

4-Pole

50/60 Hz



KOMAX

**SUBMERSIBLE
ELECTRIC
MOTORS**

KM12

FOR 12-INCH BORE HOLE



Komax (Private) Limited Pakistan takes great pride in being the pioneer in Pakistan's manufacturing industry, holding ISO 9001:2015, ISO 14001:2015, and ISO 45001:2018 certifications. We stand as the first-ever producer of 6, 8, and 10-inch NEMA Submersible Motors in the country. Our cutting-edge manufacturing facility, situated at Plot No. 722 in Sundar Industrial Estate Lahore, spans an impressive 110,000 square feet.

At KOMAX, we specialize in crafting high-quality submersible motors and pumps that adhere to the rigorous standards of IEC 60034-1, complemented by CE certification and PSQCA-certified Pakistan Standard PS/IEC/86/60034-1/2012 License No. CML/N-1268/2018.

Our flagship products, the 6, 8, 10 and 12-inch NEMA Submersible Motors – KM6, KM8, KM10 and KM12, cater to various industries, including agriculture, industrial, commercial, oil fields, municipalities, and any systems requiring water pumping from deep wells.

Our state-of-the-art facility is equipped with the latest CNC machines and features a fully automated winding insertion and assembly line of German and Italian origin. With an annual production capacity of 20,000 units, Komax motors have earned a reputation for reliability, not only in the local market but also in the international arena. We are experiencing significant growth in markets across the Middle East, North America, South America, Europe, and Africa.





KM12

12" Borehole Submersible Electric Water Cooled Rewindable Motors

Models Range

Standard: Double Flange

Power Range

From: 100 HP (75 kW)

To: 300 HP (223 kW)

Voltage Range

415 Volts @ 50 Hertz

460 Volts @ 60 Hertz

Speed Range

4 Poles, 1450 RPM

4 Poles, 1800 RPM

Construction Material

Standard: Cast Iron with NSF Certified
Epoxy

Optional: Complete 316L Stainless Steel



KM12

12-INCH SERIES



Salient Features

KM12 12" water-filled submersible electric motors have asynchronous three-phase rewindable stator and squirrel cage rotor.

The new series of 12" submersible electric motors KM12 has been designed and produced according to the market's requirements. In design and material selection all efforts have been made to offer an energy-efficient product to our customers which stand for reliability, excellent quality, long and trouble-free life.

- ▶ Wet Stator Design
- ▶ High Grade Material
- ▶ Easy Maintenance
- ▶ Long Service Life
- ▶ High Thermal Capacity
- ▶ High Efficiency
- ▶ High Sand Resistance
- ▶ Re-windable
- ▶ Eco Friendly
- ▶ Industrial, Commercial, Agriculture and Irrigation Purpose



Technical Specification

IP68 degree of protection

A / B insulation class

50 °C ambient temperature

-6% / +10% voltage tolerance

Vertical/Horizontal mounting position

16 cm/sec min. cooling flow rate speed

200 m max. immersion depth

110 starts per 24 hours

Wooden case packing



Specification

Winding:

Electrolytic Solid Copper wire wrapped in BOPET+BOPP Insulation rated for temperatures over 100 °C that allows more copper in the current slots. This technology allows the motor to run much cooler and achieve higher than normal horsepower ratings in standard frame sizes.

Stator:

All motors having interlocked M800 low-loss electrical magnetic sheet stator stack with an increased length for cooler running motor.

Rotor:

Increased interlocked stack length with M800 low-loss electrical magnetic sheet assembled and designed with the newest technology and highgrade copper bars.

Spline / Key way Shaft:

AISI 431 stainless steel induction hardened & ground to operate in severe conditions. 8"/10" shaft dimensions according to international standards.

Shaft Bearing/Bush:

Dual Water lubricated guide bearings made of high-grade carbon, are fixed in upper and lower brackets for optimal operation in sandy wells and pump vibration control.

Thrust Bearings:

All Komax submersible motors have Kingsbury type thrust bearing. The thrust assembly consists of a high-quality carbon disc with hardened stainless steel shoes to handle necessary pump thrust loads. Available with an axial load capacity of 120000 N.

Seal Configuration:

Komax offers a triple seal configuration that consists of two outer back to back lip seals in NBR with an inner Silicon Tungsten Carbide Seal for optimum protection in sandy wells.

Pressure Equalizing System:

Pressure compensation is managed by using a suitably sized NBR bellow to allow for expansion of the internal water as it heats up- or- from external pressure due to the depth of submergence.

Brackets:

High resistance cast iron upper & lower bearing housing with epoxy coating.

Filler Fluid:

Water mixed with non-toxic antifreeze provide cooling and lubrication, also protect and prevent inside parts from corrosion.

Connection:

Connected through rubber sheathed cable. Available in Delta & WYE (Star) configuration.

Note: All specifications are subject to change without any prior notice.



