

AMUR

SUBMERSIBLE MOTOR (50 Hz / 60 Hz)



ISO 9001 : COMPANY

AMUR Cast Iron and Stainless Steel Submersible motors are 2 pole squirrel cage induction motors designed as rewindable, wet type and cooled with water filled in.

Features

- ▶ High efficient electrical design and low operation cost.
- ▶ All Motors prefilled and 100% tested.
- ▶ Strong & robust construction to survive in any site condition.
- ▶ Sand slinger and Shaft seal for high performance in sand.
- ▶ A special Diaphragm ensures pressure compensation inside the motor.
- ▶ Water lubricated thrust and radial bearings enable a maintenance free operation.
- ▶ Cooling and lubrication by non toxic fluid.
- ▶ Cable material according to drinking water regulations.
- ▶ Motor manufactured in ISO 9001 certified manufacturing facility.
- ▶ Motor Mounting with NEMA Standard.
- ▶ Stainless steel Shaft.

Product Specification

Standard Rewindable Submersible Motors (Cast Iron and Stainless Steel 304)

Particular		Motor Type		
		4"	6"	8"
Voltage	50 Hz	380/415	380/415	380/415
	60 Hz	220/380/460	220/380/460	220/380/460
Voltage Tolerance	50 Hz	+10 % to -15 %	+10 % to -15 %	+10 % to -15 %
	60 Hz	+10 % to -15 %	+10 % to -15 %	+10 % to -15 %
Phase		3	3	3
Insulation Class		Y class as per IS 1271	Y class as per IS 1271	Y class as per IS 1271
Degree of Protection		IP 68	IP 68	IP 68
Type of Duty		S1	S1	S1
Electrical Winding		Wet type Rewindable	Wet type Rewindable	Wet type Rewindable
Winding Wire		PVC / PP	PVC / PP	PVC / PP
Ambient Temperature		45°	45°	45°
Starts Per Hour		20	20	15
Minimum Cooling Flow		0.2 m/s	0.5 m/s	0.5 m/s

We are also equipped to supply pump sets in different construction of materials and also with special designs, voltage, frequency, protection class as per specification of any international standard or as per requirement of valued customers.
In view of continuous developments, the descriptions, specifications, illustrations and other information provided are subject to change without prior notice.

