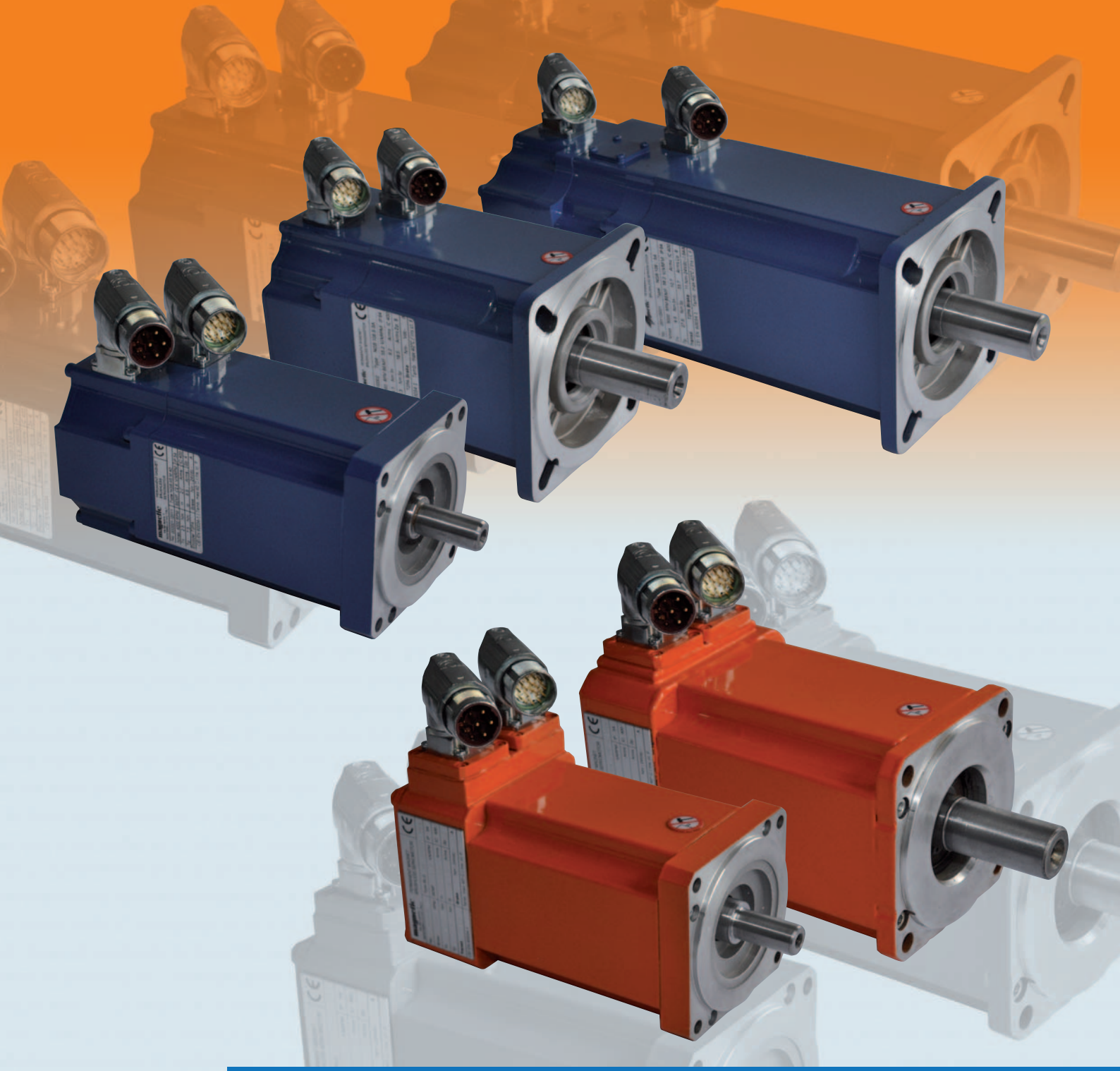


servomotori brushless a magneti permanenti

permanent magnet brushless servomotors

magnetic

generalità | general features

I servomotori brushless a magneti permanenti serie NGB e TOP derivano dalle esigenze sempre più spinte dell'automazione industriale che necessita di sistemi a sempre più elevate prestazioni e affidabilità con ridotta manutenzione. La MAGNETIC interpretando le esigenze di mercato e affinando con l'esperienza di numerose applicazioni diverse ha consolidato due distinte serie di motori: la serie NGB per applicazioni generiche che necessitano di una buona rotondità di moto, inerzia non troppo ridotta per agevolarne il controllo e una grande varietà di personalizzazioni, la serie TOP per applicazioni ad altissima dinamica e dove gli ingombri richiesti sono particolarmente ridotti.

The brushless servomotors with permanent magnets NGB and TOP series are designed to meet the more and more demanding needs of industrial automation with very high-performances and reliable systems requiring little maintenance. MAGNETIC, to meet the market requirements and on the ground of its experience of many different applications, has defined two different motor series: NGB series for generic applications that need a good rotation regularity, an inertia not too low to make the control easier and a wide range of customized executions; TOP series for high dynamic special applications with overall dimensions particularly reduced.

caratteristiche principali | main characteristics

> F.C.E.M. sinusoidale
> Elevata capacità di sovraccarico
> Bassa pendolazione di coppia
> Esecuzione non ventilata IC400 (CEI EN 60034-6) con grado di protezione IP 65 (CEI EN60034-5) escluso albero. Per la sola taglia NGB 145 è disponibile la versione servoventilata "TEBC"
> Forma costruttiva B5 (CEI EN 60034-7), trasformabile in V1 o V3 senza modifiche

> *Sinusoidal B.E.M.F.*
> *High overload capacity*
> *Low cogging torque*
> *TENV execution IC400 (CEI EN 60034-6) with IP 65 (IEC60034-5) degree of protection except shaft. Only for size NGB 145 is available an auxiliary ventilation system "TEBC"*
> *B5 mounting form (CEI EN 60034-7)with the possibility of transforming it into V1 or V3 without changes*

norme di riferimento | standard rules

I servomotori brushless sono costruiti secondo le norme CEI EN 60034-1, conformi alle IEC 34-1. Sono pertanto in armonia con le normative dei principali Paesi Europei.

Brushless servomotors are manufactured in fully accordance with standard CEI EN 60034-1 and they comply with IEC 34-1, therefore in accordance with the rules of the main European countries.

isolamento | insulation

Tutta la serie è dimensionata in classe F, pertanto la massima sovratemperatura ammessa è di 105°C. Ciononostante, per aumentare l'affidabilità della macchina, i materiali isolanti sono per la quasi totalità in classe H (Δt max 125°C, temperatura assoluta max dell'isolante 180°C).

The whole series is dimensioned in F class, the max. overtemperature allowed is therefore 105°C. Anyway, in order to increase the machine reliability, almost all the insulating materials are in class H (Δt max 125°C, absolute max. foreseen temperature 180°C).

protezione termica | thermal protection

E' realizzata con termoprotettore a contatto normalmente chiuso avente le seguenti caratteristiche:

> Temperatura di intervento 150 ± 5°C
> Tensione massima 48 Vcc, 230 Vca
> Max portata dei contatti 2,5 Acc, 1,6 Aca (cosφ=0,6)

Il motore può essere fornito su richiesta con sonda di temperatura KTY o PTC.

It is realized through a normally closed contact heat protector with the following characteristics:

> *Operating temperature 150 ± 5°C*
> *Max. voltage 48 Vdc, 230 Vac*
> *Capacity of the contacts 2,5 Adc, 1,6 Aac (cosφ=0.6)*

The motor can be supplied on request with KTY or PTC temperature sensor.

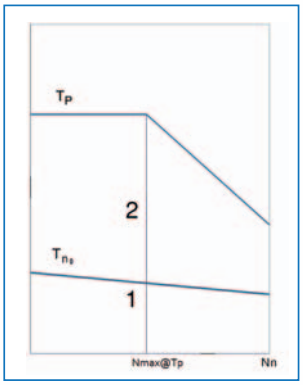
definizione dei parametri | parameters

I valori riportati nelle tabelle corrispondono alle seguenti definizioni:

> **Coppia di stallo Tn_0**: coppia continuativa erogabile dal motore a velocità prossima a zero con ΔTmax=105K (Tamb.max=40°C)
> **Coppia massima Tp**: coppia massima erogabile dal motore
> **Velocità nominale motore Nn**: in questo punto la coppia massima di sovraccarico garantita è ≥ Tn_0
> **Area 1**: poiché l'aumentare della velocità determina maggiori perdite nel motore, occorre considerare un declassamento della coppia continuativa (S1 CEI EN 60034-1) in funzione della velocità.
> **Area 2**: nella scelta del motore è necessario considerare la velocità fino a cui viene richiesta l'erogazione della coppia massima richiesta: la limitazione è dovuta alla tensione massima fornibile dal convertitore. A tal senso le tabelle di pagine 3, 4, 5 forniscono valori di velocità massima (Nmax@Tp) corrispondente a alla coppia massima Tp.

