

## SINGLE PHASE INDUCTION MOTOR

# SUPER LINE Q SERIES

*Multi-purpose energy saving for all needs*



SCL- QR 1HP 4P



SCL- QR 5HP 4P

- Motor efficiency class IE1 conformed with IEC 60034-30-1
- Develop and Improve for all purpose

### NEW PRODUCTS



SCLF- QR 2HP 4P



SCLF- QRV 2HP 4P

- IP55 Degrees of Protection
- F-Class Insulation
- Same Installation based on IEC Standard

Efficiency class label



**MOTOR EFFICIENCY CLASS IE1**

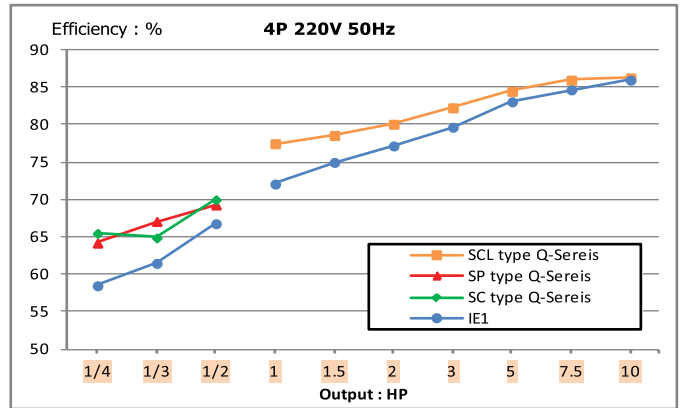
# What's New

## Advance efficiency for energy saving

Efficiency is higher than non IE1 motor on average 3.5% , Advanced energy saving is possible with single phase Q-Series.

<b>MITSUBISHI ELECTRIC</b>		CAPACITOR START AND RUN SINGLE PHASE INDUCTION MOTOR	
<b>3 HP (2.2kW)</b>	<b>4 POLE</b>	<b>TYPE SCL-QR</b>	
Hz 50	50	60	FRAME 112M
V 220	230	220	RATING S1
A 15.1	15.4	13.4	TH.CLASS 130(B)
min <sup>-1</sup> 1450	1460	1740	BEARING 6207ZZ
RATED EFF. 82.3%	82.2%	85.4%	
EFF.CLASS. IE1	IE1	IE1	CAP ST 180µF RUN 22.5µF
EFF.RULE IEC 60034-30-1			IP22 IC01
STD. JEC-2137-2000	SERIAL		
MITSUBISHI ELECTRIC AUTOMATION (THAILAND) CO., LTD.			
CONNECTION DIAGRAM			
NM14N332-01			

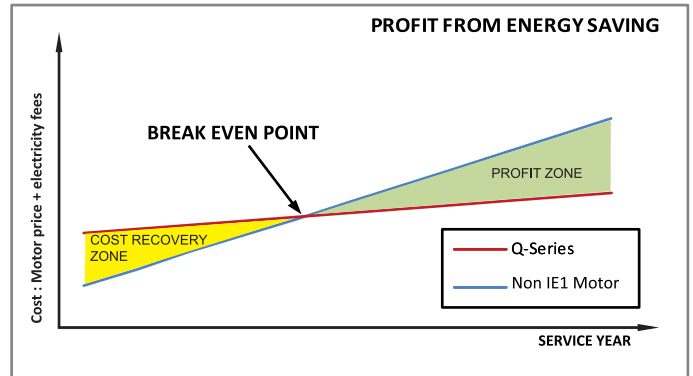
\*The efficiency values and IE code are specified on nameplate.



Sample name plate model : SCL-QR 3HP(2.2kW) 4P IP22

## Hidden profit from energy saving

The investment cost for motor doesn't refer to only the price, but also the variable electricity fees. Single Phase Q-Series can help to reach a break even point sooner by an advance energy saving performance consuming less electricity fees.

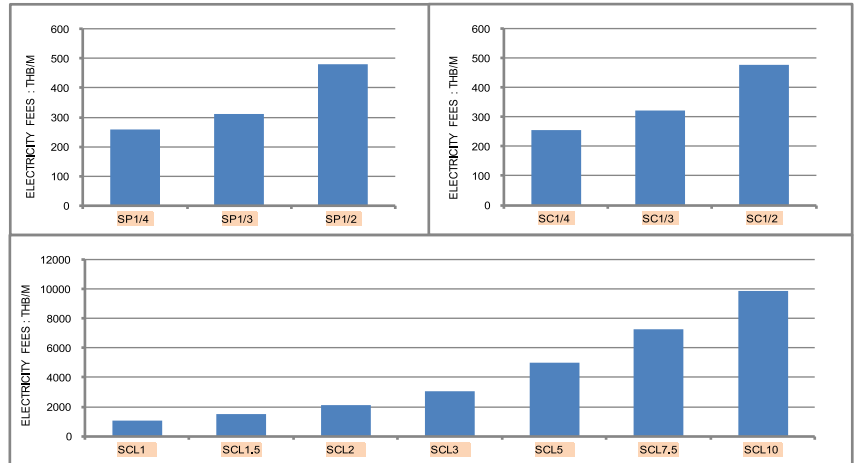


## Electricity fees

### CALCULATED CONDITION

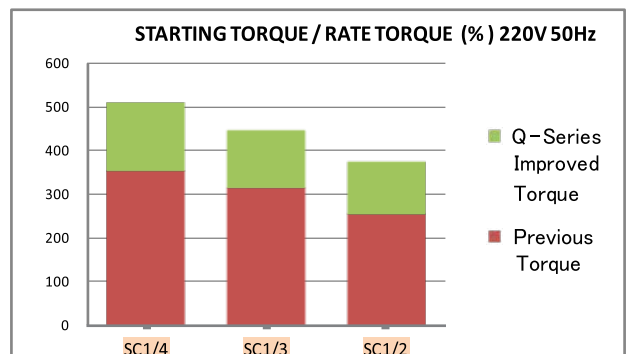
- Rate : 220V 50Hz
- Load : 100%
- Q'ty : 1 Unit
- Run time : 8Hr. / Day , 30 Days / Month
- Electricity fees :
  - 0-150units = 3.25 THB/Unit
  - 150-400 units = 4.22 THB/Unit
  - > 400unit = 4.42 THB/Unit

\*Electricity fees refer Electricity authority announcement electricity rate modification effective since Nov 2015



## Stronger starting torque

MITSUBISHI ELECTRIC AUTOMATION THAILAND has improved starting torque for all SC-QR type increasing on average 44% to support your heavy starting work load; such as Air pump,Hydraulic machine,Mixer Machine etc.