4" Submersible Motor – Water filled

- Material

: Cast Iron / Stainless Steel 304
- Rating

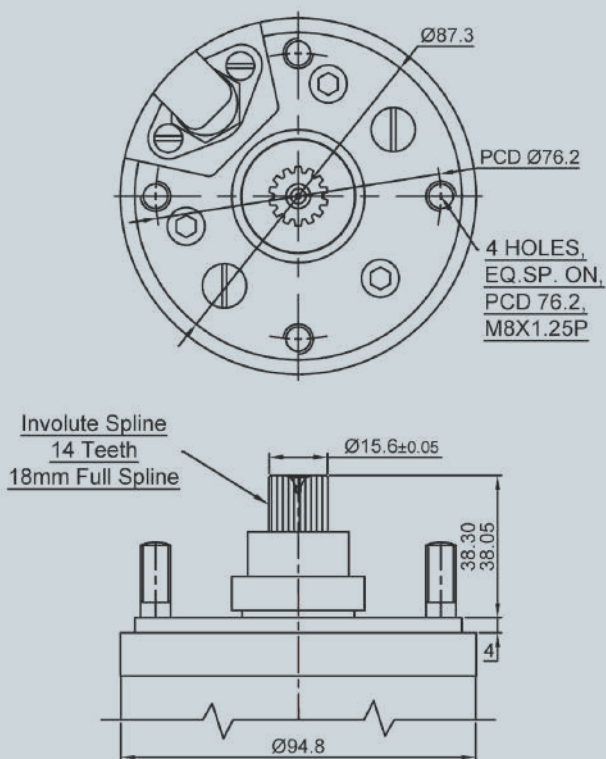
: 0.37 - 7.5 kW (0.50 - 10 HP)
- Type

: Rewindable
- Thrust Rating

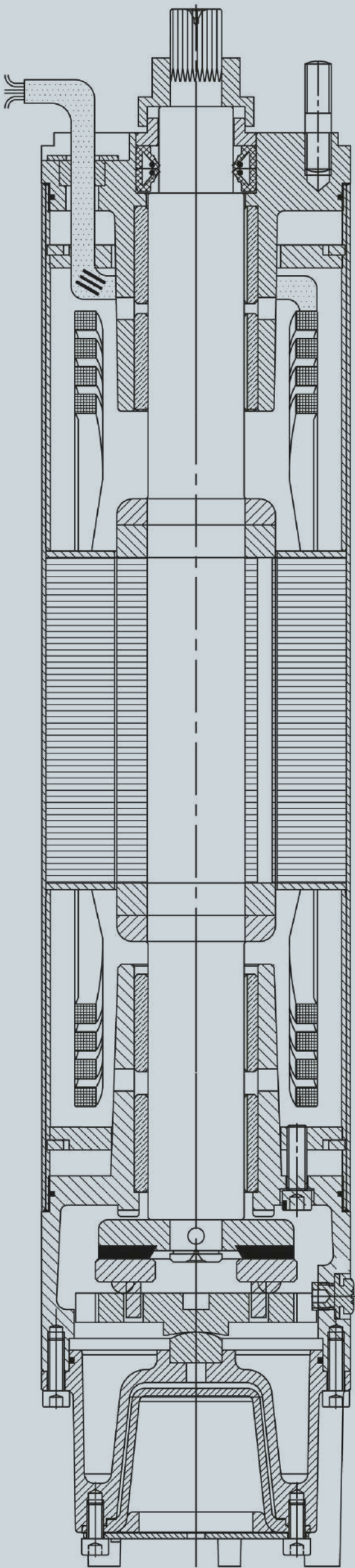
: 3000 - 4000 N

Material of Construction

Parts Name	Cast Iron	Stainless Steel 304
Rotor Shaft	Stainless Steel	Stainless Steel
Stator Body / Shell	AISI 304	AISI 304
Housing Upper / Lower	FG 200 IS 210	AISI 304
Base Cover	FG 200 IS 210	AISI 304
Thrust Bearing Segment	AISI 420	AISI 420
Shaft Seal	Lip seal-NBR	Lip seal-NBR
Shaft END	Stainless Steel	AISI 630
Diaphragm	NBR	NBR
Bearing Bush	Graphite Carbon	Graphite Carbon
Lead Cable	Rubber / PVC	Rubber / PVC
Sand Guard	NBR	NBR
Hardware	Stainless Steel	Stainless Steel



4" Submersible Motor



4” Submersible Motor Performance Data – 50 Hz

Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V4	0.75	1.00	3000	415	2.05	8.70	2860	69	71	71	0.50	0.67	0.82	2.52
	1.10	1.50	3000	415	3.02	12.80	2860	70	72	72	0.48	0.65	0.79	3.70
	1.50	2.00	3000	415	4.02	17.10	2860	71	73	74	0.48	0.65	0.79	5.05
	2.20	3.00	3000	415	6.03	25.60	2870	72	73	74	0.48	0.66	0.79	7.38
	3.00	4.00	3000	415	8.04	34.20	2870	72	74	75	0.49	0.66	0.80	10.06
	3.70	5.50	4000	415	9.63	40.90	2870	72	74	75	0.49	0.65	0.79	12.41
	4.50	6.00	4000	415	10.20	43.30	2870	73	75	76	0.49	0.65	0.79	15.09
	5.50	7.50	4000	415	12.75	54.20	2880	74	76	78	0.47	0.63	0.75	18.38
	7.50	10.0	4000	415	17.00	42.50	2880	75.0	77.0	79.0	0.48	0.65	0.78	24.86

4” Submersible Motor Performance Data – 60 Hz

Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V4	0.75	1.00	3000	220	4.24	12.50	3470	73	74	74	0.65	0.77	0.81	2.08
				380	2.58	7.65	3480	73	74	74	0.65	0.77	0.81	2.07
				460	2.10	6.58	3490	72	73	73	0.62	0.75	0.79	2.07
	1.10	1.50	3000	220	6.21	19.56	3470	72	73	75	0.64	0.77	0.81	3.05
				380	3.77	11.90	3490	72	73	75	0.64	0.77	0.81	3.03
				460	3.05	10.04	3490	71	72	74	0.60	0.75	0.79	3.03
	1.50	2.00	3000	220	8.16	26.94	3470	73	75	76	0.62	0.76	0.82	4.16
				380	4.94	16.33	3480	73	75	76	0.65	0.76	0.82	4.15
				460	3.98	13.61	3480	72	74	76	0.60	0.75	0.79	4.15
	2.20	3.00	3000	220	11.97	42.23	3470	73	74	76	0.62	0.74	0.81	6.10
				380	7.20	25.35	3780	73	74	76	0.62	0.74	0.81	6.08
				460	5.79	20.85	3480	72	73	75	0.60	0.73	0.79	6.08
	3.00	4.00	3000	220	15.68	57.96	3480	74	76	77	0.64	0.75	0.82	8.30
				380	9.44	34.77	3490	74	76	77	0.65	0.76	0.82	8.27
				460	7.56	28.24	3490	73	74	76	0.60	0.75	0.79	8.27
	3.70	5.50	4000	220	21.18	82.44	3480	74	76	79	0.68	0.78	0.81	10.23
				380	12.71	49.18	3470	74	76	79	0.67	0.78	0.80	10.26
				460	10.12	39.34	3470	72	74	78	0.62	0.74	0.78	10.26
	4.50	6.00	4000	220	22.98	90.75	3485	75	77	80	0.75	0.78	0.82	12.43
				380	13.80	54.16	3475	75	77	80	0.75	0.78	0.81	12.46
				460	10.98	43.16	3475	74	76	78	0.70	0.74	0.79	12.46
	5.50	7.50	4000	220	28.43	116.46	3480	76	78	80	0.73	0.79	0.82	15.21
				380	16.95	68.85	3470	76	78	80	0.73	0.79	0.81	15.25
				460	13.50	54.59	3470	74	75	78	0.65	0.75	0.79	15.25
	7.50	10.0	4000	220	35.50	143.70	3475	75.0	77.0	80.0	0.72	0.77	0.82	20.61
				380	20.50	81.25	3470	74.5	77.5	79.5	0.72	0.77	0.81	21.05
				460	17.10	69.30	3470	74.5	77.5	79.5	0.70	0.78	0.80	21.05

