

SINGLE PHASE INDUCTION MOTOR

SUPER LINE Q SERIES

Multi-purpose energy saving for all requirements



SCL- QR 1HP 4P



SP- QR 1/3HP 4P



SC- QR 1/2HP 4P



- Degrees of protection IP55
- Thermal class 155(F)
- Same installation based on IEC standard



SCLF- QR 2HP 4P



SCLF- QRV 2HP 4P

ENERGY SAVING FOR A GREEN WORLD

Feature and Benefits

The variety type of single phase motor base on JEC (Japanese Electrotechnical Committee) and IEC (International Electrotechnical Commission) and being positively advanced under technological assistance contract with MITSUBISHI ELECTRIC JAPAN who have had 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 energize 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 high 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.

High reliability

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

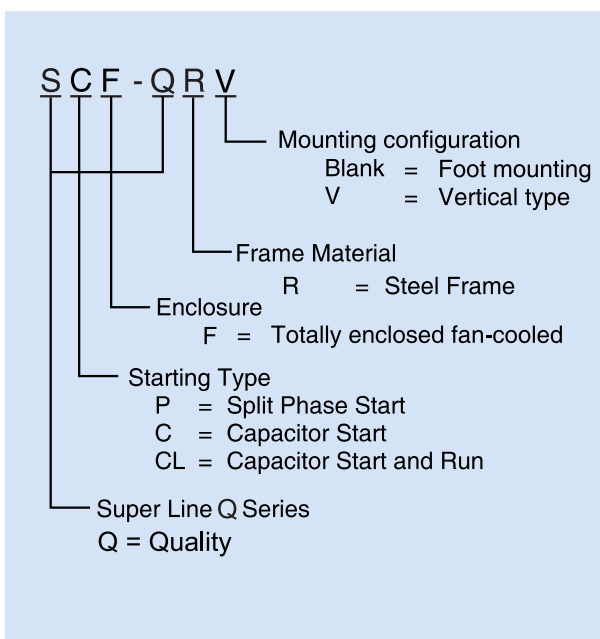
Longer life

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

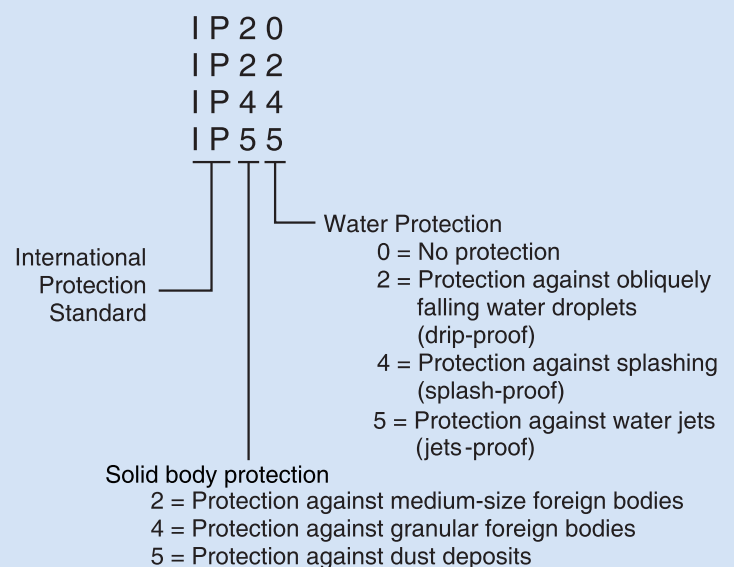
Best and reliable design of centrifugal switch

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

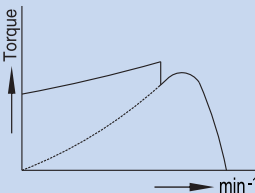
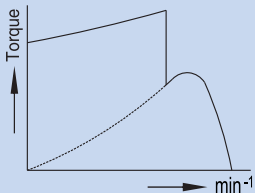
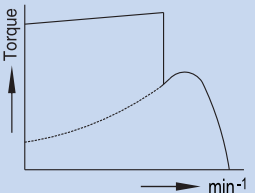
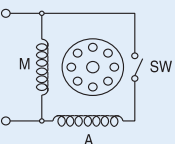
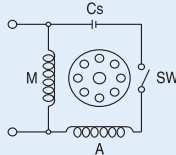
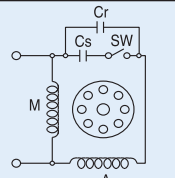
Significance of type designations and degrees of protection for single phase motor