## Feature and Benefits

The variety type of single phase motor base on JEC (Japanese Electrotechnical Committee) and IEC (Internationnal Electrotechnical Commission) and being positively advanced under technological assistance contract with MITSUBISHI ELECTRIC JAPAN which have an experience for manufacturing motor since 1907.

### Top class of light weighting and down sizing

The best choice of employing steel frame and steel or aluminium bracket that enables light weighting and down sizing motor.

### High efficiency and high torque

Accumulated techniques and CAE (Computer Aided Engineering) analysis that we found steel frame pass through magnetic field then can manufacture high power and save energy of motor.

### Powerful and smooth speed

Due to high efficiency design focused on high acceleration torque and die-cast rotor of rather small moment of inertia enables smooth starting and stopping.

### Low vibration and low noise

Our highly technology equipment, the ample rigidity, precise machining of each part and exact balancing of electrical design which makes MEATH motor have low vibration and low noise.

### Efficiency class guarantee

The optimize electrical design and the material with low generation loss are used for core that make MITSUBISHI ELECTRIC AUTOMATION THAILAND are the first manufacturer in thailand who guarantee "IE1" efficiency class on single phase motor.

### High reliability

Improve to highly reliable insulation system by using thermal class E, B, and F to be standard.

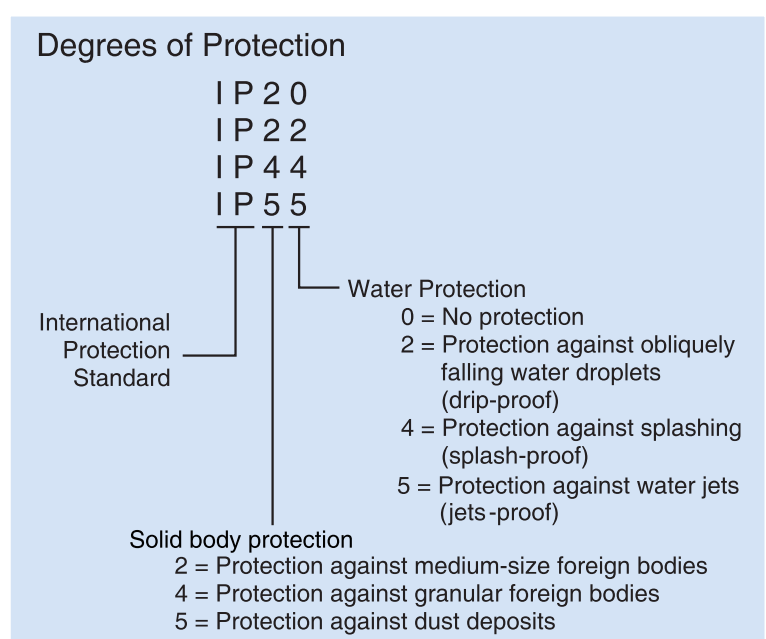
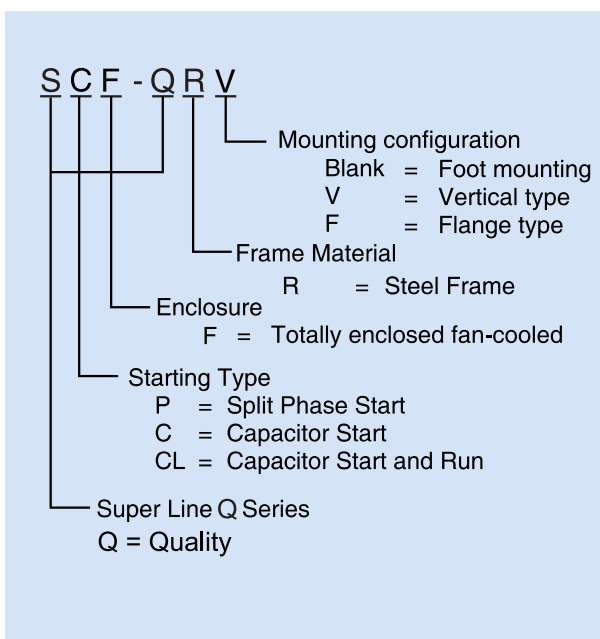
### Longer life

Based on selecting the proper bearing size and improving to have highly efficient cooling of bearing housing and steel frame which is greatly affect the longer bearing life.

### Best and reliable design of centrifugal switch

The best design of centrifugal switch from MITSUBISHI ELECTRIC JAPAN that can manufacture in our highly technology equipment which can be reliable.

