

Submersible motors for well diameters from 150 mm (6 inches), operating temperature 70/80 °C

Applications

The **oddesse** submersible motors of the series **po-moh** are designed to drive submersible pumps with operating temperatures of 70/80 °C. They are also applicable for other submersible machines and offshore operation.

Design

The **oddesse** submersible motor is a three-phase asynchronous motor with a short circuit rotor. It is designed as a wet-running motor with a watertight insulated winding. All motors are rewindable. The motor connection for 6- and 8-inch motors are according to NEMA-standard, 10- and 12-inch motors are according to international standards. The bearings are lubricated by the motor filling. It is a mixture of glycerine and water. Glycerine is biodegradable and secures the anti freeze protection up to -25 °C. If necessary, it can be changed with pure drinking water.

Axial down thrusts will be absorbed by the axial thrust bearing with individual tilting pads.

Motors are encapsulated by a high quality mechanical seal. A reliable balance system grants the pressure compensation between motor and its environment.

The motors are completed with pressure-water tide cable. They are inside earthed.

Construction complies with VDE-regulations and the motors are conform to the EC declaration of conformity as defined by machinery directive 98/37/EEC.

Motors are usable in horizontal and diagonal position depending of the nominal power. **oddesse** motors are working electrical clock- and anticlockwise.

A high efficiency guarantees lowest operating costs.

For all the motors **oddesse** hold a detailed supply of control and monitoring equipment available.

Operating data

- Nominal power: up to 280 kW
- Voltage: up to 1000 V
- Kind of current: 3 ~
- Frequency : 50 and 60 Hz
- Degree of protection: IP 68
- Ambient temperature: up to 7/80 °C
- Switching frequency: max. 20 / h
- Nominal speed: 2850 1/min (3460 1/min)

Special design (on request)

- higher temperatures
- other quality of pumped medium, for example sea water use
- chemically polluted liquids
- other materials
- suction jacket
- temperature monitoring with PTC / Pt100 including reporting device
- microprocessor controlled motor monitoring

Frequency transformer operation

Every **oddesse** motor is usable for frequency transformer operations. Following items should be considered:

- the frequency transformer must be conform to the nominal power of the submersible motor,
- the maximal working range from 30 Hz up to 60 Hz, corresponding speed from 1.740 up to 3.460 1/min,
- the using of a sine-wave generator protect against high voltage peaks
- the minimum rate of flow must be 10 % of the nominal rate of flow of the pump.

Soft starter operation

Soft starters are very qualified to start a submersible motor. It grants:

- reducing of starting current
- avoidance of water hammer while starting causing switch off of the pump.

Subject to alterations

Material of construction

Submersible motor po-moh6.4 / po-moh8.4

According to DIN

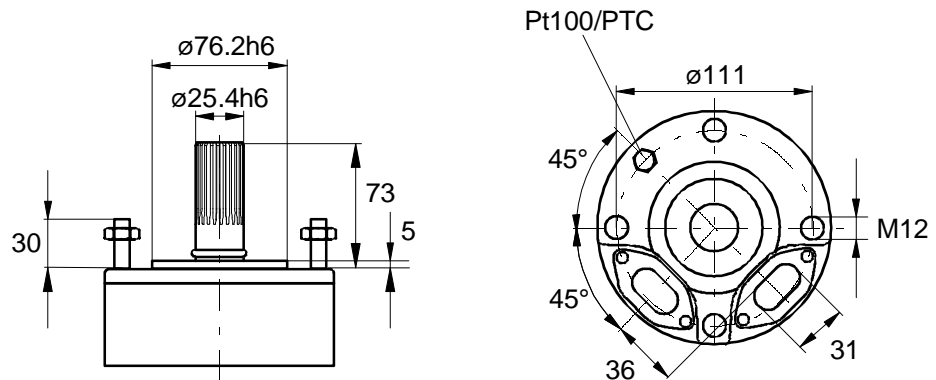
components	design			
	G version (GGG 40)	C version (AISI 304)	X version (AISI 316)	Y version (AISI 904L)
shaft	stainless steel / 1.4301		stainless steel / 1.4462	
motor flange	grey cast iron GGG40 / 0.7040	stainless steel / 1.4301	stainless steel / 1.4571	stainless steel / 1.4539
motor jacket	stainless steel / 1.4306		stainless steel / 1.4541	stainless steel / 1.4539
radial bearing	stainless steel / carbon			
thrust bearing	stainless steel / carbon			
screws, nuts and bolts	stainless steel A2 1.4301 / 1.4303		stainless steel A4 1.4401	stainless steel 1.4539
mechanical seal	carbon / ceramic		SiC / SiC	
	optional: SiC / SiC available for all motors			

