



THE FORCE BENEATH - CRAFTED FOR BOREWELL PERFORMANCE



Products from an ISO 9001 COMPANY



SUBMERSIBLE MOTORS - **60 Hz**

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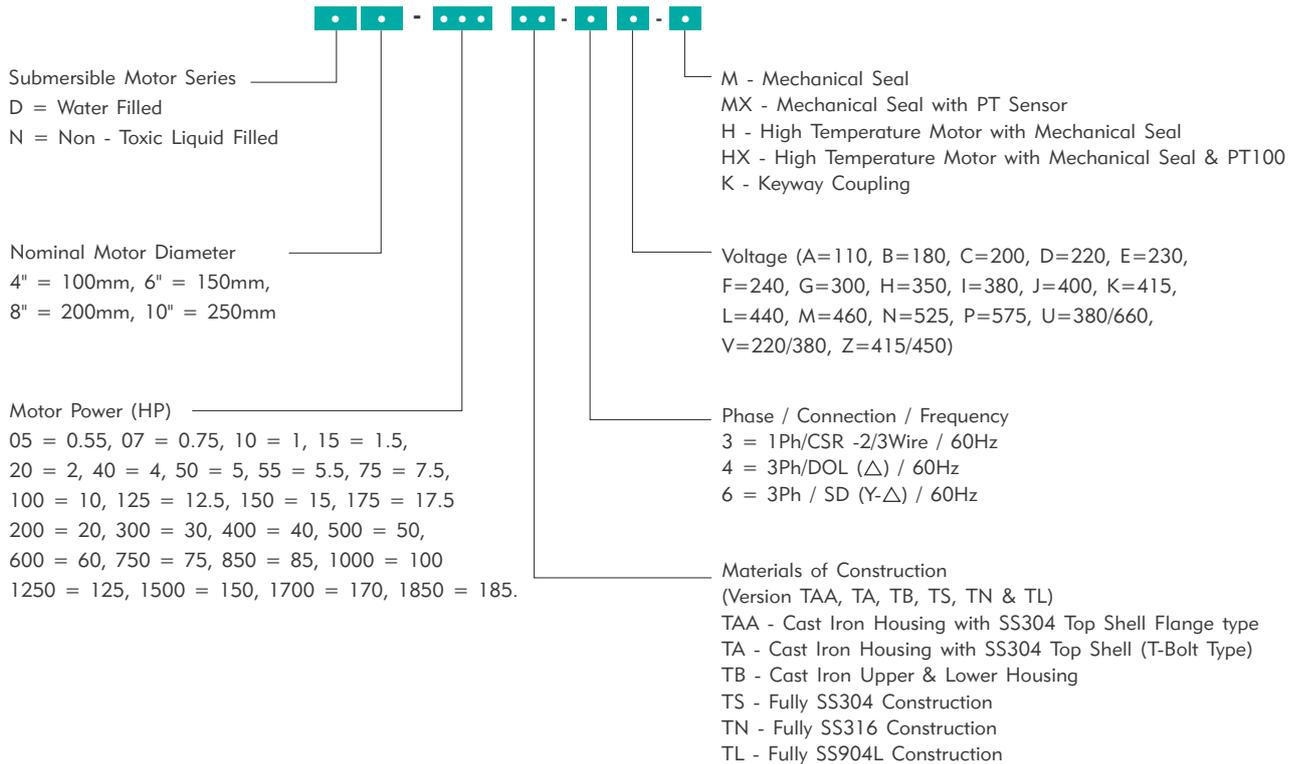
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GENERAL DATA

BOREHOLE SUBMERSIBLE MOTORS > ECO & ELEGANT SERIES

Model Designation > BOREHOLE SUBMERSIBLE MOTORS



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.

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. On the 4" & 6" Motors the stator shell, housings shell & motor base are made of fabricated SS304/316 / 904L which prevents the motor from corrosion. On 8" & 10" "B- Type" motors the stator shell is made of Fabricated SS 304 and upper Housing, Lower Housing and Motor base is made of Cast Iron.

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

- Public & Industrial Water Supply
- Sumps / Reservoirs
- Fire Fighting Equipments
- Pressure Boosting Systems
- Irrigation & Fountains
- Water Treatment Plants
- High Rise Buildings
- Agricultural Lands
- Stock Breeding, Laboratories
- Sprinkler Systems and Mining

Characteristics

- Highly reliable, tried & tested.
- High efficiency
- Stainless steel stator shell, motor base & housings shell to prevent corrosion.
- The high quality shaft seal and sand guard prevent ingress of liquid and sand.
- Uniquely designed thrust bearing to withstand high down thrust loads.
- Higher starting torque to run in tough conditions.
- The shaft is designed for optimal power transmission.
- End connections & shaft extension are designed according to NEMA standards.

GENERAL DATA

Construction Features > ECO Series - 4"

Components	Version - TA
Seal Housing	CI with SS304 top shell
Upper & Lower Support	Cast Iron
Shaft Seal	NBR
Wound Stator Shell	SS304
Spline Shaft	SS 17-4Ph
Rotor Shaft	EN-8/EN-9
Radial Bearings	Graphite Carbon
Thrust Segment Carrier/Segments	SG Iron / SS420
Thrust Disc	Graphite Carbon
Pressure Equalizing Diaphragm	HNBR
Diaphragm Cover	SS304

Construction Features > ECO Series - 6" & 7"

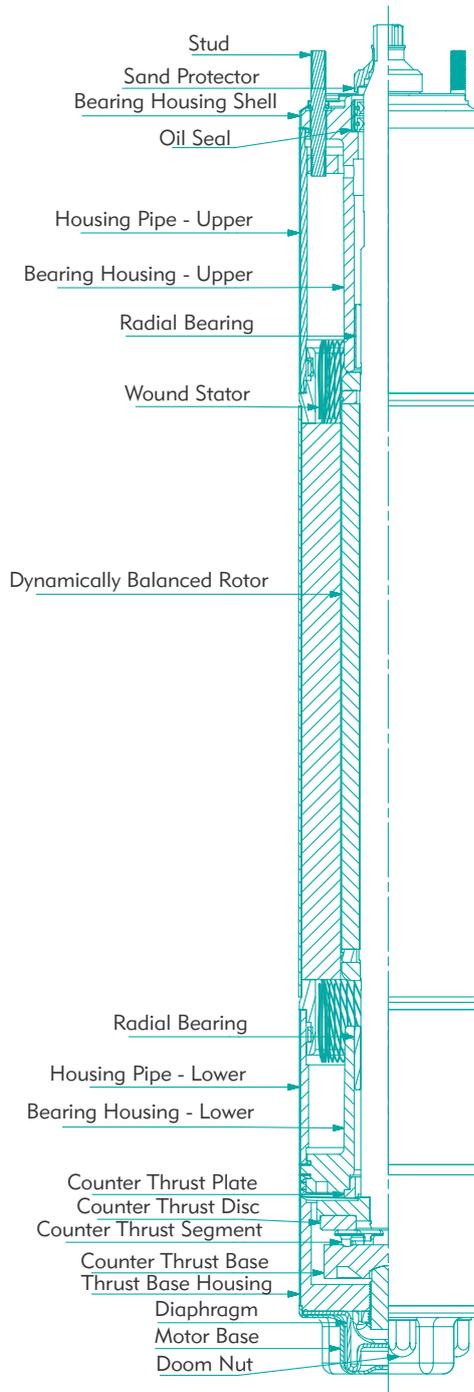
Components	6"		7"
	TAA / TA / TS	TN / TL	TB
Seal Housing	CI with SS304 Top shell / CI with SS304 Top shell / Casted SS304	Casted SS316 / Casted SS904L	Cast Iron
Upper & Lower Support	CI / CI / SS304	Casted SS316 / Casted SS904L	Cast Iron
Shaft Seal	NBR	NBR	NBR
Wounded Stator Shell	SS304	SS316 / SS904L	SS304
Spline Shaft	SS 17-4 Ph	SS 417-17Ph	SS 17-4 Ph
Rotor Shaft	EN-8 (or) EN-9	EN-8 (or) EN-9	EN-8 (or) EN-9
Radial Bearings	Graphite Carbon	Graphite Carbon	Graphite Carbon
Thrust Segment Carrier/Segments	SG Iron (or) SS420	SG Iron (or) SS420	SG Iron (or) SS420
Thrust Disc	Graphite Carbon	Graphite Carbon	Graphite Carbon
Pressure Equalizing Diaphragm	EPDM	EPDM	EPDM
Diaphragm Cover	SS304	SS316 / SS904L	SS304

Construction Features > ECO Series - 8" & 10"

