.2	19.0	91.3	91.7	IE3	187	271	317	0.512
		400	60	19	3540	10.0	90.1	88.5	14.3	91.1	91.7	18.9	91.1	92.0		160	211	270	0.598
		440	60	17	3550	9.40	89.8	85.8	13.1	91.3	90.6	17.2	91.4	92.0		178	262	331	0.536
MLU1165	15	400	50	25.5	2955	13.4	92.2	87.6	19.1	92.8	91.6	25.3	92.0	93.0	IE3	262	264	327	0.512
		400	60	25.5	3545	13.2	91.3	90.0	19.1	92.1	92.6	25.4	91.8	93.0		227	213	282	0.627
		440	60	23	3555	12.3	91.1	87.9	17.4	92.4	91.9	22.9	92.5	92.9		257	276	352	0.713
MLU1167	18.5	400	50	31	2950	16.2	92.7	88.8	23.3	93.1	92.2	31.0	92.5	93.1	IE3	297	307	327	0.717
		400	60	31	3540	15.9	92.7	90.6	23.3	92.6	93.0	31.4	91.7	92.9		232	243	276	0.706
		440	60	28	3550	14.9	91.9	88.9	21.3	92.6	92.5	28.2	92.3	93.3		255	294	334	0.734
MLU1185	22	400	50	37	2960	19.6	93.2	87.1	27.8	93.6	91.4	36.8	93.3	92.5	IE3	329	201	324	0.992
		400	60	37	3550	19.4	91.2	89.6	27.9	92.3	92.5	37.1	92.4	92.6		282	159	275	0.993
		440	60	34	3560	18.1	91.3	87.4	25.5	92.7	91.7	33.6	93.0	92.5		312	196	336	1.091
MLU1187	30	400	50	50	2960	26.3	94.6	87.1	37.5	94.7	91.4	49.7	94.2	92.5	IE3	461	212	347	1.216
		400	60	50	3550	26.0	93.2	89.5	37.5	93.8	92.4	49.9	93.6	92.8		395	171	282	1.346
		440	60	45	3560	23.9	93.0	88.5	34.1	93.8	92.3	45.1	93.7	93.1		425	207	341	1.247
MLU1206	37	400	50	62	2970	33.1	93.5	86.3	46.7	94.2	91.0	62.0	94.0	92.2	IE3	595	197	338	1.224
		400	60	62	3565	32.7	91.7	89.0	46.7	92.9	92.3	62.0	93.0	92.6		510	153	287	1.372
		440	60	56	3570	30.6	91.6	86.8	43.0	93.1	90.9	56.0	93.6	92.5		565	186	349	1.434
MLU1207	45	400	50	75	2975	39.7	93.8	87.3	56.0	94.4	91.5	74.0	94.3	92.5	IE3	705	203	321	1.844
		400	60	75	3565	39.2	92.8	89.3	56.0	93.6	92.3	75.0	93.6	92.5		605	153	263	1.483
		440	60	68	3575	36.6	92.7	87.0	52.0	93.8	91.0	68.0	94.0	92.5		670	185	318	1.555
MLU1220	55	400	50	92	2965	50.5	93.8	83.8	71.0	94.4	89.5	92.0	94.3	91.5	IE3	857	156	342	2.315
		400	60	90	3560	48.5	91.9	89.1	70.0	92.2	92.3	90.0	93.0	94.9	IE2	667	102	271	1.366
		440	60	83	3565	45.5	92.0	86.2	65.0	93.3	89.9	83.0	93.6	92.9	IE3	762	133	338	1.613
MLU1250	75	400	50	122	2970	68.0	93.9	84.7	96.0	94.8	89.3	122	94.8	93.6	IE3	1070	129	281	1.792
		400	60	122	3565	66.0	92.5	88.7	95.0	93.5	91.4	122	93.7	94.7	IE2	874	93	231	1.657
		440	60	111	3570	62.0	92.6	85.7	87.0	93.9	90.3	111	94.2	94.1	IE3	971	115	282	1.904
MLU1252	90	400	50	146	2970	81.0	94.3	85.1	114	95.0	90.0	146	95.1	93.6	IE3	1290	135	281	2.346
		400	60	145	3565	78.0	93.7	88.9	112	94.4	92.2	145	94.5	94.8	IE2	1050	97	230	2.694
		440	60	132	3570	73.0	93.8	86.3	103	94.8	90.8	132	95.0	94.2	IE3	1160	120	281	3.089
MLU1280	110	400	50	182	2970	104	94.7	80.7	144	95.3	86.8	182	95.4	91.4	IE3	1460	122	259	3.230
		400	60	179	3570	97.0	94.1	87.0	139	94.7	90.4	179	94.7	93.7	IE2	1170	86	210	2.763
		440	60	164	3575	93.0	94.1	82.5	129	95.0	88.3	164	95.2	92.5	IE3	1310	107	257	3.244
MLU1282	132	400	50	223	2975	130	94.8	77.3	177	95.5	84.6	223	95.4	89.6	IE3	1900	142	278	3.114
		400	60	214	3570	117	94.5	86.1	167	95.1	90.0	214	95.1	93.6	IE2	1490	94	222	3.440
		440	60	198	3575	113	94.5	81.1	156	95.4	87.3	198	95.5	91.6	IE3	1680	120	274	3.716
MLU1284	160	400	50	257	2970	141	94.9	86.3	200	95.6	90.6	257	95.6	94.0	IE3	2070	128	257	3.212
		400	60	256	3570	137	94.6	89.1	198	95.2	91.9	256	95.0	95.0	IE2	1710	95	212	2.702
		440	60	233	3570	128	94.6	86.7	182	95.5	90.6	233	95.4	94.5	IE3	1890	117	258	3.408
MLU1286	200	400	50	320	2970	175	95.3	86.6	249	95.9	90.7	320	95.8	94.2	IE3	2590	135	256	3.546
		400	60	319	3570	169	94.9	90.0	246	95.4	92.3	319	95.4	94.9	IE2	2130	99	211	3.349
		440	60	290	3570	158	94.9	87.5	225	95.7	91.4	290	95.8	94.5	IE3	2360	122	257	4.224
MLU1314	220	400	50	352	2970	194	95.8	85.5	274	96.1	90.4	352	95.9	94.1	IE3	2980	120	283	3.892
		400	60	349	3565	186	95.1	89.8	270	95.5	92.4	349	95.4	95.4	IE2	2440	87	232	3.435
		440	60	318	3570	175	95.2	86.7	248	95.8	91.1	318	95.8	94.8	IE3	2710	108	283	4.397
	250	400	50	400	2970	220	95.9	85.6	312	96.1	90.3	400	95.9	94.1	IE3	3280	117	272	4.142
		400	60	397	3565	211	95.3	89.7	306	95.6	92.5	397	95.4	95.3	IE2	2650	83	221	3.620
		440	60	362	3570	198	95.4	86.8	282	95.9	91.0	362	95.8	94.6	IE3	2960	104	271	4.432
MLU1316	300	400	50	479	2970	263	96.1	85.7	373	96.3	90.5	479	96.0	94.2	IE3	4010	124	277	4.960
		400	60	474	3565	251	95.5	90.3	365	95.7	93.0	474	95.4	95.8	IE2	3230	88	224	4.344
		440	60	432	3570	236	95.6	87.3	337	96.0	91.2	432	95.9	95.0	IE3	3620	110	275	5.645
MLU1350	315	400	50	507	2975	281	95.3	84.9	396	95.9	89.8	507	96.0	93.4	IE3	4240	104	276	4.153
		400	60	500	3570	267	95.0	89.7	386	95.4	92.6	500	95.4	95.3	IE2	3410	72	224	2.792
		440	60	457	3575	252	95.0	86.4	356	95.7	91.0	457	95.8	94.4	IE3	3810	90	274	4.171
MLU1352	355	400	50	568	2975	315	95.5	85.2	443	96.0	90.3	568	96.0	94.0	IE3	4980	112	288	5.076
		400	60	561	3570	300	94.9	90.0	434	95.5	92.8	561	95.4	95.7	IE2	4010	79	234	3.147
		440	60	513	3575	282	94.9	87.0	400	95.7	91.2	513	95.8	94.8	IE3	4470	98	286	4.304
MLU1354	375	400	50	593	2975	323	95.5	87.7	461	96.0	91.7	593	95.9	95.2	IE3	4960	106	273	4.120
		400	60	592	3570	313	95.0	91.1	456	95.4	93.3	592	95.4	95.8	IE2	4060	78	224	2.488
		440	60	538	3575	292	95.2	88.5	418	95.9	92.1	538	95.8	95.5	IE3	4500	95	273	3.296

