Duke®
SAVE ENERGY
PUMPS & PIPES

www.dukepumps.com

DUKE

SUBMERSIBLE MOTORS

CATALOGUE

60Hz

Duke®
SAVE ENERGY
PUMPS & PIPES

THE BEGENNING

Of DUKE PLASTO TECHNIQUE PVT. LTD., way back in 1989, was a resolute attempt to produce a few irrigation equipment's using the limited facilities. Eventually the founder's dream was coming true as the small production unit he started kept growing rapidly. Now, after more than five eventful decades, it is an enormous, widely reputed organization, which produces more than wide varieties of perfectly engineered pumps and motors.

DUKE PLASTO TECHNIQUE PVT. LTD.

Since 1989 we design and manufacture submersible pumps & motors. Thanks to significant investments in production automation and extensive use of robotized assembly we offers submersible pumps and motors with high hydraulic characteristics and a very competitive quality/price ratio: made in India. Our range includes submersible pumps from 4" to 10" also in stainless steel for the most demanding applications. Duke Plasto Technique Pvt. Ltd. has always been manufacturing submersible motors for the entire range of pumps covering all power from 0.5HP - 250HP (0.37kW – 185kW).

THE INFRASTRUCTURE

Of Duke Plasto Technique Pvt. Ltd. is pretty comprehensive with state-of-the-art machineries and high potential in-house R&D. All within its own covered area of 16,815 square meters. The production environment is accredited with ISO 9001-2015 and ISO 14001-2004 certifications and the products are IS 9283-2013 certified. The R&D team always stays in tune with the changing scenario and seldom fails incoming up with outstanding solutions every time.

WITH NO DOUBTS

Behind this growth lies the untiring, innovative, enthusiastic and Dedicated team work and, of course, a flawlessly maintained value system too.

CONTENT

MODEL IDENTIFICATION CODE

Notes

- These motors are meant only for clear water applications
- Electrical Performances of the motorsremain the same for all types of materials of constructions
- The given the performances are for the ideal testing conditions at factory and the actual performance may vary according to the field parameters
- In view of our continuous development the information / technical specifications / descriptions / illustrations given are subject to change without prior notice.

Warning

- Considering these motors are electrical appliances, utmost care shall be taken during installation / commissioning / operations / maintenance & servicing.
- Apart from the general guidelines the local electrical regulations shall be adhered strictly.
- Proper Earthing of motor & control panels is mandatory.
- These motors are not for swimming pool applications.

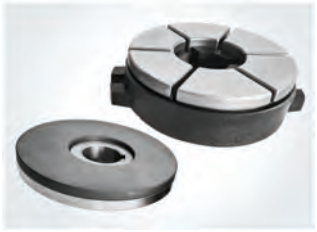
DUKE'S SUBMERSIBLE MOTORS

Duke's DSM - Series are Deep well / Tube well / Borewell / Borehole clear water submersible Motors. These motors are Re-windable, wet type, water / oil cooled motors, designed to drive Duke's or any brands NEMA submersible pumps. These are available from 3" to 10" sizes as standard supply. The windings are made up EC grade copper conductor and insulation & sheath of excellent insulation and water-proof property. High performance, specially designed, water lubricated thrust bearings are provided to withstand high axial thrust loads exerted by whole bore well water column and pumping systems. These motors are available in different types of MoCs like Fully Stainless Steel or Cast Iron constrcutions. The mounting dimensions are as per NEMA Standards and keyway type motors can also be supplied against requirement.

GENERAL FEATURES

- ☑ Rigidin Constructions
- ☑ Suitable for Heavy Load Applications
- ☑ Highly Durable
- ☑ High Operating Efficiency
- ☑ Easy to dismantle & service
- ☑ Re-windable
- ☑ Available in Different MoCs
- ☑ Both Oil seal & Mechanical seal constrcutions availble
- ☑ Heavy duty trust bearings
- ☑ Winding Wires: Polywrap / PVC/PE2-PA
- ☑ Lead-out Cable: TPR/RUBBER/PVC
- ☑ High Temperature models availble [up to 70° C]

MAIN PARTS



Heavy duty bearings with high thrust capacity

High wear resistance Self aligning segments to withstand fluctuating loads. Improved efficiency due to the inherent properties of Carbon and that of high hardened, lapped and polished Stainless Steel Segments resulting in longer life.

Oil sealing system for high sand resistance and degree of protection: IP68

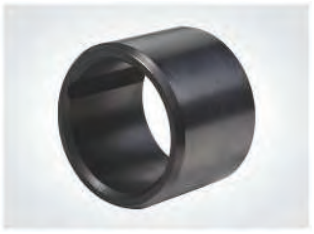
It is always used by Duke as a standard, to prevent sand and other particles to get in motors to provide long bearing life.

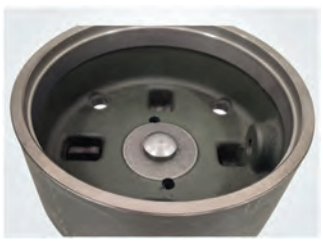
Mechanical sealing system for high sand resistance and degree of protection: IP68

Mechanical seal is always used by Duke as a standard, to prevent sand and other particle to get in Motor to provide long bearing life.

Water lubricated radial carbon bearings

We use Radial carbon bearings, which have channels in its structure that makes it possible to get lubricated by water easily.





Motor Base with Magnet

Motor Base are provided with Magnets in it which stops Metals particles from entering into Motor which gradually increases life of Motor.

Grommet with In-built washer

Nitrile Rubber with SS Washer which protect Motor from Sand going inside from Cable and Grommet giving proper sealing.

Diaphragm

The expansion pressure that is caused due to heating of water inside the Motor is minimized using Diaphragm.

Slinger (sand guard)

Slinger helps to prevent the sand inside the water of the well entering in mechanical seal and through mechanical seal to inside of the motor.

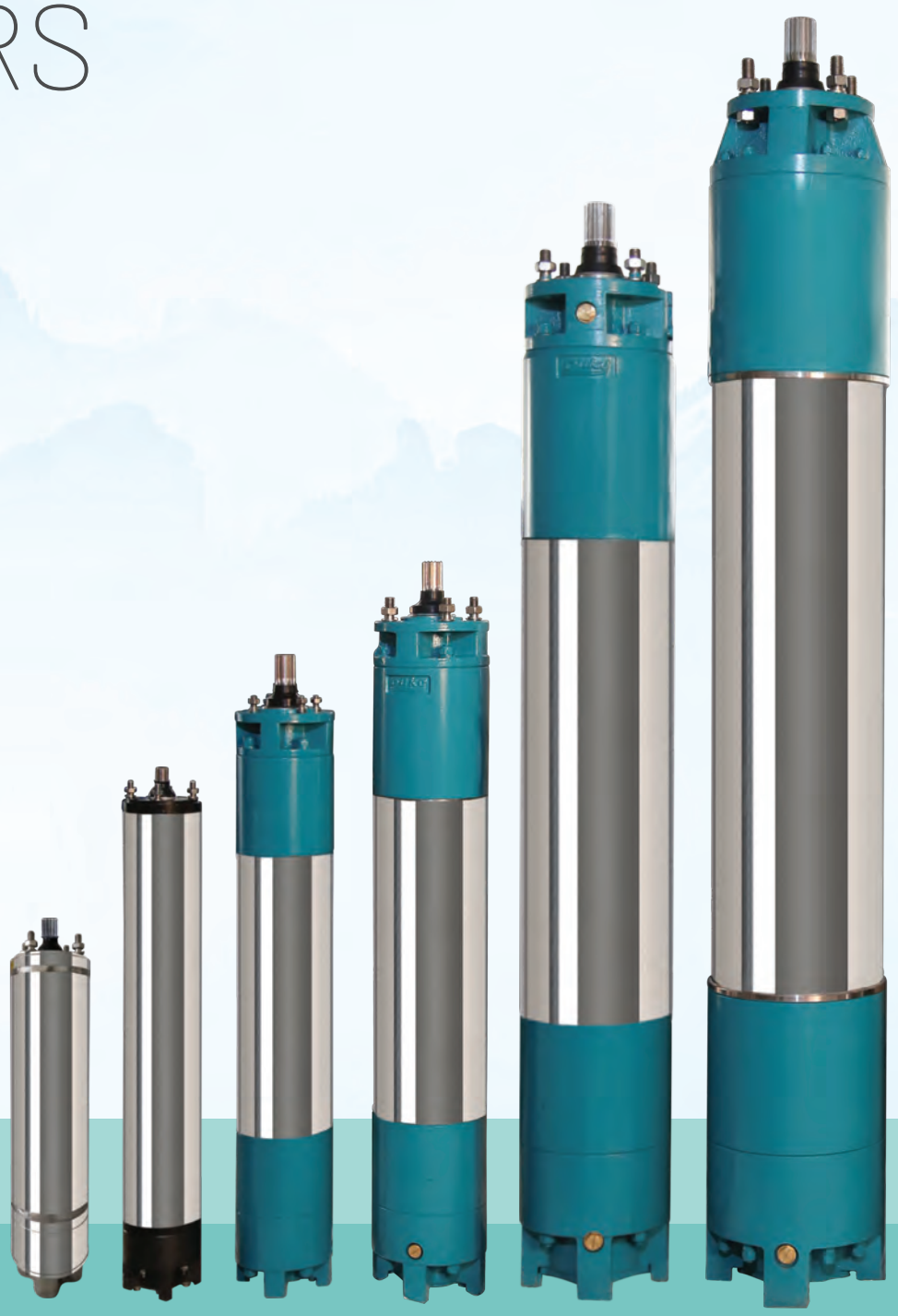
Up-Thrust ring

Provides safe operation conditions for motor by absorbing Up-Thrust loads with it's machined surface and water channels on it.

