Pumping happiness across the Globe

Tormac PUMPS

SUBMERSIBLE MOTORS | 60 Hz

Product from an ISO 9001 COMPANY

CE

INDEX

GENERAL DATA

BOREHOLE SUBMERSIBLE MOTORS › **ECO & ELEGANT** SERIES

Model Designation › BOREHOLE SUBMERSIBLE MOTORS

Submersible Motor Series
D = Water Filled
N = Non - Toxic Liquid Filled

Nominal Motor Diameter
4" = 100mm, 6" = 150mm,
8" = 200mm, 10" = 250mm

Motor Power (HP)
05 = 0.55, 07 = 0.75, 10 = 1, 15 = 1.5,
20 = 2, 40 = 4, 50 = 5, 55 = 5.5, 75 = 7.5,
100 = 10, 125 = 12.5, 150 = 15, 175 = 17.5
200 = 20, 300 = 30, 400 = 40, 500 = 50,
600 = 60, 750 = 75, 850 = 85, 1000 = 100
1250 = 125, 1500 = 150, 1700 = 170, 1850 = 185.

Optional
R - Aluminium Motor, H - High Temp. Motor with PT Sensor, M - Mechanical Seal

Voltage (A=110, B=180, C=200, D=220, E=230, F=240, G=300, H=350, I=380, J=400, K=415, L=440, M=460, N=525, P=575, Z=415 / 450)

Phase / Connection / Frequency
S - 1Ph / CSR/CSCR - 2 wire / 3 wire / 60Hz
T - 3Ph / DOL (△) / 60Hz
D - 3Ph / SD (Y - △) / 60Hz

Materials of Construction
(Version TA, TN, TB, TS, TL & TZ)
TA = S.S 304 Housings with top shell
TN = S.S 316 Housings with top shell
(ECO & ELEGANT Series)
TB = S.S 304 Housing Shell without top shell
TS = Top Housing Casted S.S 304
TL = Top Housing Casted S.S 316
TZ = Top Housing Casted S.S 904L


TB SERIES


TA SERIES


TS SERIES

Shaft Extension Height & Free End Play

S.No.	Description	Position	4"	6"	8"	10"
01	Lift Condition	Maximum	1.55	2.93	4.05	4.05
		Minimum	1.54	2.91	4.40	4.40
02	Rest Condition	Maximum	1.508	2.875	4.0	4.0
		Minimum	1.498	2.860	3.99	3.99

* All dimensions are in inches

During every servicing, the free end play must be checked with the above values. If the shaft extension height measured differs, the motor thrust bearing could possibly be damaged and should be replaced.

The company reserves the right to modify the technical specifications & illustrations without prior notice.

GENERAL DATA

BOREHOLE SUBMERSIBLE MOTORS › **ECO** SERIES

Construction

Tormac ECO series submersible motors are ingeniously designed and developed employing latest engineering softwares, high-tech machinery & tools with the complement of cutting edge technology for hardwearing and maintenance free operations and to ensure relentless performance.

The electrical conditions such as voltage, frequency and the operating conditions are taken into account in designing the winding and cooling system. The profound experience of the company facilitate to meet out the demanding technological challenges across the world. Tried and trusted indigenously improved design, combined with the most optimized efficiency in electromagnetic design exceptionally ensures trouble free performance. The integrated and most modern quality assurance systems used at every stage of production and flawless workmanship lead to sustained and consistent operation.

Tormac ECO series motors are squirrel cage, water filled and water cooled rewindable type. The winding of these two pole motors are made of a special water proof wire of pure electrolytic copper insulated with synthetic film or thermoplastic material. All single phase motors are fitted with thermal protector to avoid winding burnouts. The stator shell, housings shell & motor base are made of fabricated S.S 304/316 /904L which prevents the motor from corrosion.

These motors are pre-filled with environmentally safe deionised water which acts as a lubricant & coolant. The prefilled water level to be ensured at the time of installation. A uniquely designed thrust bearing with high thrust capacity and good quality shaft seals are used to enhance the strength & durability. All single phase motors are supplied with suitable control boxes. The main advantage of rewindable motor construction is making the repair and rewinding easier and hassle free at field levels. All Tormac motors are produced in accordance with ISO 9001 standards and mounting dimensions with NEMA standard.

Applications	**Characteristics**
Public & Industrial Water Supply	Highly reliable, tried & tested.
Sumps / Reservoirs	High efficiency
Fire Fighting Equipments	Stainless steel stator shell, motor base & housings shell to prevent corrosion.
Pressure Boosting Systems	The high quality shaft seal and sand guard prevent ingress of liquid and sand.
Irrigation & Fountains	Uniquely designed thrust bearing to withstand high down thrust loads.
Water Treatment Plants	Higher starting torque to run in tough conditions.
High Rise Buildings	The shaft is designed for optimal power transmission.
Agricultural Lands	End connections & shaft extension are designed according to NEMA standards.
Stock Breeding, Laboratories	
Sprinkler Systems and Mining	

GENERAL DATA

Construction Features › **ECO** SERIES - 4"

Components	Version - TA	Version - TN
Seal Housing	Cast Iron with S.S 304 Shell	Cast Iron with S.S 316 Shell
Upper & Lower Support	Cast Iron	Cast Iron
Shaft Seal	NBR	NBR
Wound Stator Shell	S.S 304	S.S 316
Spline Shaft	S.S 17-4Ph	S.S 17-4Ph
Rotor Shaft	EN-8/EN-9	EN-8/EN-9
Radial Bearings	Graphite Carbon	Graphite Carbon
Thrust Segment Carrier/Segments	SG Iron / S.S 420	SG Iron / S.S 420
Thrust Disc	Graphite Carbon	Graphite Carbon
Pressure Equalizing Diaphragm	HNBR	HNBR
Diaphragm Cover	S.S 304	S.S 316

Construction Features › **ECO** SERIES - 6"

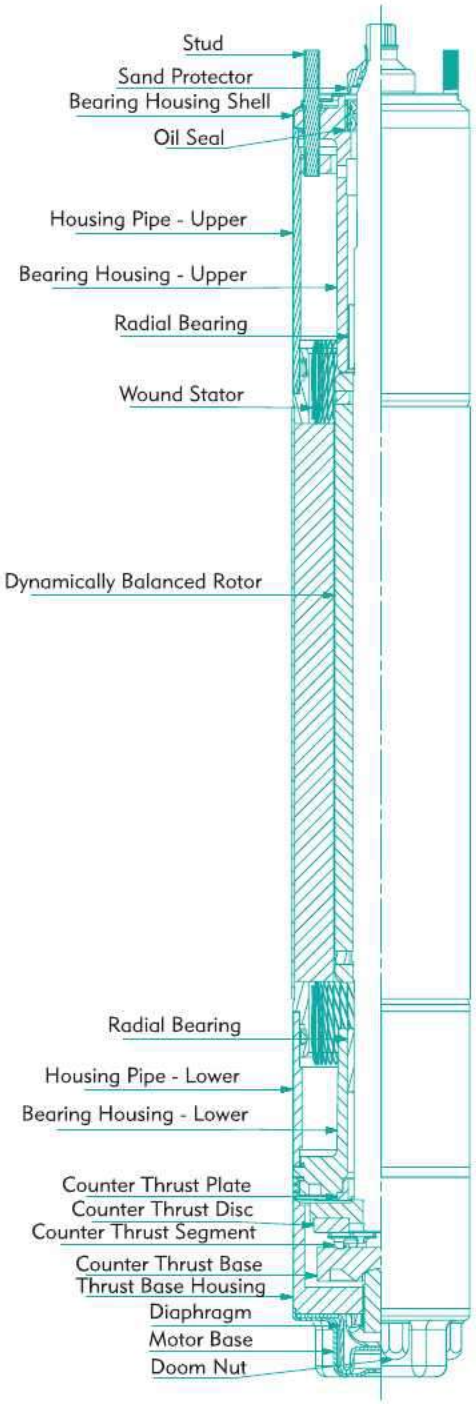
Components	Version		
	TA / TS	TB	TN / TL / TZ
Seal Housing	S.S 304 / Casted S.S 304	Cast Iron	S.S 316 / Casted S.S 316 / 904L
Upper & Lower Support	S.S 304	Cast Iron	S.S 316 / Casted S.S 316 / 904L
Shaft Seal	NBR	Nitrile Rubber	NBR
Wounded Stator Shell	S.S 304	S.S 304	S.S 316 / S.S 904L
Spline Shaft	S.S 17-4 Ph	S.S 431 / S.S 17 - 4Ph	S.S 417-17Ph
Rotor Shaft	EN-8 (or) EN-9	S.S 431 / EN - 8	EN-8 (or) EN-9
Radial Bearings	Graphite Carbon	Graphite Carbon	Graphite Carbon
Thrust Segment Carrier/Segments	SG Iron (or) S.S 420	S.S 420	SG Iron (or) S.S 420
Thrust Disc	Graphite Carbon	Graphite Carbon	Graphite Carbon
Pressure Equalizing Diaphragm	EPDM	High Nitrile Rubber	EPDM
Diaphragm Cover	S.S 304	S.S 304	S.S 316 / S.S 904L