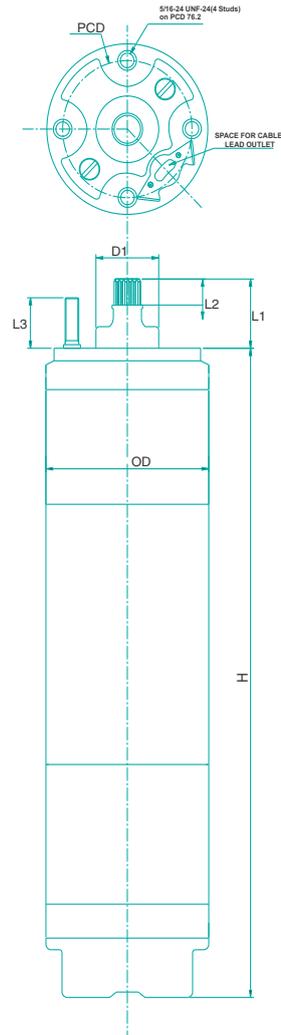
Components	8" & 10"			
	Version - TB	Version - TS	Version - TN	Version - TL
Seal Housing	Cast Iron	Casted SS304	Casted SS316	Casted SS904L
Upper & Lower Support	Cast Iron	Casted SS304	Casted SS316	Casted SS904L
Shaft Seal	Carbon Vs Ceramic	Carbon Vs Ceramic	Carbon Vs Ceramic	Carbon Vs Ceramic
Wounded Stator Shell	SS304	SS304	SS316	SS904L
Spline Shaft	SS410	SS410	SS410	SS410
Rotor Shaft	EN-8	EN-8	EN-8	EN-8
Radial Bearings	Graphite Carbon	Graphite Carbon	Graphite Carbon	Graphite Carbon
Thrust Segment Carrier/Segments	SS420	SS420	SS420	SS420
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	SS304	SS304	SS316	SS904L

ECO SERIES (4")

Cross Sectional Drawing



Mounting Dimensions



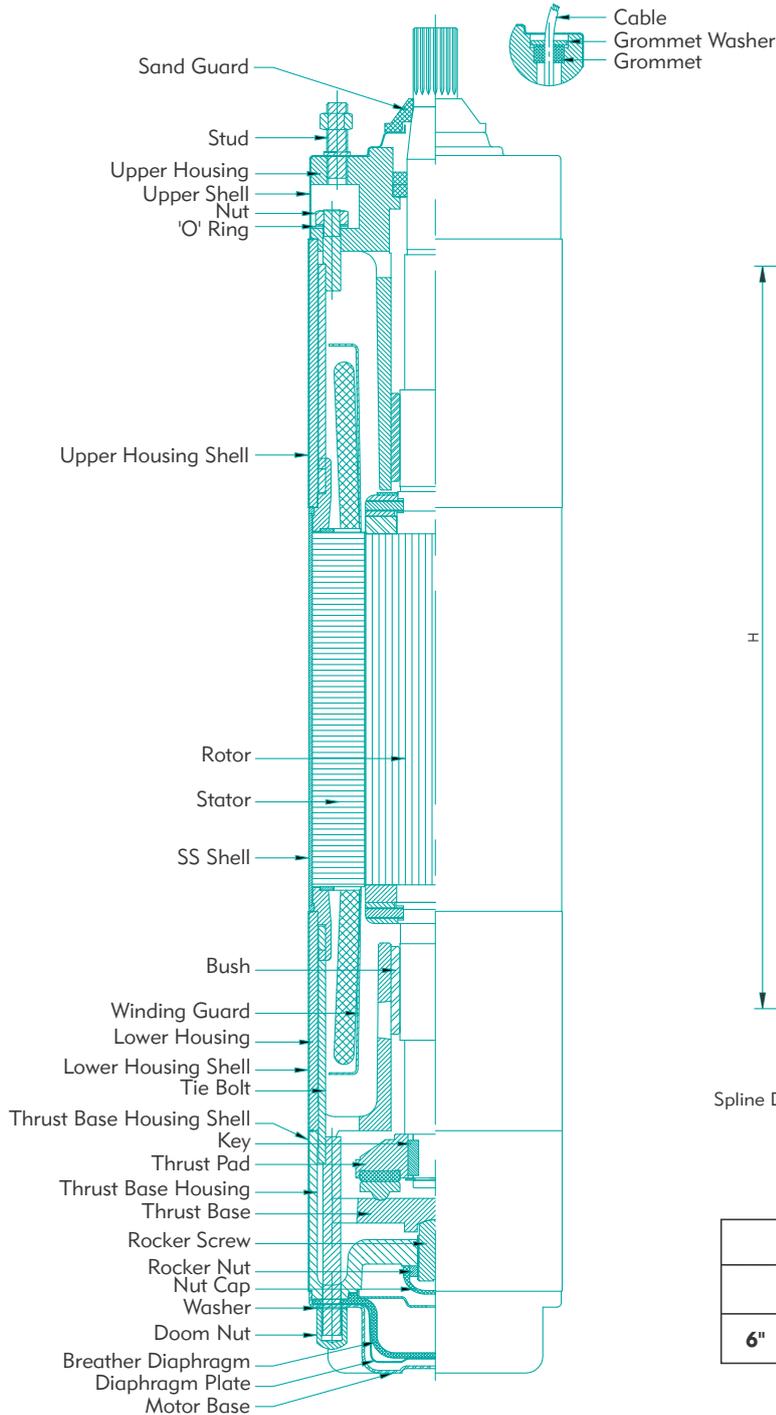
Spline Data-14 teeth, 24/48 Pitch, 30 Degree pressure angle,
Hator fillet root, Side fit, tolerance Class-5,
In accordance with ANSI B92-1

	Dimensions in inches						
	L1	L2	L3	L4	OD	OD1	OD2
4"	1.50	0.5	1.0	-	3.8	1.45	-

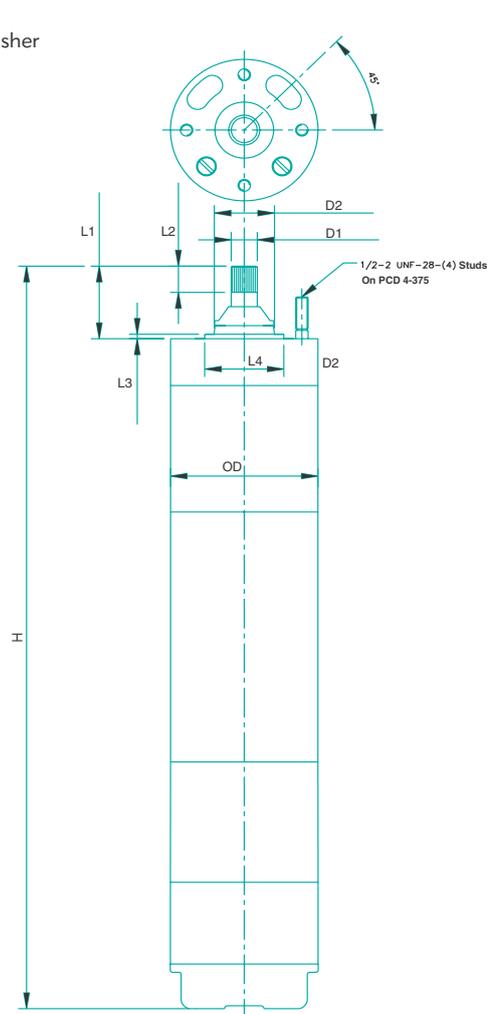
All the Mounting dimensions are in accordance with NEMA standards.

ECO SERIES (6")