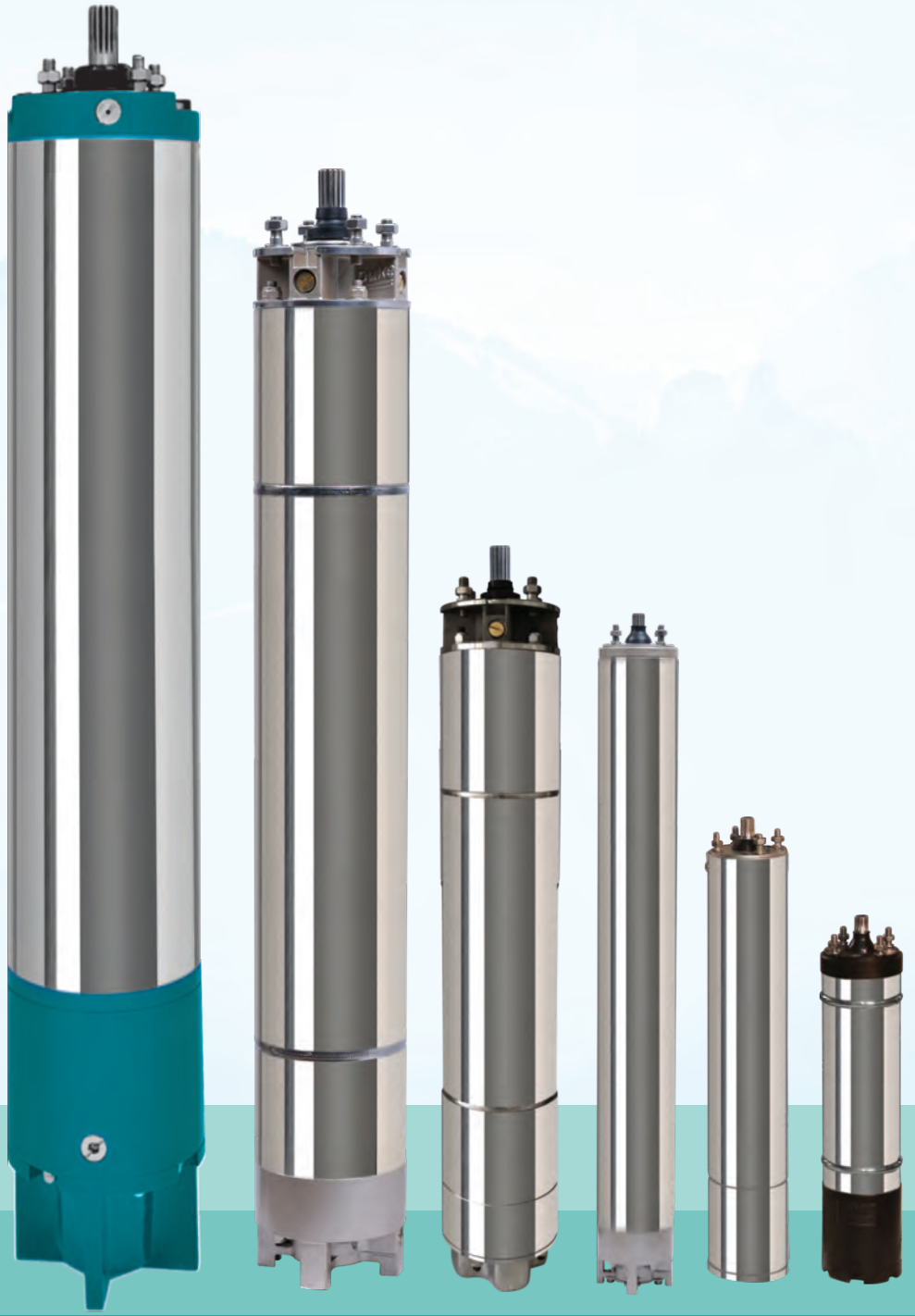
Pressure balancing checkvalve

Pressure balancing checkvalve controls the pressure changes inside the motor. When the pressure increases, it throw water out of the motor. When the pressure drops, it filtrates the water inside well and gets it inside the motor by the help of this checkvalve to balance the pressure inside. That's why pressure differences inside motor never causes membrane under motor to blow up.