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

Premium efficiency 400 V class 4P

Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min^{-1}]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1085	0.75	400	50	1.8	1440	1.16	80.4	58.0	1.38	83.0	71.1	1.64	83.2	79.2	IE3	11.5	317	315	0.075
		400	60	1.6	1725	0.99	83.8	65.2	1.24	85.1	76.7	1.54	85.5	82.5		10	263	272	0.072
		440	60	1.6	1740	1.03	83.0	57.5	1.23	85.4	70.4	1.47	85.8	78.1		11	335	339	0.068
MLK1097	1.5	400	50	3.5	1450	2.41	83.6	53.7	2.83	85.7	67.0	3.34	85.8	75.6	IE3	28	243	323	0.180
		400	60	3.1	1740	1.87	87.1	66.4	2.39	87.7	77.5	3.00	86.9	83.1		22	193	263	0.135
		440	60	3	1755	2.04	85.8	56.3	2.43	87.7	69.3	2.91	87.8	77.1		25.5	264	337	0.134
MLU1107	2.2	400	50	4.8	1450	3.37	85.6	55.0	3.99	87.5	68.3	4.75	88.5	75.6	IE3	39	253	340	0.274
		400	60	4.3	1740	2.63	88.7	68.0	3.39	89.4	78.6	4.27	89.5	83.1		29.5	195	271	0.222
		440	60	4.2	1755	2.85	87.3	58.0	3.43	89.2	70.8	4.13	89.9	77.7		35	270	344	0.197
MLU1115	3.7	400	50	7.8	1465	5.37	86.7	57.4	6.40	88.4	70.4	7.70	88.5	78.0	IE3	70	256	328	0.348
		400	60	7	1755	4.35	88.9	69.0	5.60	89.6	79.3	7.10	89.5	83.9		58	205	262	0.297
		440	60	6.8	1765	4.58	87.8	60.3	5.60	89.5	72.7	6.80	90.0	79.3		35	248	336	0.273
MLU1133	5.5	400	50	10.5	1470	7.00	90.0	62.7	8.70	91.0	75.0	10.7	90.8	81.5	IE3	102	286	376	0.375
		400	60	10	1760	5.90	91.6	73.7	7.80	92.0	82.7	10.0	91.7	86.5		89	222	325	0.274
		440	60	9.3	1770	6.00	90.7	66.0	7.60	91.8	77.4	9.50	92.0	83.0		98	269	393	0.293
MLU1135	7.5	400	50	13.5	1470	8.60	90.7	69.3	11.1	91.3	80.0	14.0	90.7	85.1	IE3	129	242	327	0.364
		400	60	13	1760	7.60	91.7	77.8	10.4	91.8	85.4	13.5	91.8	87.6		105	197	267	0.314
		440	60	12	1765	7.50	91.3	71.7	9.80	92.0	81.6	12.5	92.2	85.6		118	238	332	0.292
MLU1165	11	400	50	20	1470	11.9	92.2	72.2	15.8	92.7	81.3	20.2	92.0	85.4	IE3	190	293	347	0.445
		400	60	19.5	1765	10.7	92.6	79.9	15.0	92.9	85.8	19.6	92.4	87.6		152	207	279	0.525
		440	60	18	1775	10.5	92.5	74.4	14.0	93.3	82.9	18.0	92.8	86.6		171	262	346	0.492
MLU1167	15	400	50	27	1475	15.6	93.7	74.0	21.0	93.9	82.4	27.1	93.0	86.0	IE3	258	284	350	0.744
		400	60	26.5	1770	14.4	93.4	80.7	20.1	93.6	86.2	26.5	93.1	87.8		211	210	287	0.704
		440	60	24	1775	13.9	93.4	75.6	18.7	94.0	83.8	24.2	93.7	86.9		236	263	354	0.751
MLU1184	18.5	400	50	34	1480	20.9	94.1	68.0	27.0	94.5	78.5	34.1	93.8	83.4	IE3	274	253	317	0.879
		400	60	33	1775	18.8	94.6	74.9	25.6	94.8	82.7	33.1	93.9	85.8		224	194	259	1.085
		440	60	31	1780	18.5	94.1	69.6	24.1	94.7	79.7	30.6	94.2	84.3		251	244	319	0.916
MLU1185	22	400	50	42	1475	25.7	94.4	65.4	33.1	94.8	75.9	41.7	94.0	81.0	IE3	335	266	326	0.956
		400	60	39	1770	22.4	94.3	75.1	30.4	94.5	83.0	39.4	94.0	85.8		271	200	263	0.719
		440	60	36	1775	22.2	94.3	69.1	28.8	94.9	79.3	36.4	94.6	83.8		306	255	327	0.841
MLU1187	30	400	50	58	1475	35.4	94.4	64.9	46.0	94.7	75.3	58.0	94.1	80.0	IE3	461	280	340	1.122
		400	60	53	1770	30.1	94.7	76.1	40.9	94.8	83.7	53.2	94.2	86.7		360	209	266	1.048
		440	60	51	1775	30.8	94.6	67.6	40.1	95.1	77.4	51.0	94.7	81.5		396	253	322	1.022
MLU1206	37	400	50	69	1480	43.3	93.0	66.3	55.0	94.1	77.0	68.0	94.2	83.8	IE3	585	220	294	1.235
		400	60	67	1775	38.2	93.3	74.9	51.0	94.0	83.1	66.0	94.0	85.9	IE2	480	170	240	1.253
		440	60	62	1780	37.6	93.0	69.4	48.5	94.2	79.7	61.0	94.6	84.1	IE3	535	212	295	1.105
MLU1207	45	400	50	83	1480	52.0	94.0	66.8	66.0	94.6	77.4	82.0	94.5	84.1	IE3	690	204	290	1.797
		400	60	81	1775	45.5	93.8	76.2	62.0	94.3	83.8	80.0	94.0	86.4	IE2	560	157	229	0.957
		440	60	75	1780	44.5	93.9	70.7	58.0	94.8	80.5	73.0	95.0	84.6	IE3	630	190	277	1.017
MLU1221	55	400	50	100	1475	69.0	94.2	61.0	86.0	94.8	73.3	100	94.6	83.9	IE3	835	167	336	1.821
		400	60	94	1770	54.5	95.8	76.1	74.0	95.9	84.2	94.0	95.4	88.5	IE2	645	110	263	2.176
		440	60	88	1775	57.7	95.3	65.6	73.0	95.6	77.0	88.0	95.4	86.0	IE3	740	147	330	2.090
MLU1250	75	400	50	136	1480	86.0	94.7	66.4	111	95.4	76.7	136	95.4	83.5	IE3	1040	132	262	2.277
		400	60	129	1775	74.0	94.8	77.2	101	95.3	84.4	129	95.2	88.2	IE2	811	88	208	2.348
		440	60	121	1780	74.0	94.6	70.3	97.0	95.3	79.8	121	95.6	85.1	IE3	929	115	259	2.541
MLU1252	90	400	50	166	1480	107	95.0	63.9	136	95.4	75.1	166	95.4	82.1	IE3	1300	143	271	2.185
		400	60	155	1775	89.0	95.0	76.8	122	95.4	83.7	155	95.3	88.0	IE2	1000	93	213	2.208
		440	60	146	1780	91.0	94.8	68.4	118	95.5	78.6	146	95.7	84.6	IE3	1150	123	267	2.376
MLU1280	110	400	50	190	1485	114	95.6	72.9	152	96.0	81.6	190	95.9	87.1	IE3	1490	121	252	3.219
		400	60	186	1780	104	95.0	80.4	145	95.5	86.0	186	95.4	89.5	IE2	1190	84	203	3.307
		440	60	171	1785	102	94.9	74.5	137	95.7	82.6	171	95.9	88.1	IE3	1340	107	250	3.264
MLU1282	132	400	50	225	1485	132	95.8	75.3	178	96.2	83.5	225	96.1	88.1	IE3	1730	119	245	3.225
		400	60	221	1780	122	95.5	81.8	172	95.9	86.7	221	95.8	90.0	IE2	1390	84	199	3.355
		440	60	203	1785	118	95.4	76.9	161	96.0	84.0	203	96.2	88.7	IE3	1560	106	244	3.458
MLU1284	160	400	50	273	1480	161	95.8	74.9	217	96.2	83.0	273	96.1	88.0	IE3	2170	124	261	3.549
		400	60	267	1780	149	95.5	81.1	208	95.9	86.8	267	95.8	90.3	IE2	1750	88	211	3.942
		440	60	246	1780	144	95.5	76.4	195	96.1	84.0	246	96.2	88.7	IE3	1960	111	259	4.205
MLU1286	200	400	50	342	1480	204	95.9	73.8	273	96.3	82.4	342	96.1	87.8	IE3	2810	136	268	3.573
		400	60	332	1780	185	95.7	81.6	259	96.0	87.1	332	95.8	90.8	IE2	2230	94	214	4.000
		440	60	307	1780	180	95.6	76.2	244	96.2	83.8	307	96.3	88.8	IE3	2520	120	265	4.521
MLU1314	220	400	50	376	1480	230	95.8	72.1	305	96.3	81.1	376	96.2	87.8	IE3	3140	136	275	3.944
		400	60	365	1780	209	95.7	79.4	289	96.2	85.7	365	96.0	90.6	IE2	2530	96	221	4.732
		440	60	338	1780	204	95.6	74.0	273	96.3	82.3	338	96.3	88.7	IE3	2830	121	272	4.894
	250	400	50	429	1480	262	95.9	71.8	348	96.4	80.7	429	96.2	87.4	IE3	3380	129	259	4.204
		400	60	414	1780	235	95.9	80.0	327	96.3	86.0	414	96.1	90.7	IE2	2670	88	206	5.314
		440	60	384	1780	230	95.8	74.4	309	96.4	82.6	384	96.4	88.6	IE3	3020	112	255	5.814
MLU1316	300	400	50	509	1480	304	96.2	74.0	409	96.4	82.4	509	96.2	88.5	IE3	3700	119	237	4.554
		400	60	495	1775	275	96.1	81.9	388	96.3	86.9	495	96.1	91.1	IE2	2920	80	188	5.825
		440	60	456	1780	267	96.1	76.7	364	96.5	84.0	456	96.4	89.5	IE3	3300	103	232	6.650
MLU1350	315	400	50	531	1485	316	95.8	75.1	426	96.3	83.1	531	96.2	89.0	IE3	4010	100	248	4.271
		400	60	517	1780	288	95.8	82.4	406	96.3	87.2	517	96.2	91.4	IE2	3190	69	198	5.848
		440	60	476	1785	278	95.8	77.6	380	96.4	84.6	476	96.4	90.1	IE3	3580	87	243	5.956
MLU1352	355	400	50	596	1485	351	95.8	76.2	476	96.4	83.8	596	96.2	89.3	IE3	4660	108	254	4.035
		400	60	579	1780	322	96.0	82.9	455	96.4	87.6	579	96.2	92.0	IE2	3690	74	203	5.829
		440	60	533	1785	311	95.8	78.2	425	96.5	85.2	533	96.5	90.6	IE3	4130	92	248	6.069
	375	400	50	631	1485	379	95.8	74.6	508	96.4	82.9	631	96.4	89.0	IE3	5040	108	262	4.734
		400	60	615	1780	346	96.0	81.5	484	96.5	87.0	615	96.3	91.4	IE2	4020	75	210	6.321
		440	60	568	1785	338	95.8	76.0	457	96.5	83.7	568	96.6	89.7	IE3	4550	96	259	6.337

