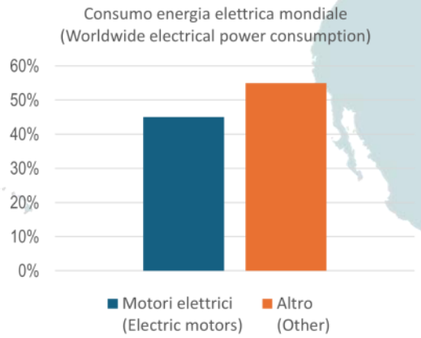
CATALOGO MOTORI SINCRONI

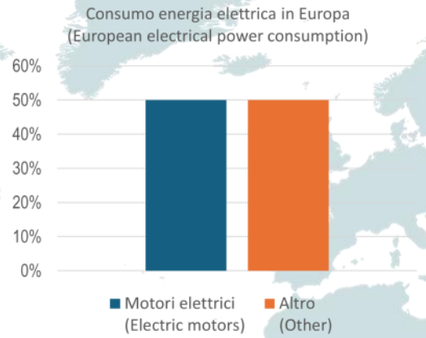
INDICE

INDEX

Attualmente si stima che i motori elettrici assorbano fino al 50% della potenza elettrica prodotta in Europa, e circa il 45% di quella mondiale.

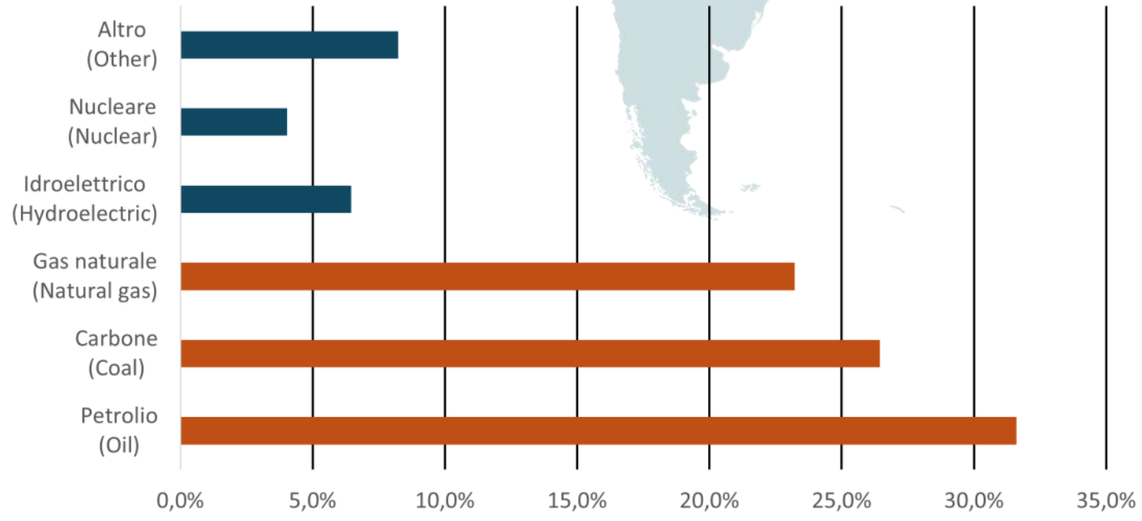
Electric motors represent about 50% of the European electrical produced power, and 45% worldwide.





Nel 2023 la produzione di energia elettrica mondiale derivata da combustibili fossili è stata pari circa al 81% del totale.

In 2018, generation from combustible fuels accounted for 66.3% of total world gross electricity production.



(sources: europa.eu, energyinst.org)

European Commission

Da luglio 2021, la precedente regolamentazione è stata rimpiazzata dalle nuove regolamentazioni su motori elettrici e driver a velocità variabile (EU) 2019/1781. Sotto queste nuove regole, molti motori che non rientravano precedentemente sono ora regolamentati, inclusi i motori tra 120W e 750W, quelli di potenze tra 375kW e 1000kW, i motori a 60Hz, quelli a 8 poli e i motori monofase (questi ultimi a partire da luglio 2023).

Inoltre, i requisiti sono aumentati per i motori trifase di potenze tra 0.75kW÷1000kW. Questi devono infatti aver raggiunto la classe di efficienza IE3 entro luglio 2021, mentre i motori di potenze tra 75kW÷200kW rientrare nella classe IE4 entro luglio 2023.

Le nuove regolamentazioni riguardano anche l'efficienza dei driver a velocità variabile e sia questi ultimi che i motori devono riportare diverse informazioni come le efficienze a carichi diversi in termini di coppia e velocità. Ciò facilita l'ottimizzazione in termini di efficienza per i nuovi impianti.

Come nelle precedenti regolamentazioni, alcuni motori progettati per particolari condizioni sono esclusi o agevolati.

Il regolamento (UE) 2019/1781 è stato ulteriormente modificato con l'introduzione della fase 2, entrata in vigore il 1° luglio 2023. Questa fase ha ampliato il campo di applicazione includendo anche i motori trifase antideflagranti e i convertitori di frequenza, che devono rispettare requisiti minimi di efficienza energetica. Alcune eccezioni precedenti sono state eliminate, rendendo la normativa più stringente.

Since July 2021, the previous regulation has been replaced by the new Regulations on electric motors and variable speed drives (EU) 2019/1781. Under these new rules, many motors that were previously not regulated are now included, such as motors between 120W and 750W, those with power between 375kW and 1000kW, 60Hz motors, 8-pole motors, and single-phase motors (the latter starting from July 2023).

Additionally, the requirements have increased for three-phase motors with power between 0.75kW÷1000kW. These must reach the IE3 efficiency class by July 2021, while motors with power between 75kW÷200kW must meet the IE4 class by July 2023.

The new regulations also cover the efficiency of variable speed drives, and both these and the motors must report various information such as efficiencies at different loads in terms of torque and speed. This facilitates optimization in terms of efficiency for new installations.

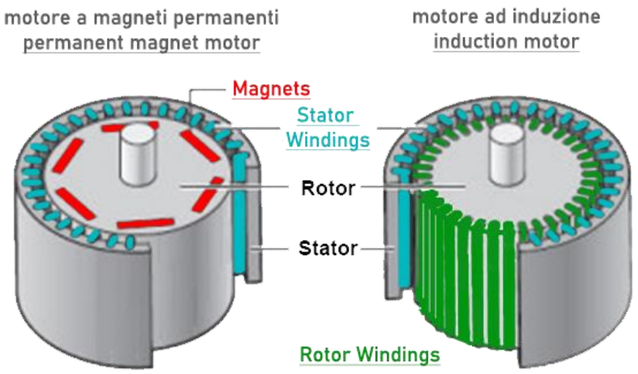
As in previous regulations, some motors, designed for specific conditions, might be excluded or exempted.

Regulation (EU) 2019/1781 has been further amended with the introduction of phase 2, effective from July 1, 2023. This phase expanded its application range, to include explosion-proof three-phase motors and frequency converters, which must now meet the minimum energy efficiency requirements. Also, some previous exceptions have been eliminated, making the regulation more tight.

PRINCIPIO DI FUNZIONAMENTO
WORKING PRINCIPLE

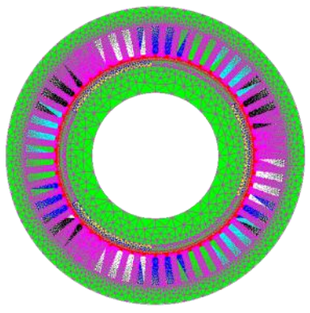
La maggiore differenza tra un motore sincrono (a magneti permanenti o a riluttanza) ed un motore asincrono ad induzione è la presenza di un campo magnetico rotorico. Questo cambia radicalmente il principio di funzionamento. Infatti, non è più necessario indurre un campo magnetico tra statore e rotore, come nel caso di un motore ad induzione, poiché quest'ultimo è già presente. Ciò permette di generare elevate coppie di funzionamento e una velocità sincrona.

The main difference between a synchronous motor (with permanent magnets or reluctance) and an asynchronous induction motor is the presence of a rotor magnetic field. This fundamentally changes the operating principle, as it is no longer necessary to induce a magnetic field between the stator and rotor, as in the case of an induction motor, because the field is already present. This eventually allows to create high operating torques and synchronous speed.



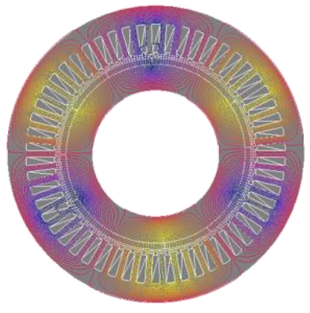
Alcune configurazioni particolari dei magneti sul rotore permettono, inoltre, di creare una riluttanza saliente nel circuito magnetico, la quale, se sfruttata, consente di generare coppia aggiuntiva (coppia di riluttanza) e regolare un motore sincrono (a riluttanza o ibrido) nella zona di deflussaggio.

Some specific configurations of the magnets on the rotor also allow the creation of salient reluctance in the magnetic circuit, which, if exploited, enables the generation of additional torque (reluctance torque) and the regulation of a synchronous motor (reluctance or hybrid) in the flux-weakening zone.



Circuito magnetico a riluttanza saliente

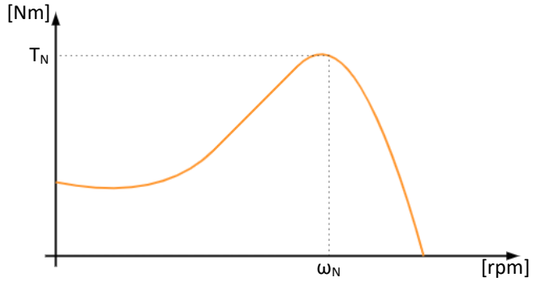
Magnetic circuit with salient reluctance

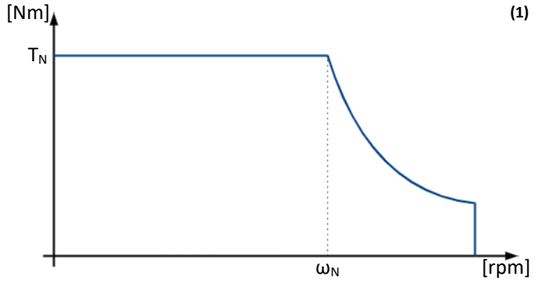


MOTORE SINCRONO SYNCHRONOUS MOTOR

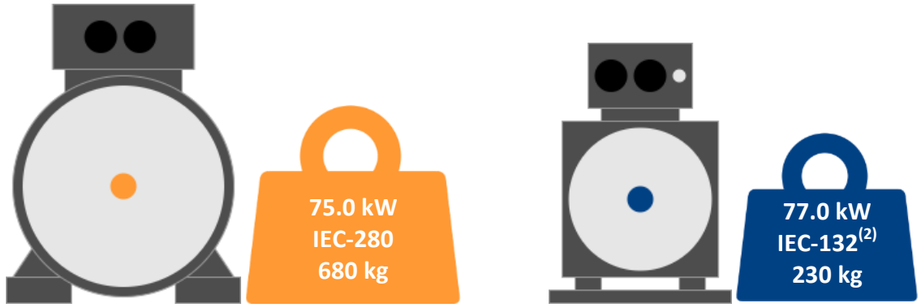
VANTAGGI DI UN MOTORE SINCRONO
SYNCHRONOUS MOTOR ADVANTAGES

AMPIO RANGE DI VELOCITÀ A COPPIA COSTANTE
WIDE CONSTANT-TORQUE SPEED RANGE

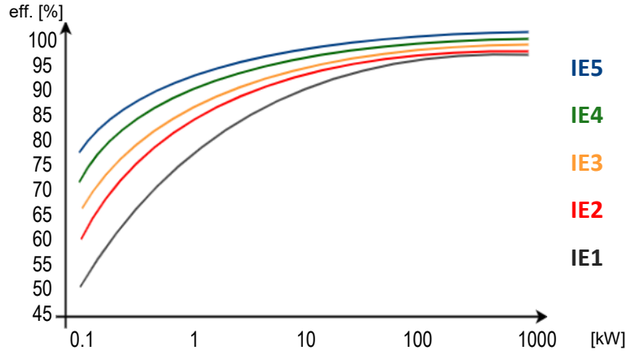




INGOMBRI E PESI RIDOTTI
REDUCED SIZES AND WEIGHTS



RISPARMIO ENERGETICO E RIDUZIONE DEI COSTI
ENERGY SAVING WITH REDUCED ENERGY COSTS



(1) curva caratteristica ideale *(ideal characteristic curve)*
(2) equivalente flangia IEC *(IEC frames flange equivalent)*

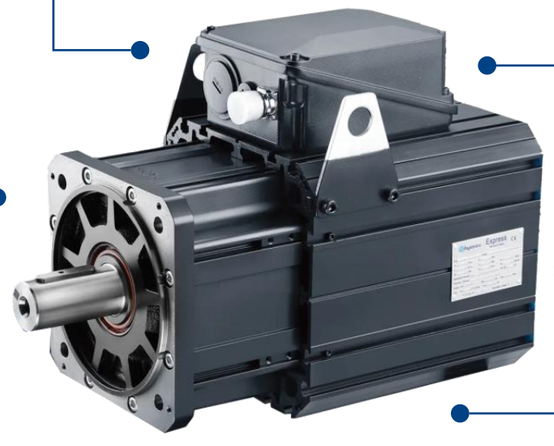
La gamma di motori sincroni **Express E0**, nasce per l'efficientamento energetico degli impianti industriali. Il circuito magnetico al suo interno permette, inoltre, di raggiungere elevate performances in termini di coppia e velocità massima, rendendolo il motore adatto ad ogni campo di applicazione. La particolare configurazione del circuito magnetico, a **riluttanza saliente**, permette infatti di dimensionare il motore E0 come un motore asincrono ad induzione nell'area a potenza costante.

Express E0 *synchronous motor series is designed to improve the efficiency of industrial plants. Its magnetic circuit allows, moreover, to achieve high-performances on maximum torques and speeds, making it the perfect motor for the majority of applications in the industrial field. The peculiar configuration of the magnetic circuit, with* ***salient reluctance****, allows infacts the sizing of the E0 motor as an asyncrhonous induction one inside the constant power working area.*

CARATTERISTICHE PRINCIPALI
MAIN CHARACTERISTICS

Retroazione con resolver[1]
Resolver feedback[1]

PTC + PT1000 integrate
Embedded PTC + PT1000



Raffreddamento forzato ad aria o liquido
Forced air or water cooling

Alta densità di coppia
High torque density

Opzione con freno[2]
Brake option available[2]

Classe di efficienza nominale IE4
IE4 nominal efficiency class

[1] funzionamento anello-aperto sensorless possibile con drive compatibili *(sensorless open-loop working mode possible depending on the drive)*

[2] esecuzione speciale su richiesta *(special option upon request)*

CODICE MOTORE
MOTOR CODE

	TAGLIA *SIZE*	RAFFREDDAMENTO *COOLING*	VELOCITÀ NOMINALE *RATED SPEED*	TENSIONE NOMINALE *RATED VOLTAGE*	RETROAZIONE *FEEDBACK*	FRENO *BRAKE*	CONNETTORE SEGNALI *SIGNAL CONNECTOR*	ALBERO *SHAFT*	PIEDI DI MONTAGGIO *MOUNTING FEET*	SCATOLA MORSETTIERA *TERMINAL BOX*	DIREZIONE CAVI *CABLES DIRECTION*
E0	**1007**	**F**	**20**	**3**	**R4**	**0**	**Y0**	**K**	**b1**	**- T**	**F**

TAGLIA *SIZE*: 1004, 1005, 1007, 1008, 1010, 1012, 1013, 1215, 1220, 1225, 1230, 1235, 1304, 1306, 1307, 1308, 1309, 1311, 1313, 1806, 1808, 1809, 1811, 1813, 1815, 1817

RAFFREDDAMENTO *COOLING*:
F = ARIA *(FAN COOLING)* - **IP54**
C = ACQUA *(WATER COOLING)* - **IP65**

VELOCITÀ NOMINALE *RATED SPEED*:
10 = 1000rpm, **12** = 1200rpm
15 = 1500rpm, **17** = 1700rpm
20 = 2000rpm

TENSIONE NOMINALE *RATED VOLTAGE*:
3 = 380 V_{AC}

RETROAZIONE *FEEDBACK*:
R4 = RESOLVER 1X-BRX

FRENO *BRAKE*:
0 = NO FRENO *(NO BRAKE)*

CONNETTORE SEGNALI *SIGNAL CONNECTOR*:
Y0 = CIRCOLARE STANDARD *(STANDARD CIRCULAR)*

ALBERO *SHAFT*:
K = ALBERO CON CHIAVETTA *(SHAFT WITH KEY)*

PIEDI DI MONTAGGIO *MOUNTING FEET*:
00 = SENZA *(WITHOUT)*
B1 = STANDARD

SCATOLA MORSETTIERA *TERMINAL BOX*:
T = SOPRA *(TOP)*
L = SINISTRA *(LEFT)**
R = DESTRA *(RIGHT)**

DIREZIONE CAVI *CABLES DIRECTION*:
F=FRONTALE *(FRONT)*
B=POSTERIORE *(BACK)*

ESEMPIO D'ORDINE: **E0 1007 F 20 3 R4 0 Y0 K b1 - T F** = SERIE E0, TAGLIA 1007, VENTILAZIONE FORZATA, 2000rpm, *380V_{AC}*, RESOLVER, SENZA FRENO, CONNETTORE CIRCOLARE SEGNALI, ALBERO CON CHIAVETTA, PIEDI STANDARD, SCATOLA MORSETTIERA SOPRA, DIREZIONE CAVI FRONTALE.

ORDER EXAMPLE: **E0 1007 F 20 3 R4 0 Y0 K b1 - T F** *= E0 SERIES MOTOR, SIZE 1007, FAN COOLING, 2000rpm, 380V_{AC}, RESOLVER, WITHOUT BRAKE, SIGNAL CIRCULAR CONNECTOR, SHAFT WITH KEY, STANDARD FEET, TERMINAL BOX ON TOP, CABLE HOLE IN FRONT.*

* Posizione vista dall'albero motore *(view from motor shaft)*

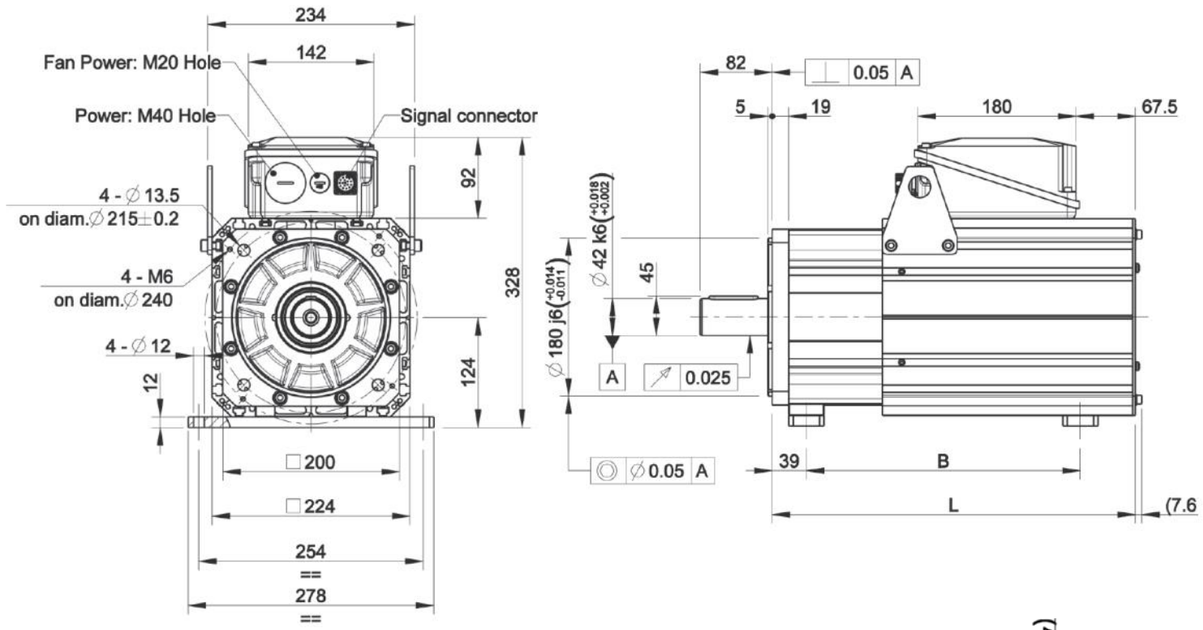
		Coppia Nominale *(nominal torque)*		Corrente Nominale *(nominal current)*		Potenza Nominale *(nominal power)*	
Modello *(model)*	Velocità *(speed)*	F	C	F	C	F	C
E01004	1500 rpm	50.0 Nm	-	15 A	-	7.9 kW	-
	1700 rpm	50.0 Nm	-	17 A	-	9.0 kW	-
	2000 rpm	50.0 Nm	-	19 A	-	10.0 kW	-
E01005	1500 rpm	75.0 Nm	98.5 Nm	23 A	31.8 A	12.0 kW	15.5 kW
	1700 rpm	74.0 Nm	97.0 Nm	26 A	35.5 A	13.0 kW	17.3 kW
	2000 rpm	73.0 Nm	95.0 Nm	29 A	40.2 A	15.0 kW	19.9 kW
E01007	1500 rpm	100.0 Nm	132.0 Nm	29 A	42.0 A	16.0 kW	20.7 kW
	1700 rpm	99.0 Nm	130.0 Nm	32 A	46.2 A	18.0 kW	23.1 kW
	2000 rpm	97.0 Nm	130.0 Nm	38 A	52.3 A	20.0 kW	27.2 kW
E01008	1500 rpm	124.0 Nm	165.5 Nm	39 A	50.0 A	20.0 kW	26.0 kW
	1700 rpm	123.0 Nm	165.0 Nm	41 A	57.0 A	22.0 kW	29.4 kW
	2000 rpm	121.0 Nm	163.5 Nm	47 A	66.0 A	25.0 kW	34.2 kW
E01010	1500 rpm	148.0 Nm	200.0 Nm	45 A	62.0 A	23.0 kW	31.4 kW
	1700 rpm	146.0 Nm	198.0 Nm	52 A	72.5 A	26.0 kW	35.2 kW
	2000 rpm	143.0 Nm	198.0 Nm	56 A	80.0 A	30.0 kW	41.5 kW
E01012	1500 rpm	171.0 Nm	233.0 Nm	52 A	73.0 A	27.0 kW	36.6 kW
	1700 rpm	168.0 Nm	232.0 Nm	57 A	80.0 A	30.0 kW	41.3 kW
	2000 rpm	165.0 Nm	230.0 Nm	69 A	99.0 A	34.0 kW	48.2 kW
E01013	1500 rpm	193.0 Nm	270.0 Nm	57 A	81.5 A	30.0 kW	42.4 kW
	1700 rpm	190.0 Nm	265.0 Nm	62 A	90 A	34.0 kW	47.2 kW
	2000 rpm	187.0 Nm	264.0 Nm	69 A	106.0 A	39.0 kW	55.3 kW
E01215	1500 rpm	206.0 Nm	-	64.0 A	-	32.0 kW	-
	1700 rpm	203.0 Nm	-	70.0 A	-	36.0 kW	-
	2000 rpm	197.0 Nm	-	75.0 A	-	41.0 kW	-
E01220	1500 rpm	255.0 Nm	-	78.0 A	-	40.0 kW	-
	1700 rpm	250.0 Nm	-	86.0 A	-	45.0 kW	-
	2000 rpm	243.0 Nm	-	95.0 A	-	51.0 kW	-
E01225	1500 rpm	300.0 Nm	-	86.0 A	-	47.0 kW	-
	1700 rpm	294.0 Nm	-	96.0 A	-	52.0 kW	-
	2000 rpm	285.0 Nm	-	109.0 A	-	60.0 kW	-
E01230	1500 rpm	351.0 Nm	-	100.0 A	-	55.0 kW	-
	1700 rpm	344.0 Nm	-	114.0 A	-	61.0 kW	-
	2000 rpm	336.0 Nm	-	134.0 A	-	70.0 kW	-
E01235	1500 rpm	395.0 Nm	-	115.0 A	-	62.0 kW	-
	1700 rpm	387.0 Nm	-	135.0 A	-	69.0 kW	-
	2000 rpm	377.0 Nm	-	164.0 A	-	79.0 kW	-

V_{drive} = 380 Vac
V_{DCBUS} = 537 Vdc
PWM ≥ 4.0 kHz
ΔT = 100 K
T_{amb} = 30°C

EXPRESS SERIES EO

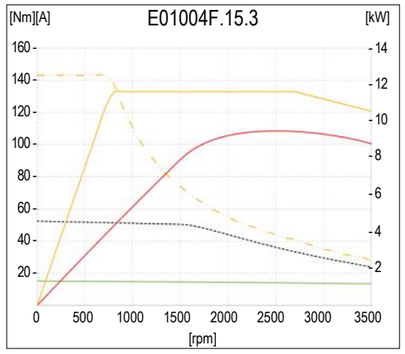
		Coppia Nominale *(nominal torque)*		Corrente Nominale *(nominal current)*		Potenza Nominale *(nominal power)*	
Modello *(model)*	Velocità *(speed)*	F	C	F	C	F	C
E01304	1000 rpm	185.0 Nm	218.0 Nm	35.0 A	46.0 A	19.4 kW	22.8 kW
	1500 rpm	184.0 Nm	211.0 Nm	53.0 A	69.5 A	28.9 kW	33.1 kW
	2000 rpm	174.0 Nm	209.0 Nm	67.0 A	86.0 A	36.4 kW	43.8 kW
E01306	1000 rpm	280.0 Nm	326.0 Nm	54.0 A	68.5 A	29.3 kW	34.1 kW
	1500 rpm	270.0 Nm	323.0 Nm	78.0 A	107.0 A	42.4 kW	50.7 kW
	2000 rpm	260.0 Nm	315.0 Nm	100.0 A	133.0 A	54.5 kW	66.0 kW
E01307	1000 rpm	340.0 Nm	374.0 Nm	65.0 A	74.0 A	35.6 kW	39.2 kW
	1500 rpm	318.0 Nm	370.0 Nm	93.0 A	113.0 A	49.9 kW	58.1 kW
	2000 rpm	320.0 Nm	365.0 Nm	126.0 A	144.0 A	67.0 kW	76.4 kW
E01308	1000 rpm	380.0 Nm	425.0 Nm	73.0 A	87.0 A	39.8 kW	44.5 kW
	1500 rpm	365.0 Nm	420.0 Nm	105.0 A	135.0 A	57.3 kW	66.0 kW
	2000 rpm	365.0 Nm	412.0 Nm	140.0 A	159.0 A	76.4 kW	86.3 kW
E01309	1000 rpm	417.0 Nm	483.0 Nm	80.0 A	102.0 A	43.7 kW	50.6 kW
	1500 rpm	407.0 Nm	473.0 Nm	125.0 A	149.0 A	63.9 kW	74.3 kW
	2000 rpm	390.0 Nm	465.0 Nm	172.0 A	195.0 A	81.7 kW	97.4 kW
E01311	1000 rpm	510.0 Nm	582.0 Nm	110.0 A	125.0 A	53.4 kW	60.9 kW
	1500 rpm	495.0 Nm	573.0 Nm	148.0 A	185.0 A	77.7 kW	90.0 kW
	2000 rpm	485.0 Nm	561.0 Nm	205.0 A	238.0 A	101.6 kW	117.5 kW
E01313	1000 rpm	585.0 Nm	673.0 Nm	113.0 A	146.0 A	61.3 kW	70.5 kW
	1500 rpm	580.0 Nm	663.0 Nm	176.0 A	206.0 A	91.1 kW	104.1 kW
	2000 rpm	560.0 Nm	650.0 Nm	240.0 A	280.0 A	117.3 kW	136.1 kW
E01806	1000 rpm	592.0 Nm	802.0 Nm	120.0 A	170.0 A	62.0 kW	84.0 kW
	1200 rpm	584.0 Nm	791.5 Nm	138.0 A	198.0 A	73.0 kW	99.5 kW
	1500 rpm	572.0 Nm	784.0 Nm	161.0 A	239.0 A	90.0 kW	123.1 kW
E01808	1000 rpm	754.0 Nm	1066.0 Nm	147.0 A	226.0 A	79.0 kW	111.6 kW
	1200 rpm	752.0 Nm	1056.0 Nm	170.0 A	259.0 A	95.0 kW	132.7 kW
	1500 rpm	704.0 Nm	1045.0 Nm	203.0 A	334.5 A	110.0 kW	164.1 kW
E01809	1000 rpm	878.0 Nm	1199.0 Nm	175.0 A	242.0 A	92.0 kW	125.5 kW
	1200 rpm	845.0 Nm	1184.0 Nm	198.0 A	305.0 A	106.0 kW	148.8 kW
	1500 rpm	842.0 Nm	1174.0 Nm	237.0 A	371.0 A	132.0 kW	184.4 kW
E01811	1000 rpm	1063.0 Nm	1475.0 Nm	202.0 A	310.0 A	111.0 kW	154.5 kW
	1200 rpm	1055.0 Nm	1455.0 Nm	243.0 A	375.0 A	133.0 kW	182.8 kW
	1500 rpm	1020.0 Nm	1428.0 Nm	295.0 A	475.0 A	160.0 kW	224.3 kW
E01813	1000 rpm	1221.0 Nm	1725.0 Nm	240.0 A	375.0 A	128.0 kW	180.6 kW
	1200 rpm	1200.0 Nm	1697.0 Nm	295.0 A	416.0 A	151.0 kW	213.2 kW
	1500 rpm	1175.0 Nm	1678.0 Nm	327.0 A	550.0 A	185.0 kW	263.6 kW
E01815	1000 rpm	1344.0 Nm	1966.0 Nm	255.0 A	416.0 A	141.0 kW	205.9 kW
	1200 rpm	1316.0 Nm	1930.0 Nm	321.0 A	469.0 A	165.0 kW	242.5 kW
	1500 rpm	1275.0 Nm	1906.0 Nm	360.0 A	550.0 A	200.0 kW	299.4 kW
E01817	1000 rpm	1470.0 Nm	2202.0 Nm	270.0 A	466.0 A	154.0 kW	230.6 kW
	1200 rpm	1427.0 Nm	2177.0 Nm	352.0 A	539.0 A	179.0 kW	273.5 kW
	1500 rpm	1405.0 Nm	2147.0 Nm	415.0 A	640.0 A	221.0 kW	337.2 kW