SUBMERSIBLE
MOTORS



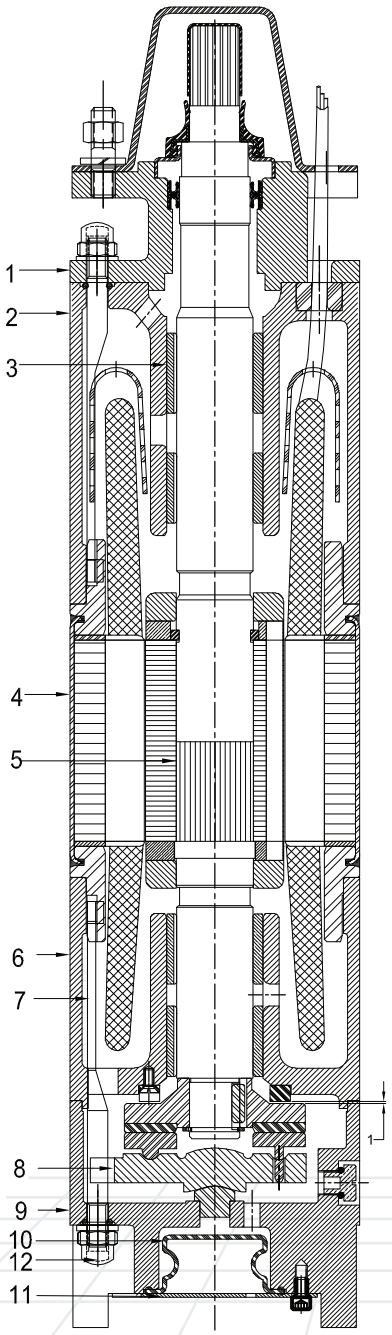
Duke®
SAVE ENERGY
PUMPS & PIPES



MOC

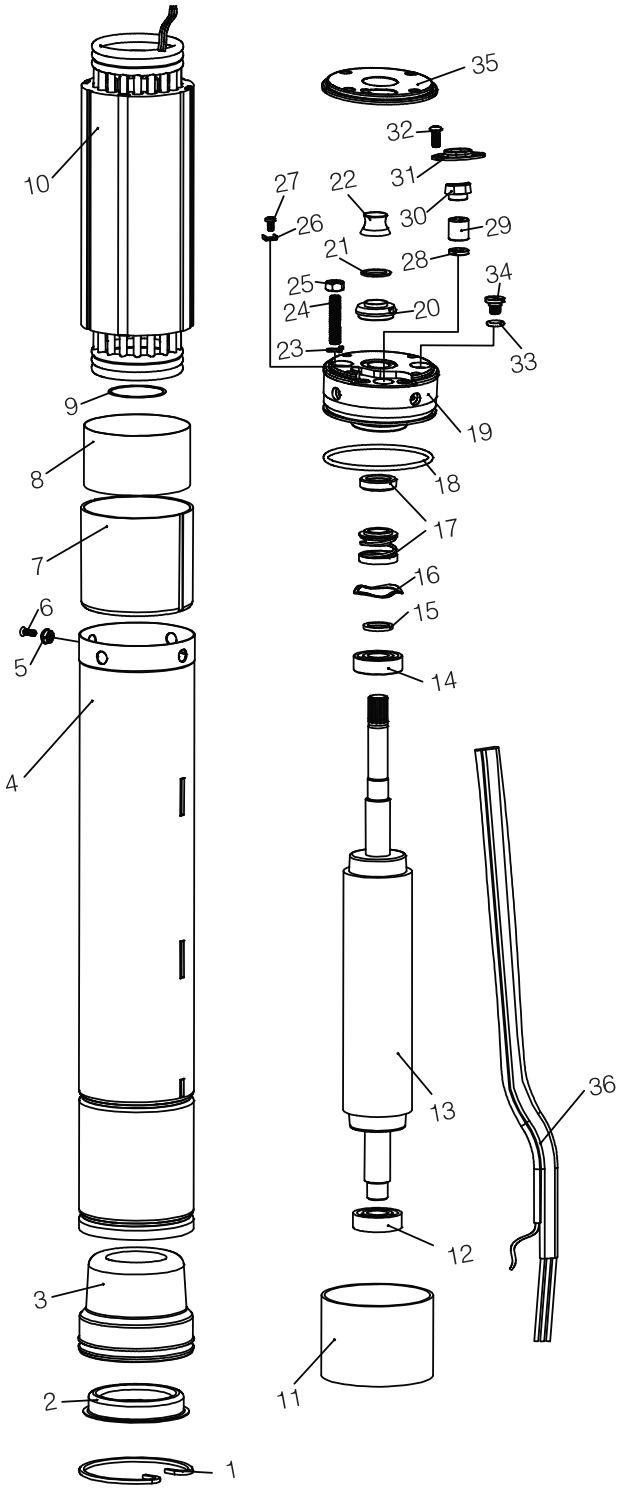
NO.	PART NAME	MATERIAL
1	ADAPTOR	STAINLESS STEEL / CI
2	UPPER HOUSING	STAINLESS STEEL / CI
3	BEARING BUSH	CARBON
4	STATOR	STAMPING-CRNO M-47 WITH
		C6 COATING, PIPE-STAINLESS STEEL
5	ROTOR	SHAFT-STAINLESS STEEL STAMPING-CRNO M-47 WITH EPOXY POWDER COATING
6	LOWER HOUSING	STAINLESS STEEL / CI
7	T-BOLT	CARBON STEEL WITH EN8 GRADE POWDER COATING
8	THRUST BEARING	CI / CARBON WITH COATING
9	MOTOR BASE	STAINLESS STEEL / CI
10	DIAPHRAGM	NITRILE RUBBER
11	MOTOR BASE PLATE	STAINLESS STEEL / CI
12	FASTENERS	STAINLESS STEEL / SS-304 & 316

CROSS-SECTIONAL DRAWING



EXPLODED DRAWING

4” OIL FILLED MOTOR

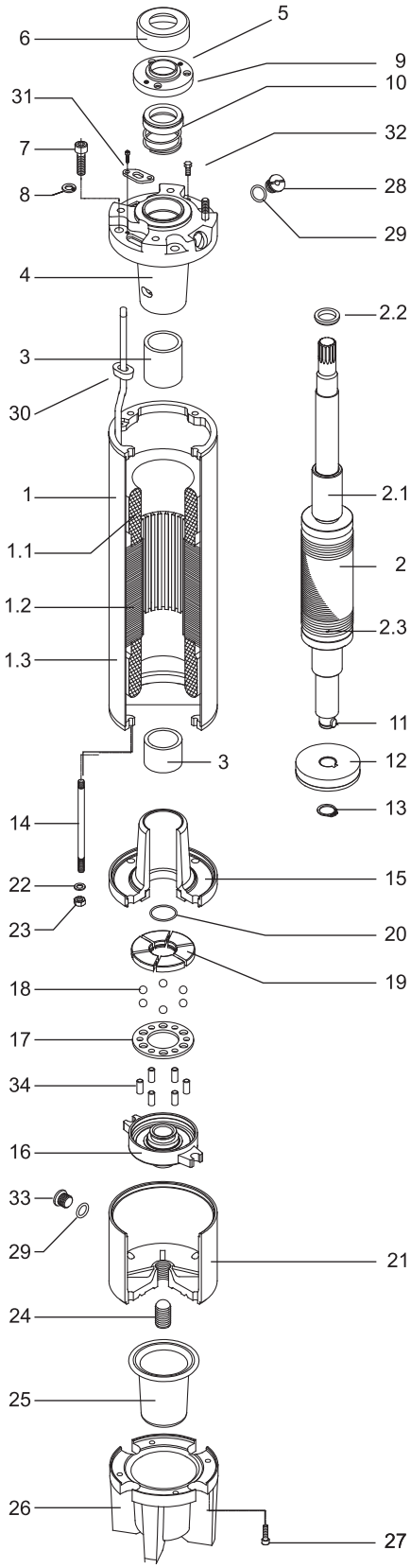


NO.	PART NAME
1	Snap Ring
2	Bottom Cover
3	Di aphragm
4	Motor Shell
5	Washer
6	Screw
7	Lower Bracket
8	Insulating Paper
9	O ring
10	Stator
11	Insulating Paper
12	Lower Bearing
13	Rotor
14	Upper bearing
15	Washer
16	Spring Washer
17	Mechanical Seal
18	O ring
19	Upper Housing
20	Sand Guard
21	Washer
22	Sand Slinger
23	Spring Washer
24	Stud
25	Nut
26	Washer
27	Earth Screw
28	O ring
29	Cable Grommet
30	Cable Grommet Nut
31	Cable Clamp
32	Screw
33	O ring
34	Drain Plug
35	Upper Shell
36	Cable

EXPLODED DRAWING

WATER FILLED MOTOR

6” - 50 & 60 HP | 8” - 100 to 150 HP | 10” - 110 to 250 HP



NO.	PART NAME
1	Stator
1.1	Winding wire
1.2	Stator package
1.3	Stator she!
2	Rotor
2.1	Shaft sleeve
2.2	Balance ring
2.3	Copper ring
3	Radial bearing
4	Upper bearing body
5	Bushing
6	Slinger (sand guard)
7	Hexagon socket cap screws
8	Copper ring
9	Cover seal
10	Mechanical seal
11	Axial thrust bearing key
12	Axial thrst bearing
13	Retaining ring
14	Tie rod
15	Lower bearing body
16	Thrust bearing support
17	Ball holder
18	Thrust bearing ball
19	TWngpads
20	O-ring
21	Thrust bearing body
22	Copper ring
23	Nut
24	Screw (thrust bearing base)
25	Membrane
26	Membrane body
27	Hexagon socket cap screws
28	Check-valve
29	O-ring
30	Cable seal
31	Seal cover
32	Nut
33	Plug (3/8")
34	Ball holder pins

4"

DSM4

WATER FILLED
IE3 SERIES MOTORS

APPLICATIONS

- RESIDENTIAL
- WATER SUPPLY
- SMALL IRRIGATION
- SMALL INDUSTRIES
- FOUNTAIN
- SOLAR

FEATURES

- Suitable for 100mm & above bore well.
- Stainless Steel high strength shaft.
- High Efficiency electrical design (Low Operation cost, cool running winding)
- Motor filling with water with Anti-corrosive liquid
- Specially designed thrust bearing to withstand high axial thrust loads.
- Winding connections with solid solder joints.
- Special magnet provision in motor base and newly designed self-spring action diaphragms.
- Epoxy powder coating on rotor.
- Graded cast iron housing with precisely fitted bush and special bearing counter provision for horizontal application of pump set.
- NEMA Standard.
- CED Coated Motor Assembly

TECHNICAL DETAILS

Nominal Diameter		4" Motor (100 mm)
Max. Outer Diameter		3.74" (95 mm)
Power Range	1Ph	0.5 HP to 7.5 HP
	3Ph	1.5 HP to 7.5 HP
Nominal Speed		3450 RPM
Voltage range	1Ph	230 V, 60 Hz, A.C Supply
	3Ph	230V, 380V & 460V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		33° C / 92° F
Starts per hour		20 Times
Method of starting		Single Phase - Capacitor Start Capacitor Run
		Three Phase - Direct On Line (DOL)
Cable leadout type		3 Core Flat Cable

TECHNICAL DATA

4" 1Phase 230V, 60Hz Water Filled Motor

Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Max. Down Thrust Load (N)	Full Load Torque (Nm)	Starting Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100							
0.5	0.37	230	5	15	39	42	45	0.78	0.80	0.80	3000	1.3	2.2	1.5	2.3	481	15
1	0.75	230	7	23	50	55	57	0.78	0.80	0.82	3000	2.8	4.5	2.5	2.3	521	17
1.5	1.1	230	8.5	25	53	60	61	0.89	0.90	0.90	3000	4.0	6.7	2.5	2.7	551	19
2	1.5	230	12	37	53	60	62	0.88	0.90	0.90	3000	5.4	9.2	4	3.1	601	21
3	2.2	230	19	61	55	62	65	0.80	0.82	0.85	3000	8.5	15	4	3.1	671	25
5	3.7	230	28	94	56	62	66	0.82	0.86	0.90	3000	9.5	18	6	3.1	781	31
7.5	5.5	230	37	120	61	69	72	0.82	0.86	0.90	3000	10	21	6	3.1	841	34