According to AISI

components	design			
	G version (GGG40)	C version (AISI 304)	X version (AISI 316)	Y version (AISI 904L)
shaft	stainless steel / AISI 304		duplex steel	
motor flange	grey cast iron A563-72	stainless steel / AISI 304	stainless steel / AISI 316Ti	stainless steel / AISI 904L
motor jacket for	stainless steel / AISI 304L		stainless steel / AISI 321	stainless steel / AISI 904L
radial bearing	stainless steel / carbon			
thrust bearing	stainless steel / carbon			
screws, nuts and bolts	stainless steel A2 AISI 304 / 305		stainless steel A4 AISI 316	stainless steel A4 AISI 904L
mechanical seal	carbon / ceramic		SiC / SiC	
	optional: SiC / SiC available for all motors			

oddesse reserve the right to employ construction materials following German (DIN) standard

Subject to alterations

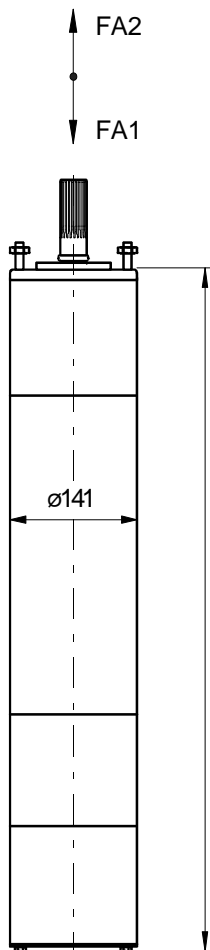


Pump connection acc. to NEMA-standards

po-moh6.4 • 50 Hz • 3 ~ • S.F. 1.0

Power P		Length l		Weight m	
kW	HP	mm	inch	kg	lbs
4 *	5.5 *	697	27.4	44	97
5.5 *	7.5 *	729	28.7	48	106
7.5 *	10 *	769	30.3	52	115
9.2 *	12.5 *	854	33.6	60	132
11 *	15 *	939	37	69	152
13 *	17.5 *	1004	39.5	76	168
15 *	20 *	1079	42.5	83	183
18.5 **	25 **	1149	45.2	89	196
22 **	30 **	1259	49.6	97	214
26 **	35 **	1309	51.5	101	223
30 **	40 **	1389	54.7	106	234

* 80 °C / ** 70 °C



Main dimensions [mm]

po-moh6.4 • 60 Hz • 3 ~ • S.F. 1.0

Power P		Length l		Weight m	
kW	HP	mm	inch	kg	lbs
4.6 *	6.3 *	729	28.7	48	106
6.3 *	8.5 *	769	30.3	52	115
8.5 *	11.5 *	854	33.6	60	132
11 *	15 *	889	35	64	141
13 *	17.5 *	939	37	69	152
15 *	20 *	1004	39.5	76	168
17 **	23 **	1079	42.5	83	183
20 **	27 **	1149	45.2	89	196
25 **	34 **	1259	49.6	97	214
30 **	40 **	1309	51.5	101	223

* 80 °C / ** 70 °C

FA1 Downthrust capacity (up to 15 kW):
 FA1 Downthrust capacity (above 15 kW):
 FA2 Upthrust capacity:

15 kN / 3300 lbs
 23 kN / 5100 lbs
 0.5 kN / 110 lbs

Subject to alterations

oddesse Submersible motors 70/80 °C po-moh

po-moh6.4 • 400 V, 50 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		I _n A	I _a /I _n	η			cos φ			M _a /M _n	M _k /M _n	n 1/min	Flat cable mm ²
kW	HP			2/4	3/4	4/4	2/4	3/4	4/4				
4	5.5	10	4.1	72	75	76	65	75	80	1.3	2.3	2850	1 fl 4 x 2.5
5.5	7.5	13	4.1	75	78	79	68	78	84	1.3	2.6	2850	1 fl 4 x 2.5
7.5	10	18	4.2	76	79	81	65	75	80	1.4	2.4	2850	1 fl 4 x 4
9.2	12.5	21	4.1	76	80	81	66	76	81	1.3	2.5	2850	1 fl 4 x 6
11	15	24	4.4	77	81	82	67	77	83	1.4	3.1	2850	1 fl 4 x 6
13	17.5	30	4.2	77	81	82	65	75	81	1.4	2.7	2850	2 fl 4 x 4 *
15	20	33	4.4	77	81	82	67	77	83	1.4	2.6	2850	2 fl 4 x 4 *
18.5	25	42	4.4	77	81	82	66	77	82	1.4	2.6	2850	2 fl 4 x 4 *
22	30	50	4.4	78	82	83	66	76	81	1.4	2.8	2850	2 fl 4 x 4 *
26	35	59	4.4	77	81	82	66	76	81	1.7	2.4	2830	2 fl 4 x 6
30	40	66	4.6	77	81	82	68	79	84	1.8	2.3	2830	2 fl 4 x 6