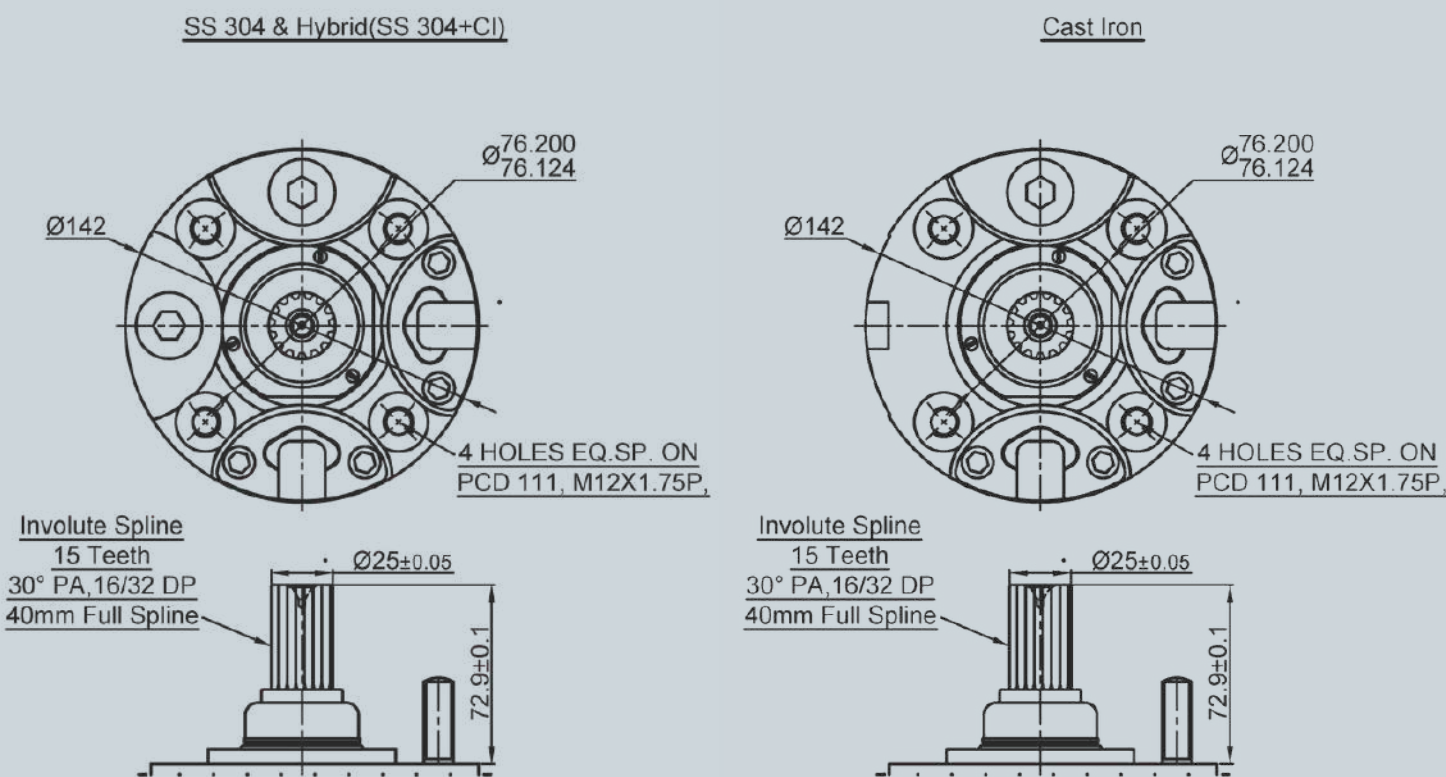
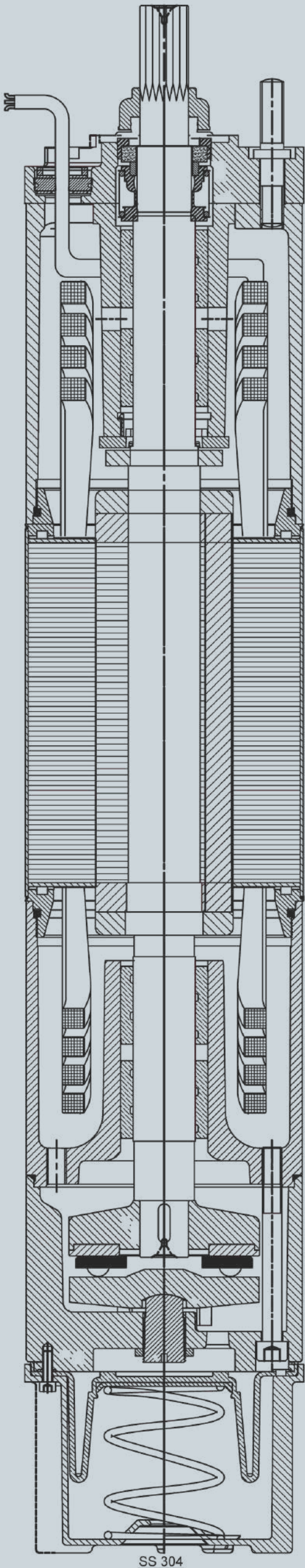
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6" Submersible Motor - Water filled