Degrees of Protection



Characteristics and performance : Indoor Type

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
	Thermal class	120(E)						130(B)			155(F)			
	Efficiency class	IE1										-		
Power supply		220/230V 50Hz												
Full load current (A)		2.7 2.8	3.0 3.1	4.8 5.1	2.6 2.7	3.1 3.2	4.1 4.2	5.3 5.5	7.8 8.1	10.3 10.4	15.8 15.8	22.4 22.1	32.1 30.8	44.7 43.0
Full load speed (min ⁻¹)		1425 1435	1420 1425	1445 1450	1425 1430	1420 1425	1430 1435	1445 1450	1445 1450	1450 1450	1440 1445	1450 1460	1450 1450	1440 1445
Starting current (A)		24 25	29 28.6	37.4 39.4	12.9 13.6	14.5 15.1	20.9 21.7	32 33	44 46	63 66	90 92	124 130	184 190	227 242
Starting torque (%)		273 272	269 290	200 207	514 539	455 444	321 398	273 295	252 263	282 303	255 273	229 238	225 255	193 206
Break down torque (%)		278 285	263 297	314 330	275 310	282 287	258 293	241 271	258 298	238 267	267 270	215 243	215 239	208 215
Efficiency (%)		58.5 58.5	61.5 61.5	66.8 66.8	58.5 58.5	61.5 61.5	66.8 66.8	72.1 72.1	75.0 75.0	77.2 77.2	79.7 79.7	80.6 80.6	82.8 83.5	81.3 82.3
Power supply		220V 60Hz												
Full load current (A)		2.2	2.6	4.0	2.2	2.7	3.6	4.5	6.6	8.8	13.6	22.1	31.4	43.7
Full load speed (min ⁻¹)		1720	1715	1740	1720	1710	1720	1740	1745	1750	1730	1740	1740	1725
Starting current (A)		23	29.8	35.7	13.5	14.8	20.4	31	43	63	86	123	181	219
Starting torque (%)		263	269	200	468	435	303	264	286	265	266	262	255	244
Break down torque (%)		258	242	281	249	238	221	249	250	229	239	209	198	196
Efficiency (%)		66.0	68.0	70.0	66.0	68.0	70.0	77.0	79.0	81.5	83.0	78.6	81.8	80.2

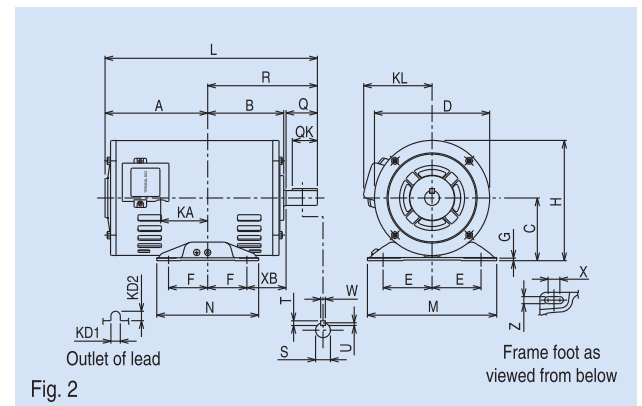
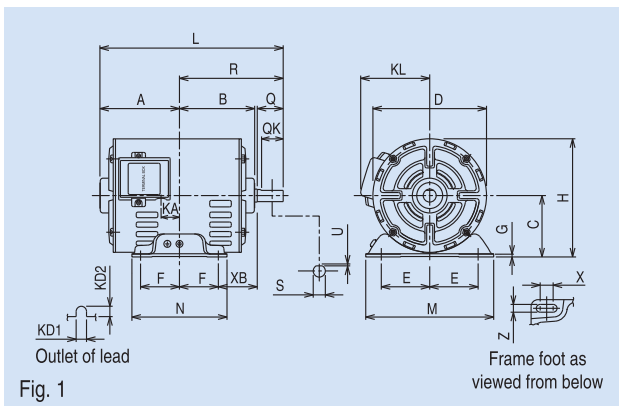
*Remark : min⁻¹ = r/min or rpm (Revolution per minute)