## Significance of type designations and degrees of protection for single phase motor



# Characteristics and performance

Item		Motor type																										
		Split phase start			Capacitor start			Capacitor start and run																				
IP20 IP22	Appearance																											
Characteristic curve																												
Connection		 M : Main coil A : Auxiliary coil SW : Centrifugal switch			 M : Main coil A : Auxiliary coil SW : Centrifugal switch Cs : Starting capacitor			 M : Main coil A : Auxiliary coil SW : Centrifugal switch Cs : Starting capacitor Cr : Running capacitor																				
Application		Drilling machine Blower			Conveyer Pump			Conveyer Compressor																				
IP20 IP22	Item	SP-QR			SC-QR			SCL-QR																				
	Output HP ( kW )	1/4(0.2)	1/3(0.25)	1/2(0.4)	1/4(0.2)	1/3(0.25)	1/2(0.4)	1(0.75)	1.5(1.1)	2(1.5)	3(2.2)	5(3.7)	7.5(5.5)	10(7.5)														
	Frame No.	A71	B71	80M	A71	B71	80M	90S	90L	100L	112M	132S	132M	132ML														
	No. of poles	4	4	4	4	4	4	4	4	4	4	4	4	4														
Insulation class		E (120°C)						B (130°C)			F (155°C)																	
IP55	Item				SCF-QR(V)			SCLF-QR(V)																				
	Output HP ( kW )				1/4(0.2)	1/3(0.25)	1/2(0.4)	1(0.75)	1.5(1.1)	2(1.5)	3(2.2)																	
	Frame No.				A71	B71	80M	90S	90L	100L	112M																	
	No. of poles				4	4	4	4	4	4	4																	
Insulation class								F (155°C)																				
Power supply		1 Phase 220 / 230V 50Hz																										
Full load current (A)		2.8	2.9	3.1	3.2	4.8	4.8	2.6	2.7	3.1	3.2	4.3	4.3	5.2	5.3	7.9	7.9	10.4	10.5	15.1	15.4	22.0	22.0	31.0	30.0	43.5	41.0	
Full load speed (min <sup>-1</sup> )		1450	1450	1440	1440	1440	1440	1450	1450	1450	1450	1430	1430	1430	1440	1440	1450	1450	1450	1460	1450	1460	1450	1460	1450	1450	1440	1450
Starting current (A)		20	20.5	24	25	33	33.5	13	13.5	15	16	21.5	22.5	30.5	31.5	44	45.5	63	66	89	92	123	129	184	194	240	249	
Starting torque (%)		228	232	207	228	163	176	506	563	444	481	373	396	250	275	248	267	279	294	222	248	248	261	228	241	190	204	
Break down torque (%)		298	334	294	308	289	340	273	326	292	304	248	280	255	294	245	271	234	259	285	274	213	230	219	236	215	228	
Efficiency (%)		64.2	61.3	67.1	65.5	69.3	67.6	65.5	62.5	64.9	63.5	70.0	70.4	77.5	75.6	78.6	75.9	80.1	77.5	82.3	82.2	84.5	84.5	86.0	86.0	86.3	86.3	
Power supply		1 Phase 220V 60Hz																										
Full load current (A)		2.4	2.8	4.6	2.3	2.8	3.6	4.6	7.1	9.4	13.4	21.0	30.0	41.0														
Full load speed (min <sup>-1</sup> )		1740	1730	1730	1740	1740	1720	1720	1720	1740	1740	1740	1740	1730														
Starting current (A)		19	23	31	13.5	15.5	21.5	30	43.5	65.5	86	124	183	230														
Starting torque (%)		222	211	153	505	445	327	262	270	290	252	250	253	231														
Break down torque (%)		291	267	269	263	258	222	249	237	230	257	212	210	197														
Efficiency (%)		70.4	72.3	72.5	70.8	69.6	72.7	81.1	82.0	82.9	85.4	85.0	87.0	87.5														

\*Remark : min<sup>-1</sup> = r/min or rpm (Revolution per minute)

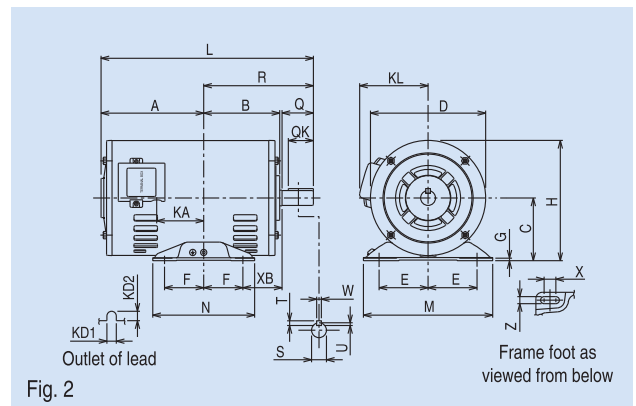
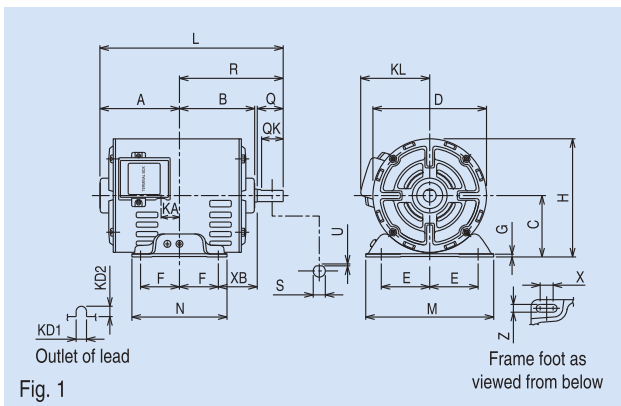


# SP-QR SPLIT PHASE START TYPE

OPEN-PROTECTED TYPE, IP 20 DEGREES OF PROTECTION



SP-QR 1/3HP 4P B71



Dimensions (mm)

