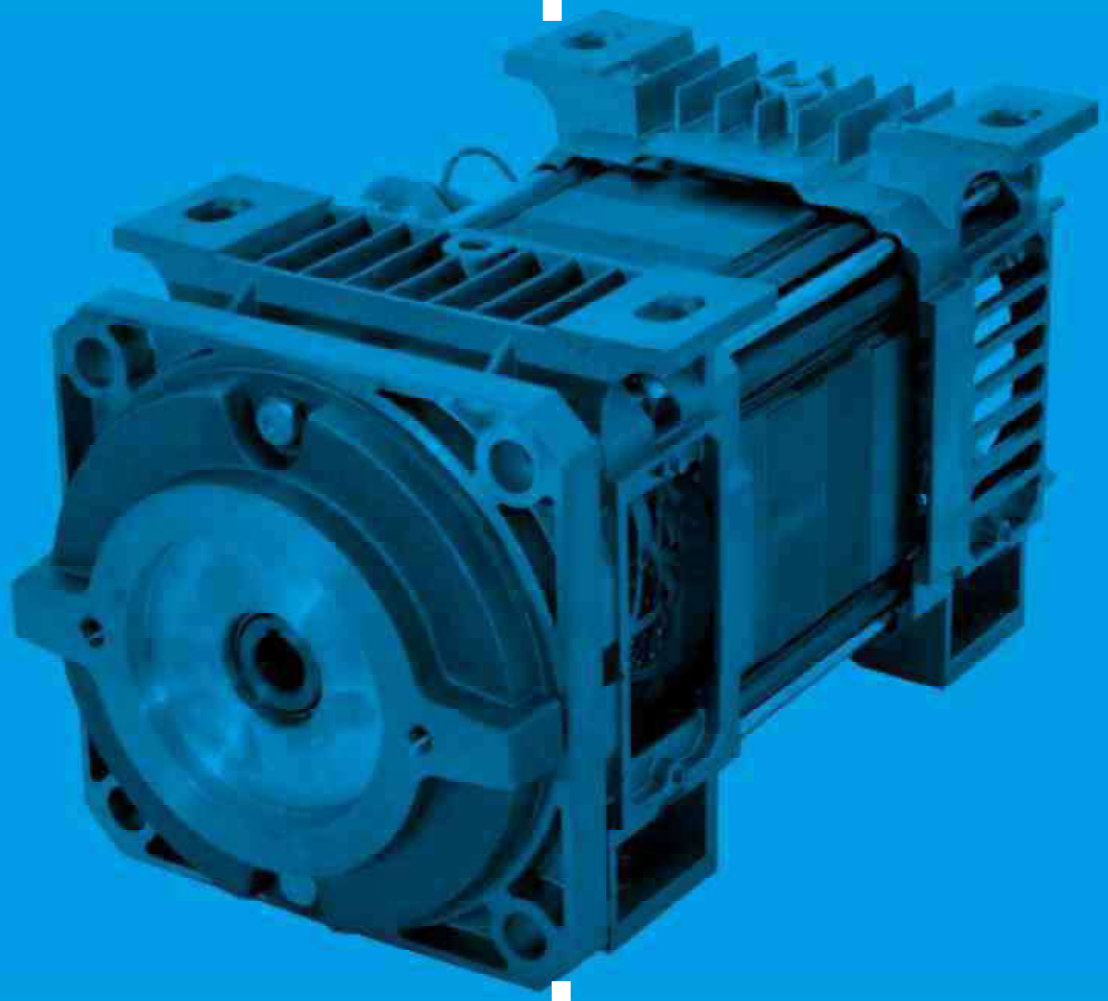
50Hz
4-pole

ELMO



SUBMERSIBLE ELECTRIC MOTORS

FOR INDUSTRIAL USE

BRINGS THE ARTISAN QUALITY TO INDUSTRIAL PRODUCTION

2018

40-PLUS YEARS OF DISTINGUISHED EXPERIENCE IN THE SPECIFIC FIELD OF SUBMERSIBLE ELECTRIC MOTORS FOR HYDRAULIC POWER PACKS.

OUR CORNERSTONES

QUALITY
The ELMO S.r.l. Quality System meets the requirements of **UNI EN ISO 9001: 2015.** Certification applies to the design, manufacture and sale of three-phase and single-phase electric motors and accessories for hydraulic lifting systems and industrial systems.

Product quality means meeting design specifications and delivering long-term consistent mechanical performance.

Strict controls are in place to monitor the production process constantly.
All motors manufactured undergo end-of-line testing as they come off our assembly line, performed by an advanced automatic finished motor test station. This solution employs a computerized data logging system via which a series of test data for each motor are automatically saved and can also be processed statistically and easily traced afterwards. The test station is part of a wider IT system making final inspection an integral part of the whole IT solution devised to ensure full product traceability.

RELIABILITY
For ELMO, product reliability is being able to maintain design performance in the long term.
Elmo's approach to ensuring reliability consists in continually improving the design and production process based on the statistical assessment of historical data drawn from the market.

The annual Elmo Failure Rate (EFR) has been monitored consistently for many years and, taking this as our basis, we have set certain objectives for our general reliability parameters. We can identify what issues account for the highest percentage (even where they fall within normal levels) and every year we define Quality objectives, thus initiating a campaign to resolve said issues once and for all with precise corrective actions.

STATOR "SMART IMPREGNATION"

The SMART process is a multi-dip system created by ELMO: it consists in a 5-dip process (cycles of dipping in and out of the epoxy resin), which is then completed with a final drying stage (based on the Joule effect). With the Joule effect, the stators are heated electrically so as to eliminate any moisture remaining in the winding. During the process, the switching temperature (or response temperature) of the thermal protectors/detectors (PTC thermistors/bimetal detectors, break type NCC) is verified, after which the 5 dips start. This process results in the crevices in the stator being filled to a high consistent level and better coating of the copper winding. The Joule effect is controlled via a closed loop temperature cycle control, which allows electricity to be converted into controlled thermal energy (or controlled heat).

Motors produced with stators that have undergone the SMART process are suitable to be controlled with a VVVF (Variable Voltage) inverter.

EPOXY RESIN: one-part epoxy resin suitable for use at temperatures over 200 °C. This resin has low viscosity (improved penetration) and, once polymerized, becomes resistant to paraffinic oils. Environmentally friendly, low VOC4 emissions, solvent free.

Note: 4 volatile organic compounds.

DELIVERING GUARANTEED QUALITY FOR OVER 40 YEARS

ELMO 40 years of Quality, **a million motors in applications worldwide.**
Elmo motors are the product of **40 years of experience** in the lift field, designed with painstaking attention to the quality of materials used and put through the strictest testing and product traceability processes.

Quality is guaranteed with every Elmo motor around the world.

The new motors for industrial systems of all kinds have been designed drawing on experience and ongoing research, which enable us to make products that offer high performance and, thanks to submersible technology, very quiet operation, too.

A NEW RANGE, THE SAME OLD QUALITY

For years now, Elmo Srl has been committed to research and development applied to motors for use in **hydraulic systems employed in the industrial sector.**
After almost forty years in the hydraulic lift motor business, Elmo has expanded its offering with the **addition of a new range** to cater to demands across the industry.
Elmo offers various motor models for hydraulic power applications, for use in presses, sheet metal processing machinery, hydraulic winches, etc...
In industrial machinery carrying **ELMO motors**, high standards can be achieved in the creation of power units for plastic injection machines and for all machinery demanding reliable hydraulic service and quiet running.

Our technology serving the needs of industry

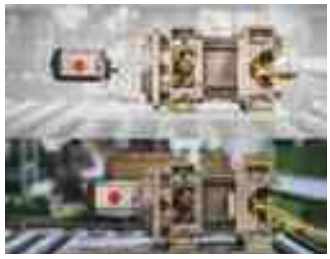
By leveraging submersible technology, Elmo can provide the industrial sector with a product that, despite working at high pressures, can reduce one of the biggest and seemingly unresolvable issues: noise.

Noise. A distant memory

Unlike the power technologies most widely used in hydraulic power packs incorporating general-purpose air-cooled motors, Elmo uses tailor-made submersible motors, thus drastically reducing noise emissions by as much as **-20dB**.

Design-related savings

The pump is connected directly to our motors.
There is no need for the adaptor and coupling to be inserted between the motor and pump.
In addition, a power pack with air-cooled motors takes up more space than a power pack with an ELMO submersible motor.
All this adds up to considerable financial and space savings.



The **ELMO motor** is suitable for rated operation S1 - continuous duty, S2 - 60 minutes and S3- 30 minutes.

Features and advantages:
- Save resources due to small amount of oil required to fill reservoir
- Optimal efficiency due to motor cooling in oil reservoir, direct power transmission and sophisticated heat transfer
- Option of vertical or horizontal installation

Possible applications:
- Machine tools and material **inspection**
- Hydraulic tools
- Handling systems
- Wind energy systems

ONE TECHNOLOGY, MULTIPLE USES

SHIPS AND SHIPYARDS

Elmo motors cater to the requirements of **ships of different kinds and sizes**, even the largest container ships, with products tested to ensure a long life cycle, thanks to the guaranteed quality that comes as standard with each motor.
Elmo maintains a constant stock of products so you are always assured fast delivery.

ELMO motors find application in the **transfer, filtration, cooling, control and circulation of oil in diesel engines and gearboxes.**

ELMO also has motors for the marine industry, especially for large yachts, for use in the creation of lifting systems, gangways, automatic swim ladders and automatic boarding ladders.

We also have pumps for onboard systems, such as rudder actuators, variable-pitch propeller gearboxes, propeller drives and mini power packs.
Given the quality of the materials used, our motors are particularly suitable for container cranes in the ship and container-shipping industry

EARTHMOVING EQUIPMENT

When it comes to Mobile applications, ELMO motors cover the cooling, filtration and low-pressure recirculation needs of earthmoving equipment.

The ELMO motors' submersible technology and their undisputed quality make working at high pressures possible, with very low noise emission and a compact design that make these motors perfect for application in power units, forklift trucks, mobile waste compactors and loaders units.

Applications where reduced sound pollution is a must-have quality, especially given that providing a quality workplace is increasingly synonymous with keeping costs under control and improving workforce performance.

With their long-term reliability and the quiet operation achieved with the new submersible method, Elmo motors are particularly useful in the field of agricultural machinery, combine harvesters, tractors and trailers, for the reliable and quiet control of all their hydraulic components.

ONE TECHNOLOGY, MULTIPLE USES

HANDLING

ELMO motors have been specifically designed for application in situations demanding the utmost reliability and quiet operation, together with high lifting power, such as in forklift masts.

Elmo motors deliver compact design, reliability and quiet operation even for concrete pumps, mobile cranes, telescopic handlers, excavators, wheeled handlers, tippers and loader cranes,
on specific low-noise hydraulic systems for snowploughs, waste collection vehicles, lifting platforms, heavy vehicles and fire engines.

ELMO's technical department is on hand to work with you and find the best solution suited to your specific requirements each time

ENERGY

ELMO motors are also used in the renewable energy field, helping providers with the production and distribution of safe, sustainable and efficient electricity. They can be used in various solutions for wind energy system braking control, solar panel tracking systems or hydroelectric plant turbine controls: take a look at our range and let us know your requirements.

WIND ENERGY GENERATORS
Using high-quality materials and passing strict testing, ELMO motors have low-maintenance features, making them suitable for the sort of extended service demanded for use in wind turbine systems.

SOLAR ENERGY
Exploiting solar energy is a simple and sustainable way to produce electricity and heat. ELMO motors support new tracking panels with the aid of modern, efficient and reliable hydraulic solutions thanks to the product's considerable longevity.

WATER ENERGY
ELMO motors can be used to support turbines and generators in hydroelectric power stations, which can convert up to 90% of the potential energy of water into electricity

CATALOGUE OF RANGE

ELMO | SUBMERSIBLE MOTORS MOTORI IMMERSI | PT-4p 50Hz-S1+S2-60+S2-30-2102-24

PERFORMANCE DATA SHEET 4 POLES THREE PHASE 400 V 50 Hz

Duty Type S1

NOMINAL OUTPUT / POTENZA NOMINALE RESA		NOMINAL TORQUE COPPIA NOMINALE	BREAKDOWN TORQUE COPPIA MASSIMA ■	NOMINAL CURRENT AT 400 V DELTA CORRENTE NOMINALE A 400 V TRIANGOLO	STARTING CURRENT AT DELTA STARTING 400V CORRENTE DI AVV. CON COLLEGAM. A Δ A 400V	NOMINAL SPEED (RPM) VELOCITA' NOMINALE (GIRI/MIN.)	EFFICIENCY RENDIMENTO	POWER FACTOR FATTORE POTENZA
HP	kW	Nm	Nm	A	A	RPM	%	P.F
1	0,75	5,1	12,2	2,6	7,3	1415	64	0,65
1,5	1,1	7,4	17,1	3,5	10,4	1410	68	0,68
2	1,5	10,3	20,9	4,3	12,2	1390	67	0,75
3	2,2	15,1	30,1	5,9	17,3	1390	71	0,76
4	3	20,6	44	7,9	24,1	1390	74	0,74
5,5	4	27,7	58	10,6	32	1380	73	0,75
6	4,4	30,4	63	11,3	32	1380	74	0,76
6,5	4,8	33	73	11,9	36	1390	77	0,76
7,5	5,5	37,8	89	13,4	40	1390	78	0,76
9	6,6	46	102	15,9	50	1380	77	0,78
10	7,5	52	110	19,5	56	1380	75	0,75
12,5	9,2	61	161	20,5	73	1430	89	0,73
15	11	74	161	23,9	76	1410	88	0,75
16	11,8	80	192	28	97	1410	80	0,75
17	12,5	85	200	29	103	1410	79	0,78
18	13,2	90	207	30	106	1400	80	0,80
20	15	102	228	33	118	1400	80	0,81
25	18,5	126	294	39	141	1400	84	0,82
30	22	149	366	45	172	1410	85	0,83
38	28	192	409	60	200	1390	83	0,81
46	34	234	477	73	245	1390	83	0,81

Duty Type S2 60 min

NOMINAL OUTPUT / POTENZA NOMINALE RESA		NOMINAL TORQUE COPPIA NOMINALE	BREAKDOWN TORQUE COPPIA MASSIMA ■	NOMINAL CURRENT AT 400 V DELTA CORRENTE NOMINALE A 400 V TRIANGOLO	STARTING CURRENT AT DELTA STARTING 400V CORRENTE DI AVV. CON COLLEGAM. A Δ A 400V	NOMINAL SPEED (RPM) VELOCITA' NOMINALE (GIRI/MIN.)	EFFICIENCY RENDIMENTO	POWER FACTOR FATTORE POTENZA
HP	kW	Nm	Nm	A	A	RPM	%	P.F
1	0,75	Same data as Duty Type S1						
1,5	1,1							
2	1,5							
3	2,2							
4	3							
5,5	4							
6,5	4,8	33,5	68	12,8	37	1370	72	0,75
7,5	5,5	38,2	80	14,2	42	1375	74	0,76
9	6,6	46	94	16,5	49	1365	76	0,76
10	7,5	52	111	18,1	58	1375	77	0,78
12,5	9,2	63	132	23,1	68	1385	75	0,77
15	11	Same data as Duty Type S1						
17	12,5	85	192	30	97	1400	80	0,75
18	13,2	89	226	32	113	1410	82	0,74
20	15	102	267	38	141	1410	80	0,72
25	18,5	125	341	44	165	1410	82	0,73
30	22	149	445	52	234	1410	84	0,73
40	30	203	574	74	274	1410	81	0,72
50	37	251	691	92	332	1410	81	0,72
60	45	307	760	110	380	1400	82	0,72

Duty Type S2 30 min

NOMINAL OUTPUT / POTENZA NOMINALE RESA		NOMINAL TORQUE COPPIA NOMINALE	BREAKDOWN TORQUE COPPIA MASSIMA ■	NOMINAL CURRENT AT 400 V DELTA CORRENTE NOMINALE A 400 V TRIANGOLO	STARTING CURRENT AT DELTA STARTING 400V CORRENTE DI AVV. CON COLLEGAM. A Δ A 400V	NOMINAL SPEED (RPM) VELOCITA' NOMINALE (GIRI/MIN.)	EFFICIENCY RENDIMENTO	POWER FACTOR FATTORE POTENZA
HP	kW	Nm	Nm	A	A	RPM	%	P.F
1	0,75	Same data as Duty Type S1						
1,5	1,1							
2	1,5							
3	2,2							
4	3							
5,5	4							
6,5	4,8	Same data as Duty Type S2 60 min						
7,5	5,5							
9	6,6							
10	7,5							
12,5	9,2							
15	11	78	162	29,5	73	1355	74	0,72
15	11	Same data as Duty Type S1						
18	13,2	91	192	32	97	1390	79	0,75
20	15	103	226	35	113	1390	80	0,77
25	18,5	128	267	45	141	1380	78	0,76
30	22	151	341	51	165	1390	80	0,77
40	30	208	445	70	234	1380	81	0,76
50	37	256	574	87	274	1380	79	0,78
60	45	309	691	105	332	1390	80	0,77
75	55	383	760	129	380	1370	81	0,76

J = MOMENTO D'INERZIA ROTORE / J = ROTOR INERTIA MOMENT	PESO DEL MOTORE / WEIGHT OF MOTOR
kgm²	kg
0,001	9
0,002	10
0,002	12
0,002	14
0,003	16
0,003	18
0,004	19
0,004	21
0,005	23
0,006	26
0,007	28
0,007	28
0,013	43
0,013	43
0,014	47
0,016	51
0,018	56
0,021	63
0,025	74
0,031	88
0,037	103
0,042	117

Per potenze superiori in Duty S1, contattaci direttamente a info@elmoitaly.com

For higher output in Duty S1 please contact us directly at info@elmoitaly.com

■ *Dato da considerare nel dimensionamento dell'albero della pompa, è consigliabile che la coppia massima del motore sia inferiore alla massima coppia accettabile per la pompa.*

Dati con motori immersi in olio idraulico a 45°C e comprensivi delle perdite idrauliche per le rotazioni in olio

La ELMO s.r.l si riserva il diritto di apportare qualsiasi variazione senza preavviso.

■ Data to be considered in the sizing of the pump. It is recommended the breakdown motor torque it is lower than the maximum acceptable torque for the pump.