po-moh6.4 • 380 V, 60 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		I _n A	I _a /I _n	η			cos φ			M _a /M _n	M _k /M _n	n 1/min	Flat cable mm ²
kW	HP			2/4	3/4	4/4	2/4	3/4	4/4				
4.6	6.3	12	4.4	71	75	76	69	79	81	1.3	3.0	3440	1 fl 4 x 2.5
6.3	8.5	15	4.4	76	80	81	69	79	81	1.3	3.0	3440	1 fl 4 x 2,5
8.5	11.5	20	4.8	77	81	82	71	81	83	1.5	2.9	3440	1 fl 4 x 4
11	15	25	4.6	77	82	81	72	82	85	1.4	3.0	3440	1 fl 4 x 6
13	17.5	30	4.6	78	83	82	72	82	85	1.4	3.2	3440	2 fl 4 x 4 *
15	20	34	4.8	78	82	83	72	82	85	1.5	2.9	3440	2 fl 4 x 4 *
17	23	38	4.6	78	83	82	72	83	86	1.4	3.0	3440	2 fl 4 x 4 *
20	27	45	4.8	78	83	82	72	83	86	1.5	2.9	3440	2 fl 4 x 4 *
25	34	58	4.6	80	84	83	71	81	83	1.4	3.2	3440	2 fl 4 x 4
30	40	69	4.8	78	83	82	72	82	85	1.5	2.9	3440	2 fl 4 x 6

P_n Rated output
I_n Rated current
I_a/I_n Starting current / rated current
η Efficiency

cos φ Power factor
M_a/M_n Starting torque / rated torque
M_k/M_n Breakdown torque / rated torque
n Rated speed

- Connection 6" NEMA
 - Cable length 4 m
 - Degree of protection IP68 (EN60034)
 - Tolerances DIN VDE 0530 / IEC 34
 - Voltage tolerances +6 % / -10 % (DIN IEC 38)
 - Star-delta-version I_a/I_n×0.33, M_a/M_n×0.33
 - Horizontal use up to 26 kW
 - Switch frequency max. 20/h
 - Ambient temperature up to 15 kW: max. 80 °C, above 15 kW: 70 °C
 - Cooling flow up to 15 kW: min. 1 m/s above 15 kW: min. 1.5 m/s
- * optional: 1 fl 3 x 10 mm²

Special design on request

Subject to alterations

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po-moh6.4 • 50 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		220 V		230 V		380 V		415 V	
		In	Flat cable	In	Flat cable	In	Flat cable	In	Flat cable
kW	HP	A	mm ²	A	mm ²	A	mm ²	A	mm ²
4	5.5	18	1 fl 4 × 4	17	1 fl 4 × 4	10	1 fl 4 × 2.5	10	1 fl 4 × 2.5
5.5	7.5	23	1 fl 4 × 6	22	1 fl 4 × 4	13	1 fl 4 × 2.5	12	1 fl 4 × 2.5
7.5	10	32	2 fl 4 × 4 *	30	2 fl 4 × 4 *	18	1 fl 4 × 4	17	1 fl 4 × 4
9.2	12.5	39	2 fl 4 × 4 *	37	2 fl 4 × 4 *	22	1 fl 4 × 6	20	1 fl 4 × 4
11	15	45	2 fl 4 × 6	42	2 fl 4 × 4	26	1 fl 4 × 6	24	1 fl 4 × 6
13	17.5	54	2 fl 4 × 6	51	2 fl 4 × 6	31	2 fl 4 × 4 *	29	2 fl 4 × 4 *
15	20	61	2 fl 3 × 10	58	2 fl 3 × 10	35	2 fl 4 × 4 *	32	2 fl 4 × 4 *
18.5	25	76	2 fl 4 × 6	72	2 fl 4 × 6	44	2 fl 4 × 4 *	40	2 fl 4 × 4 *
22	30	90	2 fl 3 × 10	86	2 fl 3 × 10	52	2 fl 4 × 4 *	48	2 fl 4 × 4 *
26	35	108	2 fl 3 × 10	103	2 fl 3 × 10	62	2 fl 4 × 6	57	2 fl 4 × 4
30	40					69	2 fl 4 × 6	64	2 fl 4 × 6