Cross Sectional Drawing



Mounting Dimensions

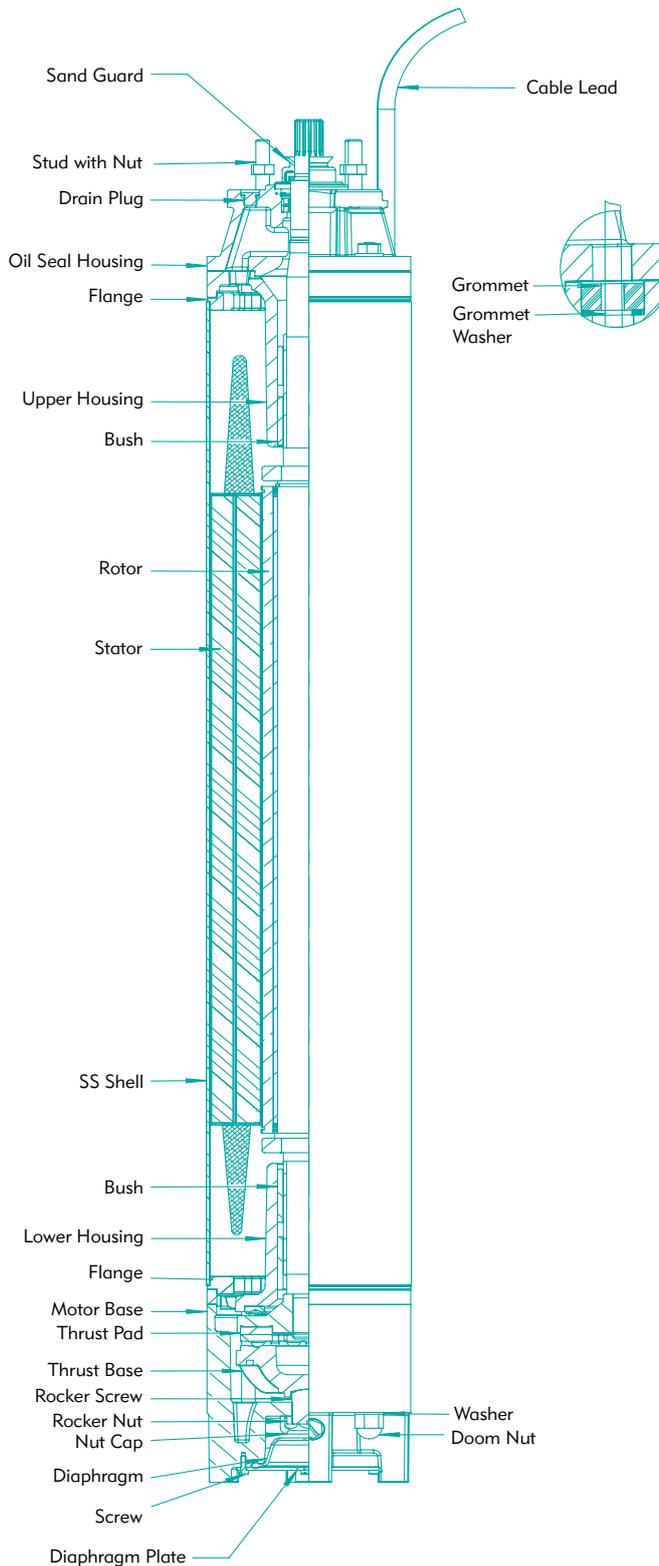


Spline Data-15 teeth, 16/32 Pitch, 30 Degree pressure angle,
Hator fillet root, Side fit, tolerance Class-5,
In accordance with ANSI B92-1

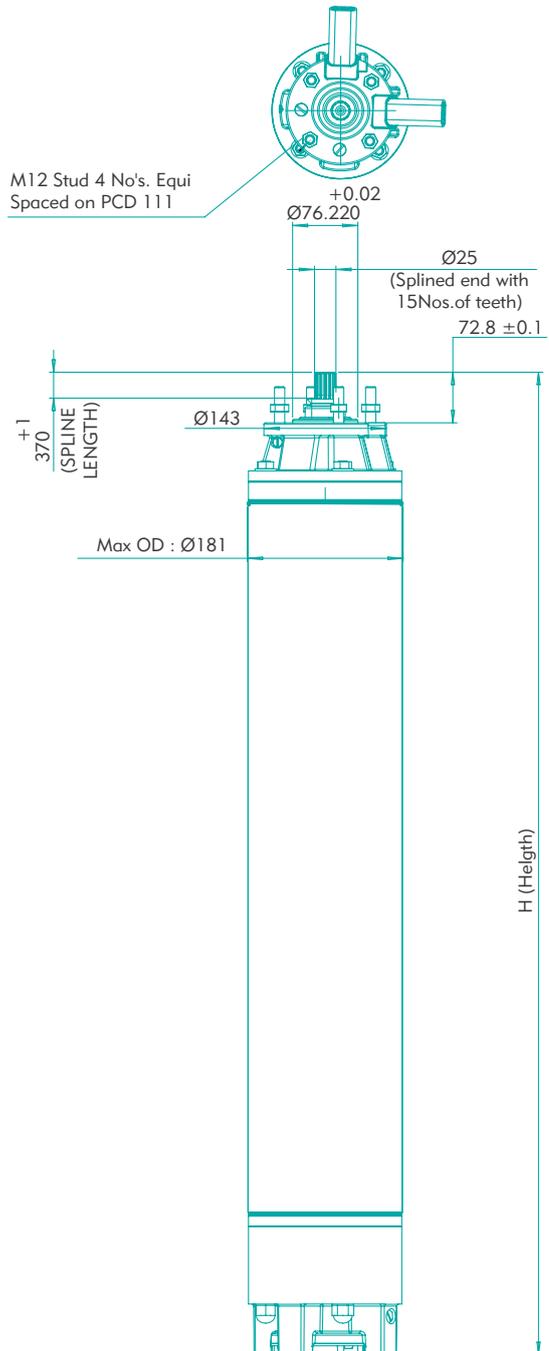
Dimensions in inches						
	L1	L2	L3	OD	DI	D2
6"	2.87	1.45	0.19	5.6	0.99	30

ECO SERIES (7")

Cross Sectional Drawing



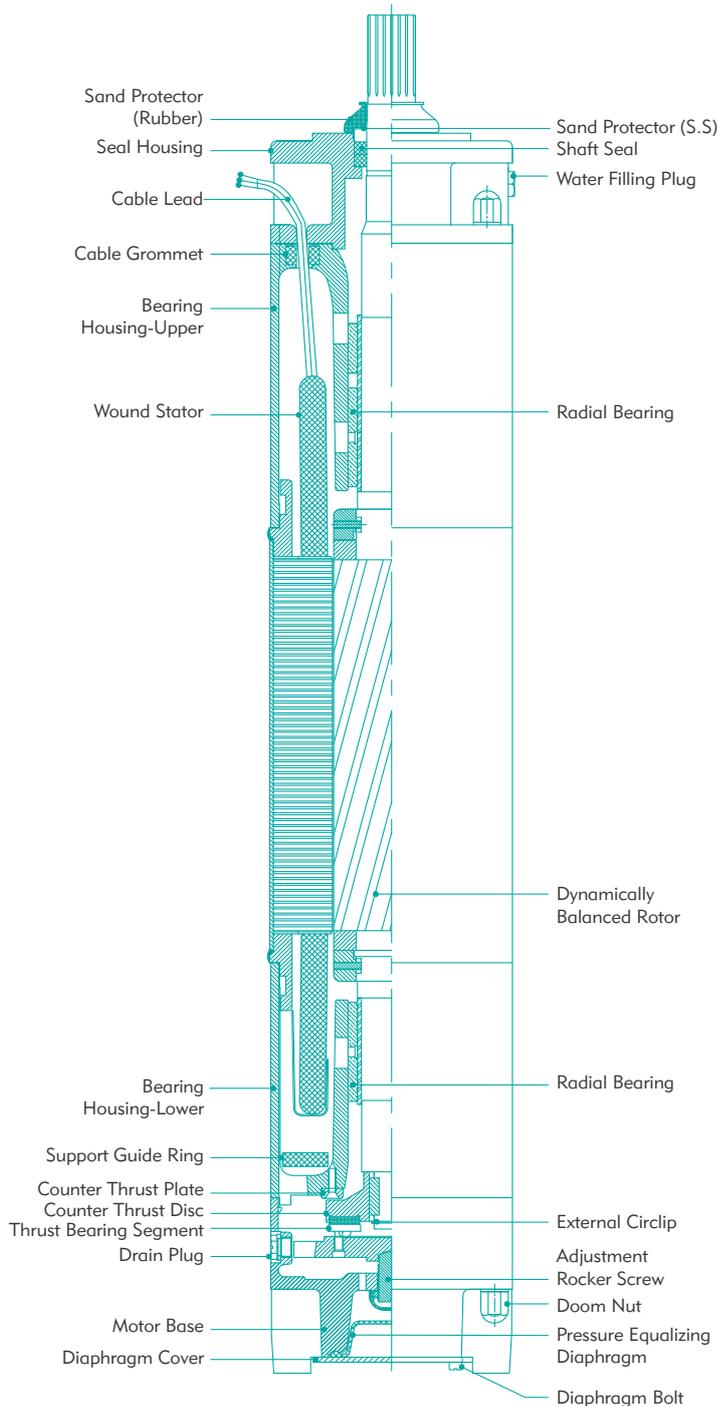
Mounting Dimensions



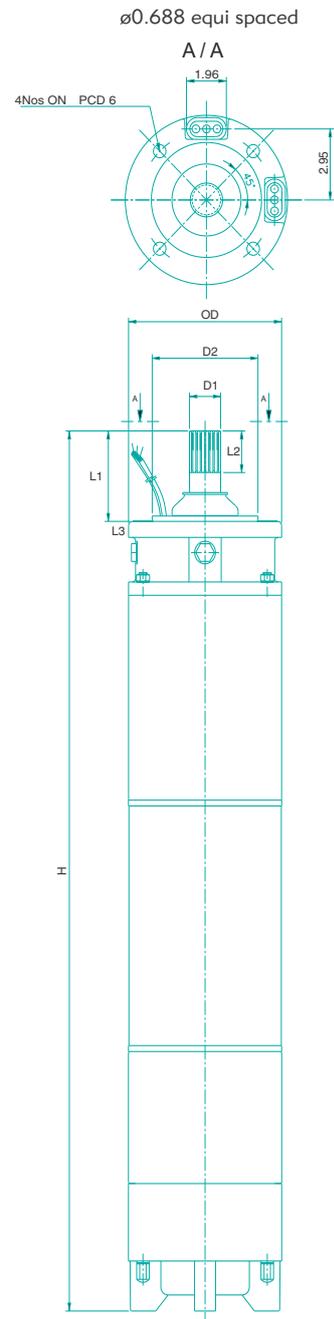
Spline Data-15 teeth, 16/32 Pitch, 30 Degree pressure angle, Hator fillet root, Side fit, tolerance Class-5, In accordance with ANSI B92-1