Data for motors working into hydraulic oil at 45°C inclusive of the hydraulic losses due to the rotation into oil

In any moment and without notice, ELMO s.r.l. can change manufacturing process and performance features

4-POLE 3-PHASE 50Hz PERFORMANCE DATA

			DUTY S1																							
	NOMINAL OUTPUT POTENZA NOMINALE RESA	HP	1	1,5	2	3	4	5,5	6	6,5	7	9	10	12,5	15	16	17	18	20	25	30	38	46
		kW	0,75	1,1	1,5	2,2	3	4	4,4	4,8	5,5	6,6	7,5	9,2	11	11,8	12,5	13,2	15	18,5	22	28	34
200 VOLT Δ	**NOMINAL CURRENT** CORRENTE NOMINALE	A	5,2	6,9	8,6	11,8	15,8	21,1	22,6	23,8	26,8	32	39	41	48	56	58	60	66	77	90	117	141
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	14,6	20,8	24,4	35	48	64	64	72	80	100	112	146	152	194	206	212	236	282	344	420	540
230 VOLT Δ	**NOMINAL CURRENT** CORRENTE NOMINALE	A	4,5	6	7,5	10,2	13,8	18,4	19,6	20,7	23,3	27,6	34	36	41	49	50	52	58	67	78	101	122
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	12,7	18,1	21,2	30	42	56	56	63	70	87	97	127	132	169	179	184	205	245	299	365	470
240 VOLT Δ	**NOMINAL CURRENT** CORRENTE NOMINALE	A	4,3	5,8	7,2	9,8	13,2	17,6	18,8	19,8	22,3	26,4	33	34	40	47	48	50	55	64	75	97	117
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	12,2	17,3	20,3	28,8	40	53	53	60	67	83	93	122	127	162	172	177	197	235	287	350	450
400 VOLT Δ	**NOMINAL CURRENT** CORRENTE NOMINALE	A	2,6	3,5	4,3	5,9	7,9	10,6	11,3	11,9	13,4	15,9	19,5	20,5	23,9	28	29	30	33	39	45	58	70
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	7,3	10,4	12,2	17,3	24,1	32	32	36	40	50	56	73	76	97	103	106	118	141	172	210	270
415 VOLT D	**NOMINAL CURRENT** CORRENTE NOMINALE	A	2,5	3,3	4,2	5,7	7,6	10,2	10,9	11,5	12,9	15,3	18,8	19,7	23	27	28	28,9	32	37	43	56	68
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	7	10	11,8	16,7	23,2	31	31	35	39	48	54	70	73	93	99	102	114	136	166	202	260
500 VOLT Δ	**NOMINAL CURRENT** CORRENTE NOMINALE	A	2,1	2,8	3,4	4,7	6,3	8,4	9	9,5	10,7	12,7	15,6	16,4	19,1	22,4	23,2	24	26,5	31	36	47	56
	STARTING CURRENT AT DELTA STARTING CORRENTE DI AVV. CON COLLEGAMENTO Δ	A	5,8	8,3	9,8	13,8	19,3	25,6	25,6	28,8	32	40	45	58	61	78	82	85	94	113	138	168	216

For motors working into Hydraulic oil
Con Motore Immerso in olio caldo

4-POLE 3-PHASE 50Hz PERFORMANCE DATA

DUTY S2 - 60 min.

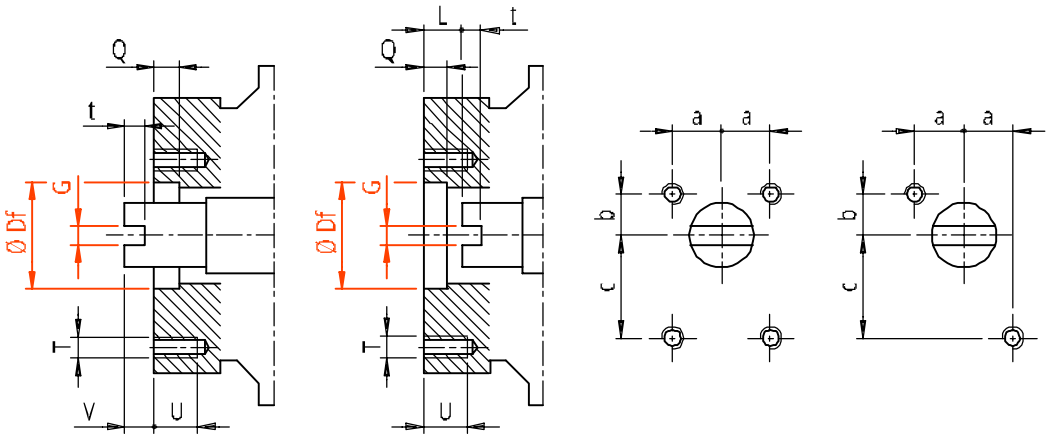
kW	HP												
0,75	1	5,2	14,6	4,5	12,7	4,3	12,2	2,6	7,3	2,5	7,0	2,1	5,8
1,1	1,5	6,9	20,8	6	18,1	5,8	17,3	3,5	10,4	3,3	10	2,8	8,3
1,5	2	8,6	24,4	7,5	21,2	7,2	20,3	4,3	12,2	4,2	11,8	3,4	9,8
2,2	3	11,8	35	10,2	30	9,8	28,8	5,9	17,3	5,7	16,7	4,7	13,8
3	4	15,8	48	13,8	42	13,2	40	7,9	24,1	7,6	23,2	6,3	19,3
4	5,5	21,1	64	18,4	56	17,6	53	10,6	32	10,2	31	8,4	25,6
4,8	6,5	25,7	74	22,3	64	21,4	62	12,8	37	12,4	36	10,3	29,6
5,5	7,5	28,3	84	24,6	73	23,6	70	14,2	42	13,6	40	11,3	34
6,6	9	33	98	28,7	85	27,5	82	16,5	49	15,9	47	13,2	39
7,5	10	36	116	31	101	30	97	18,1	58	17,4	56	14,5	46
9,2	12,5	46	136	40	118	38	113	23,1	68	22,2	66	18,4	54
11	15	48	152	41	132	40	127	23,9	76	23	73	19,1	61
12,5	17	61	194	53	169	51	162	30	97	29,2	93	24,2	78
13,2	18	63	226	55	197	53	188	32	113	30	109	25,3	90
15	20	76	282	66	245	63	235	38	141	36	136	30	113
18,5	25	89	330	77	287	74	275	44	165	43	159	36	132
22	30	104	468	90	407	86	390	52	234	50	226	41	187
30	40	148	548	128	477	123	457	74	274	71	264	59	219
37	50	183	664	159	577	153	553	92	332	88	320	73	266
45	60	211	790	184	687	176	658	106	395	102	381	84	316

DUTY S2 - 30 min.

kW	HP												
0,75	1	5,2	14,6	4,5	12,7	4,3	12,2	2,6	7,3	2,5	7,0	2,1	5,8
1,1	1,5	6,9	20,8	6	18,1	5,8	17,3	3,5	10,4	3,3	10	2,8	8,3
1,5	2	8,6	24,4	7,5	21,2	7,2	20,3	4,3	12,2	4,2	11,8	3,4	9,8
2,2	3	11,8	35	10,2	30	9,8	28,8	5,9	17,3	5,7	16,7	4,7	13,8
3	4	15,8	48	13,8	42	13,2	40	7,9	24,1	7,6	23,2	6,3	19,3
4	5,5	21,1	64	18,4	56	17,6	53	10,6	32	10,2	31	8,4	25,6
4,8	6,5	25,7	74	22,3	64	21,4	62	12,8	37	12,4	36	10,3	29,6
5,5	7,5	28,3	84	24,6	73	23,6	70	14,2	42	13,6	40	11,3	34
6,6	9	33	98	28,7	85	27,5	82	16,5	49	15,9	47	13,2	39
7,5	10	36	116	31	101	30	97	18,1	58	17,4	56	14,5	46
9,2	12,5	46	136	40	118	38	113	23,1	68	22,2	66	18,4	54
11	15	59	146	51	127	49	122	29,5	73	28,4	70	23,6	58
11	15	48	152	41	132	40	127	23,9	76	23	73	19,1	61
13,2	18	64	194	56	169	54	162	32	97	31	93	25,7	78
15	20	71	226	61	197	59	188	35	113	34	109	28	90
18,5	25	90	282	78	245	75	235	45	141	43	136	36	113
22	30	103	330	89	287	85	275	51	165	49	159	41	132
30	40	141	468	122	407	117	390	70	234	68	226	56	187
37	50	173	548	151	477	141	457	87	274	84	264	69	219
45	60	206	664	179	577	171	553	103	332	99	320	82	266
55	75	245	790	213	687	204	658	122	395	118	381	98	316

WE PRODUCE MOTORS WITH VOLTAGE RATINGS OTHER THAN THOSE GIVEN HERE.
(80 V, 110 V, ETC.)

4-POLE 3-PHASE 50Hz COUPLINGS



FEMALE GROOVE
Only Motors Type
S3D - S3N - S3S - S3M

DUTY TYPE		
S1	S2 - 60 Min.	S2 - 30 Min.
kW	kW	kW
0,75	0,75	0,75
1,1	1,1	1,1
1,5	1,5	1,5
2,2	2,2	2,2
3	3	3
4	4	4
4,4	4,8	4,8
4,8	5,5	5,5
5,5	6,6	6,6
6,6	7,5	7,5
7,5	9,2	9,2
-	.	11

SMALL MOTORS							
S3D	S3N	S3S	S3M	S3k	S3A	S3B	S3C
//5 Ø30	//5 Ø32	//5 Ø32	//8 Ø52	Ø12.7 Ø50.8	Ø15.87 Ø82.55	Ø22.22 Ø101.6	Ø25.4 Ø101.6
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
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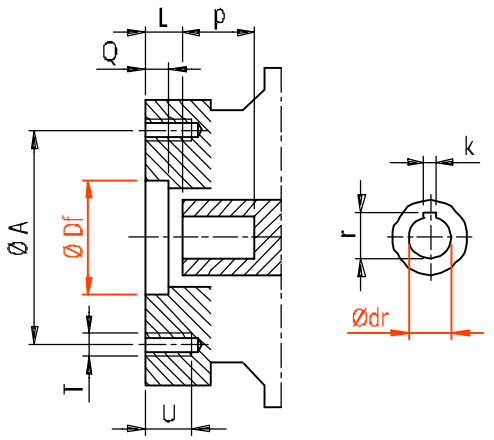
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
●	●	●	●	●	●●●	●●●	●●●
					●●●	●●●	●●●
					●●●	●●●	●●●
					●	●	●

DUTY TYPE		
S1	S2 - 60 Min.	S2 - 30 Min.
kW	kW	kW
9,2	-	-
11	11	11
11,8	12,5	13,2
12,5	13,2	15
13,2	15	18,5
15	18,5	22
18,5	22	30
22	30	37
28	37	45
34	45	55

BIG MOTORS							
S7A	S7B	S7C	S7E	S7F	S7G	S7L	S7R
Ø15.87 Ø82.55	Ø22.22 Ø101.6	Ø25.4 Ø101.6	Ø32 Ø125	Ø32 Ø125	Ø25.4 Ø101.6	Ø22.22 Ø101.6	Ø32 Ø160
●	●	●	●	●	●	●	●
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
●●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
●●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
●	●●●	●●●	●●●	●●●	●●●	●●●	●●●
	●●●	●●●	●●●	●●●	●●●	●●●	●●●
	●●●	●●●	●●●	●●●	●●●	●●●	●●●
	●●●	●●●	●●●	●●●	●●●	●●●	●●●
	●●●	●●●	●●●	●●●	●●●	●●	●●●
	●●●	●●●	●●●	●●●	●●●	●	●●●

4-POLE 3-PHASE 50Hz COUPLINGS



Shaft hole (Ø)
and key motors

	Motor code		Flange dimensions				Tapped holes for pump fixing							female groove	
	Type	Last Digit	ØDf	Q	L	V	N°	T	U	Layout	a	b	c	G	t
SMALL MOTORS	S3D	-U	Ø30	8.5	7	-	4	M6	14.5		28	24.5	48.5	5	7.5
	S3N		Ø32	8.5	7		2	M8	14.5		20	10.5	29.5	5	7.5
	S3S		Ø32	8.5	-	4	2	M8	14.5		20	10.5	29,5	5	5.5
	S3M		Ø52	8.5		7.5	2	M8	14.5		30	14.1	45.9	8	7

	Motor code		Flange dimensions			Tapped holes for pump fixing					Shaft hole (Ø) and key			
	Type	Last Digit	ØDf	Q	L	N°	T	U	Layout	Ø A	Ødr	p	r	k
SMALL MOTORS	S3K	-U	Ø50.8	8.5	11	2	M8	15.5		Ø82.55	Ø12.7	29	14.4	3.2
	S3A		Ø82.55	8.5	12	2	M8	15.5		Ø106.4	Ø15.87	28	17.9	4
	S3B		Ø101,6	8.5	12	2	M12	15.5		Ø146	Ø22.22	32.5	25.2	6.35
	S3C		Ø101.6	8.5	12	2	M12	18		Ø146	Ø25.4	37.5	28.5	6.35

	Motor code		Flange dimensions			Tapped holes for pump fixing					Shaft hole (Ø) and key			
	Type	Last Digit	ØDf	Q	L	N°	T	U	Layout	Ø A	Ødr	p	r	k
BIG MOTORS	S7A	-U	Ø82.55	12	11	2	M8	20		Ø106.4	Ø15.87	34.5	17.9	4
	S7B		Ø101.6	12	11	2	M12	26		Ø146	Ø22.22	38.5	25.2	6.35
	S7C		Ø101,6	12	11	2	M12	26		Ø146	Ø25.4	38.5	28.5	6.35
	S7E		Ø125	14	13	2	M16x1.5	30		Ø180	Ø32	58	35.3	10
	S7F		Ø125	14	13	4	M12	30		Ø160	Ø32	58	35.3	10
	S7G		Ø101.6	12	11	2	M12	26		Ø146	Ø25.4	38.5	28.5	6.35
	S7L		Ø101.6	12	23	2	M12	30		Ø146	Ø22.22	38.5	25.2	6.35
	S7R		Ø160	12	13	4	M16x1.5	30		Ø200	Ø32	58	35.3	10

NOTES FOR DUTY CYCLES

Duty type S1

Continuous running duty: operation at a constant load (usually at full-load unless specified differently) maintained for sufficient time to allow the machine to reach thermal equilibrium*2. The appropriate abbreviation is **S1**.

Duty type S2

Short-time duty: operation at constant load (usually at full-load unless specified differently) for a given time ΔtP, less than that required to reach thermal equilibrium*2, followed by a time de-energized and at rest of sufficient duration to re-establish machine temperatures within 2 °C (Celsius degrees) of the coolant temperature (hydraulic oil/fluid temperature). The appropriate abbreviation is S2, followed by an indication of the duration of the duty. **Example**: if ΔtP = **30 minutes** then the indication is: **S2 30 min**; if ΔtP = **60 minutes** then the indication is: **S2 60 min**.

Duty type S3

Intermittent periodic*1 duty: a sequence of identical duty cycles, each including a time of operation at constant load and a time de-energized and at rest. In this duty, the cycle is such that the **starting current does not significantly affect the temperature rise** (because the starting current, for example, is managed and limited thanks to additional/optional Variable-Voltage and/or Variable-Frequency VVVF converters). The appropriate abbreviation is S3, followed by the cyclic duration factor. **Example: S3 40 %**.

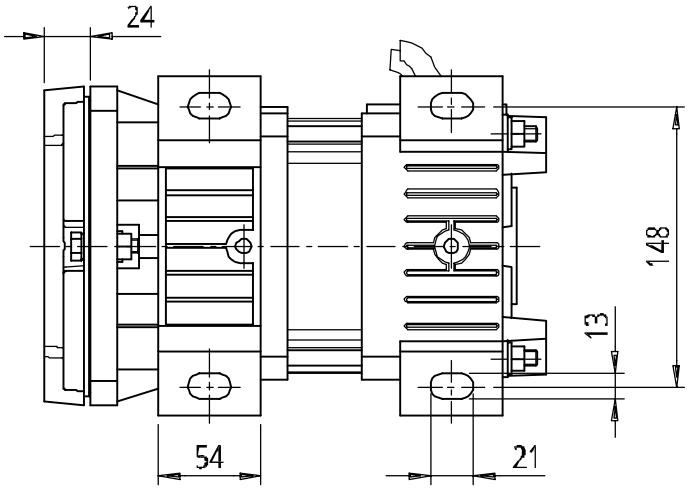
Duty type S4

Intermittent periodic *1 duty with starting: a sequence of identical duty cycles, each cycle including asignificant starting time (the cycle is such that **the starting current significantly affect the temperature rise**) a time of operation at constant load and a time de-energized and at rest. The appropriate abbreviation is S4, followed by the cyclic duration factor. **Example: S4 40 %**.