Model	Frame No.	Output HP (kW)	Pole	Fig.	Motor																	
					A	B	C*	D	E	F	G	H	KA	KD1	KD2	KL	L	M	N	X	XB	Z
SP-QR	A71	1/4(0.2)	4	1	92	87	71	131.2	56	45	3.2	136.6	21.3	12	12	82	212	148	110	15	45	9
	B71	1/3(0.25)	4		101	87	71	131.2	56	45	3.2	136.6	30.3	12	12	82	221	148	110	15	45	9
	80M	1/2(0.4)	4	2	125	97	80	146.6	62.5	50	3.2	153.3	44.5	12	12	92	265	165	130	10	50	10

\* The perpendicular variation of tolerance for the shaft center is  $\pm 0.5$

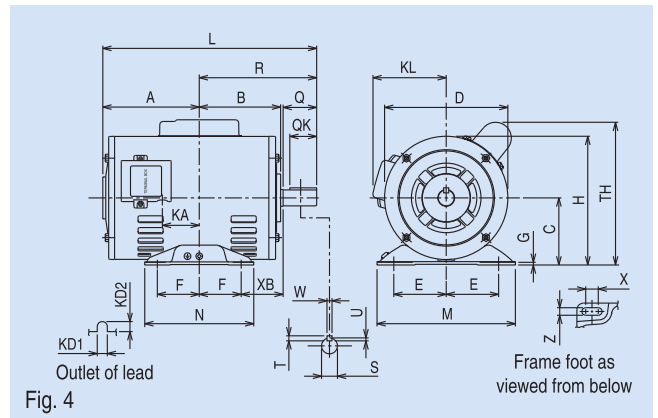
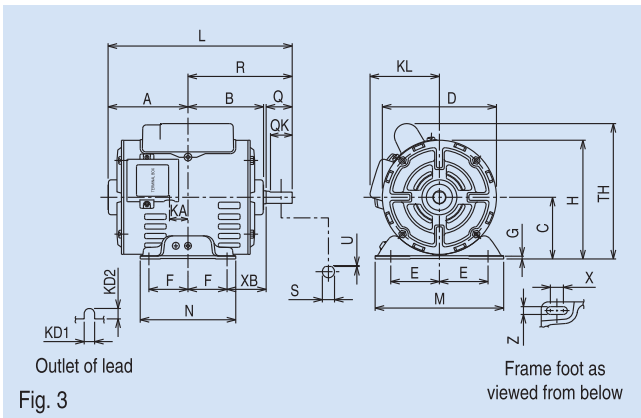
Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end					Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)		
					Q	QK	R	S	T	U	W				Drive end	Opposite
SP-QR	A71	1/4(0.2)	4	1	30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	6.6	245 x 200 x 184	7.0
	B71	1/3(0.25)	4		30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	7.5	255 x 200 x 184	8.0
	80M	1/2(0.4)	4	2	40	28	140	16 j6	5	3	5	6203ZZ	6202ZZ	11	300 x 200 x 184	12

# SC-QR CAPACITOR START TYPE

OPEN-PROTECTED TYPE, IP 20 DEGREES OF PROTECTION



SC-QR 1/2HP 4P 80M



Dimensions (mm)

Model	Frame No.	Output HP (kW)	Pole	Fig.	Motor																		
					A	B	C*	D	E	F	G	H	KA	KD1	KD2	KL	L	M	N	X	XB	TH	Z
SC-QR	A71	1/4(0.2)	4	3	92	87	71	131.2	56	45	3.2	136.6	21.3	12	12	82	212	148	110	15	45	166	9
	B71	1/3(0.25)	4		101	87	71	131.2	56	45	3.2	136.6	30.3	12	12	82	221	148	110	15	45	166	9
	80M	1/2(0.4)	4	4	125	97	80	146.6	62.5	50	3.2	153.3	44.5	12	12	92	265	165	130	10	50	171	10

\* The perpendicular variation of tolerance for the shaft center is  $\pm 0.5$

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end						Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)	
					Q	QK	R	S	T	U	W	Drive end				Opposite
SC-QR	A71	1/4(0.2)	4	3	30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	6.8	245 x 200 x 184	7.5
	B71	1/3(0.25)	4		30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	7.6	255 x 200 x 184	8.2
	80M	1/2(0.4)	4	4	40	28	140	16 j6	5	3	5	6203ZZ	6202ZZ	11.5	300 x 200 x 184	12.1