ECO SERIES (8")

Cross Sectional Drawing



Mounting Dimensions



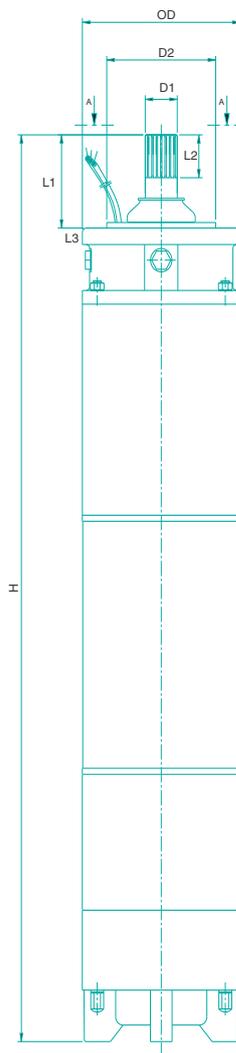
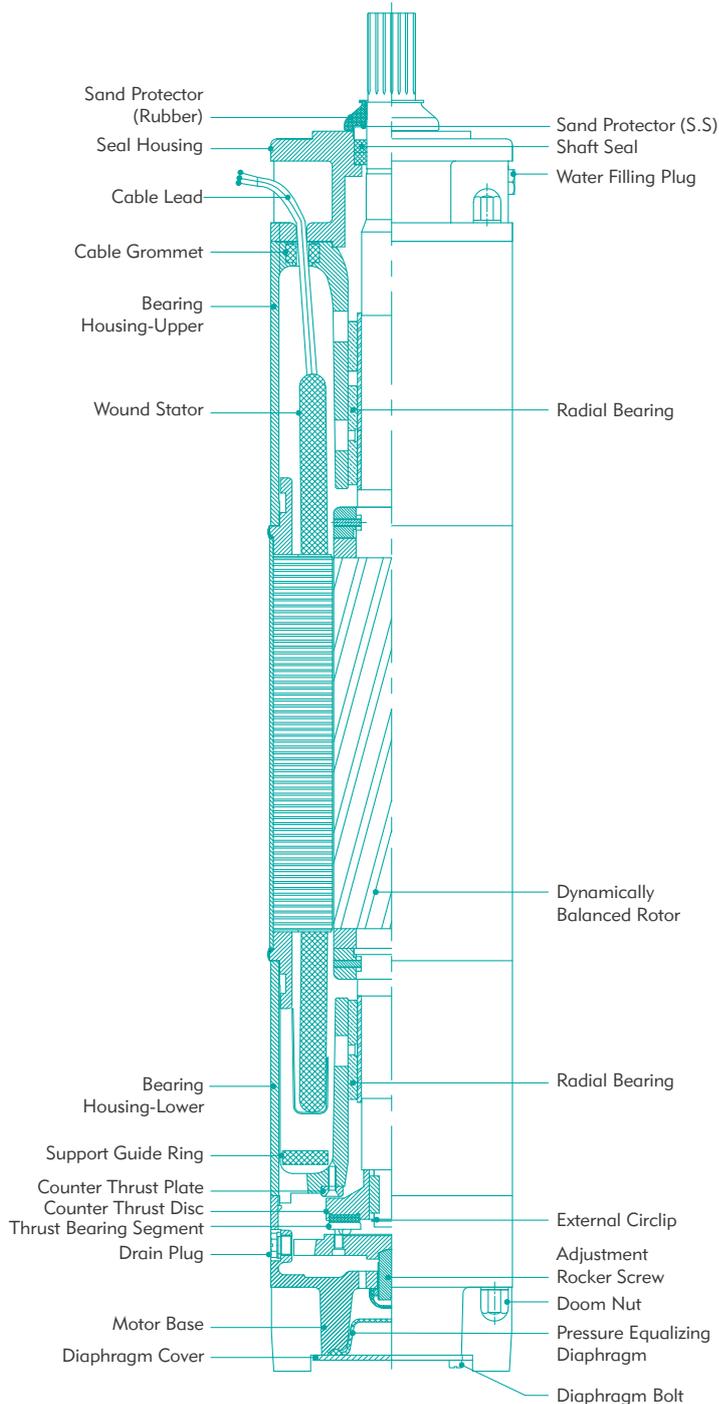
Spline Data-23 teeth, 16/32 Pitch, 30 Degree pressure angle, Hator fillet root, Side fit, tolerance Class-5, In accordance with ANSI B92-1

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.

TECHNICAL DATA

ECO SERIES > 60Hz

Specifications	Nominal Diameter (4")	Nominal Diameter (6")
Rated Output & Voltage	0.5HP to 7.5HP - 230V, 3Ph 0.5HP to 10HP - 380V, 3Ph 3HP to 10HP - 460V, 3Ph, 60Hz, AC Supply	5 to 40HP - 230V, 3Ph 5 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 68
Rotation Sequence	CCW - 3Ph	CCW - 3Ph
Outer Diameter	98mm	145mm
Duty	S1 (Continuous)	S1 (Continuous)
Linear flow	0.07m/sec	0.15m/sec
Liquid Temperature	35°C max.	Standard: 35°C Optional: High Temp - 50°C
Switching Frequency	20 Times / hour	12 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 (7")	Nominal Diameter (8")	Nominal Diameter (10")
Rated Output & Voltage	60 to 100HP - 380/460V, 60Hz, AC Supply	50 to 150HP - 380/460V, 3Ph, 60Hz, AC Supply	150 to 250HP - 380/460V, 3Ph, 60Hz, AC Supply
Rated Speed	3450 rpm	3450 rpm	3450 rpm
Voltage Tolerance	-15% + 6%	-15% + 6%	-15% + 6%
Protection	IP 68	IP 68	IP 68
Rotation Sequence	CW, CCW - 3Ph	CCW - 3Ph	CCW - 3Ph
Outer Diameter	180mm	Upto 60HP - 187mm 75-100HP - 194mm 150HP - 196mm	232mm
Duty	S1 (Continuous)	S1 (Continuous)	S1 (Continuous)
Linear flow	0.16m/sec	0.16m/sec	0.16m/sec
Liquid Temperature	Standard - 35°C, Optional: High Temp - 50°C	Standard - 35°C, Optional: High Temp - 50°C	Standard - 35°C, Optional: High Temp - 50°C
Switching Frequency	4 Times / hour	4 Times / hour	4 Times / hour
Thrust load	45500N/10000lbs	50 & 60HP - 45500N/10000lbs 75 to 150HP - 55600N/12500lbs	150 to 250HP - 75000N / 16485lbs
Shaft	Splined as per NEMA Standard	Splined as per NEMA Standard / Key Way as optional	Splined as per NEMA Standard / Key Way as optional
Mounting Dimensions	NEMA Standard	NEMA Standard	NEMA Standard
Starting Method	60 to 100HP - DOL & SD	50 to 150HP - DOL & SD	150 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	3/4 core Rubber Insulated Flat Cable leads, internally Connected with the windings
Class of Insulation	Y	Y	Y

ELECTRICAL DATA

ECO SERIES > 60Hz

4", Three Phase, 230V, 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	8.3	2280	9.6	2600	71	69	66	78	75	71	44	800
D4-30 TA/4D	3	1.15	11	3120	12	3720	72	72	68	80	78	74	58	1500
D4-40 TA/4D	4	1.15	15.5	4160	17	4720	71	73	70	78	73	70	75	1500
D4-50 TA/4D	5	1.15	18.5	4880	21	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	24	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	4.7	2256	5.8	2600	69	67	64	81	80	76	29	800
D4-30 TA/4I	3	1.15	6.4	3024	7.2	3808	74	72	69	83	82	74	36	1500
D4-40 TA/4I	4	1.15	9	4200	9.8	4800	75	75	71	78	79	72	45	1500
D4-50 TA/4I	5	1.15	10.7	4840	12	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	14.2	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	6.1	3140	6.6	3530	72	70.7	67	79	77	73	26	1500
D4-40 TA/4M	4	1.15	7.8	3950	8.5	4500	76.8	76	73.5	78	76	70	35	1500
D4-50 TA/4M	5	1.15	9.1	4800	9.8	5450	78.1	77.4	74.7	77	75	70	42	1500
D4-60 TA/4M	6	1.15	10.6	5770	11.3	6660	78.3	77.9	75.5	78	75	70	52	1500
D4-75 TA/4M	7.5	1.15	13.3	6880	14.3	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