Important notes

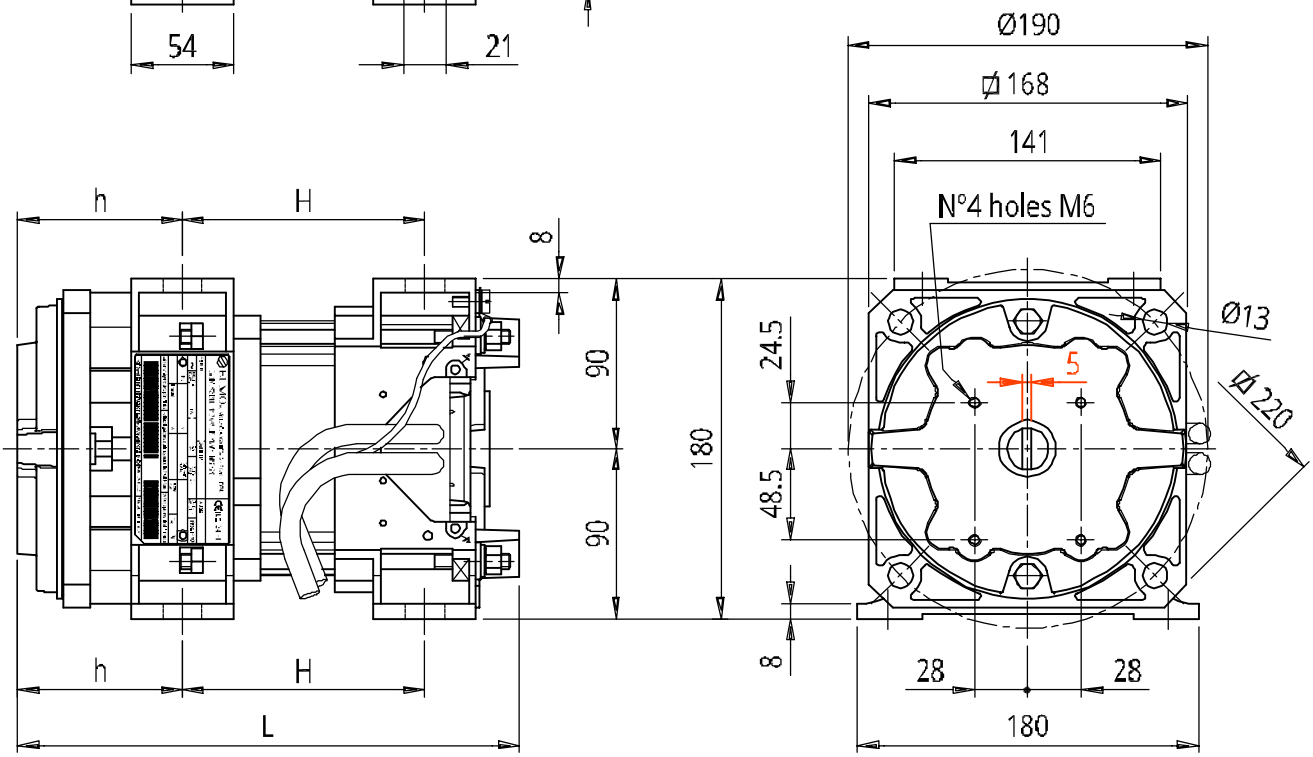
*1 Periodic duty implies that thermal equilibrium*2 is not reached during the time on load.
*2 Thermal equilibrium: the state reached when the temperature rises of the several parts of the machine do not vary by more than a gradient of 2 °C (Celsius degrees) per hour.

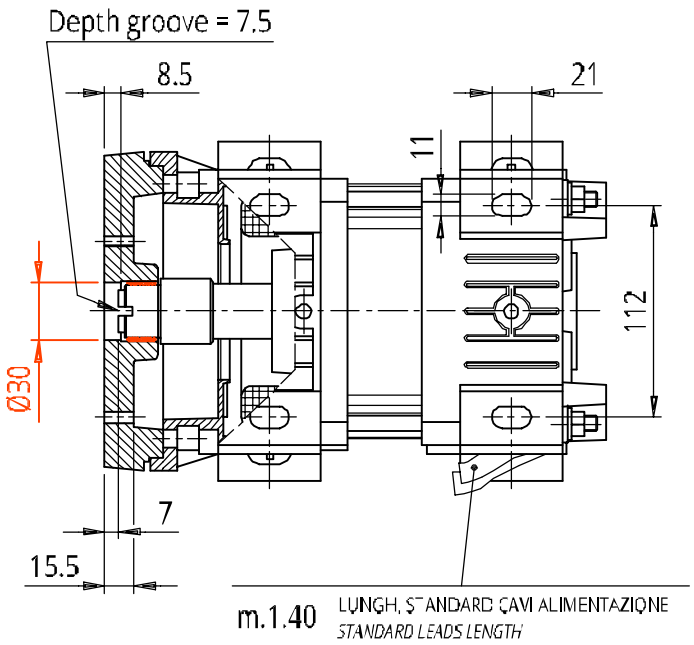
4-POLE 3-PHASE 50 Hz Motors Type S3D4-U



Female Groove 5 mm
Flange Ø 30mm

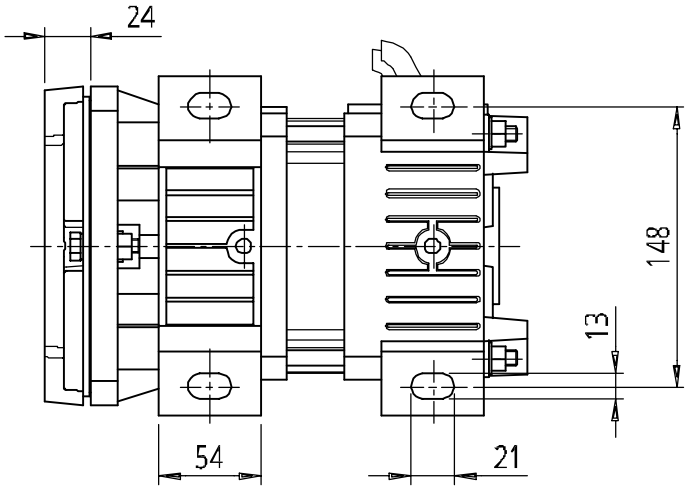
Suitable for Marzocchi Pump
Type ALM1 European Flange Ø 30mm
Shaft = GO (external tooth, wrench = 5 mm





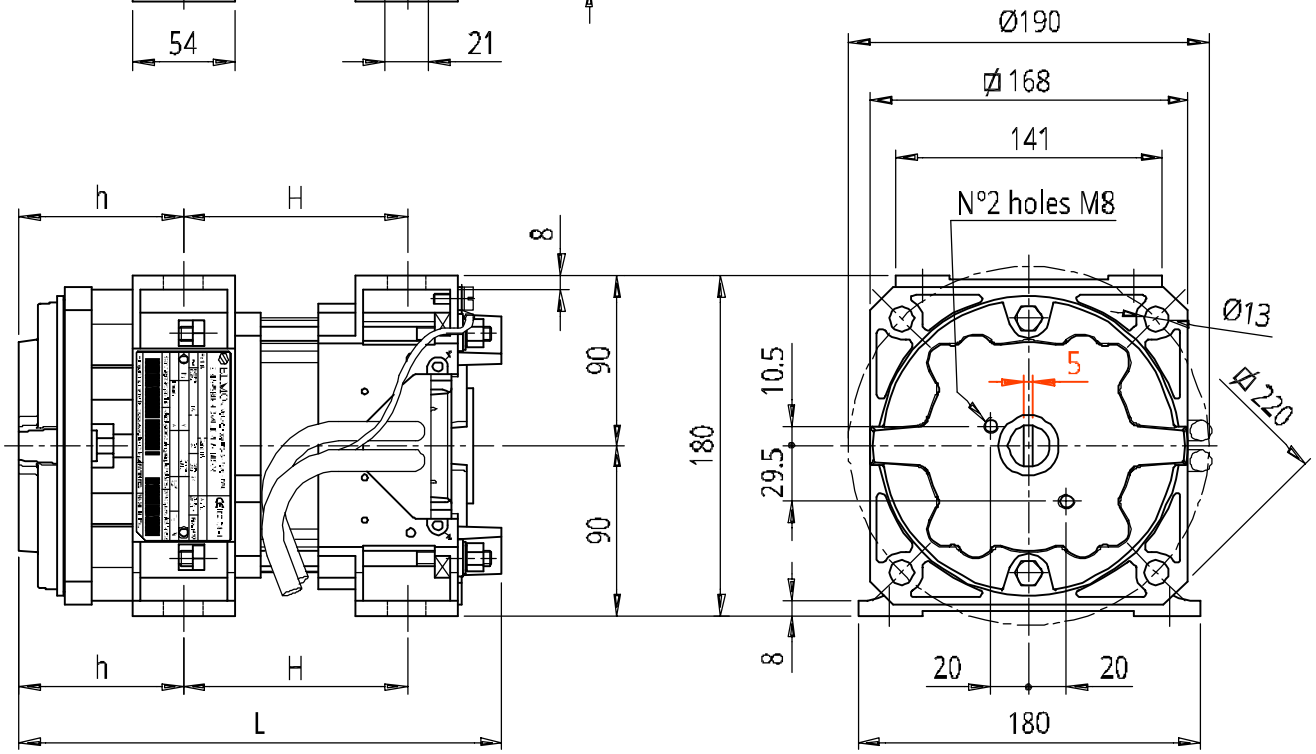
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	254	87	118
1,1	1,1	1,1	264		128
1,5	1,5	1,5	279		143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	-	-	374		238

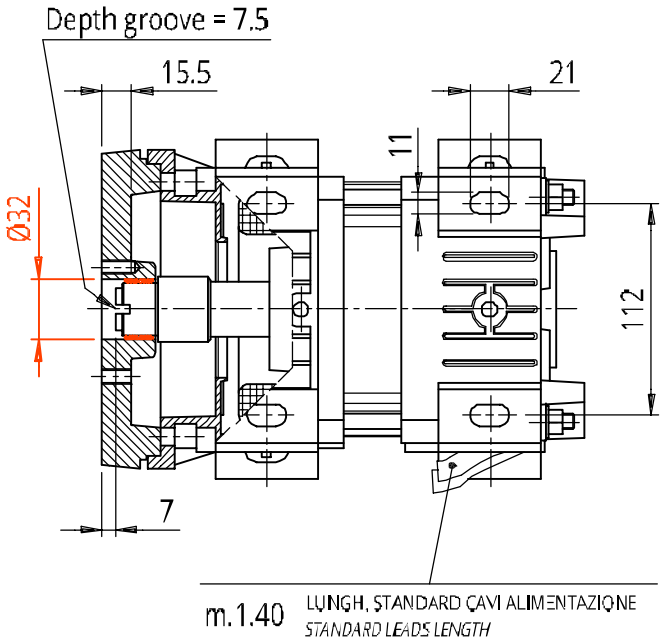
4-POLE 3-PHASE 50 Hz Motors Type S3N4-U



Female Groove 5 mm
Flange Ø 32 mm

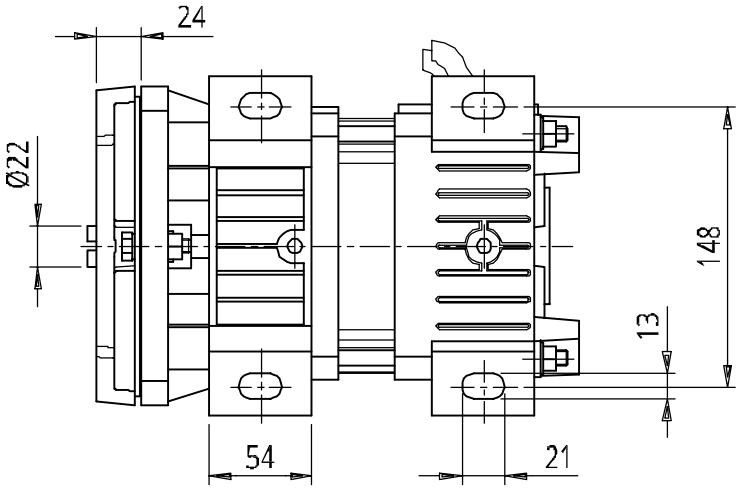
Suitable for Pump
Type F1L AGL54 and F1K AGL54
Group 1





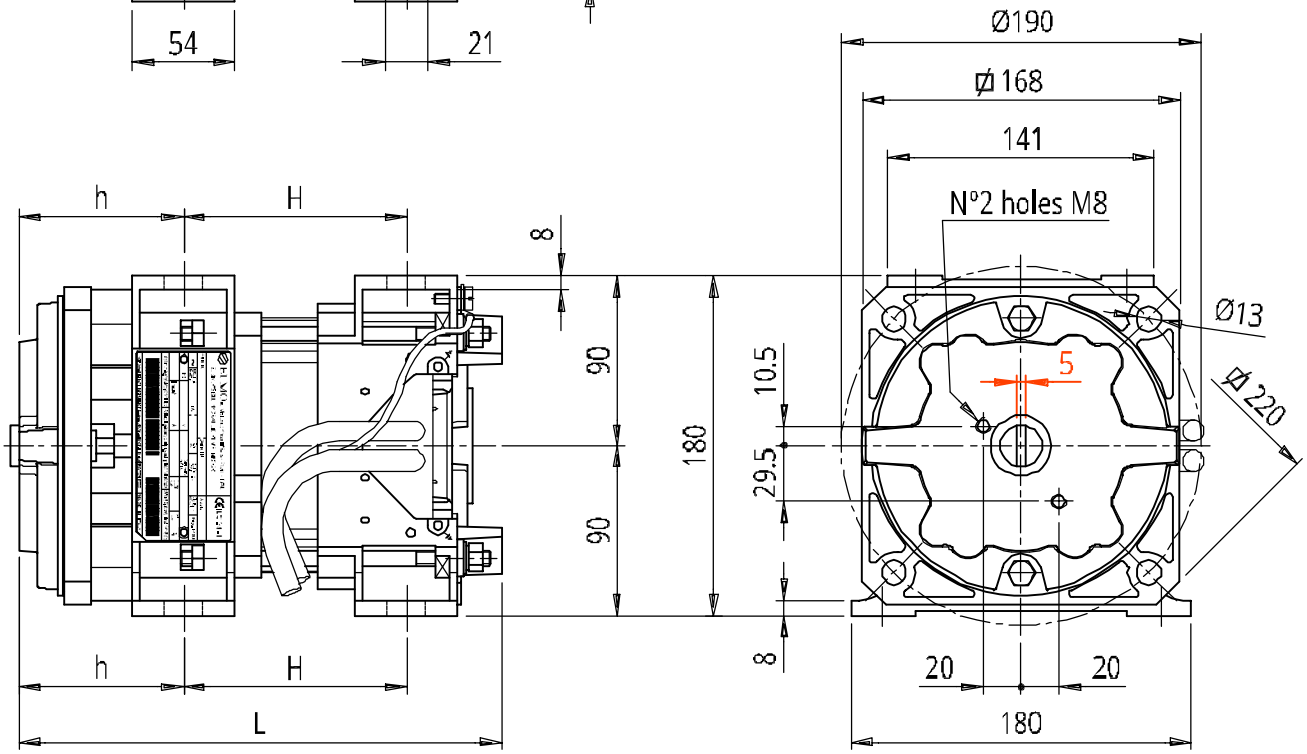
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	254	87	118
1,1	1,1	1,1	264		128
1,5	1,5	1,5	279		143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	-	-	374		238

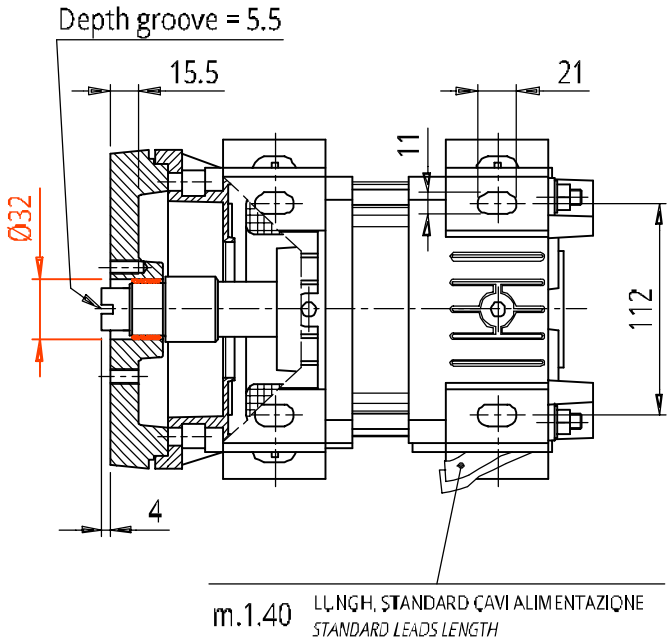
4-POLE 3-PHASE 50 Hz Motors Type S3S4-U



Female Groove 5 mm
Flange Ø 32 mm

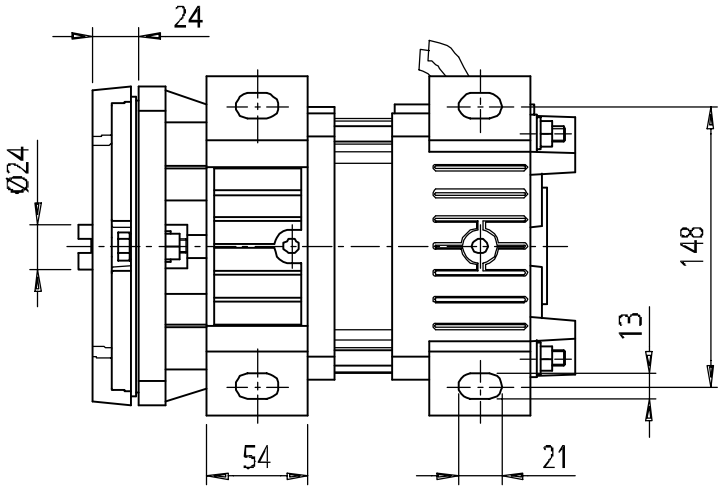
Suitable for Pump
Type F1L AG54 and F1K AG54
Group 1





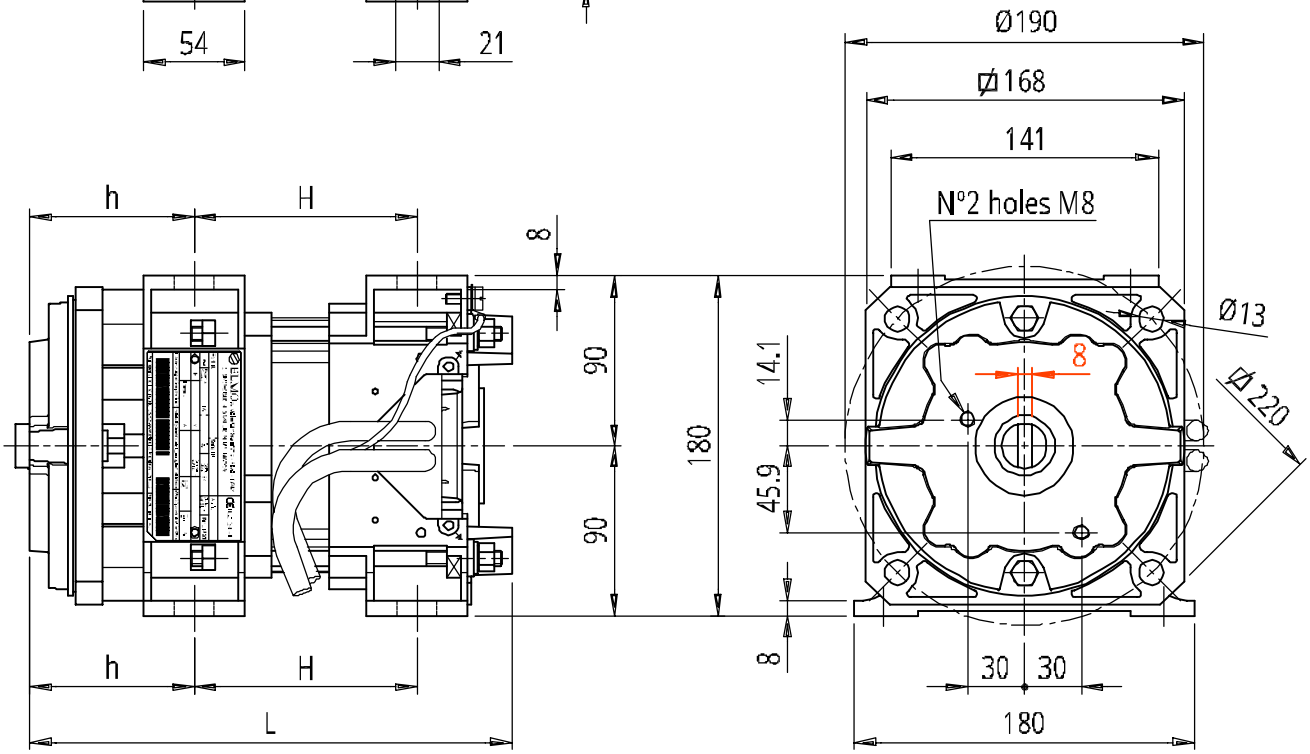
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	254	87	118
1,1	1,1	1,1	264		128
1,5	1,5	1,5	279		143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	-	-	374		238