The values indicated on the tables correspond to what follows:

> ***Stall torque Tn_0**: continuous torque that may be supplied by the motor while running at a speed near zero with ΔTmax=105K (max room T=40°C)*
> ***Max torque Tp**: max torque supplied by the motor*
> ***Nominal speed Nn**: in this point the torque peak is guaranteed ≥ Tn_0*



> ***Area 1**: since an increase in speed results in bigger losses of the motor, it is necessary to derate the continuous Torque (S1 IEC34-1) according to the speed.*
> ***Area 2**: when choosing the motor it is necessary to take into account the speed up to which the max torque has to be supplied; this depends on the max voltage which may be delivered by the converter. To this purpose, tables on pages 3, 4, 5 provides maximum speed values (Nmax@Tp) corresponding to the maximum torque Tp.*

servomotori NGB per applicazioni generiche
general purpose NGB servomotors

I motori NGB sono la nuova generazione di motori sincroni a magneti permanenti progettati e costruiti da MAGNETIC per soddisfare le esigenze crescenti del mercato motion control.

NGB motors are the new generation of permanent magnet synchronous motors designed and manufactured by MAGNETIC to meet the rising demands of the market motion control.

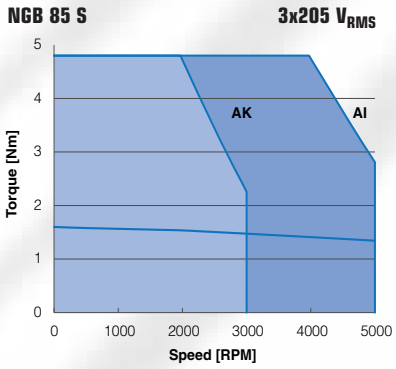
principali caratteristiche della serie NGB
NGB main characteristics of the series

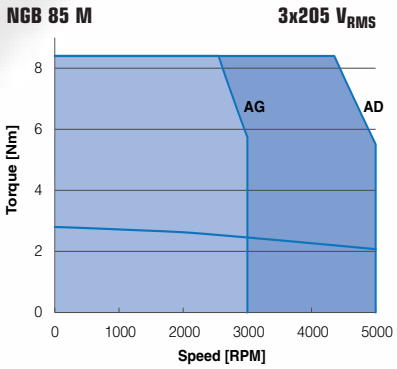
> Coppia continuativa da 1.6 Nm a 30 Nm
> Ottimo rapporto prestazioni/dimensioni
> Facile controllabilità dato dal rapporto coppia/inerzia, dal basso cogging e ripple di coppia
> Fornito con i trasduttori di posizione/velocità maggiormente presenti nel mercato (rif. pag.7)

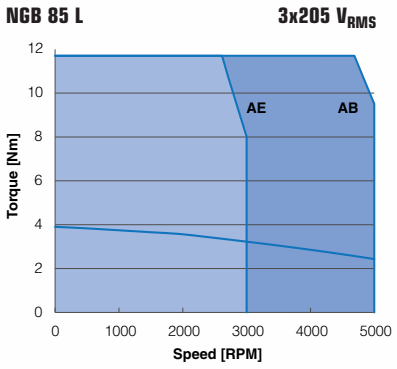
> *Continuous torque of 1.6 Nm to 30 Nm*
> *Optimal performance/size*
> *Easy controllability through torque/inertia ratio, a low cogging torque*
> *Supplied with the transducer position/velocity more present in the market (ref. page 7)*

3 x 205 Vrms

Motore *Motor*	Codice *Code*	*Stall torque at ΔT105K* Tn_0 Nm	*Max torque* Tp Nm	*Inertia* J kgcm²	*Nominal speed* Nn RPM	*Max speed at Tpeak* Nmax@Tp RPM	*Stall current at ΔT105K* In_0 A_{RMS}	*Peak current at Tp* Ipeak A_{RMS}	*BEMF ph-ph at T 20°C* E V/kRPM	*Resistance ph-ph at T 20°C* ohm	*Inductance ph-ph* mH	*Poles* 2P	*Thermal constant* tau min	*Weight* W kg
NGB 85 S	**AK**	1.6	4.8	1	3000	1970	1.8	5.3	54.0	13.0	26.2	6	15	3.0
	AI	1.6	4.8	1	5000	3973	2.9	8.5	33.4	5.0	10.0	6	15	3.0
NGB 85 M	**AG**	2.8	8.4	2	3000	2551	3.2	9.3	54.0	4.6	12.6	6	22	4.0
	AD	2.8	8.4	2	5000	4354	5.1	14.7	35.1	1.9	5.4	6	22	4.0
NGB 85 L	**AE**	3.9	11.7	3	3000	2541	4.2	12.1	57.6	3.0	9.6	6	29	5.0
	AB	3.9	11.7	3	5000	4688	7.0	20.2	34.6	1.1	3.4	6	29	5.0
NGB 85 P	**AC**	5.0	15.0	4	3000	2734	5.6	16.0	56.3	1.9	6.8	6	36	6.0
	AA	5.0	15.0	4	5000	4630	8.8	25.2	35.9	0.8	2.8	6	36	6.0
NGB 108 S	**AF**	5.1	15.3	5.0	3000	1648	5.9	20.0	56.8	2.1	12.3	8	40	5.5
NGB 108 M	**AD**	7.3	21.9	7.5	3000	1848	8.1	26.4	58.9	1.3	7.8	8	45	7.2
NGB 108 L	**AC**	9.5	28.5	9.7	3000	1919	10.5	33.7	58.9	0.9	5.9	8	50	8.4
NGB 108 P	**AA**	11.3	33.9	11.8	3000	2030	11.9	36.9	60.0	0.8	4.9	8	55	9.5
NGB 145 S	**AF**	12.5	36.9	28	3000	1948	15.0	47.0	55.1	0.4	4.8	8	60	8.8
NGB 145 M	**AC**	18.8	56.3	38	3000	2010	22.4	71.3	54.1	0.3	3.1	8	65	12.0
NGB 145 L	**AC**	25.0	75.0	49	2000	1482	22.3	70.8	72.1	0.3	4.1	8	70	15.1
NGB 145 P	**AB**	30.0	90.0	60	2000	1356	24.8	78.7	79.5	0.3	4.0	8	75	18.2







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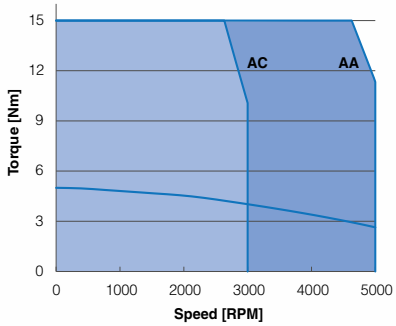

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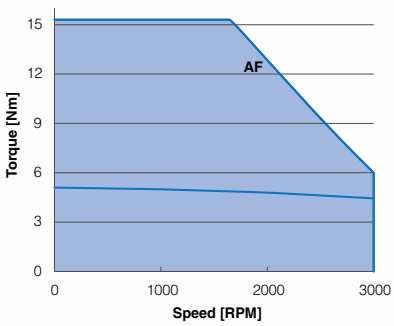

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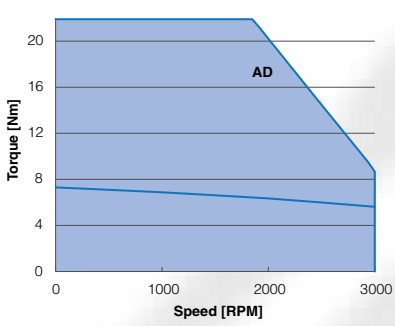

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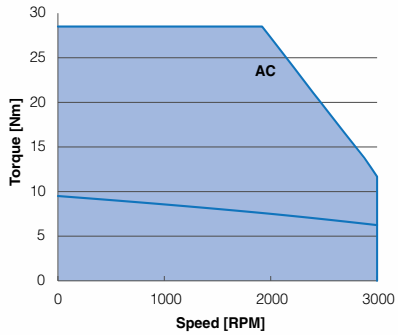