Material	: Cast Iron / Stainless Steel 304
Rating	: 7.5 - 45 kW (10 - 60 HP)
Type	: Rewindable
Thrust Rating	: 15500 - 27500 N

Material of Construction

Parts Name	Cast Iron	Stainless Steel 304
Rotor Shaft	Stainless Steel	Stainless Steel
Stator Body / Shell	AISI 304	AISI 304
Housing	FG 200 IS 210	AISI 304
Base Cover	FG 200 IS 210	AISI 304
Thrust Bearing Segment	AISI 420	AISI 420
Shaft Seal	Ceramic / Carbon	Ceramic / Carbon
Shaft END	Stainless Steel	AISI 630
Diaphragm	NBR	NBR
Bearing Bush	Graphite Carbon	Graphite Carbon
Lead Cable	Rubber / PVC	Rubber / PVC
Sand Guard	NBR	NBR
Hardware	Stainless Steel	Stainless Steel



6" Submersible Motor

6” Submersible Motor Performance Data – 50 Hz

Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V6	7.50	10.00	15500	415	17.00	72.20	2880	77	79.50	80.25	0.74	0.82	0.84	25.06
	9.30	12.50	15500	415	21.25	90.30	2880	75	79	80	0.60	0.75	0.81	31.08
	11.00	15.00	15500	415	25.50	108.30	2880	77	80	81	0.65	0.78	0.82	36.76
	13.00	17.50	15500	415	29.75	126.40	2880	78	80	81	0.75	0.81	0.83	43.44
	15.00	20.00	15500	415	34.00	144.40	2870	77	80	79.25	0.78	0.83	0.88	50.30
	18.50	25.00	15500	415	42.50	180.50	2880	76	80	81	0.64	0.76	0.81	61.82
	22.00	30.00	27500	415	51.00	216.60	2870	76	79	79	0.71	0.81	0.85	73.78
	26.00	35.00	27500	415	59.50	252.80	2870	77	81	81	0.60	0.75	0.81	87.19
	30.00	40.00	27500	415	68.00	288.90	2870	78	81	82	0.64	0.76	0.81	100.60
	37.00	50.00	27500	415	85.00	346.80	2870	79	81.50	82.50	0.70	0.78	0.82	124.08
	45.00	60.00	27500	415	102.00	416.20	2875	79.5	82.0	83.0	0.71	0.78	0.82	149.46

6” Submersible Motor Performance Data – 60 Hz

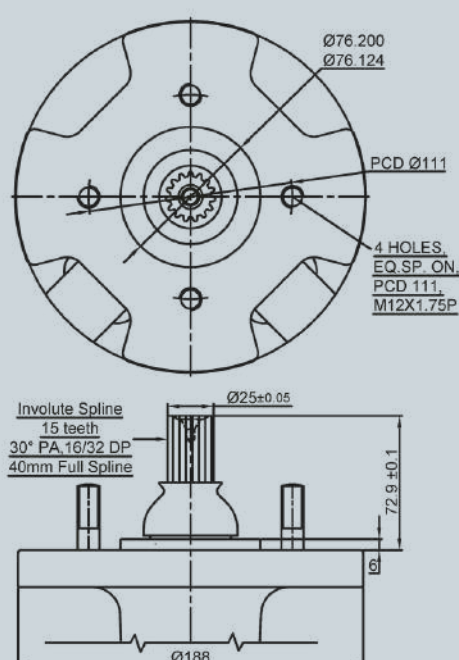
Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V6	7.50	10.00	15500	220	37.30	160.17	3480	77	78	80	0.74	0.81	0.82	20.74
				380	22.20	94.33	3470	77	78	80	0.76	0.82	0.83	20.80
				460	17.60	73.81	3470	76	77	79	0.78	0.83	0.84	20.80
	9.30	12.50	15500	220	46.00	204.83	3480	75	79	80	0.60	0.75	0.81	25.72
				380	27.38	120.46	3470	77	80	80	0.64	0.75	0.81	25.79
				460	21.63	93.28	3460	78	80	80	0.67	0.78	0.81	25.87
	11.00	15.00	15500	220	54.60	250.44	3480	77	80	81	0.65	0.78	0.82	30.42
				380	32.40	146.65	3480	77	81	81	0.62	0.74	0.80	30.42
				460	25.65	113.26	3470	78	81	80	0.68	0.77	0.82	30.51
	13.00	17.50	15500	220	63.18	297.17	3500	78	80	81	0.60	0.72	0.78	35.75
				380	37.45	173.65	3500	77	81	82	0.60	0.74	0.79	35.75
				460	29.58	133.16	3490	78	81	81	0.65	0.76	0.82	35.85
	15.00	20.00	15500	220	71.60	344.18	3490	80	83	83	0.78	0.78	0.88	41.37
				380	42.40	200.72	3480	81	83	83	0.66	0.77	0.82	41.48
				460	33.40	152.91	3480	70	83	83	0.68	0.78	0.84	41.48
	18.50	25.00	15500	220	88.50	441.30	3480	77	81	82	0.60	0.70	0.78	51.16
				380	52.25	256.14	3470	76	81	81	0.60	0.74	0.78	51.31
				460	41.25	194.39	3470	80	82	82	0.65	0.78	0.80	51.31
	22.00	30.00	27500	220	105.00	539.30	3500	82	84	84	0.65	0.74	0.77	60.50
				380	62.10	313.33	3500	82	84	84	0.67	0.75	0.78	60.50
				460	48.60	234.23	3485	83	84	84	0.72	0.79	82.00	60.76
	26.00	35.00	27500	220	121.45	639.69	3505	83	84	85	0.63	0.73	0.78	71.39
				380	71.75	370.86	3505	83	84	85	0.62	0.75	0.81	71.39
				460	56.00	275.19	3490	83	84	85	0.64	0.76	0.84	71.70
	30.00	40.00	27500	220	138.00	743.10	3510	80	82	84	0.60	0.72	0.79	82.26
				380	81.20	428.47	3510	80	82	84	0.64	0.75	0.81	82.26
				460	63.60	318.03	3495	81	83	84	0.65	0.76	0.82	82.61
	37.00	50.00	27500	220	170.00	949.05	3510	80.5	82.5	84	0.62	0.75	0.80	101.45
				380	100.00	546.34	3510	80.5	82.5	84.5	0.66	0.77	0.81	101.45
				460	78.00	401.10	3495	81.5	83.5	84.5	0.68	0.78	0.82	101.89
	45.00	60.00	27500	220	204.00	1071.00	3490	81.0	82.8	84.8	0.63	0.76	0.81	123.12
				380	120.00	630.00	3490	81.0	82.7	84.8	0.65	0.77	0.81	123.12
				460	93.60	491.40	3485	81.0	82.5	85.0	0.68	0.78	0.82	123.30