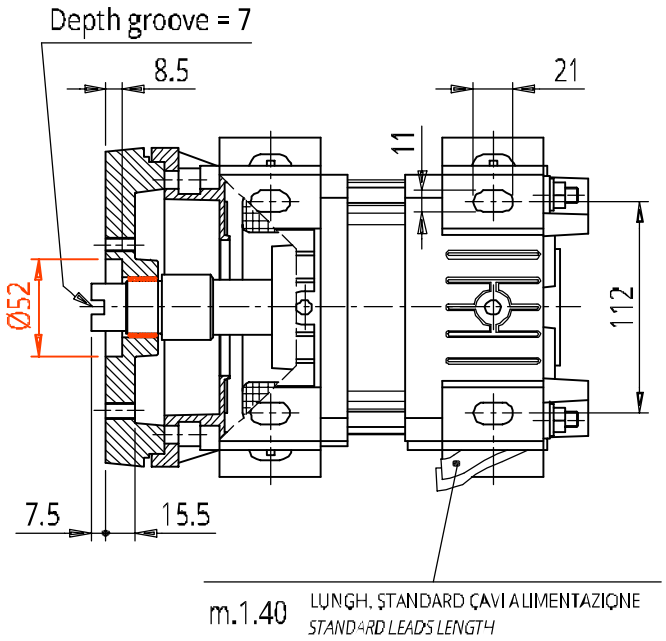
4-POLE 3-PHASE 50 Hz Motors Type S3M4-U



Female Groove 8 mm
Flange Ø 52

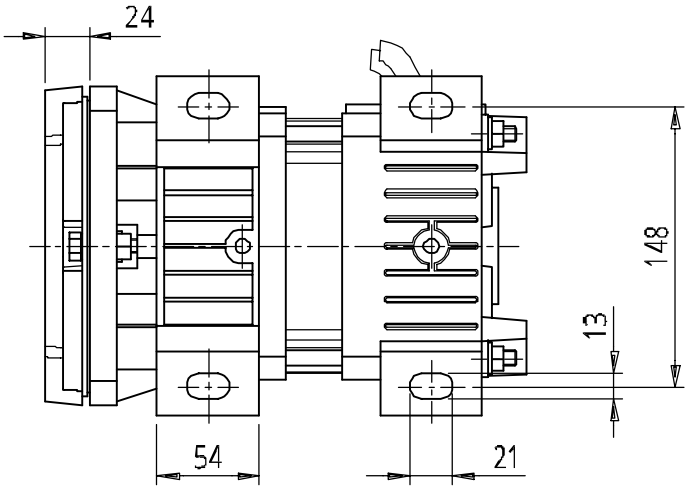
Suitable for Pump
Type F2 BK7 - AG
Group 2





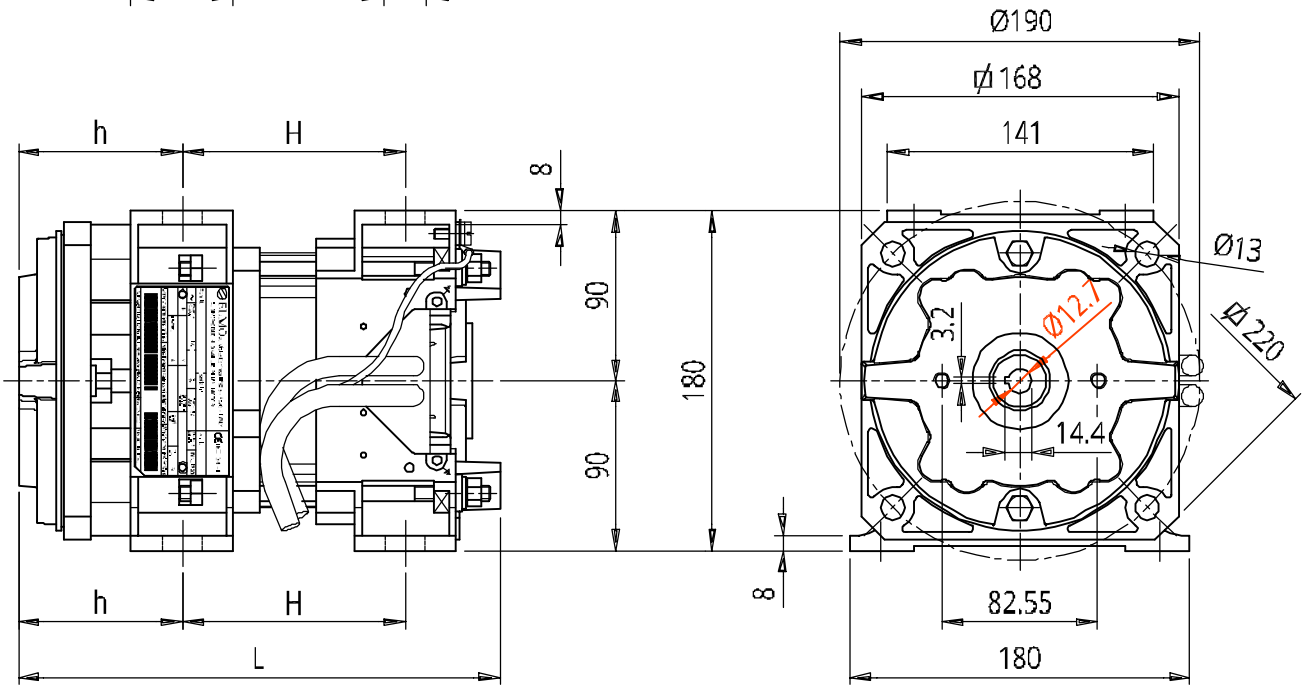
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	254	87	118
1,1	1,1	1,1	264		128
1,5	1,5	1,5	279		143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	-	-	374		238

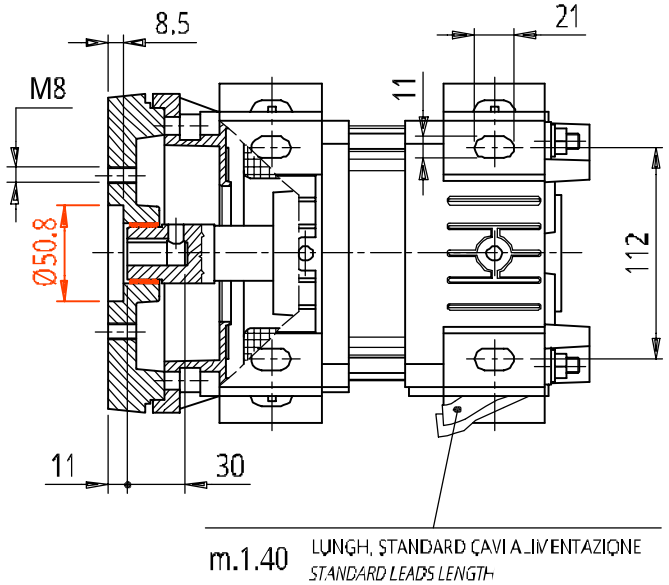
4-POLE 3-PHASE 50 Hz Motors Type S3K4-U



Shaft Ø 12,7 mm
Flange Ø 50,8 mm

Suitable for Pump
Type SAEA - AC
Group 1

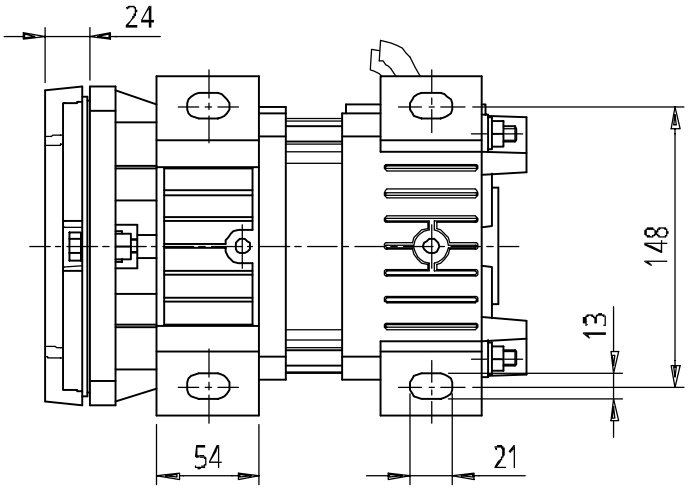




m.1.40 LUNGH. STANDARD CAVI A_IVENTAZIONE
STANDARD LEADS LENGTH

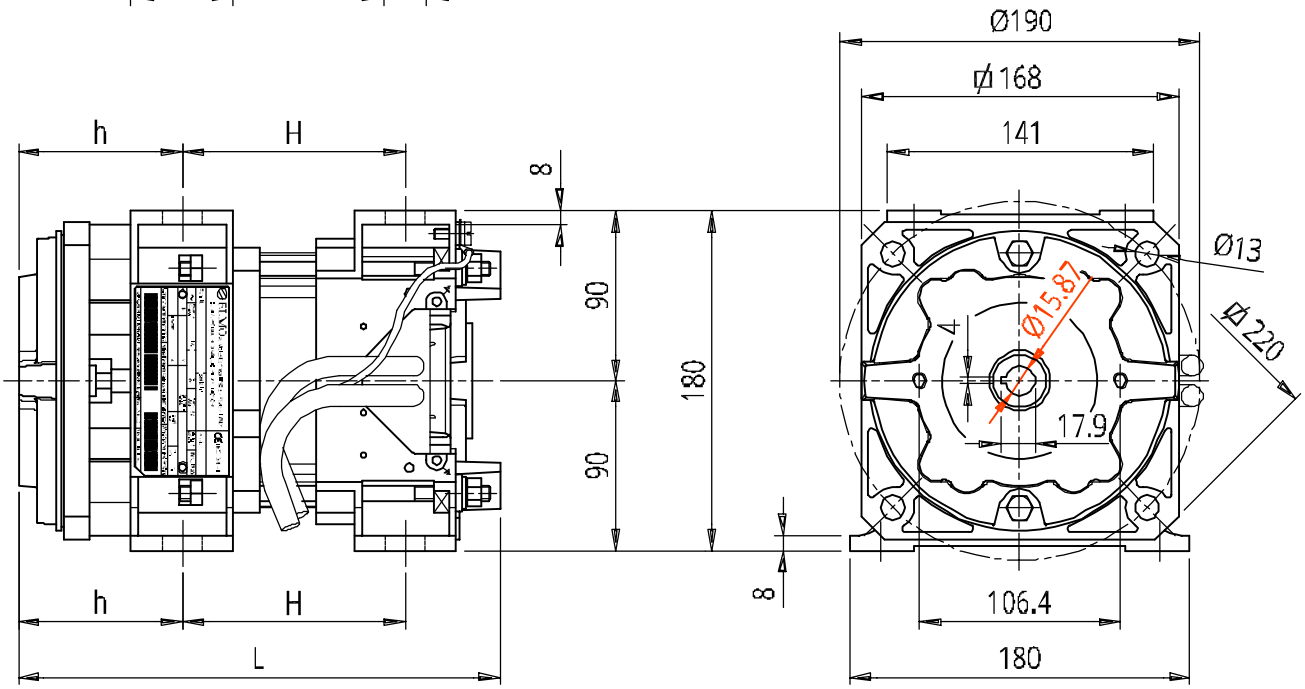
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	254	87	118
1,1	1,1	1,1	264		128
1,5	1,5	1,5	279		143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	-	-	374		238

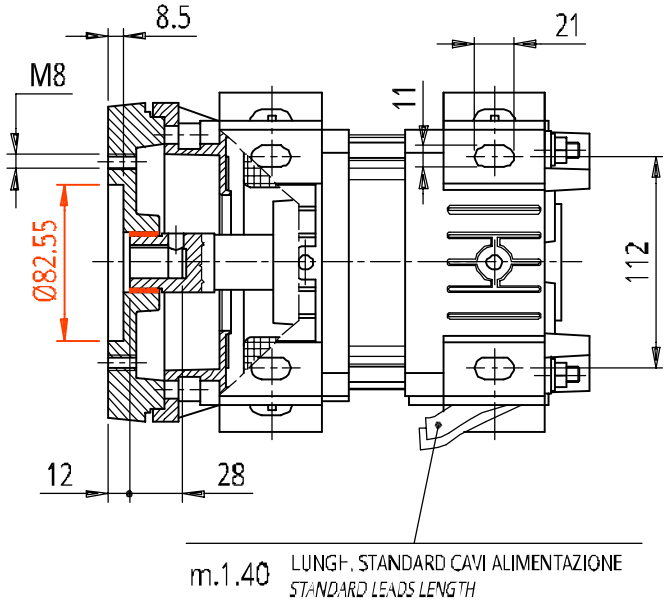
4-POLE 3-PHASE 50 Hz Motors Type S3A4-U



Shaft Ø 15,87 mm
Flange Ø 82,55 mm

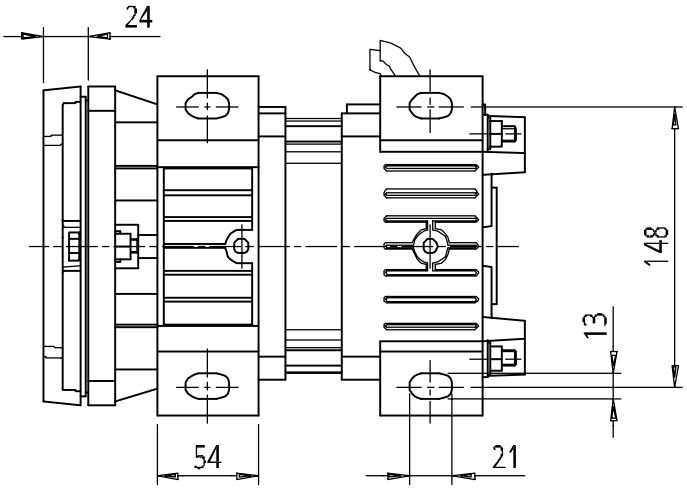
Suitable for Pump
Type SAEA - AC
Group 2





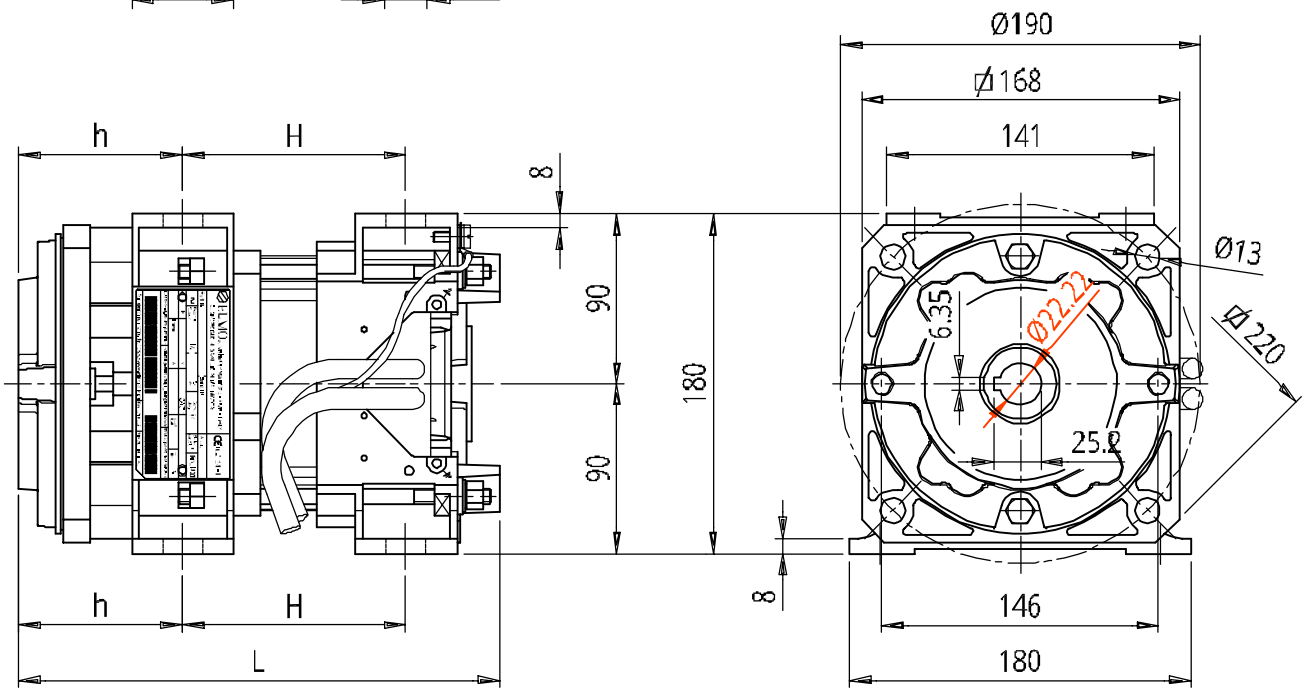
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
1,5	1,5	1,5	279	87	143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	6,6	6,6	374		238
6,6	7,5	7,5	399		263
7,5	9,2	9,2	424		288
-	-	11	424		288