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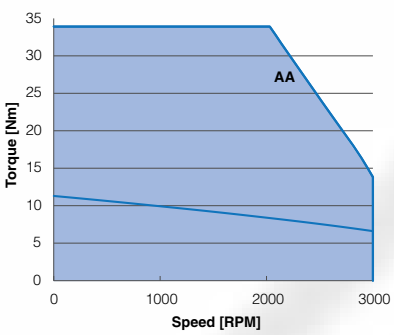

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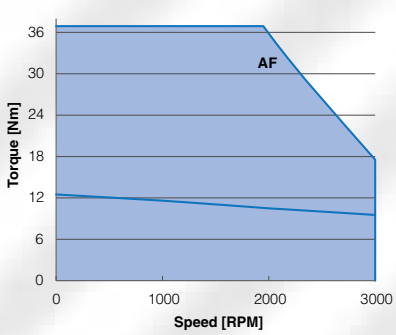

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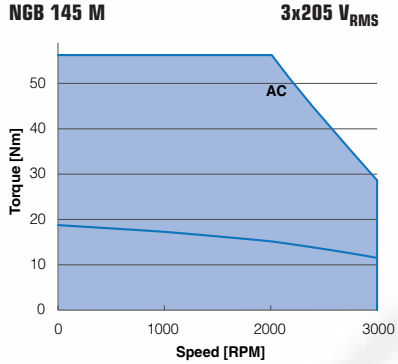

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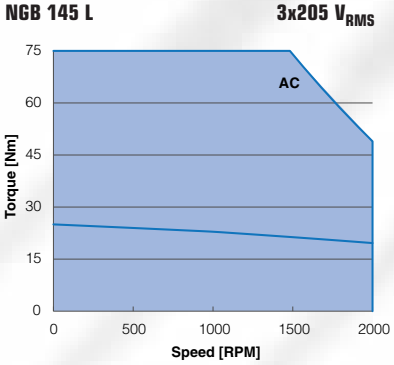

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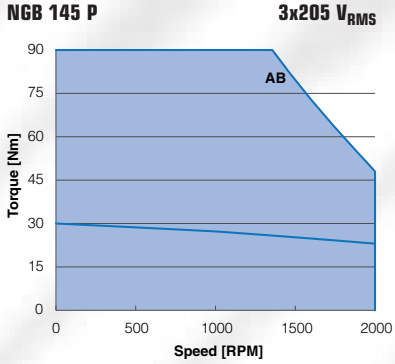
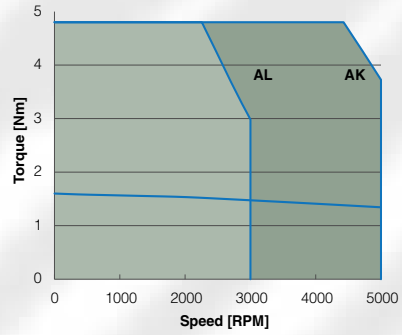


3 x 360 Vrms

Motore *Motor*	Codice *Code*	*Stall torque at ΔT105K* Tn_0 Nm	*Max torque* Tp Nm	*Inertia* J kgcm²	*Nominal speed* Nn RPM	*Max speed at Tpeak* Nmax@Tp RPM	*Stall current at ΔT105K* In_0 A_{RMS}	*Peak current at Tp* Ipeak A_{RMS}	*BEMF ph-ph at T 20°C* E V/kRPM	*Resistance ph-ph at T 20°C* ohm	*Inductance ph-ph* mH	*Poles* 2P	*Thermal constant* tau min	*Weight* W kg
NGB 85 S	**AL**	1.6	4.8	1	3000	2256	1.1	3.3	87.4	33.1	68.6	6	15	3.0
	AK	1.6	4.8	1	5000	4427	1.8	5.3	54.0	13.0	26.2	6	15	3.0
NGB 85 M	**AJ**	2.8	8.4	2	3000	2543	1.9	5.4	95.1	13.6	39.3	6	22	4.0
	AH	2.8	8.4	2	5000	4155	2.7	7.8	64.3	6.5	17.9	6	22	4.0
NGB 85 L	**AH**	3.9	11.7	3	3000	2715	2.6	7.4	96.0	8.1	26.6	6	29	5.0
	AN	3.9	11.7	3	5000	4312	3.7	10.7	65.3	3.9	12.3	6	29	5.0
NGB 85 P	**AF**	5.0	15.0	4	3000	2788	3.4	9.7	97.3	5.3	20.3	6	36	6.0
	AM	5.0	15.0	4	5000	4352	4.7	13.4	66.6	2.7	9.5	6	36	6.0
NGB 108 S	**AH**	5.1	15.3	5	3000	2012	3.9	13.1	85.2	4.7	27.6	8	40	5.5
	AF	5.1	15.3	5	5000	3152	5.9	20.0	56.8	2.1	12.3	8	40	5.5
NGB 108 M	**AG**	7.3	21.9	7.5	3000	1870	4.6	14.9	103.1	4.2	24.0	8	45	7.2
	AD	7.3	21.9	7.5	5000	3508	8.1	26.4	58.9	1.3	7.8	8	45	7.2
NGB 108 L	**AE**	9.5	28.5	9.7	3000	1900	5.9	18.8	104.7	3.0	18.8	8	50	8.4
	AC	9.5	28.5	9.7	5000	3609	10.5	33.7	58.9	0.9	5.9	8	50	8.4
NGB 108 P	**AB**	11.3	33.9	11.8	3000	1992	6.8	21.3	106.3	2.5	15.3	8	55	9.5
NGB 145 S	**AH**	12.5	36.9	28	3000	1890	8.3	25.9	99.6	1.4	15.7	8	60	8.8
NGB 145 M	**AG**	18.8	56.3	38	3000	1904	12.5	40.0	98.6	0.8	10.2	8	65	12.0
NGB 145 L	**AE**	25.0	75.0	49	3000	1957	16.6	52.8	97.5	0.6	7.5	8	70	15.1
NGB 145 P	**AD**	30.0	90.0	60	3000	1925	19.8	62.7	100.7	0.5	6.4	8	75	18.2
NGB 145 S TEBC	**AH**	17.3	36.9	28	3000	1890	11.4	25.9	99.6	1.4	15.7	8	47	11.8
NGB 145 M TEBC	**AG**	24.7	56.3	38	3000	1904	16.5	40.0	98.6	0.8	10.2	8	50	15.3
NGB 145 L TEBC	**AE**	31.8	75.0	49	3000	1957	21.3	52.8	97.5	0.6	7.5	8	53	18.7
NGB 145 P TEBC	**AD**	38.7	90.0	60	3000	1925	25.5	62.7	100.7	0.5	6.4	8	55	22.1

NGB 85 S 3x360 V_{RMS}



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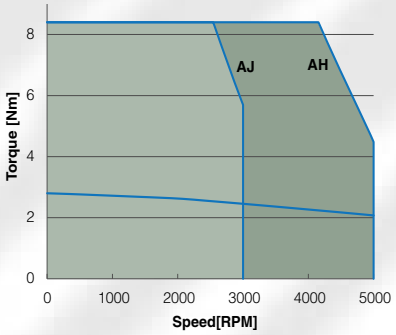

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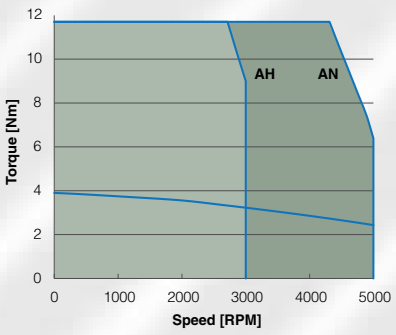

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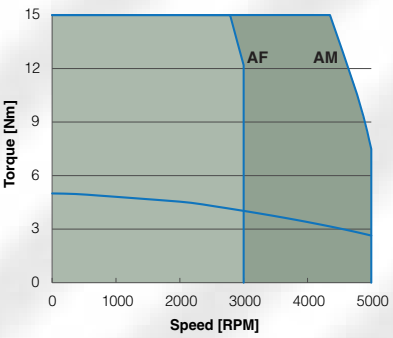

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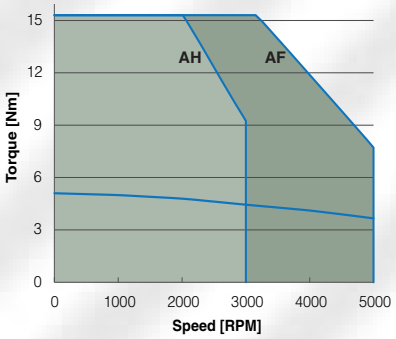