Construction Features › **ECO** SERIES - 8" & 10"

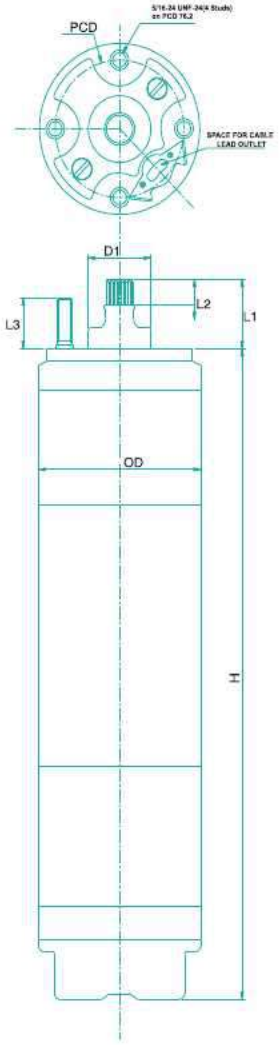
Components	8" & 10"			
	Version - TB	Version - TS	Version - TL	Version - TZ
Seal Housing	Cast Iron	Casted S.S 304	Casted S.S 316	S.S 904L
Upper & Lower Support	Cast Iron	Casted S.S 304	Casted S.S 316	S.S 904L
Shaft Seal	Carbon Vs Ceramic	Carbon Vs Ceramic	Carbon Vs Ceramic	Carbon Vs Ceramic
Wounded Stator Shell	S.S 304	S.S 304	S.S 316	S.S 304
Spline Shaft	S.S 410	S.S 410	S.S 410	S.S 410
Rotor Shaft	EN-8	EN-8	EN-8	EN-8
Radial Bearings	Graphite Carbon	Graphite Carbon	Graphite Carbon	Graphite Carbon
Thrust Segment Carrier/Segments	S.S 420	S.S 420	S.S 420	S.S 420
Thrust Disc	Graphite Carbon	Graphite Carbon	Graphite Carbon	Graphite Carbon
Pressure Equalizing Diaphragm	High Nitrile Rubber	High Nitrile Rubber	High Nitrile Rubber	High Nitrile Rubber
Diaphragm Cover	S.S 304	S.S 304	S.S 316	S.S 904L

ECO SERIES (4")

CROSS SECTIONAL DRAWING



MOUNTING DIMENSIONS



Spline Data-14 teeth, 24/48 Pitch, 30 Degree pressure angle,
Hator fillet root, Side fit, tolerance Class-5,
In accordance with ANSI B92-1

	Dimensions in inches						
	L1	L2	L3	L4	OD	ODI	OD2
4"	1.50	0.5	1.0	-	3.8	1.45	-

All the Mounting dimensions are in accordance with NEMA standards.

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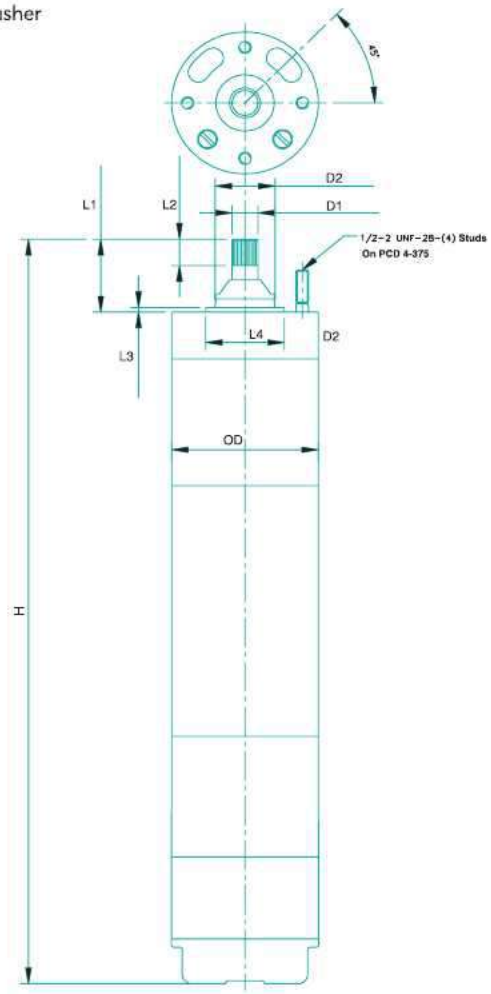
ECO SERIES (6")

CROSS SECTIONAL DRAWING

MOUNTING DIMENSIONS



Spline Data-15 teeth, 16/32 Pitch, 30 Degree pressure angle,
Hator fillet root, Side fit, tolerance Class-5,
In accordance with ANSI B92-1

	Dimensions in inches					
	L1	L2	L3	OD	DI	D2
6"	2.87	1.45	0.19	5.6	0.99	30

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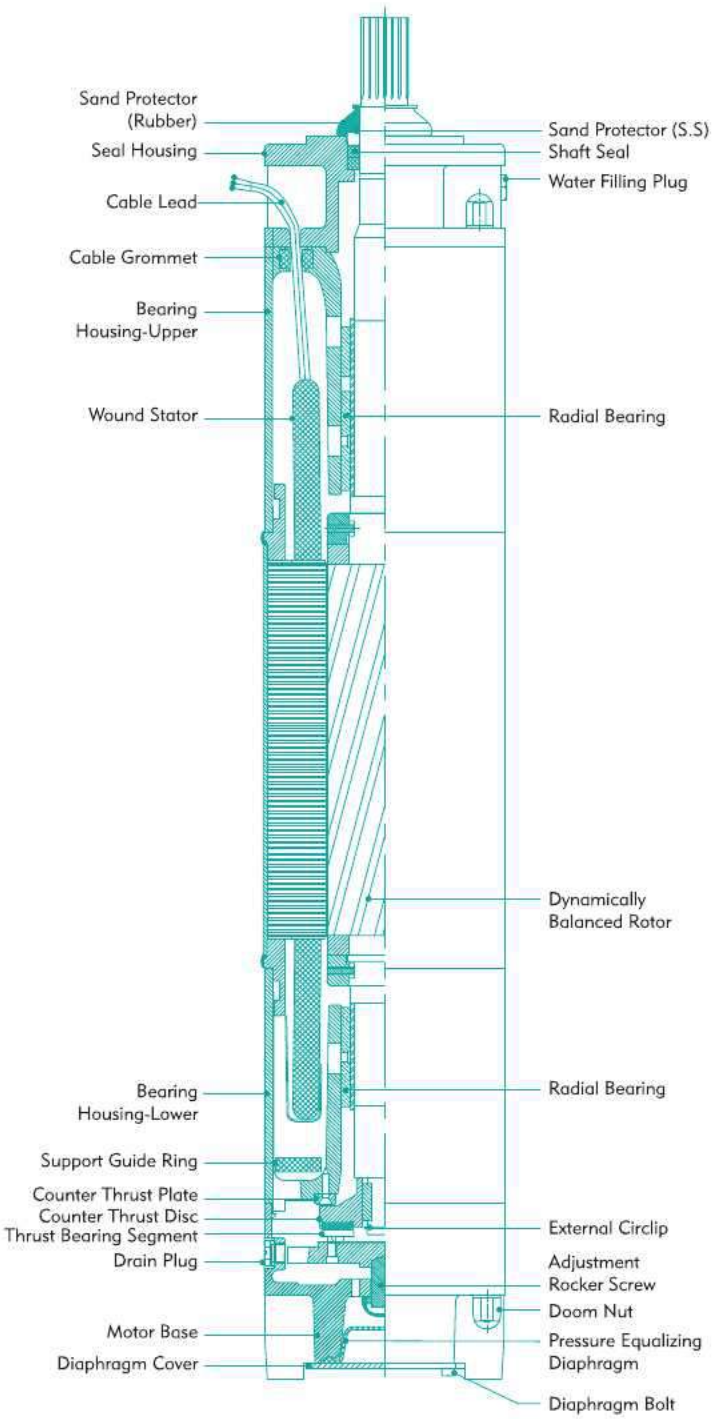
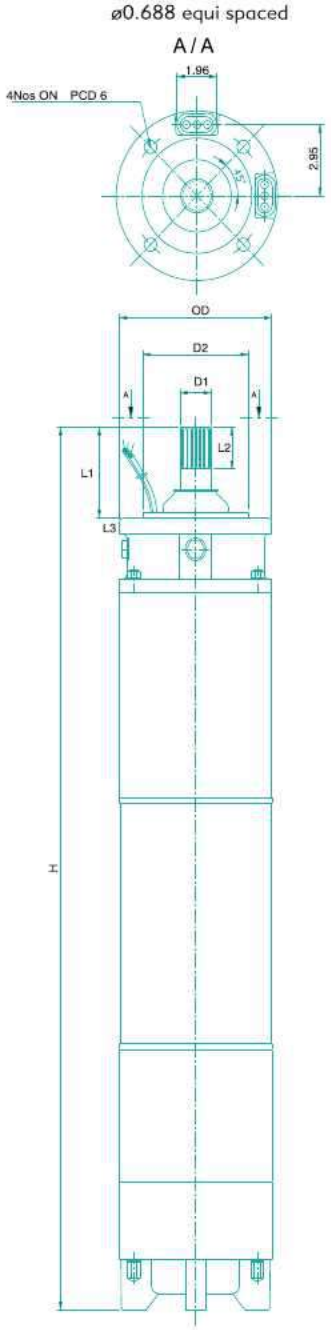
ECO SERIES (8")