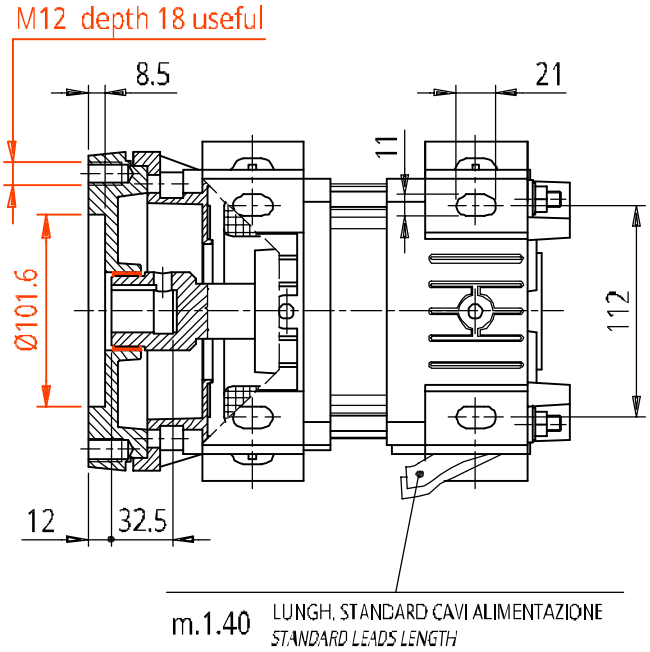
4-POLE 3-PHASE 50 Hz Motors Type S3B4-U



Shaft Ø 22,22 mm
Flange Ø 101,6

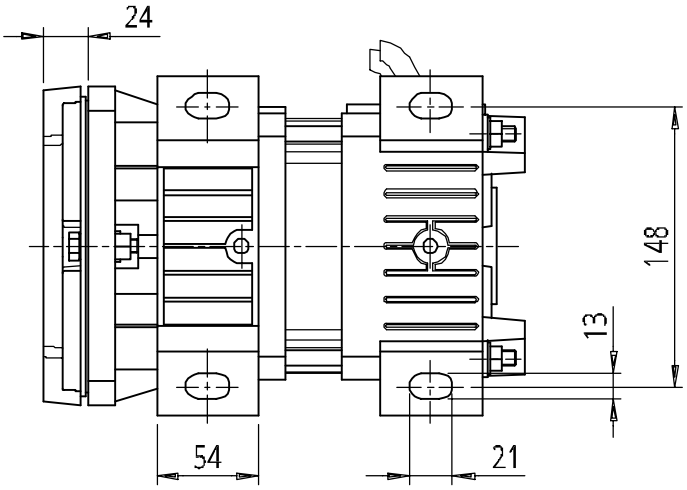
Suitable for Pump
Type SAEB - AC
Group 3





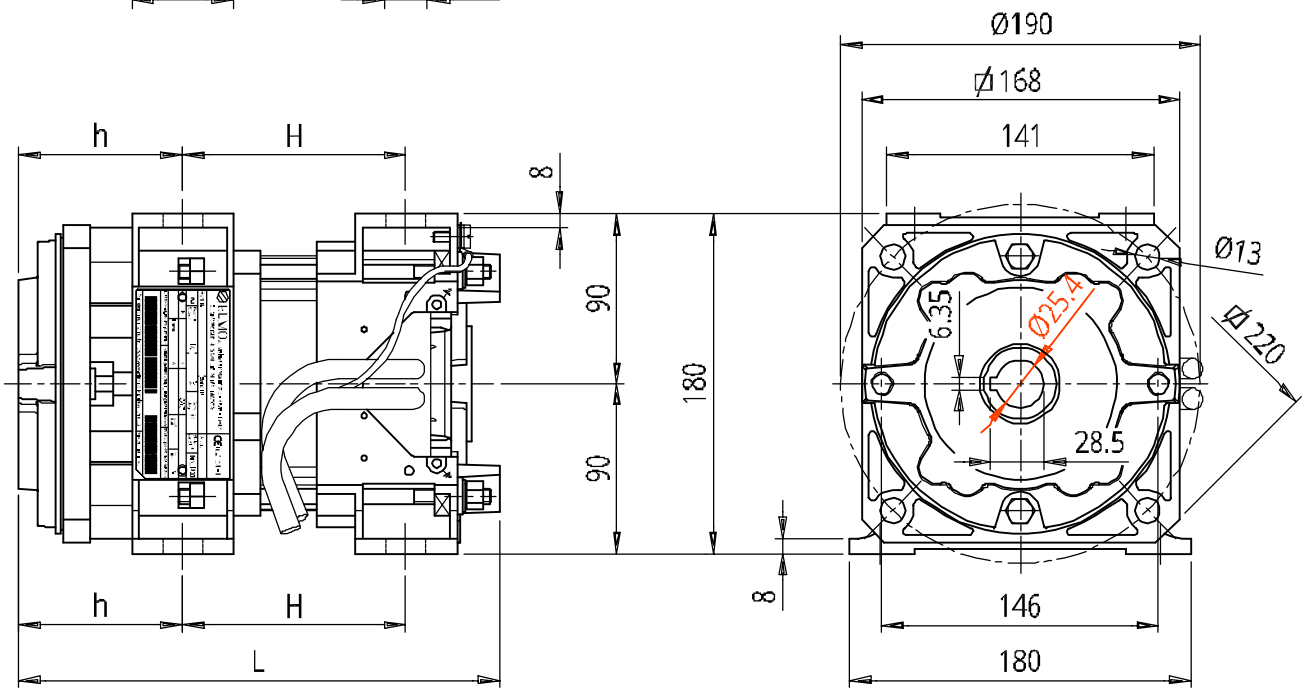
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
1,5	1,5	1,5	279	87	143
2,2	2,2	2,2	294		156
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	6,6	6,6	374		238
6,6	7,5	7,5	399		263
7,5	9,2	9,2	424		288
-	-	11	424		288

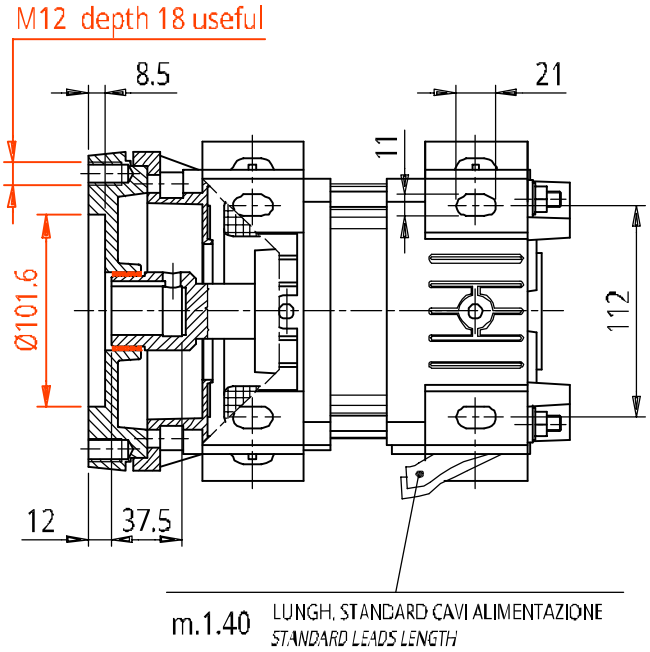
4-POLE 3-PHASE 50 Hz Motors Type S3C4-U



Shaft Ø 25,4 mm
Flange Ø 101,6

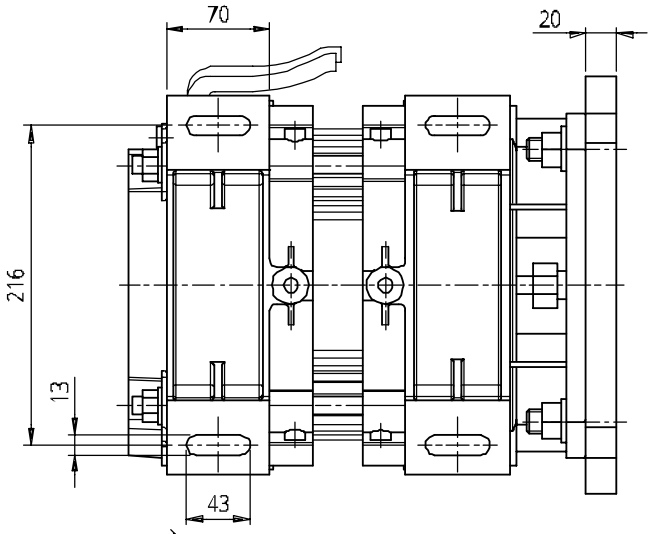
Suitable for Pump
Type SAEB - AC
Group 3





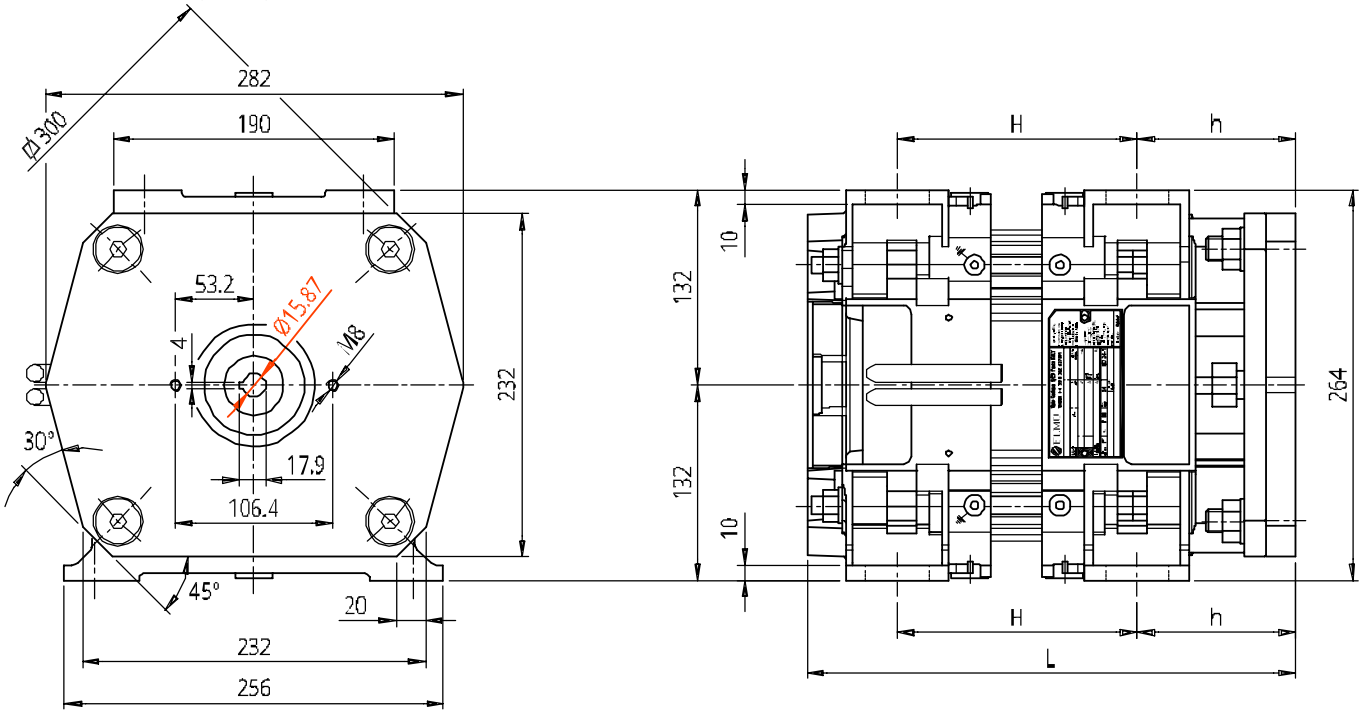
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
1,5	1,5	1,5	279	87	143
2,2	2,2	2,2	294		158
3	3	3	309		173
4	4	4	324		188
4,4	4,8	4,8	339		203
4,8	5,5	5,5	354		218
5,5	6,6	6,6	374		238
6,6	7,5	7,5	399		263
7,5	9,2	9,2	424		288
-	-	11	424		288

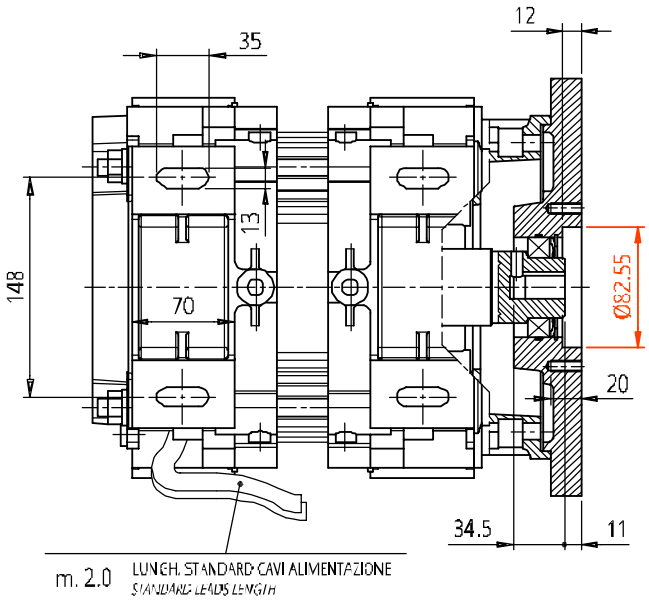
4-POLE 3-PHASE 50 Hz Motors Type S7A4-U



Shaft Ø 15,87 mm
Flange Ø 82,55 mm

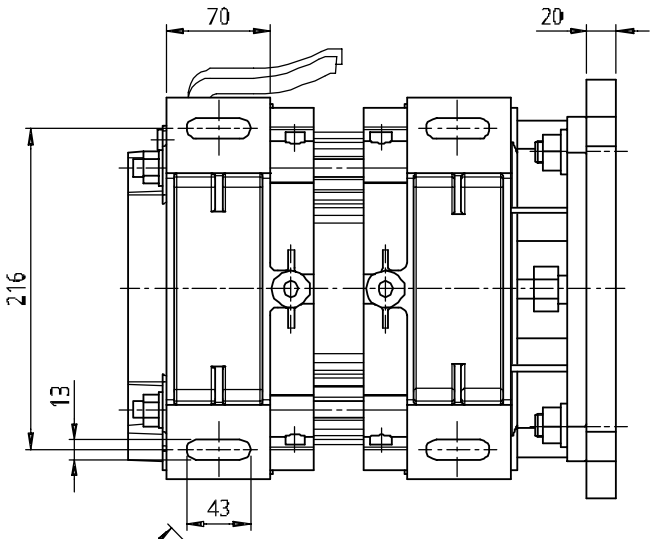
Suitable for Pump
Type SAEA - AC
Group 2





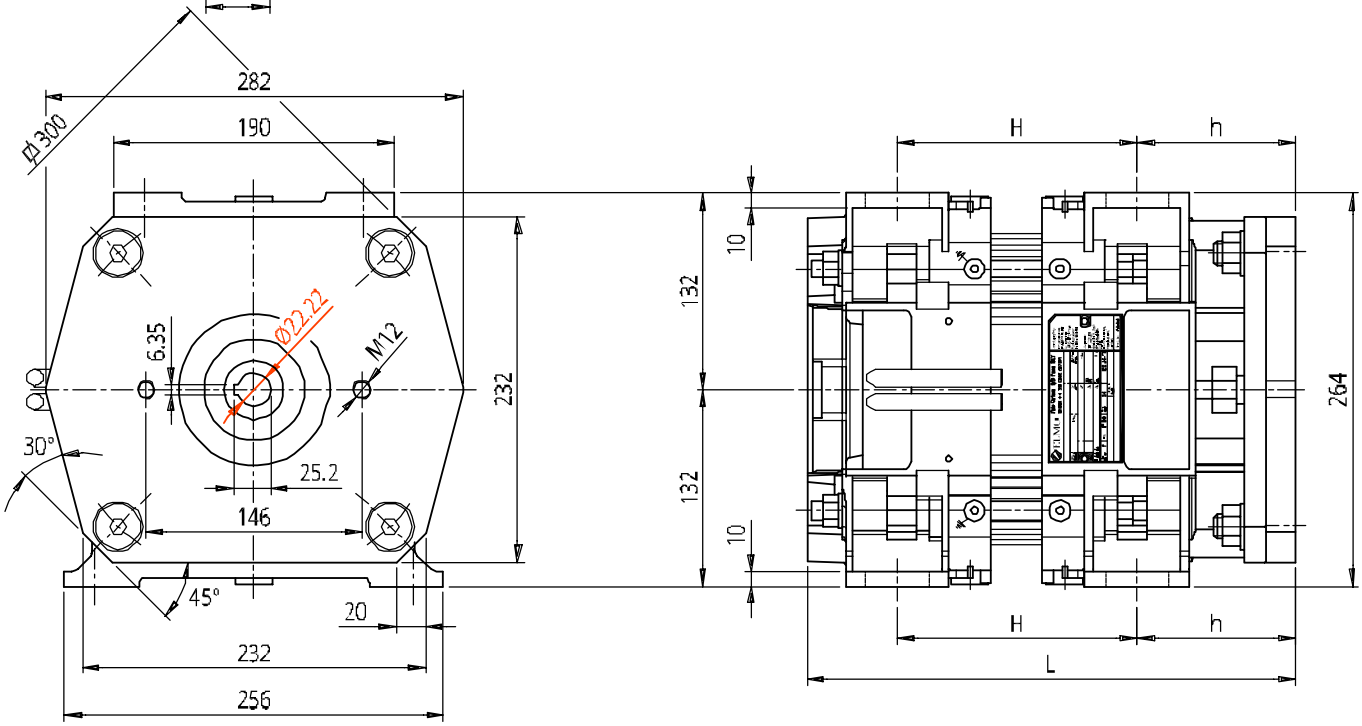
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	365		197
11	11	11	365		197
11,8	12,5	13,2	380	107	212
12,5	13,2	-	395		227
13,2	-	-	415		247