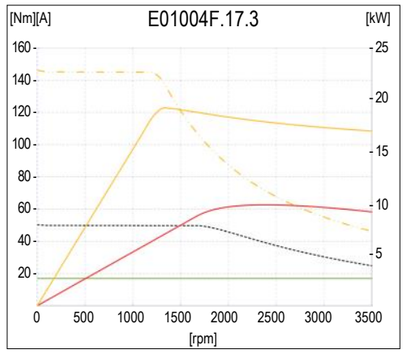
		E01004F			E01005F			E01007F			E01008F			E01010F			E01012F			E01013F		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133
Numero poli *Poles number*	2p	8																				
Coppia Nominale *Rated Torque*	T_n [Nm]	50	50	50	75	74	73	100	99	97	124	123	121	148	146	143	171	168	165	193	190	187
Corrente Nominale *Rated Current*	I_n [A]	15	17	19	23	26	29	29	32	38	39	41	47	45	52	56	52	57	69	57	62	69
Coppia di Stallo *Stall Torque*	T_0 [Nm]	53			78			106			132			158			183			208		
Corrente di Stallo *Stall Current*	I_0 [A]	15	18	20	24	28	31	31	35	42	42	45	52	48	57	62	56	62	77	61	68	77
Coppia Massima *Maximum Torque*	T_{max} [Nm]	145			222			297			371			445			520			594		
Corrente Massima *Maximum Current*	I_{max} [A]	50	59	66	80	91	100	100	112	135	135	144	170	155	182	200	183	200	250	200	222	250
Potenza Nominale *Rated Power*	P_n [kW]	7.9	9	10	12	13	15	16	18	20	20	22	25	23	26	30	27	30	34	30	34	39
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																				
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.43	2.91	2.57	3.38	2.86	2.60	3.46	3.12	2.60	3.25	3.03	2.60	3.38	2.86	2.60	3.33	3.03	2.42	3.46	3.12	2.77
FCEM *Back EMF*	EMF [V/krpm]	208	176	156	204	173	157	210	189	157	197	183	157	204	173	157	202	183	147	210	189	168
Resistenza Statore *Stator Resistance*	R_w [ohm]	1.670	1.130	0.892	0.825	0.546	0.465	0.543	0.451	0.322	0.370	0.310	0.233	0.319	0.216	0.179	0.244	0.200	0.133	0.222	0.176	0.145
Induttanza Diretta *Direct Inductance*	L_w [mH]	18.2	13.1	10.2	11.5	8.2	6.8	9.1	7.4	5.1	6.4	5.6	4.1	5.8	4.1	3.4	4.8	4.0	2.5	4.5	3.7	2.9
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	42.7	30.9	24.0	27.1	19.4	16.0	21.4	17.3	12.0	15.0	13.1	9.6	13.5	9.7	8.0	11.3	9.3	6.0	10.7	8.6	6.8
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	56			80			103			126			150			173			196		
Massa *Mass*	M [kg]	40			47			54			61			68			75			82		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	3500																				
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	233																				

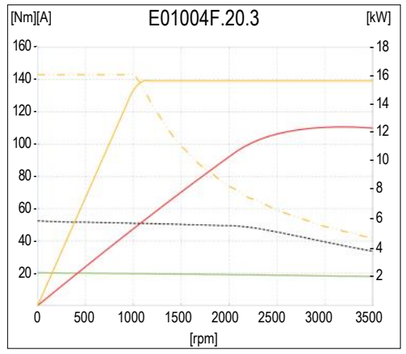


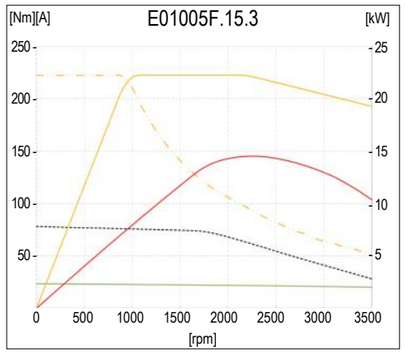
MODEL / [mm]	B	L		
E01004F	267	342		
E01005F	285	378		
E01007F	312	414		
E01008F	354	450		
E01010F	396	486		
E01012F	400	527		
E01013F	471	558		

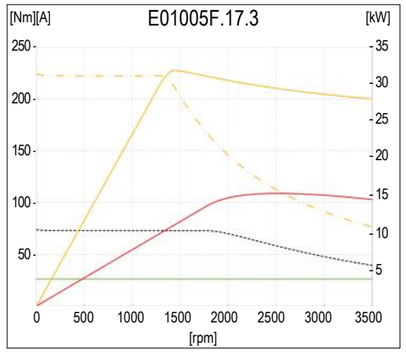
EXPRESS SERIES - E010__F OPERATING REGION

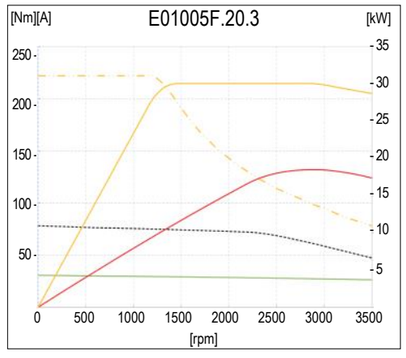


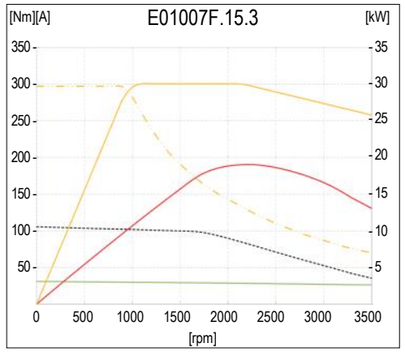


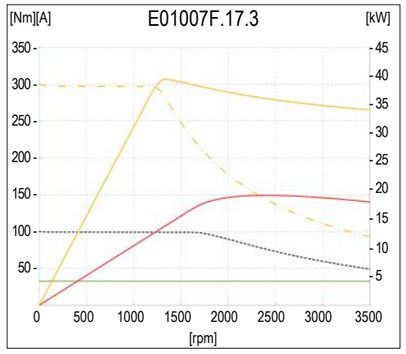


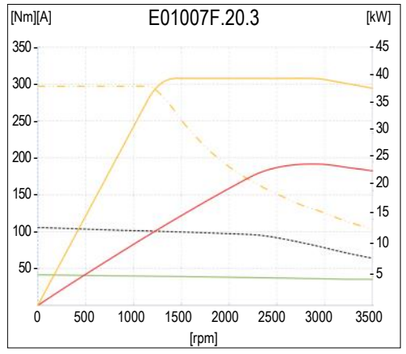


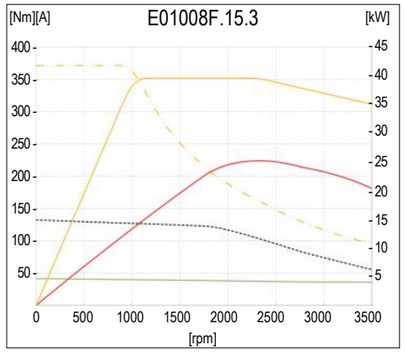


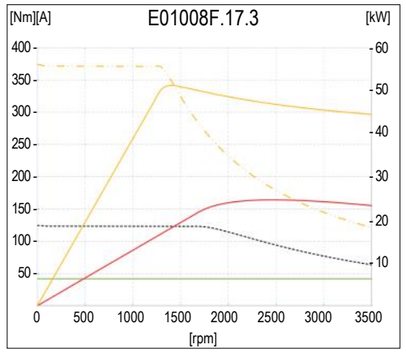


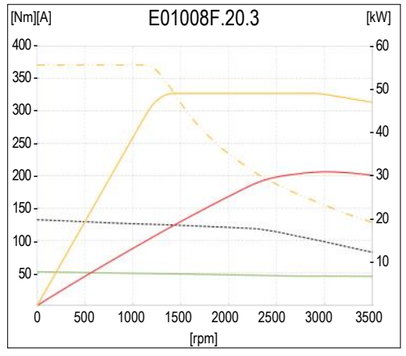






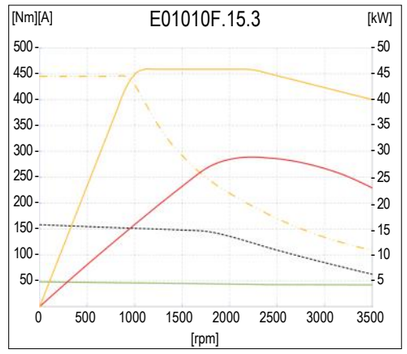


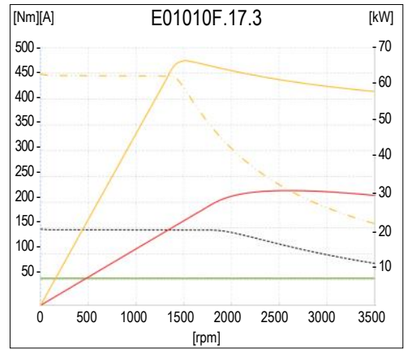


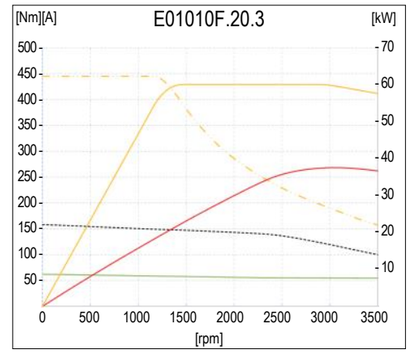


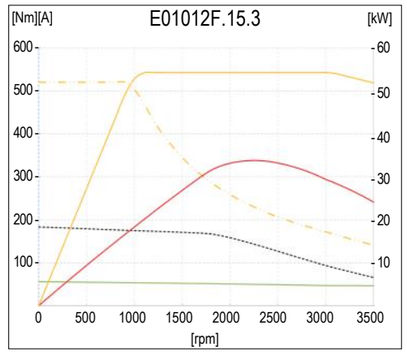
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

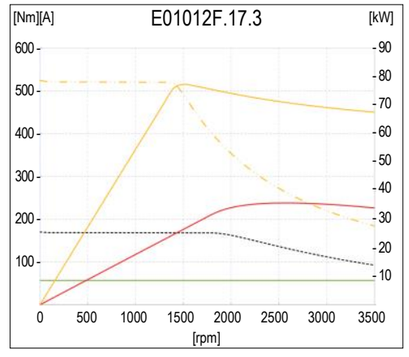
EXPRESS SERIES - E010__F OPERATING REGION

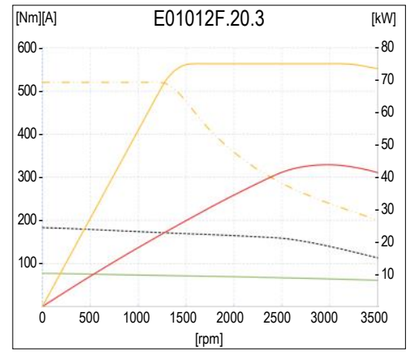


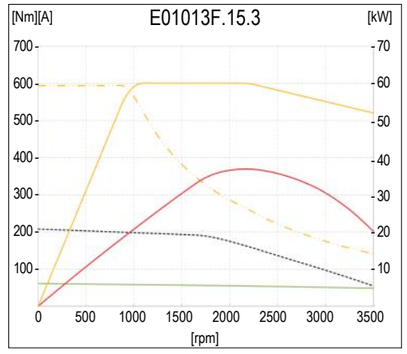


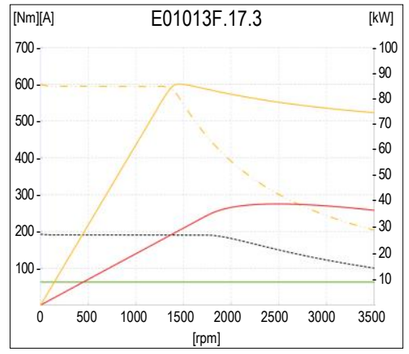


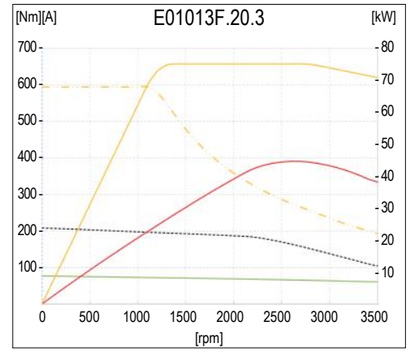






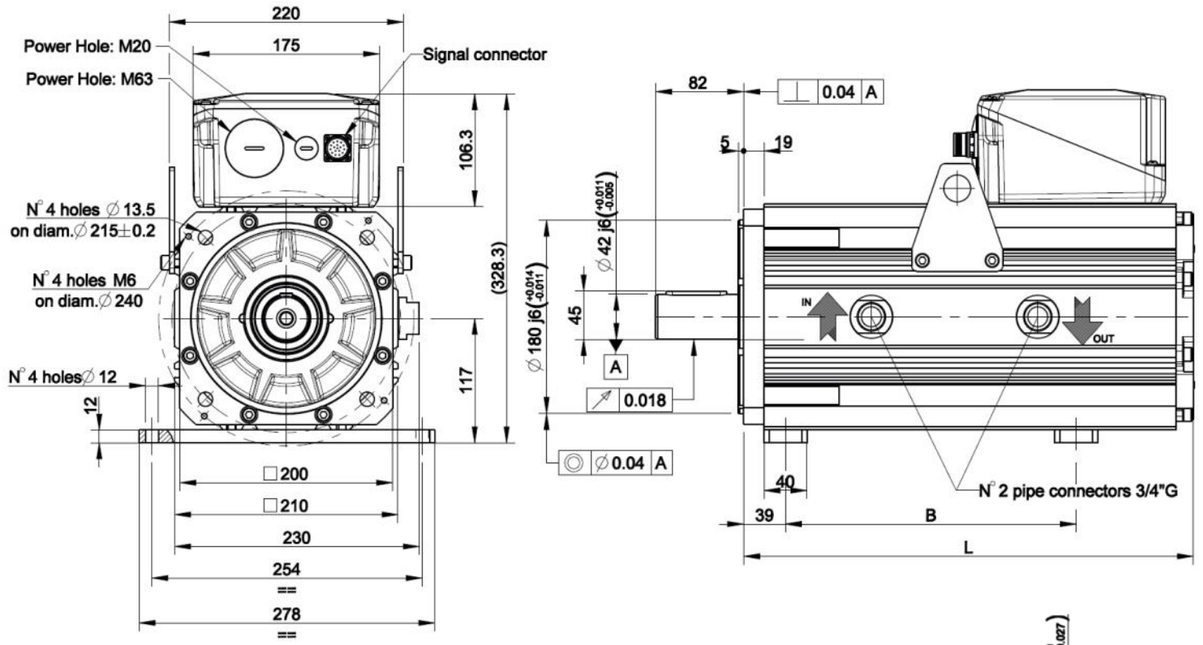






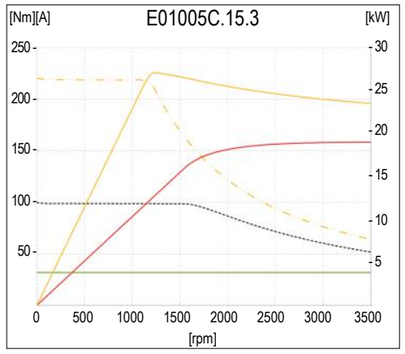
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

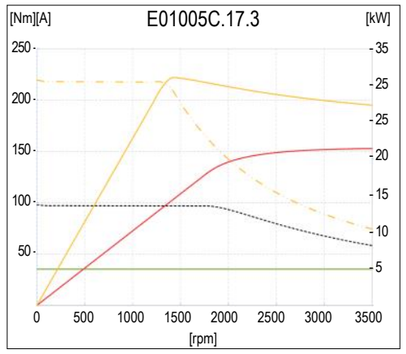
		E01005C			E01007C			E01008C			E01010C			E01012C			E01013C		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133
Numero poli *Poles number*	2p	8																	
Coppia Nominale *Rated Torque*	T_n [Nm]	99	97	95	132	130	130	166	165	164	200	198	198	233	232	230	270	265	264
Corrente Nominale *Rated Current*	I_n [A]	32	36	40	42	46	52	50	57	66	62	73	80	73	80	99	82	90	106
Coppia di Stallo *Stall Torque*	T_0 [Nm]	103			139			53			210			245			284		
Corrente di Stallo *Stall Current*	I_0 [A]	33	37	42	139	49	55	53	60	69	65	76	84	77	84	104	86	95	111
Coppia Massima *Maximum Torque*	T_{max} [Nm]	222			297			371			445			520			594		
Corrente Massima *Maximum Current*	I_{max} [A]	80	91	100	100	112	135	135	144	170	155	182	200	183	200	250	200	222	250
Potenza Nominale *Rated Power*	P_n [kW]	16	17	20	21	23	27	26	29	34	31	35	42	37	41	48	42	47	55
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																	
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.18	2.79	2.41	3.22	2.88	2.54	3.39	2.96	2.54	3.30	2.79	2.54	3.26	2.96	2.37	3.40	3.05	2.55
FCEM *Back EMF*	EMF [V/krpm]	193	169	146	195	175	154	205	180	154	200	169	154	198	180	144	205	185	154
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.696	0.568	0.400	0.475	0.390	0.298	0.397	0.300	0.219	0.297	0.213	0.172	0.239	0.198	0.124	0.214	0.173	0.120
Induttanza Diretta *Direct Inductance*	L_w [mH]	8.2	6.3	4.7	6.3	5.0	3.9	5.6	4.3	3.1	4.4	3.1	2.6	3.7	3.0	1.9	3.5	2.8	1.9
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	16.8	13.0	9.7	12.9	10.3	8.1	11.5	8.8	6.4	9.1	6.5	5.4	7.6	6.2	4.0	7.2	5.8	4.0
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	80			103			126			150			173			196		
Massa *Mass*	M [kg]	48			56			63			70			79			86		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	3500																	
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	233																	
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	10			12			15			17			20			25		

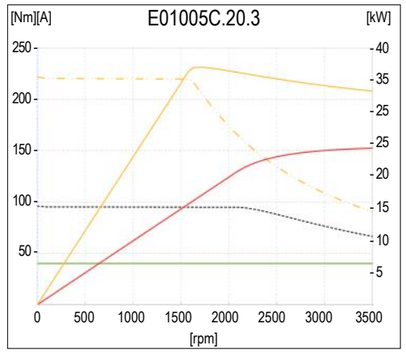


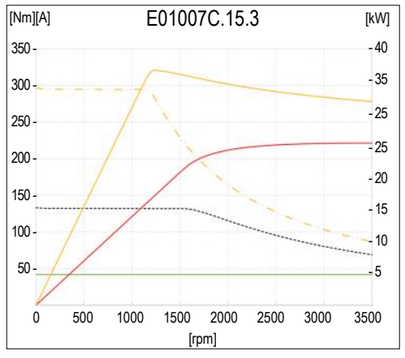
MODEL / [mm]	B	L		
E01005C	200	311		
E01007C	200	347		
E01008C	236	383		
E01010C	271	419		
E01012C	306	460		
E01013C	306	495.5		

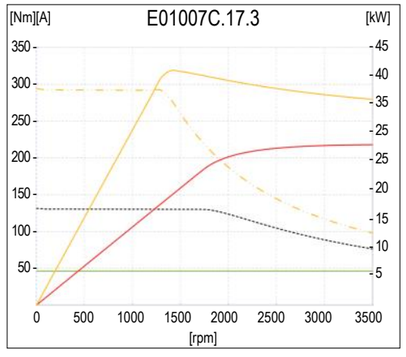
EXPRESS SERIES - E010__C OPERATING REGION

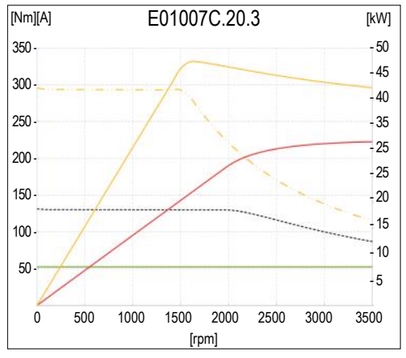


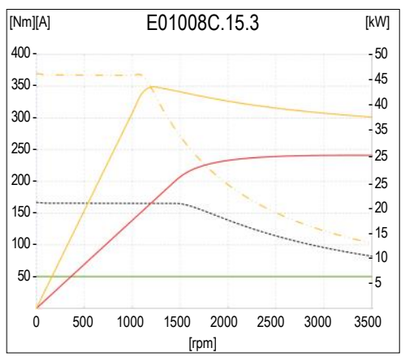


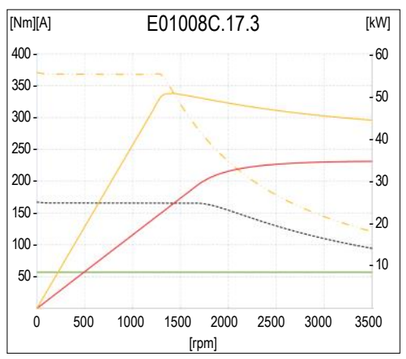


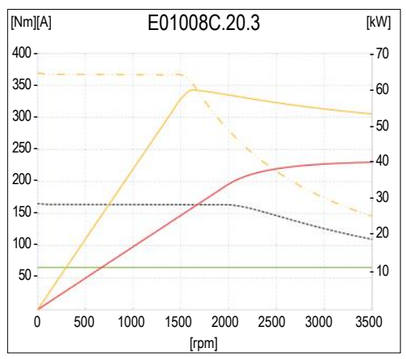


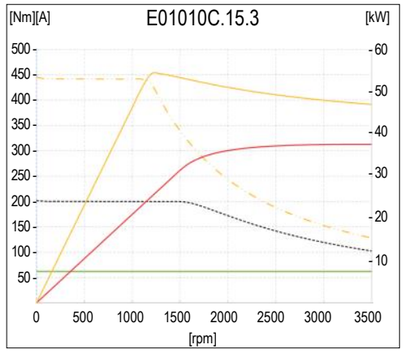


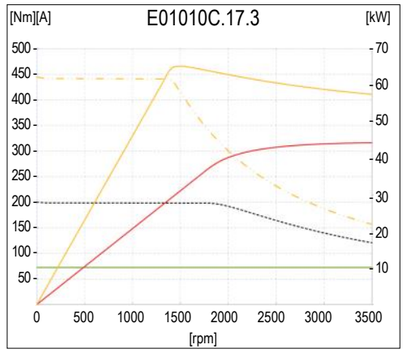


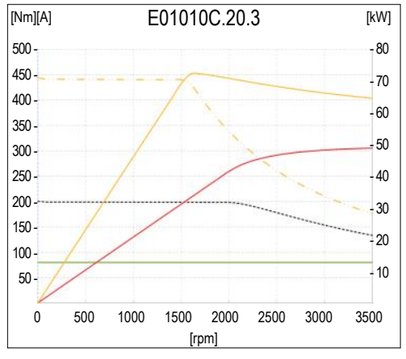






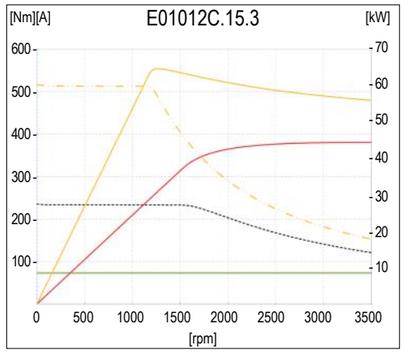


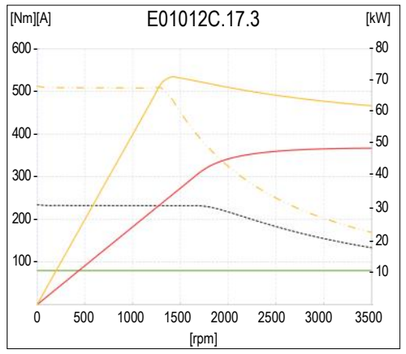


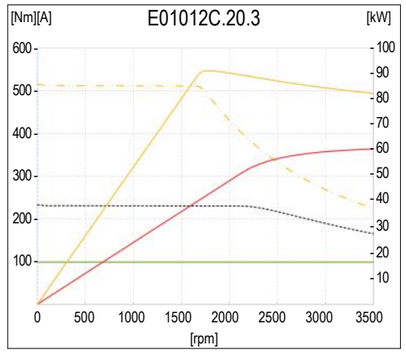


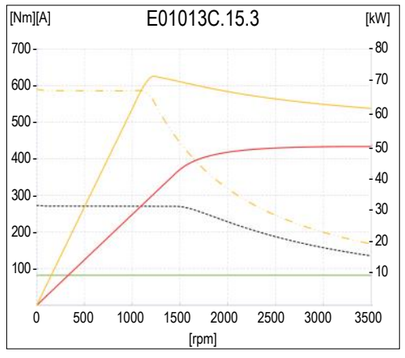
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

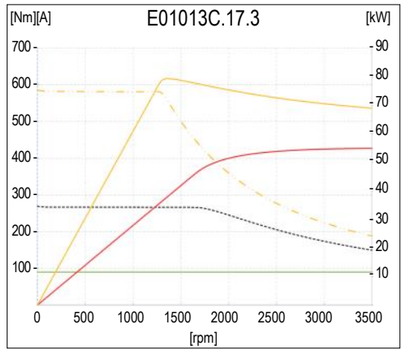
EXPRESS SERIES - E010__C OPERATING REGION

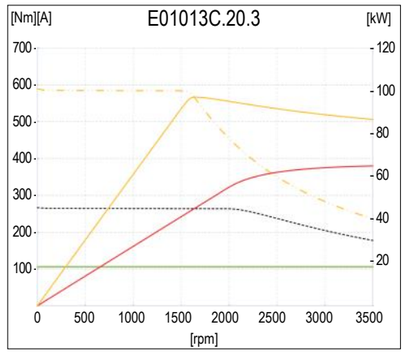






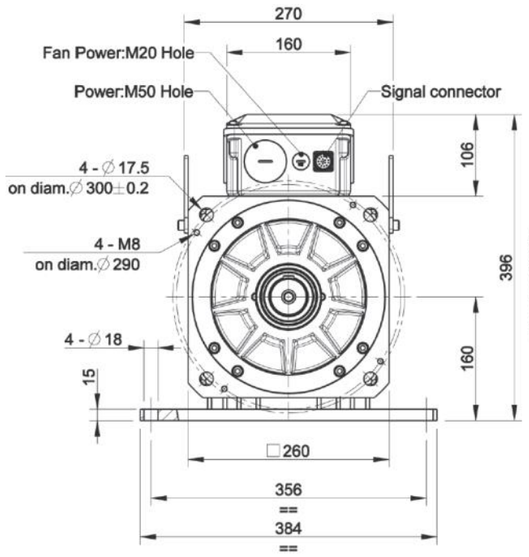


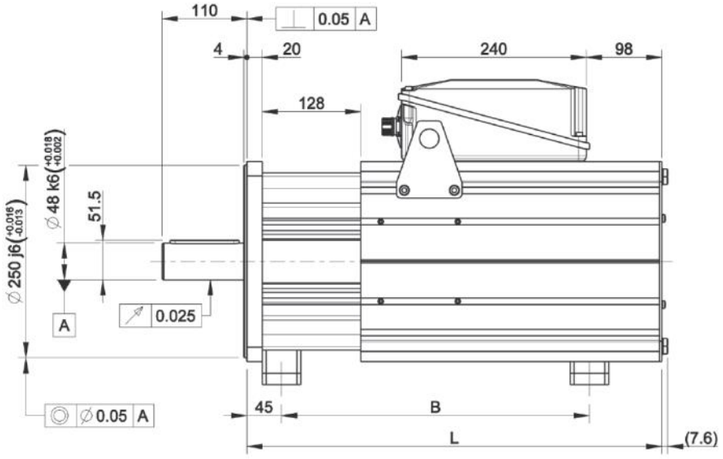


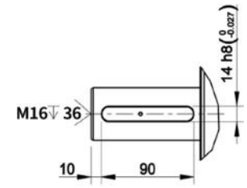


S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

		E01215F			E01220F			E01225F			E01230F			E01235F		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000	1500	1700	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	113	133	100	113	133	100	113	133	100	113	133	100	113	133
Numero poli *Poles number*	2p	8														
Coppia Nominale *Rated Torque*	T_n [Nm]	206	203	197	255	250	243	300	294	285	351	344	336	395	387	377
Corrente Nominale *Rated Current*	I_n [A]	64	70	75	78	86	95	86	96	109	100	114	134	115	135	164
Coppia di Stallo *Stall Torque*	T_0 [Nm]	224			279			332			378			428		
Corrente di Stallo *Stall Current*	I_0 [A]	70	77	85	85	96	109	95	109	127	108	126	151	125	150	187
Coppia Massima *Maximum Torque*	T_{max} [Nm]	467			585			700			800			920		
Corrente Massima *Maximum Current*	I_{max} [A]	155	171	190	190	214	245	210	240	280	240	280	335	280	336	420
Potenza Nominale *Rated Power*	P_n [kW]	32	36	41	40	45	51	47	52	60	55	61	70	62	69	79
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380														
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.27	2.98	2.67	3.34	2.98	2.60	3.57	3.13	2.67	3.64	3.13	2.60	3.57	2.98	2.38
FCEM *Back EMF*	EMF [V/krpm]	198	180	162	203	180	158	216	189	162	221	189	158	216	180	144
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.157	0.123	0.106	0.123	0.096	0.074	0.110	0.085	0.062	0.095	0.068	0.049	0.078	0.054	0.034
Induttanza Diretta *Direct Inductance*	L_w [mH]	4.1	3.4	2.7	3.4	2.7	2.1	3.2	2.5	1.8	2.9	2.1	1.5	2.4	1.7	1.1
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	9.6	7.9	6.4	8.0	6.3	4.9	7.6	5.8	4.3	6.8	5.0	3.5	5.7	1.0	2.5
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	253			310			370			427			485		
Massa *Mass*	M [kg]	102			116			130			144			158		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	3500														
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	233														