# SCL-QR CAPACITOR START AND RUN TYPE

DRIP-PROOF TYPE, IP 22 DEGREES OF PROTECTION



SCL-QR 5HP 4P 132S

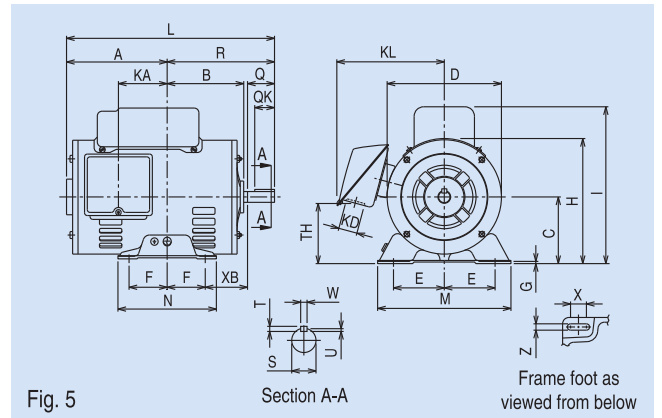


Fig. 5

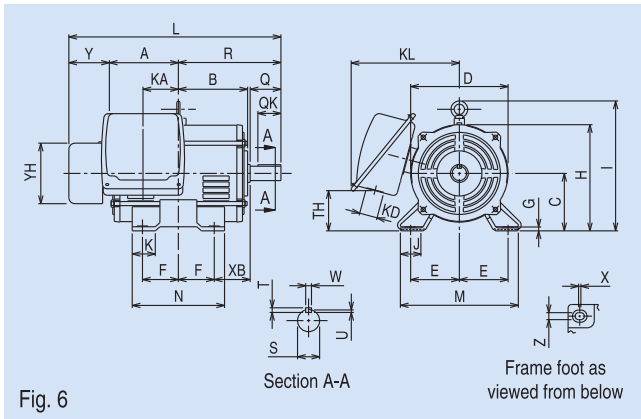


Fig. 6

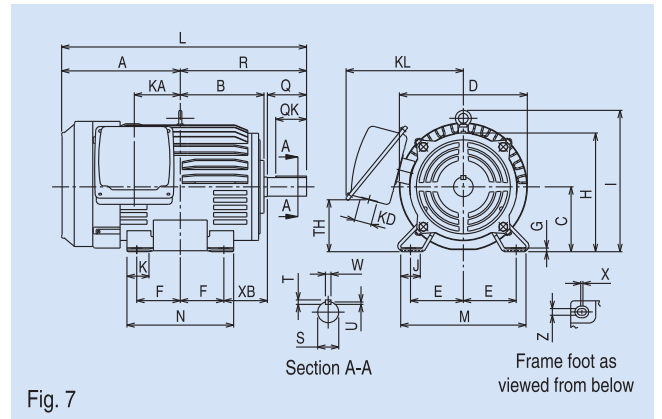


Fig. 7

Dimensions (mm)

Model	Frame No.	Output HP (kW)	Pole	Fig.	Motor																						
					A	B	C*	D	E	F	G	H	I	J	K	KA	KD	KL	L	M	N	XB	TH	Y	YH	X	Z
SCL-QR	90S	1(0.75)	4	5	132	103	90	165.7	70	50	3.2	173	220	-	-	68	27	157	278	175	125	56	81	-	-	12.5	10
	90L	1.5(1.1)	4		120	115	90	165.7	70	62.5	4	173	220	-	-	55	27	157	288	175	150	56	81	-	-	15	9
	100L	2(1.5)	4	6	118	128	100	168	80	70	6.5	184	-	40	45	65	35	201	400	200	180	63	64	89	118	4	12
	112M	3(2.2)	4		125	135	112	190	95	70	6.5	207	254	40	45	69	35	211	414	230	180	70	79	89	118	4	12
	132S	5(3.7)	4	7	223	152	132	266	108	70	6.5	242	289	40	45	75	27	215	462	256	180	89	117	-	-	4	12
	132M	7.5(5.5)	4		242	171	132	266	108	89	6.5	242	289	40	45	94	35	240	500	256	218	89	106	-	-	4	12
	132ML	10(7.5)	4		270	171	132	266	108	89	6.5	242	289	40	45	122	35	240	528	256	218	89	106	-	-	4	12

\* The perpendicular variation of tolerance for the shaft center is -0.5

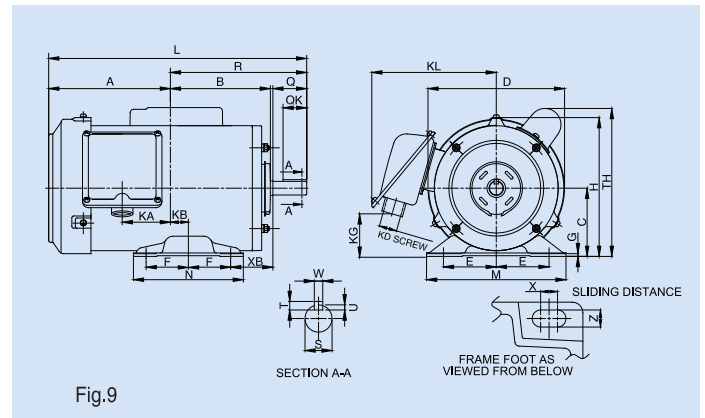
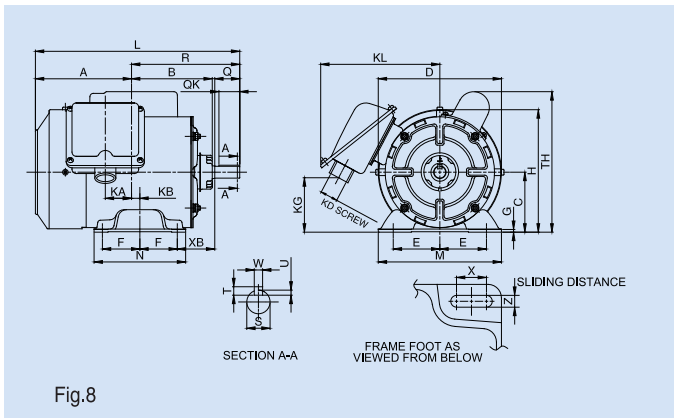
Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end						Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)	
					Q	QK	R	S	T	U	W	Drive end				Opposite
SCL-QR	90S	1(0.75)	4	5	40	28	146	19 j6	6	3.5	6	6204ZZ	6202ZZ	15.0	368 x 280 x 250	16.0
	90L	1.5(1.1)	4		50	40	168.5	24 j6	7	4	8	6205ZZ	6203ZZ	18.6	390 x 280 x 250	19.5
	100L	2(1.5)	4	6	60	45	193	28 j6	7	4	8	6206ZZ	6205ZZ	24.6	437 x 355 x 300	25.5
	112M	3(2.2)	4		60	45	200	28 j6	7	4	8	6207ZZ	6206ZZ	32.8	504 x 411 x 327	39.0
	132S	5(3.7)	4	7	80	63	239	38 k6	8	5	10	6308ZZ	6207ZZ	42.8	552 x 438 x 359	50.0
	132M	7.5(5.5)	4		80	63	258	38 k6	8	5	10	6308ZZ	6207ZZ	58.0	602 x 475 x 369	66.0
	132ML	10(7.5)	4		80	63	258	38 k6	8	5	10	6308ZZ	6207ZZ	66.4	630 x 475 x 369	74.2