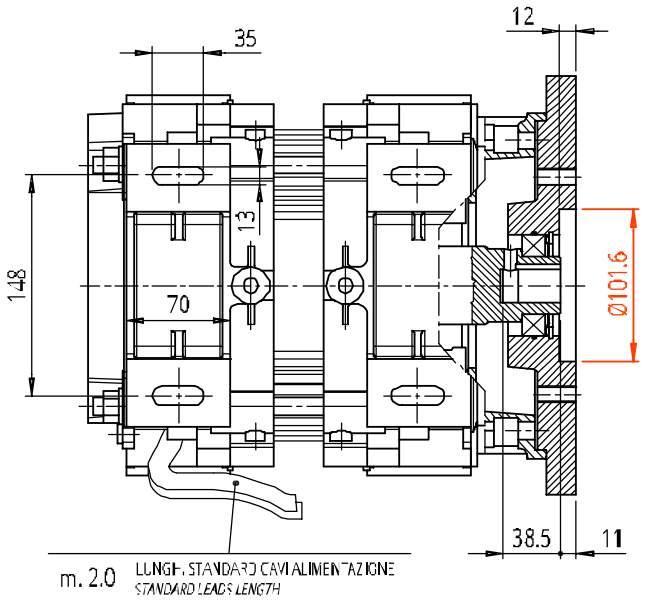
4-POLE 3-PHASE 50 Hz Motors Type S7B4-U



Shaft Ø 22,22 mm
Flange Ø 101,6 mm

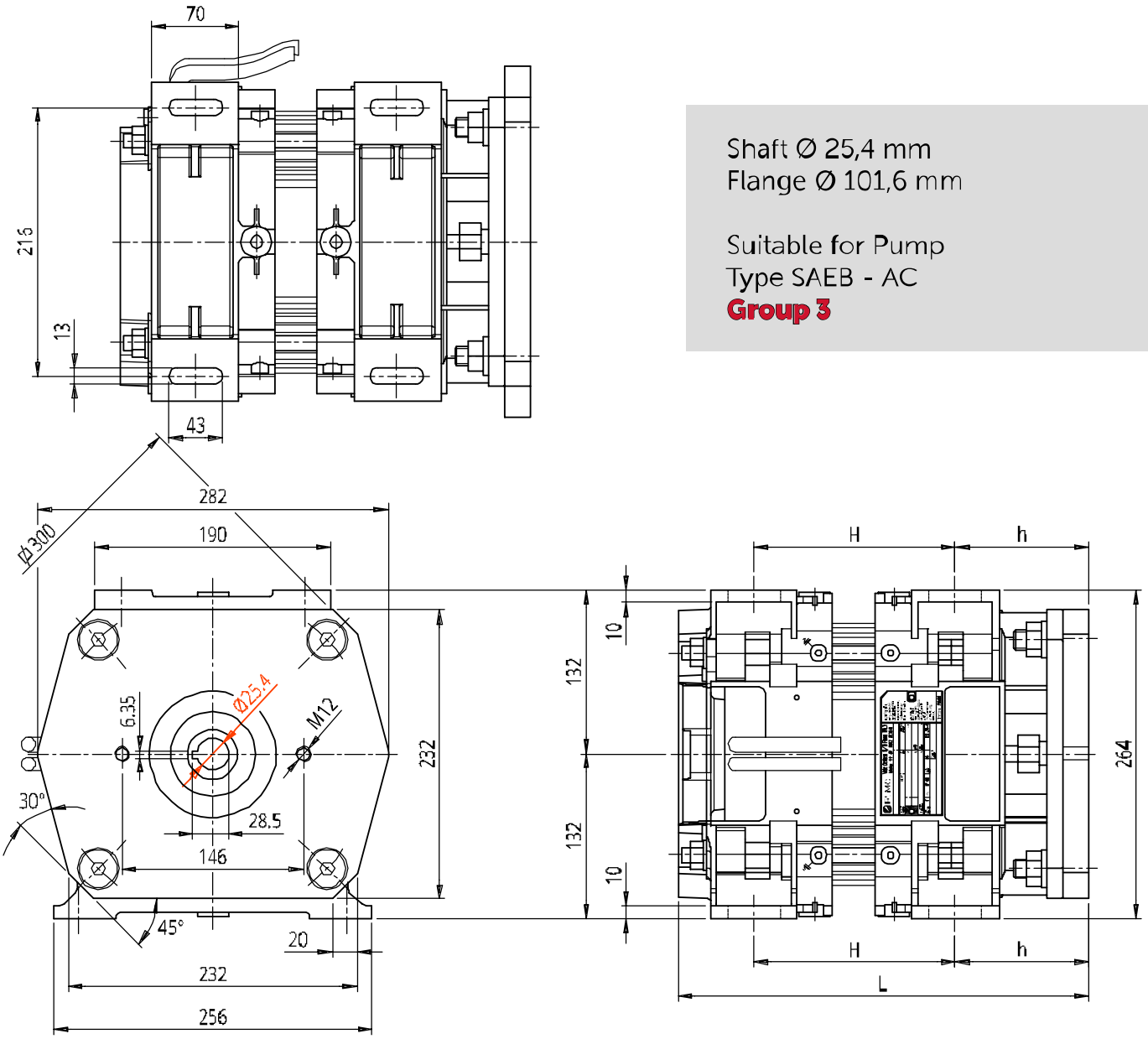
Suitable for Pump
Type SAEB - AC
Group 3





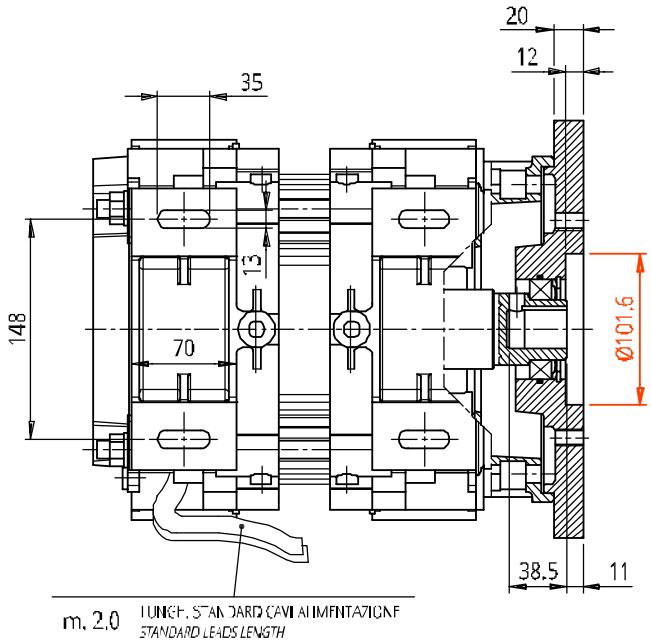
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	365	107	197
11	11	11	365		197
11,8	12,5	13,2	380		212
12,5	13,2	15	395		227
13,2	15	18,5	415		247
15	18,5	22	440		272
18,5	22	30	480		312
22	30	37	530		362
28	37	-	585		417
34	-	-	635		467

4-POLE 3-PHASE 50 Hz Motors Type S7C4-U



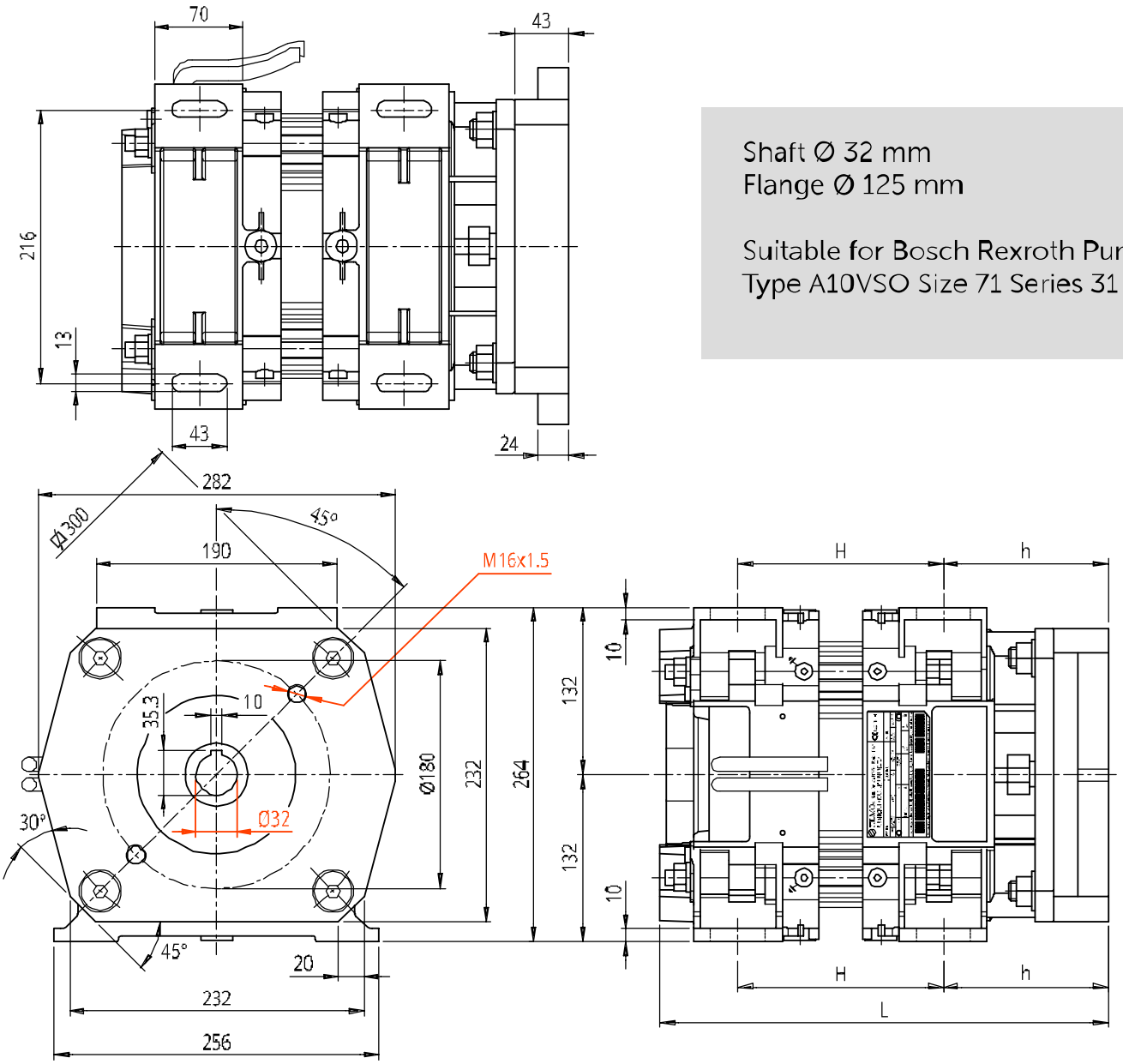
Shaft Ø 25,4 mm
Flange Ø 101,6 mm

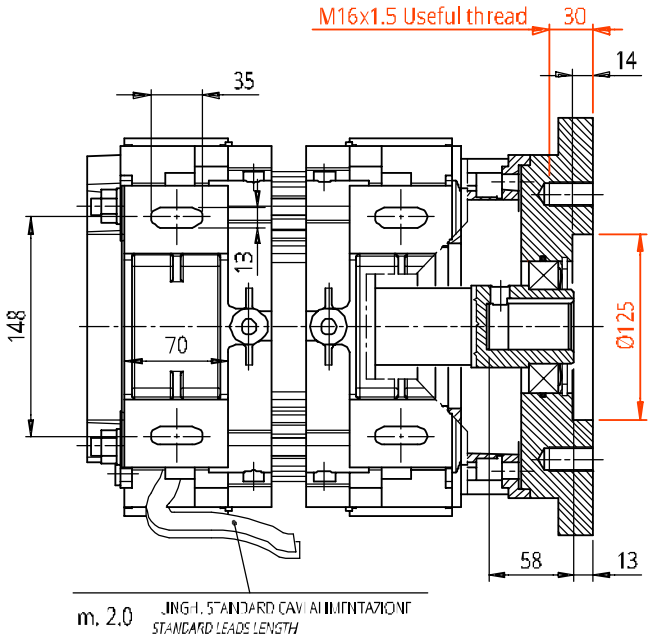
Suitable for Pump
Type SAEB - AC
Group 3



DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	365	107	197
11	11	11	365		197
11,8	12,5	13,2	380		212
12,5	13,2	15	395		227
13,2	15	18,5	415		247
15	18,5	22	440		272
18,5	22	30	480		312
22	30	37	530		362
28	37	45	585		417
34	45	55	635		467

4-POLE 3-PHASE 50 Hz Motors Type S7E4-U



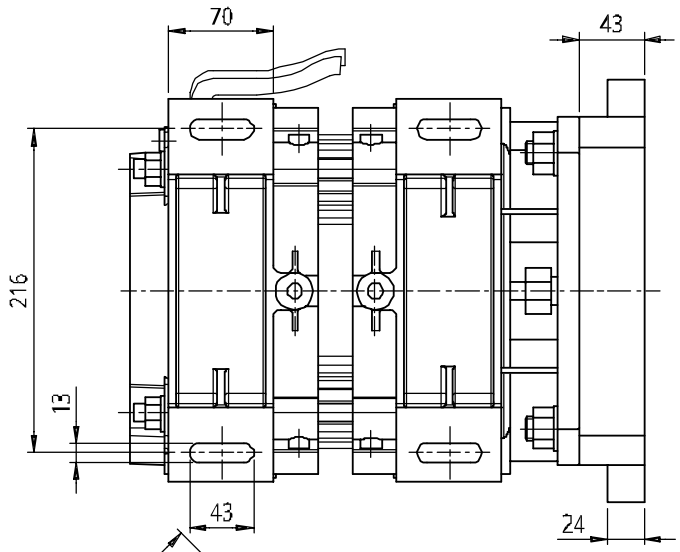


Shaft Ø 32 mm
Flange Ø 125 mm

Suitable for Bosch Rexroth Pump
Type A10VSO Size 71 Series 31

DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	388	130	197
11	11	11	388		197
11,8	12,5	13,2	403		212
12,5	13,2	15	418		227
13,2	15	18,5	438		247
15	18,5	22	463		272
18,5	22	30	503		312
22	30	37	553		362
28	37	45	608		417
34	45	55	658		467

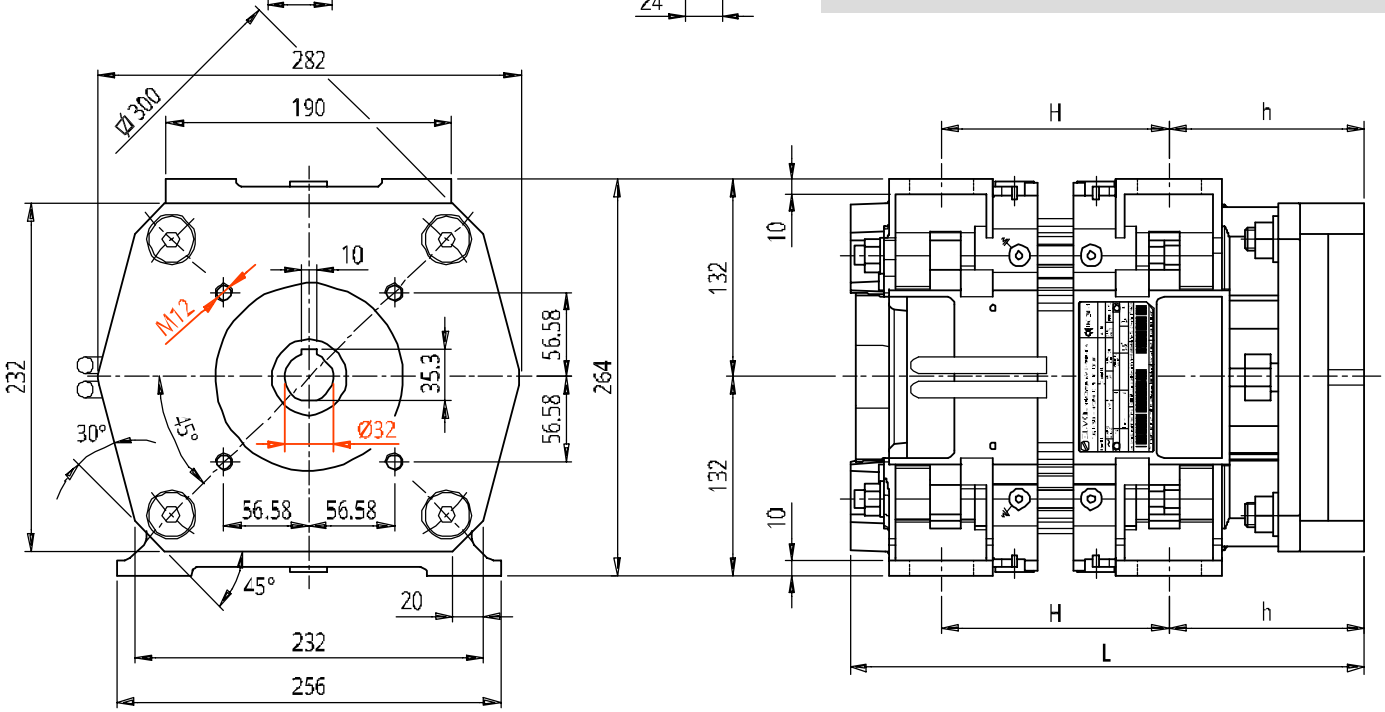
4-POLE 3-PHASE 50 Hz Motors Type S7F4-U

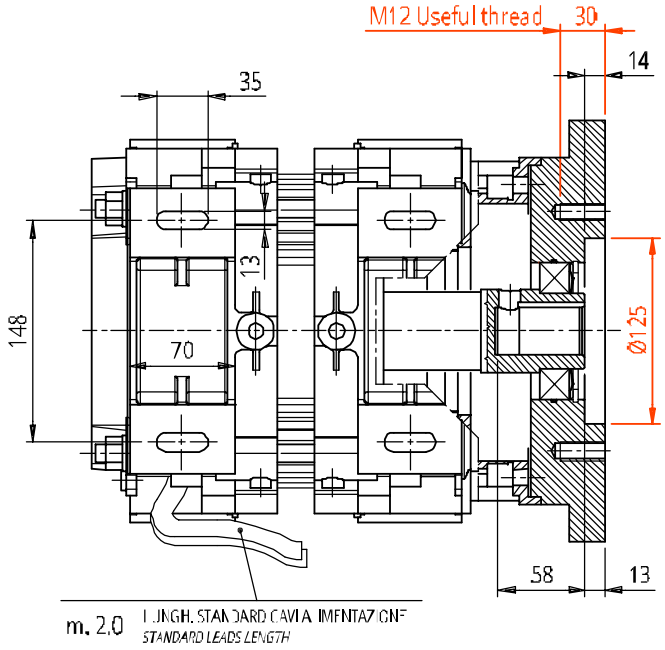


Shaft Ø 32 mm
Flange Ø 125 mm

Suitable for:
Moog Pump Type RKP-II Size 32/45
Parker Pump Series PV046 Metric Version