Electrical DATA - 50 Hz & 60 Hz

Technical Data - Three Phase - 4 Pole - 415 Volt @ 50 Hz - 460 Volt @ 60 Hz

Motor Type	Motor Size		RPM	Full Load Current (Amp.)	Service Factor Current (Amp.)	Starting Current (Amp.)	Efficiency at % Load			Cos. Φ at % Load			Service Factor	
	HP	kW					50	75	100	50	75	100		
415V @ 50 Hz	KM12 100-4	100	75	1440	143	788	85,5	88,6	88,2	0,65	0,77	0,82	1	
	KM12 125-4	125	93	1430	172	981	86,6	88,8	88,4	0,70	0,80	0,85	1	
	KM12 150-4	150	112	1425	205	1211	86,9	88,9	88,1	0,73	0,82	0,86	1	
	KM12 175-4	175	130	1435	244	1439	86,8	88,9	88,4	0,68	0,79	0,84	1	
	KM12 200-4	200	150	1430	279	1672	86,9	89,3	88,9	0,68	0,79	0,84	1	
	KM12 225-4	225	168	1415	304	1823	86,9	88,8	88,1	0,78	0,84	0,87	1	
	KM12 250-4	250	186	1420	340	2039	87,0	88,7	88,1	0,76	0,84	0,87	1	
460V @ 60 Hz	KM12 100-4	100	75	1720	122	140	753	86,9	89,8	89,4	0,73	0,82	0,86	1,15
	KM12 125-4	125	93	1720	152	175	947	87,7	89,7	89,3	0,73	0,82	0,86	1,15
	KM12 150-4	150	112	1725	185	211	1170	87,7	90,0	89,7	0,70	0,80	0,84	1,15
	KM12 175-4	175	130	1725	215	246	1379	87,8	90,1	90,0	0,71	0,81	0,85	1,15
	KM12 200-4	200	150	1720	242	278	1603	87,8	90,4	90,1	0,74	0,83	0,86	1,15
	KM12 225-4	225	168	1720	273	313	1763	87,8	90,2	89,9	0,75	0,83	0,86	1,15
	KM12 250-4	250	186	1725	305	348	1981	87,9	90,1	89,8	0,73	0,82	0,86	1,15
	KM12 270-4	270	201	1730	341	390	2261	87,0	90,8	90,7	0,70	0,78	0,82	1,15
	KM12 300-4	300	223	1725	372	424	2485	87,6	90,3	90,2	0,69	0,79	0,84	1,15

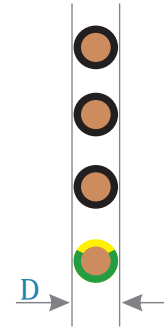
KM12

12-INCH SERIES



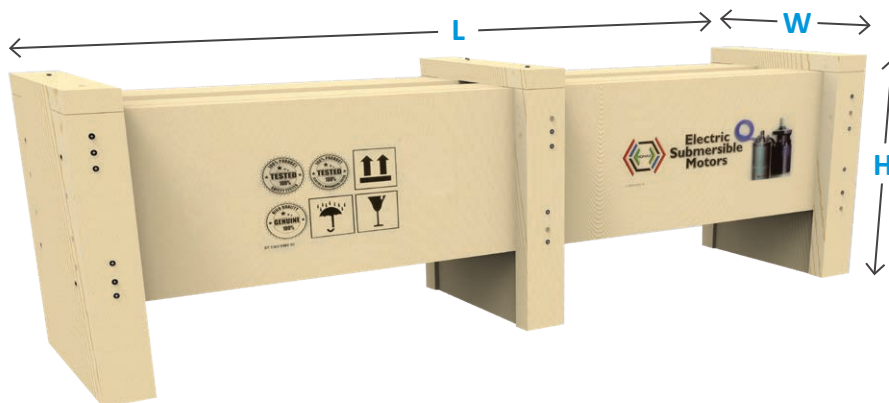
Technical DATA

Size & Dimensions Motor Tail Cable - Three Phase 4 Pole - 415 Volt @ 50 Hz - 460 Volt @ 60 Hz							
Sr: No.	Motor Size		Cable Size Nos. x Cross Section (mm ²)	Cable Diameter (mm)	Cable Length (mtr)	Qty (Nr.)	
	HP	kW					
DOL	1	100	75	1 x 25	11,7	5	3
	2	125 ~ 150	93 ~ 110	1 x 35	12,7	5	3
	3	175 ~ 225	130 ~ 168	1 x 70	17,3	5	3
	4	250 ~ 300	186 ~ 223	1 x 90		5	3
SD	5	100 ~ 125	75 ~ 93	1 x 16	10,3	5	6
	6	150 ~ 200	110 ~ 150	1 x 25	11,7	5	6
	7	225 ~ 300	168 ~ 223	1 x 35	12,7	5	6



Additional core 1 x 10 mm² 5 meters for earthing.