4" 3Phase 230V, 380V & 460V, 60Hz Water Filled Motor

Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Max. Down Thrust Load (N)	Full Load Torque (Nm)	Starting Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100							
1.5	1.1	230	5	25	70	73	76	0.61	0.76	0.83	3000	3	6.7	2.5	2.7	551	19
		380	3	15	70	73	76	0.61	0.76	0.83		3	7.7	1.5	2.7		
		460	2.5	13	70	73	76	0.61	0.76	0.83		3	8.2	1.5	2.7		
2	1.5	230	6.7	34	64	66	69	0.59	0.73	0.81	3000	4.1	8.2	4	3.1	601	22
		380	4.1	21	64	66	69	0.59	0.73	0.81		4.1	9.2	1.5	2.7		
		460	3.4	17	64	66	69	0.59	0.73	0.81		4.1	10	1.5	2.7		
3	2.2	230	9.5	48	70	73	75	0.52	0.65	0.74	3000	6.1	15	4	3.1	671	26
		380	5.8	29	70	73	75	0.52	0.65	0.74		6.1	17	2.5	2.7		
		460	4.8	24	70	73	75	0.52	0.65	0.74		6.1	18	2.5	2.7		
5	3.7	230	16	56	69	71	74	0.52	0.66	0.75	3000	11	16	6	3.1	781	33
		380	9.6	34	69	71	74	0.52	0.66	0.75		11	18	2.5	2.7		
		460	8	28	69	71	74	0.52	0.66	0.75		11	19	2.5	2.7		
7.5	5.5	230	23	92	71	73	76	0.56	0.68	0.77	3000	15	23	6	3.1	841	36
		380	14	56	71	73	76	0.56	0.68	0.77		15	30	4	3.1		
		460	12	46	71	73	76	0.56	0.68	0.77		15	34	4	3.1		

4"

DSM4

OIL FILLED
SERIES MOTORS

APPLICATIONS

- RESIDENTIAL
- WATER SUPPLY
- SMALL IRRIGATION
- SMALL INDUSTRIES
- FOUNTAIN
- SOLAR

FEATURES

- Suitable for 100 mm & above bore well.
- Available in Capsule Couple and Spline Couple.
- Highly Lubricant Oil Filled Motor
- Stainless Steel High Strength Shaft
- Enameled Winding Wire
- Anti-Friction Ball Bearings With Long Life
- Pressure Equalizing Spring Loaded Diaphragm
- NEMA Standard

TECHNICAL DETAILS

Nominal Diameter		4" Motor (100 mm)
Max. Outer Diameter		95 mm
Power Range	1Ph	0.37 kW to 2.2 kW
	3Ph	0.37 kW to 7.5 kW
Nominal Speed		2850 rpm
Voltage range		1 Phase 220/230 V, 60 Hz, A.C Supply
		3 Phase 380-415 V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 68
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid Temp.		33° C
Starts per hour		20 Times
Method of starting	1Ph	1 Ph - CSR
	3Ph	3 Ph - Direct On Line (DOL)
Cable lead out type		3/4 core flat cable

TECHNICAL DATA

Single Phase, 115 V, 2 Wire [PSC] — Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load	Power Factor at % Load	Capacitor (MFD)	Max. Down Thrust Load (N)	Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
0.5	0.37	115V	6.8	23.8	56.6	0.86	50	2000	1.02	1.5	1.5	412	8
		230V	3.4	10.8	56.6	0.86	15						
0.75	0.55	115V	8.7	31	61	0.94	60	2000	1.52	1.5	1.5	437	9
		230V	4.2	15	61	0.90	20						
1.0	0.75	115V	11.2	45	65	0.94	80	2000	2.07	1.5	1.5	457	10
		230V	5.4	21.8	67	0.93	25						
1.5	1.1	115V	15.7	55	67	0.94	100	2000	3.04	2	1.5	487	11
		230V	7.2	25.7	71.5	0.94	35			1.5	1.5		
2.0	1.5	115V	20.2	80	71	0.95	130	3000	4.15	2.3	1.5	544	13
		230V	9.6	34	75	0.95	40			2	1.5		

Single Phase, 115 V, 2 Wire [PSC] — Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load	Power Factor at % Load	Capacitor (MFD)	Max. Down Thrust Load (N)	Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
0.5	0.37	230V	5.5	22.5	48	0.90	12	1500	1.24	1.5	1.5	357	8
0.75	0.55	230V	6.3	28	53	0.94	15	1500	1.84	1.5	1.5	377	8
1	0.75	115V	12.9	46	65	0.98	60	1500	2.07	2	1.5	380	8
1	0.75	230V	7.6	36	54	0.93	20	1500	2.50	1.5	1.5	402	9
1.5	1.1	115V	14.9	58	67	0.98	80	1500	3.04	2	1.5	400	9
1.5	1.1	230V	9.4	46	58	0.96	25	2500	3.60	1.5	1.5	432	11
2	1.5	230V	12	59	63	0.97	30	2500	5.00	2	1.5	475	12
3	2.2	230V	15.6	90	69	0.98	40	2500	7.35	2.3	2	520	14

Three Phase, 230V, 380V & 460V [DOL]

Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load	Power Factor at % Load	Max. Down Thrust Load (N)	Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
0.5	0.37	230V	3.4	18	63	0.77	1500	1.2	1.5	1.5	410	7.8
		380V	1.9	9	68	0.77						
0.75	0.55	230V	4.4	24	68	0.77	1500	1.8	1.5	1.5	410	7.8
		380V	2.6	9	68	0.77						
1	1	230V	5	28	70	0.80	1500	2.5	1.5	1.5	430	9
		380V	2.9	13	70	0.80						
		460V	1.8	8	70	0.80					388	
1.5	1	230V	6.3	35	72	0.82	2500	3.6	1.5	1.5	450	10
		380V	3.6	17	72	0.82						
		460V	2.5	11.8	72	0.82					408	
2.0	1.5	230V	7.9	44	74	0.82	2500	5.0	1.5	1.5	480	11
		380V	4.6	22	74	0.82						
		460V	3.2	15.3	74	0.82					443	
3.0	2.2	230V	10.8	58	78	0.83	2500	7.4	1.5	2.0	540	14
		380V	62	26	78	0.83						
		460V	4.6	19.3	78	0.83					503	
4.0	3.0	230V	14.2	63	76	0.82	2500	10.0	2.0	2.0	602	19
		380V	8.3	38	77	0.82						
		460V	5.8	26.5	77	0.82					563	
5.0	3.7	230V	16.2	71	77	0.82	4500	13.4	2.0	2.0	650	20
		380V	9.4	44	77	0.82						
		460V	7	32.7	77	0.82					603	
5.5	4.0	230V	17	90	78	0.85	4500	13.4	2.0	2.3	650	20
		380V	9.9	56	78	0.85						
		460V	7.5	27.2	78	0.85					603	
7.5	5.5	230V	23.4	102	78	0.84	4500	18.4	2.3	3.0	762	26
		380V	13.5	61	78	0.84						
		460V	10.3	46.5	78	0.80					703	
10.0	7.5	230V	31.5	140	80	0.86	4500	25.0	2.3	3.0	880	33
		380V	18.2	90	80	0.86						
		460V	13.8	68.2	80	0.86					823	

WATER COOLED MOTORS

DSM4/6

PMSM MOTORS

SMART DC SERIES MOTORS

4" | 6"

APPLICATIONS

- RESIDENTIAL
- WATER SUPPLY
- SMALL IRRIGATION
- SMALL INDUSTRIES
- FOUNTAIN
- SOLAR

FEATURES

- Suitable for 100 mm (4"), 150 mm (6") & above bore well.
- Up to 94% Motor Efficiency
- 20 to 30% Higher Efficiency than Star Rated Pump sets.
- Easy Rewindable & Repairable Water Filled Submersible Motor.
- Smooth Starting Using VFD Controller and can be Used Low Voltage Area.
- Virtually NO Maintenance Cost.
- Premium Material SS/CI Robust Construction
- Nema Standards,
- Suitable for 110 to 415 Voltages for 3-phase.
- Frequency: Upto 110 Hz
- Speed: 3300 RPM