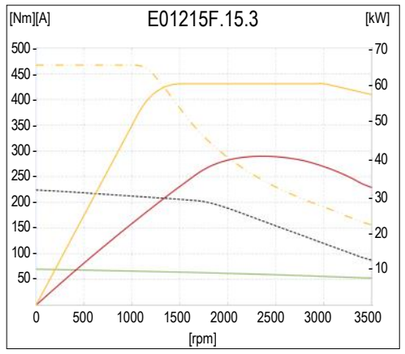


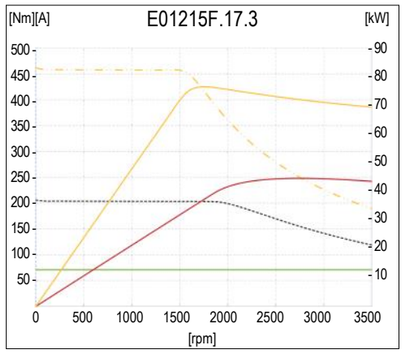


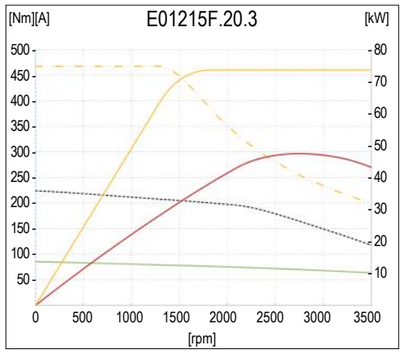


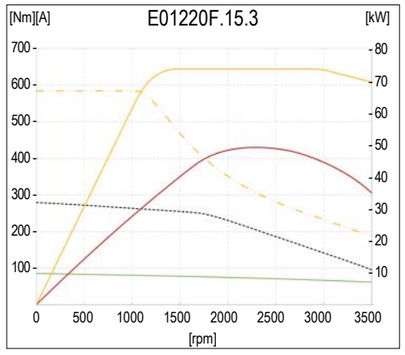
MODEL / [mm]	B	L		
E01215F	400	539		
E01220F	450	589		
E01225F	500	639		
E01230F	550	689		
E01235F	600	739		

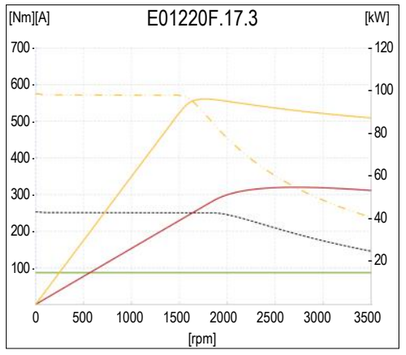
EXPRESS SERIES - E012__F OPERATING REGION

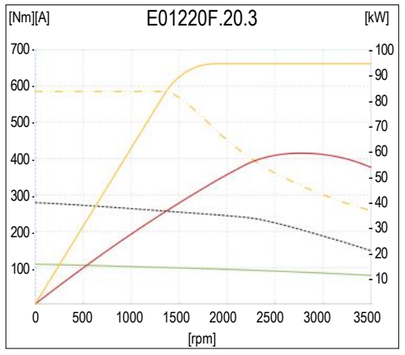


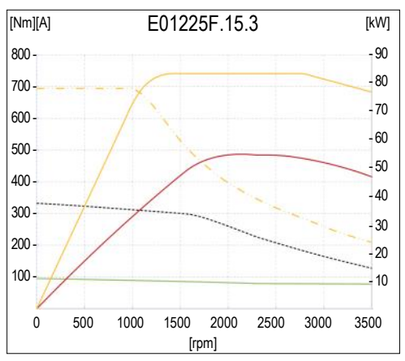


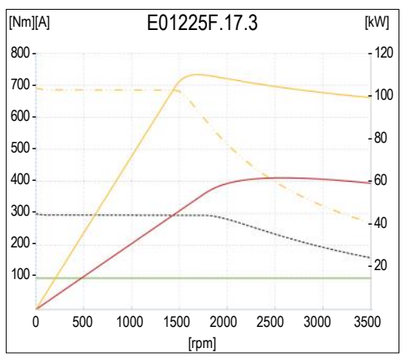


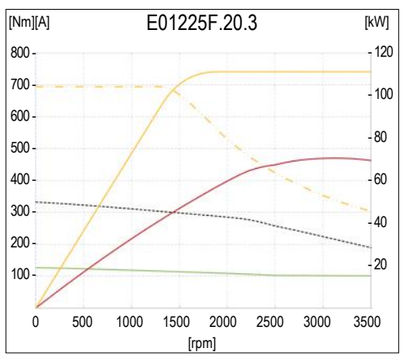


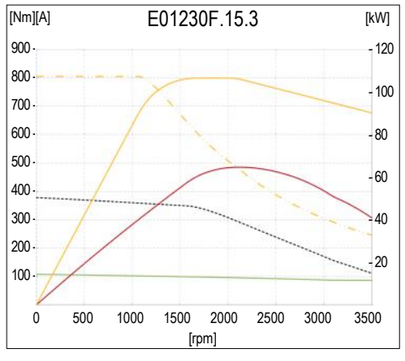


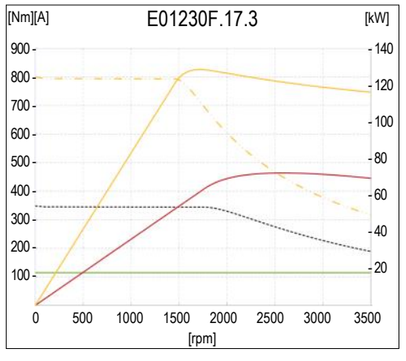


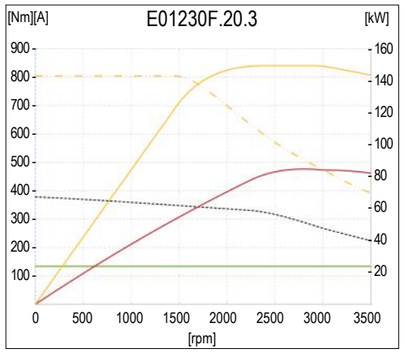






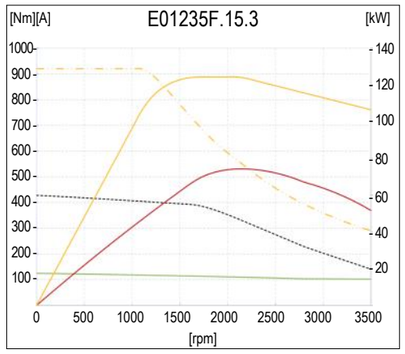


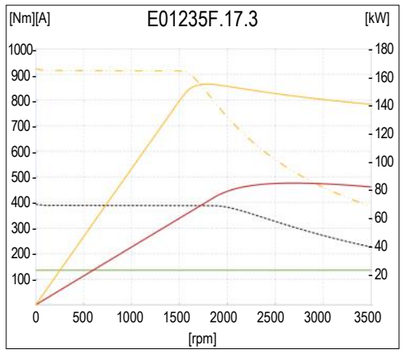


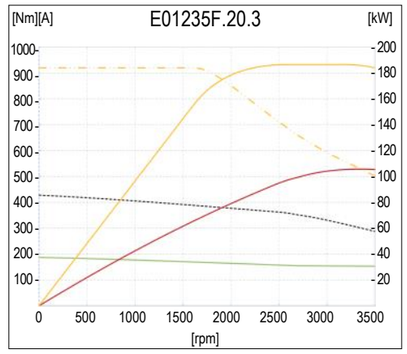


S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

EXPRESS SERIES - E012__F OPERATING REGION

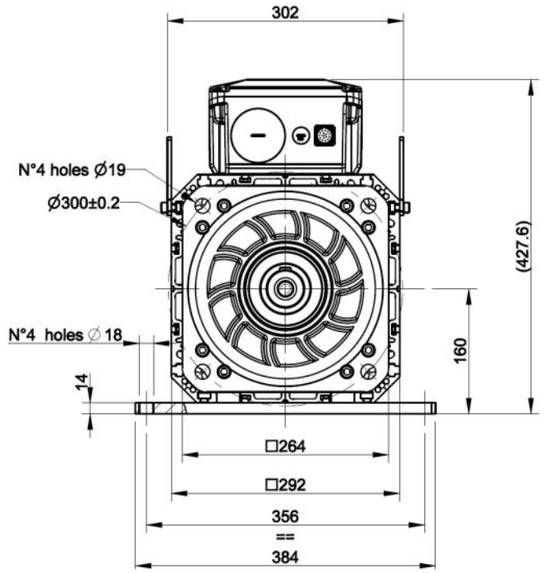


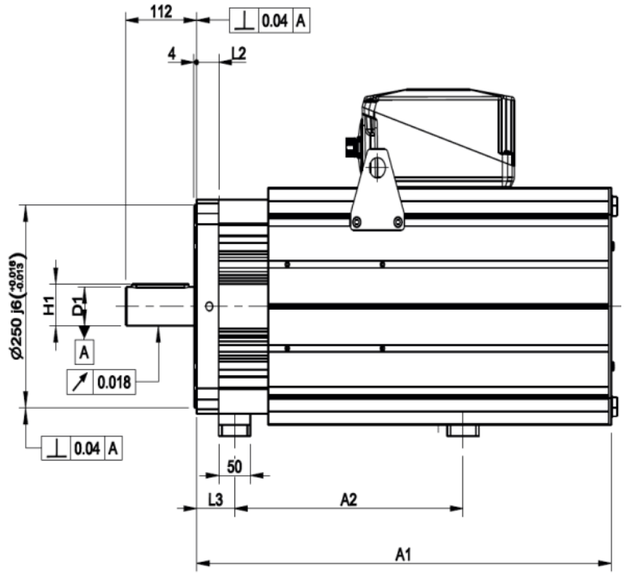


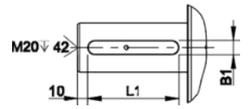


S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

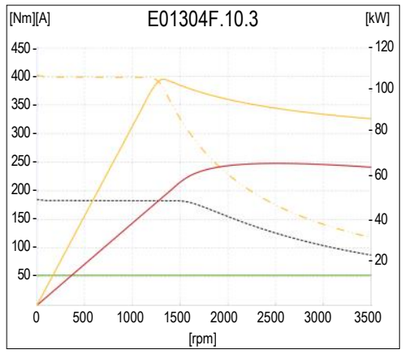
		E01304F			E01306F			E01307F			E01308F			E01309F			E01311F			E01313F		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133
Numero poli *Poles number*	2p	8																				
Coppia Nominale *Rated Torque*	T_n [Nm]	185	184	174	280	270	260	340	318	320	380	365	365	417	407	390	510	495	485	585	580	560
Corrente Nominale *Rated Current*	I_n [A]	35	53	67	54	78	100	65	93	126	73	105	140	80	125	172	110	148	205	113	176	240
Coppia di Stallo *Stall Torque*	T_0 [Nm]	194			294			357			399			438			536			614		
Corrente di Stallo *Stall Current*	I_0 [A]	37	56	70	57	82	105	68	98	132	77	110	147	84	131	181	116	155	215	119	185	252
Coppia Massima *Maximum Torque*	T_{max} [Nm]	400			600			700			800			900			1100			1300		
Corrente Massima *Maximum Current*	I_{max} [A]	90	133	172	140	194	269	160	229	311	190	258	350	193	315	450	280	425	580	281	480	670
Potenza Nominale *Rated Power*	P_n [kW]	19	29	36	29	42	55	36	50	67	40	57	76	44	64	82	53	78	102	61	91	117
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																				
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.86	3.24	2.43	4.86	3.24	2.43	4.73	3.19	2.36	4.86	3.24	2.43	4.86	3.03	2.13	4.45	3.16	2.22	4.82	3.06	2.18
FCEM *Back EMF*	EMF [V/krpm]	294	196	147	294	196	147	286	193	143	294	196	147	294	183	129	269	191	134	292	185	132
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.488	0.216	0.123	0.273	0.126	0.069	0.220	0.096	0.055	0.182	0.083	0.045	0.158	0.065	0.032	0.106	0.053	0.026	0.101	0.042	0.022
Induttanza Diretta *Direct Inductance*	L_w [mH]	10.9	4.8	2.4	7.2	3.2	3.7	5.9	2.3	1.5	5.4	2.1	1.3	4.1	1.6	0.8	3.0	1.4	0.9	2.8	1.2	0.6
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	23.6	10.5	5.6	15.7	7.0	1.6	12.7	5.3	3.2	11.8	4.9	2.4	9.6	3.7	1.8	6.3	3.4	1.7	6.6	2.7	1.4
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	440			626			718			811			903			1111			1296		
Massa *Mass*	M [kg]	128			148			158			169			180			230			263		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	3500																				
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	233																				

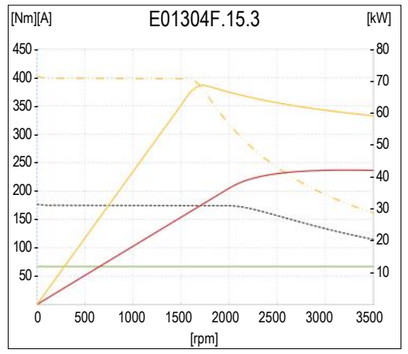


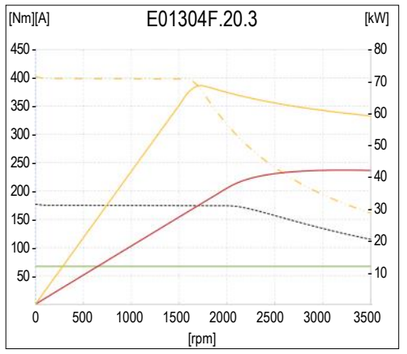


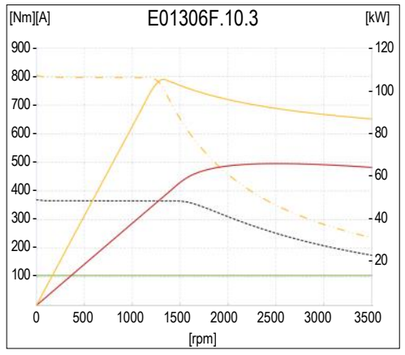


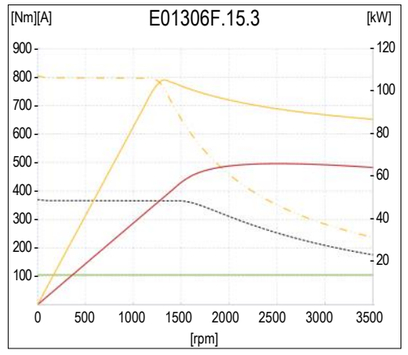
MODEL [mm]	A1	A2	L1	L2	L3	B1	D1	H1
E01304F	503.5	210	90	35	60	14	48j6	51.5
E01306F	563.5	270	90	35	60	14	48j6	51.5
E01307F	593.5	300	90	35	60	14	48j6	51.5
E01308F	623.5	330	90	35	60	14	48j6	51.5
E01309F	653.5	360	90	35	60	14	48j6	51.5
E01311F	715.5	420	90	37	62	18	60m6	64
E01313F	775.5	480	90	37	62	18	60m6	64

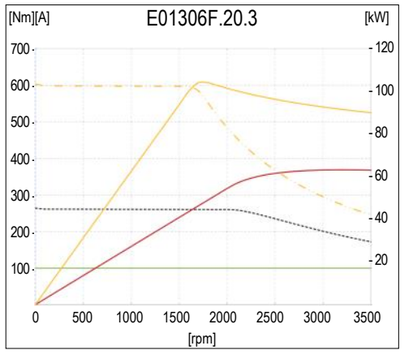


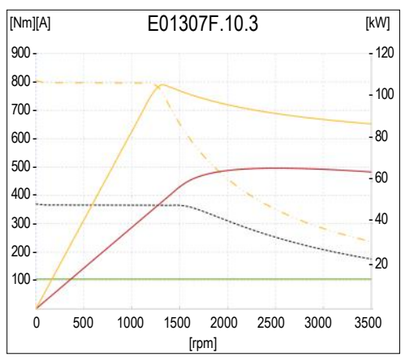


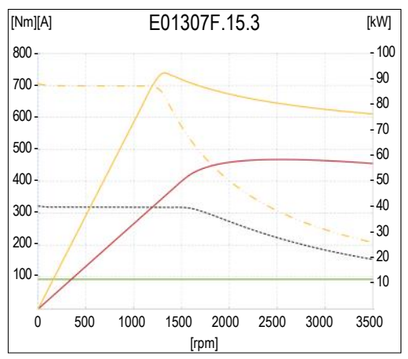


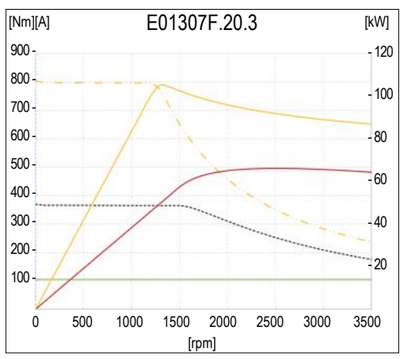


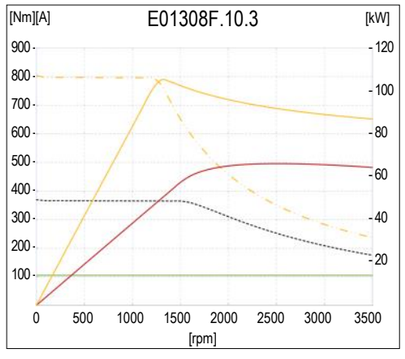


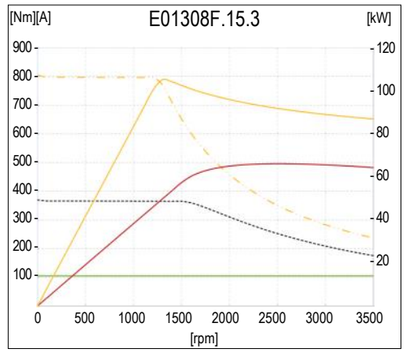


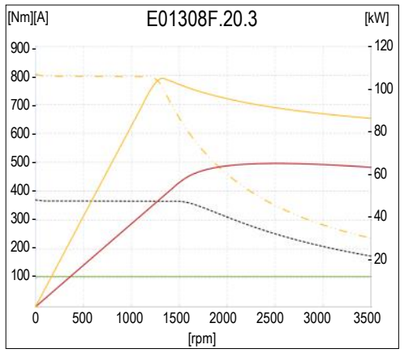






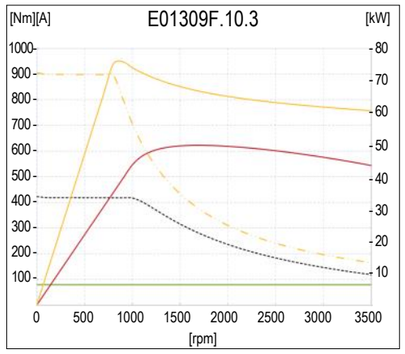


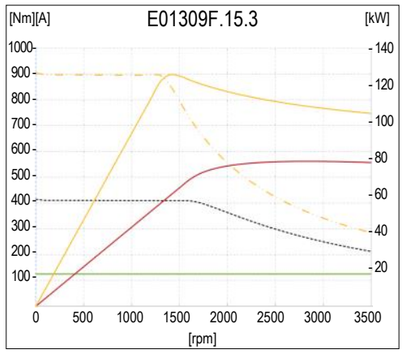


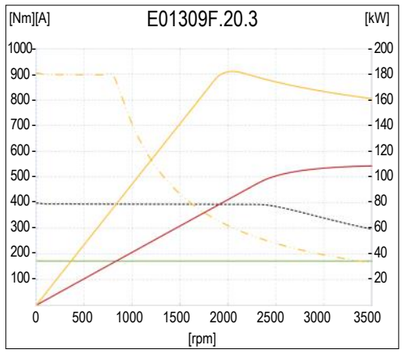


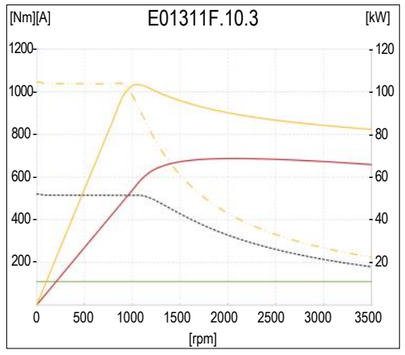
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

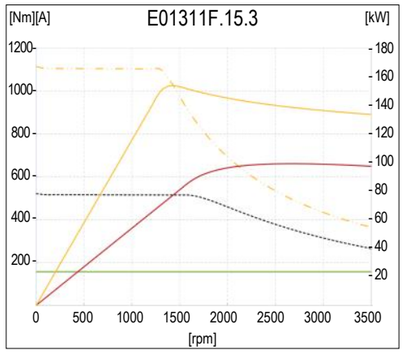
EXPRESS SERIES - E013__F OPERATING REGION

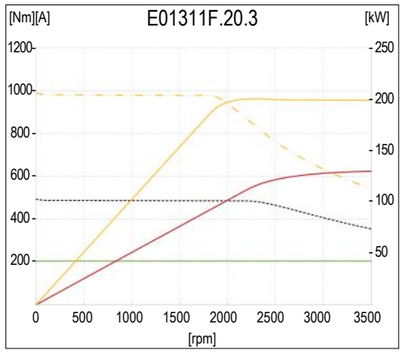


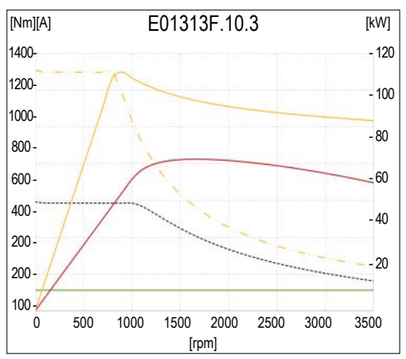


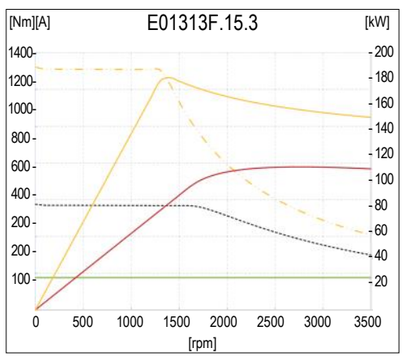


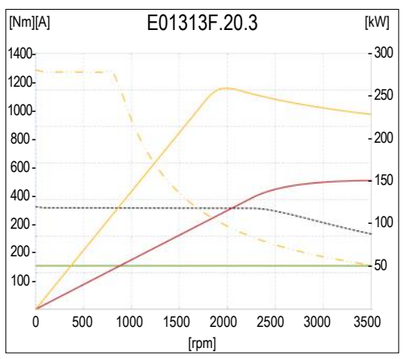






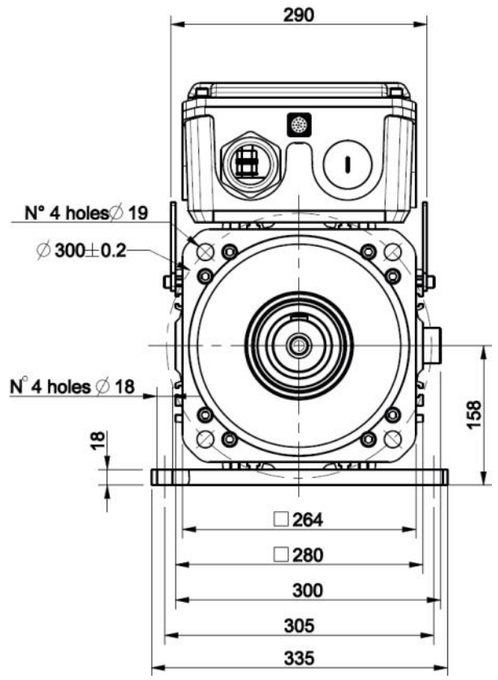


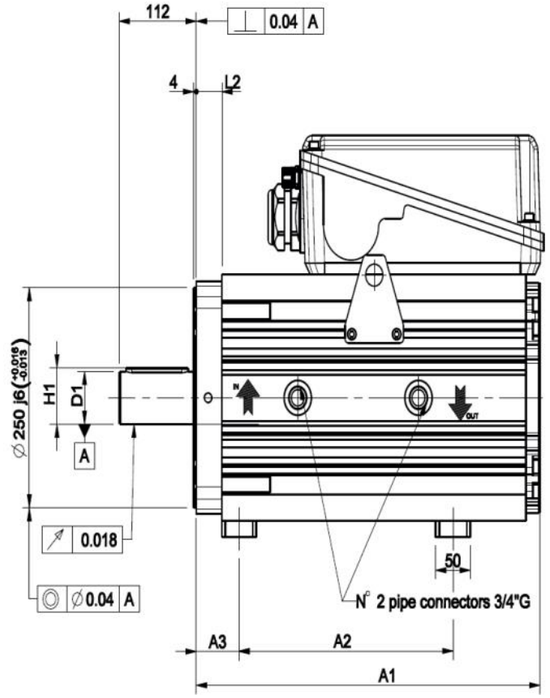


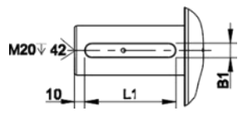


S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

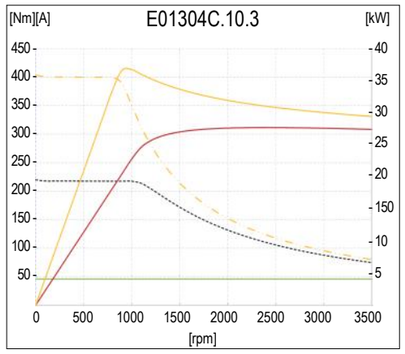
		E01304C			E01306C			E01307C			E01308C			E01309C			E01311C			E01313C		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000	1000	1500	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133	67	100	133
Numero poli *Poles number*	2p	8																				
Coppia Nominale *Rated Torque*	T_n [Nm]	218	211	209	326	323	315	374	370	365	425	420	412	483	473	465	582	573	561	673	663	650
Corrente Nominale *Rated Current*	I_n [A]	46	70	86	69	107	133	74	113	144	87	135	159	102	149	195	125	185	238	146	206	280
Coppia di Stallo *Stall Torque*	T_0 [Nm]	229			342			393			446			507			611			707		
Corrente di Stallo *Stall Current*	I_0 [A]	48	73	90	72	112	140	78	119	151	91	142	167	107	156	205	131	194	250	153	216	294
Coppia Massima *Maximum Torque*	T_{max} [Nm]	400			600			700			800			900			1100			1300		
Corrente Massima *Maximum Current*	I_{max} [A]	90	133	172	140	194	269	160	229	311	190	258	350	193	315	450	280	425	580	281	480	670
Potenza Nominale *Rated Power*	P_n [kW]	23	33	44	34	51	66	39	58	76	45	66	86	51	74	97	61	90	118	71	104	136
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																				
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.45	2.83	2.29	4.45	2.83	2.23	4.72	3.06	2.36	4.58	2.96	2.43	4.45	3.01	2.25	4.45	2.96	2.23	4.38	3.06	2.18
FCEM *Back EMF*	EMF [V/krpm]	269	171	139	269	171	135	286	185	143	277	179	147	269	182	136	269	179	135	265	185	132
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.430	0.176	0.111	0.240	0.097	0.058	0.224	0.093	0.053	0.173	0.072	0.049	0.150	0.067	0.038	0.107	0.048	0.026	0.087	0.043	0.022
Induttanza Diretta *Direct Inductance*	L_w [mH]	8.2	3.2	2.1	5.3	2.2	1.3	5.1	2.2	1.4	4.7	1.8	1.3	4.2	1.8	0.9	3.3	1.3	0.7	2.6	1.2	0.6
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	18.2	7.5	5.0	12.3	5.0	3.1	11.6	4.8	3.2	10.7	4.1	3.0	6.7	3.5	2.1	5.7	2.8	1.7	5.0	2.6	1.4
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	440			626			718			811			903			1111			1296		
Massa *Mass*	M [kg]	123			146			159			179			190			219			241		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	3500																				
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	233																				
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	15			18			20			23			25			30			35		

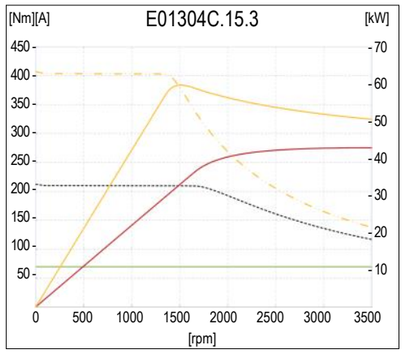


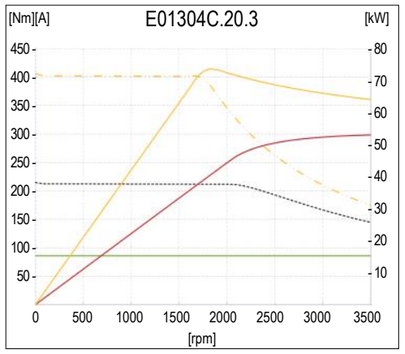


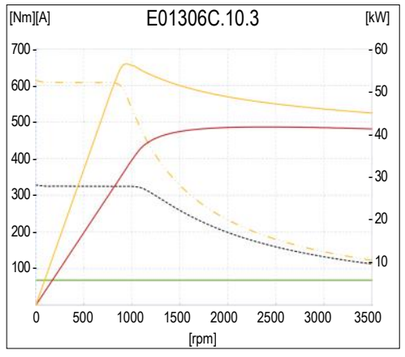


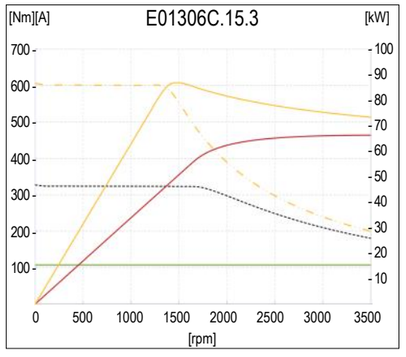
MODEL [mm]	A1	A2	L1	L2	L3	B1	D1	H1
E01304C	376	190	90	35	60	14	48j6	51.5
E01306C	436	250	90	35	60	14	48j6	51.5
E01307C	466	280	90	35	60	14	48j6	51.5
E01308C	496	310	90	35	60	14	48j6	51.5
E01309C	526	340	90	35	60	14	48j6	51.5
E01311C	588	400	90	37	62	18	60m6	64
E01313C	648	460	90	37	62	18	60m6	64