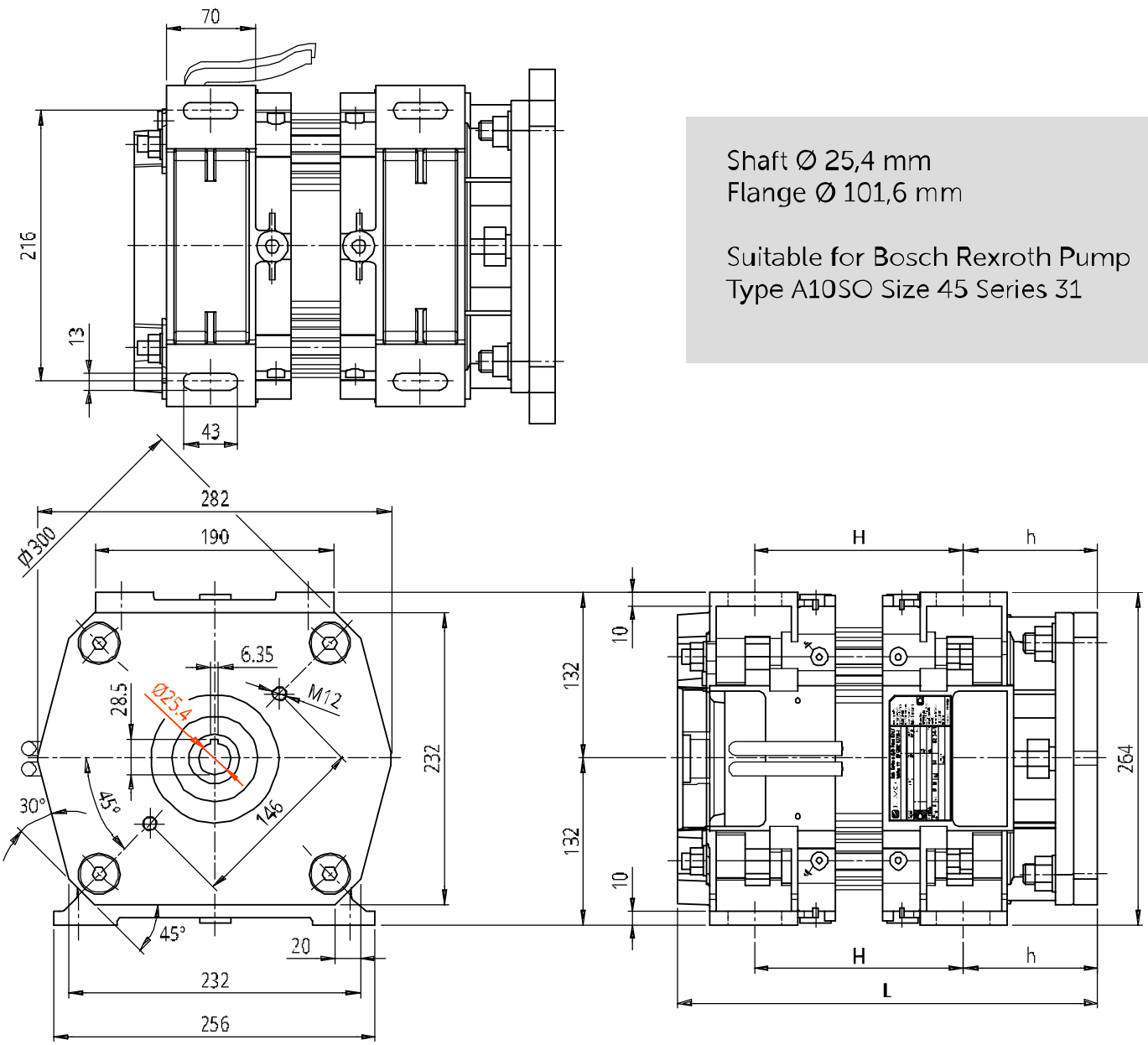
Eaton Pump Series PVM131/141
ISO 3019/2 metric Version
Flange (4 bolt) Code = H
Shaft Code =18





DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	388	130	197
11	11	11	388		197
11,8	12,5	13,2	403		212
12,5	13,2	15	418		227
13,2	15	18,5	438		247
15	18,5	22	463		272
18,5	22	30	503		312
22	30	37	553		362
28	37	45	608		417
34	45	55	658		467

4-POLE 3-PHASE 50 Hz Motors Type S7G4-U

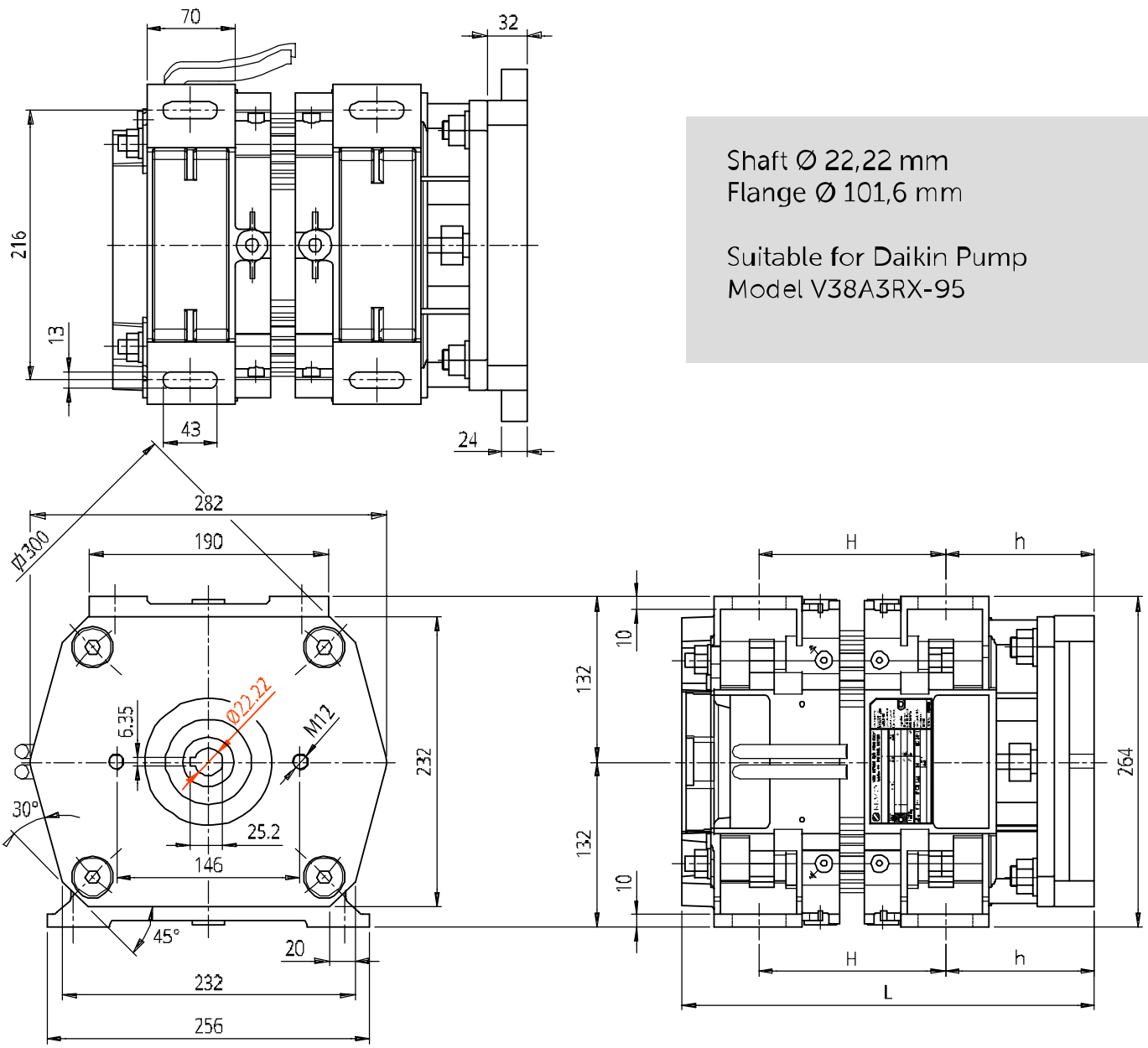


Shaft Ø 25,4 mm
Flange Ø 101,6 mm

Suitable for Bosch Rexroth Pump
Type A10SO Size 45 Series 31

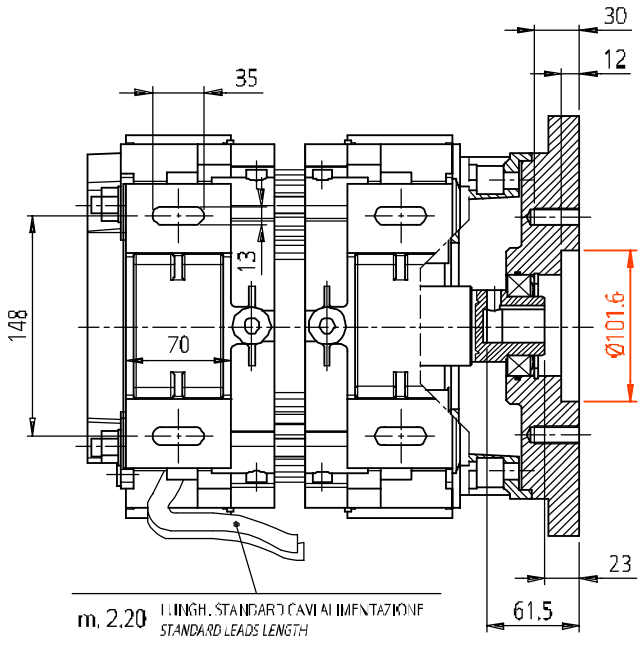
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	365	107	197
11	11	11	365		197
11,8	12,5	13,2	380		212
12,5	13,2	15	395		227
13,2	15	18,5	415		247
15	18,5	22	440		272
18,5	22	30	480		312
22	30	37	530		362
28	37	45	585		417
34	45	55	635		467

4-POLE 3-PHASE 50 Hz Motors Type S7L4-U



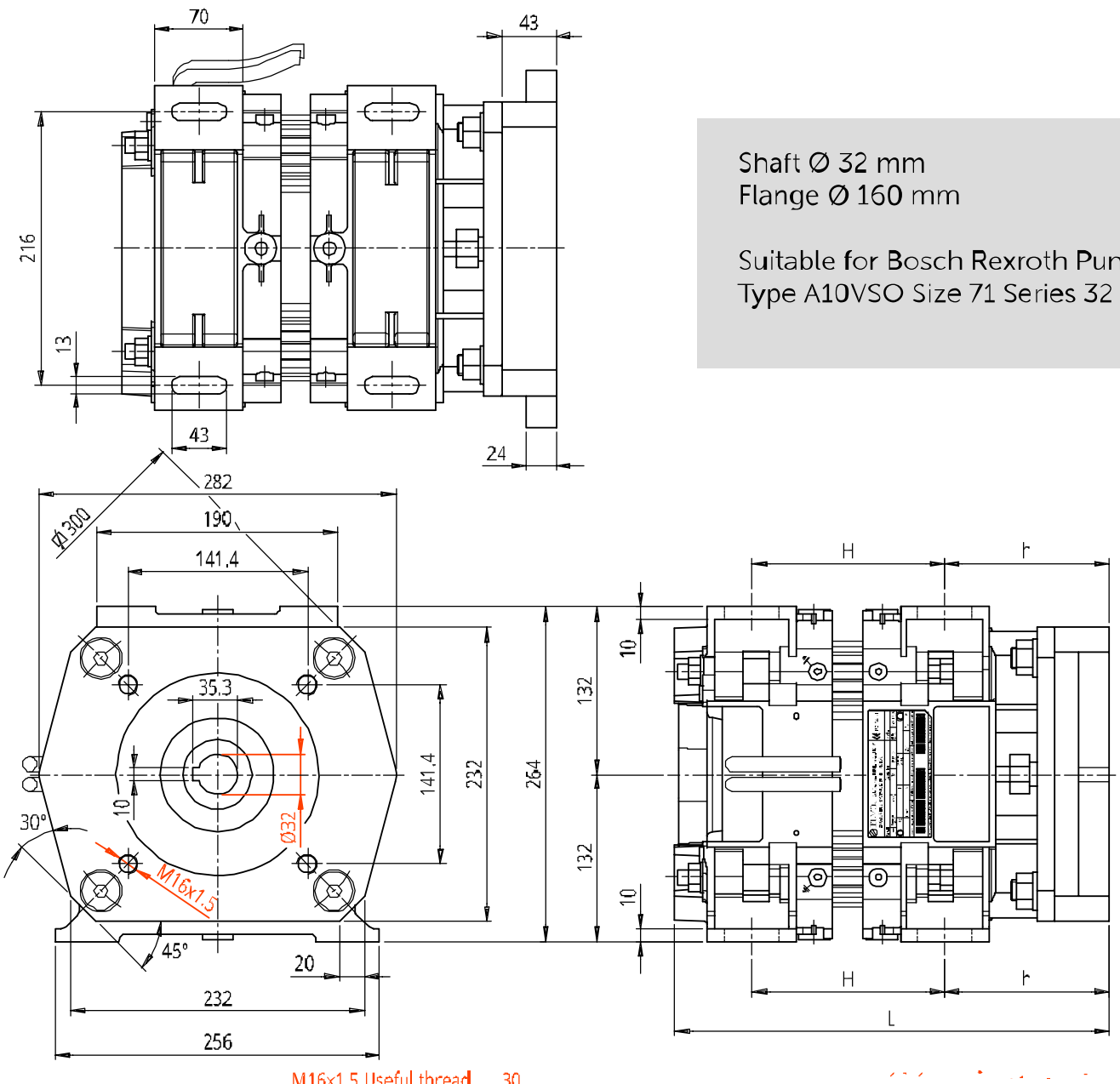
Shaft Ø 22,22 mm
Flange Ø 101,6 mm

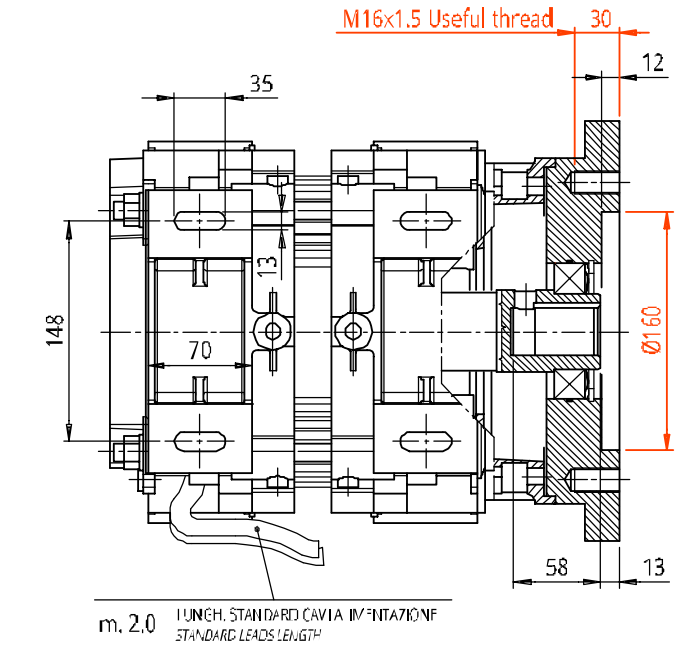
Suitable for Daikin Pump
Model V38A3RX-95



DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	377	119	197
11	11	11	377		197
11,8	12,5	13,2	392		212
12,5	13,2	15	407		227
13,2	15	18,5	427		247
15	18,5	22	452		272
18,5	22	30	492		312
22	30	37	542		362
28	37	-	597		417
34	-	-	647		467