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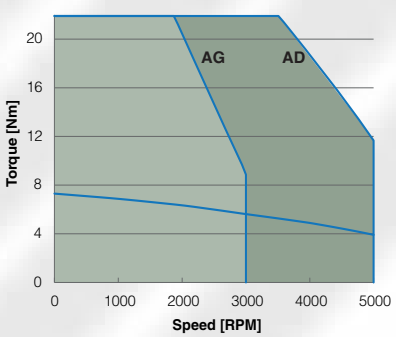

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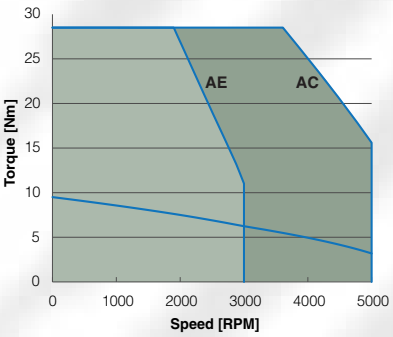

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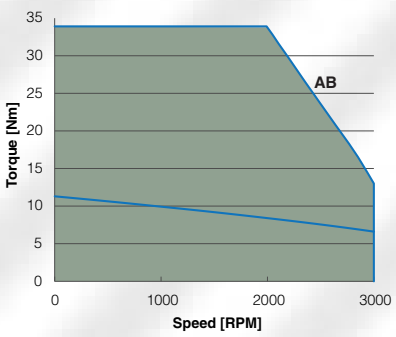

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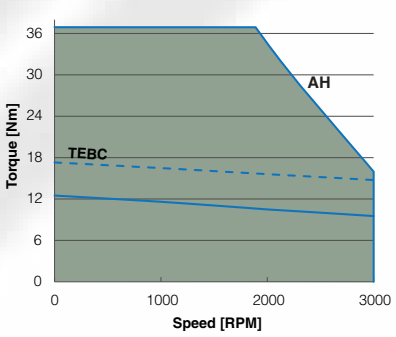

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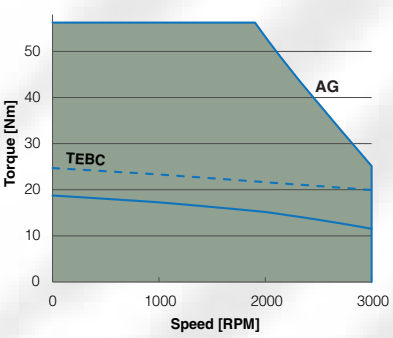

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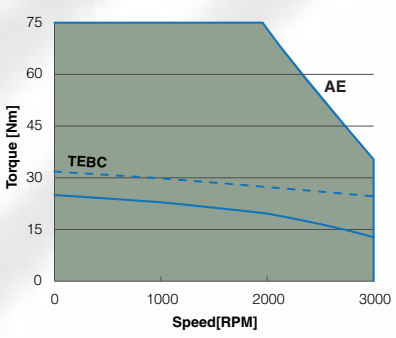

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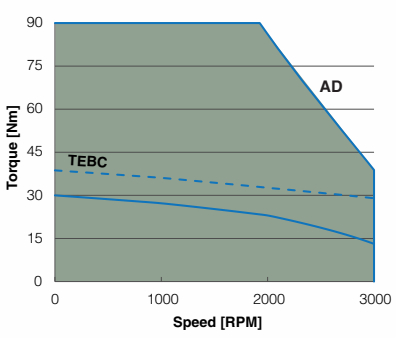


servomotori TOP per applicazioni ad altissima dinamica
very high dynamic TOP servomotors

Questa serie di servomotori è stata sviluppata specialmente per applicazioni dove è richiesto un elevatissimo rapporto coppia/inerzia, come ad esempio nei settori del packaging e alimentare. Trattasi quindi di servomotori brushless con valori di inerzia e dimensioni molto inferiori rispetto alle esecuzioni più diffuse presenti sul mercato. Questo è possibile con un'esecuzione a 8 poli e la particolare soluzione elettromagnetica adottata.

These servomotors series has been developed especially for applications where a very high torque/inertia ratio is required, for example in food and packaging machines. The inertia values and the dimensions of these servomotors are in fact considerably lower than those of the most diffused executions present on the market. This is possible through an execution at 8 poles and the particular electromagnetic solution adopted.

principali caratteristiche della serie TOP
TOP main characteristics of the series

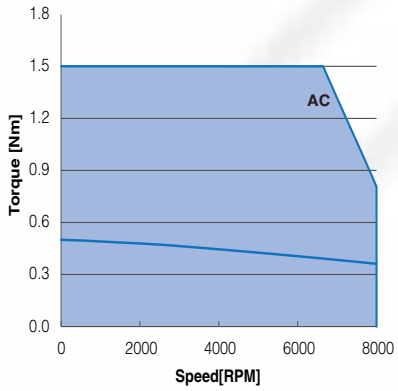
> Coppia continuativa da 0,5 Nm a 7,8 Nm
> Soluzione a segmenti per avere un ottimo rapporto coppia/dimensioni.
> Dimensioni contenute
> Elevatissimo rapporto coppia/inerzia.

> *Continuos torque from 0,5 Nm to 7,8 Nm*
> *Solution through segments to obtain a high ratio torque/dimensions*
> *Reduced dimensions*
> *Very high ratio torque/inertia*

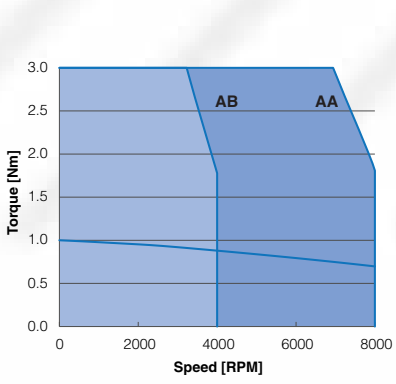
3 x 205 Vrms

Motore *Motor*	Codice *Code*	*Stall torque at ΔT105K* Tn_0 Nm	*Max torque* Tp Nm	*Inertia* J kgcm²	*Nominal speed* Nn RPM	*Max speed at Tpeak* Nmax@Tp RPM	*Stall current at ΔT105K* In_0 A_{RMS}	*Peak current at Tp* Ipeak A_{RMS}	*BEMF ph-ph at T 20°C* E V/kRPM	*Resistance ph-ph at T 20°C* ohm	*Inductance ph-ph* mH	*Poles* 2P	*Thermal constant* tau min	*Weight* W kg
TOP 20 M	**AC**	0.50	1.5	0.21	8000	6645	1.5	4.8	22.9	6.6	14.5	4	15	1.5
TOP 20 L	**AB**	1.00	3.0	0.38	4000	3227	1.7	5.2	42.2	8.8	24.5	4	18	2.0
	AA	1.00	3.0	0.38	8000	6939	3.2	10.0	22.9	2.4	7.2	4	18	2.0
TOP 40 M	**AF**	2.5	7.5	0.77	4000	1823	3.9	14.8	41.1	2.7	16.7	8	20	3.5
TOP 40 L	**AB**	3.5	10.5	1.05	4000	2186	5.5	19.9	40.3	1.5	10.4	8	24	4.7
TOP 50 M	**AD**	5.5	16.5	2.2	4000	2222	10.0	39.5	37.0	0.5	5.5	8	25	5.7
TOP 50 L	**AB**	7.8	23.4	3	4000	2417	14.2	50.9	36.5	0.3	4.0	8	28	7.3