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	18	45	7
	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	18	45	7
	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 ± 0.5

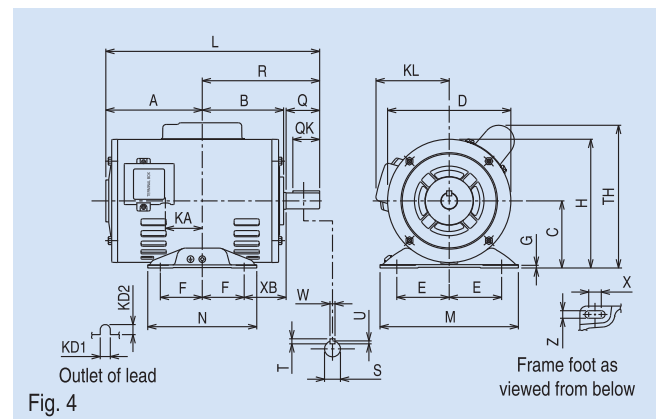
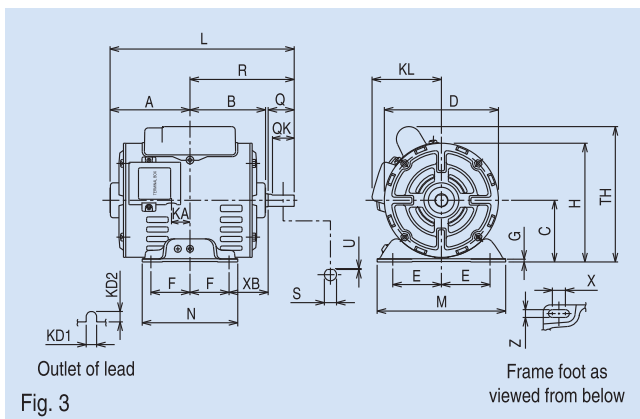
Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end					Bearing No.		Approximate weight (kg)	Approximate packing dimension (LxWxH)	Packing weight (kg)
					Q	QK	R	S	T	U	W			
SP-QR	A71	1/4(0.2)	4	1	30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	6.6
	B71	1/3(0.25)	4		30	27	120	14 h6	-	1	-	6202ZZ	6201ZZ	7.5
	80M	1/2(0.4)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

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	18	45	166	7
	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	18	45	166	7
	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 ± 0.5

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end							Bearing No.		Approximate weight (kg)	Approximate packing dimension (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