TECHNICAL DETAILS

Nominal Diameter		4" Motor (100 mm)
Max. Outer Diameter		3.74” (95 mm)
Power Range	3Ph	1 HP to 10 HP
Nominal Speed		3300 RPM & 4500 RPM
Voltage Range	3Ph	110V to 450V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		20 Times
Method of starting		1 HP to 10 HP (VFD)
Cable lead out type		3 Core Flat Cable

TECHNICAL DETAILS

Nominal Diameter		6" Motor (150 mm)
Max. Outer Diameter		5.66” (144 mm)
Power Range	3Ph	15 HP & 20 HP
Nominal Speed		3300 RPM & 4500 RPM
Voltage Range	3Ph	110V to 450V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		20 Times
Method of starting		15 HP & 20 HP (VFD)
Cable lead out type		3 Core Flat Cable

TECHNICAL DATA

4" 3Phase, 110 Hz Water Filled Motor

kW	HP	Full Load Current (A)	Full Load Efficiency %	Height (mm)	Net Weight (kg)
0.75	1	9	76	390	12
0.75	1	8.2	76	390	11
1.5	2	7.1	79	410	12
2.2	3	8.0	86	440	15
3.7	5	9.5	86	490	17
5.5	7.5	12.7	87	540	20
7.5	10	17.3	88	600	24

6" 3Phase, 110-145 Hz Water Filled Motor

kW	HP	Full Load Current (A)	Full Load Efficiency %	Height (mm)	Net Weight (kg)
11	15	35	89	769	57
15	20	27	88	841	65

6”

DSM6

WATER FILLED
TURBO SERIES MOTORS

APPLICATIONS

- AGRICULTURE
- FOOD PROCESSING INDUSTRY
- INDUSTRIAL
- LIVESTOCK WATERING
- GENERAL WATER SUPPLY
- SOLAR

FEATURES

- Suitable for 150 mm & above bore well.
- Stainless Steel high strength shaft.
- High Efficiency electrical design (Low Operation cost, cool running winding)
- Motor filling with water with Anti-corrosive liquid
- Specially designed thrust bearing to withstand high axial thrust loads.
- Winding connections with solid solder joints.
- Special magnet provision in motor base and newly designed self-spring action diaphragms.
- Epoxy powder coating on rotor.
- Graded cast iron housing with precisely fitted bush and special bearing counter provision for horizontal application of pump set.
- CED Coated

TECHNICAL DETAILS

Nominal Diameter		6" Motor (150 mm)
Max. Outer Diameter		5.67” (144 mm)
Power Range	3Ph	7.5 HP to 60 HP
Nominal Speed		3450 RPM
Voltage Range	3Ph	230V, 380V & 460V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		20 Times
Method of starting		7.5 HP to 60 HP (DOL / Star-Delta)
Cable lead out type		3 Core Flat Cable

TECHNICAL DATA

6" IE3 3Phase 230V, 380V & 460V, 60Hz Water Filled Motor

Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Max. Down Thrust Load (N)	Full Load Torque (Nm)	Starting Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100							
7.5	5.5	230	23.0	106.0	75	79	79	0.64	0.75	0.82	15500	17.4	16.0	6	2.70	744	52
		380	13.8	62.0	76	79	79	0.67	0.77	0.83		17.4	15.1	6			
		460	12.0	51.2	77	79	79	0.68	0.78	0.83		14.3	12.5				
10	7.5	230	32.0	145.0	76	79	80	0.61	0.73	0.80	15500	23.7	22.5	6	2.70	779	58
		380	16.8	81.0	77	79	80	0.67	0.77	0.83		23.7	20.3	6			
		460	15.0	66.9	77	79	80	0.68	0.78	0.83		19.6	16.8				
12.5	9.3	230	38.0	183.0	77	79	80	0.62	0.73	0.80	15500	29.4	29.0	10	2.70	824	63
		380	20.0	101.0	78	79	80	0.67	0.77	0.83		29.5	26.0	6			
		460	18.0	83.4	78	79	80	0.68	0.78	0.84		24.4	21.5				
15	11	230	43.3	221.0	78	81	82	0.63	0.74	0.82	15500	34.7	35.7	10	2.70	874	68
		380	26.5	129.0	78	82	82	0.64	0.76	0.82		34.6	34.4	8			
		460	22.0	106.5	78	82	82	0.64	0.77	0.83		28.6	28.4				
17.5	13	230	55.0	289.0	77	81	83	0.58	0.70	0.78	15500	40.8	50.6	10	3.15	894	72
		380	30.0	164.0	78	82	83	0.61	0.73	0.81		40.8	74.3	10			
		460	26.0	135.4	78	82	83	0.62	0.74	0.82		33.7	61.4				
20	15	230	58.0	324.0	81	83	84	0.66	0.76	0.83	15500	47.2	59.6	10	3.15	949	77
		380	34.5	188.0	82	84	84	0.68	0.79	0.85		47.3	56.6	10			
		460	29.0	155.3	82	84	84	0.69	0.80	0.85		39.1	46.8				
25	18.5	230	68.0	401.0	78	82	83	0.62	0.73	0.79	15500	58.2	81.9	16	3.15	1004	85
		380	40.0	249.0	78	82	82	0.61	0.72	0.79		58.2	83.7	10			
		460	36.0	205.7	78	82	82	0.62	0.73	0.80		48.1	69.1				
30	22	230	81.0	521.0	82	85	85	0.68	0.76	0.79	15500	68.9	96.7	16	3.15	1074	89
		380	46.9	390.0	83	84	85	0.69	0.78	0.80		68.9	95.0	10			
		460	42.0	322.1	83	84	85	0.70	0.79	0.81		57.0	78.5				
35	26	230	109.0	658.0	84	85	86	0.65	0.74	0.78	15500	81.4	135.1	16	3.15	1149	112
		380	61.0	360.0	84	86	86	0.65	0.76	0.83		81.7	121.5	10			
		460	50.0	297.3	84	86	86	0.66	0.76	0.84		67.5	100.4				
40	30	230	116.0	757.0	79	82	84	0.61	0.73	0.80	27500	93.9	139.7	16	3.15	1294	127
		380	67.0	436.0	80	84	85	0.64	0.77	0.83		94.0	133.0	10			
		460	55.0	360.2	80	84	85	0.65	0.78	0.84		77.7	109.9				
50	37	230	133.0	757.0	79	83	84	0.61	0.73	0.80	27500	93.9	139.7	16	3.15	1369	138
		380	84.0	568.0	78	82	83	0.61	0.74	0.80		115.9	193.7	16			
		460	68	469.2	78	82	83	0.62	0.75	0.81		95.8	160.0				
60	45	230	190.0	1023.0	75	79	80	0.58	0.71	0.78	27500	93.9	139.7	16	4.00	1347	110
		380	110.0	592.0	75	79	80	0.58	0.71	0.78		115.9	193.7	16			
		460	84	454	80	82	83	0.62	0.75	0.81		95.8	160.0				

8”

DSM8

WATER FILLED
MIZZEL SERIES MOTORS

APPLICATIONS

- GENERAL WATER SUPPLY
- IRRIGATION SYSTEM
- AGRICULTURE
- FOOD PROCESSING INDUSTRY
- INDUSTRIAL
- HOTEL

FEATURES

- Suitable for 200 mm & above bore well.
- Stainless Steel high strength shaft.
- High Efficiency electrical design (Low Operation cost, cool running winding)
- Motor filling with water with Anti-corrosive liquid
- Specially designed thrust bearing to withstand high axial thrust loads.
- Winding connections with solid solder joints.
- Special magnet provision in motor base and newly designed self-spring action diaphragms.
- Epoxy powder coating on rotor.
- Graded cast iron housing with precisely fitted bush and special bearing counter provision for horizontal application of pump set.
- CED Coated

TECHNICAL DETAILS

Nominal Diameter		8" Motor (200 mm)
Max. Outer Diameter		7.4” (188 mm)
Power Range	3Ph	20 HP to 150 HP
Nominal Speed		3450 RPM
Voltage Range	3Ph	380 V & 460 V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		20 Times
Method of starting		20 HP to 150 HP (DOL / Star-Delta)
Cable lead out type		3 Core Flat Cable

