
Submersible motors for well diameters from 150 mm (6 inches)

Applications

The **oddesse** submersible motors of the series **po-mo** are designed to drive submersible pumps. 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 grant 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 2006/42/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 400 kW
- Voltage: up to 1000 V
- Kind of currency: 3 ~
- Frequency : 50 Hz and 60 Hz
- Degree of protection: IP 68
- Ambient temperature: up to 30 °C (50 °C with XLPE/PA-wire, higher temperatures on request)
- Switching frequency: max. 20 / h (po-mo12 max. 10 / h)
- Nominal speed: 2850 1/min and 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 currency 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-mo6.4, po-mo8.4, po-mo10.5, po-mo12.2

According to DIN

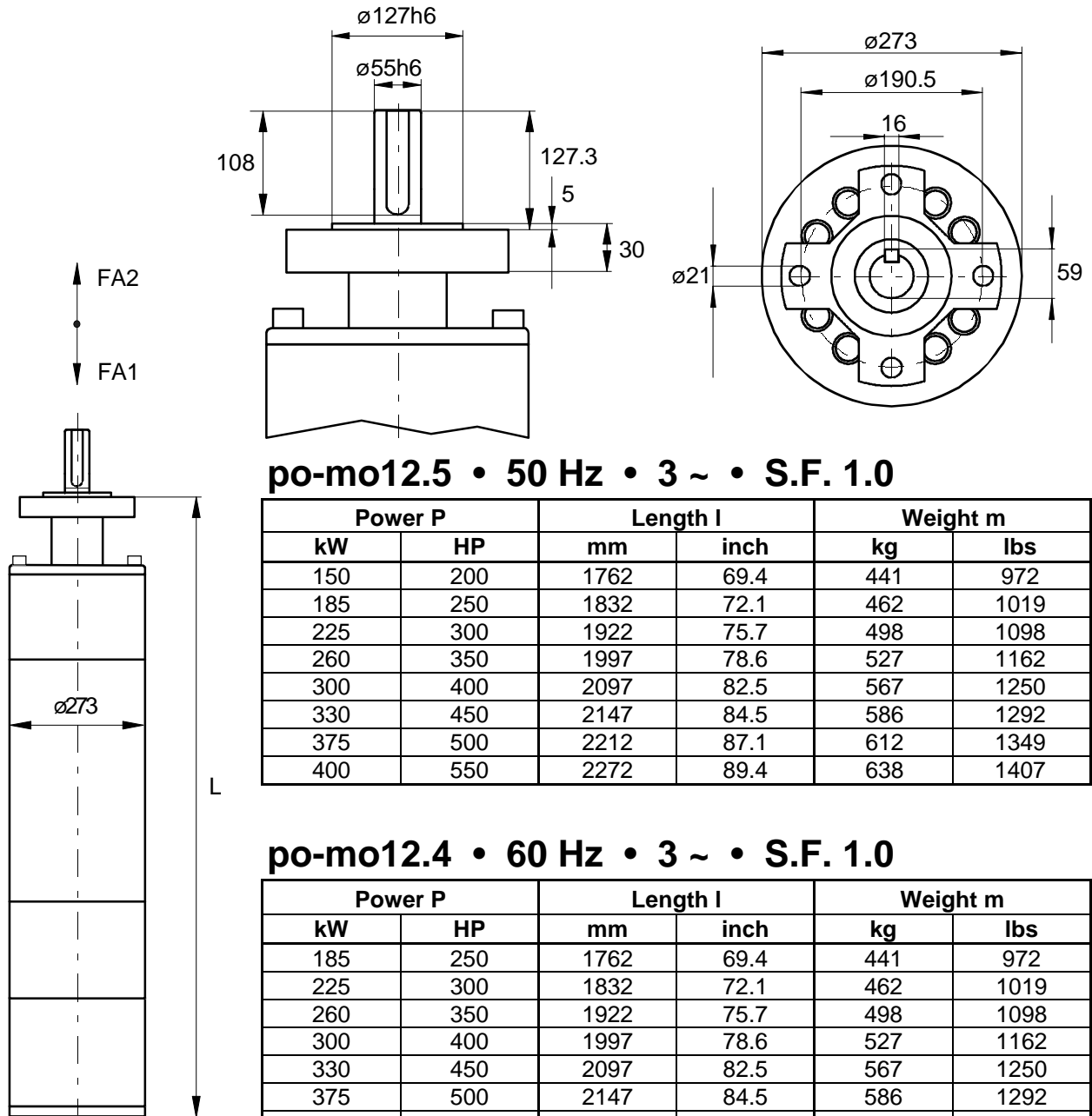
components	design			
	G-version (GGG 40)	C-version (AISI 304)	X-version (AISI 316)	Y-version (AISI 904L)
shaft	stainless steel / 1.4301		stainless steel / 1.4462	
motor flange	grey cast iron GGG40 / 0.7040	stainless steel / 1.4301	stainless steel / 1.4571	stainless steel / 1.4539
motor jacket	stainless steel / 1.4306		stainless steel / 1.4571	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	stainless steel / AISI 304L		stainless steel / AISI 316Ti	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