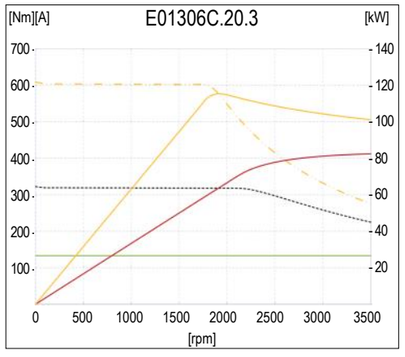


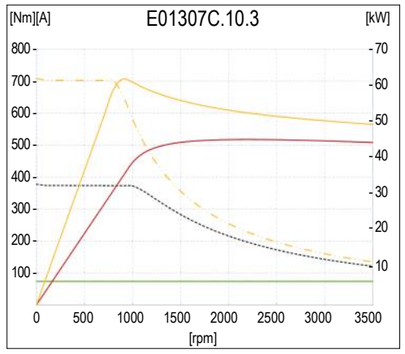


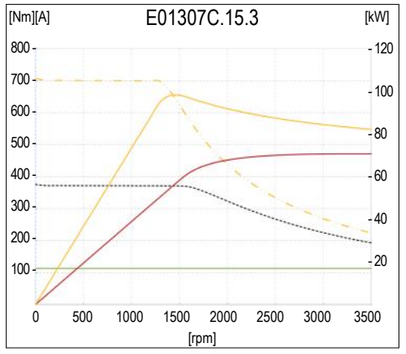


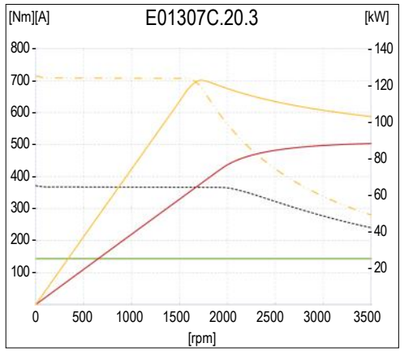


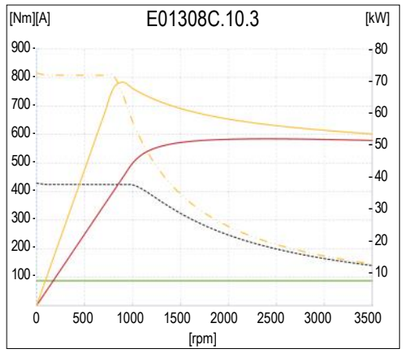


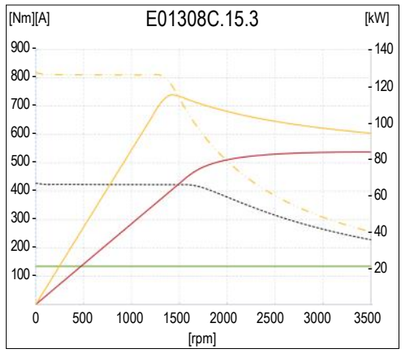


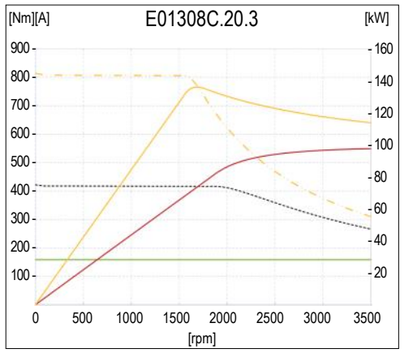




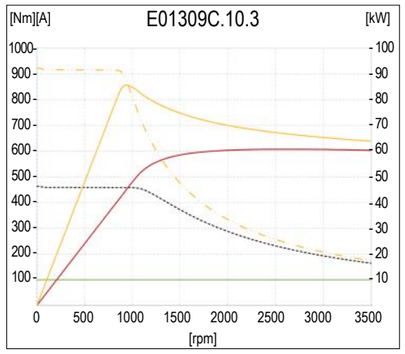


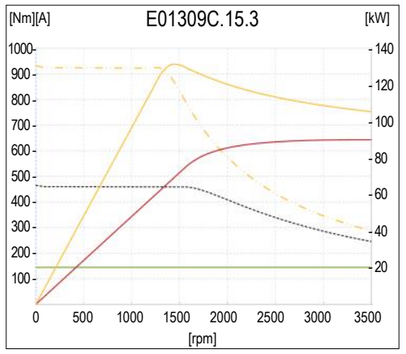


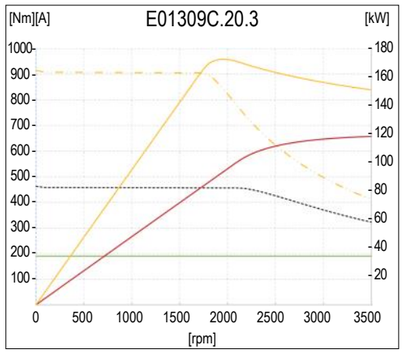


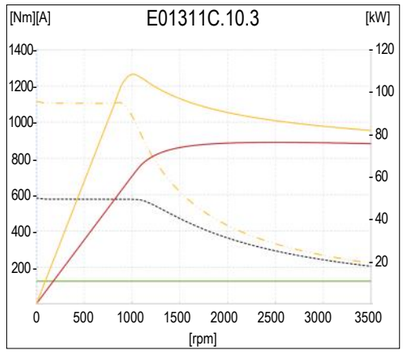


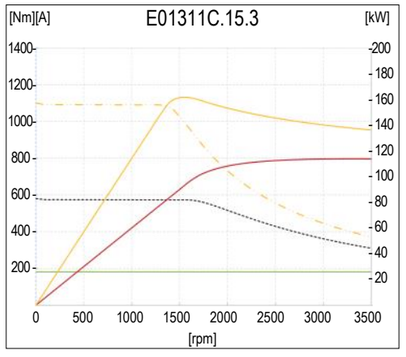
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

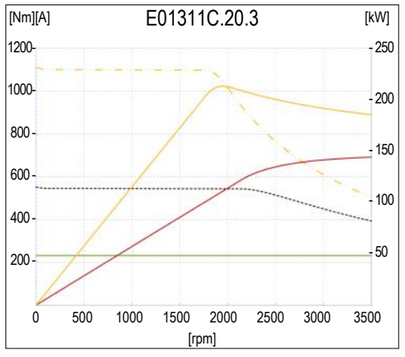


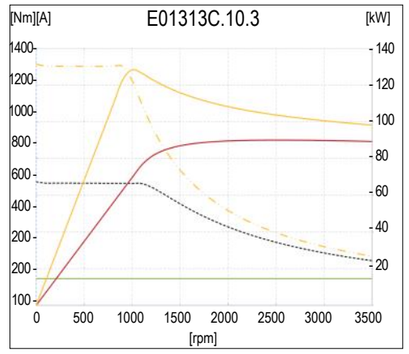


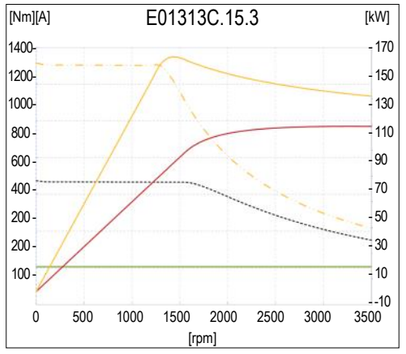


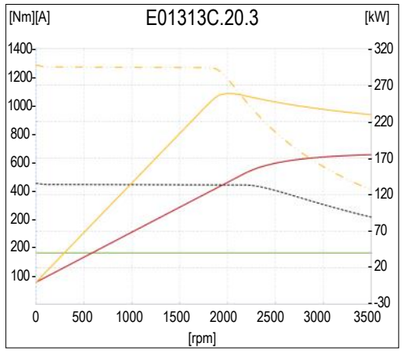






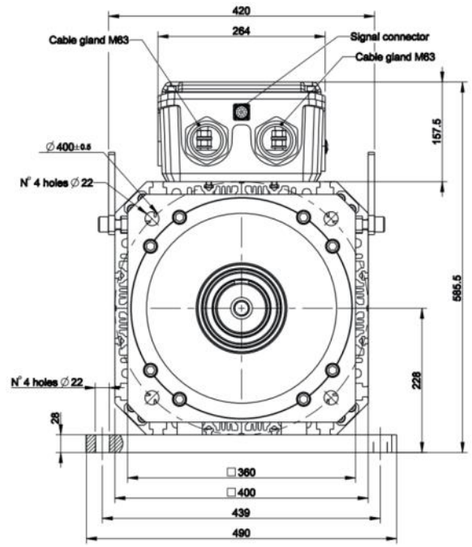


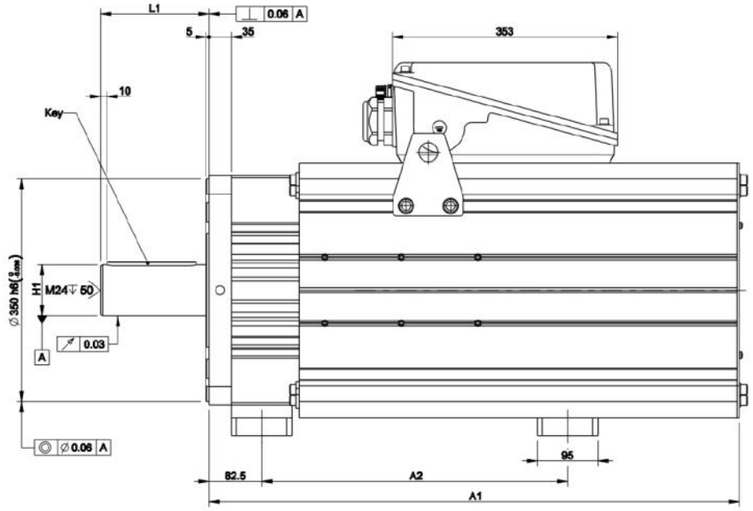




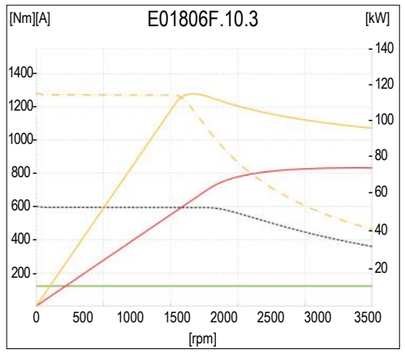
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

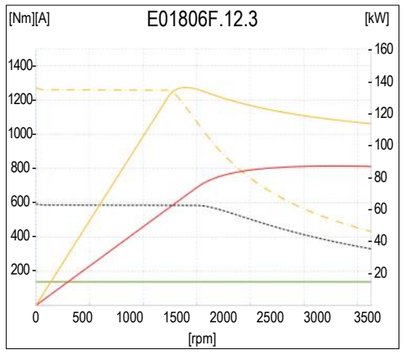
		E01806F			E01808F			E01809F			E01811F			E01813F			E01815F			E01817F		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150
Numero poli *Poles number*	2p	8																				
Coppia Nominale *Rated Torque*	T_n [Nm]	592	584	572	754	752	704	878	845	842	1063	1055	1020	1221	1200	1175	1344	1316	1275	1470	1427	1405
Corrente Nominale *Rated Current*	I_n [A]	120	138	161	147	170	203	175	198	237	202	243	295	240	295	327	255	321	360	270	352	415
Coppia di Stallo *Stall Torque*	T_0 [Nm]	651			829			966			1169			1343			1478			1544		
Corrente di Stallo *Stall Current*	I_0 [A]	132	152	177	162	187	223	193	218	261	222	267	325	264	325	360	281	353	396	284	370	457
Coppia Massima *Maximum Torque*	T_{max} [Nm]	1270			1420			1680			2040			2660			2999			3545		
Corrente Massima *Maximum Current*	I_{max} [A]	275	315	332	285	330	408	347	405	485	402	483	603	550	685	650	600	765	721	653	870	820
Potenza Nominale *Rated Power*	P_n [kW]	62	73	90	79	95	110	92	106	132	111	133	160	128	151	185	141	165	200	154	179	221
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																				
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.76	4.08	3.40	4.83	4.23	3.32	4.76	4.08	3.37	4.97	4.14	3.30	4.90	3.92	3.44	5.09	3.96	3.37	5.34	3.98	3.32
FCEM *Back EMF*	EMF [V/krpm]	288	247	206	292	256	201	288	247	204	301	251	199	297	237	208	308	240	204	323	241	201
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.090	0.067	0.050	0.064	0.048	0.030	0.052	0.038	0.027	0.044	0.031	0.020	0.035	0.022	0.017	0.032	0.019	0.015	0.028	0.016	0.011
Induttanza Diretta *Direct Inductance*	L_w [mH]	1.7	1.2	0.8	1.3	1.0	0.6	1.1	0.8	0.6	1.0	0.7	0.4	0.8	0.5	0.4	0.7	0.4	0.3	0.7	0.4	0.3
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	4.2	3.1	2.2	3.3	2.5	1.6	2.8	2.1	1.5	2.5	1.7	1.1	2.0	1.3	1.0	1.9	1.2	0.9	2.1	1.0	0.7
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	3890			5060			5650			6850			7980			9170			10355		
Massa *Mass*	M [kg]	315			357			377			418			460			498			545		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	2000																				
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	200																				

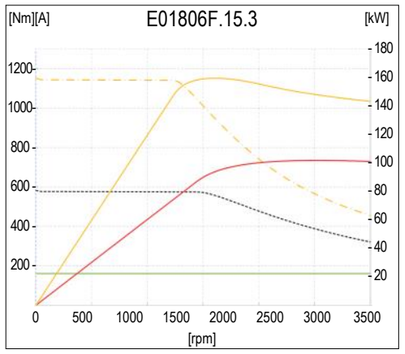


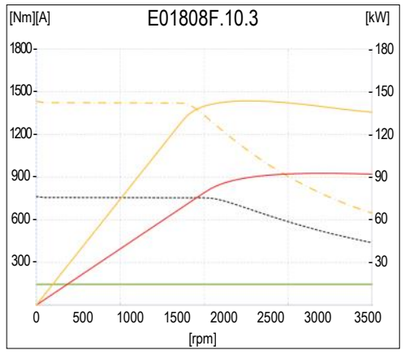


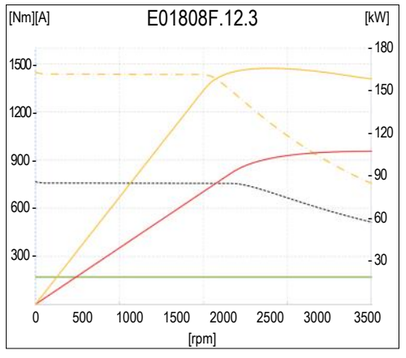
MODEL / [mm]	A1	A2	L1	H1	Key
E01806F	682	330	170	80m6	22x14x140
E01808F	742	390	170	80m6	22x14x140
E01809F	772	420	170	80m6	22x14x140
E01811F	832	480	170	80m6(90m6)	22x14x140 (25x14x140)
E01813F	892	540	170	90m6	25x14x140
E01815F	962	610	170	90m6	25x14x140
E01817F	1012	660	170	90m6	25x14x140

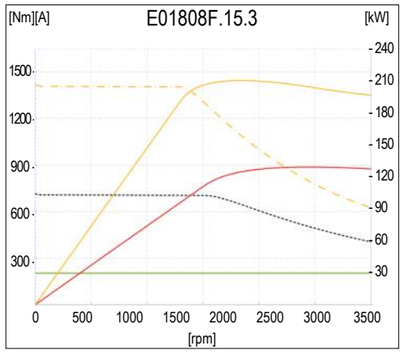


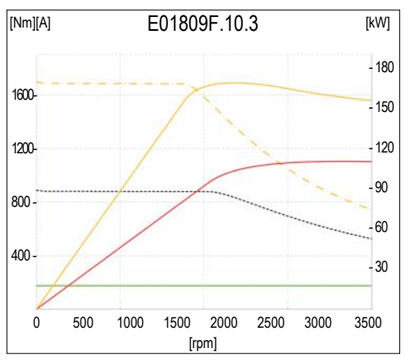


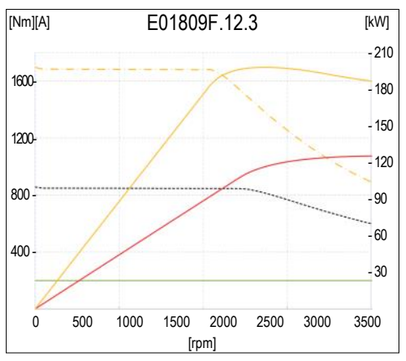


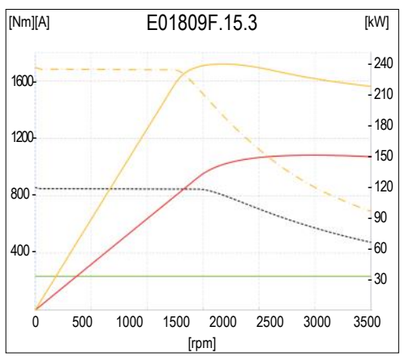


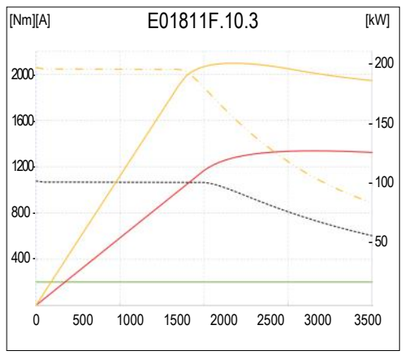


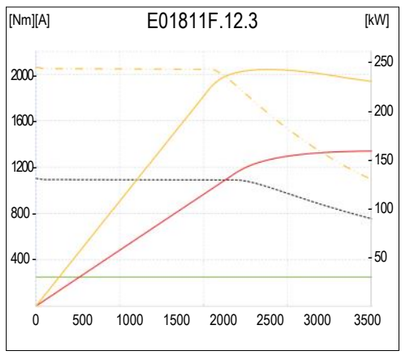


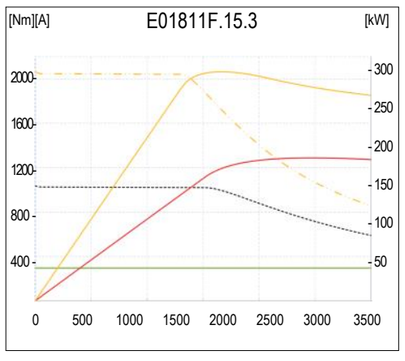




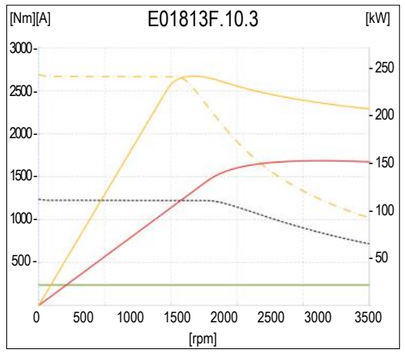


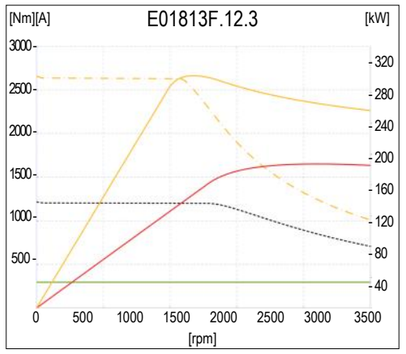


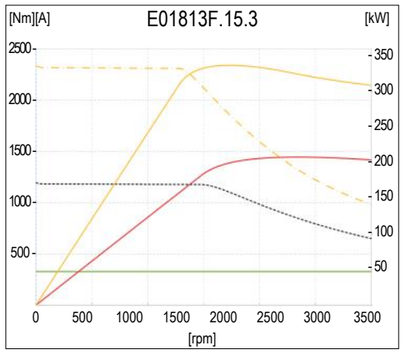


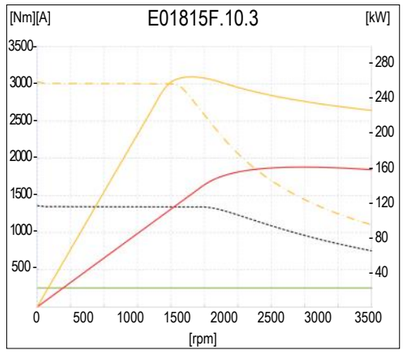


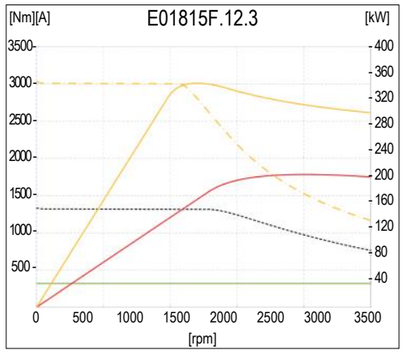
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

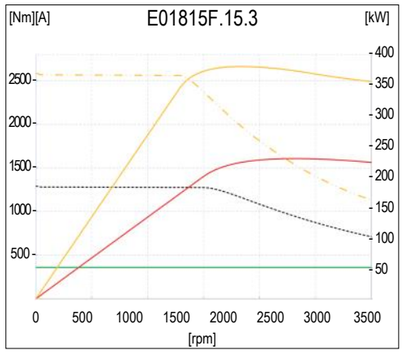


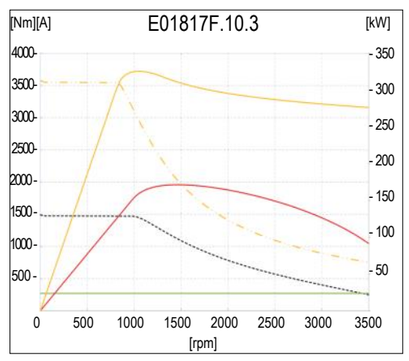


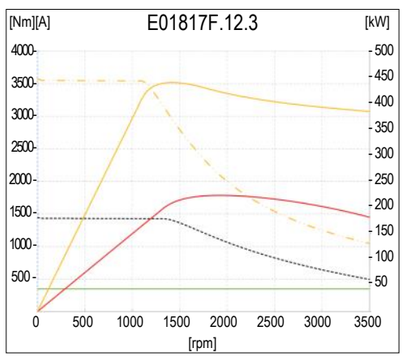


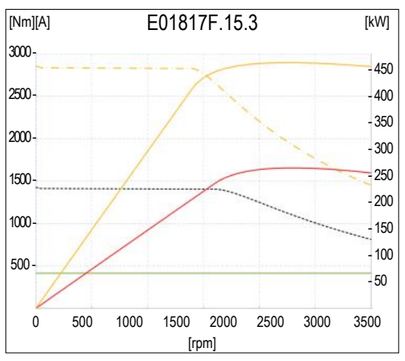






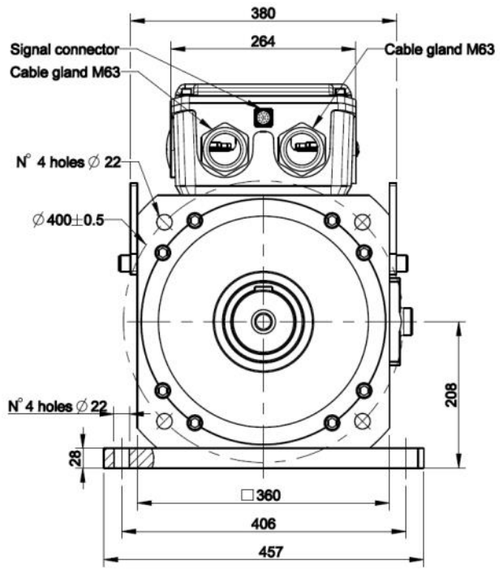


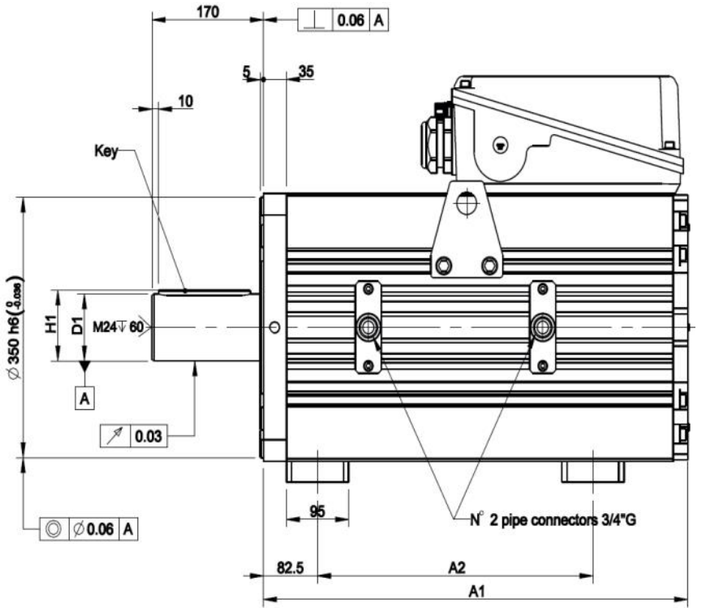




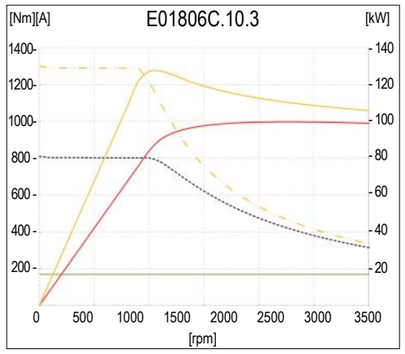
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

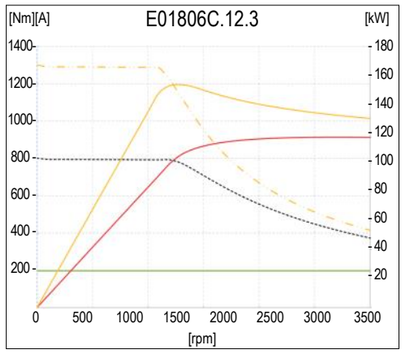
		E01806C			E01808C			E01809C			E01811C			E01813C			E01815C			E01817C		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500	1000	1200	1500
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150	100	120	150
Numero poli *Poles number*	2p	8																				
Coppia Nominale *Rated Torque*	T_n [Nm]	802	792	784	1066	1056	1045	1199	1184	1174	1475	1455	1428	1725	1697	1678	1966	1930	1906	2202	2177	2147
Corrente Nominale *Rated Current*	I_n [A]	170	198	239	226	259	335	242	305	371	310	375	475	375	416	550	416	469	550	466	539	640
Coppia di Stallo *Stall Torque*	T_0 [Nm]	842			1119			1259			1549			1811			2064			2312		
Corrente di Stallo *Stall Current*	I_0 [A]	179	208	251	237	272	351	254	320	390	326	394	499	394	437	578	437	493	578	489	566	672
Coppia Massima *Maximum Torque*	T_{max} [Nm]	1270			1420			1680			2040			2660			2999			3545		
Corrente Massima *Maximum Current*	I_{max} [A]	280	329	400	373	431	560	400	509	622	509	622	800	622	700	933	700	800	933	800	933	1120
Potenza Nominale *Rated Power*	P_n [kW]	84	100	123	112	133	164	126	149	184	155	183	224	181	213	264	206	243	299	231	274	337
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	380																				
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.51	3.83	3.15	4.51	3.90	3.00	4.73	3.72	3.04	4.54	3.71	2.89	4.39	3.90	2.93	4.51	3.94	3.38	4.47	3.83	3.19
FCEM *Back EMF*	EMF [V/krpm]	273	232	191	273	236	182	286	225	184	275	225	175	266	236	177	273	239	204	270	232	193
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.082	0.060	0.040	0.056	0.042	0.025	0.052	0.033	0.022	0.038	0.025	0.016	0.029	0.023	0.013	0.025	0.019	0.014	0.021	0.016	0.011
Induttanza Diretta *Direct Inductance*	L_w [mH]	1.5	1.1	0.7	1.1	0.8	0.5	1.1	0.7	0.5	0.8	0.6	0.3	0.7	0.5	0.3	0.6	0.5	0.3	0.5	0.4	0.3
Induttanza Quadratura *Quadrature Inductance*	L_w [mH]	3.8	2.7	1.9	2.9	2.2	1.3	2.8	1.7	1.2	2.1	1.4	0.9	1.7	1.3	0.8	1.5	1.2	0.9	1.3	1.0	0.7
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	3890			5060			5650			6850			7980			9170			10355		
Massa *Mass*	M [kg]	269			306			324			363			397			437			474		
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	2000																				
Frequenza massima *Maximum frequency*	f_{MAX} [Hz]	200																				
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	15			18			18			20			25			25			30		

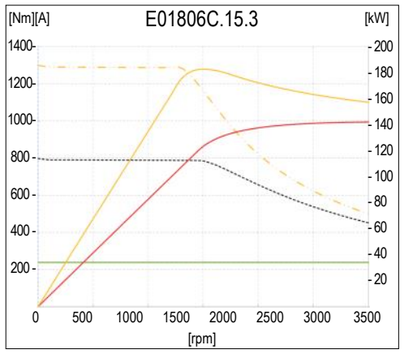


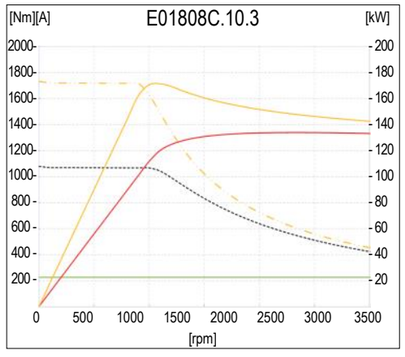


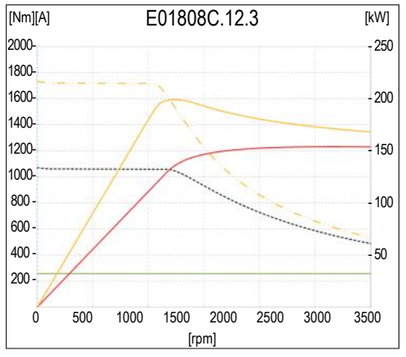
MODEL / [mm]	A1	A2	D1	H1	Key
E01806C	497	270	80m6	85	22x14x140
E01808C	557	330	80m6	85	22x14x140
E01809C	587	360	80m6	55	22x14x140
E01811C	647	420	80m6(90m6)	85(95)	22x14x140 (25x14x140)
E01813C	707	480	90m6	95	25x14x140
E01815C	767	540	90m6	95	25x14x140
E01817C	827	600	90m6	95	25x14x140