TECHNICAL DATA

8" 3Phase 230V, 380V & 460V, 60Hz Water Filled Motor

Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Max. Down Thrust Load (N)	Full Load Torque (Nm)	Starting Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100							
20	15	380	41	195	80	82	82	0.75	0.8	0.81	45000	75	105	10	2.7	970	100
		460	30	159	78	80	80	0.75	0.8	0.81		73	95				
25	18.5	380	49	238	81	82	82	0.76	0.81	0.83	45000	81	113	10	2.7	1017	109
		460	36	193	79	81	81	0.76	0.8	0.82		75	98				
30	22	380	59	288	81	82	83	0.78	0.83	0.85	45000	88	123	10	2.7	1056	115
		460	44	239	80	81	81	0.77	0.82	0.84		83	108				
35	26	380	66	328	81	83	84	0.77	0.85	0.87	45000	93	130	16	3.4	1169	131
		460	51	280	81	82	82	0.79	0.84	0.87		90	117				
40	30	380	68	393	82	85	85	0.8	0.83	0.85	45000	99	142	16	3.4	1208	137
		460	54	302	82	84	83	0.8	0.86	0.88		96	131				
45	33	380	72	412	83	85	85	0.79	0.82	0.87	45000	118	165	16	3.4	1310	148
		460	55	364	82	83	84	0.79	0.81	0.85		113	147				
50	37	380	84	513	83	85	85	0.76	0.82	0.85	45000	121	178	16	3.4	1362	159
		460	68	391	84	85	85	0.78	0.86	0.87		120	163				
60	45	380	99	660	84	86	86	0.73	0.81	0.85	45000	149	241	16	3.4	1429	170
		460	79	517	85	87	86	0.78	0.85	0.87		147	220				
75	55	380	117	841	84	87	87	0.72	0.81	0.84	45000	182	320	35	3.4	1507	188
		460	97	606	86	87	87	0.78	0.85	0.88		179	288				
85	63	380	137	962	85	87	87	0.71	0.83	0.85	45000	213	359	35	3.4	1530	204
		460	107	768	85	87	87	0.76	0.86	0.89		205	330				
100	75	380	156	1125	85	87	87	0.72	0.82	0.86	45000	250	433	35	3.4	1600	230
		460	147	898	85	87	87	0.78	0.83	0.89		240	398				
125	93	380	192	1019	86	87	87	0.74	0.80	0.84	55000	307	660	32	4.0	1471	210
		460	158	842	86	87	87	0.73	0.80	0.84		297	610				
150	110	380	232	1232	86	86	86	0.74	0.8	0.84	55000	362	858	32	4.0	1601	235
		460	191	1018	86	86	86	0.73	0.8	0.84		350	820				

9”

DSM9

WATER FILLED
IE3 SERIES MOTORS

APPLICATIONS

- GENERAL WATER SUPPLY
- IRRIGATION SYSTEM
- AGRICULTURE
- FOOD PROCESSING INDUSTRY
- INDUSTRIAL
- HOTEL

FEATURES

- Suitable for 225 mm & above bore well.
- Stainless Steel high strength shaft.
- High Efficiency electrical design (Low Operation cost, cool running winding)
- Motor filling with water with Anti-Corrosive liquid
- Specially designed thrust bearing to withstand high axial thrust loads.
- Winding connections with solid solder joints.
- Special magnet provision in motor base and newly designed self-spring action diaphragms.
- Epoxy powder coating on rotor.
- Graded cast iron housing with precisely fitted bush and special bearing counter provision for horizontal application of pump set.
- CED Coated

TECHNICAL DETAILS

Nominal Diameter		9" Motor (225 mm)
Max. Outer Diameter		8.86" (225 mm)
Power Range	3Ph	85 HP to 200 HP
Nominal Speed		3450 RPM
Voltage Range	3Ph	380 V & 460 V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.15 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		20 Times
Method of starting		85 HP to 200 HP (DOL / Star-Delta)
Cable lead out type		3 Core Flat Cable

TECHNICAL DATA

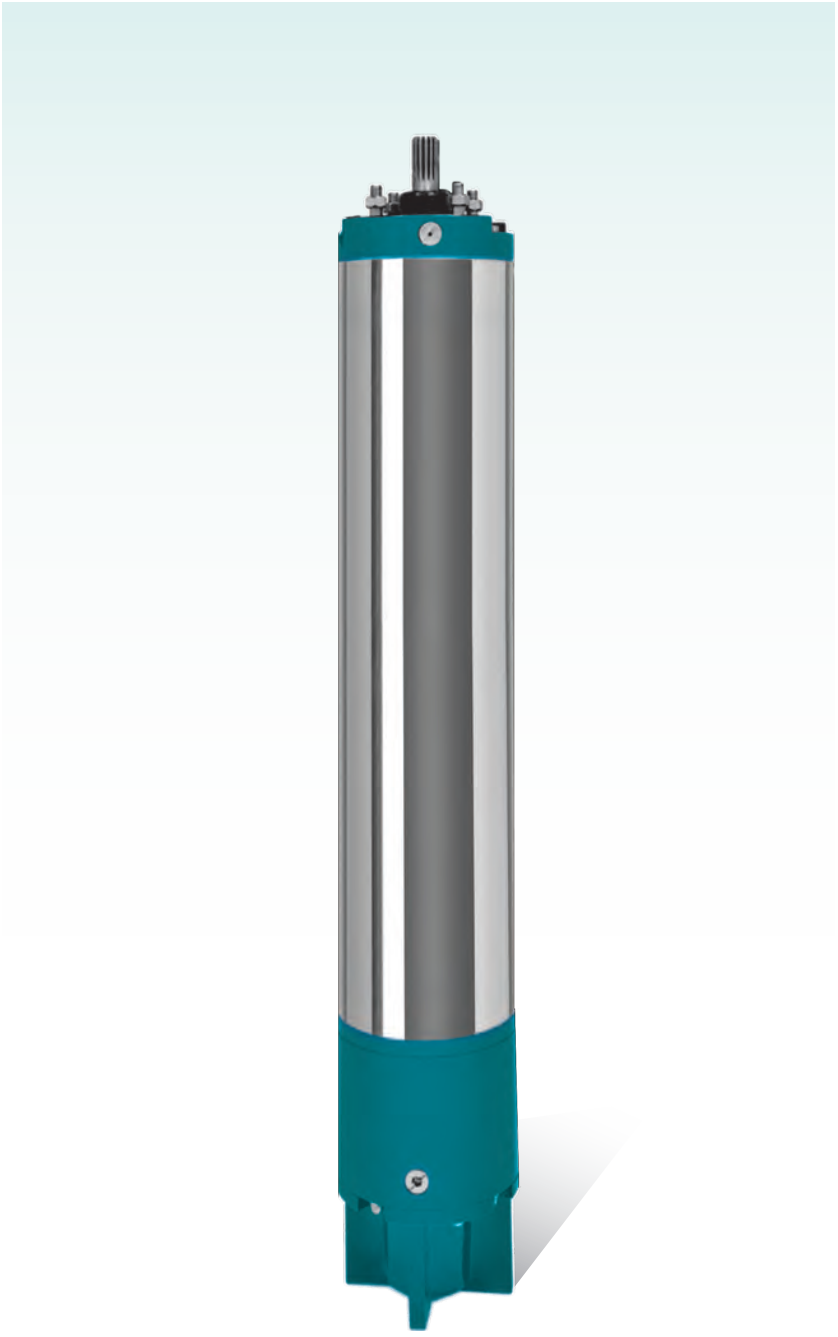
9" 3Phase 380V & 460V, 60Hz Water Filled Motor — Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Max. Down Thrust Load (N)	Full Load Torque (Nm)	Starting Torque (Nm)	Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100							
85	63	380	216	1120	82	84	85	0.69	0.78	0.83	60000	267	325	25	3.9	1545	300
		460	172	803	83	85	85	0.76	0.83	0.86		267	281				
110	82	380	273	1430	84	86	86	0.7	0.79	0.84	60000	346	382	35	3.9	1615	312
		460	225	1160	84	86	86	0.71	0.8	0.84		345	375				
125	93	380	309	1710	85	87	86	0.73	0.82	0.86	60000	408	474	35	3.9	1745	337
		460	254	1308	86	87	87	0.77	0.84	0.87		408	437				
175	130	380	362	1980	85	87	87	0.75	0.83	0.86	60000	468	535	35	3.9	2275	420
		460	294	1557	85	87	87	0.77	0.84	0.87		469	508				
200	150	380	448	2690	84	87	87	0.66	0.77	0.87	60000	583	896	35	3.9	2500	460
		460	377	2130	85	87	87	0.7	0.79	0.84		585	858				

10”

DSM10

WATER FILLED
TURBO SERIES MOTORS



APPLICATIONS

- GENERAL WATER SUPPLY
- IRRIGATION SYSTEM
- AGRICULTURE
- FOOD PROCESSING INDUSTRY
- INDUSTRIAL
- HOTEL

FEATURES

- Suitable for 225 mm & above bore well.
- Stainless Steel high strength shaft.
- High Efficiency electrical design (Low Operation cost, cool running winding)
- Motor filling with water with Anti-Corrosive liquid
- Specially designed thrust bearing to withstand high axial thrust loads.
- Winding connections with solid solder joints.
- Special magnet provision in motor base and newly designed self-spring action diaphragms.
- Epoxy powder coating on rotor.
- Graded cast iron housing with precisely fitted bush and special bearing counter provision for horizontal application of pump set.
- CED Coated