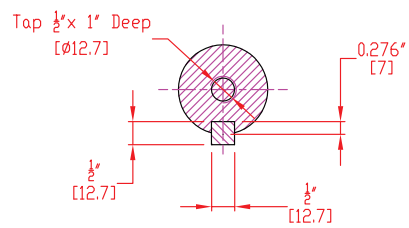
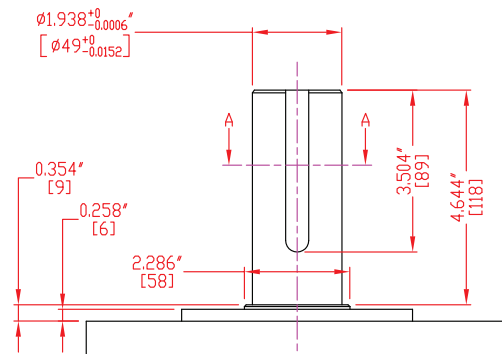
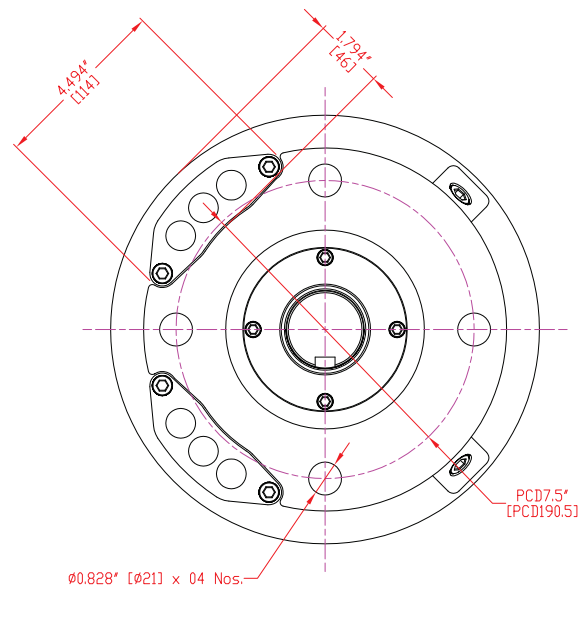
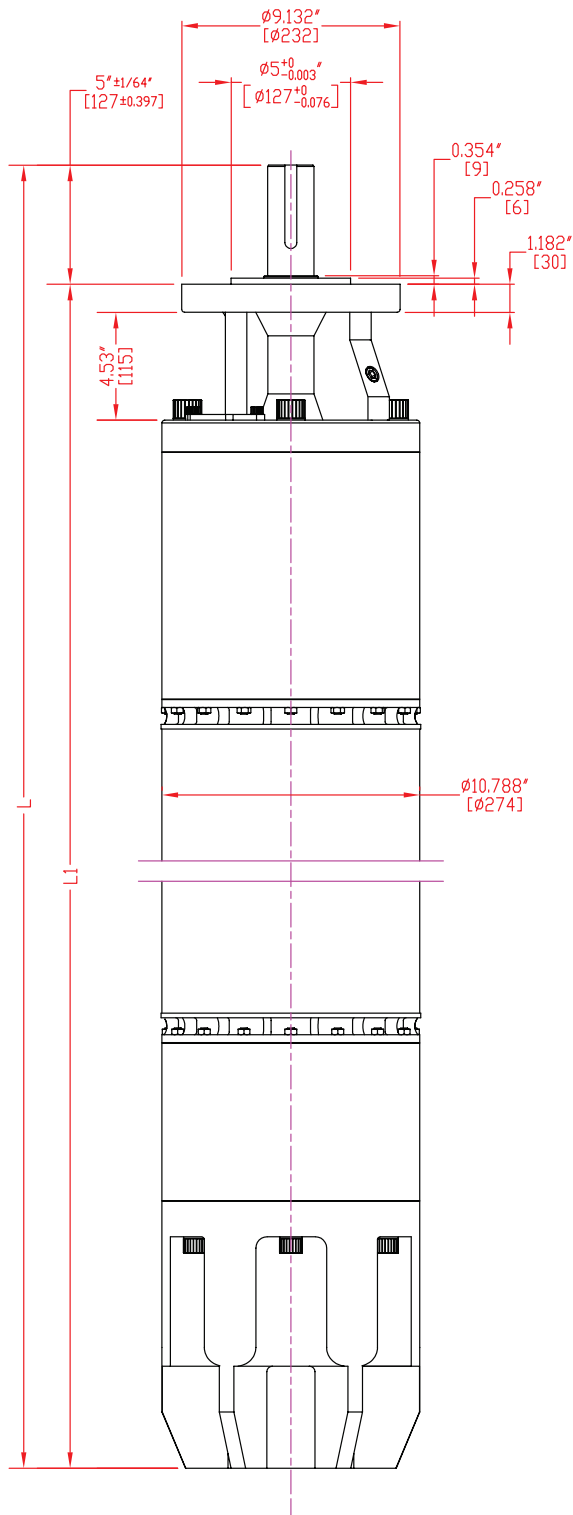
Motor Dimensions and Weights KM10								
Motor Type	Motor Size		Thrust Load (N)	L Motor Length (mm)	L1 Motor Length (mm)	Packing Dimension W x H x L (mm)	Weight (Kg)	
	HP	kW					Without Packing	With Packing
KM12 100-4	100	75	120000	1499	1626	406 x 495 x 1778	410	440
KM12 125-4	125	93	120000	1626	1753	406 x 495 x 1905	486	520
KM12 150-4	150	112	120000	1770	1897	406 x 495 x 2057	561	600
KM12 175-4	175	130	120000	1880	2007	406 x 495 x 2159	666	710
KM12 200-4	200	150	120000	2002	2129	406 x 495 x 2286	741	790
KM12 225-4	225	168	120000	2101	2228	406 x 495 x 2388	816	870
KM12 250-4	250	186	120000	2200	2327	406 x 495 x 2489	882	940
KM12 270-4	270	201	120000	2286	2413	406 x 495 x 2565	906	970
KM12 300-4	300	223	120000	2286	2413	406 x 495 x 2565	906	970