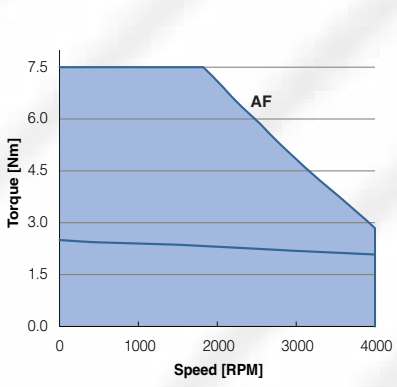
TOP 20 M **3x205 V_{RMS}**



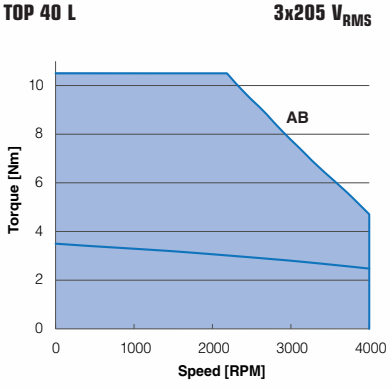
TOP 20 L **3x205 V_{RMS}**



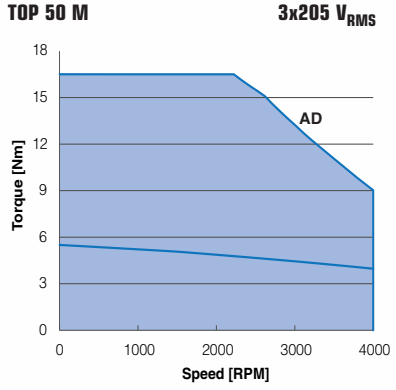
TOP 40 M **3x205 V_{RMS}**



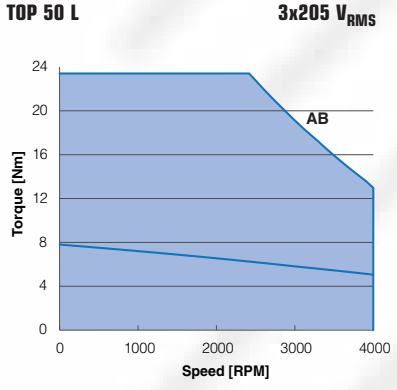
TOP 40 L **3x205 V_{RMS}**



TOP 50 M **3x205 V_{RMS}**



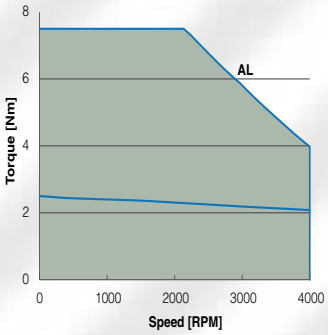
TOP 50 L **3x205 V_{RMS}**



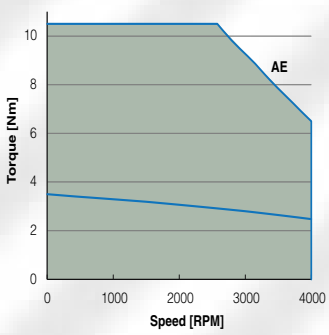
3 x 360 Vrms

Motore *Motor*	Codice *Code*	*Stall torque at ΔT105K* Tn_0 Nm	*Max torque* Tp Nm	*Inertia* J kgcm²	*Nominal speed* Nn RPM	*Max speed at Tpeak* Nmax@Tp RPM	*Stall current at ΔT105K* In_0 A_{RMS}	*Peak current at Tp* Ipeak A_{RMS}	*BEMF ph-ph at T 20°C* E V/kRPM	*Resistance ph-ph at T 20°C* ohm	*Inductance ph-ph* mH	*Poles* 2P	*Thermal constant* tau min	*Weight* W kg
TOP 40 M	**AL**	2.5	7.5	0.77	4000	2135	2.6	10.0	62.4	6.1	38.6	8	20	3.5
TOP 40 L	**AE**	3.5	10.5	1.05	4000	2577	3.7	13.3	60.8	3.3	23.7	8	24	4.7
TOP 50 M	**AF**	5.5	16.5	2.2	4000	1949	5.1	20.2	73.0	2.0	21.5	8	25	5.7
TOP 50 L	**AE**	7.8	23.4	3	4000	2195	7.2	25.3	71.4	1.14	15.2	8	28	7.3

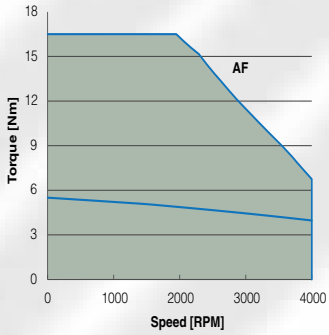
TOP 40 M **3x360 V_{RMS}**



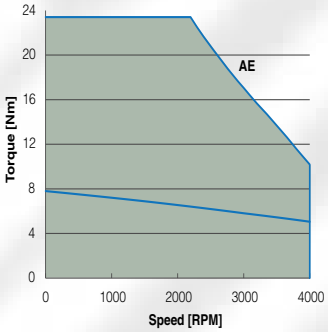
TOP 40 L **3x360 V_{RMS}**



TOP 50 M **3x360 V_{RMS}**



TOP 50 L **3x360 V_{RMS}**



opzioni | optionals

> **Trasduttore di posizione**: il motore è fornito completo di resolver o encoder alloggiato nello scudo per protezione contro gli urti accidentali.
Sono disponibili i seguenti tipi:

> ***Position transducer***: *the motor is equipped with resolver or encoder located inside rear shield to protect it from accidental impacts.*
Following types are available:

Resolver	**TTL+S.HALL encoder**	**Sinusoidal encoder Sin-Cos** (*)	**Absolute encoder** (*)
Sine-Cosine wave	Incremental signals TTL 1024÷2048 ppr (max 150 kHz)	Incremental signals sinusoidal 2048 ppr	Absolute multiturn BiSS interface
2 poles	5 Vdc Line driver	1 Vpp signals SinCos + zero pulse	Incremental signals sinusoidal 2048 ppr
Transformation ratio 0.5	Commutation signals	1 period absolute waves/rev.	19 bit singleturn + 12 multiturn
	Zero pulse	5 Vdc	5 Vdc

Altri encoder (Endat, Hyperface ..) o sole predisposizioni sono possibili su richiesta contattando l'ufficio commerciale Magnetic.
(*) Non disponibile su TOP 20

Other encoders (Endat, Hyperface ..) or others predispositions are available on request by contacting the sales department Magnetic.
(*) Not available on TOP 20

> **NGB 145 TEBC versione ventilata**: consente di raggiungere coppie continuative più elevate in tutto il range di velocità (in particolare ad alti giri) rispetto alla versione chiusa non ventilata. Si presta quindi ad applicazioni dove il ciclo della macchina è particolarmente oneroso o comunque in un utilizzo prevalente ad alte velocità. Ventilatore tipo Fandis A17M23S (230 Vac; 50/60 Hz; 0.25/0.23 A; 42 W; 46/53 dbA)

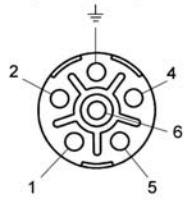
> ***NGB 145 TEBC ventilated version***: *it allows to reach higher continuative torque in all speed range (particularly at high speed) than the TENV version. It is useful to applications where the duty cycle is particularly heavy or for a prevailing use at high speeds. Electrofan model Fandis A17M23S (230 Vac; 50/60 Hz; 0.25/0.23 A; 42 W; 46/53 dbA)*

> **Collegamenti:** i TOP20 sono equipaggiati con connettori ad innesto rapido tipo VAL-U-LOK crimpati su cavi lunghezza 0,4 m (versione E); per le connessioni vedere pag.13. Gli altri motori sono completi di connettori industriali M23 diritti (versione B) o 90° orientabili (versione D) utilizzabili anche con innesto rapido Speed-tec®. A richiesta sono fornibili i connettori volanti diritti.

> ***Connections**: the TOP20 has quick fastener "VAL-U-LOK" connectors crimped on cable of length 0.4 m (E version); for the connections see page 13. The other motors mount M23 industrial connectors: straight version (B) or 90° orientable version (D). These connectors can also be used with Speed-tec® quick lock fastener. On request are available female industrial connectors.*

POWER CIRCULAR CONNECTOR M23 (6 PINS X 2mm)

Réceptacle (male)



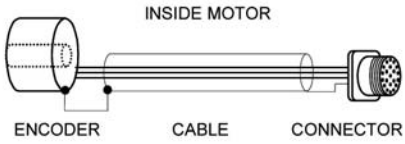
1	U	
2	V	
6	W	
⊥	GROUND	
4	BRAKE (+)	optional
5	BRAKE (-)	optional
CASE	SHIELD	

ELECTROFAN CIRCOLAR CONNECTOR M16 (3 PINS X 1mm)

Réceptacle (male)

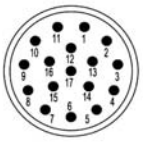
Supply voltage 230Vac
Pin 1 - 3

SIGNAL CIRCULAR CONNECTOR M23 (17 PINS X 1 mm)

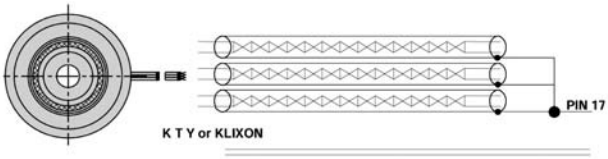


ENCODER CABLE SHIELD CONNECTED TO ENCODER SIDE: CASE CONNECTOR SIDE: PIN 17

Réceptacle (male)