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

Premium efficiency 400 V class 6P

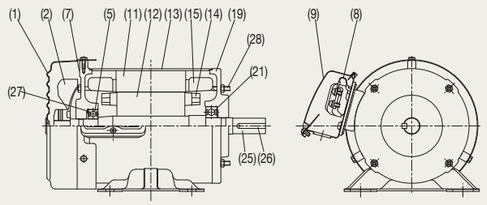
Type	Output [kW]	Voltage [V]	Frequency [Hz]	Rated current [A]	Rated speed [min^{-1}]	Load characteristic									Efficiency class	Starting current [A]	Starting torque [%]	Maximum torque [%]	Input difference from standard motor[kW] (with 100% load)
						50% load			75% load			100% load							
						Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]	Current [A]	Efficiency [%]	Power factor [%]					
MLK1097	0.75	400	50	2.1	965	1.74	76.7	40.5	1.90	79.8	53.7	2.10	80.1	64.4	IE3	13.5	313	320	0.044
		400	60	1.9	1155	1.45	79.9	46.6	1.65	82.2	60.0	1.90	82.5	69.1		12	250	264	0.069
		440	60	1.9	1165	1.53	79.1	40.8	1.68	82.3	53.4	1.85	83.1	64.0		13.5	312	332	0.068
MLU1107	1.5	400	50	3.8	970	2.86	85.4	44.3	3.27	87.1	57.0	3.75	86.7	66.6	IE3	23	245	249	0.157
		400	60	3.3	1160	2.22	88.0	55.4	2.71	88.7	67.7	3.30	88.5	74.1		18	164	198	0.190
		440	60	3.3	1170	2.40	86.8	47.3	2.73	88.5	61.1	3.25	88.7	68.3		20.5	213	249	0.163
MLU1115	2.2	400	50	5.5	975	4.24	86.0	43.5	4.82	88.1	56.0	5.50	88.4	65.3	IE3	39	273	350	0.198
		400	60	4.8	1170	3.23	89.1	55.2	3.96	90.0	66.9	4.80	89.6	73.8		32	207	293	0.215
		440	60	4.8	1175	3.50	86.5	47.7	4.10	88.9	59.4	4.75	90.1	67.5		35	250	354	0.184
MLU1133	3.7	400	50	9	975	6.60	84.9	47.8	7.71	86.5	60.0	9.00	86.5	68.6	IE3	60	256	333	0.170
		400	60	7.8	1170	4.95	89.5	60.3	6.25	90.2	71.0	7.80	89.5	77.0		48	200	268	0.302
		440	60	7.5	1175	5.30	87.9	52.3	6.35	89.5	64.1	7.50	89.6	72.3		55	267	340	0.234
MLU1135	5.5	400	50	12.5	975	9.30	87.1	49.1	10.9	88.7	61.6	12.8	88.8	70.1	IE3	91	281	361	0.209
		400	60	11	1170	7.20	90.5	61.1	9.10	91.3	72.0	11.3	91.0	77.5		73	213	290	0.411
		440	60	11	1175	7.70	89.2	52.5	9.30	90.8	64.0	11.0	91.1	72.0		88	258	351	0.373
MLU1165	7.5	400	50	16.5	980	11.8	88.7	51.8	14.0	90.2	64.4	16.5	90.3	72.7	IE3	119	288	303	0.236
		400	60	15	1175	9.55	90.5	62.5	12.2	91.3	73.3	15.0	91.0	79.3		95	236	246	0.379
		440	60	14.5	1180	10.2	89.6	54.0	12.4	91.2	65.3	14.8	91.4	73.0		106	299	305	0.336
MLU1167	11	400	50	23	980	15.4	90.3	57.2	18.8	91.0	69.6	22.5	90.5	78.0	IE3	164	293	294	0.417
		400	60	22	1175	13.2	90.9	66.2	17.1	91.2	76.5	21.5	90.9	81.2	IE2	135	236	244	0.300
		440	60	20	1180	13.3	90.7	59.7	16.6	91.8	71.1	20.0	91.7	78.7	IE3	149	286	296	0.322
MLU1185	15	400	50	30	980	20.4	91.4	58.0	25.0	92.1	70.4	30.0	91.8	78.6	IE3	229	312	288	0.552
		400	60	28.5	1175	17.4	92.3	67.3	22.7	92.5	77.3	28.5	91.9	82.7		183	218	230	0.570
		440	60	26.5	1180	17.7	91.9	60.6	22.1	92.9	72.1	26.5	92.9	79.9		207	280	286	0.689
MLU1186	18.5	400	50	38	985	25.7	92.1	56.4	31.6	92.7	68.3	38.0	92.5	76.0	IE3	284	315	292	0.787
		400	60	36	1180	21.5	93.5	66.3	28.1	93.7	76.2	35.5	93.0	80.9		245	221	233	0.663
		440	60	34	1185	22.1	92.7	59.4	27.6	93.6	70.5	33.5	93.5	77.5		276	282	290	0.701
MLU1187	22	400	50	45	985	30.3	92.4	56.7	37.2	93.1	68.7	44.5	92.7	77.0	IE3	337	327	303	0.849
		400	60	42	1180	25.2	93.5	67.4	32.9	93.7	77.2	41.5	93.1	82.2		272	258	237	0.679
		440	60	39	1185	25.6	93.2	60.6	32.0	93.9	72.1	39.0	93.7	79.0		299	312	287	0.697
MLU1206	30	400	50	62	985	43.8	92.2	53.6	53.0	93.0	66.5	62.0	93.0	75.1	IE3	465	194	291	1.001
		400	60	58	1185	37.0	93.1	62.9	46.7	93.6	74.3	58.0	93.3	80.0	IE2	373	135	235	0.633
		440	60	56	1190	38.1	92.8	55.6	46.5	93.8	67.7	56.0	94.1	75.4	IE3	423	174	292	0.834
MLU1207	37	400	50	78	985	54.0	92.8	53.3	65.0	93.5	65.9	78.0	93.4	73.8	IE3	550	190	241	1.090
		400	60	72	1185	44.9	93.6	63.6	57.0	93.8	74.3	72.0	93.3	79.5	IE2	435	130	191	0.869
		440	60	69	1190	46.5	93.4	55.9	57.0	94.1	67.8	69.0	94.2	75.2	IE3	500	173	231	1.071
MLU1221	45	400	50	95	980	72.0	92.1	49.0	84.0	93.4	62.0	95.0	93.7	73.0	IE3	700	219	311	1.787