4-POLE 3-PHASE 50 Hz Motors Type S7R4-U



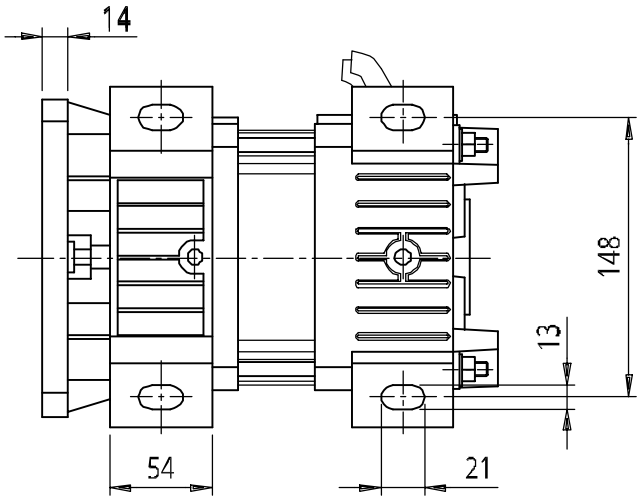


Shaft Ø 32 mm
Flange Ø 160 mm

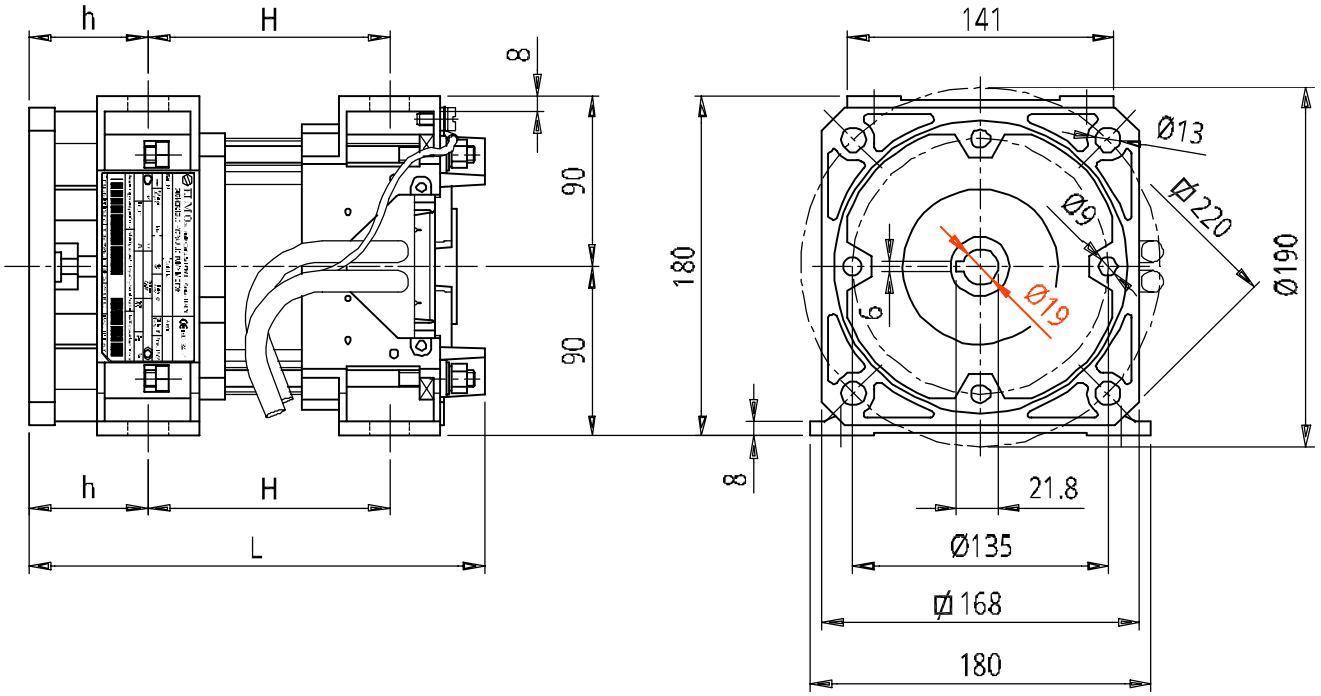
Suitable for Bosch Rexroth Pump
Type A10VSO Size 71 Series 32

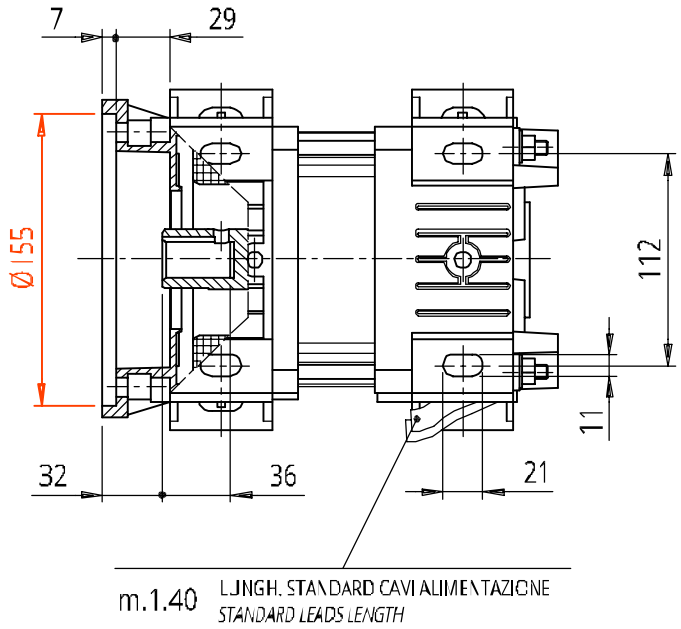
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	388	130	197
11	11	11	388		197
11,8	12,5	13,2	406		212
12,5	13,2	15	418		227
13,2	15	18,5	438		247
15	18,5	22	463		272
18,5	22	30	503		312
22	30	37	553		362
28	37	45	608		417
34	45	55	658		467

4-POLE 3-PHASE 50 Hz Motors Type S34



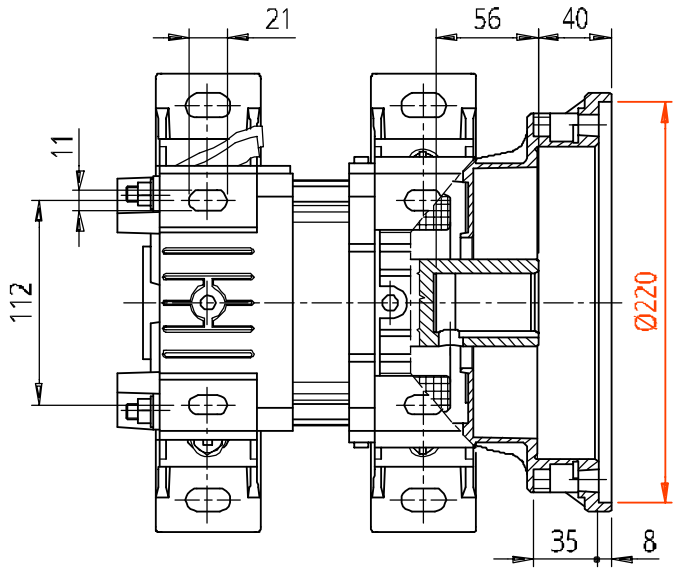
Shaft Ø 19 mm
Flange Ø 155 mm



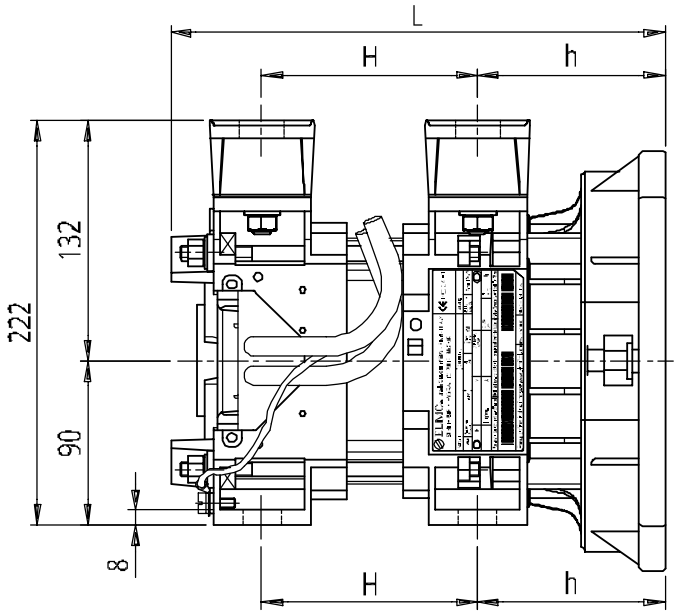


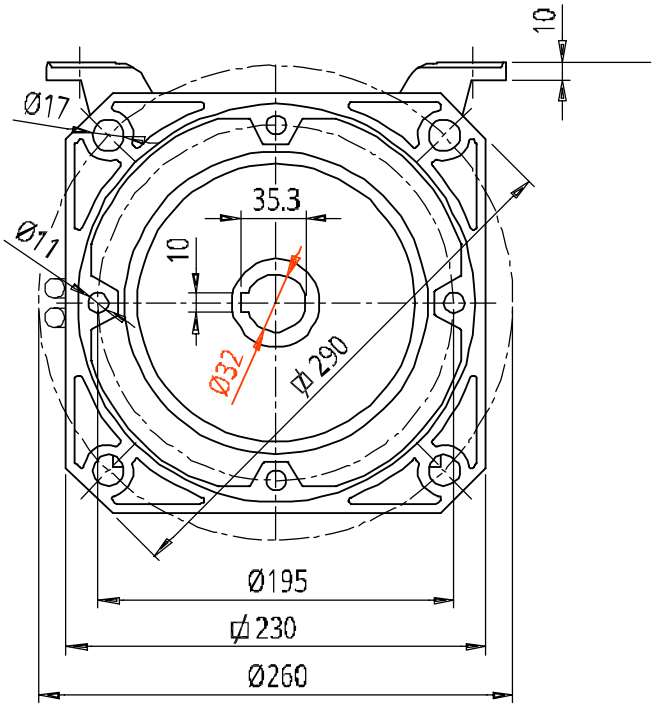
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
0,75	0,75	0,75	230	63	118
1,1	1,1	1,1	240		128
1,5	1,5	1,5	255		143
2,2	2,2	2,2	270		158
3	3	3	285		173
4	4	4	300		188
4,4	4,8	4,8	315		203
4,8	5,5	5,5	330		218
5,5	6,6	6,6	350		238
6,6	7,5	7,5	375		263
7,5	9,2	9,2	400		288
-	-	11	400		288

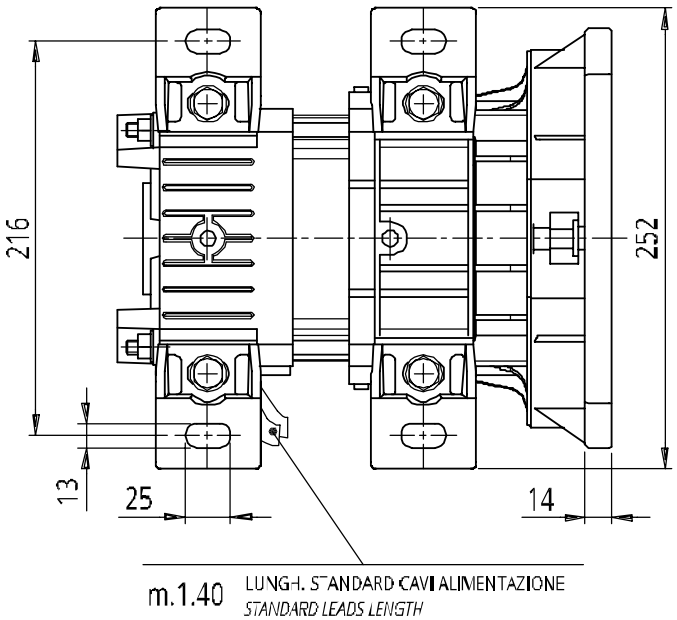
4-POLE 3-PHASE 50 Hz Motors Type S36 with feet added



Shaft Ø 32 mm
Flange Ø 220 mm



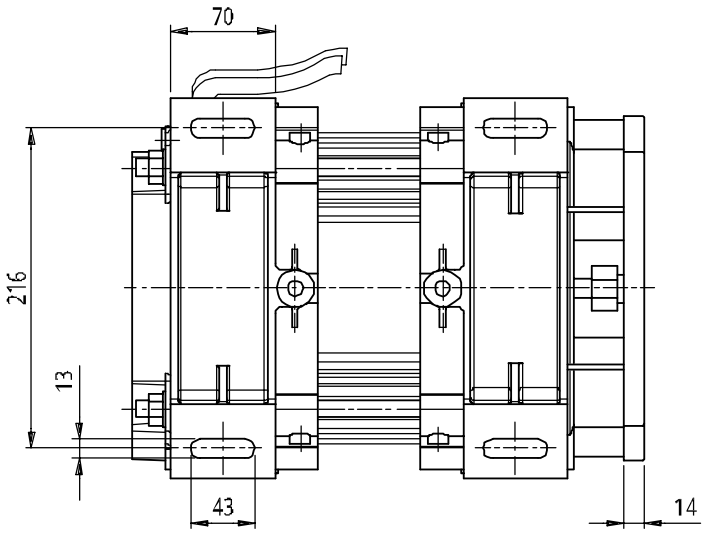




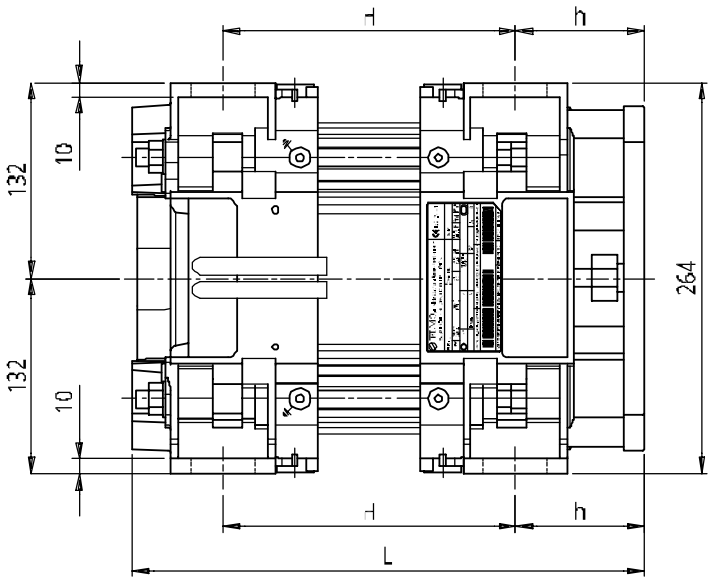
m.1.40 LUNGH. STANDARD CAVI ALIMENTAZIONE
STANDARD LEADS LENGTH

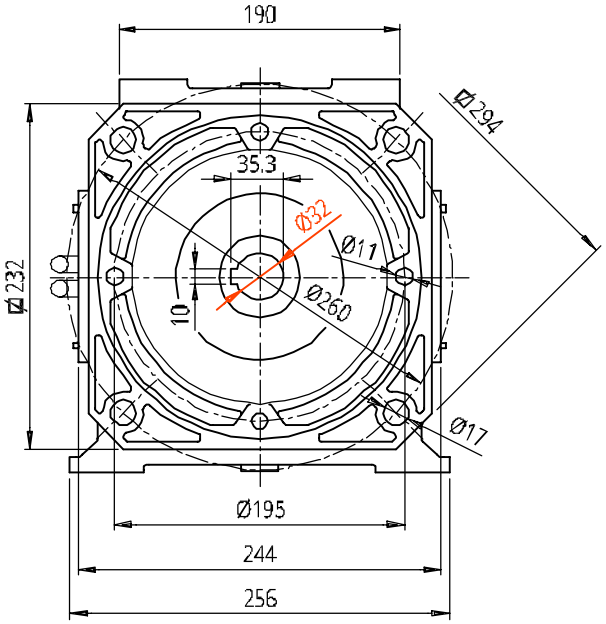
DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
4	4	4	340	103	188
4,4	4,8	4,8	355		203
4,8	5,5	5,5	370		218
5,5	6,6	6,6	390		238
6,6	7,5	7,5	415		263
7,5	9,2	9,2	440		288
-	-	11	440		288

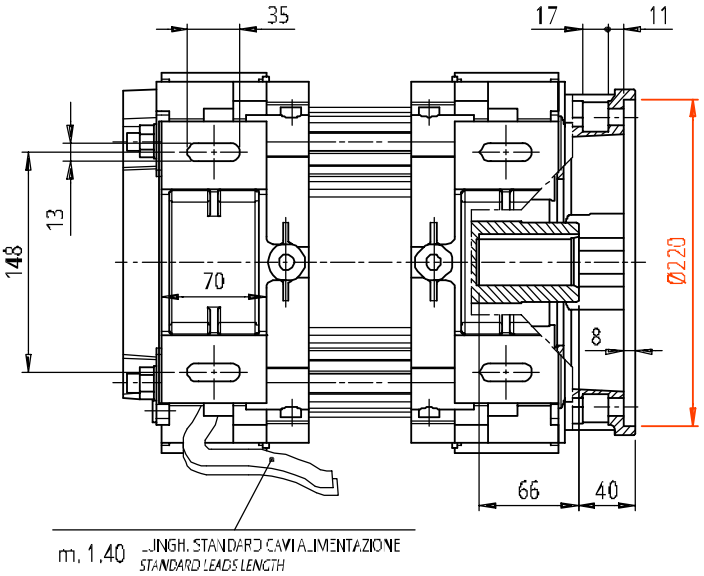
4-POLE 3-PHASE 50 Hz Motors Type S76



Shaft Ø 32 mm
Flange Ø 220 mm







DUTY TYPE			DIMENSIONI DIMENSIONS		
S1	S2 60min.	S2 30min.			
kW	kW	kW	L	h	H
9,2	-	-	345	87	197
11	11	11	345		197
11,8	12,5	13,2	360		212
12,5	13,2	15	375		227
13,2	15	18,5	395		247
15	18,5	22	420		272
18,5	22	30	460		312
22	30	37	510		362
28	37	45	565		417
34	45	55	615		467

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

Italia

CERTIFICATO

Nr. 50 100 6620 - Rev.004

Si attesta che / This is to certify that

IL SISTEMA QUALITÀ DI
THE QUALITY SYSTEM OF

ELMO S.R.L.

SEDE LEGALE E OPERATIVA:
REGISTERED OFFICE AND OPERATIONAL SITE:

VIALE CERTOSA 8/B
IT - 27100 PAVIA (PV)

È CONFORME AI REQUISITI DELLA NORMA
HAS BEEN FOUND TO COMPLY WITH THE REQUIREMENTS OF

UNI EN ISO 9001:2015

QUESTO CERTIFICATO È VALIDO PER IL SEGUENTE CAMPO DI APPLICAZIONE
THIS CERTIFICATE IS VALID FOR THE FOLLOWING SCOPE

Progettazione, produzione, commercializzazione di motori elettrici monofase, trifase ed a frequenza variabile, accessori per impianti di sollevamento idraulici e per impianti industriali (IAF 18, 19)

Design, production, sale of single, three phases and variable frequency electrical motors and accessories for hydraulic lifting systems and for industrial applications (IAF 18, 19)

ACCREDIA
SGQ N° 049A

Per l'Organismo di Certificazione
For the Certification Body
TÜV Italia S.r.l.

Validità / *Validity*
Dal / From: **2018-03-09**
Al / To: **2019-03-11**

Andrea Coscia
Direttore Divisione Business Assurance

Data emissione / *Printing Date*
2018-03-09

PRIMA CERTIFICAZIONE / *FIRST CERTIFICATION*: 2007-03-27

"LA VALIDITÀ DEL PRESENTE CERTIFICATO È SUBORDINATA A SORVEGLIANZA PERIODICA A 12 MESI E AL RIESAME COMPLETO DEL SISTEMA DI GESTIONE AZIENDALE CON PERIODICITÀ TRIENNALE"

"THE VALIDITY OF THE PRESENT CERTIFICATE DEPENDS ON THE ANNUAL SURVEILLANCE EVERY 12 MONTHS AND ON THE COMPLETE REVIEW OF COMPANY'S MANAGEMENT SYSTEM AFTER THREE YEARS"

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