METAL REFERENCE BETWEEN PIN 1 AND PIN 11



ENCODER CABLE SHIELD CONNECTED TO ENCODER SIDE CONNECTOR SIDE: PIN 17

	S 21 (sin-cos)	AD36 (BiSS)	EF 36 (TTL+Hall)	RESOLVER
	SIGNAL	SIGNAL	SIGNAL	SIGNAL
1	A+	A+	A+	SEN +
2	A-	A-	A-	SEN -
3	R+ (Z)	+ DATA	Z	V REF +
4	D- (ref. COS)		U	
5	C+ (ref. SIN)	+ CLOCK	V	
6	C- (ref. SIN)		V-	
7	0V	0V	0V	
8	KLIXON or KTY (+)	KLIXON or KTY (+)	KLIXON or KTY (+)	KLIXON or KTY (+)
9	KLIXON or KTY (-)	KLIXON or KTY (-)	KLIXON or KTY (-)	KLIXON or KTY (-)
10	Up +5V (Vdc)	Up +5V (Vdc)	+ Vdc	
11	B+	B+	B+	COS +
12	B-	B-	B-	COS -
13	R- (Z)	- DATA	Z-	V REF -
14	D+ (ref. COS)	- CLOCK	U-	
15	0V sensor	0V sensor	W-	
16	+5V sensor	+5V sensor	W	
17	SHIELD	SHIELD	SHIELD	CASE

> **Freno:** a richiesta è disponibile il motore completo di stazionamento e/o emergenza a magneti permanenti. Il freno chiude in mancanza di tensione. Alimentazione a 24 Vdc cablata sul connettore di potenza.
Opzione non disponibile su serie TOP.

> **Inerzia supplementare:** su richiesta è possibile prevedere un'inerzia aggiuntiva per migliorare il controllo del motore (opzione disponibile quando non è previsto il freno).

> ***Brake**: the motor complete with an holding and/or emergency permanent magnet brake is available on request. It brakes when the voltage drops. Power supply 24 Vdc connected to the power connector.
Option not available on TOP series.*

> ***Extra inertia**: it is available upon demand additional inertia to improve the motor control (option available on motor without brake).*

Motore tipo / *Motor type*		NGB 85	NGB 108	NGB 145	TOP 40	TOP 50
		Caratteristiche dei cuscinetti / *Bearings data*				
Cuscinetto lato accoppiamento / *Shaft end bearing*		6204 2RS	6205 2RS	6307 2RS	6204 2RS	6205 2RS
Cuscinetto lato opposto / *Opposite end bearing*		6003 2ZWT	6204 2ZWT	6206 2ZCMDEA3	6003 2ZWT	6203 2ZWT
		Caratteristiche dell'opzione freno / *Option brake features*				
Tipo / *Type*		06H	07H	08P1	-	-
Coppia frenante / *Braking torque*	Nm	3.2	11	36	-	-
Corrente assorbita / *Nominal current*	Adc	0.50	0.64	1.08	-	-
Momento d'inerzia agg. / *Additional inertia*	$x10^{-4}$ kgm^2	0.5	1.37	12.0	-	-
Tempo di risposta in ins. / *Insertion response time*	$x10^{-3}$ s	29	73	90	-	-
Tempo di risposta in disins. / *Fall response time*	$x10^{-3}$ s	19	25	22	-	-
Peso aggiuntivo / *Additional*	kg	0.3	0.6	1.6	-	-
		Opzione inerzia supplementare / *Extra inertia option*				
Inerzia supplementare / *Extra inertia*	$x10^{-4}$ kgm^2	4.0	5.7	42.1	-	-

> **Anello paraolio:** il motore può essere fornito su richiesta dell'anello paraolio. Va montato solo se è previsto un accoppiamento in bagno d'olio.

> **Anello di tenuta per IP65 su albero**: il motore può essere fornito su richiesta dell'anello di tenuta.

> **Accoppiamento**: le dimensioni della flangia d'accoppiamento di ogni motore sono in conformità alla normativa UNEL 13501-69. Per i motori TOP20 la tolleranza di concentricità e perpendicolarità tra albero e flangia si diversifica dalla normativa ed è rispettivamente di 0.08 mm e 0.13 mm.
A richiesta sono disponibili queste esecuzioni speciali:
- per TOP20 flangia con tolleranza di concentricità e perpendicolarità tra albero e flangia in conformità alla normativa UNEL 13501-69
- per NGB108: flangia F115 (N=95; M=115) UNEL 13501-69 tutte le altre dimensioni rimangono inalterata
- per TOP 50 e NGB 108 estremità d'asse Ø19x40mm
- per NGB 145 estremità d'asse Ø24x50mm

> **Verniciatura**: i motori vengono verniciati con fondo epossidico di colore blu RAL5000 per motori NGB e colore arancio RAL2004 per motori TOP atto a ricevere qualsiasi tipo di smalto di finitura. A richiesta è possibile prevedere cicli di verniciatura speciali.

> ***Oil seal**: the oil seal may be supplied with the motor on request. It is assembled only when the coupling is oil-bath lubrificated.*

> ***Sealing ring for IP65 on shaft**: the motor can be supplied upon request of the sealing ring.*

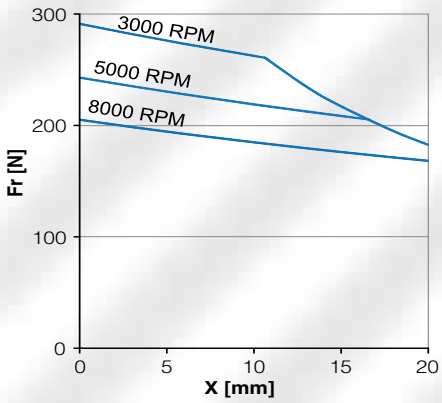
> ***Coupling**: the size of the coupling flange of each motor are in accordance with UNEL 13501-69. For motors TOP20 tolerance of concentricity and perpendicularity between shaft and flange differs from the legislation and is respectively 0.08 mm and 0.13 mm.*
Are available on request these special:
- *for TOP20 flange with tolerance of concentricity and perpendicularity between shaft and flange in accordance with UNEL 13501-69*
- *for NGB108: F115 flange (N = 95, M = 115) UNEL 13501-69 all other dimensions remains unchanged*
- *for TOP 50 and NGB108 shaft endØ19x40mm*
- *for NGB145 shaft end Ø24x50mm*

> ***Painting**: pretreatments for external surface of motor and preliminary painting with epoxy blue RAL5000 for NGB motors and orange RAL2004 for TOP motors suitable for any different finishing enamel. On request we can provide special coating cycles.*

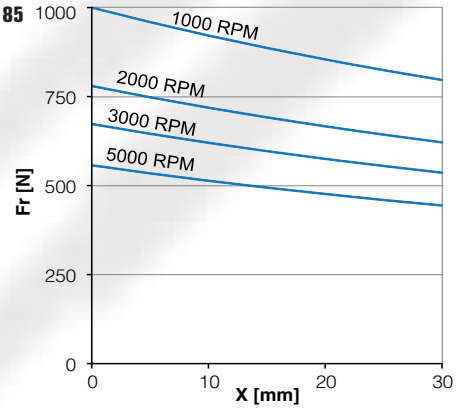
CARICO RADIALE AMMISSIBILE (LIMITE ALBERO E DURATA TEORICA CUSCINETTO DI 20.000 ORE)