CROSS SECTIONAL DRAWING



MOUNTING DIMENSIONS

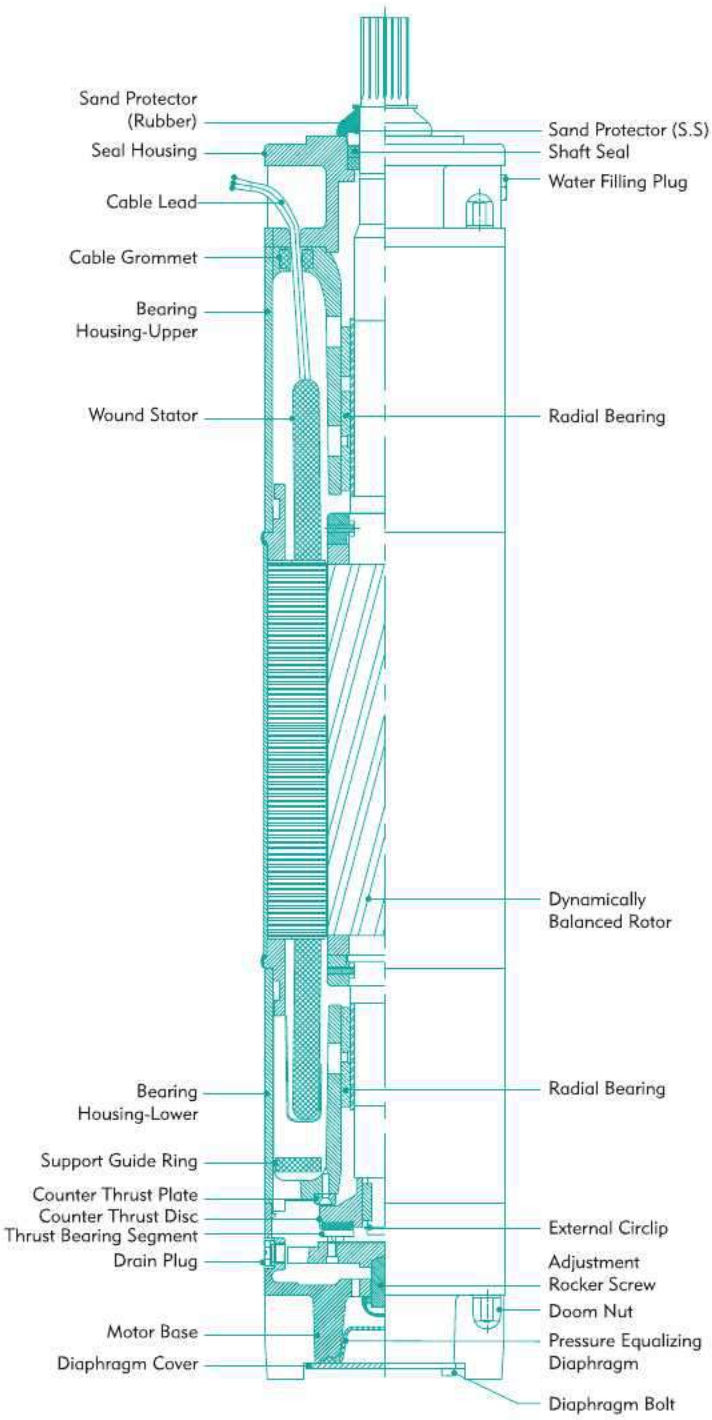


Spline Data-23 teeth, 16/32 Pitch, 30 Degree pressure angle, Hator fillet root, Side fit, tolerance Class-5, In accordance with ANSI B92-1

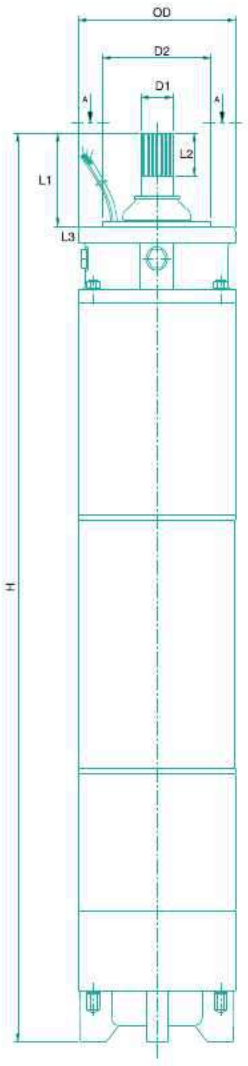
Dimensions in inches					
L1	L2	L3	OD	D1	D2
4.0	2.36	0.25	7.3/7.6	1.50	5.0

ECO SERIES (10")

CROSS SECTIONAL DRAWING



MOUNTING DIMENSIONS



Dimensions in inches					
L1	L2	L3	OD	D1	D2
4.0	1.68 (Min)	0.25	9.1	1.50	5.0

All the Mounting dimensions are in accordance with NEMA standards.

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TECHNICAL DATA

ECO SERIES > 60Hz

Specifications	Nominal Diameter (4")	Nominal Diameter (6")
Rated Output & Voltage	0.5HP to 7.5HP - 220V, 3Ph 0.5HP to 10HP - 380V, 3Ph 3HP to 10HP - 460V, 3Ph, 60Hz, AC Supply	5 to 40HP - 220V, 3Ph 6 to 60HP - 380V, 3Ph 5 to 60HP - 460V, 3Ph 60Hz, AC Supply
Rated Speed	3450 rpm	3450 rpm
Voltage Tolerance	-15% + 6%	-15% + 6%
Protection	IP 58	IP 58 / 68
Rotation Sequence	CCW - 3Ph	CCW - 3Ph
Outer Diameter	98mm	143mm
Duty	S1 (Continuous)	S1 (Continuous)
Linear flow	0.07m/sec	0.15m/sec
Liquid Temperature	38°C max.	38°C max.
Switching Frequency	20 Times / hour	20 Times / hour
Thrust load	0.5 to 2HP - 3500N/800lbs 3 to 10HP - 6500N/1500lbs	5 to 30HP - 15500N/3000lbs 35 to 60HP - 27500N/6000lbs
Shaft	Splined as per NEMA Standard	Splined as per NEMA Standard
Mounting Dimensions	NEMA Standard	NEMA Standard
Starting Method	3 Ph - 0.5 to 10HP - DOL	5 to 60HP - DOL 7.5 to 60HP - SD
Motor Lead out type	3/4 core Rubber Insulated Flat Cable leads, internally connected with the windings.	3/4 core Rubber Insulated Flat Cable leads, internally Connected with the windings
Class of Insulation	Y	Y

TECHNICAL DATA

ECO SERIES > **60Hz**

Specifications	Nominal Diameter (8")	Nominal Diameter (10")
Rated Output & Voltage	50 to 150HP - 380/460V, 3Ph, 60Hz, AC Supply	110 to 250HP - 380/460V, 3Ph, 60Hz, AC Supply
Rated Speed	3450 rpm	3450 rpm
Voltage Tolerance	-15% + 6%	-15% + 6%
Protection	IP 68	IP 68
Rotation Sequence	CCW - 3Ph	CCW - 3Ph
Outer Diameter	Upto 60HP - 187mm 75 & 100HP - 194mm 150HP - 196mm	232mm
Duty	S1 (Continuous)	S1 (Continuous)
Linear flow	0.16m/sec	0.16m/sec
Liquid Temperature	50°C max.	50°C max.
Switching Frequency	10 Times / hour	10 Times / hour
Thrust load	50 & 60HP - 45500N/10000lbs 75 to 150HP - 55600N/15000lbs	110 to 250HP - 75000N/16485lbs
Shaft	Splined as per NEMA Standard	Splined as per NEMA Standard
Mounting Dimensions	NEMA Standard	NEMA Standard
Starting Method	50 to 150HP - DOL & SD	110 to 250HP - DOL & SD
Motor Lead out type	3/4 core Rubber Insulated Flat Cable leads, internally Connected with the windings	3/4 core Rubber Insulated Flat Cable leads, internally Connected with the windings
Class of Insulation	Y	Y

ELECTRICAL DATA

ECO SERIES > 60Hz

4", Three Phase, 220V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D4-05 TA/4D	0.5	1.6	2.3	664	3.1	928	59	56	51	80	75	70	15	800
D4-07 TA/4D	0.75	1.5	3.6	928	4.3	1264	65	63	57	79	75	64	21	800
D4-10 TA/4D	1	1.4	4	1136	5.5	1600	68	66	60	80	75	68	25	800
D4-15 TA/4D	1.5	1.3	5.5	1648	7.3	2032	70	69	65	80	77	71	34	800
D4-20 TA/4D	2	1.25	8	2280	9.6	2600	71	69	66	78	75	71	44	800
D4-30 TA/4D	3	1.15	10.4	3120	12	3720	72	72	68	80	78	74	58	1500
D4-40 TA/4D	4	1.15	15	4160	16.8	4720	71	73	70	78	73	70	75	1500
D4-50 TA/4D	5	1.15	16.3	4880	19.5	6200	76	75	71	81	79	72	97	1500
D4-60 TA/4D	6	1.15	19.4	6040	23	6820	76	75	73	82	80	70	115	1500
D4-75 TA/4D	7.5	1.15	22	7280	27.5	8400	76	75	74	83	80	78	137	1500