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

ELECTRICAL DATA

ECO SERIES > 60Hz

6", Three Phase, 230V, 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 TAA/4D	5	1.15	16.1	4540	18.5	5480	77.5	76.6	76.5	80.9	81	76.1	88	3500
D6-60 TAA/4D	6	1.15	18.7	6000	21.5	6800	76	75	73.5	80	82	80	100	3500
D6-75 TAA/4D	7.5	1.15	22.5	6850	26	7860	80	80.5	79.6	82.5	81.7	77	130	3500
D6-100 TAA/4D	10	1.15	31.5	9280	36	10640	82	81.5	80	82.5	82.5	79	175	3500
D6-125 TAA/4D	12.5	1.15	36.5	11700	42	13400	80.5	81.8	80.6	83.3	82.8	80	216	3500
D6-150 TAA/4D	15	1.15	44.5	13620	50.5	15400	80.5	80.8	80.2	82.5	81.2	80.5	265	3500
D6-175 TAA/4D	17.5	1.15	50	15750	56	18200	82.5	82	81	82	79	78	348	3500
D6-200 TAA/4D	20	1.15	57	18180	65.5	20940	82	82.5	80	85.3	85.2	82	290	3500
D6-250 TAA/4D	25	1.15	72	22680	82.5	26000	82.5	82.2	81.5	87.2	87.5	83	468	3500
D6-300 TAA/4D	30	1.15	83	26880	95	30600	82.5	82	82	83.5	84	82	547	3500
D6-350 TA/4D	35	1.15	95	31800	100	36700	82.5	82.4	81	83	83	81	650	3500
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 TAA/4I	6	1.15	11	6000	13	6900	76	75	74	83	82	82	55	3500
D6-75 TAA/4I	7.5	1.15	14	7200	16	8520	77	76	76	86	85	85	66	3500
D6-100 TAA/4I	10	1.15	18.2	9640	21	10900	79	78	78	88	87	85	84	3500
D6-125 TAA/4I	12.5	1.15	23	11700	25.5	13700	80	79	79	89	87	87	104	3500
D6-150 TAA/4I	15	1.15	26	13680	30	15500	82	81	80	84	83	82	132	3500
D6-175 TAA/4I	17.5	1.15	30	13680	34.5	15500	82	81	80	84	83	82	132	3500
D6-200 TAA/4I	20	1.15	33.5	18300	38.5	21580	80	80	80	87	86	85	180	3500
D6-250 TAA/4I	25	1.15	43	22680	48.5	26000	85	86	85	90	91	89	230	3500
D6-300 TAA/4I	30	1.15	48	25920	55.2	29600	85	86	85	84	84	83	300	3500
D6-350 TA/4I	35	1.15	58.5	30650	65.5	35800	84	85	84	83.5	84	82	355	6000
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

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

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

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 TAA/4M	5	1.15	7.9	4680	8.5	5120	80.5	79	77.5	76	78.5	75.9	38	3500
D6-60 TAA/4M	6	1.15	9	5900	10.5	6720	81	82	80	83	82	78	48	3500
D6-75 TAA/4M	7.5	1.15	13	7000	14	8050	78	79	78.5	81	80	79.5	60	3500
D6-100 TAA/4M	10	1.15	15	9260	16.8	10600	80	81	80	82	78	77	78	3500
D6-125 TAA/4M	12.5	1.15	18	11680	20.8	13400	79.8	80	79.5	84	82	81.8	90	3500
D6-150 TAA/4M	15	1.15	22	13200	25	15300	82.5	83	82	81.7	80	79	120	3500
D6-175 TAA/4M	17.5	1.15	25	13200	29	15300	82.5	83	82	81.7	80	79	120	3500
D6-200 TAA/4M	20	1.15	28	18200	32	20800	82	82.5	82	88	86	85.5	165	3500
D6-250 TAA/4M	25	1.15	33	22320	38	25600	82.5	83	82.2	86.8	82.5	82	220	3500
D6-300 TAA/4M	30	1.15	38.8	26750	44.5	30750	82.5	83.5	82	86.5	85	82	260	3500
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

7", 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		
D7-600 TB/4I	60	1.15	98	51940	109	59900	87	87	86	83	82	76	590	10000
D7-750 TB/4I	75	1.15	116	63500	131	73300	86	86	85	85	83	78	710	12500
D7-850 TB/4I	85	1.15	135	73500	152	84900	87	87	84	85	83	79	820	12500
D7-1000 TB/4I	100	1.15	155	84850	175	97850	88	88	88	85	83	78	945	12500

7", 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		
D7-600 TB/4M	60	1.15	78	52400	88.5	60206	88	87	86	85	85	83	530	10000
D7-750 TB/4M	75	1.15	96	64400	110	74200	86	85	84	85	84	82	720	12500
D7-850 TB/4M	85	1.15	106	72500	122	84000	87	87	85	86	85	83	790	12500
D7-1000 TB/4M	100	1.15	126	85400	145	99200	87	88	86	85	85	83	940	12500

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

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	12500
D8-850 TB/4I	85	1.15	135	73500	152	84900	87	87	84	85	83	79	820	12500
D8-1000 TB/4I	100	1.15	155	84850	175	97850	88	88	88	85	83	78	945	12500
D8-1250 TB/4I	125	1.15	198	107200	223	123000	86	86	86	84	82	76	1200	12500
D8-1500 TB/4I	150	1.15	230	124800	260	144500	87	87	86	86	85	82	1350	12500

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	12500
D8-850 TB/4M	85	1.15	106	72500	122	84000	87	87	85	86	85	83	790	12500
D8-1000 TB/4M	100	1.15	126	85400	145	99200	87	88	86	85	85	83	940	12500
D8-1250 TB/4M	125	1.15	155	105600	177	122800	88	88	86	87	86	84	1150	12500
D8-1500 TB/4M	150	1.15	197	124500	220	143500	88	88	86	85	84	82	1400	12500

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

ELECTRICAL DATA

ECO SERIES > 60Hz

10", 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	SF	FL		
D10-1500 TB/4I	150	1.15	225	123600	256	141520	89	89	83	83	1125	16500
D10-1750 TB/4I	175	1.15	265	149425	300	171090	87	87	87	87	1325	16500
D10-2000 TB/4I	200	1.15	300	170455	345	195170	88	88	87	87	1500	16500
D10-2250 TB/4I	225	1.15	338	187500	385	214690	88	88	87	87	1690	16500
D10-2500 TB/4I	250	1.15	371	210230	420	240710	88	88	87	87	1855	16500

10", 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	SF	FL		
D10-1500 TB/4M	150	1.15	190	126440	215	144770	87	87	89	89	787	16500
D10-1750 TB/4M	175	1.15	220	149425	250	171090	87	87	89	89	961	16500
D10-2000 TB/4M	200	1.15	250	170455	280	195170	88	88	89	89	1064	16500
D10-2250 TB/4M	225	1.15	281	187500	315	214690	88	88	89	89	1208	16500
D10-2500 TB/4M	250	1.15	305	210230	350	240710	88	88	83	83	1368	16500

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

DIMENSIONS & WEIGHTS

ECO SERIES > 60Hz

4", Three Phase, 230, 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	15.9	32	1.5	1.5	-
D4-07 TA/4D	0.75	17.5	36	1.5	1.5	-
D4-10 TA/4D	1	18.7	40	1.5	1.5	-
D4-15 TA/4D	1.5	21.1	46	2.5	1.5	-
D4-20 TA/4D	2	28.2	60	2.5	1.5	-
D4-30 TA/4D	3	32.5	71	2.5	1.5	1.5
D4-40 TA/4D	4	34.4	79	2.5	2.5	1.5
D4-50 TA/4D	5	37.4	88	4	2.5	2.5
D4-60 TA/4D	6	39.8	96	4	2.5	2.5
D4-75 TA/4D	7.5	42.3	103	4	2.5	2.5
D4-100 TA/4D	10	42.7	105	-	2.5	2.5

6", Three Phase, 230V Submersible Motors

Motor Type*	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)
				DOL
D6-50 TAA/4D	5	28.9	93	2.5
D6-60 TAA/4D	6	29.7	97	2.5
D6-75 TAA/4D	7.5	31.7	110	6
D6-100 TAA/4D	10	33.6	122	6
D6-125 TAA/4D	12.5	34.8	128	6
D6-150 TAA/4D	15	36.4	139	10
D6-175 TAA/4D	17.5	38	148	10
D6-200 TAA/4D	20	39.5	157	10
D6-250 TAA/4D	25	42.7	177	10
D6-300 TAA/4D	30	45.3	205	16
D6-400 TA/4D	40	48.3	227	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.