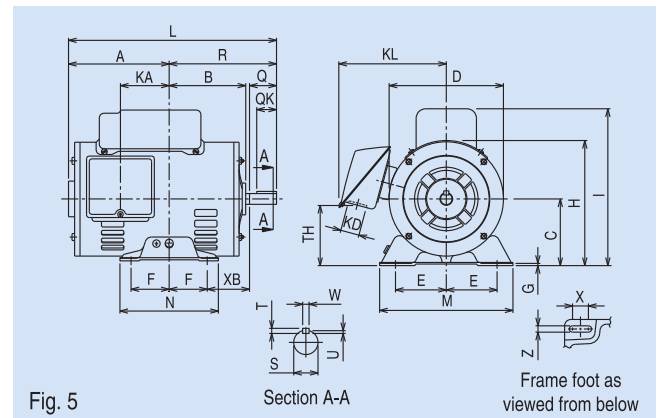


Fig. 5

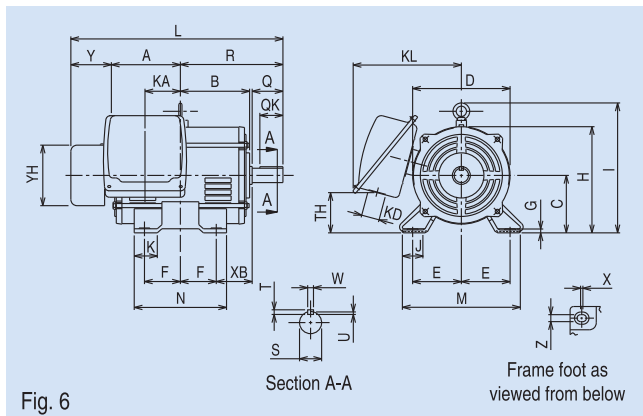


Fig. 6

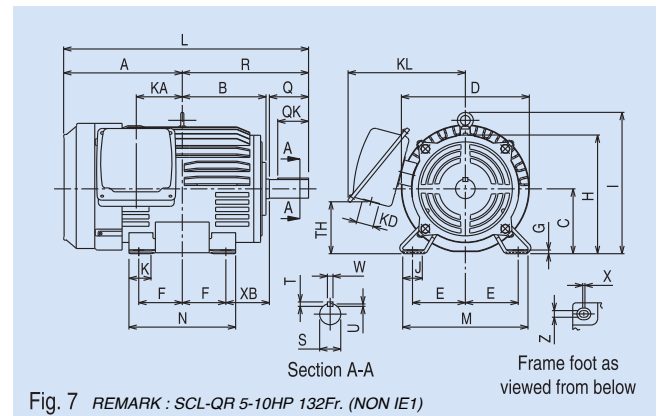


Fig. 7 REMARK : SCL-QR 5-10HP 132Fr. (NON IE1)

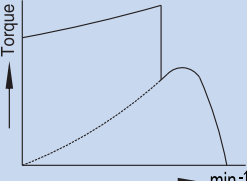
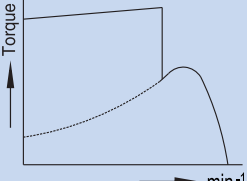
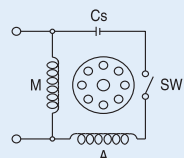
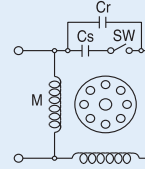
Dimensions (mm)

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	-	-	10	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 dimension (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	14	330 x 305 x 250	14.9
	90L	1.5(1.1)	4		50	40	168.5	24 j6	7	4	8	6205ZZ	6203ZZ	17.5	330 x 305 x 250	18.6
	100L	2(1.5)	4	6	60	45	193	28 j6	7	4	8	6206ZZ	6205ZZ	23.4	440 x 355x 265	25
	112M	3(2.2)	4		60	45	200	28 j6	7	4	8	6207ZZ	6206ZZ	32.8	465 x 390 x 315	35
	132S	5(3.7)	4	7	80	63	239	38 k6	8	5	10	6308ZZ	6207ZZ	42.8	532 x 415 x 352	50
	132M	7.5(5.5)	4		80	63	258	38 k6	8	5	10	6308ZZ	6207ZZ	58	598 x 438 x 352	66
	132ML	10(7.5)	4		80	63	258	38 k6	8	5	10	6308ZZ	6207ZZ	66.4	598 x 438 x 352	73.4

Characteristics and performance : Outdoor Type

Item		Motor type						
		Capacitor start			Capacitor start and run			
IP55	Appearance							
								