ADMITTED RADIAL LOAD FOR 20.000 HOURS THEORETICAL LIFE OF THE SHAFT END BEARING

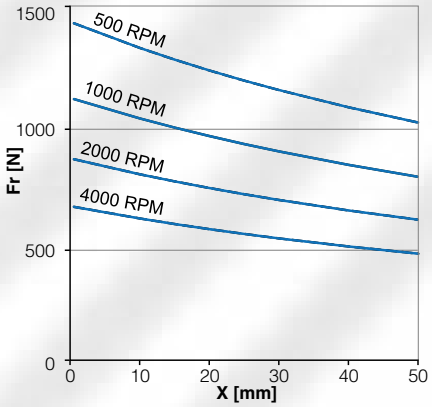
TOP 20



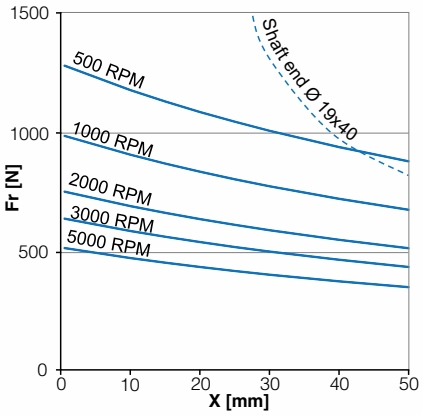
TOP 40 - NGB 85



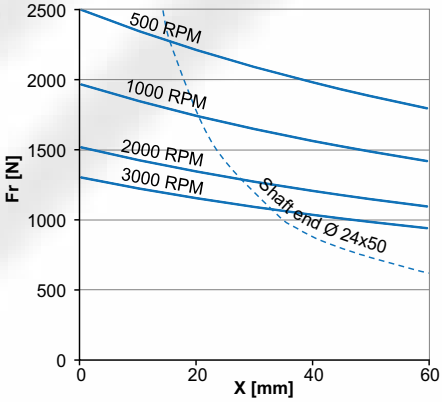
TOP 50

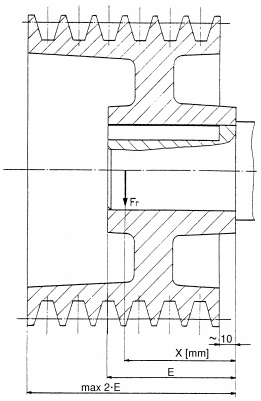


NGB 108



NGB 145



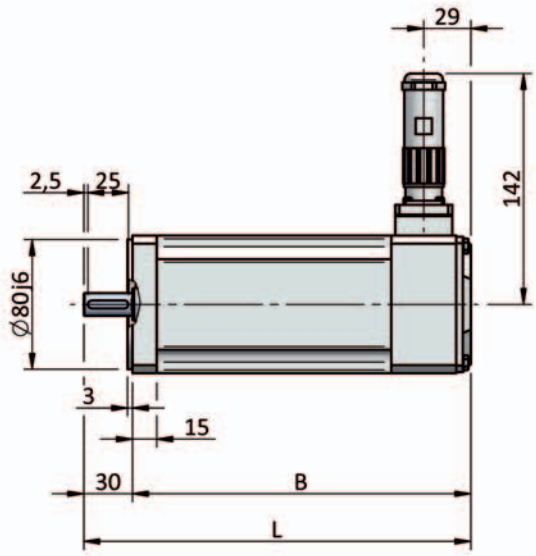


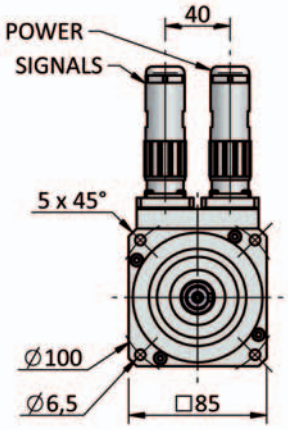
$$Fr = 2040 \times \frac{C}{D} \times k$$

dove:
Fr = carico radiale N
C = coppia del motore in Nm
D = diametro della puleggia in mm
k = fattore di tensione fornito dal costruttore della puleggia e valutabile mediamente in:
k = 1.0 per cinghie dentellate
k = 2.3 per cinghie trapezoidali
k = 3.8 per cinghie piane

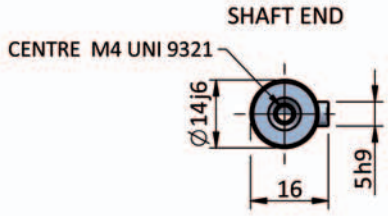
where:
Fr = radial load (N)
C = motor torque (Nm)
*D = pulley * (mm)*
k = tension factor specified by pulley manufacturer, and corresponding about to:
k = 1.0 for toothed belts
k = 2.3 for trapezoidal belts
k = 3.8 for flat belts

VERSION B: STANDARD EXECUTION (RESOLVER / AD36 - EF36 - S21)

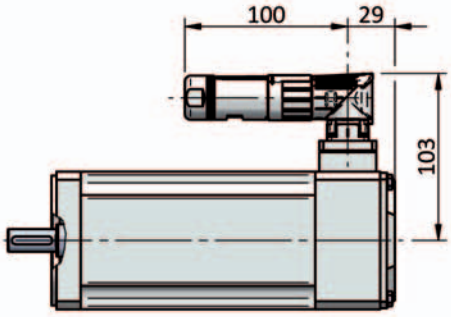


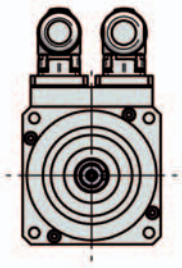


Motor	B	L	LB
NGB85 S	181	211	239
NGB85 M	208	238	266
NGB85 L	236	266	294
NGB85 P	263	293	321

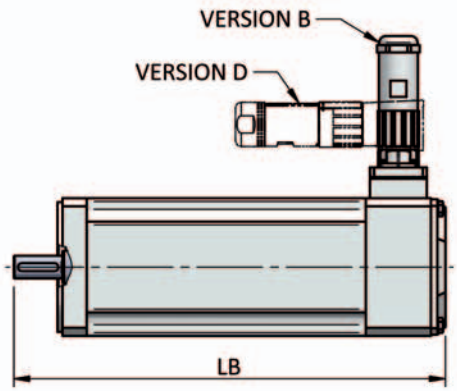


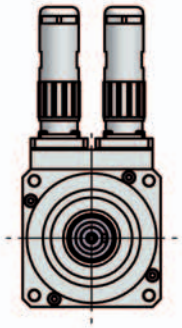
VERSION D: MOTOR WITH ROTATABLE RIGHT ANGLE CONNECTORS





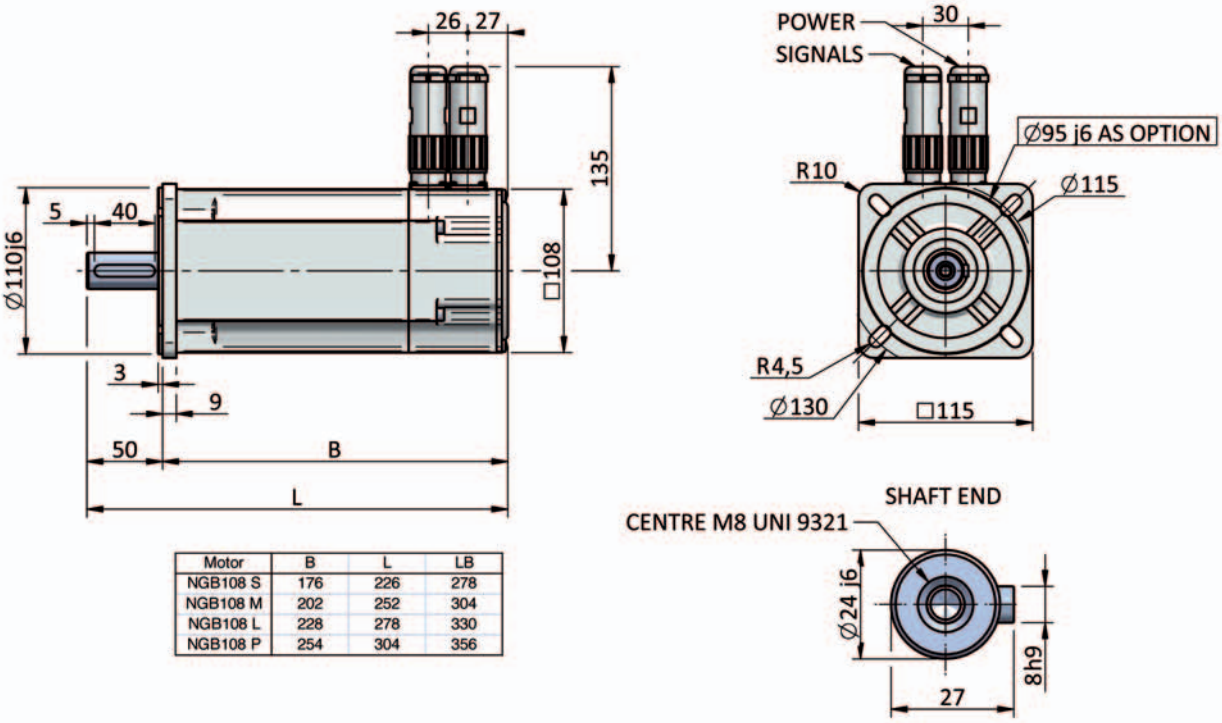
MOTOR WITH BRAKE





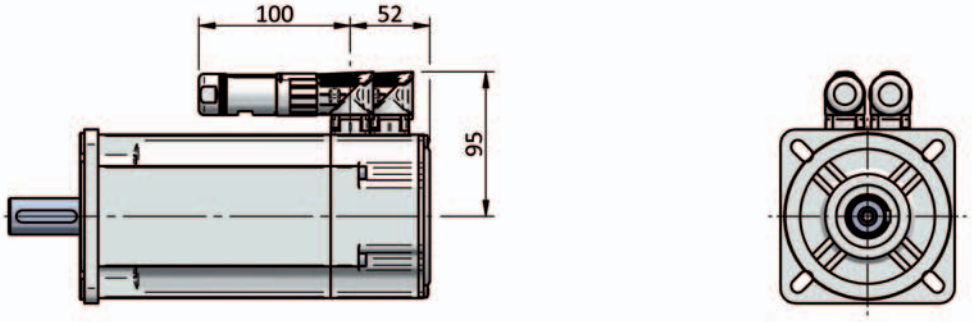
3083/B

VERSION B: STANDARD EXECUTION (RESOLVER / AD36 - EF36 - S21)