8" & 10" Submersible Motor - Water filled

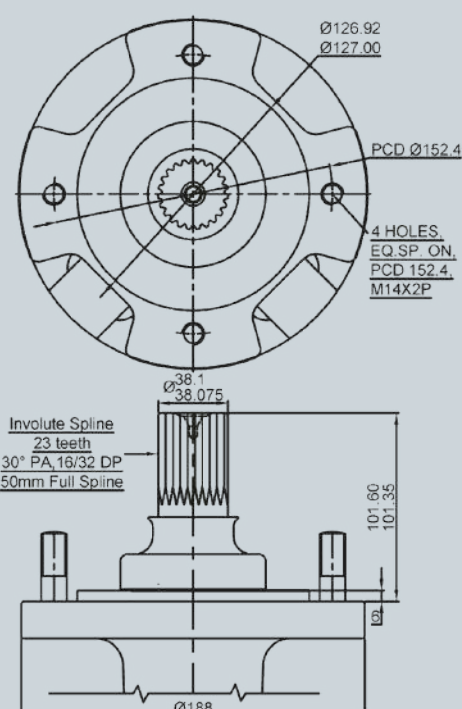
Material	: Cast Iron / Stainless Steel 304
Rating	: 8" Sub. Motor 37 - 110 kW (50 - 150 HP)
Type	: Rewindable
Thrust Rating	: 45000 - 55000 N

Material of Construction

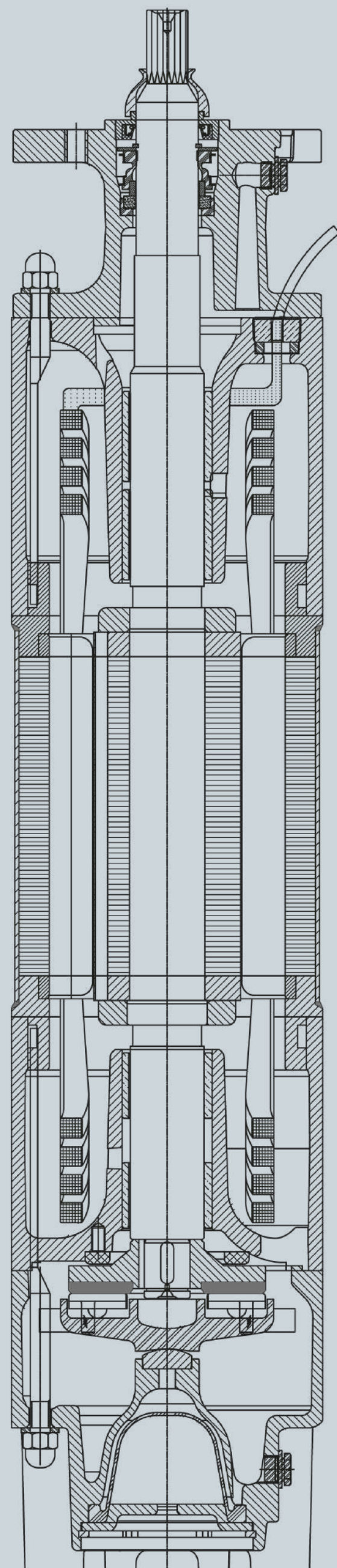
Parts Name	Cast Iron	Stainless Steel 304
Rotor Shaft	Stainless Steel	Stainless Steel
Stator Body / Shell	AISI 304	AISI 304
Housing	FG 200 IS 210	AISI 304
Base Cover	FG 200 IS 210	AISI 304
Thrust Bearing Segment	AISI 420	AISI 420
Shaft Seal	Ceramic / Carbon	Ceramic / Carbon
Shaft END	Stainless Steel	AISI 630
Diaphragm	NBR	NBR
Bearing Bush	Graphite Carbon	Graphite Carbon
Lead Cable	Rubber / PVC	Rubber / PVC
Sand Guard	NBR	NBR
Hardware	Stainless Steel	Stainless Steel