KM12 12-INCH SERIES



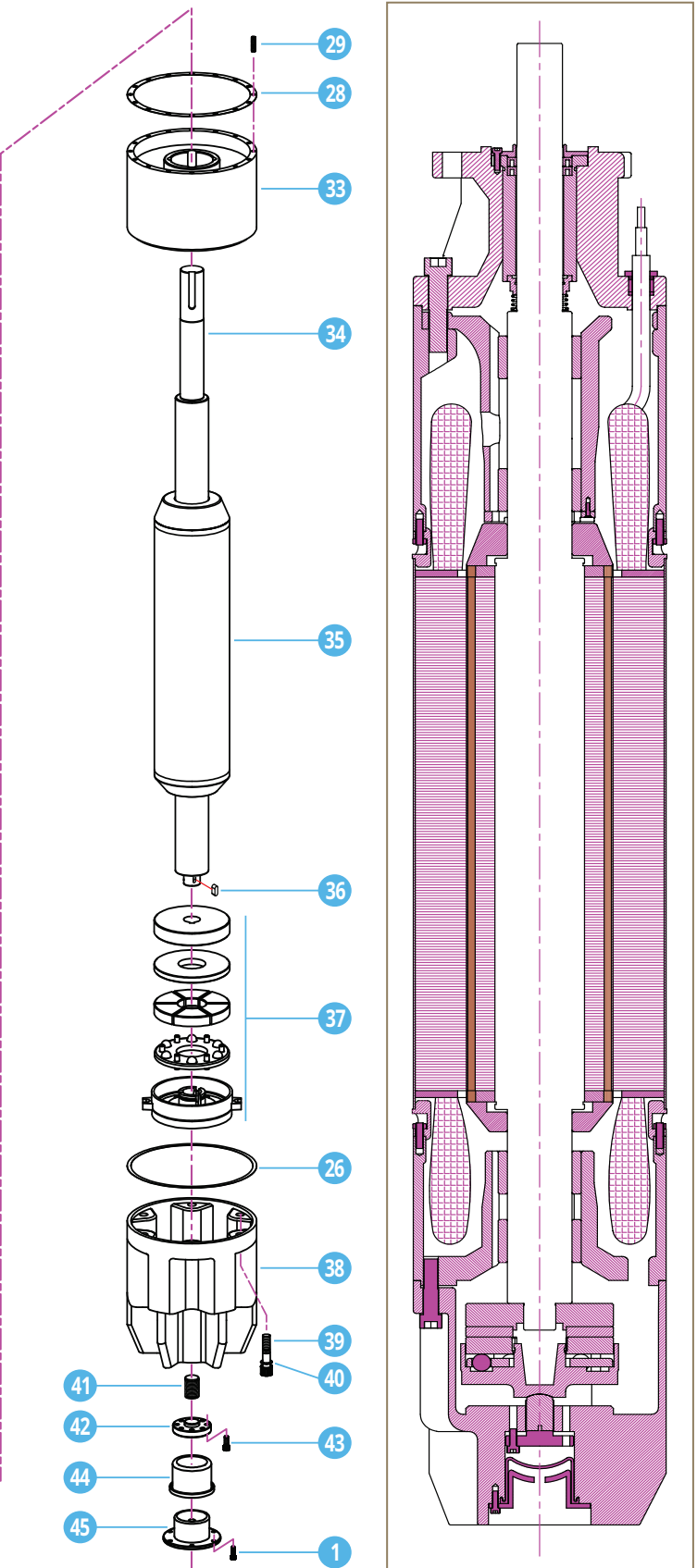
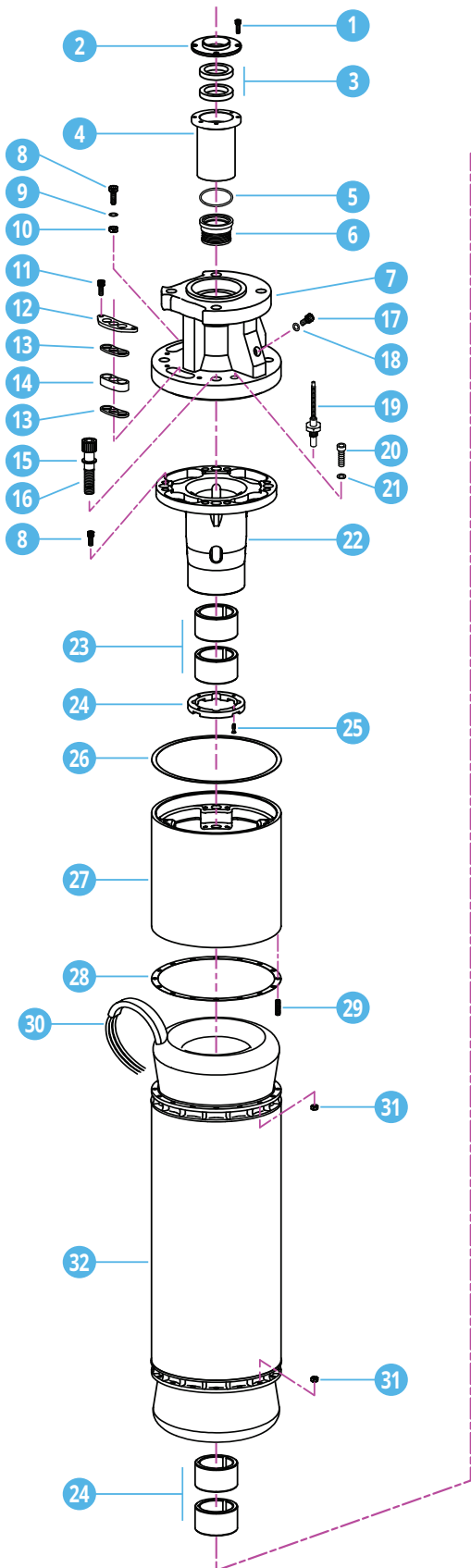
Motor Outline Drawings and Dimensions