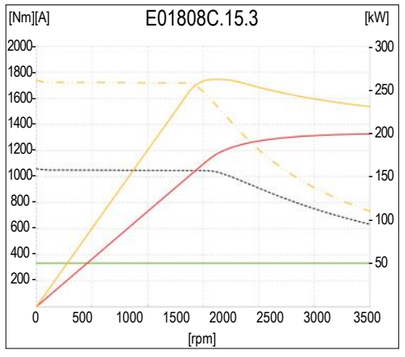


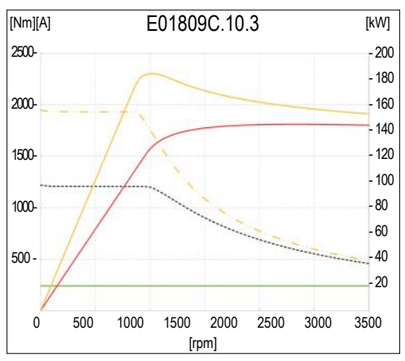


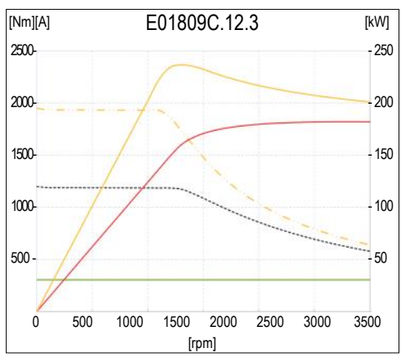


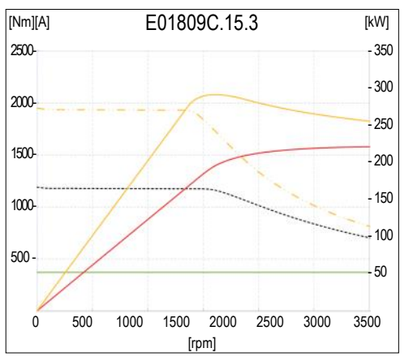


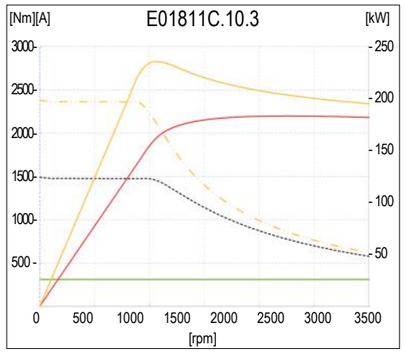


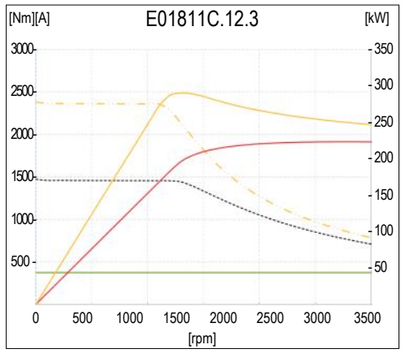


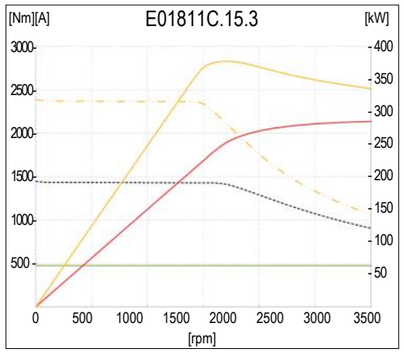




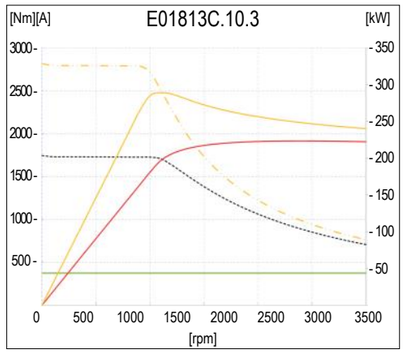


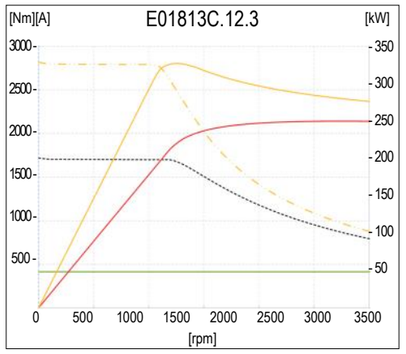


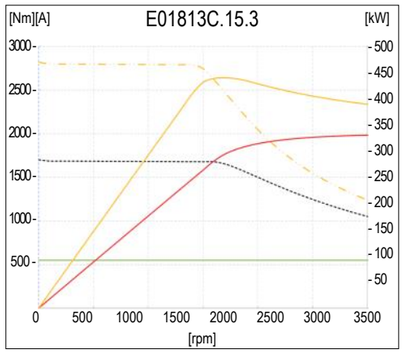


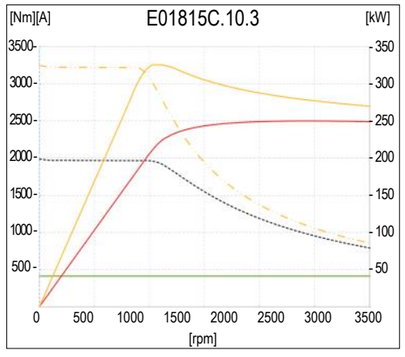


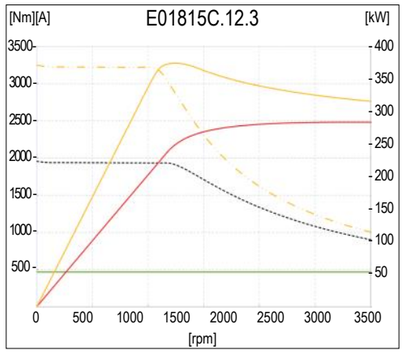
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

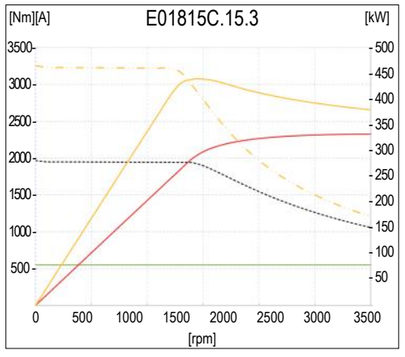


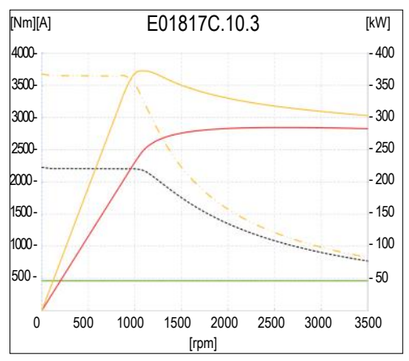


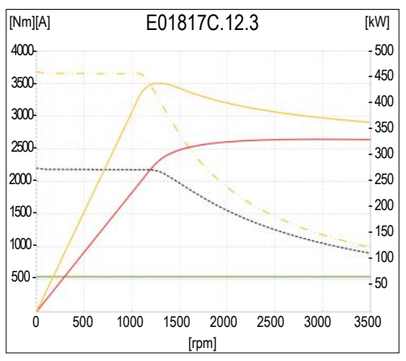


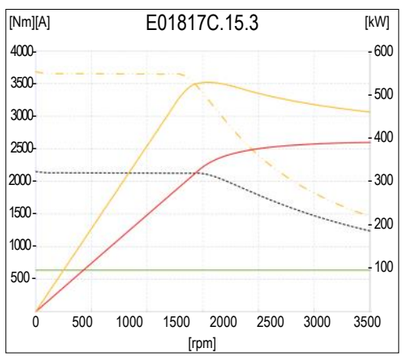






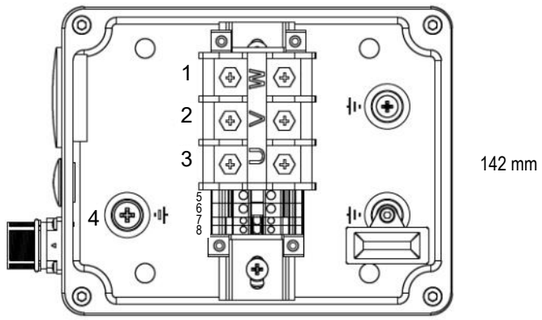






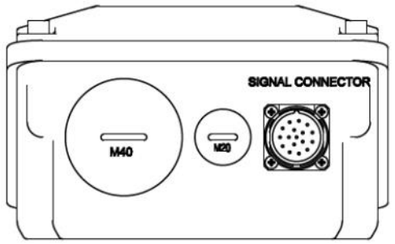
S1 CURRENT S1 TORQUE MAX TORQUE S1 POWER MAX POWER

MORSETTIERA POTENZA
POWER BOX

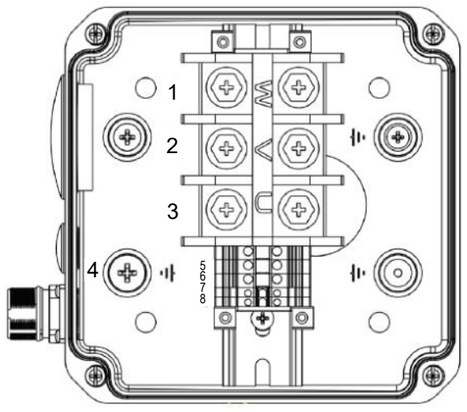


142 mm

180 mm

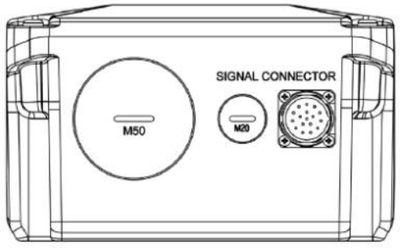


92 mm

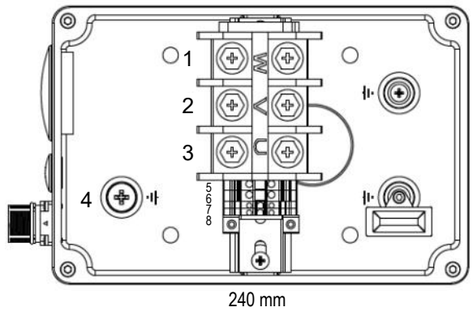


175 mm

175 mm

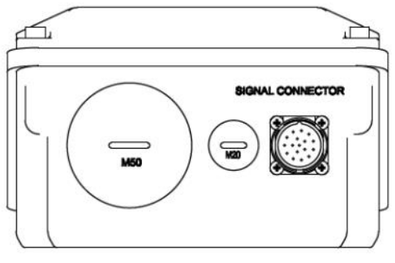


106 mm



160 mm

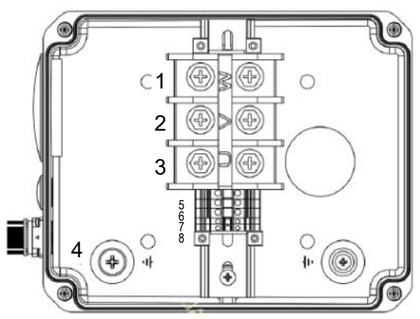
240 mm



106 mm

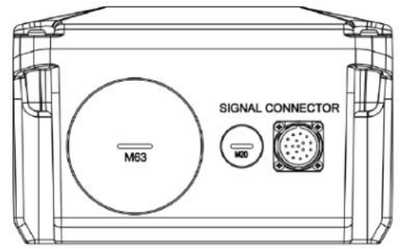
1	W	5	FAN*
2	V	6	FAN*
3	U	7	BR +24V_{DC}
4	GND	8	BR -0V_{DC}

* VERSIONE F
** F VERSION*

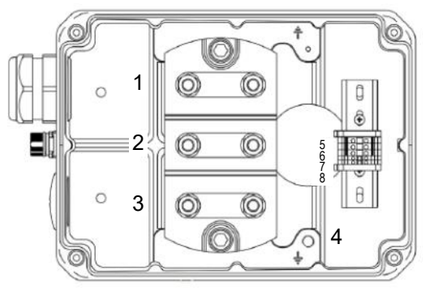


195 mm

240 mm

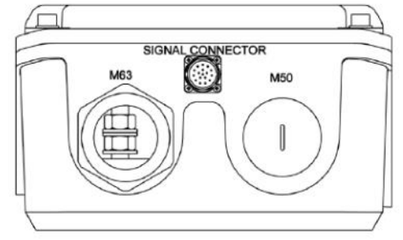


122 mm

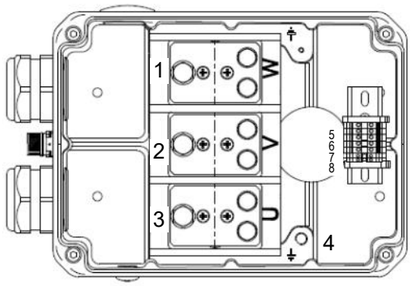


264 mm

353 mm

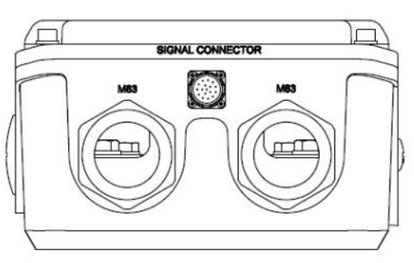


157 mm



264 mm

353 mm



157 mm

1	W	5	FAN*
2	V	6	FAN*
3	U	7	BR +24V_{DC}
4	GND	8	BR -0V_{DC}

* VERSIONE F
** F VERSION*

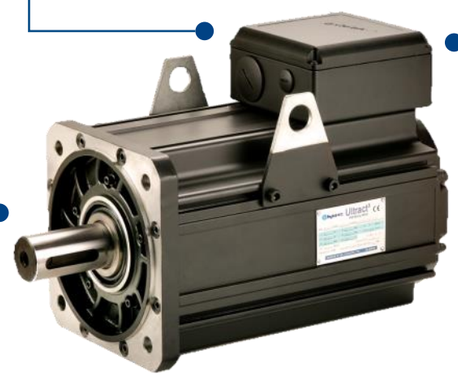
La serie di motori **U3** ad alte prestazioni, prodotta in stabilimenti specializzati in motori servo ad alte prestazioni, si basa sull'ultima generazione di magneti alle terre rare e incorpora una tecnologia brevettata di assemblaggio dei magneti superficiali, che conferisce ai motori massima densità di coppia e minima inerzia del rotore.

*The **U3** high performance servo motors series, produced in plants specialized in high performance servo motors, is based on the last generation of rare earth magnets and embodies a patented surface magnet assembly technology, which endows the motors with the highest torque density and the lowest rotor inertia.*

CARATTERISTICHE PRINCIPALI
MAIN CHARACTERISTICS

Vasta gamma di retroazioni disponibili[1]
Wide feedback sensors available[1]

Sensore PTC + PT1000
PTC + PT1000 sensor



Raffreddamento naturale, forzato ad aria o a liquido
Natural, forced air or water cooling

Bassa inerzia - alta rigidezza
Low inertia - high angular stifness

Opzione con freno
Brake option available

Alta efficienza energetica
High efficiency

Connettori circolari integrati
Built-in circular connectors

[1] funzionamento anello-aperto sensorless possibile con drive compatibili
(sensorless open-loop working mode possible depending on the drive)

CODICE MOTORE
MOTOR CODE

	Taglia *Size*	Coppia nominale *Nominal torque*	Raffreddamento *Cooling*	Velocità nominale *Rated speed*	Tensione nominale *Rated voltage*	Feedback *Feedback*	Freno *Brake*	Connettore segnali *Signal connector*	Albero *Shaft*	Piedi di montaggio *Mounting feet*
U3	**10**	**07**	**F**	**30**	**3**	**R4**	**0**	**Y0**	**K**	**b1**

≈ ALTEZZA ALBERO IN CM
[≈ SHAFT HEIGHT IN CM]
03, 05, 07, 10, 13, 18

[Nm] - TAGLIE *(SIZES)* **03, 05, 07**
[10*Nm] - TAGLIE *(SIZES)* **10, 13, 18, 20**

A = NATURALE *(NATURAL)*
F = ARIA *(FAN COOLING)* - **IP54**
C = ACQUA *(WATER COOLING)* - **IP65**

10 = 1000rpm, **12** = 1200rpm
15 = 1500rpm, **17** = 1700rpm
20 = 2000rpm

2 = 220/240 V_{AC}
3 = 380/440 V_{AC}
4 = 480/516 V_{AC}

N7 = ENDAT INDUCTIVE ABSOLUTE MULTI-TURN(4096 REV +19 BIT/REV)
S1 = SINCOS 2048 CY/REV + SINGLE TURN ABSOLUTE TRACK (FOR MOTOR SIZE 5...20)
R4 = RESOLVER TAMAGAWA TS2640N321E64
Z = NO FEEDBACK

0 = NO FRENO *(NO BRAKE)*
B = FRENO *(BRAKE)*

YZ = CONNETTORE CIRCOLARE POTENZA/SEGNALI *(CIRCULAR CONNECTOR FOR POWER/SIGNALS)*
Y0 = CONNETTORE CIRCOLARE SEGNALI / BOX POTENZA *(CIRCULAR CONNECTOR FOR SIGNALS / POWER BOX)*
00 = NO CONNETTORE CIRCOLARE *(NO CIRCULAR CONNECTOR)*

K = ALBERO CON CHIAVETTA *(SHAFT WITH KEY)*
E = ALBERO CILINDRICO SENZA CHIAVETTA *(CYLINDRICAL SHAFT WITHOUT KEY)*

00 = SENZA *(WITHOUT)*
B1 = STANDARD

ESEMPIO D'ORDINE: **U3 10 07 F 30 3 R4 0 Y0 K b1** = U31007F30 (70Nm, 3000rpm), 380V_{AC}, VENTILAZIONE FORZATA, RESOLVER, FRENO,
CONNETTORE CIRCOLARE SEGNALI + BOX POTENZA, ALBERO CON CHIAVETTA, PIEDI STANDARD.

ORDER EXAMPLE: **U3 10 07 F 30 3 R4 0 Y0 K b1** = U31007F30 (70Nm, 3000rpm), 380V_{AC}, *FAN COOLING, RESOLVER, BRAKE, SIGNAL CIRCULAR CONNECTOR + POWER BOX, SHAFT WITH KEY, STANDARD FEET*.

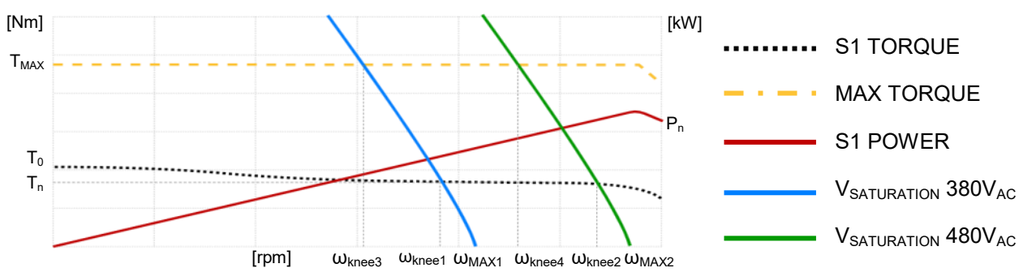
Modello *(model)*	Velocità *(speed)*	Coppia Nominale *(nominal torque)* A	F	C	Corrente Nominale *(nominal current)* A	F	C	Potenza Nominale *(nominal power)* A	F	C
U30301	2000 rpm	1 Nm	-	-	0.47 A	-	-	0.21 kW	-	-
	3000 rpm	0.94 Nm	-	-	0.61 A	-	-	0.3 kW	-	-
U30302	1000 rpm	1.98 Nm	-	-	0.48 A	-	-	0.21 kW	-	-
	2000 rpm	1.87 Nm	-	-	0.89 A	-	-	0.39 kW	-	-
	3000 rpm	1.7 Nm	-	-	1.77 A	-	-	0.53 kW	-	-
U30304	1000 rpm	3.5 Nm	-	-	0.99 A	-	-	0.37 kW	-	-
	2000 rpm	3.2 Nm	-	-	1.59 A	-	-	0.67 kW	-	-
	3000 rpm	2.7 Nm	-	-	1.61 A	-	-	0.85 kW	-	-
U30503	1500 rpm	3.5 Nm	-	-	1.4 A	-	-	0.55 kW	-	-
	3000 rpm	3.1 Nm	-	-	2.4 A	-	-	0.97 kW	-	-
U30506	1500 rpm	7 Nm	-	-	2.7 A	-	-	1.10 kW	-	-
	3000 rpm	6 Nm	-	-	4.5 A	-	-	1.88 kW	-	-
U30509	1500 rpm	10 Nm	-	-	3.9 A	-	-	1.57 kW	-	-
	3000 rpm	8.6 Nm	-	-	6.3 A	-	-	2.70 kW	-	-
U30512	1500 rpm	13.2 Nm	-	-	4.9 A	-	-	2.07 kW	-	-
	3000 rpm	11.4 Nm	-	-	8.2 A	-	-	3.58 kW	-	-
U30710	1500 rpm	9.1 Nm	-	-	3.1 A	-	-	1.4 kW	-	-
	2000 rpm	9 Nm	-	-	3.8 A	-	-	1.9 kW	-	-
	3000 rpm	8.5 Nm	-	-	5.2 A	-	-	2.7 kW	-	-
U30720	1500 rpm	17 Nm	21.7 Nm	33 Nm	5.4 A	8.9 A	10 A	2.7 kW	3.4 kW	5 kW
	2000 rpm	16 Nm	21.7 Nm	-	6.5 A	8.9 A	-	3.3 kW	4.5 kW	-
	3000 rpm	11 Nm	21.7 Nm	30 Nm	6.7 A	13.5 A	21 A	3.5 kW	6.8 kW	9 kW
U30730	1500 rpm	24 Nm	39 Nm	53 Nm	7.4 A	12.0 A	18 A	3.8 kW	6.1 kW	8 kW
	2000 rpm	23 Nm	36.4 Nm	-	9.4 A	15.4 A	-	4.8 kW	7.6 kW	-
	3000 rpm	18 Nm	35.9 Nm	50 Nm	13.3 A	22.5 A	31 A	5.7 kW	11.3 kW	16 kW
U30740	1500 rpm	33 Nm	45.5 Nm	78 Nm	10.1 A	14.0 A	27 A	5.2 kW	7.1 kW	12 kW
	2000 rpm	32 Nm	44.5 Nm	-	11.0 A	21.0 A	-	6.7 kW	9.3 kW	-
	3000 rpm	26 Nm	43.5 Nm	70 Nm	17.9 A	28.0 A	48 A	8.2 kW	13.7 kW	22 kW

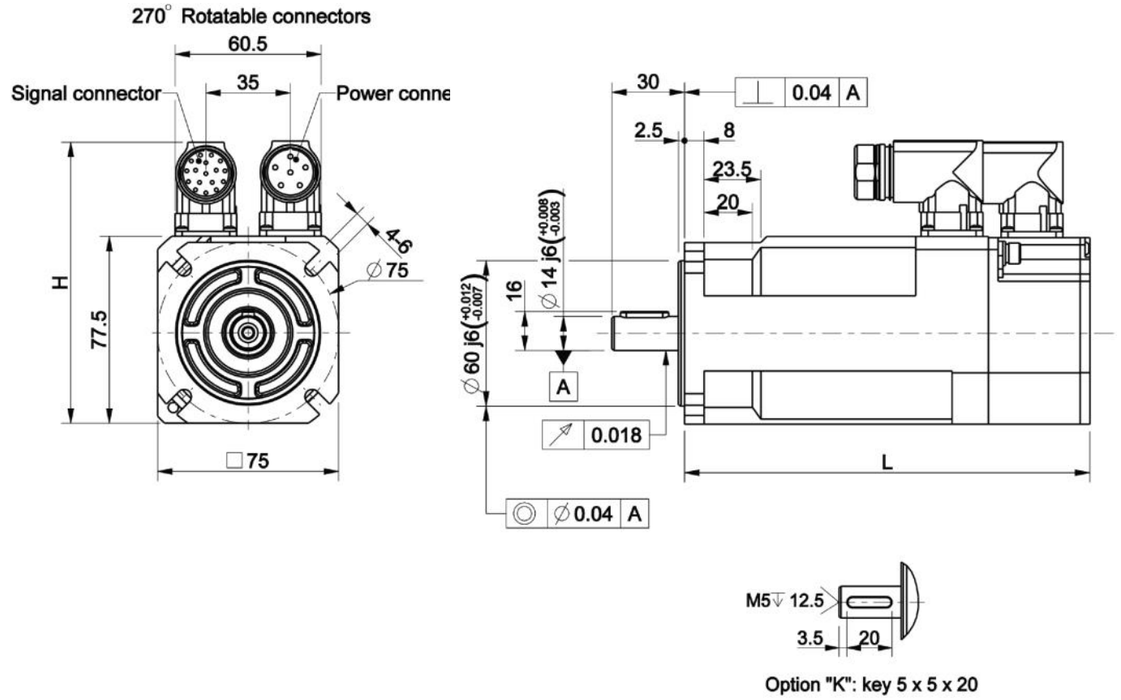
PWM = 8.0 kHz
T_{amb} = 30°C

ULTRACT SERIES U3

Modello *(model)*	Velocità *(speed)*	Coppia Nominale *(nominal torque)* A	F	C	Corrente Nominale *(nominal current)* A	F	C	Potenza Nominale *(nominal power)* A	F	C
U31004	1000 rpm	32 Nm	42 Nm	54 Nm	8 A	10 A	13 A	3.3 kW	4 kW	6 kW
	1500 rpm	32 Nm	42 Nm	53 Nm	10 A	15 A	20 A	5 kW	7 kW	8 kW
	2000 rpm	31 Nm	40 Nm	53 Nm	13 A	20 A	26 A	6 kW	8 kW	11 kW
	3000 rpm	27 Nm	38 Nm	53 Nm	18 A	26 A	36 A	8 kW	12 kW	17 kW
U31007	1000 rpm	57 Nm	74 Nm	109 Nm	14 A	19 A	29 A	6 kW	8 kW	11 kW
	1500 rpm	52 Nm	73 Nm	108 Nm	16 A	24 A	40 A	8 kW	11 kW	17 kW
	2000 rpm	50 Nm	72 Nm	108 Nm	23 A	34 A	58 A	10 kW	15 kW	23 kW
	3000 rpm	30 Nm	70 Nm	108 Nm	22 A	52 A	80 A	9 kW	22 kW	34 kW
U31010	1000 rpm	84 Nm	100 Nm	164 Nm	19 A	23 A	41 A	9 kW	10 kW	17 kW
	1500 rpm	78 Nm	99 Nm	164 Nm	28 A	35 A	58 A	12 kW	16 kW	26 kW
	2000 rpm	73 Nm	97 Nm	163 Nm	30 A	48 A	81 A	15 kW	20 kW	34 kW
	3000 rpm	32 Nm	95 Nm	160 Nm	20 A	59 A	114 A	10 kW	30 kW	50 kW
U31013	1000 rpm	95 Nm	149 Nm	219 Nm	22 A	35 A	51 A	10 kW	16 kW	23 kW
	1500 rpm	90 Nm	146 Nm	219 Nm	28 A	45 A	82 A	14 kW	23 kW	34 kW
	2000 rpm	80 Nm	142 Nm	218 Nm	38 A	67 A	102 A	17 kW	30 kW	46 kW
	3000 rpm	45 Nm	135 Nm	217 Nm	28 A	83 A	163 A	14 kW	42 kW	68 kW
U31310	1000 rpm	-	145 Nm	179 Nm	-	29 A	43 A	-	15 kW	19 kW
	1500 rpm	-	140 Nm	178 Nm	-	46 A	64 A	-	22 kW	28 kW
	2000 rpm	-	135 Nm	178 Nm	-	54 A	71 A	-	28 kW	37 kW
	3000 rpm	-	130 Nm	175 Nm	-	78 A	105 A	-	41 kW	55 kW
U31320	1000 rpm	-	270 Nm	357 Nm	-	56 A	83 A	-	28 kW	37 kW
	1500 rpm	-	265 Nm	354 Nm	-	81 A	146 A	-	42 kW	56 kW
	2000 rpm	-	260 Nm	353 Nm	-	121 A	164 A	-	54 kW	74 kW
	3000 rpm	-	240 Nm	348 Nm	-	148 A	215 A	-	75 kW	109 kW
U31330	1000 rpm	-	400 Nm	539 Nm	-	83 A	134 A	-	42 kW	56 kW
	1500 rpm	-	390 Nm	534 Nm	-	121 A	221 A	-	61 kW	84 kW
	2000 rpm	-	380 Nm	530 Nm	-	157 A	262 A	-	80 kW	111 kW
	3000 rpm	-	350 Nm	520 Nm	-	216 A	321 A	-	110 kW	163 kW
U31340	1000 rpm	-	510 Nm	715 Nm	-	118 A	148 A	-	53 kW	75 kW
	1500 rpm	-	500 Nm	713 Nm	-	155 A	266 A	-	79 kW	115 kW
	2000 rpm	-	480 Nm	710 Nm	-	224 A	331 A	-	100 kW	149 kW
	3000 rpm	-	460 Nm	700 Nm	-	284 A	432 A	-	144 kW	220 kW
U318035	1500 rpm	-	478 Nm	500 Nm	-	151 A	88 A	-	75 kW	52 kW
	2000 rpm	-	-	497 Nm	-	-	175 A	-	-	104 kW
U318050	1500 rpm	-	623 Nm	-	-	185 A	-	-	98 kW	-
U318060	1500 rpm	-	748 Nm	-	-	237 A	-	-	118 kW	-
U318070	1500 rpm	-	869 Nm	1000 Nm	-	275 A	176 A	-	137 kW	105 kW
	2000 rpm	-	-	980 Nm	-	-	345 A	-	-	205 kW
U318100	1500 rpm	-	1103 Nm	1540 Nm	-	328 A	305 A	-	173 kW	161 kW
	2000 rpm	-	-	1480 Nm	-	-	588 A	-	-	310 kW

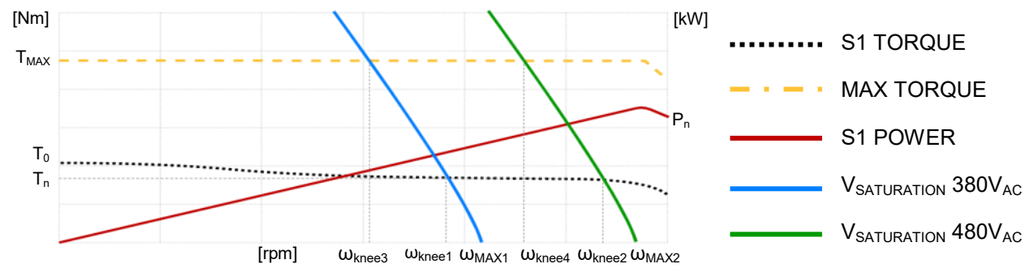
		U30301A		U30302A			U30304A		
Velocità Nominale *Rated Speed*	ω_n [rpm]	2000	3000	1000	2000	3000	1000	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	133	200	67	133	200	67	133	200
Numero poli *Poles number*	2p	8							
Coppia Nominale *Rated Torque*	T_n [Nm]	1	0.94	1.98	1.87	1.7	3.5	3.2	2.7
Corrente Nominale *Rated Current*	I_n [A]	0.47	0.61	0.48	0.89	1.77	0.99	1.59	1.61
Coppia di Stallo *Stall Torque*	T_0 [Nm]	1.08	1.08	2.1	2.1	2.1	3.7	3.7	3.7
Corrente di Stallo *Stall Current*	I_0 [A]	0.51	0.70	0.51	1.00	2.19	1.04	1.84	2.20
Coppia Massima *Maximum Torque*	T_{max} [Nm]	5	5	10	10	10	20	20	20
Corrente Massima *Maximum Current*	I_{max} [A]	2.6	3.6	2.7	5.3	11.5	6.2	10.9	13.1
Potenza Nominale *Rated Power*	P_n [kW]	0.21	0.3	0.21	0.39	0.53	0.37	0.67	0.85
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	343	353	348	325	213	292	302	363
Costante di Coppia *Torque Constant*	K_t [Nm/A]	2.40	1.75	4.65	2.38	1.09	4.03	2.29	1.91
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	2.11	1.54	4.09	2.09	0.96	3.54	2.01	1.68
FCEM *Back EMF*	EMF [V/krpm]	145	105.8	281	143.9	65.9	243.5	138.4	115.4
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12	-0.12
Resistenza Statore *Stator Resistance*	R_w [ohm]	119	60	150	43.16	8.5	53	15.84	10.1
Induttanza Statore Stator *Inductance*	L_w [mH]	147	81	294	76.56	14.55	113.4	36.7	24
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	0.48		0.92			1.72		
Massa *Mass*	M [kg]	3		3.2			5		
Perdite *Losses*	[kW]	0.084	0.082	0.112	0.108	0.106	0.129	0.129	0.129
Rendimento *Efficiency*	[%]	71	78	65	78	83	74	84	87
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	2252	3249	1111	2377	5515	1358	2560	3149
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	2932	4181	1462	3062	7017	1763	3275	4009
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	893	1654	309	1177	3552	516	1378	1840
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1398	2327	564	1666	4669	800	1876	2456
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	2621	3592	1352	2641	5766	1561	2746	3293
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	3310	4537	1708	3336	7284	1971	3468	4159
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000							