# SCF-QR CAPACITOR START TYPE

TOTALLY ENCLOSED FAN-COOLED TYPE, IP 55 DEGREES OF PROTECTION



SCF-QR 1/4HP 4P A71



Dimensions (mm)

Model	Frame No.	Output HP (kW)	Pole	Fig.	Motor																	
					A	B	C*	D	E	F	G	H	KA	KD	KL	L	M	N	X	XB	TH	Z
SCF-QR	A71	1/4(0.2)	4	8	115.5	97	71	148	56	45	3.2	145	31.5	PF1/2	143	245.5	148	110	18	45	165	7
	B71	1/3(0.25)	4		120	101.5	71	148	56	45	3.2	145	36	PF1/2	143	254.5	148	110	18	45	165	7
	80M	1/2(0.4)	4	9	144	118.3	80	161.6	62.5	50	3.2	163	57	PF3/4	148	305.3	165	130	10	50	171.5	10

\* The perpendicular variation of tolerance for the shaft center is  $\pm 0.5$

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end					Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)		
					Q	QK	R	S	T	U	W				Drive end	Opposite
SCF-QR	A71	1/4(0.2)	4	8	30	25	130	14 j6	5	3	5	6202ZZ	6201ZZ	8	327 x 282 x 230	9
	B71	1/3(0.25)	4		30	25	134.5	14 j6	5	3	5	6202ZZ	6201ZZ	8.4	327 x 282 x 230	9.4
	80M	1/2(0.4)	4	9	40	28	161.3	16 j6	5	3	5	6203ZZ	6202ZZ	12.3	380 x 292 x 250	13.5





# SCLF-QR CAPACITOR START AND RUN TYPE

TOTALLY ENCLOSED FAN-COOLED TYPE, IP 55 DEGREES OF PROTECTION



SCLF-QR 2HP 4P 100L

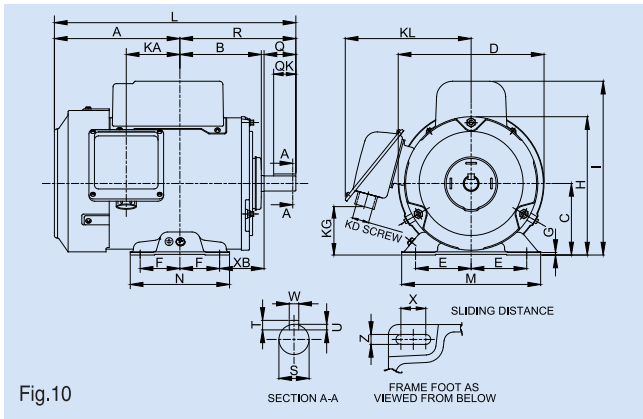


Fig.10

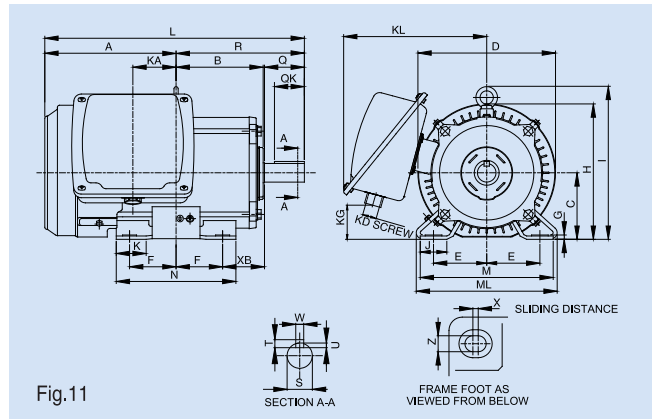


Fig.11

Dimensions (mm)

Model	Frame No.	Output HP (kW)	Pole	Fig.	Motor															Terminal Box						
					A	B	C*	D	E	F	G	H	I	J	K	L	M	ML	N	XB	X	Z	KA	KG	KD	KL
SCLF-QR	90S	1(0.75)	4	10	158	102.5	90	184	70	50	3.2	174	221	-	-	304	175	-	125	56	10	10	67.5	61	PF3/4	158
	90L	1.5(1.1)	4		145.5	115	90	184	70	62.5	4	174	221	-	-	314	175	-	150	56	15	9	53	61	PF3/4	158
	100L	2(1.5)	4	11	197.5	131	100	207	80	70	6.5	203.5	230	40	45	390.5	200	212	180	63	4	12	65	48.5	PF3/4	215
	112M	3(2.2)	4		205	138	112	228	95	70	6.5	226	254	40	45	405	230	242	180	70	4	12	69	63.5	PF3/4	226

\* The perpendicular variation of tolerance for the shaft center is  $\pm 0.5$

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end						Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)	
					Q	QK	R	S	T	U	W	Drive end				Opposite
SCLF-QR	90S	1(0.75)	4	10	40	28	146	19 j6	6	3.5	6	6204ZZ	6202ZZ	15	374 x 337 x 278	16
	90L	1.5(1.1)	4		50	40	168.5	24 j6	7	4	8	6205ZZ	6203ZZ	18	398 x 311 x 253	19.5
	100L	2(1.5)	4	11	60	45	193	28 j6	7	4	8	6206ZZ	6205ZZ	24.6	454 x 366 x 317	31.2
	112M	3(2.2)	4		60	45	200	28 j6	7	4	8	6207ZZ	6206ZZ	28	454 x 366 x 317	34.6