Exploded View

Cross-Sectional View



KM12

12-INCH SERIES




Parts LIST with Material & Quantity

Pos.	Item Code	Part Name	Material	Qty	Unit
1	60161252	Bolt Allen M6 x 20	Stainless Steel	4	Nr
2	6017-12-0120	Seal Support Cover	Stainless Steel	1	Nr
3	60271085	Oil Seal 50x70x10	NBR	2	Nr
4	6017-12-0125	Mech. Seal Bush Support	Cast Iron	1	Nr
5	60271115	O-Ring Seal Support	NBR	1	Nr
6	60271095	Mechanical Seal Complete 10x10	Silicon Tungsten Carbide (WC) + NBR + Stainless Steel"	1	Nr
7	6017-12-0000	Top Piece / Upper Support	Cast Iron	1	Nr
8	60161254	Bolt Allen M8 x 35	Stainless Steel	9	Nr
9	60161263	Spring Washer M8	Stainless Steel	1	Nr
10	60161262	Nut Hex M8	Stainless Steel	1	Nr
11	60161253	Bolt Allen M8 x 25	Stainless Steel	2	Nr
12	6017-12-0175	Cable Top Cover Plate	Carbon Steel	2	Nr
13	6017-12-0210	Washer Nylon Tail Cable	Nylon	2	Nr
14	6017-12-0190	Gasket Rubber Tail Cable	NBR	1	Nr
15	6000-12-0140	Washer Bonded / Dowty Seal M20	NBR / Stainless Steel	4	Nr
16	6000-12-0150	Bolt Allen M20 x 90	Stainless Steel	4	Nr
17	60101068	Bolt Allen M10 x 16	Stainless Steel	2	Nr
18	60101157	Washer Bonded / Dowty Seal M10	NBR / Stainless Steel	2	Nr
19	60101485	PT 100 Sensor (Optional)	Stainless Steel	1	Nr
20	60161250	Bolt Allen M8x20	Stainless Steel	5	Nr
21	60161267	Washer Bonded / Dowty Seal M8	NBR/Stainless Steel	1	Nr
22	6017-12-0015	Upper Bearing Housing	Cast Iron	1	Nr
23	6000-12-0050	Carbon Bush	Carbon	4	Nr
24	6017-12-0020	Upper Thrust Bearing	Bronze	1	Nr
25	60101142	Screw CSK M4x10	Stainless Steel	4	Nr
26	6017-12-0165	Gasket Tesnit (Upper & Lower)	Tesnit	2	Nr
27	6017-12-0010	Upper Support	Cast Iron	1	Nr
28	6017-12-0170	Gasket Tesnit (Stator Flanges)	Tesnit	2	Nr
29	60271170	Stud Bolt M8x35	Stainless Steel	32	Nr
30A	601611XX	Tail Cable 1 x 25 / 35 / 50 / 70 / 90 mm2	PVC + Recyclable Plastic + Copper	48	Ft
30B	60101185	Tail Cable 1x10 mm2 (For Earthing)	PVC + Recyclable Plastic + Copper	16	Ft
31	60161262	Nut Hex M8	Stainless Steel	32	Nr
32	6000-12-XXXX	Stator Stack (Assembly) Including Sheet + Flanges	Silicon Steel (50C800) + Stainless Steel	1	Set
33	6017-12-0025	Lower Bearing Housing	Cast Iron	1	Nr
34	6000-12-XXXX	Rotor Shaft	Stainless Steel + Copper	1	Set
35	60271330	Rotor Lamination (Including Shaft + Copper Bars + End Ring)	Silicon Steel (50C800) + Stainless Steel	1	Set
36	60101145	Key for End Shaft	Stainless Steel	1	Nr
37	6000-12-0040	Thrust Bearing Complete	Stainless Steel + Carbon	1	Set
38	6017-12-0030	Thrust Support	Cast Iron	1	Nr
39	60161255	Bolt Allen M16x65	Stainless Steel	6	Nr
40	60161272	Washer Bonded / Dowty Seal M16	NBR / Stainless Steel	6	Nr
41	6017-12-0155	Adjustment Bolt	Stainless Steel	1	Nr
42	6017-12-0160	Thrust Lock Washer	Stainless Steel	1	Nr
43	60161250	Bolt Allen M8 x 20	Stainless Steel	4	Nr
44	60271130	Diaphragm Rubber	NBR	1	Nr
45	60271135	Diaphragm Support	Cast Iron	1	Nr