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)	
				DOL	SD
D6-60 TAA/4I	6	29.6	97.66	2.5	-
D6-75 TAA/4I	7.5	31.6	109.52	4	2.5
D6-100 TAA/4I	10	33.6	120.69	4	2.5
D6-125 TAA/4I	12.5	34.7	127.91	6	2.5
D6-150 TAA/4I	15	36.3	138.38	6	4
D6-175 TAA/4I	17.5	37.9	147.58	6	4
D6-200 TAA/4I	20	39.5	157.04	10	4
D6-250 TAA/4I	25	42.6	175.47	10	4
D6-300 TAA/4I	30	45.4	188.43	10	4
D6-350 TA/4I	35	46.1	194.68	10	6
D6-400 TA/4I	40	48.3	206.76	10	6
D6-500 TA/4I	50	51.2	215.75	16	6
D6-600 TA/4I	60	54.2	220	16	10

6", Three Phase, 460V, Submersible Motors

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

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

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

DIMENSIONS & WEIGHTS

ECO SERIES > 60Hz

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

Motor Type	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)	
				DOL	SD
D7-600 TB/4I	60	55.6	395	16	10
D7-750 TB/4I	75	60.3	439	25	16
D7-850 TB/4I	85	62.6	443	25	16
D7-1000 TB/4I	100	64.6	485	35	25

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

Motor Type*	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)	
				DOL	SD
D8-500 TB/4I	50	45.3	445	16	10
D8-600 TB/4I	60	46.9	450	16	10
D8-750 TB/4I	75	50.0	459	25	16
D8-850 TB/4I	85	52.8	470	25	16
D8-1000 TB/4I	100	57.1	483	25	16
D8-1250 TB/4I	125	60.8	483	25	16
D8-1500 TB/4I	150	64.8	564	35	25

10", Three Phase, 380V, Submersible Motors

Motor Type*	HP	Height (H) in Inches	Nett.Wt. in lbs	Standard Motor Leads (Sq.mm)	
				DOL	SD
D10-1500 TB/4I	150	22	691	70	35
D10-1750 TB/4I	175	23.5	752	70	35
D10-2000 TB/4I	200	26.4	803	70	35
D10-2250 TB/4I	225	28.3	900	70	35
D10-2500 TB/4I	250	29.7	968	70	35

* The penultimate digit of the model identification "4" denotes DOL & which will be replaced with "6" in case of 3 phase SD motors.

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 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 withstand 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

Public & Industrial Water Supply
Sumps / Reservoirs
Fire Fighting Equipments
Pressure Boosting Systems
Irrigation & Fountains
Water Treatment Plants
High Rise Buildings
Agricultural Lands
Stock Breeding, Laboratories
Sprinkler Systems and Mining

Characteristics

Highly reliable, tried & tested.
High efficiency
Stainless steel stator shell, motor base & housings shell to prevent corrosion.
The high quality shaft seal and sand guard prevent ingress of liquid and sand.
Uniquely designed thrust bearing to withstand high down thrust loads.
Higher starting torque to run in tough conditions.
The shaft is designed for optimal power transmission.
End connections & shaft extension are designed according to NEMA standards.

GENERAL DATA

ELEGANT SERIES > 60Hz

Construction Features

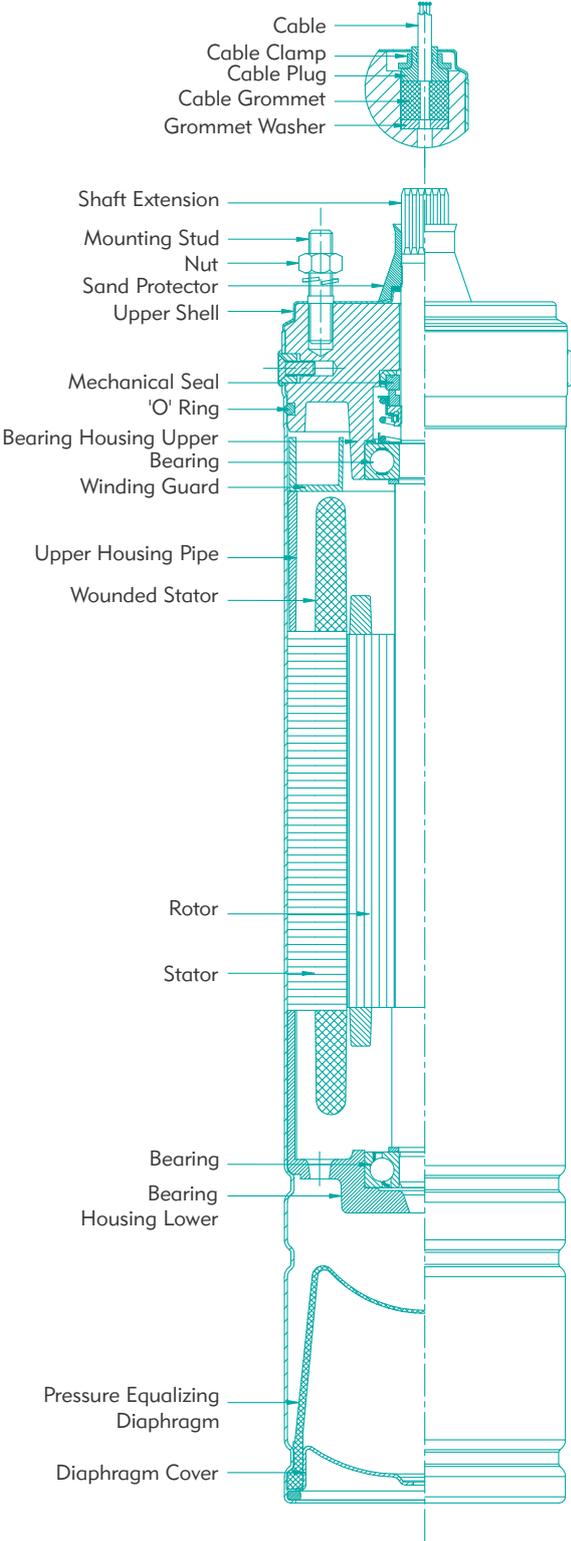
Components	Version - TA
Seal Housing	CI with SS304 top shell
Upper & Lower Support	Cast Iron
Shaft Seal	Carbon Vs Ceramic
Wounded Stator Shell	SS304
Spline Shaft	SS420
Rotor Shaft	SS420 / EN-8D
Pressure Equalizing Diaphragm	High Nitrile Rubber
Diaphragm Bottom Plate	SS304

Technical Data

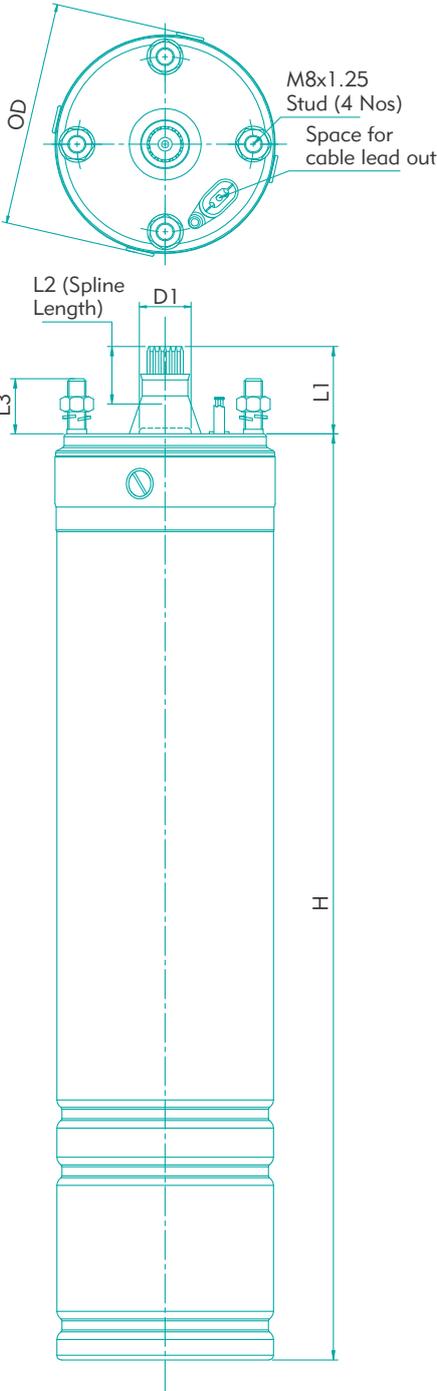
Specifications	Nominal Diameter (4")
Rated Output & Voltage	0.5HP - 2HP - Single Phase 2 Wire 0.5HP - 3HP - Single Phase 3 Wire 0.5HP - 10HP - Three Phase 4 Wire
Rated Speed	3450 rpm
Voltage Tolerance	+6%
Protection	IP 68
Rotation Sequence	1Ph - CCW, 3Ph - CCW
Outer Diameter	98mm
Duty	S1 (Continuous)
Linear flow	0.15m/sec
Liquid Temperature	38°C
Switching frequency	30 Times / hour
Thrust Load	0.5 to 1HP - 1500N / 337 lbs 1.5 to 5HP - 2500N / 562 lbs 7.5 to 10HP - 4450N / 1011 lbs
Shaft	Splined as per NEMA standard
Mounting Dimensions	NEMA standard
Starting Method	Single Phase 2 Wire Models - 2+1 TPE Flat Cable 0.5-2HP Single Phase 3 Wire Models - 3+1 TPE Flat Cable 0.5-3HP Three Phase 3+1 TPE Flat Cable 0.5-10HP
Motor Lead Out Type	4 Core Flat cable
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