8" Submersible Motor
with 6" Mounting



8" Submersible Motor
with 8" Mounting



8” & 10” Submersible Motor Performance Data – 50 Hz

Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V8	37.00	50.00	45000	415	85.00	412.10	2890	79.0	81.0	81.5	0.72	0.83	0.84	123.22
	45.00	60.00	45000	415	102.00	494.50	2890	80.0	81.5	82.5	0.72	0.82	0.85	149.86
	52.00	70.00	55000	415	112.00	542.9	2890	81.5	83.5	84.5	0.71	0.82	0.85	171.80
	55.00	75.00	55000	415	120.00	581.80	2890	81.5	82.5	84.7	0.68	0.82	0.86	182.53
	60.00	80.00	55000	415	128.00	620.50	2890	81.1	82.3	84.5	0.69	0.81	0.86	198.20
	63.00	85.00	55000	415	136.00	659.30	2890	81.0	82.7	84.8	0.70	0.82	0.85	208.15
	67.00	90.00	55000	415	144.00	698.10	2890	81.0	82.5	85.0	0.72	0.82	0.85	221.35
	75.00	100.00	55000	415	150.00	727.20	2890	82.0	83.0	85.0	0.69	0.80	0.84	248.91
	82.00	110.00	55000	415	165.00	800.00	2890	81.2	83.2	85.0	0.70	0.81	0.84	270.92
	93.00	125.00	55000	415	187.50	909.00	2890	82.5	83.7	85.5	0.68	0.81	0.83	308.65
	110.00	150.00	55000	415	225.00	1090.00	2890	81.5	82.5	85.5	0.70	0.81	0.83	363.45