4", Three Phase, 380V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D4-05 TA/4I	0.5	1.6	1.6	720	1.9	960	50	47	43	78	77	70	10	800
D4-07 TA/4I	0.75	1.5	1.9	912	2.4	1296	65	63	57	81	75	65	12	800
D4-10 TA/4I	1	1.4	2.5	1248	3.6	1600	66	64	59	82	75	65	18	800
D4-15 TA/4I	1.5	1.3	3.4	1728	4.8	2200	67	65	61	81	78	71	24	800
D4-20 TA/4I	2	1.25	4.2	2256	5.8	2600	69	67	64	81	80	76	29	800
D4-30 TA/4I	3	1.15	5.6	3024	7.2	3808	74	72	69	83	82	74	36	1500
D4-40 TA/4I	4	1.15	8.1	4200	9.5	4800	75	75	71	78	79	72	45	1500
D4-50 TA/4I	5	1.15	9.1	4840	11	5960	76	75	74	82	81	73	55	1500
D4-60 TA/4I	6	1.15	11.3	6000	13	6780	76	75	74	82	81	72	65	1500
D4-75 TA/4I	7.5	1.15	13.3	7480	16	8600	75	74	72	83	80	75	80	1500
D4-100 TA/4I	10	1.15	17.3	9340	20	13165	80	80	79	84	82	78	87	1500

4", Three Phase, 460V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D4-30 TA/4M	3	1.15	5.1	3140	5.6	3530	72	70.7	67	79	77	73	26	1500
D4-40 TA/4M	4	1.15	6.6	3950	7.3	4500	76.8	76	73.5	78	76	70	35	1500
D4-50 TA/4M	5	1.15	8.1	4800	8.8	5450	78.1	77.4	74.7	77	75	70	42	1500
D4-60 TA/4M	6	1.15	9.7	5770	10.7	6660	78.3	77.9	75.5	78	75	70	52	1500
D4-75 TA/4M	7.5	1.15	10.9	6880	12.2	7910	80.4	80.3	79	81	79	73	60	1500
D4-100 TA/4M	10	1.15	14.8	9240	16.6	10630	81.2	81.3	80	81	79	75	82	1500

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ELECTRICAL DATA

ECO SERIES > 60Hz

6", Three Phase, 220V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D6-50 TA/4D	5	1.15	16.1	4540	18.5	5480	77.5	76.6	76.5	80.9	78.6	76.1	88	3000
D6-75 TA/4D	7.5	1.15	22.5	6850	26	7860	80	80.5	79.6	82.5	81.7	77	130	3000
D6-100 TA/4D	10	1.15	31.5	9280	36	10640	82	81.5	80	82.5	82.5	79	175	3000
D6-125 TA/4D	12.5	1.15	36.5	11700	42	13400	80.5	81.8	80.6	83.3	82.8	80	216	3000
D6-150 TA/4D	15	1.15	44.5	13620	50.5	15400	80.5	80.8	80.2	82.5	81.2	80.5	265	3000
D6-200 TA/4D	20	1.15	57	18180	65.5	20940	82	82.5	80	85.3	85.2	82	348	3000
D6-250 TA/4D	25	1.15	72	22680	82.5	26000	82.5	82.2	81.5	87.2	87.5	83	468	3000
D6-300 TA/4D	30	1.15	83	26880	95	30600	82.5	82	82	83.5	84	82	547	3000
D6-400 TA/4D	40	1.15	116	36240	132	41700	82.5	82.8	80	82.3	82	80	750	6000

6", Three Phase, 380V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D6-60 TA/4I	6	1.15	11	6000	13	6900	76	75	74	83	82	82	55	3000
D6-75 TA/4I	7.5	1.15	14	7200	16	8520	77	76	76	86	85	85	66	3000
D6-100 TA/4I	10	1.15	18.2	9640	21	10900	79	78	78	88	87	85	84	3000
D6-125 TA/4I	12.5	1.15	23	11700	25.5	13700	80	79	79	89	87	87	104	3000
D6-150 TA/4I	15	1.15	26	13680	30	15500	82	81	80	84	83	82	132	3000
D6-175 TA/4I	17.5	1.15	30	13680	34.5	15500	82	81	80	84	83	82	132	3000
D6-200 TA/4I	20	1.15	33.5	18300	38.5	21580	80	80	80	87	86	85	180	3000
D6-250 TA/4I	25	1.15	43	22680	48.5	26000	85	86	85	90	91	89	230	3000
D6-300 TA/4I	30	1.15	48	25920	55.2	29600	85	86	85	84	84	83	300	3000
D6-400 TA/4I	40	1.15	68.5	36000	74	41300	83.5	84	83.6	83.5	84	81	380	6000
D6-500 TA/4I	50	1.15	83	44640	92	51320	83	83	82.5	82	82	81	450	6000
D6-600 TA/4I	60	1.15	97	54200	112	63200	82	83	82	85	84	84	530	6000

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ELECTRICAL DATA

ECO SERIES > 60Hz

6", Three Phase, 460V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D6-50 TA/4M	5	1.15	7.9	4680	8.5	5120	80.5	79	77.5	76	78.5	75.9	38	3000
D6-60 TA/4M	6	1.15	9	5900	10.5	6720	81	82	80	83	82	78	48	3000
D6-75 TA/4M	7.5	1.15	13	7000	14	8050	78	79	78.5	81	80	79.5	60	3000
D6-100 TA/4M	10	1.15	15	9260	16.8	10600	80	81	80	82	78	77	78	3000
D6-125 TA/4M	12.5	1.15	18	11680	20.8	13400	79.8	80	79.5	84	82	81.8	90	3000
D6-150 TA/4M	15	1.15	22	13200	25	15300	82.5	83	82	81.7	80	79	120	3000
D6-200 TA/4M	20	1.15	28	18200	32	20800	82	82.5	82	88	86	85.5	165	3000
D6-250 TA/4M	25	1.15	33	22320	38	25600	82.5	83	82.2	86.8	82.5	82	220	3000
D6-300 TA/4M	30	1.15	38.8	26750	44.5	30750	82.5	83.5	82	86.5	85	82	260	3000
D6-350 TA/4M	35	1.15	48	31200	55	35800	82	84	82	82	82	81.5	290	6000
D6-400 TA/4M	40	1.15	53.5	35760	64	41160	83.5	84	83.5	83.3	83.8	83	330	6000
D6-500 TA/4M	50	1.15	67	44160	78	51500	83	84.5	84	84	83	80	390	6000
D6-600 TA/4M	60	1.15	85.5	56400	98	65000	80.5	81	80.5	85	83	79	425	6000

The penultimate digit of the model identification "4" denotes D.O.L. & which will be replaced with "6" in case of S.D. Motors.
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ELECTRICAL DATA

ECO SERIES > 60Hz

8", Three Phase, 380V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D8-500 TB/4I	50	1.15	84	43100	93	49300	86	86	85	80	79	74	500	10000
D8-600 TB/4I	60	1.15	98	51940	109	59900	87	87	86	83	82	76	590	10000
D8-750 TB/4I	75	1.15	116	63500	131	73300	86	86	85	85	83	78	710	15000
D8-850 TB/4I	85	1.15	135	73500	152	84900	87	87	84	85	83	79	820	15000
D8-1000 TB/4I	100	1.15	155	84850	175	97850	88	88	88	85	83	78	945	15000
D8-1250 TB/4I	125	1.15	198	107200	223	123000	86	86	86	84	82	76	1200	15000
D8-1500 TB/4I	150	1.15	230	124800	260	144500	87	87	86	86	85	82	1350	15000

8", Three Phase, 460V, Submersible Motors

Motor Type	HP	SF	Rated		Max.SF		Efficiency%			Power Factor%			Locked rotor Amps	Thrust Capacity (lbs)
			Amps	W	Amps	W	SF	FL	3/4	SF	FL	3/4		
D8-500 TB/4M	50	1.15	66	43100	75	49800	86	86	85	83	82	80	450	10000
D8-600 TB/4M	60	1.15	78	52400	88.5	60200	88	87	86	85	85	83	530	10000
D8-750 TB/4M	75	1.15	96	64400	110	74200	86	85	84	85	84	82	720	15000
D8-850 TB/4M	85	1.15	106	72500	122	84000	87	87	85	86	85	83	790	15000
D8-1000 TB/4M	100	1.15	126	85400	145	99200	87	88	86	85	85	83	940	15000
D8-1250 TB/4M	125	1.15	155	105600	177	122800	88	88	86	87	86	84	1150	15000
D8-1500 TB/4M	150	1.15	197	124500	220	143500	88	88	86	85	84	82	1400	15000