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

ELECTRICAL DATA

ELEGANT SERIES > 60Hz

4", Single Phase, 230V, 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, 230V, 3 wire Submersible Motors

Motor Type	HP	SF	SF AMPS	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
						F.L.	Starting	
N4-05 TA/4D	0.5	1.6	3.5	0.7	62	2.2	10	337
N4-07 TA/4D	0.75	1.5	5.2	0.71	65	3.5	16	337
N4-10 TA/4D	1	1.4	6.7	0.72	70	4.8	20	337
N4-15 TA/4D	1.5	1.3	9.1	0.7	71	7.0	28	562
N4-20 TA/4D	2	1.25	10.1	0.7	72	8.1	34	562
N4-30 TA/4D	3	1.15	12.4	0.72	75	10.8	45	562
N4-40 TA/4D	4	1.15	16.9	0.76	74	14.7	63	562
N4- 50 TA/4D	5	1.15	19.1	0.75	77	16.6	71	1011
N4-55 TA/4D	5.5	1.15	21.1	0.76	78	18.8	82	1011
N4-75 TA/4D	7.5	1.15	28	0.78	78	25	104	1011
N4-100 TA/4D	10	1.15	38.5	0.8	78	33.5	128	1011

ELECTRICAL DATA

ELEGANT SERIES > 60Hz

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

Motor Type	HP	SF	SF AMPS	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
						F.L	Starting	
N4-05 TA/4I	0.5	1.6	2.1	0.7	62	1.3	6.5	337
N4-07 TA/4I	0.75	1.5	3.0	0.71	65	2	11	337
N4-10 TA/4I	1	1.4	3.6	0.72	70	2.6	14	337
N4-15 TA/4I	1.5	1.3	4.7	0.7	71	3.6	20	562
N4-20 TA/4I	2	1.25	6.1	0.7	72	4.9	25	562
N4-30 TA/4I	3	1.15	6.9	0.72	75	6	30	562
N4-40 TA/4I	4	1.15	9.4	0.76	74	8.2	37	562
N4-50 TA/4I	5	1.15	10.7	0.75	77	9.3	42	562
N4-55 TA/4I	5.5	1.15	12	0.76	78	10.4	47	1011
N4-75 TA/4I	7.5	1.15	15.8	0.78	77	13.7	65	1011
N4-100 TA/4I	10	1.15	21.8	0.80	78	19	76	1011

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

Motor Type	HP	SF	SF AMPS	PF CosØ	Eff.%	Current Amps		Max Down Thrust load (lbs)
						F.L	Starting	
N4-05 TA/4M	0.5	1.6	1.8	0.76	62	1.1	5.5	337
N4-07 TA/4M	0.75	1.5	2.4	0.75	66	1.6	8	337
N4-10 TA/4M	1	1.4	2.8	0.75	70	2	10	337
N4-15 TA/4M	1.5	1.3	3.6	0.74	72	2.8	14	562
N4-20 TA/4M	2	1.25	4.8	0.73	74	3.8	19	562
N4-30 TA/4M	3	1.15	6.3	0.74	74	5.5	26	562
N4-40 TA/4M	4	1.15	8.0	0.74	76	6.9	34	562
N4-50 TA/4M	5	1.15	10	0.77	75	8.7	43	562
N4-55 TA/4M	5.5	1.15	11.5	0.78	76	10	50	1011
N4-75 TA/4M	7.5	1.15	14.7	0.78	78	12.8	65	1011
N4-100 TA/4M	10	1.15	18.5	0.82	80	16	87	1011

DIMENSIONS & WEIGHTS

ELEGANT SERIES > 60Hz

4", Single Phase, 230V, 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	1.5
N4-07 TA/3D	0.75	15	18	1.5
N4-10 TA/3D	1	15.7	21	1.5
N4-15 TA/3D	1.5	16.9	23	1.5
N4-20 TA/3D	2	18.9	27	2.5
N4-30 TA/3D	3	20.5	32	2.5

4", Three Phase, 230V, 3 wire Submersible Motors

Motor Type	HP	Height H (Inches)	Weight (lbs)	Cable Size (sq.mm)
N4-05 TA/4D	0.5	16.1	18	1.5
N4-07 TA/4D	0.75	16.1	18	1.5
N4-10 TA/4D	1	16.9	20	1.5
N4-15 TA/4D	1.5	17.7	22	1.5
N4-20 TA/4D	2	18.9	26	1.5
N4-30 TA/4D	3	21.3	31	1.5
N4-40 TA/4D	4	23.7	40	2.5
N4- 50 TA/4D	5	25.6	45	2.5
N4-55 TA/4D	5.5	25.6	44	2.5
N4-75 TA/4D	7.5	28.7	58	2.5
N4-100 TA/4D	10	33.5	72	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	18	1.5
N4-07 TA/4I	0.75	16.1	18	1.5
N4-10 TA/4I	1	16.9	20	1.5
N4-15 TA/4I	1.5	17.7	22	1.5
N4-20 TA/4I	2	18.9	26	1.5
N4-30 TA/4I	3	21.3	31	1.5
N4-40 TA/4I	4	23.7	40	2.5
N4-50 TA/4I	5	25.6	45	2.5
N4-55 TA/4I	5.5	25.6	45	2.5
N4-75 TA/4I	7.5	28.7	58	2.5
N4-100 TA/4I	10	33.5	72	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	18	1.5
N4-07 TA/4M	0.75	16.1	18	1.5
N4-10 TA/4M	1	16.9	20	1.5
N4-15 TA/4M	1.5	17.7	22	1.5
N4-20 TA/4M	2	18.9	26	1.5
N4-30 TA/4M	3	21.2	31	2.5
N4-40 TA/4M	4	23.7	40	2.5
N4-50 TA/4M	5	25.6	45	2.5
N4-55 TA/4M	5.5	25.6	45	2.5
N4-75 TA/4M	7.5	28.7	58	2.5
N4-100 TA/4M	10	33.5	72	2.5

CABLE SELECTION CHART

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

Motor Rating		Cable Size in American Wire Gauge										Maximum Length in Meter
Volts	HP	14	12	10	8	6	4	3	2	1	1/0	
230 Volt 60Hz	0.5	105	168	424	671	1071	1349	1702	2145	2703	-	Maximum Length in Meter
	0.75	80	127	322	510	813	1024	1292	1628	2052	2589	
	1	62	99	250	395	631	795	1002	1263	1591	2008	
	1.5	54	86	217	344	549	691	872	1099	1384	1747	
	2	50	80	202	321	511	644	812	1024	1290	1628	
	3	37	59	150	238	379	478	602	759	957	1207	
5	-	-	95	151	241	304	383	482	608	767		

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

Motor Rating		Cable Size in American Wire Gauge												Maximum Length in Meter	
Volts	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0		4/0
230 Volt 60Hz	0.5	257	409	649	1034	1638									
	0.75	185	295	468	745	1181	1883								
	1	145	230	366	582	923	1472	1855							
	1.5	109	173	276	439	696	1109	1398	1762						
	2	83	132	210	334	529	844	1063	1340	1689					
	3	66	105	168	267	423	675	850	1072	1351	1703	2149			
	4	0	0	120	191	302	482	607	766	965	1216	1535			
	5	34	54	86	137	217	346	436	550	693	873	1102	1390	1752	
	6	29	16	73	116	184	294	370	466	588	740	934	1178	1485	
	7.5		38	61	97	154	245	309	390	491	619	781	985	1242	
	10		30	48	76	121	193	243	306	386	486	614	774	976	
	12.5			41	65	103	165	207	262	329	415	524	661	833	
	15			34	55	86	138	173	219	276	347	439	553	697	
	17			30	47	74	118	149	188	237	299	377	475	599	
	20				41	66	105	132	166	210	265	334	421	530	
	25				34	54	86	109	137	173	218	275	347	437	
	30					46	73	92	116	147	185	233	294	371	
35					33	52	66	84	105	133	167	211	266		
40						45	56	71	89	113	142	179	226		
50						40	50	63	79	100	126	159	201		