		400	60	85	1180	55.1	94.3	62.5	70.0	94.4	74.0	85.0	95.1	80.4	IE2	540	142	243	2.355
		440	60	82	1180	60.1	94.0	52.3	71.0	94.9	65.4	82.0	95.0	75.8	IE3	625	191	306	2.157
MLU1250	55	400	50	109	985	75.0	94.0	56.3	92.0	94.8	68.3	109	94.3	77.2	IE3	807	172	263	1.851
		400	60	102	1180	63.0	93.9	67.1	82.0	94.6	76.8	102	94.3	82.5	IE2	631	115	208	1.588
		440	60	97	1185	65.0	93.7	59.3	81.0	94.7	70.5	97.0	94.7	78.6	IE3	721	150	259	1.770
MLU1252	75	400	50	142	980	91.0	94.4	63.0	116	94.8	73.8	142	94.6	80.6	IE3	914	144	219	2.686
		400	60	136	1180	79.0	94.4	72.6	107	94.7	80.1	136	94.3	84.4	IE2	718	97	174	1.988
		440	60	127	1180	79.0	94.4	66.0	103	95.0	75.4	127	95.0	81.6	IE3	818	126	216	2.486
MLU1280	90	400	50	172	990	114	94.5	60.3	143	95.2	71.6	172	95.1	79.4	IE3	1250	138	234	3.189
		400	60	161	1185	95.0	94.6	72.3	128	95.2	80.0	161	94.9	85.0	IE2	933	84	180	2.356
		440	60	152	1190	97.0	94.4	64.5	124	95.3	75.0	152	95.4	81.4	IE3	1080	115	227	3.063
MLU1282	110	400	50	205	990	132	94.9	63.4	168	95.6	74.2	205	95.3	81.3	IE3	1480	134	229	2.474
		400	60	194	1185	113	94.9	74.0	154	95.5	81.0	194	95.3	85.9	IE2	1110	83	176	2.348
		440	60	182	1190	114	94.7	66.8	148	95.6	76.5	182	95.8	82.8	IE3	1300	113	223	2.825
MLU1284	132	400	50	248	990	160	95.1	62.6	204	95.7	73.2	248	95.5	80.4	IE3	1720	126	221	3.868
		400	60	234	1185	135	95.2	74.1	184	95.7	81.2	234	95.3	85.4	IE2	1280	76	169	3.273
		440	60	219	1190	137	95.1	66.5	178	95.8	76.2	219	95.8	82.6	IE3	1500	105	214	3.844
MLU1286	160	400	50	301	985	194	95.3	62.5	247	95.8	73.2	301	95.6	80.3	IE3	2060	129	218	3.030
		400	60	283	1185	162	95.4	74.7	222	95.8	81.5	283	95.4	85.5	IE2	1530	77	166	3.225
		440	60	265	1190	166	95.2	66.4	215	95.9	76.4	265	95.9	82.6	IE3	1790	106	211	3.917
MLU1314	200	400	50	364	985	230	95.4	65.8	296	95.9	76.3	364	95.8	82.8	IE3	2640	120	242	3.772
		400	60	347	1185	199	95.2	76.2	273	95.7	82.8	347	95.4	87.2	IE2	1980	73	185	4.260
		440	60	324	1185	200	95.1	69.0	261	95.8	78.7	324	95.8	84.6	IE3	2300	99	234	4.451
	220	400	50	406	985	262	95.3	63.6	333	95.9	74.6	406	95.8	81.6	IE3	3030	130	249	3.282
		400	60	383	1185	221	95.3	75.4	302	95.8	82.3	383	95.4	86.9	IE2	2240	78	189	3.684
		440	60	360	1185	225	95.1	67.4	292	95.9	77.3	360	95.8	83.7	IE3	2630	107	240	3.901
MLU1316	250	400	50	451	985	281	95.5	67.2	365	95.9	77.3	451	95.8	83.5	IE3	3160	118	231	2.753
		400	60	433	1185	244	95.2	77.7	339	95.7	83.5	433	95.4	87.4	IE2	2360	71	176	3.057
		440	60	402	1185	244	95.1	70.7	323	95.8	79.5	402	95.8	85.2	IE3	2750	98	222	3.310
MLU1354	300	400	50	543	985	347	95.7	65.2	447	96.2	75.6	543	95.9	83.2	IE3	3730	109	227	3.630
		400	60	520	1185	303	95.6	74.7	413	96.1	81.8	520	95.6	87.1	IE2	2870	70	177	5.002
		440	60	485	1185	303	95.4	68.1	396	96.1	77.6	485	96.0	84.6	IE3	3280	92	221	4.290
	315	400	50	590	985	396	95.4	60.2	494	96.1	71.8	590	95.9	80.4	IE3	4370	128	250	3.112
		400	60	550	1185	329	95.5	72.3	442	96.1	80.3	550	95.7	86.4	IE2	3280	78	192	4.887
		440	60	520	1185	338	95.2	64.2	431	96.1	74.8	520	96.1	82.7	IE3	3810	106	242	4.495
MLU1356	355	400	50	674	985	457	95.2	58.9	567	95.9	70.7	674	95.8	79.4	IE3	4880	123	247	2.769
		400	60	624	1185	375	95.5	71.6	502	96.0	79.7	624	95.5	86.0	IE2	3630	74	188	4.395
		440	60	592	1185	388	95.2	63.1	492	96.0	74.0	592	95.9	82.1	IE3	4230	101	238	3.922
	375	400	50	693	985	457	95.7	61.9	577	96.2	73.1	693	96.0	81.4	IE3	4980	123	240	3.697
		400	60	651	1185	383	95.7	73.8	520	96.3	81.1	651	95.8	86.8	IE2	3730	75	184	5.805
		440	60	613	1185	391	95.5	65.9	504	96.3	76.1	613	96.2	83.4	IE3	4340	102	232	5.340

Note 1) These characteristic values are based on the dynamometer method (actual load method).
Note 2) These characteristic values are typical ones. They are not guaranteed.