Connection		 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		Conveyer Pump			Conveyer Compressor			
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
	Thermal class	155(F)						
	Efficiency class	-		IE1			-	
Power supply		220/230V 50Hz						
Full load current (A)		2.6 / 2.7	3.1 / 3.2	4.1 / 4.2	5.3 / 5.5	7.8 / 8.1	10.3 / 10.4	15.8 / 15.8
Full load speed (min ⁻¹)		1425 / 1430	1420 / 1425	1430 / 1435	1445 / 1450	1445 / 1450	1450 / 1450	1440 / 1445
Starting current (A)		12.9 / 13.2	14.7 / 15.4	20.4 / 21.5	29.8 / 31.4	44.1 / 46.2	62.5 / 65.3	89.6 / 93.6
Starting torque (%)		530 / 553	424 / 449	360 / 382	257 / 284	251 / 271	263 / 299	242 / 275
Break down torque (%)		280 / 280	251 / 283	243 / 282	250 / 281	253 / 275	233 / 273	244 / 278
Efficiency (%)		54.8 / 53.1	57.5 / 55.8	66.8 / 66.8	72.1 / 72.1	75.0 / 75.0	77.2 / 77.2	75.8 / 75.6
Power supply		220V 60Hz						
Full load current (A)		2.2	2.7	3.6	4.5	6.6	8.8	13.6
Full load speed (min ⁻¹)		1720	1710	1720	1740	1745	1750	1730
Starting current (A)		13.6	15.4	20.4	29.9	43.5	62.1	86.7
Starting torque (%)		507	474	305	289	276	302	283
Break down torque (%)		253	256	231	251	239	225	246
Efficiency (%)		60.8	63.4	70.0	77.0	79.0	81.5	83.0

*Remark : min⁻¹ = r/min or rpm (Revolution per minute)

SCF-QR CAPACITOR START TYPE

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



SCF-QR 1/4HP 4P A71

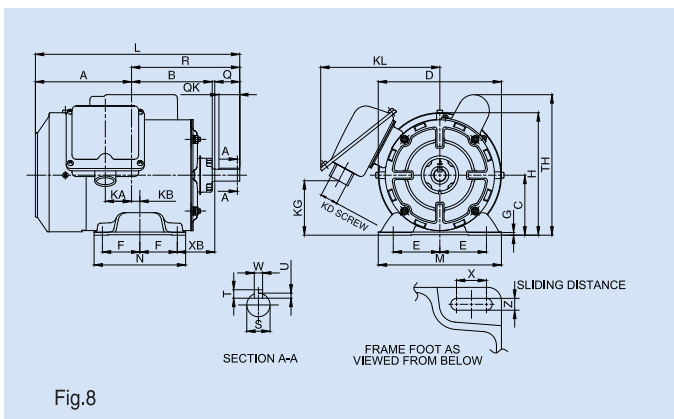


Fig.8

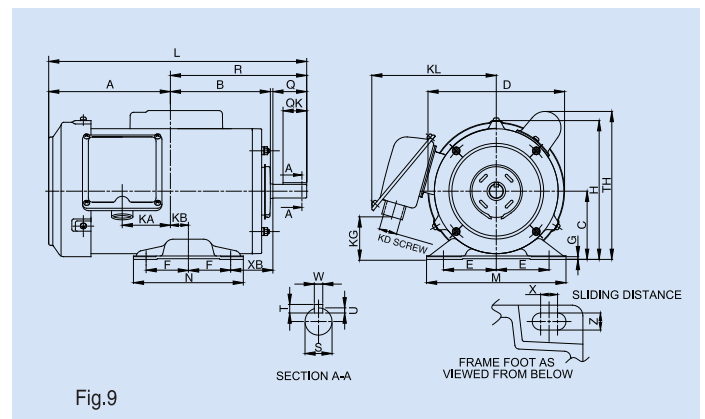


Fig.9

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 ± 0.5

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end							Bearing No.		Approximate weight (kg)	Approximate packing dimension (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