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

Motor Rating		Cable Size in American Wire Gauge												Maximum Length in Meter	
Volts	HP	14	12	10	8	6	4	3	2	1	1/0	2/0	3/0		4/0
230 Volt 60Hz	0.5	539	858	1363	2170	3439									
	0.75	389	619	983	1565	2480	3955								
	1	304	484	768	1223	1939	3092	3895							
	1.5	229	365	579	922	1461	2330	2935	3701						
	2	174	277	440	701	1111	1771	2231	2815	3548					
	3	139	222	352	561	888	1417	1785	2252	2838	3576	4512			
	4	0	0	251	401	635	1012	1275	1608	2027	2554	3223			
	5	71	114	180	287	456	727	916	1155	1455	1834	2314	2918	3679	
	6	30	96	153	244	386	616	776	979	1234	1555	1962	2474	3119	
	7.5		80	128	204	323	515	649	819	1032	1300	1641	2069	2609	
	10		63	101	160	254	405	510	643	811	1022	1289	1626	2050	
	12.5			86	137	217	346	436	549	692	872	1100	1388	1750	
	15			72	114	181	289	364	460	579	730	921	1161	1464	
	17.5			62	98	156	249	313	395	498	627	792	998	1259	
	20				87	138	220	277	350	441	555	701	884	1114	
	25				72	114	181	228	288	363	457	577	728	917	
	30					97	154	194	245	308	389	490	618	780	
35					69	110	139	175	221	279	351	443	559		
40						94	118	149	188	237	298	376	475		
50						83	105	132	166	210	265	334	421		

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 (DOL) Motors, Maximum Length of Copper Cable - Single cable per phase

Motor Rating		Cable Size in American Wire Gauge																		
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	724	1152	1829	2913	4616														
	0.75	573	912	1448	2306	3654														
	1	382	608	966	1537	2436														
	1.5	287	456	724	1153	1827														
	2	237	377	599	954	1512														
	3	191	304	483	769	1218														
	4	145	0	366	582	923														
	5		166	263	419	664														
	6		140	223	355	562	897													
	7.5		114	181	288	457	728													
	10		88	139	222	351	561													
	12.5		73	116	184	292	466													
	15			98	156	248	395	498												
	17.5			89	141	223	357	484												
	20				110	175	291	397	577											
	25				98	155	247	300	378	476										
	30					130	207	281	354	447	563									
	35						184	249	314	396	499									
	40						153	193	244	270	340	430	542							
	50						123	155	195	246	272	344	394	497						
	60							145	183	188	237	300	361	433						
	75								170	168	212	243	307	387						
	85								157	156	196	225	284	358						
	100									134	168	212	267	297	270					
	125										135	170	215	270	246	323				
	150											163	205	259	228	286				
	175													201	201	216	303			
	200														152	197	227			
225															150	230	243	329		
250																175	185	250		
300																	168	178	240	
350																		155	209	
400																		132	179	

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

Motor Rating		Cable Size in American Wire Gauge																		
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	1519	2419	3842	6117	9693														
	0.8	1203	1915	2980	4842	7673														
	1	802	1277	2028	3228	5116														
	1.5	601	957	1521	2421	3837														
	2	498	792	1259	2004	3175														
	3	401	638	1014	1614	2558														
	4	304	484	768	1223	1939														
	5		348	553	881	1395														
	6		294	468	745	1180	1883													
	7.5		239	380	605	959	1530													
	10		184	292	466	738	1177													
	12.5		153	243	387	614	979													
	15			206	328	520	830	1045												
	17.5			186	296	469	749	1016												
	20				231	367	611	833	1212											
	25				205	326	520	629	794	1000										
	30					273	435	590	745	938	1183									
	35						386	523	660	832	1048									
	40						322	406	512	568	715	903	1138							
	50						258	325	409	516	572	722	828	1044						
	60							305	385	396	499	629	757	910						
	75								357	354	446	511	644	813						
	85								330	327	412	472	596	751						
	100									280	353	445	562	623	517					
	125										283	357	450	568	479	679				
	150											342	431	543	423	600				
	175													423	320	454	636			
	200															414	477			
225															315	483	511	690		
250																367	389	525		
300																	353	374	504	
350																		325	439	
400																			278	375

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CABLE SELECTION CHART

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

Motor Rating		Cable Size in American Wire Gauge																		
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	1149	1835	2883																
	0.75	832	1326	2088																
	1	701	1119	1759	2765															
	1.5	518	1131	1301	2051															
	2	396	631	997	1570	2454														
	3	305	488	768	1210	1890														
	4	228	0	576	918	1454														
	5	180	290	457	719	1128	1728													
	5.5	170	270	429	684	1083	1504													
	6	155	247	393	626	992	1250													
	7.5	128	207	326	515	805	930	1554	1908	2188										
	10	94	152	241	381	597	798	1158	1426	1753	2149									
	12.5		125	198	316	500	637	1006	1245	1513	1870	2314								
	15		104	165	259	408	491	792	975	1198	1466	1798	2167							
	20			125	198	314	396	610	753	927	1137	1396	1686							
	25				162	253	326	494	607	747	917	1128	1362	1655						
	30				131	207	282	405	500	619	759	933	1128	1372	1563	1783				
	35					177	241	349	432	534	647	817	968	1169	1409	1512				
	40					152	195	299	369	454	558	686	826	973	1134	1293				
	50						165	244	299	369	451	552	668	808	914	1039	1167	1271	1476	
	60							204	253	311	381	469	564	683	772	878	985	1076	1277	
	75								207	256	314	384	463	564	636	728	819	896	1045	
	85									227	280	346	418	504	574	648	698	759	887	
	100									189	232	287	344	421	472	543	610	665	774	
	110											212	267	319	337	416	441	467	567	
	125												226	271	305	369	421	472	515	594
	150													232	280	317	360	405	443	512
	175														247	281	321	360	394	458
	200															244	277	310	342	396
	225																	270	300	345
250																	230	270	300	
300																	190	230	255	
350																	150	190	210	
400																	110	150	160	
450																	100	105	142	
500																	88	93	126	
550																	80	85	115	
600																	72	76	102	

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

Motor Rating		Cable Size in American Wire Gauge																		
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	268	433	686	1052	1692	2627													
	0.75	226	360	572	911	1444	2304													
	1	208	330	524	835	1323	2110													
	1.5	192	311	488	771	1207	1875	2332	2862											
	2	140	229	360	570	896	1393	1737	2140	2627										
	3	112	178	283	451	715	1140	1437	1811	2283										
	4	94	0	247	387	613	954	1189	1463	1768	2198	2697								
	5	70	116	186	296	469	735	914	1128	1390	1704	2094	2527							
	5.5	58	94	149	241	378	594	741	908	1119	1375	1692	2042							
	6		76	125	195	311	488	607	750	927	1137	1399	1692							
	7.5				102	162	257	411	517	652	822	1036	1307	1525						
	10				91	146	229	360	448	552	680	835	1027	1244						
	12.5					113	180	293	366	448	552	677	826	1000						
	15					98	152	247	305	378	466	570	704	844						
	20						128	201	247	311	384	469	576	695						
	25							176	222	279	352	409	515	650	2481					
	30							152	186	232	283	347	430	515	2057	2344	2661			
	35								155	195	246	310	391	450	1818	2079	2213			
	40								143	180	223	268	338	405	1503	1704	1942			
	50									155	192	235	290	347	1210	1375	1564	1750	1911	2216
	60										168	207	253	305	1024	1161	1320	1481	1618	1984
	75											180	223	268	844	960	1097	1234	1347	1573
	85												190	230	750	820	997	1086	1149	1496
	100													180	631	713	817	917	1000	1164
	110														568	621	756	882	933	1008
	125														457	558	634	713	777	896
	150														421	479	546	610	664	771
	175														372	424	482	543	594	692
	200														326	369	421	472	515	600
	225														280	320	380	430	475	560
250														250	290	340	390	435	520	
300														220	260	300	340	395	480	
350														190	220	260	290	350	440	
400															190	220	240	310	400	
450															125	178	208	220	297	
500															111	158	184	194	262	
550															101	144	168	177	239	
600															90	128	149	158	213	

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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 ls 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 x 10 ⁶	220	264.2	35.3147
0.001	1	1000	0.22	0.2642	0.0353
1 x 10 ⁻⁵	0.001	1	2.2 x 10 ⁻⁴	2.642 x 10 ⁻⁴	3.53 x 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/cm ²	Pound force per square inch psi	Foot for water ft H ₂ O	Meter of water m H ₂ O	Millimeter of mercury mm Hg	Inch of mercury in Hg
1	0.001	1 x 10 ⁻⁵	1.02 x 10 ⁻⁵	1.45 x 10 ⁻⁴	3.35 x 10 ⁻⁴	1.02 x 10 ⁻⁴	0.0075	2.95 x 10 ⁻⁴
1000	1	0.01	0.0102	0.145	0.335	0.102	7.5	0.295
1 x 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 x 10 ⁻⁴	0.0011
0.454	1	0.0089	4.54 x 10 ⁻⁴	4.46 x 10 ⁻⁴	5.0 x 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



T H E P O W E R B E H I N D T H E F O R C E

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 (SS 304, SS 316 & SS 904L), Submersible Motors (CI, SS 304, SS 316 & SS 904L - HT on optional), Starters & Control Panels, Centrifugal Monoblock Pumps, End Suction Pumps, Close Coupled Pumps, Horizontal Split Case Pumps, Horizontal & Vertical Multistage Pumps, Inline Booster Systems, Sewage, Drainage & Dewatering Pumps, Induction Motors, Submersible Cables, Riser Pipes and Column Pipes.

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.

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