The penultimate digit of the model identification "4" denotes D.O.L. & which will be replaced with "6" in case of S.D. Motors.
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ELECTRICAL DATA

ECO SERIES > 60Hz

10", Three Phase, 380V, Submersible Motors

Motor Type	HP	Current Range		Full Load		Thrust Capacity (lbs)
		Full load	Starting Current	Eff. (%)	Power Factor	
D10-1100 TB/4I	110	166	249	86	0.87	16485
D10-1250 TB/4I	125	181	272	87	0.89	16485
D10-1550 TB/4I	150	220	330	87	0.89	16485
D10-1750 TB/4I	175	255	383	87	0.89	16485
D10-2000 TB/4I	200	290	435	88	0.89	16485
D10-2250 TB/4I	225	325	488	88	0.89	16485
D10-2500 TB/4I	250	355	533	89	0.9	16485

10", Three Phase, 460V, Submersible Motors

Motor Type	HP	Current Range		Full Load		Thrust Capacity (lbs)
		Full load	Starting Current	Eff. (%)	Power Factor	
D10-1100 TB/4M	110	143	493	86	0.87	16485
D10-1250 TB/4M	125	156	646	87	0.89	16485
D10-1550 TB/4M	150	190	787	87	0.89	16485
D10-1750 TB/4M	175	220	961	87	0.89	16485
D10-2000 TB/4M	200	250	1064	88	0.89	16485
D10-2250 TB/4M	225	281	1208	88	0.89	16485
D10-2500 TB/4M	250	300	1368	88	0.89	16485

The penultimate digit of the model identification "4" denotes D.O.L. & which will be replaced with "6" in case of S.D. Motors.
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DIMENSIONS & WEIGHTS

ECO SERIES > 60Hz

4", Three Phase, 220, 380 & 460V, Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)		
				220V	380V	460V
D4-05 TA/4D	0.5	17	31.4	1.5	1.5	-
D4-07 TA/4D	0.75	18.6	35.9	1.5	1.5	-
D4-10 TA/4D	1	19.8	39.2	1.5	1.5	-
D4-15 TA/4D	1.5	22	45.8	2.5	1.5	-
D4-20 TA/4D	2	28.1	59.2	2.5	1.5	-
D4-30 TA/4D	3	28.5	70.4	2.5	1.5	1.5
D4-40 TA/4D	4	35	79	2.5	2.5	1.5
D4-50 TA/4D	5	37.9	87.4	4	2.5	2.5
D4-60 TA/4D	6	45	95.2	4	2.5	2.5
D4-75 TA/4D	7.5	52	103	4	2.5	2.5
D4-100 TA/4D	10	56	105	-	2.5	2.5

6", Three Phase, 220V Δ / WYE - DELTA Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)
D6-50 TA/4D	5	28.8	89.9	4
D6-55 TA/4D	5.5	29	93	4
D6-75 TA/4D	7.5	31.6	112	6
D6-100 TA/4D	10	33.6	118	6
D6-125 TA/4D	12.5	34.7	123	10
D6-150 TA/4D	15	36.3	140	10
D6-200 TA/4D	20	39.5	160	10
D6-250 TA/4D	25	42.6	179	16
D6-300 TA/4D	30	45.4	200	16
D6-400 TA/4D	40	48.3	206	16

The penultimate digit of the model identification "4" denotes D.O.L. & which will be replaced with "6" in case of S.D. Motors.
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DIMENSIONS & WEIGHTS

ECO SERIES > 60Hz

6", Three Phase, 380V, Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)
D6-60 TA/4I	6	29.6	97.66	2.5
D6-75 TA/4I	7.5	31.6	109.52	4
D6-100 TA/4I	10	33.6	120.69	4
D6-125 TA/4I	12.5	34.7	127.91	6
D6-150 TA/4I	15	36.3	138.38	6
D6-175 TA/4I	17.5	37.9	147.58	6
D6-200 TA/4I	20	39.5	157.04	10
D6-250 TA/4I	25	42.6	175.47	10
D6-300 TA/4I	30	45.4	188.43	10
D6-350 TA/4I	35	46.1	194.68	10
D6-400 TA/4I	40	48.3	206.76	10
D6-500 TA/4I	50	51.2	215.75	16
D6-600 TA/4I	60	54.2	220	16

6", Three Phase, 460V, Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)
D6-50 TA/4M	5	28.8	93	2.5
D6-60 TA/4M	6	29.6	99	4
D6-75 TA/4M	7.5	31.6	111	4
D6-100 TA/4M	10	33.6	123	4
D6-125 TA/4M	12.5	34.7	129	6
D6-150 TA/4M	15	36.3	141	6
D6-175 TA/4M	17.5	37.9	149	6
D6-200 TA/4M	20	39.5	159	10
D6-250 TA/4M	25	42.6	177	10
D6-300 TA/4M	30	45.4	190	10
D6-350 TA/4M	35	46.1	196	16
D6-400 TA/4M	40	48.3	208	16
D6-500 TA/4M	50	51.2	217	16
D6-600 TA/4M	60	54.2	228	16

The penultimate digit of the model identification "4" denotes D.O.L. & which will be replaced with "6" in case of S.D. Motors.
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DIMENSIONS & WEIGHTS

ECO SERIES > 60Hz

8", Three Phase, 380V / 460V, Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)
D8-500 TB/4I	50	46.4	338	16
D8-600 TB/4I	60	48.4	362	16
D8-750 TB/4I	75	50.3	395	35
D8-850 TB/4I	85	53.1	425	35
D8-1000 TB/4I	100	57.6	473	35
D8-1250 TB/4I	125	61.2	516	35
D8-1500 TB/4I	150	65.1	564	35

10", Three Phase, 380V, Submersible Motors

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)	
				DOL	SD
D10-1100 TB/4I	110	19.6	572	25	16
D10-1250 TB/4I	125	20.3	603	25	16
D10-1550 TB/4I	150	22.3	691	25	16
D10-1750 TB/4I	175	23.9	752	25	25
D10-2000 TB/4I	200	26.8	803	35	35
D10-2250 TB/4I	225	28.7	900	35	35
D10-2250 TB/4I	250	30.2	968	35	35

The penultimate digit of the model identification "4" denotes DOL & which will be replaced with "6" in case of 3 phase SD motors.
* I = 380V instead of "M" = 460V.

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GENERAL DATA

BOREHOLE SUBMERSIBLE MOTORS > **ELEGANT** SERIES

Construction Tormac Elegant series submersible motors are ingeniously designed and developed employing latest engineering softwares, high-tech machinery & tools with the complement of cutting edge technology for hardwearing and maintenance free operations and to ensure relentless performance.

The electrical conditions such as voltage, frequency and the operating conditions are taken into account in designing the winding and cooling system. The profound experience of the company facilitate to meet out the demanding technological challenges across the world. Tried and trusted indigenously improved design, combined with the most optimized efficiency in electromagnetic design exceptionally ensures trouble free performance. The integrated and most modern quality assurance systems used at every stage of production and flawless workmanship lead to sustained and consistent operation.

Tormac Eelegant series motors are squirrel cage, Non toxic liquid filled and liquid cooled non rewindable type. The winding of these two pole motors are made of high quality enameled copper wire. The stator shell, housings shell & motor base are made of fabricated S.S 304/316 which prevents the motor from corrosion.

These motors are pre-filled with environmentally safe edible grade oil which acts as a lubricant. A uniquely designed angular contact ball bearing to with stand high thrust capacity and good quality shaft seals are used to enhance the strength & durability. All single phase motors are supplied with suitable control boxes. All Tormac motors are produced in accordance with ISO 9001 standards and mounting dimensions with NEMA standard.

Applications	Characteristics
Public & Industrial Water Supply	Highly reliable, tried & tested.
Sumps / Reservoirs	High efficiency
Fire Fighting Equipments	Stainless steel stator shell, motor base & housings shell to prevent corrosion.
Pressure Boosting Systems	The high quality shaft seal and sand guard prevent ingress of liquid and sand.
Irrigation & Fountains	Uniquely designed thrust bearing to withstand high down thrust loads.
Water Treatment Plants	Higher starting torque to run in tough conditions.
High Rise Buildings	The shaft is designed for optimal power transmission.
Agricultural Lands	End connections & shaft extension are designed according to NEMA standards.
Stock Breeding, Laboratories	
Sprinkler Systems and Mining	