# SCF-QRV CAPACITOR START TYPE

TOTALLY ENCLOSED FAN-COOLED TYPE, IP 55 DEGREES OF PROTECTION



SCF-QRV 1/4HP 4P A71

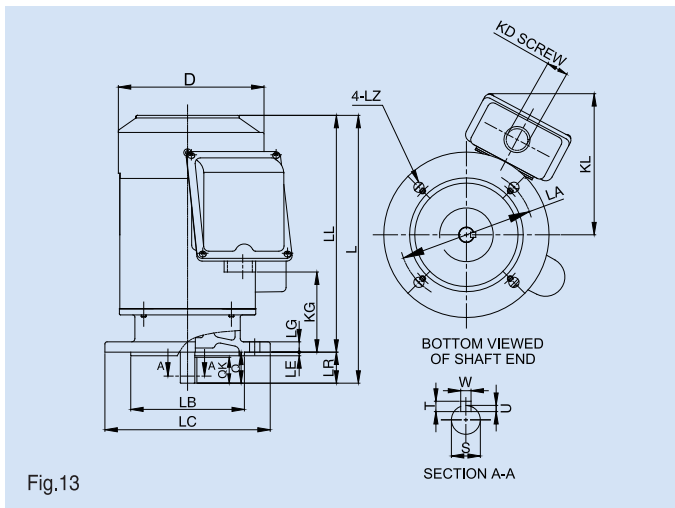


Fig.13

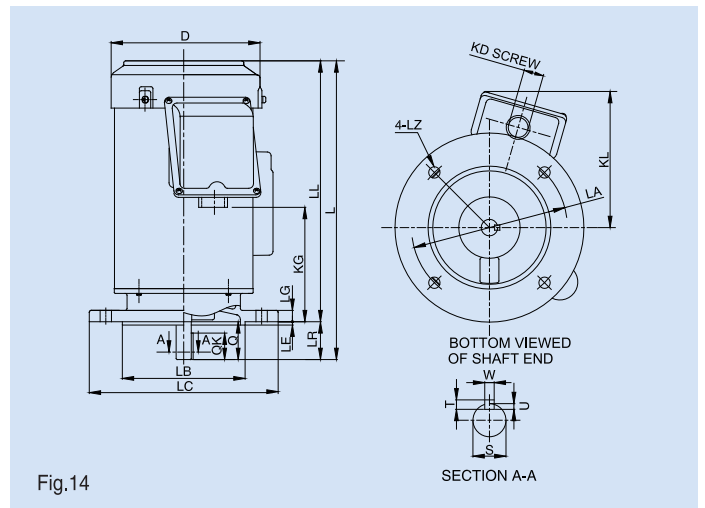


Fig.14

Dimensions (mm)

Model	Flange No.	Frame No.	Output HP (kW)	Fig.	Motor										Terminal box		
					4-Pole	D	IE	LA	LB	LC	LE	LG	LL	LZ	L	KD	KG
SCF-QRV	FF130	A71	1/4(0.2)	13	148	-	130	110 j6	160	3.5	10	229	10	259	PF1/2	77.5	138
	FF130	B71	1/3(0.25)		148	-	130	110 j6	160	3.5	10	238	10	268	PF1/2	86.5	138
	FF165	80M	1/2(0.4)	14	161.6	-	165	130 j6	200	3.5	12	276	12	316	PF3/4	121	145

Model	Flange No.	Frame No.	Shaft end							Bearing No.		Approximate weight (kg)	Approximate packing dimensions (LxWxH)	Packing weight (kg)
			LR	Q	QK	S	T	U	W	Drive end	Opposite			
SCF-QRV	FF130	A71	30	30	25	14 j6	5	3	5	6202ZZ	6201ZZ	9.3	327 x 282 x 230	10.3
	FF130	B71	30	30	25	14 j6	5	3	5	6202ZZ	6201ZZ	9.8	327 x 282 x 230	10.8
	FF165	80M	40	40	28	16 j6	5	3	5	6203ZZ	6202ZZ	14.2	380 x 292 x 250	15.4



# SCLF-QRV CAPACITOR START AND RUN TYPE

TOTALLY ENCLOSED FAN-COOLED TYPE, IP 55 DEGREES OF PROTECTION



SCLF-QRV 2HP 4P 100L

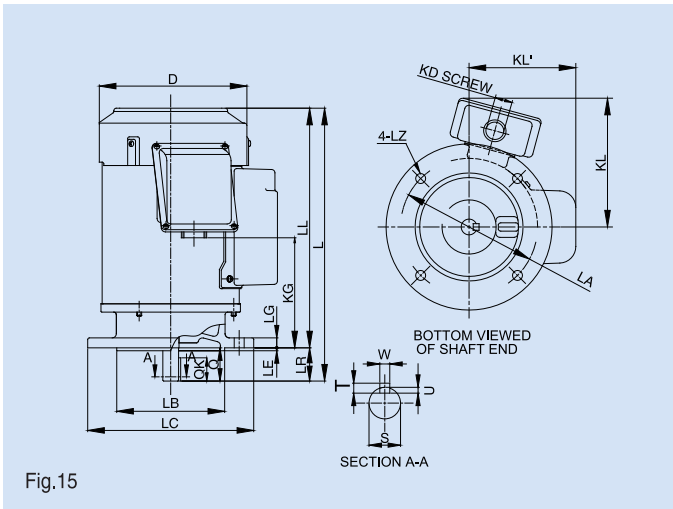


Fig.15

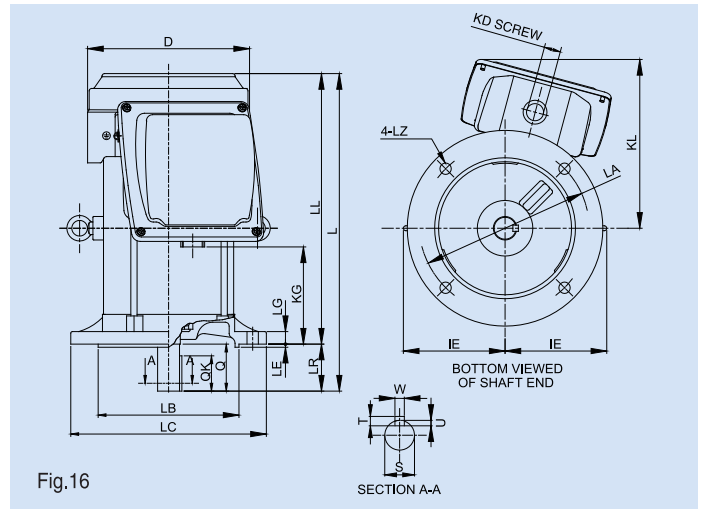


Fig.16

Dimensions (mm)