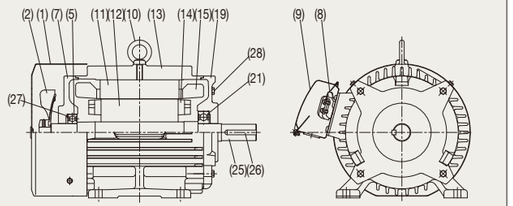
TYPICAL STRUCTURAL DRAWINGS (LEG MOUNTING TYPE)

Totally-enclosed fan-cooled type (indoor)

Frame size: 80M



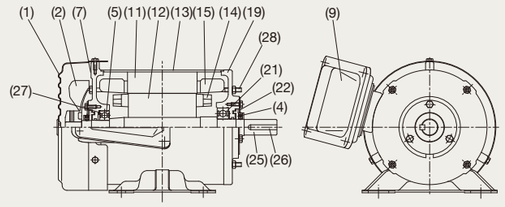
Frame size: 112M



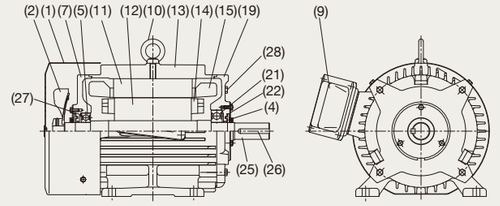
No.	Part name	No.	Part name
(1)	Fan cover	(16)	Internal fan
(2)	External fan	(17)	Air guide
(3)	C-shaped retaining ring for securing external fan	(18)	Inner end cover on operation side
(4)	—	(19)	Bracket on operation side
(5)	Bearing opposite operation side	(20)	Grease inlet
(6)	Inner end cover opposite operation side	(21)	Bearing on operation side
(7)	Bracket opposite operation side	(22)	Outer end cover on operation side
(8)	Lead wire	(23)	Rotating disk
(9)	Terminal box	(24)	C-shaped retaining ring for shaft
(10)	Hanger bolt	(25)	Shaft
(11)	Stator iron core	(26)	Shaft end key
(12)	Rotor iron core	(27)	Wave washer
(13)	Stator frame	(28)	Tightening bolt
(14)	Rotor conductor	(29)	Grounding screw
(15)	Stator winding		

Totally-enclosed fan-cooled type (outdoor)

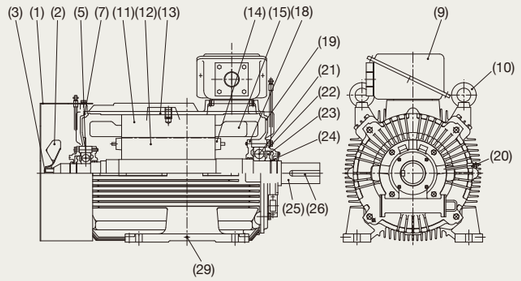
Frame size: 80M



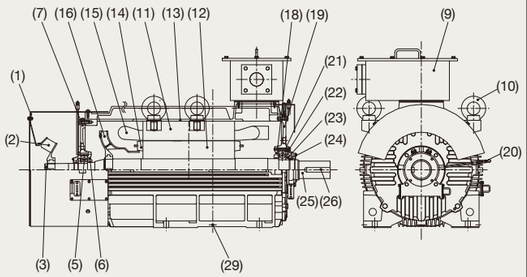
Frame size: 112M



Frame size: 250M



Frame size: 315M



No.	Part name	No.	Part name
(1)	Fan cover	(16)	Internal fan
(2)	External fan	(17)	Air guide
(3)	C-shaped retaining ring for securing external fan	(18)	Inner end cover on operation side
(4)	Watertight collar	(19)	Bracket on operation side
(5)	Bearing opposite operation side	(20)	Grease inlet
(6)	Inner end cover opposite operation side	(21)	Bearing on operation side
(7)	Bracket opposite operation side	(22)	Outer end cover on operation side
(8)	Lead wire	(23)	Rotating disk
(9)	Terminal box	(24)	C-shaped retaining ring for shaft
(10)	Hanger bolt	(25)	Shaft
(11)	Stator iron core	(26)	Shaft end key
(12)	Rotor iron core	(27)	Wave washer
(13)	Stator frame	(28)	Tightening bolt
(14)	Rotor conductor	(29)	Grounding screw
(15)	Stator winding		

MOMENT OF INERTIA (SI UNIT)

Premium efficiency

[Unit: kg·m²]

Output [kW]	2P				4P				6P			
	Rotor moment of inertia	Allowable load moment of inertia			Rotor moment of inertia	Allowable load moment of inertia			Rotor moment of inertia	Allowable load moment of inertia		
		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V
		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz
0.75	0.0019	0.30	0.20	0.21	0.0039	2.7	1.8	1.9	0.010	4.3	2.9	3.0
1.5	0.0033	0.57	0.39	0.40	0.0104	2.8	1.9	2.0	0.016	13	8.4	9.0
2.2	0.0039	0.63	0.43	0.46	0.0142	4.0	2.8	2.9	0.029	14	10	10
3.7	0.0121	1.1	0.75	0.77	0.0230	4.0	2.7	2.9	0.047	19	13	14
5.5	0.0213	1.7	1.2	1.2	0.042	6.4	4.5	4.7	0.073	22	16	16
7.5	0.0272	2.0	1.4	1.4	0.055	8.1	5.7	5.9	0.15	35	25	26
11	0.067	4.0	2.7	2.9	0.12	17	12	13	0.21	45	33	34
15	0.10	4.9	3.5	3.6	0.17	23	16	17	0.32	82	56	59
18.5	0.12	5.6	3.9	4.0	0.24	38	27	28	0.40	98	68	71
22	0.14	8.6	6.0	6.2	0.27	42	30	31	0.45	110	88	92
30	0.17	11	7.7	8.0	0.33	50	35	36	0.79	107	74	78
37	0.42	15	10	11	0.62	61	43	45	0.79	114	78	79
45	0.45	16	11	11	0.66	67	46	48	1.1	195	124	133
55	0.48	14	9.3	10	0.68	75	48	51	1.1	255	164	178
75	0.53	24	15	16	0.85	100	63	68	1.3	246	163	179
90	0.58	25	16	18	0.92	109	69	74	3.1	343	223	246
110	0.84	34	22	23	1.7	148	93	100	3.7	433	281	314
132	0.89	37	23	25	2.0	173	108	118	4.1	449	286	324
160	1.3	46	29	31	2.4	170	108	116	4.5	505	321	363
200	1.5	50	32	34	2.6	185	116	125	–	–	–	–

Conditions: full voltage starting, starting load torque of 100% with square reduction characteristic, started in cold condition twice and hot condition once

Standard efficiency

[Unit: kg·m²]

Output [kW]	2P				4P				6P			
	Rotor moment of inertia	Allowable load moment of inertia			Rotor moment of inertia	Allowable load moment of inertia			Rotor moment of inertia	Allowable load moment of inertia		
		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V
		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz
0.1	–	–	–	–	0.00088	0.50	0.35	0.35	–	–	–	–
0.2	0.00035	0.20	0.14	0.14	0.00088	0.90	0.55	0.57	0.0019	2.1	1.4	1.5
0.4	0.00053	0.25	0.17	0.18	0.0014	1.2	0.87	0.90	0.0025	4.5	3.0	3.2

Conditions: full voltage starting, starting load torque of 100% with square reduction characteristic, started in cold condition twice and hot condition once

FLYWHEEL EFFECT (GD²) *For calculation with the conventional "flywheel effect" (GD²), see the table below.