TECHNICAL DETAILS

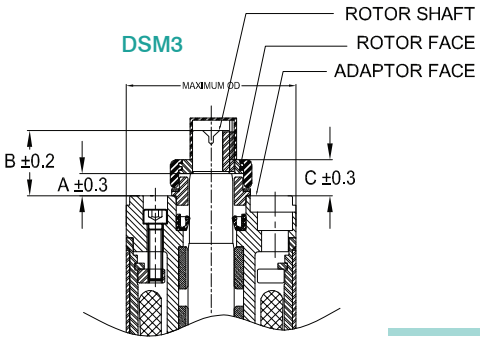
Nominal Diameter		10" Motor (250 mm)
Max. Outer Diameter		9.13” (232 mm)
Power Range	3Ph	110 HP to 250 HP
Nominal Speed		3450 RPM
Voltage Range	3Ph	380 V & 460 V, 60 Hz, A.C Supply
Class of Insulation		F
Degree of protection		IP 58 / 68
Direction of rotation		Anti-Clock wise
Type of duty		S1 (Continues)
Minimum cooling flow		0.5 m/sec
Max. Liquid temp.		92° F / 120° F (33° C / 50° C)
Starts per hour		10 Times
Method of starting		110 HP to 250 HP (DOL / Star-Delta)
Cable lead out type		3 Core Flat Cable

TECHNICAL DATA

10" 3Phase 380V & 460V, 60Hz Water Filled Motor — Service Factor 1.15

HP	kW	Voltage (V)	Full Load Current (A)	Starting Current (A)	Efficiency at % Load			Power Factor at % Load			Cable Size (sq. mm)	Cable Length (m)	Height (mm)	Gross Weight (kg)
					50	75	100	50	75	100				
110	81	380	171	904	85	85	85	0.8	0.83	0.85	25	5	1310	228
		460	138	729	85	85	85	0.82	0.85	0.87				
125	93	380	194	1027	85	85	85	0.8	0.83	0.85	25	5	1370	256
		460	156	829	85	85	85	0.82	0.85	0.87				
150	110	380	234	1242	85	86	85	0.79	0.82	0.84	35	5	1430	284
		460	189	1002	85	86	85	0.81	0.84	0.86				
175	130	380	268	1423	86	87	86	0.8	0.83	0.85	35	5	1510	311
		460	217	1148	86	87	86	0.82	0.85	0.87				
200	150	380	306	1621	86	86	86	0.8	0.83	0.85	35	5	1610	338
		460	247	1308	86	86	86	0.82	0.85	0.87				
225	165	380	345	1831	86	86	86	0.8	0.83	0.85	35	5	1740	370
		460	279	1478	86	86	86	0.82	0.85	0.87				
250	185	380	385	2040	86	86	86	0.8	0.83	0.85	35	5	1820	400
		460	311	1647	86	86	86	0.82	0.85	0.87				

MOUNTING DIMENSIONAL DETAILS

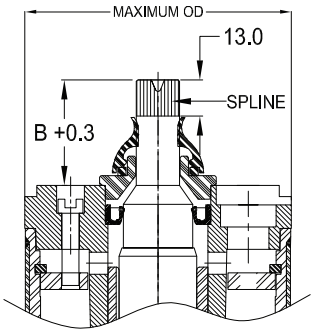


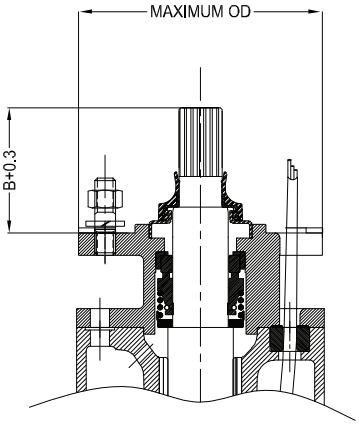
DSM3 (Key-Way)

Model	Height			Play	Maxi OD
	A	B	C		
DSM3	9.5	28	15.5	1.0 to 2.0	Ø74.0

DSM4 (NEMA)

Model	Height	Play	Max. OD (Ø)
	B		
DSM4HPR	38	1.0 to 2.0	3.78" (96 mm)





DSM5 - DSM9 (NEMA)

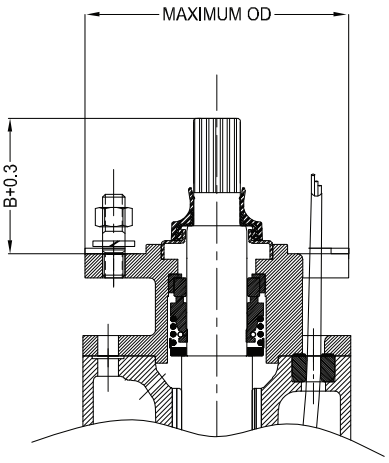
Height and Play Setting Details

Model	Height	Play	Max. OD (Ø)
	B		
DSM6	72.8	1.5 to 2.0	5.67" (144 mm)
DSM7 (6" Joining)	72.8	1.5 to 2.0	6.8" (172 mm)
DSM7 (8" Joining)	101.5	1.5 to 2.5	7.09" (180 mm)
DSM8	101.5	1.5 to 2.5	7.09" (180 mm)
DSM8H	101.5	1.5 to 2.5	7.28" (185 mm)
DSM9	101.5	1.5 to 2.5	8.74" (222 mm)

DSM10 (NEMA)

Height and Play Setting Details

Model	Height	Play	Max. OD (Ø)
	B		
DSM10	101.25	1.5 to 2.0	9.13" (232 mm)



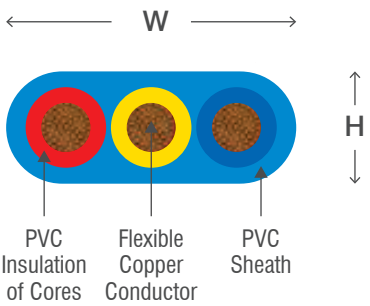
LEAD - CABLES DIMENSION

(Duke Standard Cable) 3 Core Flat Cable (IS 694)

Conductor		Insulation	Sheath	Conductor Resistance @ 20°C (max) ohms/km.	W x H
Area sq. mm.	No. of Wires / Dia. mm.	Thickness (Nom) mm.	Thickness (Nom) mm.		
1.0	14/0.30*	0.60	0.90	18.10	10.0 X 4.70
1.5	22/0.30*	0.60	0.90	12.10	10.40 X 5.20
2.5	36/0.30*	0.70	1.00	7.41	12.90 X 6.10
4.0	56/0.30**	0.80	1.00	4.95	15.20 X 6.80
6.0	84/0.30**	0.80	1.10	3.30	17.40 X 7.60
10.0	140/0.30**	1.00	1.40	1.91	22.20 X 9.30
16.0	224/0.30**	1.00	1.40	1.21	28.0 X 11.40
25.0	350/0.30**	1.20	2.00	0.780	35.50 X 14.70
35.0	490/0.30**	1.20	2.00	0.554	39.50 X 16.20

Note: * As per class 2 of IS:8130/1984
** As per class 5 of IS:8130/1984

Duke Standard Cable



Submersible Pumpset Cable Selection Chart for 220 Voltage - Single Phase - 60 Hz

HP	INSTALLATION DEPTH IN MTR																					
	10	20	30	40	50	60	70	80	90	100	110	128	140	180	200	220	270	320	370	420	470	500
0.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	4	4	4	6	6	6	6
0.75	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	4	4	4	6	6	10	10	10	10
1	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	4	4	4	6	6	6	10	10	10	16	16
1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	4	4	4	4	6	6	6	10	10	10	16	16	16	16	25
2	2.5	2.5	2.5	2.5	2.5	2.5	4	4	4	4	6	6	6	10	10	10	16	16	16	25	25	25
3	2.5	2.5	2.5	2.5	4	4	6	6	6	6	10	10	10	16	16	16	16	25	25	35	35	35
4	4	4	4	4	4	6	6	6	10	10	10	16	16	16	16	25	25	35	35	35	35	35
5	4	4	4	4	6	6	10	10	10	10	10	16	16	25	25	25	35	35	35	50	50	50
6	6	6	6	6	10	10	10	10	10	16	16	16	25	25	25	35	35	35	50	50	50	50
7.5	6	6	6	10	10	10	10	10	10	16	16	25	25	25	35	35	35	50	50	50	50	50
10	10	10	10	10	10	10	10	10	16	25	25	25	25	35	35	35	50	50	50	50	50	50