Model	Flange No.	Frame No.	Output HP (kW) 4-Pole	Fig.	Motor									Terminal box			
					D	IE	LA	LB	LC	LE	LG	LL	LZ	L	KD	KG	KL
SCLF-QRV	FF165	90S	1(0.75)	15	184	-	165	130 j6	200	3.5	12	288.5	12	328.5	PF3/4	132.5	155
	FF165	90L	1.5(1.1)		184	-	165	130 j6	200	3.5	12	288.5	12	338.5	PF3/4	132.5	155
	FF215	100L	2(1.5)	16	207	130	215	180 j6	250	4	16	345.5	14.5	405.5	PF3/4	115	215.5
	FF215	112M	3(2.2)		230	141	215	180 j6	250	4	16	375	14.5	435	PF3/4	143	225.5

Model	Flange No.	Frame No.	Shaft end							Bearing No.		Approximate weight (kg) 4-Pole	Approximate packing dimensions (LxWxH)	Packing weight (kg) 4-Pole
			LR	Q	QK	S	T	U	W	Drive end	Opposite			
SCLF-QRV	FF165	90S	40	40	28	19 j6	6	3.5	6	6204ZZ	6202ZZ	18	374 x 337 x 278	19
	FF165	90L	50	50	40	24 j6	7	4	8	6205ZZ	6203ZZ	21	398 x 311 x 253	22.5
	FF215	100L	60	60	45	28 j6	7	4	8	6206ZZ	6205ZZ	28	454 x 366 x 317	34.6
	FF215	112M	60	60	45	28 j6	7	4	8	6207ZZ	6206ZZ	39	454 x 366 x 317	47.2

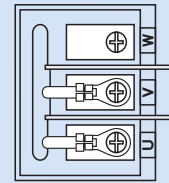


## Standard Specifications

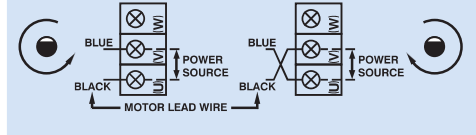
Item		Specifications			
Voltage and frequency		220 ~ 230V 50Hz, 220V 60Hz			
Starting method, enclosure construction and degrees of protection	Starting method	Model name	Frame No.	Enclosure construction	Degrees of protection
	Split phase start	SP-QR	A71~ 80M	Open-protected	IP20
	Capacitor start	SC-QR	A71~ 80M	Open-protected	IP20
		SCF-QR(V)	A71~ 80M	Totally enclosed fan-cooled	IP55
Capacitor start and run	SCL-QR	90S ~132ML	Drip-proof	IP22	
	SCLF-QR(V)	90S ~112M	Totally enclosed fan-cooled	IP55	
Frame material		Steel plate			
Insulation class		SP-QR, SC-QR A71 ~ 80M : E (120°C)	SCL-QR 90S ~112M : B (130°C)	SCL-QR 132S ~132ML : F (155°C)	SCF-QR(V) A71 ~ 80M : F (155°C)
Circumstance condition	Ambient temperature	-20 ~ +40°C			
	Ambient humidity	85% RH or less (for open-protected & drip proof structure) 95% RH or less (for totally enclosed structure)			
	Altitude	1,000m above sea level or less			
	Environment	No bursting / erosive gas or vapor			
Coating color		Munsell N1.5 (Black)			
Conformed standard		Induction machine JEC-2137-2000 Efficiency class IEC60034-30-1			
Shaft end		SP, SC-QR 1/4, 1/3HP (A71 ~ B71)	IP20 : D-Cut		
		SP, SC-QR 1/2HP (80M)	IP20 : Key way		
		SCF-QR(V) 1/4, 1/3, 1/2HP (A71 ~ 80M)	IP55 : Key way		
		SCL - QR 1 ~ 10HP (90S ~ 132ML)	IP22 : Key way		
		SCLF - QR(V) 1 ~ 3HP (90S ~ 112M)	IP55 : Key way		

## Connection

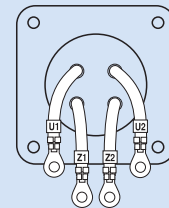
Terminal Block : For SP-QR, SC-QR, SCF-QR(V)



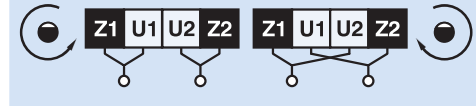
Connection Diagram



Lead Wire : For SCL-QR, SCLF-QR(V)



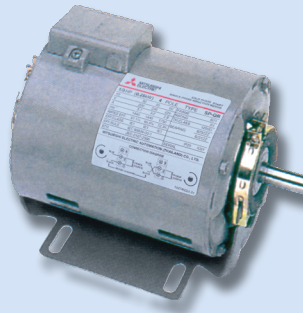
Connection Diagram



## Special Model



Flange Type



Vibration Protected Motor



SL Type  
(1Phase Capacitor Run)

Remark : Also, we have experienced staff to give a consult and design special motor for any purpose.  
Please contact us [www.meath-co.com](http://www.meath-co.com)

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Eco Changes is the Mitsubishi Electric Group's environmental statement, and expresses the Group's stance on environmental management. Through a wide range of businesses, we are helping contribute to the realization of a sustainable society.