Construction Features

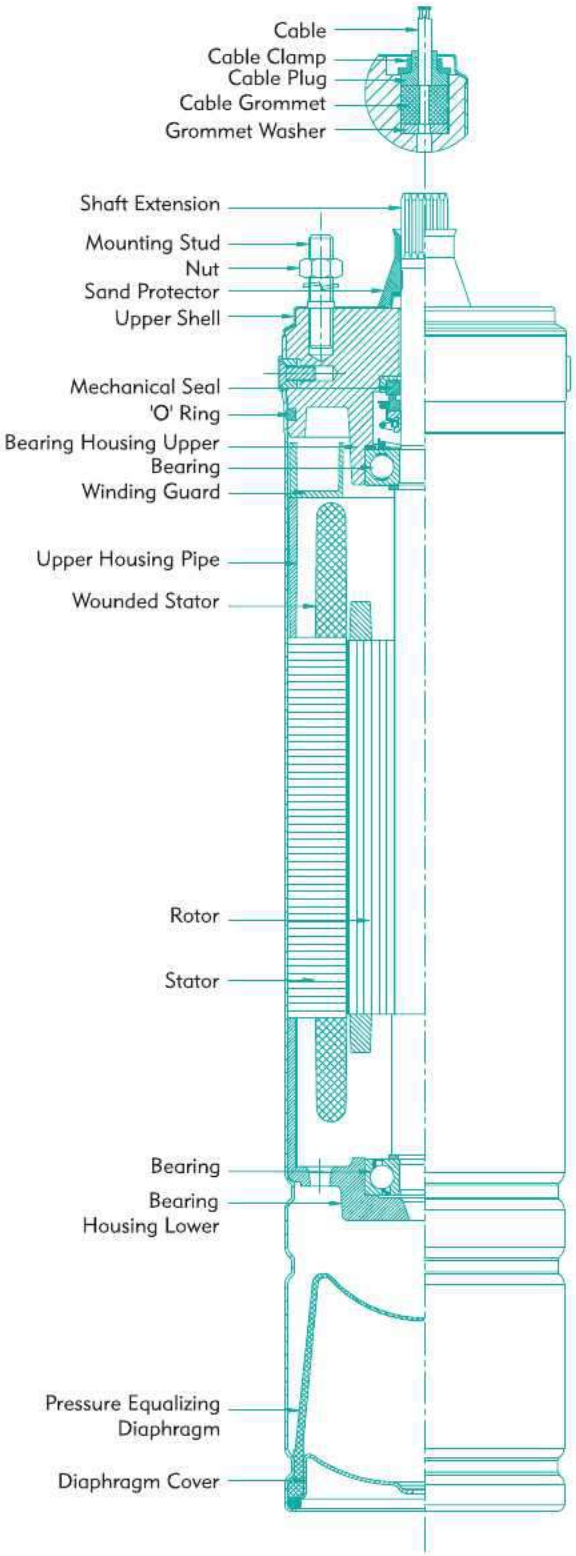
Components	Version - TA
Seal Housing	Cast Iron with SS 304 Shell
Upper & Lower Support	Cast Iron
Shaft Seal	Carbon Vs Ceramic
Wounded Stator Shell	SS 304
Spline Shaft	SS 420
Rotor Shaft	SS 420 / EN-8D
Pressure Equalizing Diaphragm	High Nitrile Rubber
Diaphragm Bottom Plate	SS 304

Technical Data

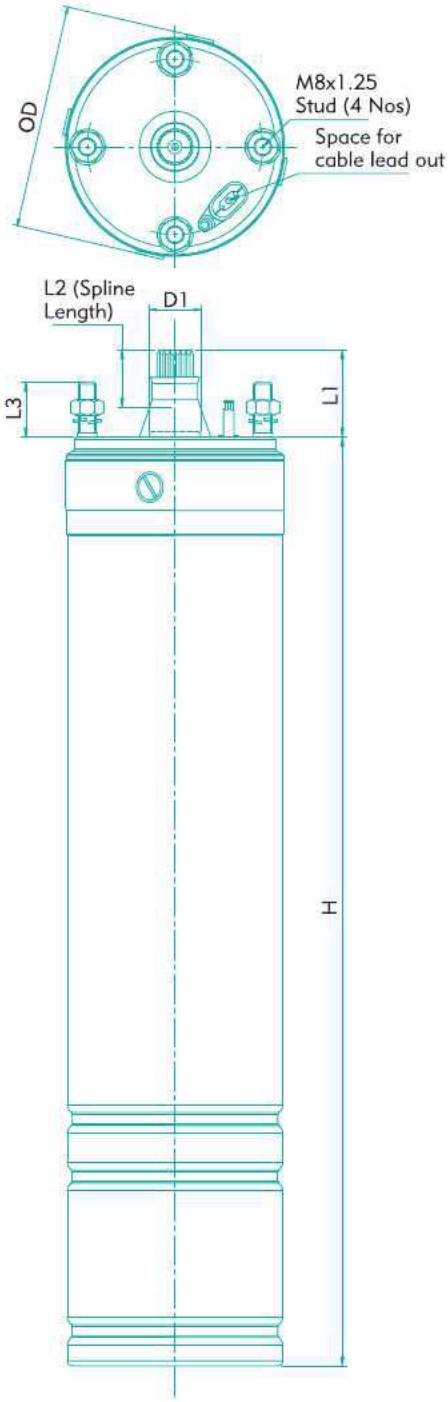
Specifications	Nominal Diameter (4")
Rated Output & Voltage	0.5 to 3HP - 220V, 1Ph, 60Hz, AC Supply 0.5 to 10HP - 220, 380, 460V, 3 Ph, 60Hz, AC Supply
Rated Speed	3450 rpm
Voltage Tolerance	+6%
Protection	IP 68
Rotation Sequence	1Ph - CCW, 3Ph - CCW
Outer Diameter	96mm
Duty	S1 (Continuous)
Linear flow	0.15m/sec
Liquid Temperature	38°C Max.
Switching frequency	30 Times / hour
Thrust Load	0.5 to 1HP - 1500N / 337 lbs 1.5 to 4HP - 2500N / 562 lbs 5 to 10HP - 4450N / 1011 lbs
Shaft	Splined as per NEMA standard
Mounting Dimensions	NEMA standard
Starting Method	1 Ph - CSR, 3 Ph - DOL
Motor Lead Out Type	3 Wire Replaceable type
Class of Insulation	" F "

ELEGANT SERIES (4")

CROSS SECTIONAL DRAWING



MOUNTING DIMENSIONS



Dimensions are in Inches

	L1	L2	L3	D1	OD	PCD
4"	1.49	0.5	0.96	0.87	3.83	3

ELECTRICAL DATA

ELEGANT SERIES > 60Hz

4", Single Phase, 220V, 2 wire Upto 2HP, 3 wire Upto 3HP, Submersible Motors

Motor Type	HP	SF	PF CosØ	Capacitor MFD		Current Amps		Max Down Thrust load (lbs)
				Eff.%	Running	F.L.	Starting	
N4-05 TA/3D	0.5	1.6	0.90	48	15	3.2	10.4	337
N4-07 TA/3D	0.75	1.5	0.94	53	20	4.9	15	337
N4-10 TA/3D	1	1.4	0.93	54	25	6	20	337
N4-15 TA/3D	1.5	1.3	0.96	58	36	7.5	28	562
N4-20 TA/3D	2	1.25	0.97	63	40	10.2	35	562
N4-30 TA/3D	3	1.15	0.98	69	60	15.2	50	562

4", Three Phase, 220V, 3 wire Submersible Motors

Motor Type	HP	SF	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
					F.L	Starting	
N4-05 TA/4D	0.5	1.6	0.7	62	2	10	337
N4-07 TA/4D	0.75	1.5	0.71	65	3.2	16	337
N4-10 TA/4D	1	1.4	0.72	70	4.4	20	337
N4-15 TA/4D	1.5	1.3	0.7	71	6.5	28	562
N4-20 TA/4D	2	1.25	0.7	72	7.6	34	562
N4-30 TA/4D	3	1.15	0.72	75	10.5	45	562
N4-40 TA/4D	4	1.15	0.76	74	14.2	63	562
N4- 50 TA/4D	5	1.15	0.75	77	16.2	71	1011
N4-55 TA/4D	5.5	1.15	0.76	78	18	82	1011
N4-75 TA/4D	7.5	1.15	0.78	78	23.5	104	1011
N4-100 TA/4D	10	1.15	0.8	78	32	128	1011

ELECTRICAL DATA

ELEGANT SERIES 60Hz

4", Three Phase, 380V, 3 wire Submersible Motors

Motor Type	HP	SF	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
					F.L	Starting	
N4-05 TA/4I	0.5	1.6	0.7	62	1.3	6.5	337
N4-07 TA/4I	0.75	1.5	0.71	65	2	11	337
N4-10 TA/4I	1	1.4	0.72	70	2.6	14	337
N4-15 TA/4I	1.5	1.3	0.7	71	3.6	20	562
N4-20 TA/4I	2	1.25	0.7	72	4.9	25	562
N4-30 TA/4I	3	1.15	0.72	75	6	30	562
N4-40 TA/4I	4	1.15	0.76	74	8.2	37	562
N4-50 TA/4I	5	1.15	0.75	77	9.3	42	1011
N4-55 TA/4I	5.5	1.15	0.76	77	10.4	47	1011
N4-75 TA/4I	7.5	1.15	0.78	78	13.7	65	1011
N4-100 TA/4I	10	1.15	0.80	78	19	76	1011