8” & 10” Submersible Motor Performance Data – 60 Hz

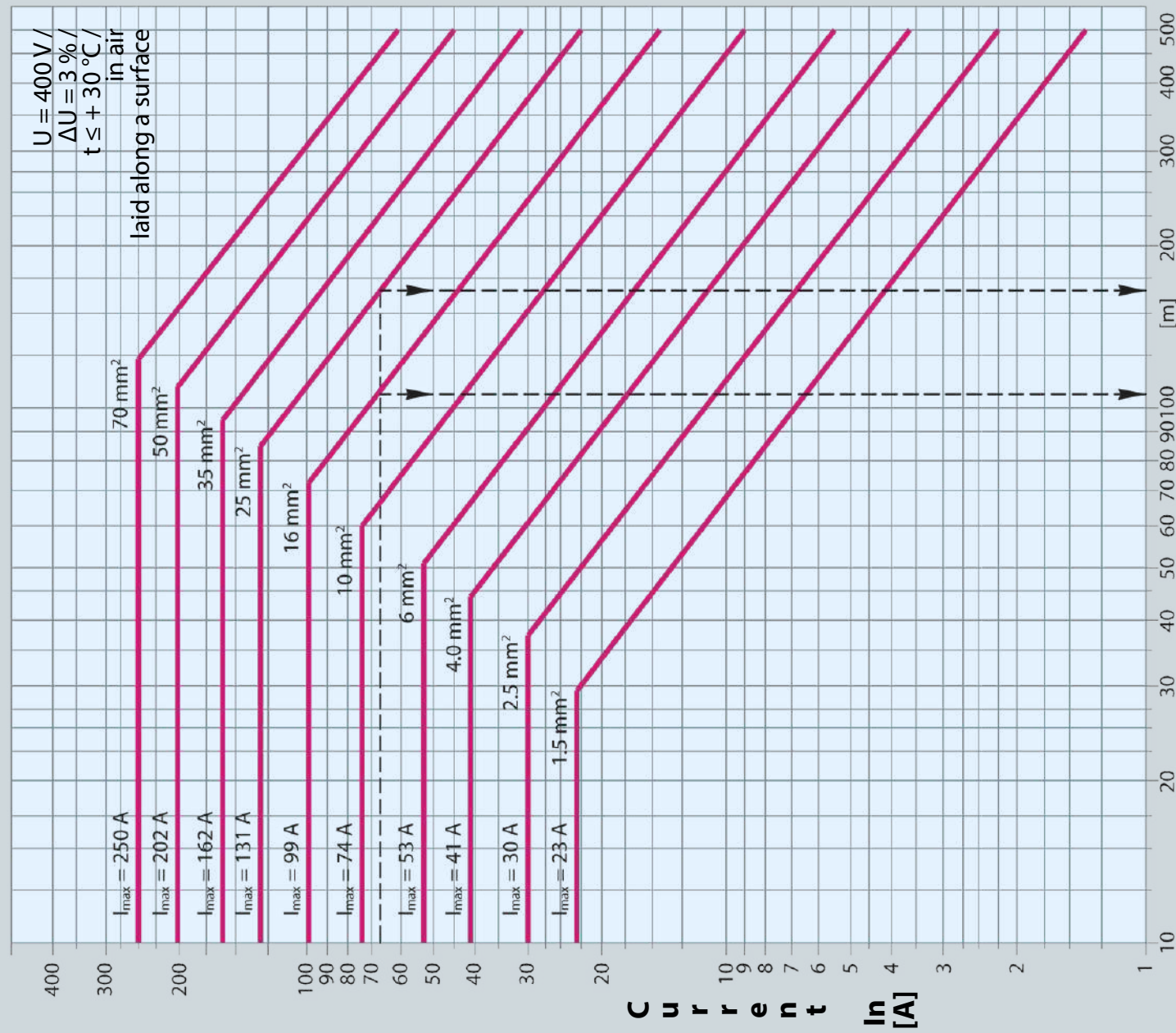
Type	kW	HP	Thrust Load (N)	Volt	Amps FI	Amps Starting	RPM	Efficiency at % Load			Power Factor at % Load			T _N NM
								50%	75%	100%	50%	75%	100%	
V8	37.00	50.00	45000	220	170.00	949.05	3510	81.0	83.0	83.0	0.75	0.83	0.85	101.45
				380	100.00	546.34	3500	82.0	84.0	84.0	0.80	0.84	0.85	101.74
				460	78.00	401.10	3490	82.0	84.0	84.0	0.81	0.85	0.86	102.04
	45.00	60.00	45000	380	119.00	668.00	3500	83.0	85.0	85.0	0.73	0.78	0.84	123.74
				460	92.00	486.31	3500	84.0	86.0	86.0	0.77	0.81	0.85	123.74
	52.00	70.00	55000	380	136.00	748.00	3500	84.0	85.5	86.0	0.73	0.78	0.84	141.87
				460	106.00	551.00	3505	84.0	85.5	86.0	0.77	0.81	0.85	141.67
	55.00	75.00	55000	380	146.00	851.39	3510	84.0	85.0	86.0	0.70	0.80	0.84	150.81
				460	114.00	617.51	35105	85.0	86.0	85.0	0.74	0.82	0.86	150.81
	60.00	80.00	55000	380	156.00	873.00	3510	84.5	85.5	86.0	0.70	0.80	0.84	163.23
				460	122.00	634.00	3515	84.5	85.5	86.0	0.74	0.82	0.86	163.00
	63.00	85.00	55000	380	166.00	913.00	3515	85.0	86.0	86.5	0.77	0.84	0.86	171.15
				460	129.00	670.00	3515	85.0	86.0	86.5	0.77	0.84	0.85	171.15
	67.00	90.00	55000	380	172.00	997.00	3500	85.0	86.0	87.0	0.74	0.82	0.86	182.80
				460	133.00	832.00	3505	85.0	86.0	87.0	0.77	0.84	0.85	182.53
	75.00	100.00	55000	380	191.00	1160.00	3490	85.0	86.0	87.0	0.77	0.84	0.86	206.83
				460	148.00	830.00	3495	85.0	87.0	86.0	0.77	0.84	0.85	206.53
	82.00	110.00	55000	380	210.00	1172.00	3490	85.0	86.0	87.0	0.79	0.86	0.88	224.36
				460	163.00	880.00	3490	85.0	86.0	87.0	0.80	0.83	0.85	224.36
	93.00	125.00	55000	380	236.00	1490.00	3490	85.0	87.0	87.0	0.79	0.86	0.88	256.47
				460	182.00	1054.00	3490	85.0	88.0	87.0	0.80	0.83	0.85	256.47
	110.00	150.00	55000	380	270.00	1593.00	3490	85.0	88.0	87.0	0.79	0.86	0.88	300.97
				460	210.00	1176.00	3495	85.0	88.0	87.0	0.80	0.83	0.85	300.54

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Submersible cable Selection chart - DOL

Permissible Cable Length L D.O.L. Starting

(1 Cable or 2 Cable in parallel)