Submersible Pumpset Cable Selection Chart for 415 Voltage - Double Cable - Three Phase - 60 Hz

HP	INSTALLATION DEPTH IN MTR																					
	10	20	30	40	50	60	70	80	90	100	110	128	140	180	200	220	270	320	370	420	470	500
7.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	1.5	2.5	2.5	2.5	4	4	4	4	6	6	6	10	10
10	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	4	4	6	6	6	10	10	10	10	16
12.5	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10	16	16	16	16
15	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10	16	16	16	16
17.5	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10	10	16	16	16	25	25
20	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10	10	16	16	16	25	25
22.5	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10	16	16	16	25	25	25	25
25	6	6	6	6	6	6	6	6	6	6	6	10	10	10	10	16	16	16	25	25	25	25
30	6	6	6	6	6	6	6	6	6	6	10	10	10	10	16	16	16	25	25	25	35	35
35	8	8	8	8	8	8	8	10	10	10	10	10	16	16	16	25	25	25	35	35	50	50
40	8	8	8	8	8	8	8	10	10	10	10	10	16	16	16	25	25	25	35	35	50	50
45	10	10	10	10	10	10	10	10	10	10	16	16	16	25	25	25	25	35	50	50	50	50
50	10	10	10	10	10	10	10	10	10	10	16	16	16	25	25	25	25	35	50	50	50	50
60	10	10	10	10	10	10	10	10	10	16	16	16	25	25	25	25	35	50	50	50	—	—
75	16	16	16	16	16	16	16	16	16	16	16	25	25	25	35	35	50	50	50	—	—	—
85	16	16	16	16	16	16	16	16	16	25	25	25	35	35	50	50	50	—	—	—	—	—
100	16	16	16	16	16	16	16	16	16	25	25	25	35	35	50	50	50	—	—	—	—	—
125	25	25	25	25	25	25	25	25	25	25	35	35	35	50	50	—	—	—	—	—	—	—

Submersible Pumpset Cable Selection Chart for 415 Voltage - Single Cable - Three Phase - 60 Hz

HP	INSTALLATION DEPTH IN MTR																					
	10	20	30	40	50	60	70	80	90	100	110	128	140	180	200	220	270	320	370	420	470	500
0.75	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
1	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5
1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5
2	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	2.5	4
3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	2.5	2.5	2.5	2.5	4	4	4	6	6
4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	4	4	6	6	6	6
5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	4	4	4	4	6	6	10	10	10
6	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10
7.5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	6	6	6	10	10	10	16	16
10	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	10	16	16	16	16
12.5	6	6	6	6	6	6	6	6	6	6	6	6	6	10	10	10	16	16	16	25	25	25
15	6	6	6	6	6	6	8	8	8	8	8	8	8	10	10	10	16	16	16	25	25	25
17.5	6	6	6	6	6	6	8	8	8	8	8	10	10	10	16	16	16	25	25	25	35	35
20	8	8	8	8	8	8	8	8	8	8	8	10	10	10	16	16	16	25	25	25	35	35
22.5	8	8	8	8	8	8	8	8	10	10	10	10	10	16	16	16	25	25	35	35	35	50
25	8	8	8	8	8	8	8	8	10	10	10	10	10	16	16	16	25	25	35	35	35	50
30	10	10	10	10	10	10	10	10	10	10	10	16	16	16	25	25	25	35	35	50	50	50
35	16	16	16	16	16	16	16	16	16	16	16	16	16	25	25	25	35	50	50	50	—	—
40	16	16	16	16	16	16	16	16	16	16	16	16	16	25	25	25	35	50	50	50	—	—
45	16	16	16	16	16	16	16	16	16	16	16	25	25	25	35	35	35	35	50	50	—	—
50	16	16	16	16	16	16	16	16	16	16	16	25	25	25	35	35	35	35	50	50	—	—
60	25	25	25	25	25	25	25	25	25	25	25	25	25	35	35	50	50	50	—	—	—	—
75	25	25	25	25	25	25	25	25	25	25	25	35	35	50	50	50	—	—	—	—	—	—
85	50	50	50	50	50	50	50	50	50	50	50	50	50	50	—	—	—	—	—	—	—	—
100	50	50	50	50	50	50	50	50	50	50	50	50	50	50	—	—	—	—	—	—	—	—
125	50	50	50	50	50	50	50	50	50	50	50	50	50	50	—	—	—	—	—	—	—	—

CONVERSTION TABLE

FLOW RATE

litre per second l/s	litre per minute l/min	cubic meter per hour m^3/h	cubic meter per hour ft^3/h	cubic foot per minute ft^3/min	imp.gallon per minute imp.gal./min	US gallon per minute US gal./min	US barrel per day is barrel/d (petroleum)
1	60	3.6	127.133	2.1189	13.2	15.85	543.439
0.017	1	0.06	2.1189	0.0353	0.22	0.264	9.057
0.278	16.667	1	35.3147	0.5886	3.666	4.403	150.955
0.008	0.472	0.0283	1	0.0167	0.104	0.125	4.275
0.472	28.317	1.6990	60	1	6.229	7.480	256.475
0.076	4.546	0.2728	9.6326	0.1605	1	1.201	41.175
0.063	3.785	0.2271	8.0209	0.1337	0.833	1	34.286
0.002	0.110	0.0066	0.2339	0.0039	0.024	0.029	1

LIQUID

Cubic meter m^3	litre l	milli litre ml	imp. gallon imp. gal	US gallon US gal	cubic foot ft^3
1	1000	1×10^{6}	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.0353
1×10^{-6}	0.001	1	22×10^{-4}	2.642×10^{-4}	3.53×10^{-5}
0.00455	4.546	4546	1	1.201	0.1605
0.00378	3.785	3785	0.8327	1	0.1337
0.0283	28.317	28317	6.2288	7.4805	1

LIQUID HEAD AND PRESSURE

newton per square meter N/m2 (Pa)	kilo pascal kPa	bar bar	kilogram force per square centimeter Kgf/cm2	pound force per square inch psi	foot for water ft H_2O	meter for water ft H_2O	millimeter of mercury mm Hg	inch of mercury in Hg
1	0.001	1×10^{-5}	1.02×10^{-5}	1.45×10^{-4}	3.35×10^{-4}	1.02×10^{-4}	0.0075	2.95×10^{-4}
1000	1	0.01	0.0102	0.145	0.335	0.102	7.5	0.295
1×10^{-5}	100	1	1.02	14.5	33.52	10.2	750.1	29.53
98,067	98.07	0.981	1	14.22	32.81	10	735.6	28.96
6895	6.895	0.069	0.0703	1	2.31	0.703	51.72	2.036
2984	2.984	0.03	0.0305	0.433	1	0.305	22.42	0.882
9789	9.789	0.098	0.1	1.42	3.28	1	73.42	2.891
133.3	0.133	0.0013	0.0014	0.019	0.045	0.014	1	0.039
3386	3.386	0.0338	0.0345	0.491	1.133	0.0345	25.4	1

LENGTH

1609.37 metres = - 1.60934 kilometers

millimeter mm	centimeter cm	meter m	inch in	foot ft	yard yd
1	0.1	0.001	0.0394	0.0033	0.0011
10	1	0.01	0.3937	0.0328	0.0109
1000	100	1	39.3701	3.2808	1.0936
25.4	2.54	0.0254	1	0.0833	0.0278
304.8	30.48	0.3048	12	1	0.3333
914.4	91.44	0.9144	36	3	1

1 Kilometer = 1000 metres = 0.62137 miles 1 mile =

MASS

kilogram kg	pound lb	hundred weight (cwt)	tonne t	ton long tn	short ton sh tn
1	2.205	0.0197	0.001	9.84×10^{-4}	0.0011
0.454	1	0.0089	4.54×10^{-4}	4.46×10^{-4}	5.0×10^{-4}
50.802	112	1	0.0508	0.05	0.056
1000	2204.6	19.684	1	0.9842	1.1023
1016	2240	20	1.0161	1	1.102
907.2	2000	17.857	0.9072	0.8929	1

TEMPERATURE

To Convert From	To	Use Formula
Temperature Celsius, tc	Temperature Kelvin, tk	K = tc + 273.15
Temperature Fahrenheit, tf	Temperature Kelvin, tk	K = (tF + 459.67 / 1.8)
Temperature Celsius, tc	Temperature Fahrenheit, tf	F = 1.8 tc + 32
Temperature Fahrenheit, tf	Temperature Celsius, tc	C = (tF - 32) / 1.8
Temperature Kelvin, tk	Temperature Celsius, tc	C = tk - 273.15
Temperature Kelvin, tk	Temperature Fahrenheit, tf	F = 1.8tk - 459.67

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