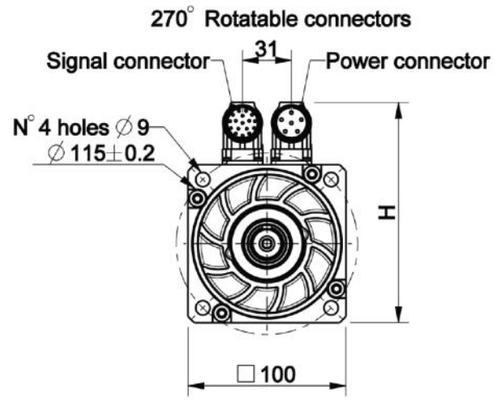


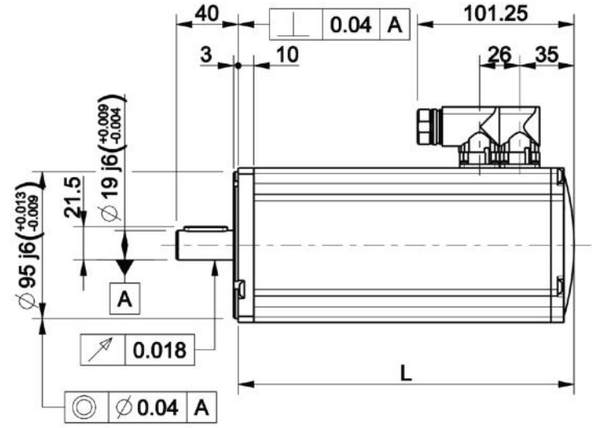


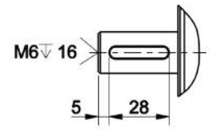
MODEL / [mm]	L	H		
U30301A	145	116.5		
U30302A	167	117		
U30304A	221	116.5		

		U30503A		U30506A		U30509A		U30512A	
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	3000	1500	3000	1500	3000	1500	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	200	100	200	100	200	100	200
Numero poli *Poles number*	2p	8							
Coppia Nominale *Rated Torque*	T_n [Nm]	3.5	3.1	7	6	10	8.6	13.2	11.4
Corrente Nominale *Rated Current*	I_n [A]	1.4	2.4	2.7	4.5	3.9	6.3	4.9	8.2
Coppia di Stallo *Stall Torque*	T_0 [Nm]	3.6		7.2		10.5		14	
Corrente di Stallo *Stall Current*	I_0 [A]	1.4	2.7	2.7	5.4	4.1	7.7	5.2	10
Coppia Massima *Maximum Torque*	T_{max} [Nm]	14		28		42		58	
Corrente Massima *Maximum Current*	I_{max} [A]	6.0	11.8	11.8	23.0	17.9	33.8	23.8	45.7
Potenza Nominale *Rated Power*	P_n [kW]	0.55	0.97	1.10	1.88	1.57	2.70	2.07	3.58
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	312	295	309	297	297	300	308	306
Costante di Coppia *Torque Constant*	K_t [Nm/A]	2.93	1.49	2.98	1.52	2.93	1.55	3.04	1.59
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	2.58	1.31	2.62	1.34	2.58	1.37	2.68	1.40
FCEM *Back EMF*	EMF [V/krpm]	177	90	180	92	177	94	184	96
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12							
Resistenza Statore *Stator Resistance*	R_w [ohm]	30.00	8.50	12.50	3.20	6.60	2.00	5.30	1.45
Induttanza Statore Stator *Inductance*	L_w [mH]	112	26.00	54.70	14.2	34.00	9.80	27.8	7.59
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	1.7		3.2		4.6		6	
Massa *Mass*	M [kg]	5		7		9		11	
Perdite *Losses*	[kW]	0.12	0.13	0.19	0.18	0.23	0.23	0.29	0.29
Rendimento *Efficiency*	[%]	82	88	85	91	87	92	88	93
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1867	3916	1877	3879	1956	3823	1879	3753
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	2407	4994	2410	4934	2501	4858	2404	4767
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	958	2279	1025	2273	1115	2256	1036	2182
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1291	2979	1365	2939	1468	2912	1366	2815
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	2147	4222	2111	4130	2147	4043	2065	3958
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	2712	5333	2667	5217	2712	5106	2609	5000
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000							





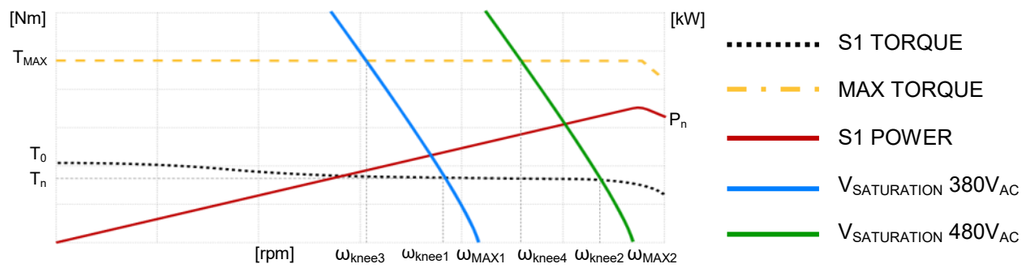


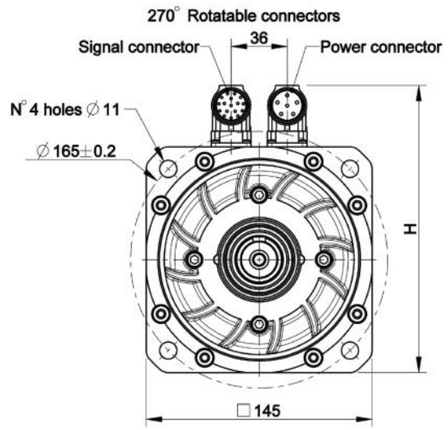


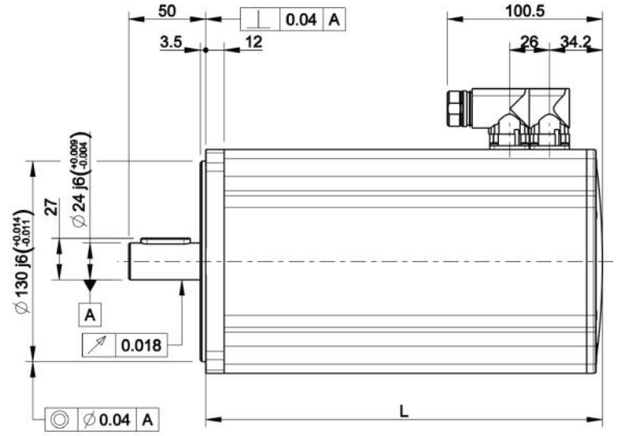
Option "K": full key 6 x 6 x 28

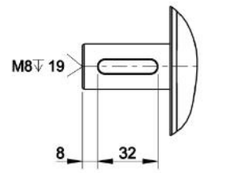
MODEL [mm]	L	H		
U30503A	195	139.5		
U30506A	239	139.5		
U30509A	283	139.5		
U30512A	327	139.5		

		U30710A			U30720A			U30730A			U30740A		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	2000	3000	1500	2000	3000	1500	2000	3000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	133	200	100	133	200	100	133	200	100	133	200
Numero poli *Poles number*	2p	8											
Coppia Nominale *Rated Torque*	T_n [Nm]	9.1	9	8.5	17	16	11	24	23	18	33	32	26
Corrente Nominale *Rated Current*	I_n [A]	3.1	3.8	5.2	5.4	6.5	6.7	7.4	9.4	13.3	10.1	11.0	17.9
Coppia di Stallo *Stall Torque*	T_0 [Nm]	10			19			27			35		
Corrente di Stallo *Stall Current*	I_0 [A]	3.4	4.2	6.1	6.0	7.8	11.7	8.3	11.1	19.9	10.7	12.1	24.0
Coppia Massima *Maximum Torque*	T_{max} [Nm]	33			65			100			130		
Corrente Massima *Maximum Current*	I_{max} [A]	12	15	22	23	29	44	34	45	81	44	49	98
Potenza Nominale *Rated Power*	P_n [kW]	1.4	1.9	2.7	2.7	3.3	3.5	3.8	4.8	5.7	5.2	6.7	8.2
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	346	363	366	359	362	348	362	358	289	364	424	311
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.34	2.68	1.85	3.61	2.78	1.85	3.70	2.77	1.54	3.70	3.29	1.65
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	2.94	2.36	1.63	3.17	2.45	1.63	3.26	2.44	1.35	3.26	2.90	1.46
FCEM *Back EMF*	EMF [V/krpm]	202	162	112	218	168	112	224	167.6	93	224	199	100
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12											
Resistenza Statore *Stator Resistance*	R_w [ohm]	10.30	6.62	3.05	4.26	2.54	1.11	2348	1.49	0.41	1.85	1.43	0.33
Induttanza Statore Stator *Inductance*	L_w [mH]	61.30	39.20	18.80	32.50	19.30	8.40	22.20	12.50	3.65	16.40	12.90	3.20
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	8			14			20			26		
Massa *Mass*	M [kg]	12			16			20			24		
Perdite *Losses*	[kW]	0.23	0.23	0.23	0.30	0.30	0.30	0.35	0.35	0.35	0.41	0.41	0.41
Rendimento *Efficiency*	[%]	86	89	92	90	92	92	92	93	94	93	94	95
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1658	2103	3122	1591	2102	3281	1578	2129	3966	1571	1784	3672
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	2127	2688	3973	2031	2677	4159	2009	2707	5022	2002	2270	4651
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	923	1202	1829	952	1281	2024	955	1298	2539	972	1115	2383
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1217	1570	2359	1243	1658	2597	1239	1676	3242	1263	1443	3042
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1881	2346	3393	1743	2262	3393	1696	2267	4086	1696	1910	3800
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	2376	2963	4286	2202	2857	4286	2143	2864	5161	2143	2412	4800
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000											





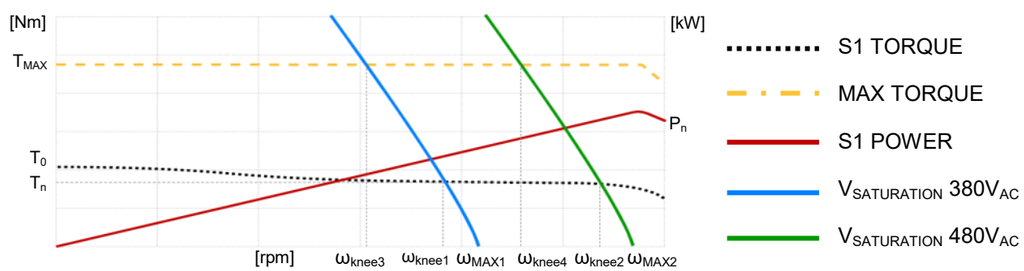


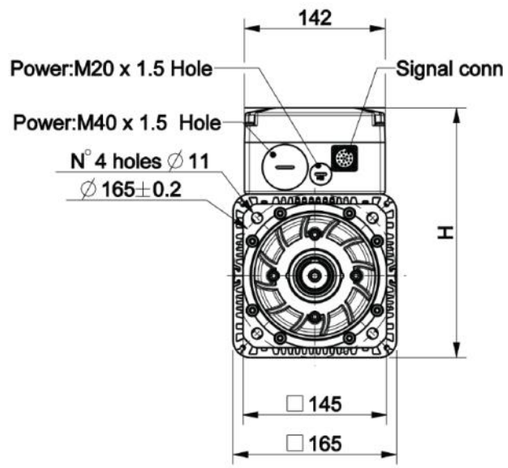


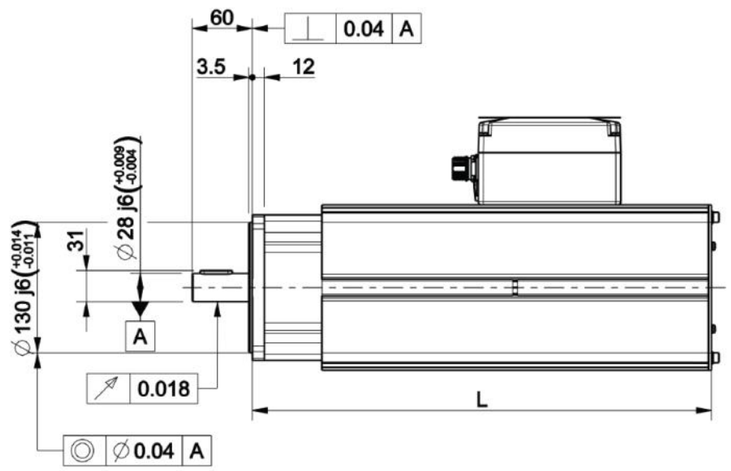
Option "K": full key 8 x 7 x 32

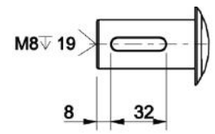
MODEL [mm]	L	H		
U30710A	208	184.5		
U30720A	257	184.5		
U30730A	307	184.5		
U30740A	358	184.5		

		U30720F			U30730F			U30740F		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	2000	3000	1500	2000	3000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	133	200	100	133	200	100	133	200
Numero poli *Poles number*	2p	8								
Coppia Nominale *Rated Torque*	T_n [Nm]	21.7	21.7	21.7	39	36.4	35.9	45.5	44.5	43.5
Corrente Nominale *Rated Current*	I_n [A]	8.9	8.9	13.5	12.0	15.4	22.5	14.0	21.0	28.0
Coppia di Stallo *Stall Torque*	T_0 [Nm]	24			41			54		
Corrente di Stallo *Stall Current*	I_0 [A]	9.8	9.8	14.3	12.4	16.6	23.7	16.4	24.1	32.7
Coppia Massima *Maximum Torque*	T_{max} [Nm]	65			100			130		
Corrente Massima *Maximum Current*	I_{max} [A]	30	30	45	33	46	66	43	64	86
Potenza Nominale *Rated Power*	P_n [kW]	3.4	4.5	6.8	6.1	7.6	11.3	7.1	9.3	13.7
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	269	354	354	387	376	383	385	343	375
Costante di Coppia *Torque Constant*	K_t [Nm/A]	2.67	2.67	1.79	3.76	2.72	1.89	3.74	2.55	1.88
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	2.35	2.35	1.57	3.31	2.40	1.67	3.29	2.24	1.65
FCEM *Back EMF*	EMF [V/krpm]	161.3	161.3	108	227.3	164.7	114.5	226	154.1	113.6
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12								
Resistenza Statore *Stator Resistance*	R_w [ohm]	2	2	0.9741	2092	1337	0.607	1934	0.7442	0.4114
Induttanza Statore Stator *Inductance*	L_w [mH]	16.4	16.4	7.74	20.8	12.8	5.88	17	7.84	4.38
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	14			20			26		
Massa *Mass*	M [kg]	22			27			32		
Perdite *Losses*	[kW]	0.39	0.39	0.46	0.74	0.77	0.76	0.89	0.83	1.30
Rendimento *Efficiency*	[%]	90	92	94	89	91	94	89	92	91
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	2152	2152	3226	1471	2025	2973	1480	2223	3039
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	2741	2741	4100	1879	2582	3778	1894	2828	3858
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	1422	1422	2124	1003	1290	1973	950	1485	2021
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1834	1834	2722	1298	1662	2524	1235	1905	2582
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	2356	2356	3519	1672	2307	3319	1681	2466	3345
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	2976	2976	4444	2112	2914	4192	2124	3115	4225
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000								





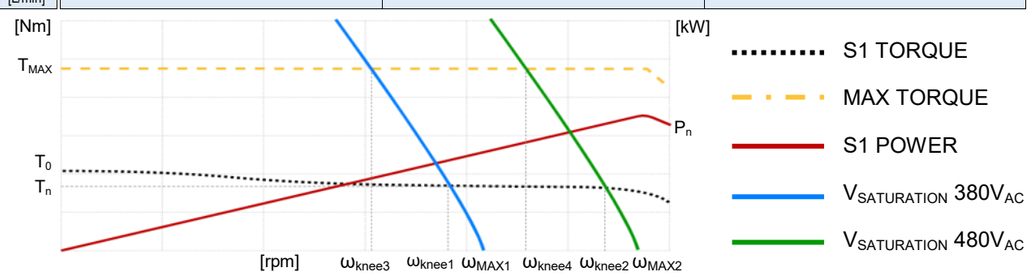


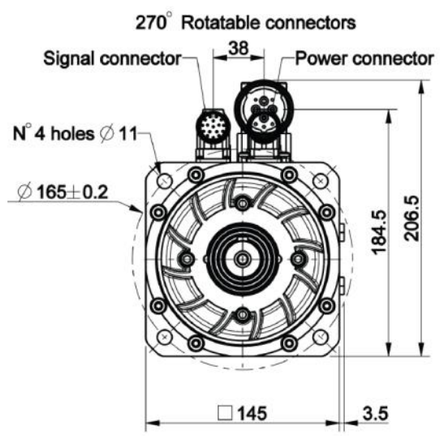


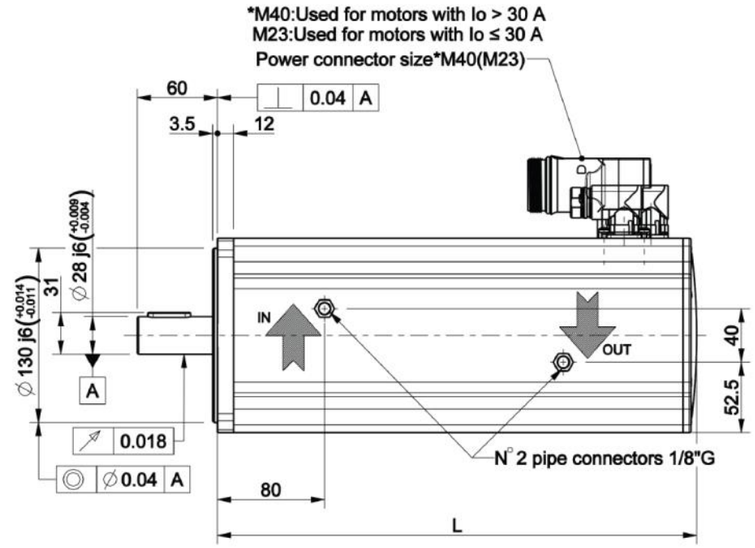
Option "K":full key 8 * 7 * 32

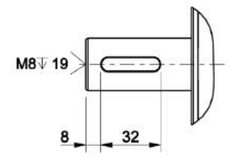
MODEL \ [mm]	L	H		
U30720F	356.3	251.8		
U30730F	406.3	251.8		
U30740F	457.3	251.8		

		U30720C		U30730C		U30740C	
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	3000	1500	3000	1500	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	200	100	200	100	200
Numero poli *Poles number*	2p	8					
Coppia Nominale *Rated Torque*	T_n [Nm]	33	30	53	50	78	70
Corrente Nominale *Rated Current*	I_n [A]	10	21	18	31	27	48
Coppia di Stallo *Stall Torque*	T_0 [Nm]	35		58		80	
Corrente di Stallo *Stall Current*	I_0 [A]	11	24	19	36	28	55
Coppia Massima *Maximum Torque*	T_{max} [Nm]	65		100		130	
Corrente Massima *Maximum Current*	I_{max} [A]	23	49	37	67	49	98
Potenza Nominale *Rated Power*	P_n [kW]	5	9	8	16	12	22
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	408	350	386	399	378	357
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.61	1.65	3.39	1.85	3.29	1.65
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	3.17	1.46	2.98	1.63	2.90	1.46
FCEM *Back EMF*	EMF [V/krpm]	218	100	205	112	199	100
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12					
Resistenza Statore *Stator Resistance*	R_w [ohm]	4.18	0.82	2.2	0.67	1.25	0.38
Induttanza Statore Stator *Inductance*	L_w [mH]	32.5	6.8	18.6	5.5	12.9	3.2
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	14		20		26	
Massa *Mass*	M [kg]	17		21		25	
Perdite *Losses*	[kW]	1.36		2.20		2.87	
Rendimento *Efficiency*	[%]	79	87	79	88	81	88
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1388	3271	1477	2855	1509	3197
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1788	4162	1898	3639	1933	4070
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	953	2277	1040	2027	1132	2365
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1246	2914	1351	2598	1460	3024
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1743	3800	1854	3393	1910	3800
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	2202	4800	2341	4286	2412	4800
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000					
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	2		3		5	





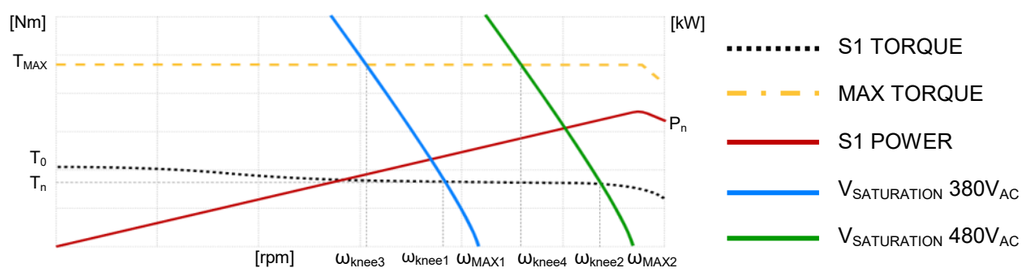


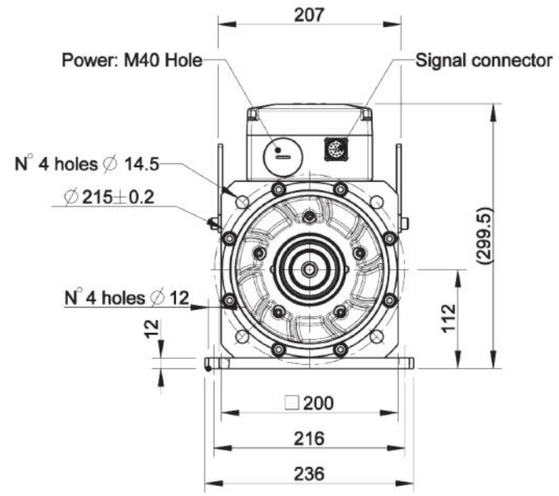


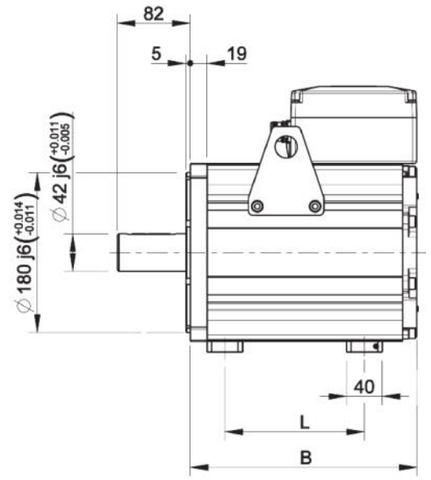
Option "K":full key 8 * 7 * 32

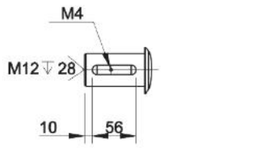
MODEL \ [mm]	L			
U30720C	257			
U30730C	307			
U30740C	358			

		U31004A				U31007A				U31010A				U31013A			
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	200	67	100	133	200
Numero poli *Poles number*	2p	8															
Coppia Nominale *Rated Torque*	T_n [Nm]	32	32	31	27	57	52	50	30	84	78	73	32	95	90	80	45
Corrente Nominale *Rated Current*	I_n [A]	8	10	13	18	14	16	23	22	19	28	30	20	22	28	38	28
Coppia di Stallo *Stall Torque*	T_0 [Nm]	35				60				88				105			
Corrente di Stallo *Stall Current*	I_0 [A]	9	11	14	24	15	19	28	45	20	31	36	55	25	33	49	64
Coppia Massima *Maximum Torque*	T_{max} [Nm]	105				210				310				410			
Corrente Massima *Maximum Current*	I_{max} [A]	29	37	48	78	58	72	108	172	77	121	141	213	106	140	212	277
Potenza Nominale *Rated Power*	P_n [kW]	3.3	5	6	8	6	8	10	9	9	12	15	10	10	14	17	14
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	316	353	354	323	302	354	312	284	333	310	350	335	314	348	304	340
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.58	3.52	2.75	1.68	4.54	3.65	2.44	1.53	5.02	3.19	2.74	1.82	4.85	3.65	2.42	1.85
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	4.03	3.10	2.42	1.48	4.00	3.21	2.15	1.35	4.42	2.81	2.41	1.60	4.27	3.21	2.13	1.63
FCEM *Back EMF*	EMF [V/krpm]	277	213	166	102	274	221	148	93	304	193	166	110	293	221	146	112
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12															
Resistenza Statore *Stator Resistance*	R_w [ohm]	3400	2000	1220	0.458	1290	0.820	0.370	0.145	0.908	0.370	0.270	0.120	0.620	0.350	0.154	0.090
Induttanza Statore Stator *Inductance*	L_w [mH]	34.00	18.80	8.00	4.30	16.00	10.20	4.55	1.80	13.90	5.60	4.10	1.84	9.10	5.12	2.30	1.28
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	50				90				130				170			
Massa *Mass*	M [kg]	28				40				55				70			
Perdite *Losses*	[kW]	0.55	0.55	0.55	0.55	0.63	0.62	0.62	0.62	0.78	0.79	0.78	0.78	0.81	0.81	0.81	0.81
Rendimento *Efficiency*	[%]	86	90	92	94	90	94	94	94	92	94	95	93	92	95	95	95
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1219	1619	2153	3536	1272	1613	2445	4029	1149	1848	2174	3410	1219	1640	2507	3356
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1559	2065	2740	4484	1621	2051	3101	5096	1463	2346	2756	4312	1549	2081	3175	4244
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	730	1021	1577	2270	782	1005	1551	2521	694	1137	1343	2039	754	1032	1578	2146
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	953	1323	2039	2901	1013	1294	1984	3209	897	1456	1716	2595	973	1325	2014	2733
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1372	1786	2286	3741	1384	1722	2578	4108	1252	1970	2294	3453	1296	1722	2597	3397
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1733	2255	2887	4726	1749	2175	3254	5189	1582	2488	2897	4362	1637	2175	3281	4291
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000															





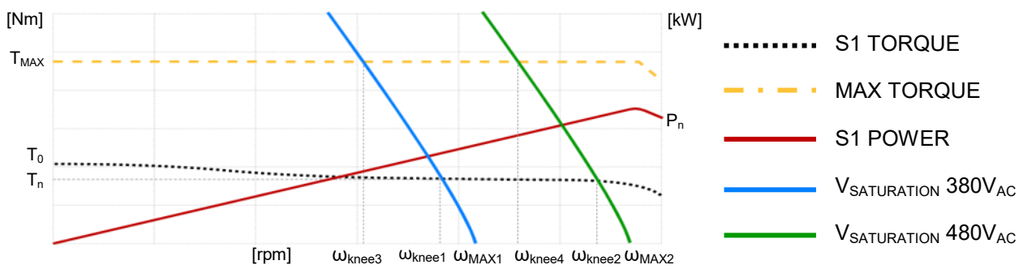


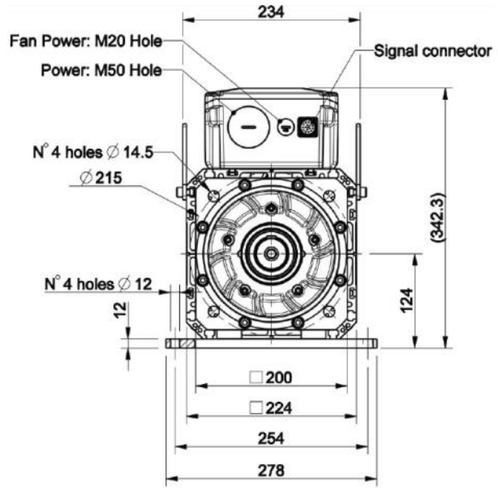


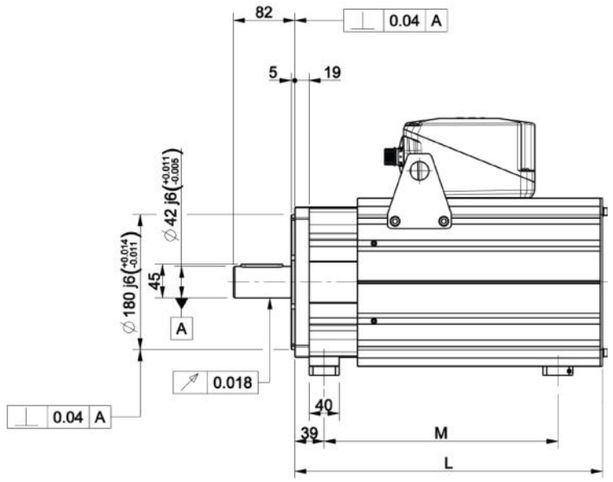
Option "K" : full key 12 x 8 x 56

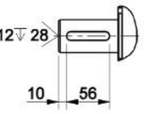
MODEL \ [mm]	B		L
	ENCODER: R,S,N1,etc.	ENCODER: N3,S5,D6,M2,etc.	
U31004A	255	263.5	157
U31007A	327	335.5	232
U31010A	399	407.5	306
U31013A	471	479.5	381