Premium efficiency

[Unit: kg·m²]

Output [kW]	2P				4P				6P			
	Motor rotor GD²	Allowable load: GD²			Motor rotor GD²	Allowable load: GD²			Motor rotor GD²	Allowable load: GD²		
		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V
		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz
0.75	0.0074	1.2	0.80	0.85	0.0157	11	7.3	7.6	0.039	17	11	12
1.5	0.0130	2.3	1.5	1.6	0.0417	11	7.6	8.0	0.064	50	34	36
2.2	0.0155	2.5	1.7	1.8	0.0569	16	11	12	0.12	57	40	42
3.7	0.0484	4.3	3.0	3.1	0.0919	16	11	11	0.19	74	52	54
5.5	0.0850	6.8	4.8	4.9	0.17	26	18	19	0.29	88	62	64
7.5	0.1090	7.9	5.4	5.8	0.22	32	23	24	0.59	138	100	104
11	0.27	16	11	11	0.46	70	49	51	0.84	180	130	135
15	0.40	20	14	14	0.66	90	64	66	1.3	326	226	237
18.5	0.47	22	16	16	0.97	152	107	112	1.6	392	272	285
22	0.58	34	24	25	1.1	168	119	124	1.8	440	352	369
30	0.69	44	31	32	1.3	198	141	146	3.2	429	294	312
37	1.7	59	40	42	2.5	245	170	178	3.2	455	311	314
45	1.8	64	43	45	2.6	268	184	193	4.2	780	495	530
55	1.9	56	37	40	2.7	300	190	205	4.5	1020	655	710
75	2.1	94	60	65	3.4	400	250	272	5.1	985	650	715
90	2.3	101	65	70	3.7	435	274	295	12	1370	890	985
110	3.4	136	86	92	6.7	590	370	400	15	1730	1125	1255
132	3.6	148	93	100	8.1	690	432	470	16	1795	1145	1295
160	5.3	184	116	124	9.8	680	430	465	18	2020	1285	1450
200	5.8	200	126	135	10	740	465	500	–	–	–	–

Conditions: full voltage starting, starting load torque of 100% with square reduction characteristic, started in cold condition twice and hot condition once

Standard efficiency

[Unit: kg·m²]

Output [kW]	2P				4P				6P			
	Motor rotor GD²	Allowable load: GD²			Motor rotor GD²	Allowable load: GD²			Motor rotor GD²	Allowable load: GD²		
		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V		200 V, 400 V		220 V, 440 V
		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz		50 Hz	60 Hz	60 Hz
0.1	–	–	–	–	0.0035	2.0	1.4	1.4	–	–	–	–
0.2	0.0014	0.82	0.56	0.57	0.0035	3.6	2.2	2.3	0.0074	8.6	5.8	6.2
0.4	0.0021	1.0	0.71	0.75	0.0056	5.0	3.5	3.6	0.010	18	12	13

Conditions: full voltage starting, starting load torque of 100% with square reduction characteristic, started in cold condition twice and hot condition once

STANDARD PRODUCT TERMINAL BOX AND DIMENSIONS

Totally-enclosed fan-cooled type (indoor)

Fig. A

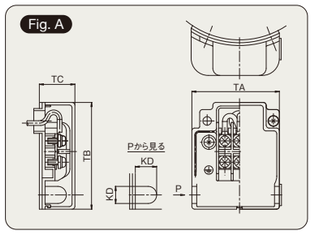


Fig. B

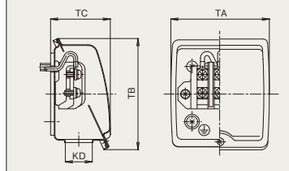


Fig. C

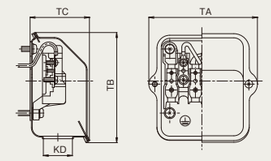


Fig. D

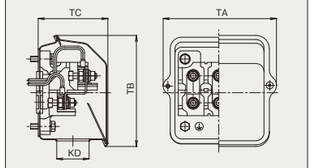


Fig. E

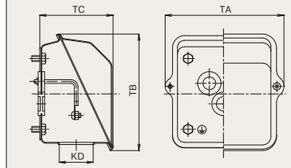


Fig. F

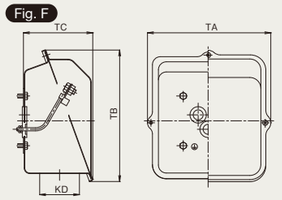


Fig. G

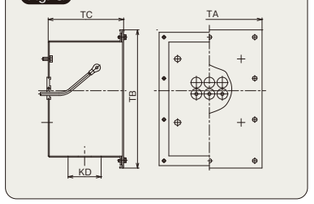
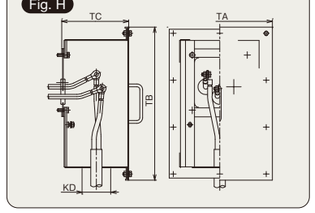


Fig. H



Totally-enclosed fan-cooled type (outdoor)

Fig. A

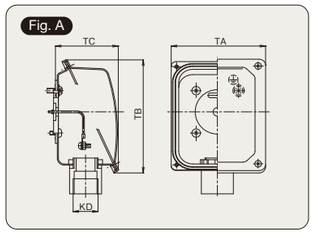


Fig. B

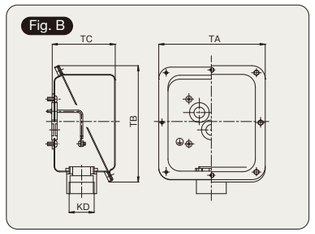


Fig. C

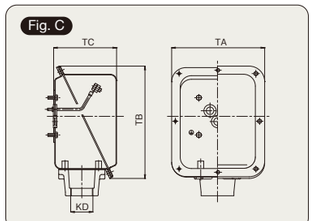


Fig. D

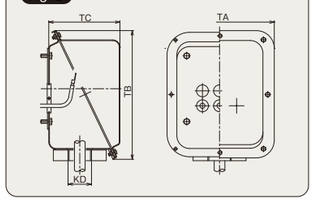


Fig. E

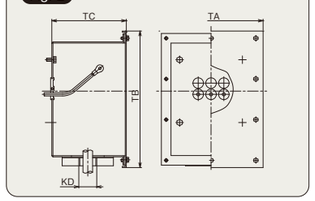
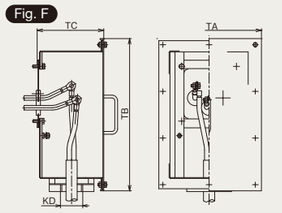


Fig. F



[Indoor dimensions]

[Unit: mm]

Applicable frame size	Drawing No.	Major dimensions			
		TA	TB	TC	KD
63M·71M	A	61.5	75	25	12×15
80M·90L	B	81	91	49	22
100L·112M		91	107	60	27
132S·132M	C	130	129	69.5	34
160M·160L	D	171	165	103.5	48
180M	E				
180L					60
200L to 250M	F	253	265	140.5	80
280S to 280L	G	325	426	230	
315L	H	375	545	238.5	*1
355K			655		

Note) Please contact us for *1 above for each case.