4", Three Phase, 460V, 3 wire Submersible Motors

Motor Type	HP	SF	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
					F.L	Starting	
N4-05 TA/4M	0.5	1.6	0.76	62	1.1	5.5	337
N4-07 TA/4M	0.75	1.5	0.75	66	1.6	8	337
N4-10 TA/4M	1	1.4	0.75	70	2	10	337
N4-15 TA/4M	1.5	1.3	0.74	72	2.8	14	562
N4-20 TA/4M	2	1.25	0.73	74	3.8	19	562
N4-30 TA/4M	3	1.15	0.74	74	5.5	26	562
N4-40 TA/4M	4	1.15	0.74	76	6.9	34	562
N4-50 TA/4M	5	1.15	0.77	75	8.7	43	1011
N4-55 TA/4M	5.5	1.15	0.78	76	10	50	1011
N4-75 TA/4M	7.5	1.15	0.78	78	12.8	65	1011
N4-100 TA/4M	10	1.15	0.82	80	16	87	1011

DIMENSIONS & WEIGHTS

ELEGANT SERIES > 60Hz

4", Single Phase, 220V, 2 wire Upto 2HP, 3 wire Upto 3HP, Submersible Motors

Motor Type	HP	Height H (Inches)	Weight (lbs)	Cable Size (sq.mm)
N4-05 TA/3D	0.5	14.2	16.1	1.5
N4-07 TA/3D	0.75	15	17.9	1.5
N4-10 TA/3D	1	15.7	20.3	1.5
N4-15 TA/3D	1.5	16.9	22.9	1.5
N4-20 TA/3D	2	18.9	26.9	2.5
N4-30 TA/3D	3	20.5	31.8	2.5

4", Three Phase, 220V, 3 wire Submersible Motors

Motor Type	HP	Height H (Inches)	Weight (lbs)	Cable Size (sq.mm)
N4-05 TA/4D	0.5	16.1	17.2	1.5
N4-07 TA/4D	0.75	16.1	17.2	1.5
N4-10 TA/4D	1	16.9	19.4	1.5
N4-15 TA/4D	1.5	17.7	21.2	1.5
N4-20 TA/4D	2	18.9	25.1	1.5
N4-30 TA/4D	3	21.3	30.4	1.5
N4-40 TA/4D	4	23.7	39.9	2.5
N4- 50 TA/4D	5	25.6	44.3	2.5
N4-55 TA/4D	5.5	25.6	44.3	2.5
N4-75 TA/4D	7.5	30	57.8	2.5
N4-100 TA/4D	10	34.6	71.8	2.5

DIMENSIONS & WEIGHTS

ELEGANT SERIES 60Hz

4", Three Phase, 380V, 3 wire Submersible Motors

Motor Type	HP	Height H (Inches)	Weight (lbs)	Cable Size (sq.mm)
N4-05 TA/4I	0.5	16.1	17.2	1.5
N4-07 TA/4I	0.75	16.1	17.2	1.5
N4-10 TA/4I	1	16.9	19.4	1.5
N4-15 TA/4I	1.5	17.7	21.2	1.5
N4-20 TA/4I	2	18.9	25.1	1.5
N4-30 TA/4I	3	21.3	30.4	1.5
N4-40 TA/4I	4	23.7	39.9	2.5
N4-50 TA/4I	5	25.6	44.3	2.5
N4-55 TA/4I	5.5	25.6	44.3	2.5
N4-75 TA/4I	7.5	30	57.8	2.5
N4-100 TA/4I	10	34.6	71.8	2.5

4", Three Phase, 460V, 3 wire Submersible Motors

Motor Type	HP	Height H (Inches)	Weight (lbs)	Cable Size (sq.mm)
N4-05 TA/4M	0.5	16.1	17.2	1.5
N4-07 TA/4M	0.75	16.1	17.2	1.5
N4-10 TA/4M	1	16.9	19.4	1.5
N4-15 TA/4M	1.5	17.7	21.2	1.5
N4-20 TA/4M	2	18.9	25.1	1.5
N4-30 TA/4M	3	21.3	30.4	2.5
N4-40 TA/4M	4	23.7	39.9	2.5
N4-50 TA/4M	5	25.6	44.3	2.5
N4-55 TA/4M	5.5	25.6	44.3	2.5
N4-75 TA/4M	7.5	30	57.8	2.5
N4-100 TA/4M	10	34.6	71.8	2.5

CABLE SELECTION CHART

For Single Phase 2/3 wire motors, Maximum Length of Copper Cable

Motor Rating		CABLE SIZE IN AMERICAN WIRE GAGE										
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	
	0.5	345	550	1390	2203	3515	4427	5584	7038	8868	-	
	0.75	262	417	1055	1672	2668	3360	4238	5342	6731	8493	
220	1	203	324	819	1297	2069	2607	3288	4144	5221	6588	**MAXIMUM**
VOLT	1.5	177	282	712	1129	1800	2268	2860	3605	4542	5731	**LENGTH**
60Hz	2	165	262	664	1052	1677	2113	2665	3359	4232	5340	**IN FEET**
	3	122	195	492	780	1244	1567	1976	2491	3139	3960	
	5			313	496	791	996	1256	1583	1995	2518	

For Three Phase 3 wire (D.O.L) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES													
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	
	0.5	842	1341	2130	3391	5373	-	-	-	-	-	-	-	-	
	0.75	607	967	1535	2445	3874	6179	-	-	-	-	-	-	-	
	1	475	756	1200	1911	3029	4831	6085	-	-	-	-	-	-	
	1.5	358	569	904	1440	2282	3640	4585	5782	-	-	-	-	-	
	2	272	433	688	1095	1735	2768	3486	4397	5542	-	-	-	-	
	3	218	346	550	876	1388	2214	2789	3518	4434	5587	7049	-	-	
	4	155	247	393	626	992	1582	1992	2513	3167	3991	5035	-	-	
	5	112	178	282	449	712	1135	1430	1804	2274	2865	3615	4559	5748	
	6	95	151	239	381	604	963	1213	1529	1928	2429	3065	3865	4873	
	7.5		126	200	319	505	805	1014	1279	1612	2032	2563	3233	4076	
	10		99	157	250	397	633	797	1005	1267	1596	2014	2540	3202	
	12.5			134	214	339	540	680	858	1081	1363	1719	2168	2734	
	15			112	179	283	452	569	718	905	1140	1439	1814	2287	
	17			97	154	244	388	489	617	778	980	1237	1560	1966	
	20				136	216	344	433	546	688	868	1095	1380	1740	
	25				112	178	283	357	450	567	714	901	1137	1433	
	30					151	241	303	382	482	607	766	966	1218	
	35					108	172	217	274	345	435	549	692	873	
	40						147	185	233	293	370	466	588	742	
	50						130	164	206	260	328	414	522	658	

220 VOLT 60Hz — **MAXIMUM LENGTH IN FEET**

For Three Phase 3 wire (D.O.L) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES													
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	
	0.5	1769	2816	4472	7121	11284	-	-	-	-	-	-	-	-	
	0.75	1275	2030	3224	5134	8135	12976	-	-	-	-	-	-	-	
	1	997	1587	2521	4014	6360	10145	12779	-	-	-	-	-	-	
	1.5	751	1196	1899	3024	4792	7643	9628	12143	-	-	-	-	-	
	2	571	909	1444	2299	3644	5812	7321	9234	11639	-	-	-	-	
	3	457	727	1155	1840	2915	4650	5857	7387	9311	11732	14803	-	-	
	4	326	520	825	1314	2082	3321	4184	5276	6651	8380	10574	-	-	
	5	234	373	592	943	1495	2384	3004	3788	4775	6017	7591	9573	12071	
	6	199	316	502	800	1267	2022	2547	3212	4048	5101	6436	8116	10234	
	7.5		264	420	669	1060	1691	2130	2686	3386	4266	5383	6788	8559	
	10		208	330	526	833	1329	1673	2111	2660	3352	4229	5334	6725	
	12.5			282	449	711	1134	1429	1802	2271	2862	3610	4553	5741	
	15			236	375	595	949	1195	1508	1900	2394	3021	3810	4804	
	17.5			203	323	511	816	1028	1296	1633	2058	2597	3275	4129	
	20				286	453	722	909	1147	1446	1822	2299	2899	3655	
	25				235	373	595	749	945	1191	1500	1893	2387	3010	
	30					317	505	637	803	1012	1275	1609	2029	2558	
	35					227	362	456	575	725	914	1153	1454	1833	
	40						308	388	489	616	776	979	1235	1557	
	50						273	344	433	546	688	868	1095	1381	

220 VOLT 60Hz — **MAXIMUM LENGTH IN FEET**

The given cable lengths are the maximum one from POWER TO MOTOR, Exceeding the lengths mentioned will void warranty.