Cable Length

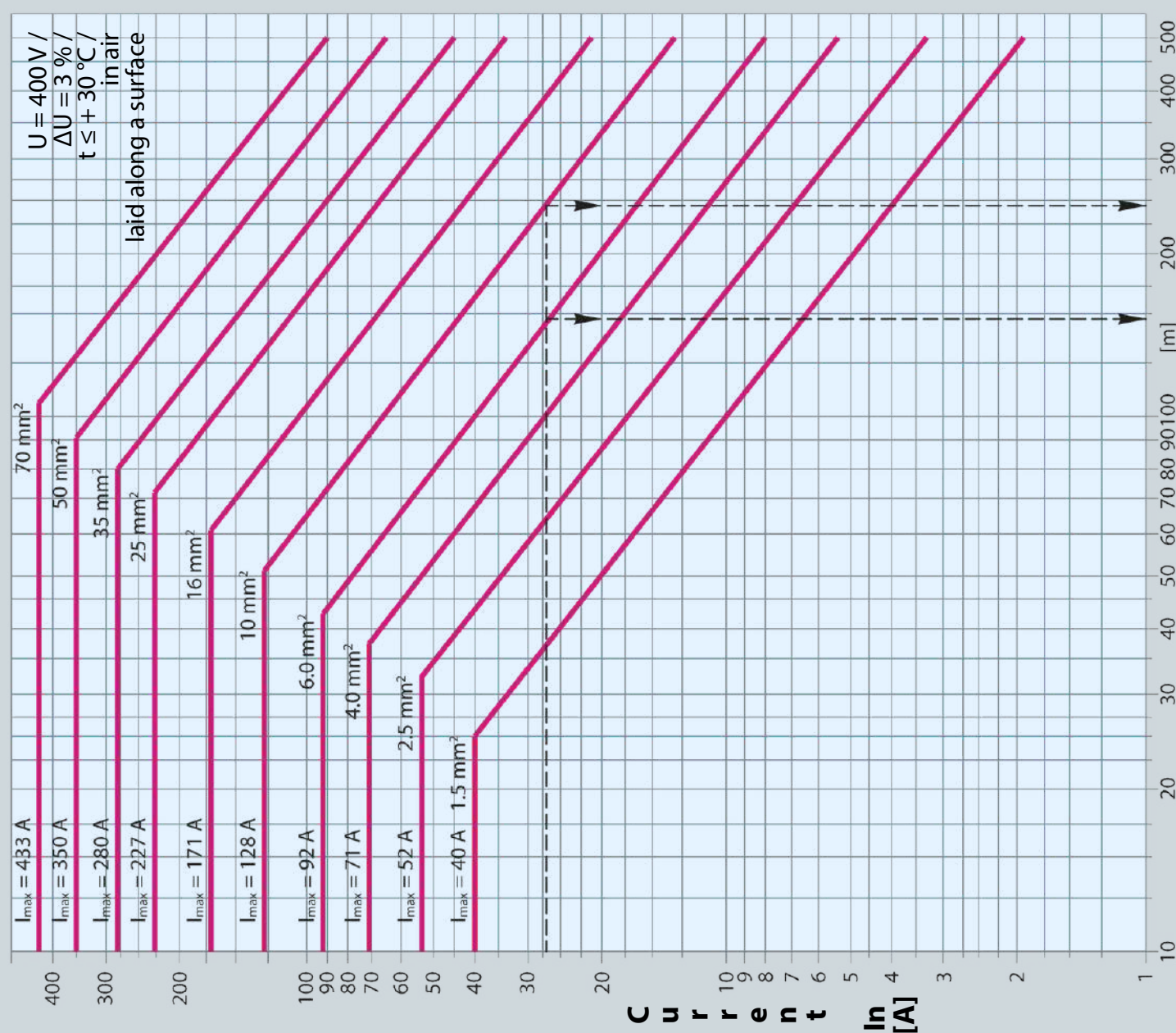
Example:

- a) $I_N = 68\text{ A}$, $1 \times 16\text{ mm}^2$, $\Delta U \leq 3\% \rightarrow L \leq 105\text{ m}$
 b) $I_N = 68\text{ A}$, $1 \times 25\text{ mm}^2$, $\Delta U \leq 3\% \rightarrow L \leq 165\text{ m}$
- I_N = motor current resulting from actual voltage
 For supply voltage other than 400 V, the cable lengths must be calculated as follow,
 for eg.: $U_1 = 400\text{ V}$, $L_1 = 105\text{ m}$, $U_2 = 500\text{ V} \rightarrow L_2 = (U_2 : U_1) \times L_1 = (500\text{ V} : 400\text{ V}) \times 105\text{ m} = 131.3\text{ m}$
 for **parallel cables** the value is doubled to obtain the permissible length.

Submersible cable Selection chart - STAR / DELTA

Permissible Cable Length L Y-Δ Starting

(2 Cable)



Cable Length

Example:

- a) $I_N = 27\text{ A}$, $2 \times 6\text{ mm}^2$, $\Delta U \leq 3\% \rightarrow L \leq 145\text{ m}$
 b) $I_N = 27\text{ A}$, $2 \times 10\text{ mm}^2$, $\Delta U \leq 3\% \rightarrow L \leq 235\text{ m}$
- I_N = motor current resulting from actual voltage
 For supply voltage other than 400 V, the cable lengths must be calculated as follow,
 for eg.: $U_1 = 400\text{ V}$, $L_1 = 145\text{ m}$, $U_2 = 500\text{ V} \rightarrow L_2 = (U_2 : U_1) \times L_1 = (500\text{ V} : 400\text{ V}) \times 145\text{ m} = 181.3\text{ m}$

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