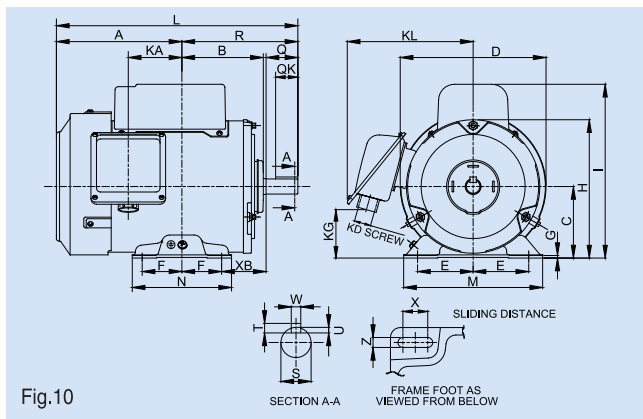
*SCLF-QR 2HP 4P 100L*

Fig.10

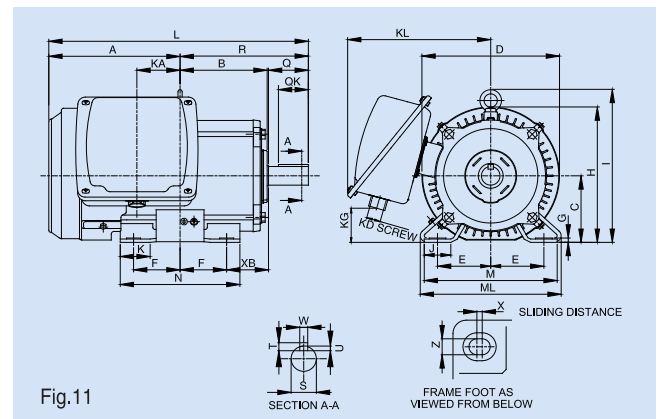


Fig.11

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 ± 0.5

Model	Frame No.	Output HP (kW)	Pole	Fig.	Shaft end						Bearing No.		Approximate weight (kg)	Approximate packing dimension (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	34.4	454 x 366 x 317	41



SCF-QRV CAPACITOR START TYPE

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



SCF-QRV 1/4HP 4P A71

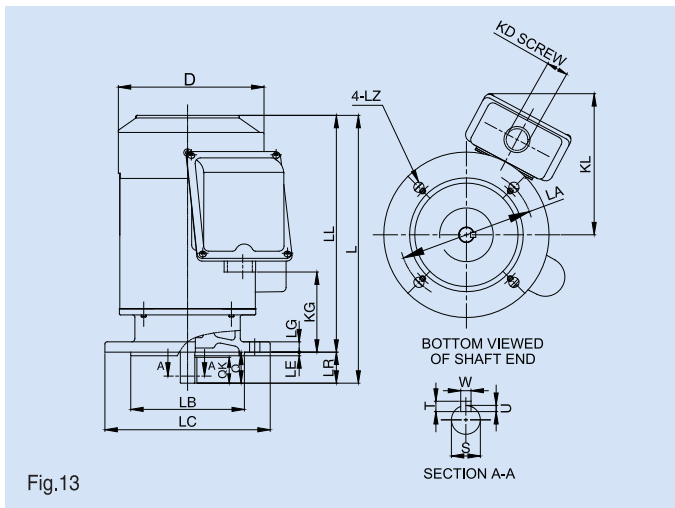


Fig.13

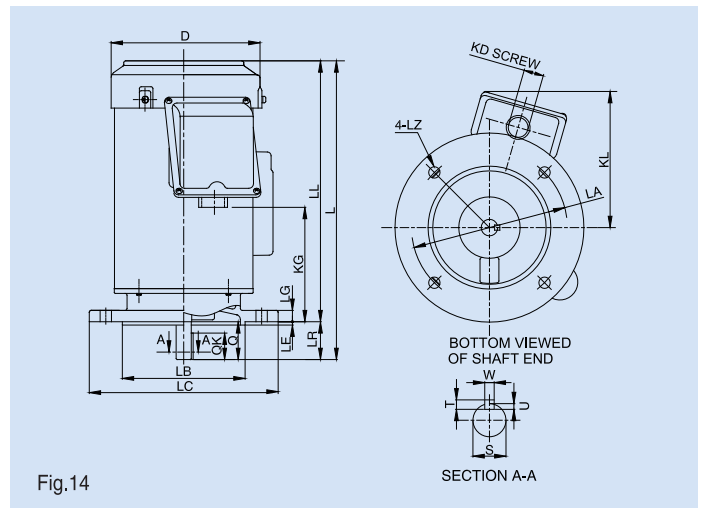


Fig.14

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	KL
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 dimension (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