P _n		500 V		660 V		690 V	
		In	Flat cable	In	Flat cable	In	Flat cable
kW	HP	A	mm ²	A	mm ²	A	mm ²
4	5.5	8	1 fl 4 × 2.5	6	1 fl 4 × 2.5	6	1 fl 4 × 2.5
5.5	7.5	10	1 fl 4 × 2.5	8	1 fl 4 × 2.5	7	1 fl 4 × 2.5
7.5	10	14	1 fl 4 × 2.5	11	1 fl 4 × 2.5	10	1 fl 4 × 2.5
9.2	12.5	17	1 fl 4 × 4	13	1 fl 4 × 2.5	12	1 fl 4 × 2.5
11	15	20	1 fl 4 × 4	15	1 fl 4 × 2.5	14	1 fl 4 × 2.5
13	17.5	24	1 fl 4 × 6	18	1 fl 4 × 4	17	1 fl 4 × 4
15	20	27	1 fl 4 × 6	20	1 fl 4 × 4	19	1 fl 4 × 4
18.5	25	33	1 fl 4 × 6	25	1 fl 4 × 4	24	1 fl 4 × 4
22	30	40	2 fl 4 × 4 *	30	1 fl 4 × 4	29	1 fl 4 × 4
26	35	47	2 fl 4 × 4 *	36	1 fl 4 × 6	34	1 fl 4 × 6
30	40	53	2 fl 4 × 4 *	40	2 fl 4 × 4 *	38	1 fl 4 × 6

P_n Rated output
I_n Rated current

* optional: 1 fl 3 × 10 mm²

Subject to alterations

po-moh6.4 • 60 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		220 V		230 V		400 V		415 V	
		I _n	Flat cable	I _n	Flat cable	I _n	Flat cable	I _n	Flat cable
kW	HP	A	mm ²	A	mm ²	A	mm ²	A	mm ²
4.6	6.3	21	1 fl 4 x 4	20	1 fl 4 x 4	11	1 fl 4 x 2.5	11	1 fl 4 x 2.5
6.3	8.5	27	1 fl 4 x 6	25	1 fl 4 x 6	15	1 fl 4 x 2.5	14	1 fl 4 x 2.5
8.5	11.5	35	2 fl 4 x 4 *	33	2 fl 4 x 4 *	19	1 fl 4 x 4	18	1 fl 4 x 4
11	15	44	2 fl 4 x 6	42	2 fl 4 x 6	24	1 fl 4 x 6	23	1 fl 4 x 6
13	17.5	52	2 fl 4 x 6	49	2 fl 4 x 6	28	2 fl 4 x 4 *	27	1 fl 4 x 6
15	20	59	2 fl 3 x 10	56	2 fl 3 x 10	32	2 fl 4 x 4 *	31	2 fl 4 x 4 *
17	23	67	2 fl 4 x 6	64	2 fl 4 x 6	37	1 fl 4 x 6	35	1 fl 4 x 6
20	27	78	2 fl 3 x 10	75	2 fl 4 x 6	43	2 fl 4 x 4 *	41	2 fl 4 x 4 *
25	34	100	2 fl 3 x 10	96	2 fl 3 x 10	55	2 fl 4 x 4	53	2 fl 4 x 4 *
30	40					65	2 fl 4 x 6	63	2 fl 4 x 6

P _n		440 V		460 V	
		I _n	Flat cable	I _n	Flat cable
kW	HP	A	mm ²	A	mm ²
4.6	6.3	10	1 fl 4 x 2.5	10	1 fl 4 x 2.5
6.3	8.5	13	1 fl 4 x 2.5	13	1 fl 4 x 2.5
8.5	11.5	17	1 fl 4 x 4	16	1 fl 4 x 4
11	15	22	1 fl 4 x 6	21	1 fl 4 x 4
13	17.5	26	1 fl 4 x 6	25	1 fl 4 x 6
15	20	29	2 fl 4 x 4 *	28	2 fl 4 x 4 *
17	23	33	2 fl 4 x 4 *	32	2 fl 4 x 4 *
20	27	39	1 fl 4 x 6	37	1 fl 4 x 6
25	34	50	2 fl 4 x 4 *	48	2 fl 4 x 4 *
30	40	59	2 fl 4 x 4	57	2 fl 4 x 4

P_n Rated output
I_n Rated current

* optional: 1 fl 3 x 10 mm²

Subject to alterations