[Outdoor dimensions]

[Unit: mm]

Applicable frame size	Drawing No.	Major dimensions			
		TA	TB	TC	KD
80M·90L	A	103	120	67	G3/4
100L·112M					G1
132S·132M	B	181	195	106	G1 1/4
160M to 180M					G1 1/2
180L	C	254	302	169	G2
200L					G2 1/2
225S to 250M	D				
280S to 280L	E	325	426	230	
315L	F	375	545	238.5	*1
355K			655		

Note) Please contact us for *1 above for each case.

MOTOR STANDARD CONNECTIONS

Voltage	Single voltage		200–400 V (1:2 voltage)	
Motor output	3.7 kW or smaller	5.5 kW or larger	3.7 kW or smaller	5.5 kW or larger
No. of lead wires	3	6	9	12
Connection method	Motor terminals U V W R S T Power supply	Direct-on-line starting	200 V	Direct-on-line starting
			3.7 kW or smaller (Except for 3.7 kW-6P) / 3.7 kW-6P	200V / 400V
		Motor terminals R S T Power supply	R S T Power supply / Power supply	R S T Power supply / Power supply
		Star-delta starting	400V	Star-delta starting
				200V / 400V
		Star-delta starter X Y Z or U2 V2 W2 U1 V1 W1 or U V W Star-delta starter	R S T Power supply	Star-delta starting Y Z X or V2 W2 U2 U1 V1 W1 or U V W Star-delta starting

Note) Products of frame sizes 132S to 160L are factory-connected for direct-on-line starting.
To enable star-delta starting for frame sizes 132S and M, change the connections (star-delta starting is not available for 3.7 kW 6P).
To enable star-delta starting for the terminal strip system of frame sizes 160M and L, remove the shorting bar.
These connection diagrams are examples. For wiring, use the connection diagram pasted on the product.

MOTOR WIRING AND GROUNDING

1) For motor wiring, use high-grade wiring materials and follow the Electrical Equipment Technical Standards, Interior Wiring Code and rules of the respective utility companies.
2) Longer wiring distances cause larger voltage drops, leading to motor accidents. Ensure that the voltage drop does not exceed 2% of the standard voltage.
3) Be sure to provide grounding wiring.
Grounding terminals are in the terminal box or at the bottom of the frame.

Note) Wiring distance calculation (3-phase 3-wire)

$$L = \frac{1000 \times A \times e}{30.8 \times I}$$

L: Wiring distance (m)
A: Cross-sectional area of one wire (mm²)
e: Voltage drop between respective wires (V)
I: Current (A)

•Wiring thickness (reference)

Output [kW]	Voltage [V]	Minimum wiring thickness (copper wires)		Minimum ground plane thickness (copper wires)
		Direct-on-line starting	人ー△ starting	
0.2	200	1.6 mm (2.0 mm²)	–	1.6 mm (2.0 mm²)
0.4	200	1.6 mm (2.0 mm²)	–	1.6 mm (2.0 mm²)
0.75	200	1.6 mm (2.0 mm²)	–	1.6 mm (2.0 mm²)
1.5	200	1.6 mm (2.0 mm²)	–	1.6 mm (2.0 mm²)
2.2	200	1.6 mm (2.0 mm²)	–	1.6 mm (2.0 mm²)
3.7	200	2.0 mm (3.5 mm²)	–	2.0 mm (3.5 mm²)
5.5	200	2.6 mm (5.5 mm²)	2.0 mm (3.5 mm²)	2.6 mm (5.5 mm²)
7.5	200	3.2 mm (8.0 mm²)	2.6 mm (5.5 mm²)	2.6 mm (5.5 mm²)
11	200	14 mm²	3.2 mm (8.0 mm²)	3.2 mm (8.0 mm²)
15	200	22 mm²	14 mm²	3.2 mm (8.0 mm²)
18.5	200	38 mm²	22 mm²	3.2 mm (8.0 mm²)
22	200	38 mm²	22 mm²	3.2 mm (8.0 mm²)
30	200	60 mm²	38 mm²	14 mm²
37	200	100 mm²	60 mm²	22 mm²
45	200	100 mm²	60 mm²	38 mm²
55	200	125 mm²	100 mm²	38 mm²
75	400	80 mm²	38 mm²	38 mm²
90	400	100 mm²	60 mm²	38 mm²
110	400	125 mm²	80 mm²	38 mm²
132	400	150 mm²	100 mm²	38 mm²
160	400	200 mm²	125 mm²	38 mm²
200	400	250 mm²	150 mm²	38 mm²

Note 1) Thicknesses shown in parentheses are when twisted wires are used.
Note 2) For 人-△ starting, the thicknesses are for wiring between the 人-△ starter and motor.
Note 3) The minimum wiring thicknesses are given for metal conduit wiring.

INVERTER DRIVING OF PREMIUM EFFICIENCY MOTORS

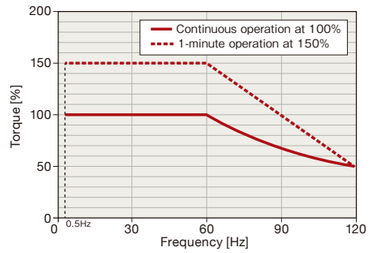
Consider the following points for speed control by using an inverter to drive a premium efficiency motor.

- Increase of the generated loss and starting characteristics
- Decrease of the cooling capacity in a low-speed region
- Bearing service life and mechanical strength in a high-speed region of 60 Hz or higher
- Generation of surge voltage

1. Allowable torque characteristics

The output voltage of an inverter contains a harmonic component. This causes a higher generated loss of the motor than when it is driven by a sine wave as in a commercial power supply, leading to a temperature rise of the motor. Meanwhile, the motor is cooled by its own fan mounted on the shaft. However, the air volume of the fan decreases when the rotational speed is reduced, which causes a decrease in the cooling capacity of the motor. Accordingly, pay attention to the motor temperature when using the product at a low rotational speed.

Fig. 1 **Representative 4P models (frame size 132M or smaller)**



•2P (frame size 200L or smaller)
Constant torque characteristic: 3 to 60 Hz Constant output characteristic: 60 to 90 Hz
•4P (frame size 160M to 200L)
Constant torque characteristic: 0.5 to 60 Hz Constant output characteristic: 60 to 90 Hz
•6P (frame size 200L or smaller)
Constant torque characteristic: 0.5 to 60 Hz Constant output characteristic: 60 to 90 Hz

Note 1) The torque characteristics shown above are available in vector control operation of Fuji inverters.
Note 2) 100% torque is the allowable torque [N•m] of each output at 60 Hz.
Note 3) 1-minute operation at 150% torque is allowed in the range of constant torque characteristic.

2. Starting characteristics

Unlike when using a commercial power supply, inverter driving is restricted by the inverter current. Generally, the starting torque is lower than when driven by a commercial power supply. This torque can be increased to some extent by adjusting the amount of torque boost in the V/F pattern. When an even higher starting torque is required, it is necessary to increase the capacity of the inverter and motor.

3. Noise

1) Generally, inverter driving involves higher electromagnetic noise than when using a commercial power supply because of the effect of the inverter. When used at a frequency higher than the commercial frequency, the ventilation sound increases as the rotational speed increases.
2) Please contact us for details of noise reduction measures, which include use of a low-noise inverter and provision of a noise-reduction reactor between the inverter and the motor.

4. Vibration

1) When the operation frequency for inverter driving is different from the commercial power frequency, resonance with the enclosure is generated at a certain rotational speed band, and this may result in a larger vibration. If this happens, measures such as improving the foundation of the motor installation or of the coupling may be required.
2) When used at a frequency higher than the commercial power frequency, vibration increases as the speed increases.

5. High-speed operation

When a motor is driven in a high-speed region of over 60 Hz, the bearing service life may be reduced for reasons such as increased vibration, which limits the maximum speed. In addition, noise, strength, service life, etc. may pose problems with power transmission mechanisms such as the coupling, belt, chain and gear. Please contact their respective manufacturers for details.