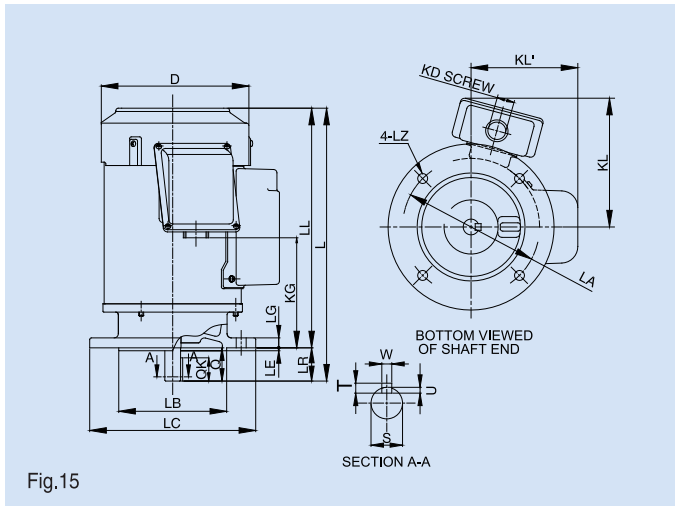
*SCLF-QRV 2HP 4P 100L*

Fig.15

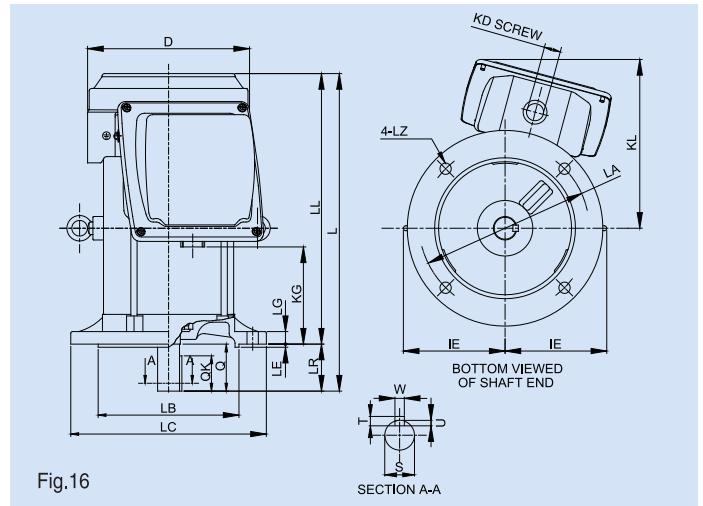


Fig.16

Dimensions (mm)

Model	Flange No.	Frame No.	Output HP (kW)	Fig.	Motor										Terminal box		
			4-Pole		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)	Approximate packing dimension (LxWxH)	Packing weight (kg)
			LR	Q	QK	S	T	U	W	Drive end	Opposite			4-Pole
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	530 x 400 x 358	36.2
	FF215	112M	60	60	45	28 j6	7	4	8	6207ZZ	6206ZZ	39	530 x 400 x 358	47.2

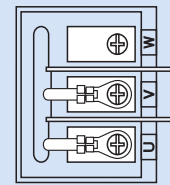


Standard Specifications

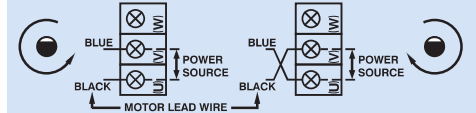
Item		Specifications				
Voltage and frequency		220 / 230V 50Hz, 220V 60Hz				
Starting method, enclosure construction and degrees of protection		Starting method	Model name	Frame No.	Enclosure construction	Degrees of protection
		Split phase start	SP-QR	A71~ 80M	Open-protected	IP20
		Capacitor start	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				
Thermal class		SP-QR, SC-QR	A71 ~ 80M	: 120(E)		
		SCL-QR	90S ~112M	: 130(B)		
		SCL-QR	132S ~132ML	: 155(F)	SCF-QR(V)	A71 ~ 80M : 155(F)
					SCLF-QR(V)	90S ~ 112M : 155(F)
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 (for IE1 model)				
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

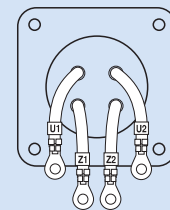
Terminal Block : For SP-QR, SC-QR, SCF-QR(V)



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.
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