po-mo12.5 • 50 Hz • 3 ~ • S.F. 1.0

Power P		Length l		Weight m	
kW	HP	mm	inch	kg	lbs
150	200	1762	69.4	441	972
185	250	1832	72.1	462	1019
225	300	1922	75.7	498	1098
260	350	1997	78.6	527	1162
300	400	2097	82.5	567	1250
330	450	2147	84.5	586	1292
375	500	2212	87.1	612	1349
400	550	2272	89.4	638	1407

po-mo12.4 • 60 Hz • 3 ~ • S.F. 1.0

Power P		Length l		Weight m	
kW	HP	mm	inch	kg	lbs
185	250	1762	69.4	441	972
225	300	1832	72.1	462	1019
260	350	1922	75.7	498	1098
300	400	1997	78.6	527	1162
330	450	2097	82.5	567	1250
375	500	2147	84.5	586	1292
400	550	2212	87.1	612	1349
450	600	2272	89.4	638	1407

Main dimensions [mm]

FA1 Downthrust capacity:

60 kN / 13500 lbs

FA2 Upthrust capacity:

1.4 kN / 330 lbs

Delivery voltages: 380 ... 1000 V

Subject to alterations

po-mo12.5 • 400 V, 50 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		I _n	I _a /I _n	η			cos φ			M _a /M _n	M _k /M _n	n	Round cable
kW	HP	A		2/4	3/4	4/4	2/4	3/4	4/4			1/min	mm ²
150	200	295	5.1	81	85	87	69	82	85	1.0	2.5	2900	3 rd 1 × 70
185	250	365	4.9	82	86	87	70	83	85	1.0	2.5	2900	3 rd 1 × 95
225	300	440	4.8	82	86	87	69	82	85	1.0	2.6	2900	3 rd 1 × 120
260	350	515	5.0	81	85	86	70	83	85	1.1	2.5	2900	6 rd 1 × 70*
300	400	595	4.8	83	86	86	70	83	85	1.0	2.6	2900	6 rd 1 × 95*
330	450	655	5.0	83	86	86	70	83	85	1.1	2.6	2900	6 rd 1 × 95*
375	500	760	5.2	83	86	85	70	83	84	1.2	2.6	2900	6 rd 1 × 120*
400	550	810	5.3	83	86	85	70	83	84	1.2	2.6	2900	6 rd 1 × 150*

* open switching

po-mo12.5 • 380 V, 60 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		I _n	I _a /I _n	η			cos φ			M _a /M _n	M _k /M _n	n	Round cable
kW	HP	A		2/4	3/4	4/4	2/4	3/4	4/4			1/min	mm ²
185	250	380	5.1	81	85	87	69	82	85	1.0	2.5	3500	3 rd 1 × 95
225	300	465	4.9	82	86	87	70	83	85	1.0	2.5	3500	6 rd 1 × 70*
260	350	535	4.8	82	86	87	69	82	85	1.0	2.6	3500	6 rd 1 × 70*
300	400	625	5.0	81	85	86	70	83	85	1.1	2.5	3500	6 rd 1 × 95*
330	450	690	4.8	83	86	86	70	83	85	1.0	2.6	3500	6 rd 1 × 95*
375	500	780	5.0	83	86	86	70	83	85	1.1	2.6	3500	6 rd 1 × 120*
400	550	855	5.2	83	86	85	70	83	84	1.2	2.6	3500	6 rd 1 × 150*
450	600	960	5.3	83	86	85	70	83	84	1.2	2.6	3500	6 rd 1 × 150*

* open switching

P_n	Rated output	cos φ	Power factor
I_n	Rated current	M_a/M_n	Starting torque / rated torque
I_a/I_n	Starting current / rated current	M_k/M_n	Breakdown torque / rated torque
η	Efficiency	n	Rated speed

- Cable length 7 m
- Degree of protection IP68 (DIN EN 60034-5)
- Tolerances DIN VDE 0530 / IEC 34
- Voltage tolerances ± 10 % (DIN IEC 38)
- Star-delta-version I_a/I_n×0.33, M_a/M_n×0.33
- Switch frequency max. 10/h
- Ambient temperature max. 30 °C, cooling flow min. 0.5 m/s
- Grounding according IEC 34-1