		U31004F				U31007F				U31010F				U31013F			
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	200	67	100	133	200
Numero poli *Poles number*	2p	8															
Coppia Nominale *Rated Torque*	T_n [Nm]	42	42	40	38	74	73	72	70	100	99	97	95	149	146	142	135
Corrente Nominale *Rated Current*	I_n [A]	10	15	20	26	19	24	34	52	23	35	48	59	35	45	67	83
Coppia di Stallo *Stall Torque*	T_0 [Nm]	45				90				130				170			
Corrente di Stallo *Stall Current*	I_0 [A]	11	16	22	30	23	30	42	67	30	46	65	81	40	53	80	104
Coppia Massima *Maximum Torque*	T_{max} [Nm]	105				210				310				410			
Corrente Massima *Maximum Current*	I_{max} [A]	29	41	57	78	58	77	108	172	78	121	170	213	106	140	212	277
Potenza Nominale *Rated Power*	P_n [kW]	4	7	8	12	8	11	15	22	10	16	20	30	16	23	30	42
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	333	338	318	337	314	355	325	302	340	319	301	357	333	367	321	361
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.58	3.20	2.30	1.68	4.54	3.40	2.44	1.53	5.00	3.19	2.28	1.82	4.85	3.65	2.42	1.85
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	4.03	2.82	2.02	1.48	4.00	2.99	2.15	1.35	4.40	2.81	2.01	1.60	4.27	3.21	2.13	1.63
FCEM *Back EMF*	EMF [V/krpm]	277	193	139	102	274	206	148	93	302	193	138	110	293	221	146	112
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12															
Resistenza Statore *Stator Resistance*	R_w [ohm]	3400	1650	0.860	0.458	1290	0.720	0.370	0.145	0.910	0.370	0.190	0.120	0.620	0.350	0.154	0.090
Induttanza Statore *Stator Inductance*	L_w [mH]	34.00	16.00	8.60	4.30	16.00	11.00	4.55	1.80	13.90	5.60	2.84	1.84	9.10	5.12	2.30	1.28
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	50				90				130				170			
Massa *Mass*	M [kg]	35				50				65				80			
Perdite *Losses*	[kW]	0.90	0.89	0.90	0.90	1.38	1.38	1.37	1.37	1.68	1.68	1.68	1.67	2.08	2.07	2.07	2.07
Rendimento *Efficiency*	[%]	83	88	90	93	85	89	92	94	86	90	92	95	88	92	93	95
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1154	1701	2410	3393	1224	1610	2348	3794	1124	1795	2542	3200	1151	1554	2374	3161
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1481	2173	3067	4309	1563	2050	2983	4809	1433	2282	3224	4055	1468	1977	3013	4006
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	730	1118	1566	2270	782	954	1551	2521	693	1137	1628	2039	754	1032	1578	2146
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	953	1444	2009	2901	1013	1224	1984	3209	896	1456	2076	2595	973	1325	2014	2733
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1372	1964	2733	3741	1384	1849	2576	4108	1257	1970	2757	3453	1296	1722	2597	3397
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1733	2481	3452	4726	1749	2335	3254	5189	1588	2489	3482	4362	1637	2175	3281	4291
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000															





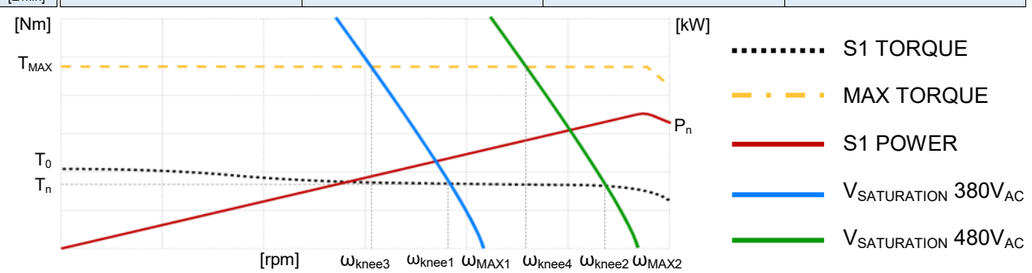


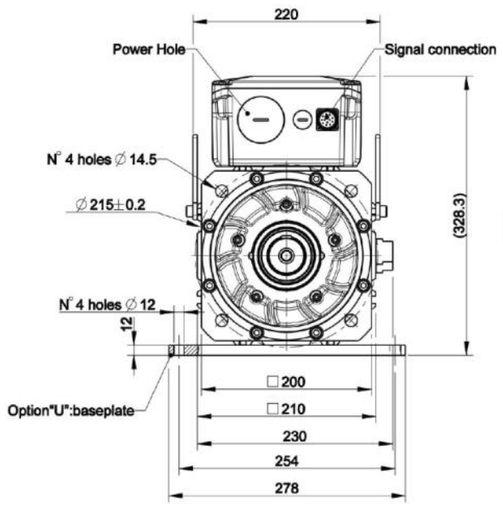


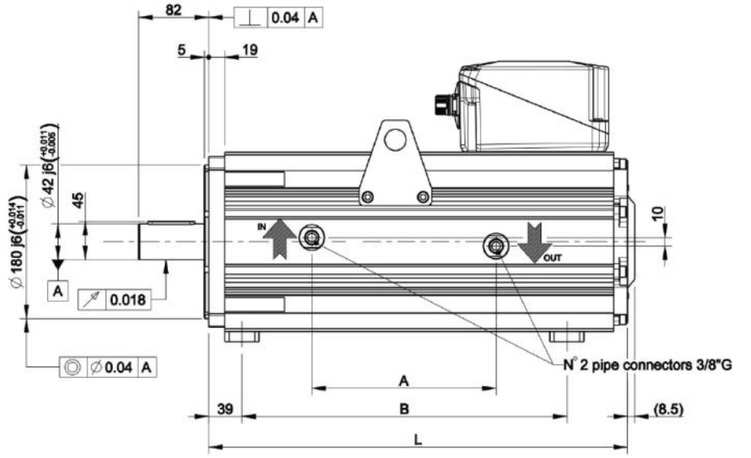
Option "K" : full key 12 x 8 x 56

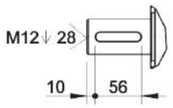
MODEL / [mm]	L		M
	ENCODER: R,S,N1,etc.	ENCODER: N3,S5,D6,M2,etc.	
U31004F	342	350	267
U31007F	414	425	312
U31010F	486	497	396
U31013F	558	564	471

		U31004C				U31007C				U31010C				U31013C			
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	200	67	100	133	200
Numero poli *Poles number*	2p	8															
Coppia Nominale *Rated Torque*	T_n [Nm]	54	53	53	53	109	108	108	108	164	164	163	160	219	219	218	217
Corrente Nominale *Rated Current*	I_n [A]	13	20	26	36	29	40	58	80	41	58	81	114	51	82	102	163
Coppia di Stallo *Stall Torque*	T_0 [Nm]	55				110				165				220			
Corrente di Stallo *Stall Current*	I_0 [A]	14	21	27	37	29	41	59	82	41	59	82	118	52	83	103	166
Coppia Massima *Maximum Torque*	T_{max} [Nm]	105				210				310				410			
Corrente Massima *Maximum Current*	I_{max} [A]	29	43	57	78	62	86	124	172	85	121	170	244	106	170	212	339
Potenza Nominale *Rated Power*	P_n [kW]	6	8	11	17	11	17	23	34	17	26	34	50	23	34	46	68
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	356	339	340	360	327	341	313	328	347	356	335	345	363	337	351	325
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.56	3.03	2.30	1.68	4.26	3.05	2.12	1.53	4.56	3.19	2.28	1.59	4.85	3.02	2.42	1.51
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	4.01	2.67	2.02	1.48	3.75	2.68	1.87	1.35	4.01	2.81	2.01	1.40	4.27	2.66	2.13	1.33
FCEM *Back EMF*	EMF [V/krpm]	276	183	139	102	258	184	128	93	276	193	138	96	293	183	146	91
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12															
Resistenza Statore *Stator Resistance*	R_w [ohm]	3400	1520	0.860	0.458	1136	0.580	0.280	0.145	0.758	0.370	0.190	0.092	0.620	0.240	0.154	0.060
Induttanza Statore Stator *Inductance*	L_w [mH]	34.00	14.50	8.60	4.30	15.00	7.65	3.75	1.80	11.50	5.60	2.87	1.40	9.10	3.80	2.30	0.90
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	50				90				130				170			
Massa *Mass*	M [kg]	35				43				57				70			
Perdite *Losses*	[kW]	1.25	1.27	1.25	1.24	1.92	1.91	1.91	1.90	2.52	2.51	2.52	2.51	3.23	3.23	3.23	3.23
Rendimento *Efficiency*	[%]	86	87	90	93	86	90	92	95	87	91	93	95	88	91	93	95
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1075	1694	2252	3170	1177	1683	2447	3492	1102	1608	2279	3314	1052	1699	2173	3525
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1386	2168	2872	4032	1507	2146	3111	4433	1410	2049	2897	4204	1347	2165	2764	4471
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	730	1178	1566	2270	811	1172	1709	2521	770	1137	1618	2349	754	1207	1578	2569
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	952	1520	2009	2901	1048	1503	2182	3209	993	1456	2063	2987	973	1544	2014	3265
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1378	2074	2733	3741	1475	2061	2965	4108	1378	1970	2757	3953	1296	2081	2597	4162
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1741	2620	3452	4726	1864	2603	3745	5189	1741	2489	3482	4993	1637	2629	3281	5258
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000															
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	2.5				4				5				7			





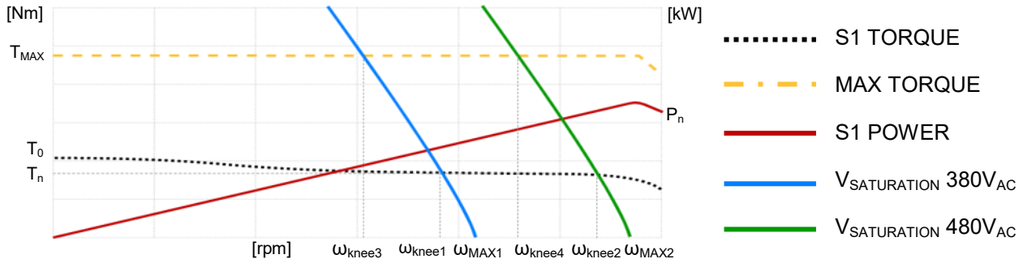


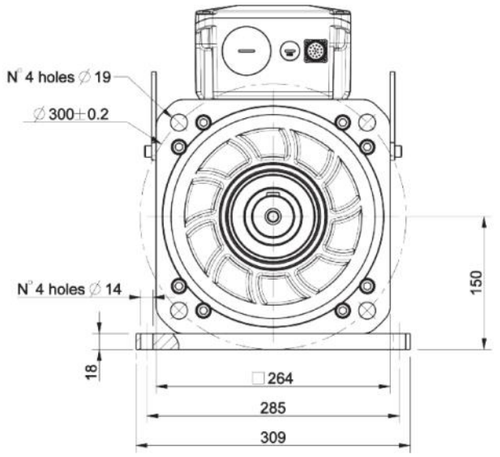


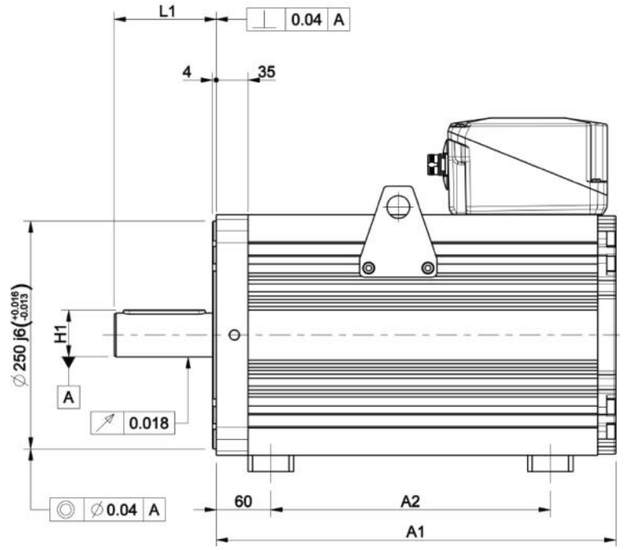
Option"K":full key 12 x 8 x 56

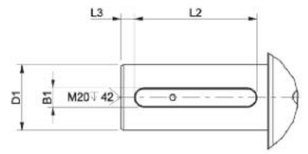
MODEL \ [mm]	L		A	B
	ENCODER: R,S,N1,etc.	ENCODER: N3,S5,D6,M2,etc.		
U31004C	275	283.5	39	157
U31007C	347	355.5	100	232
U31010C	419	427.5	150	306
U31013C	491	499.5	218	381

		U31310A				U31320A				U31330A			U31340A		
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	1000	1500	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	67	100	133
Numero poli *Poles number*	2p	8													
Coppia Nominale *Rated Torque*	T_n [Nm]	95	93	87	70	170	160	100	50	240	230	180	270	230	130
Corrente Nominale *Rated Current*	I_n [A]	19	28	35	42	35	49	47	31	50	71	74	50	71	61
Coppia di Stallo *Stall Torque*	T_0 [Nm]	100				190				260			350		
Corrente di Stallo *Stall Current*	I_0 [A]	20	30	40	60	39	58	88	117	54	81	107	65	108	163
Coppia Massima *Maximum Torque*	T_{max} [Nm]	280				550				830			1100		
Corrente Massima *Maximum Current*	I_{max} [A]	62	92	123	185	125	186	282	374	189	283	377	225	375	564
Potenza Nominale *Rated Power*	P_n [kW]	10	15	18	22	18	25	21	16	25	36	38	28	36	27
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	378	374	367	358	361	358	305	336	358	354	345	389	347	299
Costante di Coppia *Torque Constant*	K_t [Nm/A]	5.68	3.79	2.84	1.89	5.50	3.70	2.44	1.84	5.50	3.67	2.75	6.10	3.67	2.44
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	5.00	3.34	2.50	1.66	4.84	3.26	2.15	1.62	4.84	3.23	2.42	5.37	3.23	2.15
FCEM *Back EMF*	EMF [V/krpm]	343	229	172	114	333	224	148	111	333	222	166	369	222	148
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12													
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.800	0.360	0.200	0.090	0.300	0.136	0.058	0.033	0.196	0.087	0.049	0.160	0.059	0.026
Induttanza Statore Stator *Inductance*	L_w [mH]	18.00	8.26	4.50	2.00	9.10	4.00	1.94	1.03	6.00	2.70	1.50	5.50	2.20	0.97
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	225				410				593			777		
Massa *Mass*	M [kg]	85				115				150			185		
Perdite *Losses*	[kW]	0.69	0.70	0.69	0.70	1.00	1.00	0.98	0.98	1.22	1.22	1.22	1.47	1.50	1.49
Rendimento *Efficiency*	[%]	93	96	96	97	95	96	96	97	96	97	97	96	97	97
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1007	1525	2069	3186	1055	1595	2499	3390	1064	1612	2203	977	1644	2540
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1281	1935	2622	4031	1339	2021	3161	4284	1350	2042	2787	1238	2080	3211
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	666	1007	1384	2101	679	1045	1503	2091	681	1033	1400	619	990	1507
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	855	1285	1762	2668	867	1330	1908	2652	870	1315	1779	791	1258	1912
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1107	1658	2213	3325	1143	1699	2576	3416	1143	1713	2286	1030	1713	2576
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1398	2095	2795	4201	1443	2146	3254	4315	1443	2163	2887	1301	2163	3254
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000													



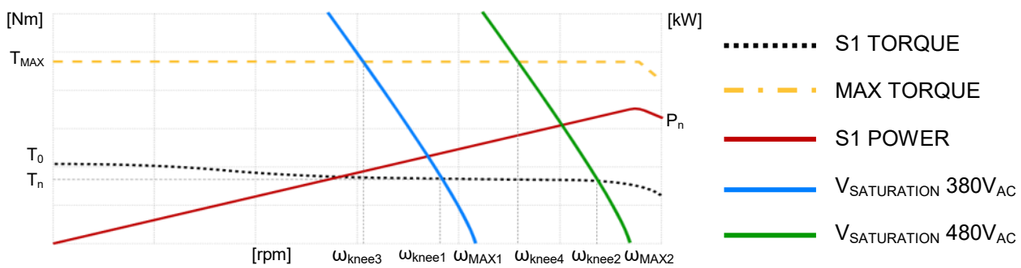


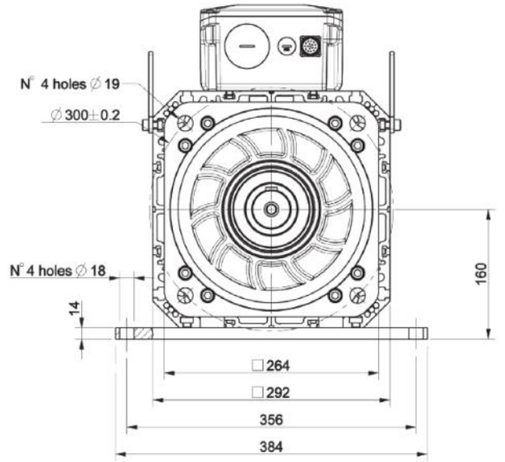


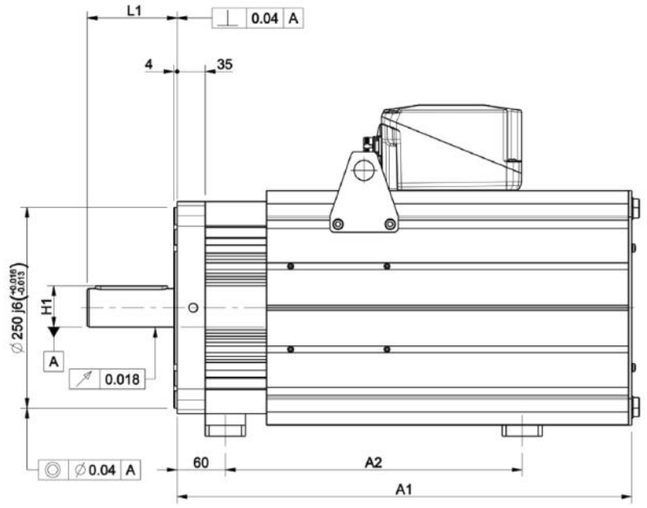


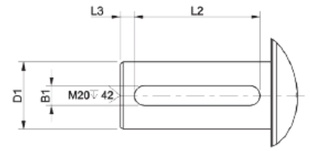
MODEL \ [mm]	A1 $I_n \leq 150A$	A2	L1	L2	L3	B1	D1	H1
U31310A	332	200	112	90	10	14	48j6	51.5
U31320A	439	307	112	90	10	14	48j6	51.5
U31330A	546	414	112	90	10	14	48j6	51.5
U31340A	653	521	112	90	10	14	48j6	51.5

		U31310F				U31320F				U31330F				U31340F			
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	200	67	100	133	200
Numero poli *Poles number*	2p	8															
Coppia Nominale *Rated Torque*	T_n [Nm]	145	140	135	130	270	265	260	240	400	390	380	350	510	500	480	460
Corrente Nominale *Rated Current*	I_n [A]	29	46	54	78	56	81	121	148	83	121	157	216	118	155	224	284
Coppia di Stallo *Stall Torque*	T_0 [Nm]	150				280				410				540			
Corrente di Stallo *Stall Current*	I_0 [A]	30	49	60	90	58	86	130	173	85	127	469	253	125	167	251	333
Coppia Massima *Maximum Torque*	T_{max} [Nm]	280				550				830				1100			
Corrente Massima *Maximum Current*	I_{max} [A]	62	101	123	185	125	186	282	374	189	283	377	564	281	375	564	747
Potenza Nominale *Rated Power*	P_n [kW]	15	22	28	41	28	42	54	75	42	61	80	110	53	79	100	144
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	410	367	402	388	393	388	346	381	390	385	380	379	349	388	339	374
Costante di Coppia *Torque Constant*	K_t [Nm/A]	5.68	3.47	2.84	1.89	5.50	3.70	2.44	1.84	5.50	3.67	2.75	1.84	4.90	3.67	2.44	1.84
Costante di Coppia-130°C *Torque Constant-130°C*	K_T-130 [Nm/A]	5.00	3.05	2.50	1.66	4.84	3.26	2.15	1.62	4.84	3.23	2.42	1.62	4.31	3.23	2.15	1.62
FCEM *Back EMF*	EMF [V/krpm]	343	210	172	114	333	224	148	111	333	222	166	111	296	222	148	111
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12															
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.800	0.300	0.200	0.090	0.300	0.136	0.058	0.033	0.196	0.087	0.049	0.022	0.105	0.059	0.026	0.015
Induttanza Statore *Stator Inductance*	L_w [mH]	18.00	6.70	4.90	2.00	9.10	4.00	1.94	1.09	6.00	2.70	1.50	0.73	3.87	2.20	0.97	0.52
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	225				410				593				780			
Massa *Mass*	M [kg]	90				130				170				210			
Perdite *Losses*	[kW]	1.72	1.73	1.72	1.75	2.40	2.41	2.36	2.36	3.37	3.36	3.37	3.38	3.94	3.95	3.94	3.86
Rendimento *Efficiency*	[%]	91	93	95	95	92	94	95	96	93	95	95	96	93	95	96	97
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	924	1555	1890	2936	966	1469	2200	2992	972	1479	2001	3008	1091	1469	2246	3051
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1179	1976	2398	3720	1229	1864	2787	3788	1237	1877	2536	3807	1386	1863	2845	3861
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	666	1125	1318	2101	679	1045	1503	2020	681	1033	1400	2006	740	990	1507	2084
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	855	1435	1677	2668	867	1330	1908	2561	870	1315	1779	2543	943	1258	1912	2641
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1107	1811	2213	3325	1143	1699	2576	3416	1143	1713	2286	3416	1283	1713	2576	3416
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1398	2288	2795	4201	1443	2146	3254	4315	1443	2163	2887	4315	1620	2163	3254	4315
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000															



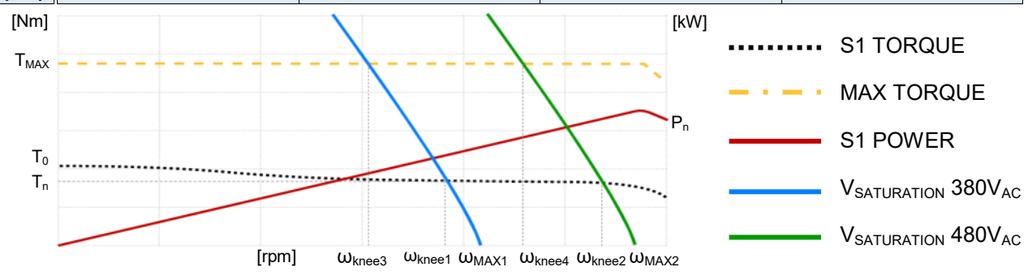


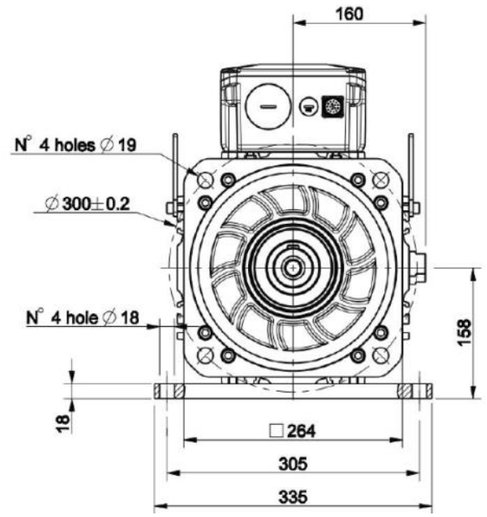


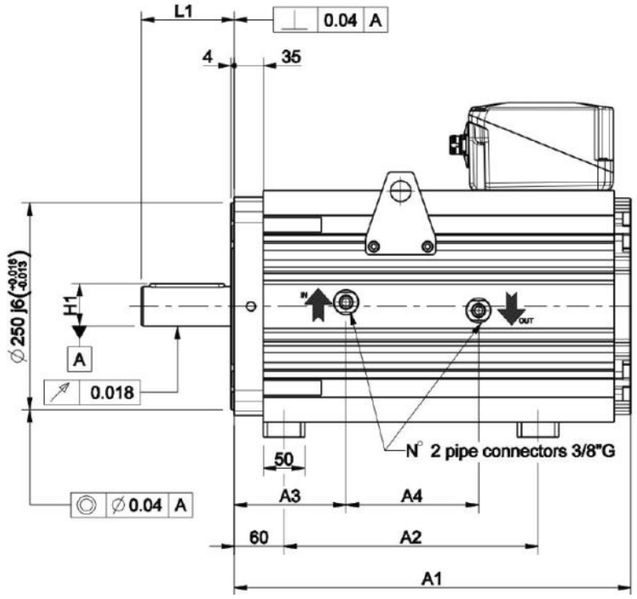


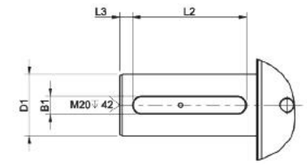
MODEL \ [mm]	A1		A2	L1	L2	L3	B1	D1	H1
	$I_n \leq 150A$	$I_n \geq 150A$							
U31310F	459.5	499.5	262	112	90	10	14	48j6	51.5
U31320F	566.5	606.5	370	112	90	10	14	48j6	51.5
U31330F	673.5	713.5	476	112	90	10	14	48j6	51.5
U31340F	780.5	820.5	583	112	90	10	18	60m6	64

		U31310C				U31320C				U31330C				U31340C			
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000	1000	1500	2000	3000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	67	100	133	200	67	100	133	200	67	100	133	200	67	100	133	200
Numero poli *Poles number*	2p	8															
Coppia Nominale *Rated Torque*	T_n [Nm]	179	178	178	175	357	354	353	348	539	534	530	520	715	713	710	700
Corrente Nominale *Rated Current*	I_n [A]	43	64	71	105	83	146	164	215	134	221	262	321	148	266	331	432
Coppia di Stallo *Stall Torque*	T_0 [Nm]	180				360				540				720			
Corrente di Stallo *Stall Current*	I_0 [A]	43	65	72	108	84	149	168	222	134	223	267	333	149	268	335	445
Coppia Massima *Maximum Torque*	T_{max} [Nm]	280				550				830				1100			
Corrente Massima *Maximum Current*	I_{max} [A]	74	111	123	185	141	250	282	374	227	377	451	564	250	451	564	747
Potenza Nominale *Rated Power*	P_n [kW]	19	28	37	55	37	56	74	109	56	84	111	163	75	115	149	220
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	364	357	437	419	379	315	372	413	357	315	349	425	424	348	382	418
Costante di Coppia *Torque Constant*	K_t [Nm/A]	4.74	3.16	2.84	1.89	4.89	2.75	2.44	1.84	4.58	2.75	2.30	1.84	5.50	3.05	2.44	1.84
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	4.17	2.78	2.50	1.66	4.30	2.42	2.15	1.62	4.03	2.42	2.02	1.62	4.84	2.68	2.15	1.62
FCEM *Back EMF*	EMF [V/krpm]	287	191	172	114	296	166	148	111	277	166	139	111	333	184	148	111
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12															
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.560	0.247	0.200	0.090	0.243	0.080	0.060	0.034	0.135	0.049	0.034	0.022	0.127	0.039	0.026	0.015
Induttanza Statore *Stator Inductance*	L_w [mH]	12.50	5.53	4.90	2.00	7.10	2.24	1.80	1.00	4.20	1.50	1.05	0.73	4.50	1.38	0.97	0.52
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	225				410				593				777			
Massa *Mass*	M [kg]	95				120				150				190			
Perdite *Losses*	[kW]	5				8				11				14			
Rendimento *Efficiency*	[%]	86	93	95	96	92	94	96	97	92	95	96	97	93	95	96	98
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1047	1601	1735	2716	1003	1819	2045	2759	1069	1816	2184	2679	893	1639	1992	2723
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1336	2036	2203	3443	1277	2308	2593	3495	1360	2303	2768	3393	1137	2079	2524	3448
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	809	1244	1318	2101	773	1406	1573	2127	821	1400	1681	2006	689	1271	1507	2084
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	1036	1585	1677	2668	987	1787	1997	2698	1047	1779	2134	2543	879	1614	1912	2641
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	1326	1989	2213	3325	1285	2286	2576	3416	1372	2286	2733	3416	1143	2061	2576	3416
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1675	2512	2795	4201	1624	2887	3254	4315	1733	2887	3452	4315	1443	2603	3254	4315
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	6000															
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	5				8				11				14			



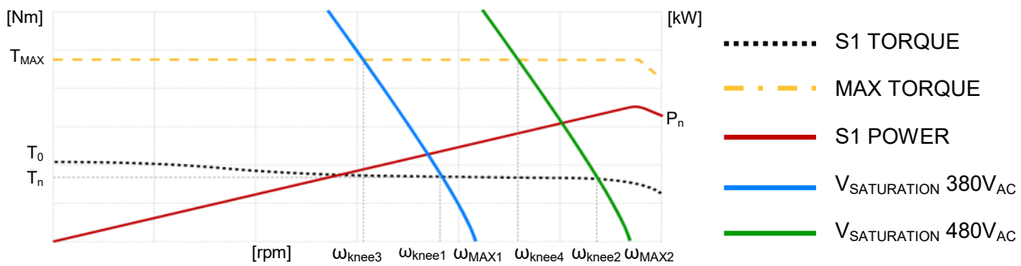


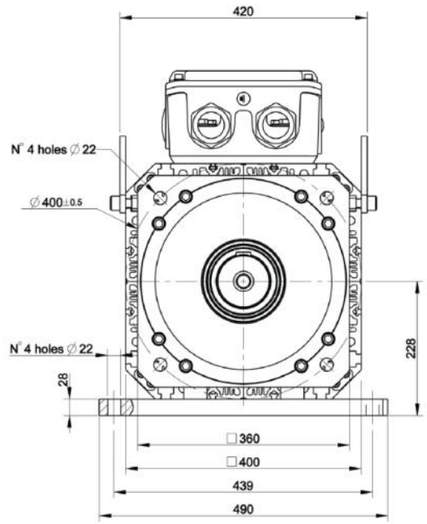


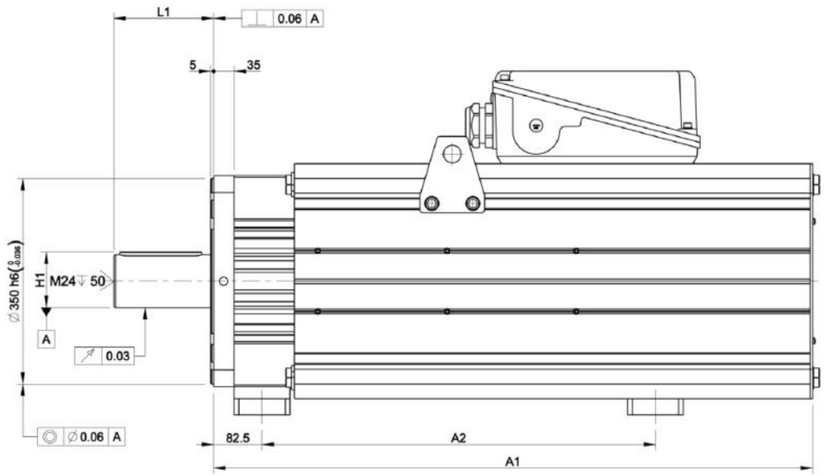


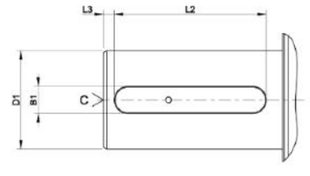
MOD-EL \ [mm]	A1		A2	A3	A4	L1	L2	L3	B1	D1	H1
	$I_n \leq 150A$	$I_n \geq 150A$									
U31310C	332		200	121.4	63.7	112	90	10	14	48j6	51.5
U31320C		479	307	135	160	112	90	10	14	48j6	51.5
U31330C		586	414	141	253	112	90	10	18	60m6	64
U31340C		693	521	141	360	112	90	10	18	60m6	64