6. Surge voltage

When a 400-V-class motor is driven by a PWM inverter that uses a high-speed switching device such as an IGBT, surge voltage may be generated depending on the power voltage, cable length and installation condition. This surge voltage may cause the motor insulation to deteriorate. The maximum value for the motor terminal voltage is 1300 V line voltage. If a surge voltage exceeding this value is generated, reduce the surge voltage by fitting an AC reactor, surge suppression filter, etc. on the inverter output side.

7. Electrolytic corrosion of bearings

When an inverter is used to drive the motor, electrolytic corrosion may be developed on rare occasions depending on the bearing grease, wiring, load and operation conditions. If any measure to deal with electrolytic corrosion is required, please consult us in advance.

[Reference] JEM-TR 169
"Supplement to the application guide for low-voltage three-phase squirrel-cage induction motors for general purposes driven by inverters"

USE OF PREMIUM EFFICIENCY MOTORS

To achieve an energy-saving effect by improving the efficiency, which is the biggest feature of premium efficiency motors, it is necessary to study products from various perspectives including their selection, operation and maintenance.

- Motor characteristics (starting current, rotational speed, load factor)
- Motor installation environment (dimensions, mount)
- Peripheral devices (magnetic switch, thermal overload relay)

1. Starting current

Losses of various parts have been reduced as much as possible in order to improve the motor efficiency. For that purpose, the resistance of various parts (winding, rotor) has been reduced, which makes the starting current inclined to be higher than that of conventional standard efficiency motors.

2. Rotational speed

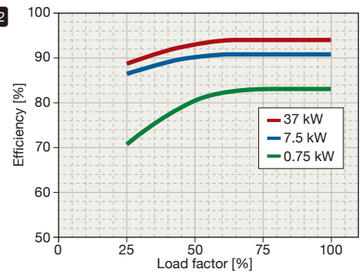
The generated loss of the motor is reduced as compared with conventional standard efficiency motors and the rotational speed is inclined to be slightly higher (slip is inclined to be smaller). For square reduction loads such as pumps and fans, attention must be paid because the power requirement may be increased in proportion to the increase of the rotational speed, leading to increased power consumption.

(*Square reduction load: load that varies in proportion to the square of the rotational speed)

3. Load factor and efficiency

As shown in Fig. 2, motor efficiency reaches its maximum at a load factor of approximately 75 to 100% The energy-saving effect can be maximized by selecting so that the motor load factor is between 75 and 100%. If the load factor is extremely low, the motor capacity must be reconsidered. If there is any load variation or rotational speed variation, you are recommended to fit an inverter for optimized control according to the rotational speed and load.

Fig. 2



Note) Generally, a larger motor capacity offers higher motor efficiency.

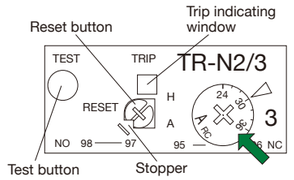
4. Motor peripheral devices

1) Arranging the peripheral devices may require reconsideration due to an increase of the magnetic switch, starter or motor starting current. When using devices from other manufacturers for replacement, please contact the respective manufacturers.

2) Thermal overload relay

As with Item 1, the setting of the thermal overload relay shown in Fig. 3 may require reconsideration due to an increase of the starting current.

Fig. 3 **Thermal overload relay setting**



5. Other

1) Motor mounting dimensions

The installation dimensions are the same as those of standard efficiency motors, except for some models whose motors have a longer entire length, entire width, etc. If the installation dimensions are very small, check the dimensions of the individual motors.

2) Motor mass

To improve efficiency, premium efficiency motors are inclined to be heavier than conventional standard efficiency motors. In particular, when using a motor installed on a moving object or with a mount that is not robust, take appropriate measures separately.

3) Notes on use

The descriptions in this catalog are intended to help the user select a model. In actual use, please read the "Instruction Manual" that comes with the motor carefully to ensure correct use.

4) Star-delta starting

For star-delta starting, use a model with a magnetic switch (3-contact type) on the primary side.

5) Outdoor type structure

The outdoor horizontal and vertical types have different waterproof structures. Please order a type that is appropriate for the mounting method. For use in an environment subject to explosive gas or dust, choose an explosion-proof type.

HOW TO ORDER

1. To place an order, please provide the following information. For motors of other than the Fuji standard types, you will need to provide details of your requirements.

(1) Application: name of the machine to be connected (2) Output: (3) Time rating: continuous, short-time, intermittent-service, etc. (4) Voltage: (5) Frequency: (6) No. of poles: load characteristics for pole change (square reduction torque, constant torque, constant output) (7) Rotational speed (synchronous speed): (8) Protection rating and Fuji's type: (9) Mounting method, terminal box position, shaft end (10) Applicable standards: (11) Installation location: indoor or outdoor (12) Environment (location) of use: presence of water, oil, chemical, dust, etc. and their degrees (13) Ambient temperature and altitude (14) Insulation class and maximum allowable temperature (15) Starting method: For anything other than full-voltage starting, the starting method and frequency (no. of switchings SW/h) (duty cycle %), moment of inertia (converted to motor shaft) of the machine to be connected and braking method (16) Connection with load: belt, gear connection, direct coupling (17) Direction of rotation: standard direction is counterclockwise as seen from operation side (18) Specification of terminal symbols, no. of terminals, terminal box structure, etc. (19) Accessories such as slide base, rail and pulley (20) Coating: Specification of coating color and material (21) Other: characteristics, noise, vibration, accuracy, nameplate indication (English, Japanese, etc.)

2. When using the product for any of the following applications, please contact us in advance.

(1) Use on vital equipment*1 or equipment that may affect human safety and have a serious impact on the maintenance of public functions*2 requires special consideration.*3 Be sure to contact us in advance. Using the product without giving special consideration may lead to serious accidents.

(2) Notify us in advance when using the product for clean rooms, food processing machines, etc. Use of a standard product as it is without subjecting it to special treatment may result in a leakage of grease or oil through the joint between a bearing shield and frame or shaft penetration. Special consideration is required for use in an environment where oil should be avoided.

(3) Bearings are not subjected to treatment against electrolytic corrosion. If directly connected with the load, electrolytic corrosion may occur due to the shaft voltage. For use in applications that may involve electrolytic corrosion, measures such as use of isolation coupling are required.

*1: Operating room devices, life-support systems (artificial dialysis, incubators, etc.), toxic and other gas and smoke extraction systems, equipment made compulsory by various laws and regulations such as the Fire Service Act and Building Standards Act, various safety systems and other equivalent systems

*2: Systems for air, train, maritime and other traffic control and equipment to control such systems, systems for controlling nuclear power stations, communication control equipment and other equivalent systems

*3: Have adequate discussions with device designers on the installation, operation and management of the product and construction in advance with regards to a backup system available for use in the event of product failure

⚠ Notes on safety

[1] The descriptions in this catalog are intended for assisting with model selection. Before actual use, read the "Instruction Manual" carefully to ensure correct use.

[2] These products are not designed or manufactured for use in vital devices or systems.

When considering products mentioned in this material for special applications such as nuclear power control, aerospace, medical care or traffic devices or systems for these purposes, inquire our sales representative. For use in any equipment where failure of the products may lead to life-threatening consequences or serious damage, be sure to provide a safety system.

⚠ Notes on adoption of premium efficiency motors

Premium efficiency motors feature lower generated loss and generally have slightly higher rotational speeds than standard efficiency motors. If the load is a pump or blower and a standard efficiency motor is replaced with a premium efficiency motor, the rotational speed is increased, resulting in increased motor output. Despite the high motor efficiency, increased output may cause increased power consumption. The resistance (primary and secondary) has been lowered for reducing copper loss and the starting current is inclined to increase, which may require changing of the breaker.

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2015-8(H15/H15) EP10FOLS Printed in Japan