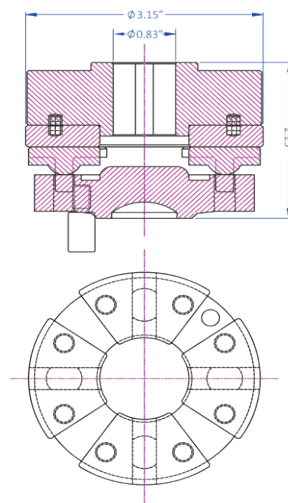
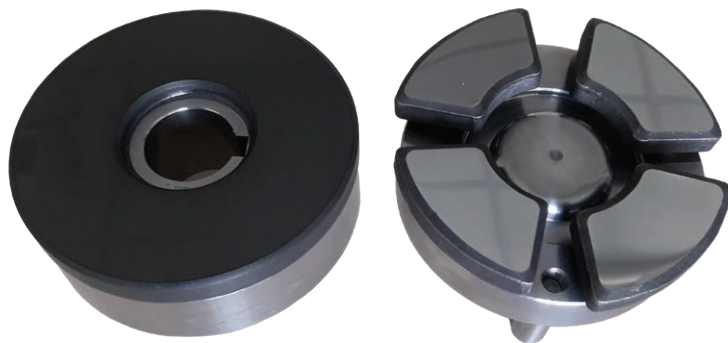



Thrust BEARINGS

 **4 Segment Thrust Bearing**

24000 N / 6000 Lbs

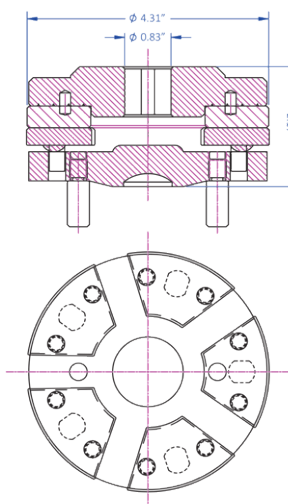
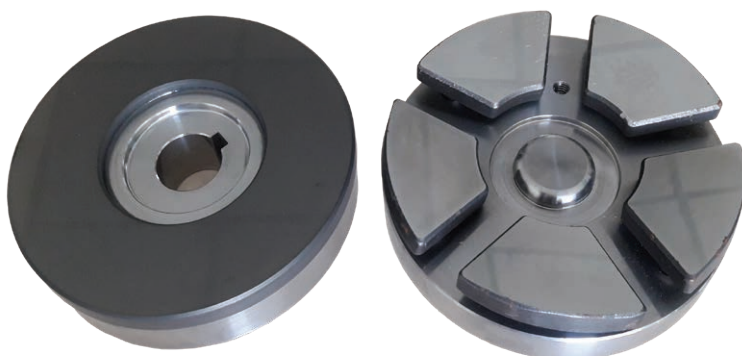
axial load capacity




 **5 Segment Thrust Bearing**

60000 N / 13850 Lbs

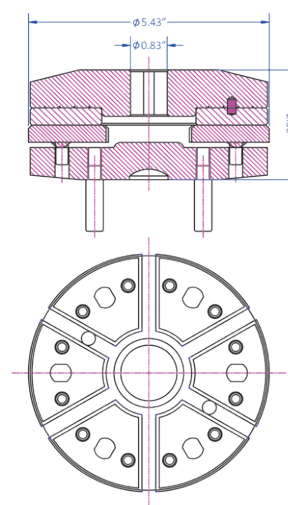
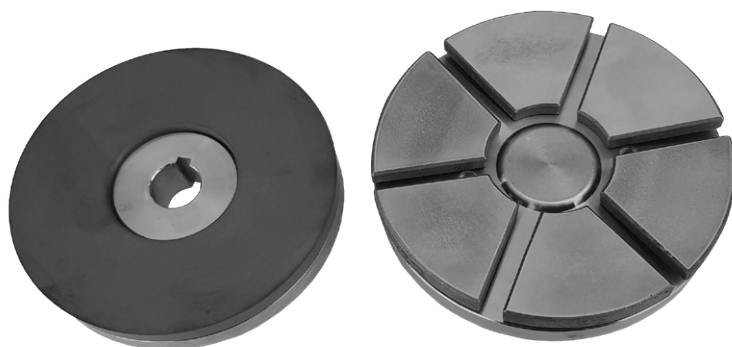
axial load capacity