CABLE SELECTION CHART

For Three Phase 3 wire (D.O.L) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES																	
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	250	300	350	400	500
380 VOLT 60Hz	0.5	2374	3779	6002	9556	15143													
	0.75	1879	2991	4751	7565	11988													
	1	1253	1994	3168	5044	7992													
	1.5	940	1496	2376	3783	5994													
	2	778	1238	1966	3131	4961													
	3	626	997	1584	2522	3996													
	4	475	756	1200	1911	3029													
	5		544	864	1376	2180													
	6		460	731	1164	1844	2942												
	7.5		374	594	946	1499	2390												
	10		288	457	727	1153	1839												
	12.5		239	380	605	959	1530												
	15			322	513	813	1296	1633											
	17.5			291	463	733	1170	1587											
	20				362	573	954	1301	1894										
	25				321	509	812	983	1240	1563									
	30					426	680	922	1163	1466	1848								
	35						603	818	1031	1300	1638								
	40						503	634	799	887	1117	1410	1778						
	50						403	507	640	806	894	1128	1293	1630					
	60							477	602	618	779	983	1183	1421					
	75								558	552	696	798	1007	1270					
	85								516	511	643	738	931	1173					
	100									438	551	696	877	974	886				
	125										442	558	704	887	807	1145			
	150											534	673	849	748	1061			
	175													660	661	937	994		
	200														500	709	745		
	225															647	754	798	1078
	250															492	574	607	820
	300																552	584	788
	350																	507	685
	400																	434	586

MAXIMUM LENGTH IN FEET

For Three Phase 3 wire (S.D) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES																	
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	250	300	350	400	500
380 VOLT 60Hz	0.5	4985	7935	12604	20068	31800													
	0.8	3946	6282	9978	15887	25175													
	1	2631	4188	6652	10592	16784													
	1.5	1973	3141	4989	7944	12588													
	2	1633	2599	4129	6574	10417													
	3	1315	2094	3326	5296	8392													
	4	997	1587	1814	4014	6360													
	5		1142	1535	2889	4577													
	6		966	1247	2444	3873	6178												
	7.5		785	959	1986	3147	5020												
	10		604	798	1528	2421	3861												
	12.5		503	676	1271	2014	3213												
	15			610	1077	1707	2723	3429											
	17.5				972	1540	2457	3333											
	20				759	1203	2003	2733	3977										
	25				674	1069	1705	2065	2604	3282									
	30					895	1428	1937	2443	3079	3880								
	35						1266	1717	2165	2729	3439								
	40						1057	1331	1679	1862	2346	2961	3734						
	50						845	1065	1343	1693	1877	2368	2715	3424					
	60							1002	1264	1298	1636	2064	2485	2984					
	75								1171	1160	1462	1677	2114	2666					
	85								1083	1072	1351	1550	1954	2464					
	100									919	1158	1461	1843	2044	1860				
	125										929	1172	1478	1863	1695	2405			
	150											1121	1414	1783	1570	2228			
	175													1387	1388	1969	2088		
	200														1050	1489	1564		
	225															1358	1584	1677	2264
	250															1033	1205	1275	1722
	300																1158	1226	1655
	350																	1066	1439
	400																	912	1231

MAXIMUM LENGTH IN FEET

The given cable lengths are the maximum one from POWER TO MOTOR, Exceeding the lengths mentioned will void warranty.

CABLE SELECTION CHART

For Three Phase 3 wire (D.O.L) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES																	
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	250	300	350	400	500
460 VOLT 60Hz	0.5	3770	6020	9460															
	0.75	2730	4350	6850															
	1	2300	3670	5770	9070														
	1.5	1700	3710	4270	6730														
	2	1300	2070	3270	5150	8050													
	3	1000	1600	2520	3970	6200													
	4	748	1190	1891	3011	4771													
	5	590	950	1500	2360	3700	5750												
	5.5	557	887	1409	2243	3554	5669												
	6	510	812	1290	2054	3255	4933												
	7.5	420	680	1070	1690	2640	4100	5100	6260	7180									
	10	310	500	790	1250	1960	3050	3800	4680	5750	7050								
	12.5		410	651	1036	1642	2619	3299	4086	4963	6136	7593							
	15		340	540	850	1340	2090	2600	3200	3930	4810	5900	7110						
	20			410	650	1030	1610	2000	2470	3040	3730	4580	5530						
	25				530	830	1300	1620	1990	2450	3010	3700	4470	5430					
	30				430	680	1070	1330	1640	2030	2490	3060	3700	4500	5128	5850			
	35					580	926	1145	1418	1753	2124	2680	3177	3835	4264	4960			
	40					500	790	980	1210	1490	1830	2250	2710	3192	3720	4242			
	50						640	800	980	1210	1480	1810	2190	2650	2998	3409	3830	4171	4842
	60						540	670	830	1020	1250	1540	1850	2240	2532	2881	3230	3529	4188
	75								680	840	1030	1260	1520	1850	2088	2390	2688	2940	3428
	85									745	919	1136	1371	1652	1884	2127	2291	2491	2909
	100									620	760	940	1130	1380	1550	1782	2000	2182	2540
	110											696	877	1048	1107	1364	1447	1531	1860
	125											740	890	1000	1209	1381	1549	1691	1949
	150												760	920	1040	1182	1330	1452	1680
	175													810	921	1052	1181	1292	1501
	200														802	910	1018	1122	1300
	225															764	886	984	1132
	250																755	886	984
	300																623	755	837
	350																492	623	689
	400																361	492	525
	450																327	346	467
	500																289	306	403
	550																264	279	377
	600																235	249	336

MAXIMUM LENGTH IN FEET

For Three Phase 3 wire (SD) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		CABLE SIZE IN SQUARE MILLIMETRES																	
VOLTS	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0	4/0	250	300	350	400	500
460 VOLT 60Hz	0.5	880	1420	2250	3450	5550	8620												
	0.75	743	1182	1878	2990	4739	7559												
	1	681	1083	1720	2739	4340	6923												
	1.5	630	1020	1600	2530	3960	6150	7650	9390										
	2	460	750	1180	1870	2940	4570	5700	7020	8620									
	3	368	585	930	1480	2345	3741	4713	5943	7491									
	4	310	510	810	1270	2010	3130	3900	4800	5800	7210	8850							
	5	230	380	610	970	1540	2410	3000	3700	4560	5590	6870	8290						
	5.5	190	310	490	790	1240	1950	2430	2980	3670	4510	5550	6700						
	6		250	410	640	1020	1600	1990	2460	3040	3730	4590	5550						
	7.5			335	533	844	1347	1697	2140	2697	3398	4288	5002						
	10			300	480	750	1180	1470	1810	2230	2740	3370	4080						
	12.5				370	590	960	1200	1470	1810	2220	2710	3280						
	15				320	500	810	1000	1240	1530	1870	2310	2770						
	20					420	660	810	1020	1260	1540	1890	2280						
	25						577	727	916	1155	1341	1691	2133	8140					
	30						500	610	760	930	1140	1410	1690	6750	7690	8730			
	35							507	640	806	1016	1282	1478	5965	6822	7259			
	40							470	590	730	880	1110	1330	4930	5590	6370			
	50								510	630	770	950	1140	3970	4510	5130	5740	6270	7270
	60									550	680	830	1000	3360	3810	4330	4860	5310	6510
	75										590	730	880	2770	3150	3600	4050	4420	5160
	85											623	755	2459	2691	3272	3563	3771	4909
	100												591	2070	2340	2680	3010	3280	3820
	110													1863	2039	2480	2893	3061	3307
	125													1500	1830	2080	2340	2550	2940
	150													1380	1570	1790	2000	2180	2530
	175													1220	1390	1580	1780	1950	2270
	200													1070	1210	1380	1550	1690	1970
	225													919	1050	1247	1411	1558	1837
	250													820	951	1116	1280	1427	1706
	300													722	853	984	1116	1296	1575
	350													623	722	853	951	1148	1444
	400														623	722	787	1017	1312
	450														411	584	681	712	973
	500														364	517	603	638	861
	550														332	471	550	582	785
	600														296	420	489	518	699

MAXIMUM LENGTH IN FEET

The given cable lengths are the maximum one from POWER TO MOTOR, Exceeding the lengths mentioned will void warranty.

CONVERSION CHART

FLOW RATE

litre per second l/s	litre per minute l/min	cubic meter per hour m^3/h	cubic foot 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	2.2×10^{-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/m^2 (Pa)	kilo pascal kPa	bar bar	kilogram force per square centimeter Kgf/cm2	pound force per square inch psi	foot for water ft H_20	meter of water m H_20	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

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 = 1609.37 metres =- 1.60934 kilometers

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

THE POWER BEHIND THE FORCE

Naargo Industries Private Limited, one of the leading manufacturers of latest state of art, large range of pumps and motors, is managed by veterans who are in the pump industry for almost half a century. The products are employed in various applications like irrigation, domestic, civil construction, de-watering etc; The Company has a strong distribution network in India for sales & service and a strong global presence.

Quality is the key factor in Naargo's products. The expansive infrastructure and environment accredited with ISO 9001 quality certification, latest engineering softwares, high-tech machinery, futuristic pumping technology and high caliber workforce facilitate the production of flawless and efficient products on par with international standards under the brand name of "Tormac". The well equipped R & D wing stays alive to the changing global trends and comes out with viable solutions for innovative product development and upgradation.

The Products currently available include Stainless Steel Submersible Pumps, 4" Thermoplastic Submersible Pumps, 6" & 8" Cast Iron Submersible Pumps, Submersible Motors and Controls, Centrifugal Pumps, Inline Booster Pumps, Jet Self-priming Pumps and Peripheral Pumps.

The power, performance and endurance of the products backed by the uncompromising teamwork and value systems will certainly propel the company's growth towards new horizons in the pump industry.

IC SMF-F/19-E7

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Tormac PUMPS