Special design on request

Subject to alterations

po-mo12.5 • 50 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		380 V		415 V		500 V		525 V	
		In	Round cable	In	Round cable	In	Round cable	In	Round cable
kW	HP	A	mm ²	A	mm ²	A	mm ²	A	mm ²
150	200	311	3 rd 1 x 70	284	3 rd 1 x 70	236	3 rd 1 x 50	225	3 rd 1 x 50
185	250	384	3 rd 1 x 95	352	3 rd 1 x 95	292	3 rd 1 x 70	278	3 rd 1 x 70
225	300	463	6 rd 1 x 70*	424	3 rd 1 x 120	352	3 rd 1 x 95	335	3 rd 1 x 95
260	350	542	6 rd 1 x 70*	496	6 rd 1 x 70*	412	3 rd 1 x 120	392	3 rd 1 x 120
300	400	626	6 rd 1 x 95*	573	6 rd 1 x 95*	476	6 rd 1 x 70*	453	6 rd 1 x 70*
330	450	689	6 rd 1 x 95*	631	6 rd 1 x 95*	524	6 rd 1 x 70*	499	6 rd 1 x 70*
375	500	800	6 rd 1 x 120*	733	6 rd 1 x 120*	608	6 rd 1 x 95*	579	6 rd 1 x 95*
400	550	853	6 rd 1 x 120*	781	6 rd 1 x 120*	648	6 rd 1 x 95*	617	6 rd 1 x 95*

P _n		660 V		690 V		1000 V	
		In	Round cable	In	Round cable	In	Round cable
kW	HP	A	mm ²	A	mm ²	A	mm ²
150	200	179	3 rd 1 x 35	170	3 rd 1 x 35	118	3 rd 1 x 16
185	250	222	3 rd 1 x 50	211	3 rd 1 x 50	146	3 rd 1 x 25
225	300	267	3 rd 1 x 70	254	3 rd 1 x 70	176	3 rd 1 x 35
260	350	313	3 rd 1 x 70	297	3 rd 1 x 70	206	3 rd 1 x 50
300	400	362	3 rd 1 x 95	344	3 rd 1 x 95	238	3 rd 1 x 50
330	450	398	3 rd 1 x 120	378	3 rd 1 x 95	262	3 rd 1 x 70
375	500	462	3 rd 1 x 120	439	3 rd 1 x 120	304	3 rd 1 x 70
400	550	492	6 rd 1 x 70*	468	6 rd 1 x 70*	324	3 rd 1 x 70

* open switching

po-mo12.5 • 60 Hz • 3 ~ • S.F. 1.0 • Direct starting

P _n		400 V		415 V		440 V		460 V	
		In	Round cable	In	Round cable	In	Round cable	In	Round cable
kW	HP	A	mm ²	A	mm ²	A	mm ²	A	mm ²
185	250	361	3 rd 1 x 95	348	3 rd 1 x 95	328	3 rd 1 x 95	314	3 rd 1 x 70
225	300	442	3 rd 1 x 120	426	3 rd 1 x 120	402	3 rd 1 x 120	384	3 rd 1 x 95
260	350	508	6 rd 1 x 70*	490	6 rd 1 x 70*	462	6 rd 1 x 70*	442	3 rd 1 x 120
300	400	594	6 rd 1 x 95*	572	6 rd 1 x 95*	540	6 rd 1 x 70*	516	6 rd 1 x 70*
330	450	656	6 rd 1 x 95*	632	6 rd 1 x 95*	596	6 rd 1 x 95*	570	6 rd 1 x 95*
375	500	741	6 rd 1 x 120*	714	6 rd 1 x 120*	674	6 rd 1 x 95*	644	6 rd 1 x 95*
400	550	812	6 rd 1 x 150*	783	6 rd 1 x 120*	738	6 rd 1 x 120*	706	6 rd 1 x 120*
450	600	912	6 rd 1 x 150*	879	6 rd 1 x 150*	829	6 rd 1 x 150*	793	6 rd 1 x 120*

P _n		660 V		690 V		1000 V	
		In	Round cable	In	Round cable	In	Round cable
kW	HP	A	mm ²	A	mm ²	A	mm ²
185	250	219	3 rd 1 x 50	208	3 rd 1 x 50	144	3 rd 1 x 25
225	300	268	3 rd 1 x 70	255	3 rd 1 x 50	177	3 rd 1 x 35
260	350	309	3 rd 1 x 70	293	3 rd 1 x 70	203	3 rd 1 x 35
300	400	361	3 rd 1 x 95	343	3 rd 1 x 95	238	3 rd 1 x 50
330	450	398	3 rd 1 x 95	378	3 rd 1 x 95	262	3 rd 1 x 50
375	500	450	3 rd 1 x 120	428	3 rd 1 x 120	296	3 rd 1 x 70
400	550	494	6 rd 1 x 70*	469	6 rd 1 x 70*	325	3 rd 1 x 70
450	600	554	6 rd 1 x 95*	527	6 rd 1 x 95*	365	3 rd 1 x 95

* open switching

Subject to alterations