 **6 Segment Thrust Bearing**

80000 N / 18000 Lbs

axial load capacity



 **6 Segment Thrust Bearing**

120000 N / 27000 Lbs

axial load capacity



KM12
12-INCH SERIES



Sensor PT100



PT100 Sensor Features

PT100s (Platinum Resistance Transducers) or RTDs (Resistance Temperature Detectors) are an economical and accurate method of measuring temperature because of the resistance of the PT100 chip changes in direct proportion to the temperature.

Komax standard PT100s are available in 3 wire configurations. The accuracy of the measured temperature increases with the number of wires, i.e. 3 wire units give a more accurate reading than 2 wire units. When PT100s are used with a suitable measuring instrument they will display the actual temperature of the sensor, wherever it is located, with a small accuracy tolerance.

Temperature Range: PT100 -50 °C to +200 °C.

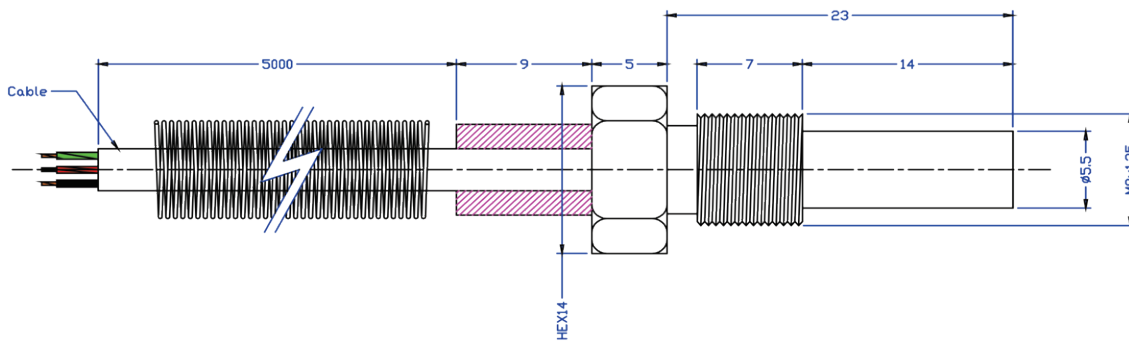
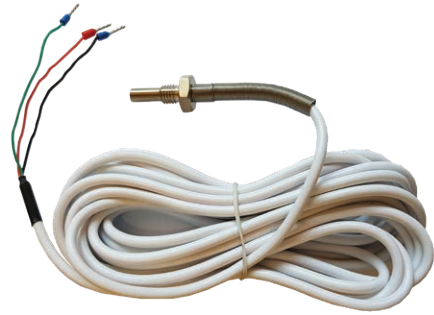
Accuracy Class: Class B

Nominal Resistance: 100 Ohms at 0 °C (The resistance will change by 0.3851 ohms of each 1 °C change in temperature, and the tolerance of a Class B Device is +/- 0.0012 ohms).

Standard Sheath Material: Ceramic with SS304 Cover Tube

Wire Temperature Rating: 250 °C

Recommended Operating Current: 1 m.Amp.



Sensor Cable Specifications

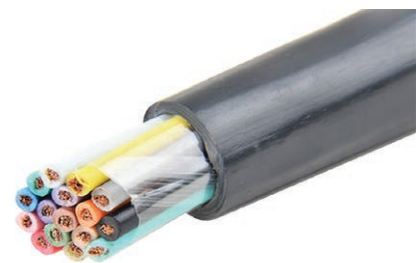
Usage: Multiwire cable specially developed for borehole submersible motor's temperature sensors.

Packing: 328 or 1640 feet coil.

Insulation: PE

Sheath: Standard Grey High Temp PVC (Other materials and colours are available upon request)

Screen: Overall Aluminum/Polyester Laminate.