		U318035F	U318050F	U318060F	U318070F	U318100F
Velocità Nominale *Rated Speed*	ω_n [rpm]	1500	1500	1500	1500	1500
Frequenza Nominale *Rated Frequency*	F_n [Hz]	150	150	150	150	150
Numero poli *Poles number*	2p	12				
Coppia Nominale *Rated Torque*	T_n [Nm]	478	623	748	869	1103
Corrente Nominale *Rated Current*	I_n [A]	151	185	237	275	328
Coppia di Stallo *Stall Torque*	T_0 [Nm]	579	761	932	1095	1398
Corrente di Stallo *Stall Current*	I_0 [A]	169	209	273	321	384
Coppia Massima *Maximum Torque*	T_{max} [Nm]	1346	1795	2244	2692	3590
Corrente Massima *Maximum Current*	I_{max} [A]	380	475	633	759	949
Potenza Nominale *Rated Power*	P_n [kW]	75	98	118	137	173
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	317	337	314	313	333
Costante di Coppia *Torque Constant*	K_t [Nm/A]	3.58	3.82	3.58	3.58	3.82
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	3.32	3.54	3.32	3.32	3.54
FCEM *Back EMF*	EMF [V/krpm]	216	231	216	216	231
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12				
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.045	0.035	0.023	0.018	0.015
Induttanza Statore Stator *Inductance*	L_w [mH]	0.616	0.526	0.37	0.308	0.263
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm²]	2820	3660	4500	5340	7010
Massa *Mass*	M [kg]	285	350	395	435	520
Perdite *Losses*	[kW]	3.01	3.54	4.06	4.52	5.3
Rendimento *Efficiency*	[%]	96	97	97	97	97
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	1796	1687	1811	1816	1707
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	1521	1429	1533	1536	1440
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	2000				
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	4000				



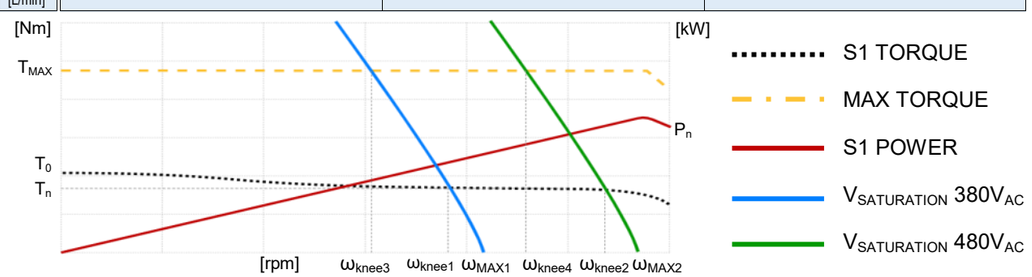


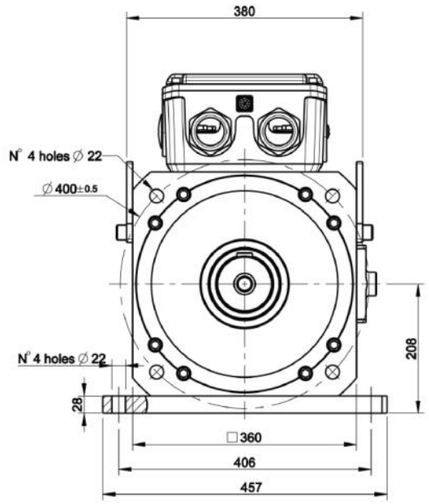


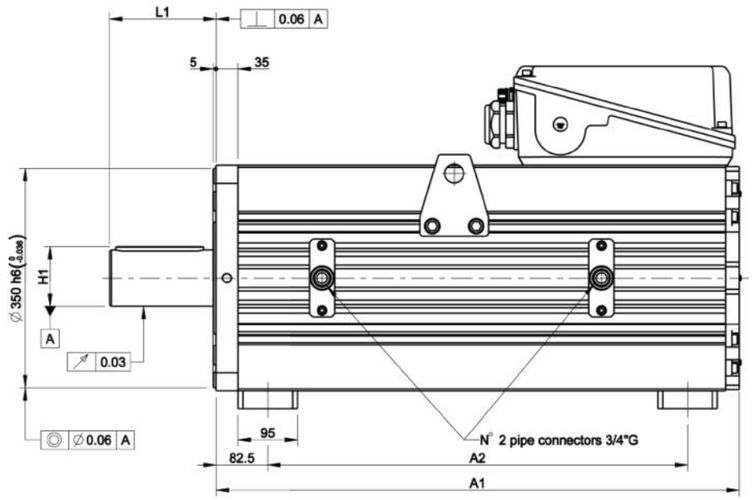


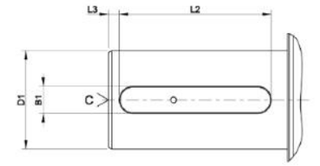
MODEL \ [mm]	A1	A2	L1	L2	L3	B1	D1	H1
U318035F	700	348	140	125	6	18	60m6	64
U318050F	764	412	170	140	10	22	80m6	85
U318060F	828	476	170	140	10	22	80m6	85
U318070F	892	540	170	140	10	22	80m6	85
U318100F	1020	670	170	140	10	25	90m6	95

		U318035C		U318070C		U318100C	
Velocità Nominale *Rated Speed*	ω_n [rpm]	1000	2000	1000	2000	1000	2000
Frequenza Nominale *Rated Frequency*	F_n [Hz]	100	200	100	200	100	200
Numero poli *Poles number*	2p	12					
Coppia Nominale *Rated Torque*	T_n [Nm]	500	497	1000	980	1540	1480
Corrente Nominale *Rated Current*	I_n [A]	88	175	176	345	305	588
Coppia di Stallo *Stall Torque*	T_0 [Nm]	550		1100		1600	
Corrente di Stallo *Stall Current*	I_0 [A]	97	194	194	388	317	635
Coppia Massima *Maximum Torque*	T_{max} [Nm]	1300		2500		3500	
Corrente Massima *Maximum Current*	I_{max} [A]	252	504	484	969	762	1529
Potenza Nominale *Rated Power*	P_n [kW]	52	104	105	205	161	310
Tensione Nominale *Rated Voltage*	V_n [V_{RMS}]	416	410	413	429	395	391
Costante di Coppia *Torque Constant*	K_t [Nm/A]	6.45	3.23	6.45	3.23	5.74	2.86
Costante di Coppia-130°C *Torque Constant-130°C*	K_t-130 [Nm/A]	5.68	2.84	5.68	2.84	5.05	2.52
FCEM *Back EMF*	EMF [V/krpm]	390	195	390	195	347	173
Riduzione FCEM *Back EMF derating*	ΔEMF/ΔT [%/°C]	-0.12					
Resistenza Statore *Stator Resistance*	R_w [ohm]	0.16	0.042	0.059	0.015	0.032	0.009
Induttanza Statore Stator *Inductance*	L_w [mH]	2.2	0.55	1.1	0.45	1.04	0.27
Inerzia Rotore *Rotor Inertia*	J_m [kg·cm^2]	2820		5340		7010	
Massa *Mass*	M [kg]	265		380		455	
Perdite *Losses*	[kW]	3.24	3.41	4.79	4.87	6.94	7.85
Rendimento *Efficiency*	[%]	95	95	94	94	95	95
Velocità ginocchio-380V *Knee speed-380V*	ω_{knee1} [rpm]	911	1852	919	1769	961	1944
Velocità di ginocchio-480V *Knee speed-480V*	ω_{knee2} [rpm]	1159	2347	1167	2239	1219	2461
Velocità ginocchio-380V-T_{MAX} *Knee speed-380V-T_{MAX}*	ω_{knee3} [rpm]	714	1482	741	1211	662	1314
Velocità ginocchio-480V-T_{MAX} *Knee speed-480V-T_{MAX}*	ω_{knee4} [rpm]	917	1888	946	1537	843	1667
Velocità saturazione-380V *Saturation speed-380V*	ω_{MAX1} [rpm]	974	1949	974	1949	1095	2197
Velocità saturazione-480V *Saturation speed-480V*	ω_{MAX2} [rpm]	1231	2462	1231	2462	1383	2775
Velocità meccanica massima *Maximum mechanical speed*	ω_{MAX} [rpm]	4000					
Portata minima acqua *Water minimum flowrate*	Flow [L/min]	8		11		14	





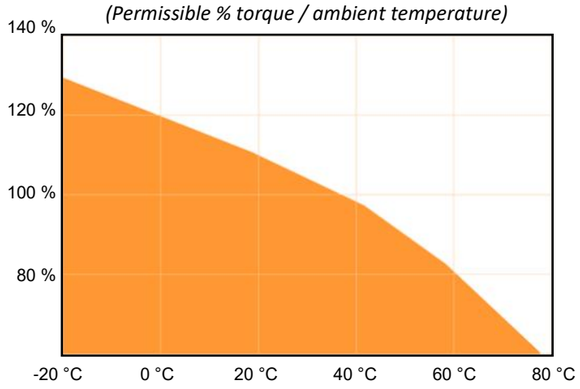




MODEL \ [mm]	A1	A2	L1	L2	L3	B1	D1	H1
U318035C	515	348	140	125	6	18	60m6	64
U318070C	707	540	170	140	10	22	80m6	85
U318100C	835	670	170	140	10	25	90m6	95

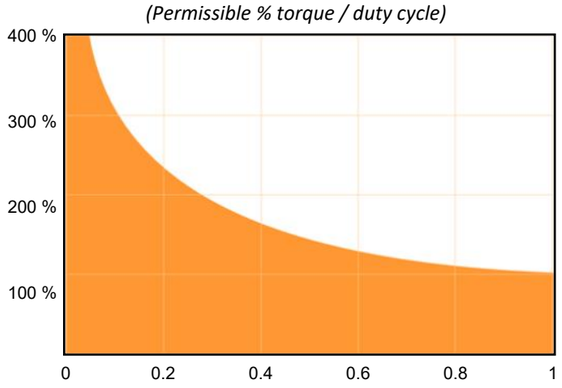
DERATING TERMICO
THERMAL DERATING

Coppia % ammissibile / temperatura ambiente
(Permissible % torque / ambient temperature)



RATING SOVRACCARICO
OVERLOAD RATING

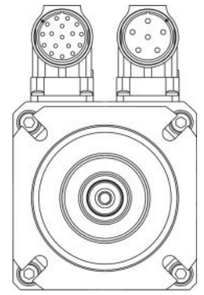
Coppia % ammissibile / intensità di utilizzo
(Permissible % torque / duty cycle)



OPZIONE FRENO
BRAKE OPTION

	MODEL	U303	U305	U307	U310	U313
Coppia statica *Holding torque*	M_{BR} [Nm]	4	9	32	140	300
Tensione nominale (±10%) *Rated voltage* (±10%)	U_{BR} [V_{DC}]	24				
Corrente nominale *Rated current*	I_{BR} [A]	0.58	0.75	1.08	2.3	1.7
Massa *Mass*	M_{BR} [kg]	0.65	1	3	11	18
Inerzia *Inertia*	J_{BR} [kg·cm^2]	0.022	0.065	0.6	5.6	20
Lunghezza addizionale motore *Additional motor length*	[mm]	30	33	50	65	80
Riduzione coppia motore *Motor torque derating*	[%]	9.5	8	8.6	6.5	4.8
Tempo di inserimento *Operate time*	[ms]	15	25	40	100	300
Tempo di rilascio *Release time*	[ms]	40	40	100	180	350

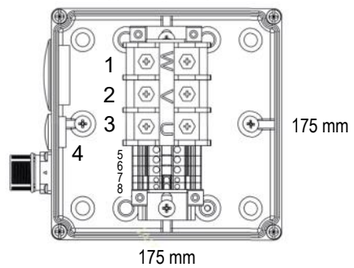
MORSETTIERA POTENZA - SERIE U3 TAGLIE 03, 05, 07
POWER BOX - U3 SERIES 03, 05, 07 SIZES

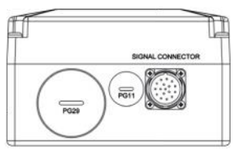


$I_n \leq 30\ A_{rms}$		$I_n > 30\ A_{rms}$	
M23 - 5PIN	Funzione	PIN	Funzione
1	A (U)	U	A (U)
2	B (V)	V	B (V)
3	GND	W	C (W)
4	BR + (opt.)	⏚	GND
5	BR - (opt.)	+	BR + (opt.)
6	C (W)	-	BR - (opt.)

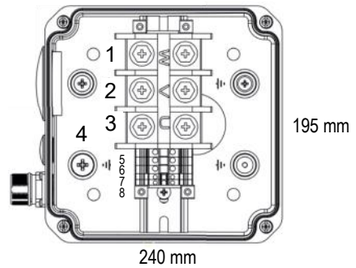
MORSETTIERA POTENZA - SERIE U3 TAGLIE 10, 13, 18
POWER BOX - U3 SERIES 10, 13, 18 SIZES

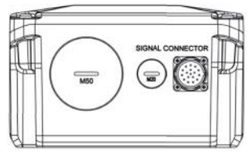
30 A ≤ I_n < 125 A



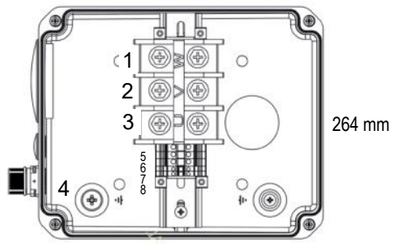


125 A ≤ I_n < 200 A

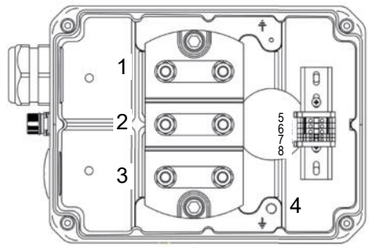


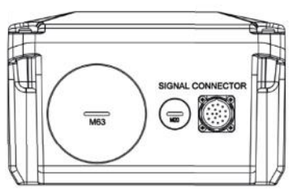


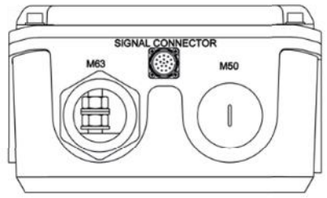
200 A ≤ I_n < 340 A



340 A ≤ I_n < 600 A





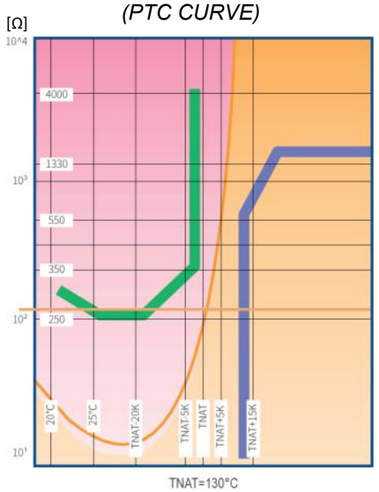


1	W
2	V
3	U
4	GND
5	FAN*
6	FAN*
7	BR +24V_{DC}
8	BR -0V_{DC}

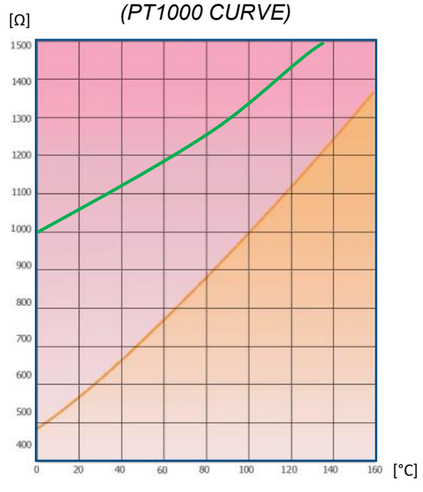
* versione F
* *F version*

PROTEZIONE TERMICA
THERMAL PROTECTION

CARATTERISTICA PTC
(PTC CURVE)



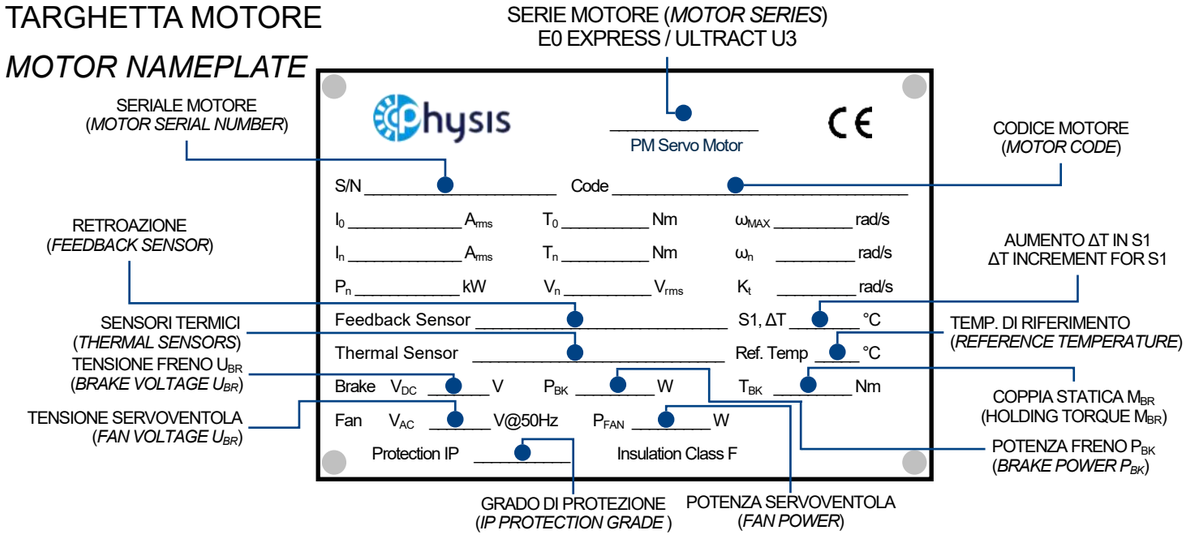
CARATTERISTICA PT1000
(PT1000 CURVE)



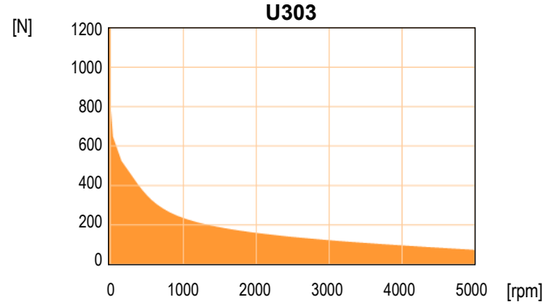
CONNETTORI SEGNALE
SIGNAL CONNECTORS

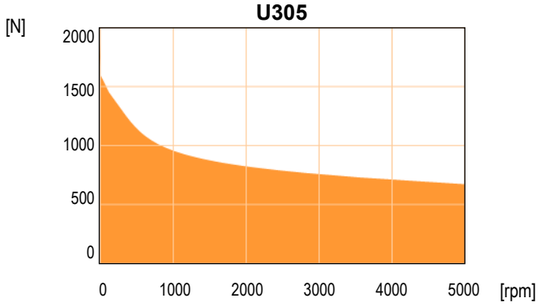
M23-	EnDat Mx, Nx	Resolver R	SinCos S1
1	A +	N.C.	A +
2	A -	N.C.	A -
3	DATA +	N.C.	I + (INDEX +)
4	PTC +	SIN -	SIN -
5	CLOCK +	COS +	COS +
6	N.C.	COS -	COS -
7	0 V	RESEX-	0 V
8	PT1000 (+)	PT1000 (+)	PTC +
9	PT1000 (-)	PT1000 (-)	PTC – / PT1000 (–)
10	+ V_{AC}	RESEX -	+ V_{CC} ($5V_{DC}$)
11	B +	N.C.	B +
12	B –	N.C.	B -
13	DATA –	N.C.	I – (INDEX –)
14	CLOCK –	SIN +	SIN +
15	0V SENSE	N.C.	0V SENSE
16	V_{AC} SENSE	PTC +	+ V_{CC} SENSE
17	PTC –	PTC -	PT1000 (+)

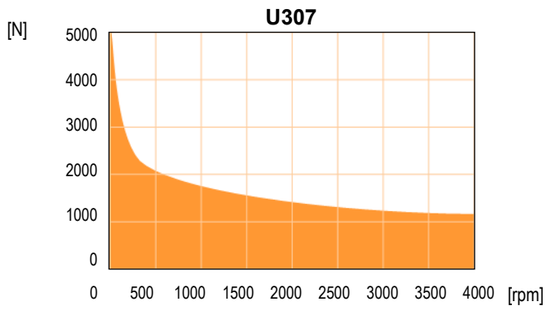
TARGHETTA MOTORE
MOTOR NAMEPLATE

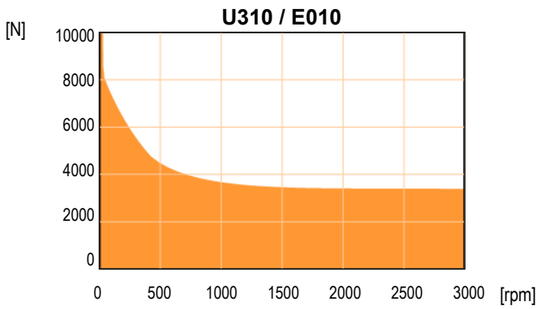


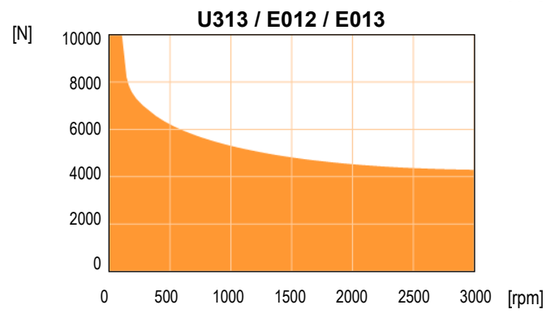
CARICHI RADIALI MASSIMI
MAXIMUM RADIAL LOADS

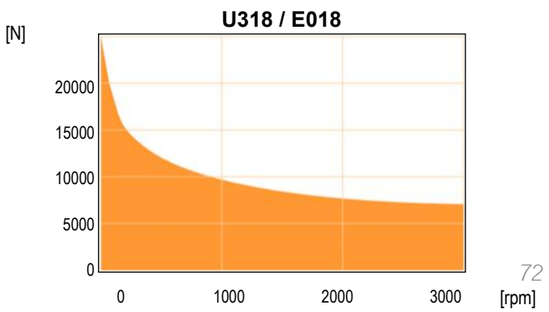












Il giusto abbinamento del motore ad un inverter adeguato, consente di sfruttare al massimo le caratteristiche e le dinamiche dei motori sincroni.

The right motor and drive coupling, allows to fully exploit the synchronous motor dynamics and their characteristics.

INVT GD350 (400V_{AC} - UL)

SLOT ESPANSIONE COMUNICAZIONE
COMMUNICATION EXPANSION SLOTS

FUNZIONE DI AUTO-TUNING MOTORE
MOTOR AUTO-TUNING FUNCTION

CONTROLLO VETTORIALE SENSORLESS(2)
SENSORLESS VECTOR CONTROL(2)

SLOT ESPANSIONE I/O MULTIFUNZIONE
I/O EXPANSION SLOTS

CIRCUITO S.T.O. INTEGRATO
S.T.O. CIRCUIT BUILT-IN

CONTROLLO ANELLO-CHIUSO CON SCHEDE ESPANSIONE ENCODER O RESOLVER
CLOSED-LOOP CONTROL WITH ENCODER OR RESOLVER EXPANSION CARD

DUAL-RATING(1)

ALIMENTAZIONE 400V_{AC} 50/60Hz
400V_{AC} 50/60Hz INPUT

POTENZE 1.5 kW ÷ 500.0 kW
1.5 kW ÷ 500.0 kW OUTPUT POWER

FILTRO EMC C3 INTEGRATO
C3 *EMC FILTER BUILT-IN*

FREQUENZE DI CONTROLLO 0Hz ÷ 590Hz
0Hz ÷ 590Hz CONTROL FREQUENCIES

DISPONIBILE VERSIONE IP54 CON MAIN SWITCH
IP54 WITH MAIN SWITCH VERSION AVAILABLE

(1) HD: 150%-60s, 180%-10s, 200%-1s. ND: 120%-60s, 150%-10s, 180%-1s.
(2) Coppia di spunto *(starting torque)*: 2.50Hz/150%.

ABBINAMENTO DRIVES DRIVE COUPLING

AxN / AxN-DC SERVO DRIVE

Il drive standalone AxN è stato sviluppato da Physis ed è il partner perfetto per motori brushless (design SPM o IPM) e per motori a coppia. AxN offre una gamma di potenza completa tra 9 Arms e 150 Arms in 5 dimensioni, insieme a diverse interfacce integrate: analogica (+/-10V), fieldbus (CANOpen/EtherCAT), impulso e direzione.

AxN standalone drive has been developed by Physis and is the perfect partner for brushless motors (SPM or IPM design) and for torque motors. AxN means a complete power range between 9 Arms to 150 Arms in 5 sizes, together with several built-in interface: analogue (+/-10V), fieldbus (CANOpen/EtherCAT), pulse and direction.

ALTRI DRIVES
OTHER DRIVES

I motori delle serie **U3** / **E0**, possono essere pilotati dalla maggioranza dei drive presenti sul commercio ad oggi dei maggiori brand, a patto che permettano il controllo di motori sincroni PM (o IPM), ad anello chiuso (con retroazione encoder o resolver) o ad anello aperto (sensorless vector control).

Per maggiori informazioni sui drive compatibili, contattare Mech-Web S.R.L.

*The **U3** / **E0** series motors can be driven by most of the drives currently available on the market from major brands, provided they allow the control of PM (or IPM) synchronous motors, in closed loop (with encoder or resolver feedback) or open loop (sensorless vector control).*

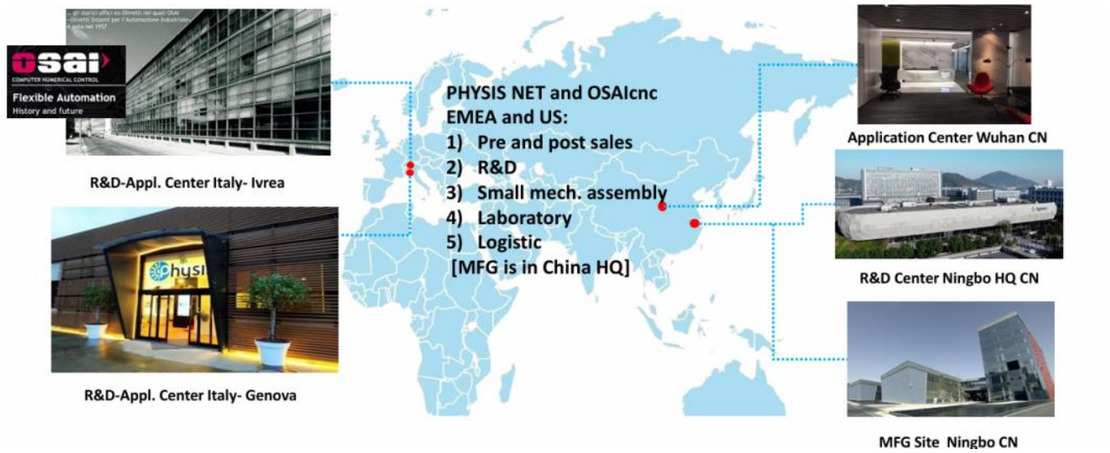
For more information on compatible drives, contact Mech-Web S.R.L.

PHYSIS GROUP

Ningbo Physis Technology Co. Ltd nasce nel 2001 e progetta, sviluppa e produce azionamenti e soluzioni per il settore del motion control, conversione di energia e mobilità elettrica. Nel 2018 nasce Physis new energy technology S.R.L. a **Genova**, come riferimento tecnologico Europeo del gruppo,

La divisione **R&D** conta più di 150 ingegneri, le cui competenze coprono campi dalla meccanica all'elettromagnetismo, fisica dei materiali e software di controllo.

Ningbo Physis Technology Co. Ltd *was founded in 2001 and designs, develops, and manufactures drives and solutions for the motion control, energy conversion, and electric mobility sectors. In 2018, Physis New Energy Technology S.R.L. was established in* ***Genoa*** *as the European technological reference for the group. The* ***R&D*** *division has more than 150 engineers, whose expertise spans fields from mechanics to electromagnetism, materials physics, and control software.*



MAGNETIC DIVISION

La flessibilità nella progettazione e produzione di magneti permette di ottenere migliori prestazioni nei motori. Physis può raggiungere una capacità produttiva di **5000** tonnellate / anno di magneti permanenti, con un processo di manifattura che inizia dalla **sinterizzazione delle terre rare**, fino alla magnetizzazione finale prima di procedere con i **test dei magneti**.

The flexibility in the design and production of magnets allows for better motor performances. Physis internal plants can achieve a production capacity of ***5000*** *tons / year of permanent magnets, with a manufacturing process that starts from the* ***sintering of rare earths*** *to the final magnetization before proceeding with* ***magnet testing****.*

Gli stabilimenti permettono, inoltre, di riciclare magneti di scarto, in vista di un futuro sempre più **green**. Questi vengono infatti smagnetizzati e risinterizzati, per poi riattraversare i processi di magnetizzazione.

The facilities also allow for the recycling of scrap magnets, aiming for a greener future. These are demagnetized and re-sintered, then go through the magnetization processes again.

MECH-WEB S.R.L.

Via Trieste 100, Besozzo,
21023, VA

Tel. (+39) 0332 1431972
P.IVA (VAT) 09061820966

info@mech-web.com

www.mech-web.com

Ver. 2025_5