Nearest AWG	No. of Cores	Conductors Nos./Dia (mm)	Insulation Thickness (mm)	Nominal Wire to Wire Capacitance (pf/m)	Nominal Dia (mm)
24	3	7/0.20 TC	0.3	80	4.7
24	6	7/0.20 TC	0.3	80	5.5
24	12	7/0.20 TC	0.3	80	7.5



Cable Selection CHART

Direct-on-Line Starting

Motor Size		Square Millimeter Wire Size, Copper Wire, Three Wire Cables (Length in Meters)																				
HP	kW	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300					
230V @ 60 Hz	5,5	4		40	65	98	163	261	408	571	816	1143										
	7,5	5,5			50	75	125	201	314	440	629	881	1196									
	10	7,5				56	94	151	236	330	472	660	897	1133								
	15	11					66	106	166	233	333	466	633	800	1000							
	20	15						81	126	177	253	354	481	607	759	937						
	25	18,5							101	142	203	284	386	488	610	752	976					
	30	22								85	119	170	238	323	409	511	630	818	1022			
380-415V @ 50 Hz / 460V @ 60 Hz	5,5	4	86	144	231	347	579	926	1447													
	7,5	5,5	66	110	176	264	440	704	1100													
	10	7,5		84	135	203	339	543	849	1189												
	12,5	9,3			111	167	279	447	699	979	1399											
	15	11			95	143	239	383	598	838	1197											
	17,5	13				123	205	329	514	720	1028	1440										
	20	15				109	181	291	454	636	909	1273										
	25	18,5					148	237	370	518	741	1037	1408									
	30	22					123	197	307	430	615	861	1169									
	35	26						168	263	368	527	737	1001	1265								
	40	30						143	224	314	449	629	854	1079	1349							
	50	37							179	251	358	502	681	861	1076	1327						
	60	45								150	210	301	421	572	722	903	1114	1445				
	70	52									182	261	365	495	626	783	965	1252				
	75	56									183	261	366	497	628	785	968	1256				
	80	60										248	347	471	595	744	918	1191	1489			
	90	67											217	304	412	521	651	803	1042	1303		
	100	75												198	277	377	476	595	734	953	1191	
	110	82													251	341	431	538	664	862	1077	
	125	93														224	304	384	480	593	769	961
150	112															256	323	404	498	647	809	
175	130																275	344	424	550	688	
200	150																	302	372	483	604	
250	186																			293	380	475
270	200																				355	444

Cable length calculations are based on voltage drop of 5% and working temperature 60 °C.

KM12 12-INCH SERIES



Cable Selection CHART

Star-Delta Starting

Motor Size		Square Millimeter Wire Size, Copper Wire, Three Wire Cables (Length in Meters)																
HP	kW	1.5	2.5	4	6	10	16	25	35	50	70	95	120	150	185	240	300	
230V @ 60 Hz	5,5	4		60	98	147	245	392	612	857	1224							
	7,5	5,5		47	75	113	188	302	471	660	944	1322						
	10	7,5		35	56	84	141	227	354	495	708	990	1346					
	15	11				60	99	159	249	350	500	699	950	1200				
	20	15				45	75	122	189	266	380	531	722	911	1139			
	25	18,5					60	98	152	213	305	426	579	732	915	1128		
	30	22					51	81	128	179	255	357	485	614	767	945	1227	
380-415V @ 50 Hz / 460V @ 60 Hz	5,5	4	129	216	347	521	869	1389										
	7,5	5,5	99	165	264	396	660	1056										
	10	7,5	75	126	203	305	509	815	1274									
	12,5	9,3	62	104	167	251	419	671	1049	1469								
	15	11		89	143	215	359	575	897	1257								
	17,5	13			123	185	308	494	771	1080								
	20	15			108	164	272	437	681	954	1364							
	25	18,5				132	222	356	555	777	1112							
	30	22				110	185	296	461	645	923	1292						
	35	26					158	252	395	552	791	1106						
	40	30					134	215	336	471	674	944	1281					
	50	37						171	269	377	537	753	1022	1292				
	60	45						144	225	315	452	632	858	1083	1355			
	70	52							195	273	392	548	743	939	1175	1448		
	75	56							195	275	392	549	746	942	1178	1452		
	80	60							186	260	372	521	707	893	1116	1377		
	90	67							162	228	326	456	618	782	977	1205		
	100	75								207	297	416	566	714	893	1101	1430	
	110	82								188	269	377	512	647	807	996	1293	
	125	93									240	336	456	576	720	890	1154	1442
150	112									201	282	384	485	606	747	971	1214	
175	130										240	327	413	516	636	825	1032	
200	150											287	362	453	558	725	906	
250	186												285	356	440	570	713	
270	200													333	411	533	666	

Cable length calculations are based on voltage drop of 5% and working temperature 60 °C.

KM12

12-INCH SERIES

Also available Complete Range of Submersible Electric Rewindable Motors



KM6 - 6" Range (For 6" Borehole)

From: 5.5 HP (4 kW)
To: 70 HP (52 kW)
380~415V @ 50Hz
230/380/460V @ 60Hz

KM8 - 8" Range (For 8" Borehole)

From: 30 HP (22 kW)
To: 200 HP (150 kW)
380~415V @ 50Hz
380/460V @ 60Hz

KM10 - 10" Range (For 10" Borehole)

From: 75 HP (55 kW)
To: 270 HP (200 kW)
380~415V @ 50Hz
380/460V @ 60Hz



Premium Efficiency with Wide Voltage Ranges



Robust 400 Series Stainless Steel Thrust Assembly and Tungsten Mechanical Seal



Optimally Designed for Endurance in Sandy Conditions



Electrically Engineered for Broad Application Tolerances



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