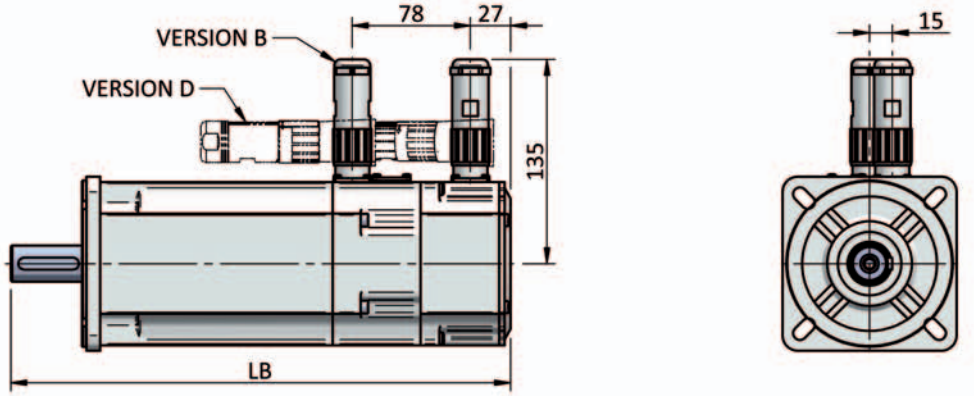


Motor	B	L	LB
NGB108 S	176	226	278
NGB108 M	202	252	304
NGB108 L	228	278	330
NGB108 P	254	304	356

VERSION D: MOTOR WITH ROTATABLE RIGHT ANGLE CONNECTORS

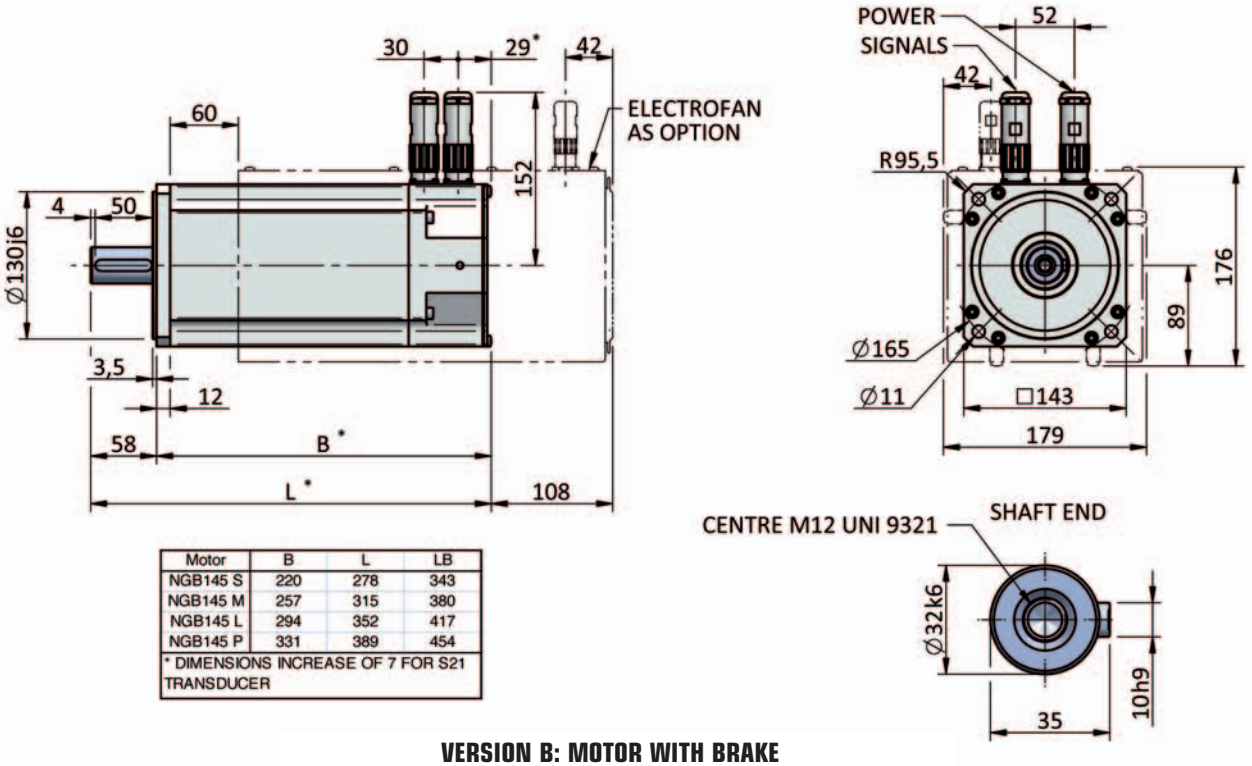


MOTOR WITH BRAKE



3065/B

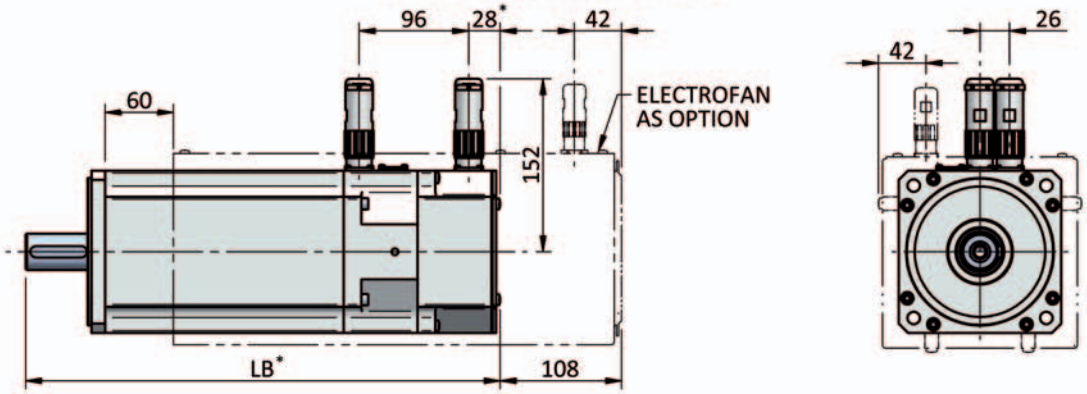
VERSION B: STANDARD EXECUTION (RESOLVER / AD36 - EF36 - S21)



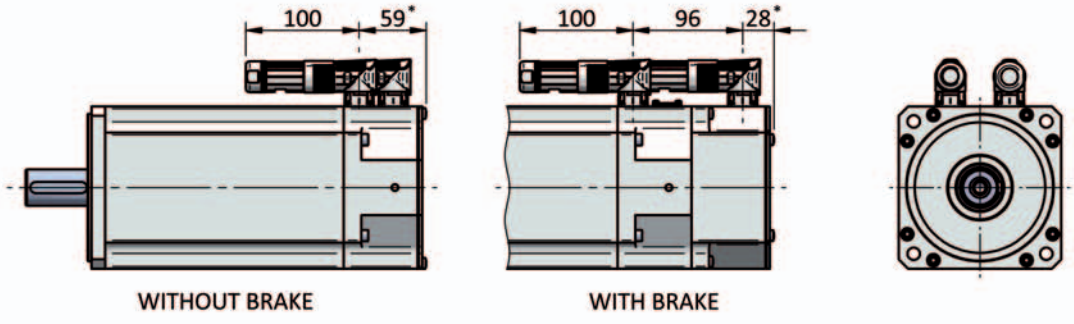
Motor	B	L	LB
NGB145 S	220	278	343
NGB145 M	257	315	380
NGB145 L	294	352	417
NGB145 P	331	389	454

* DIMENSIONS INCREASE OF 7 FOR S21 TRANSDUCER

VERSION B: MOTOR WITH BRAKE

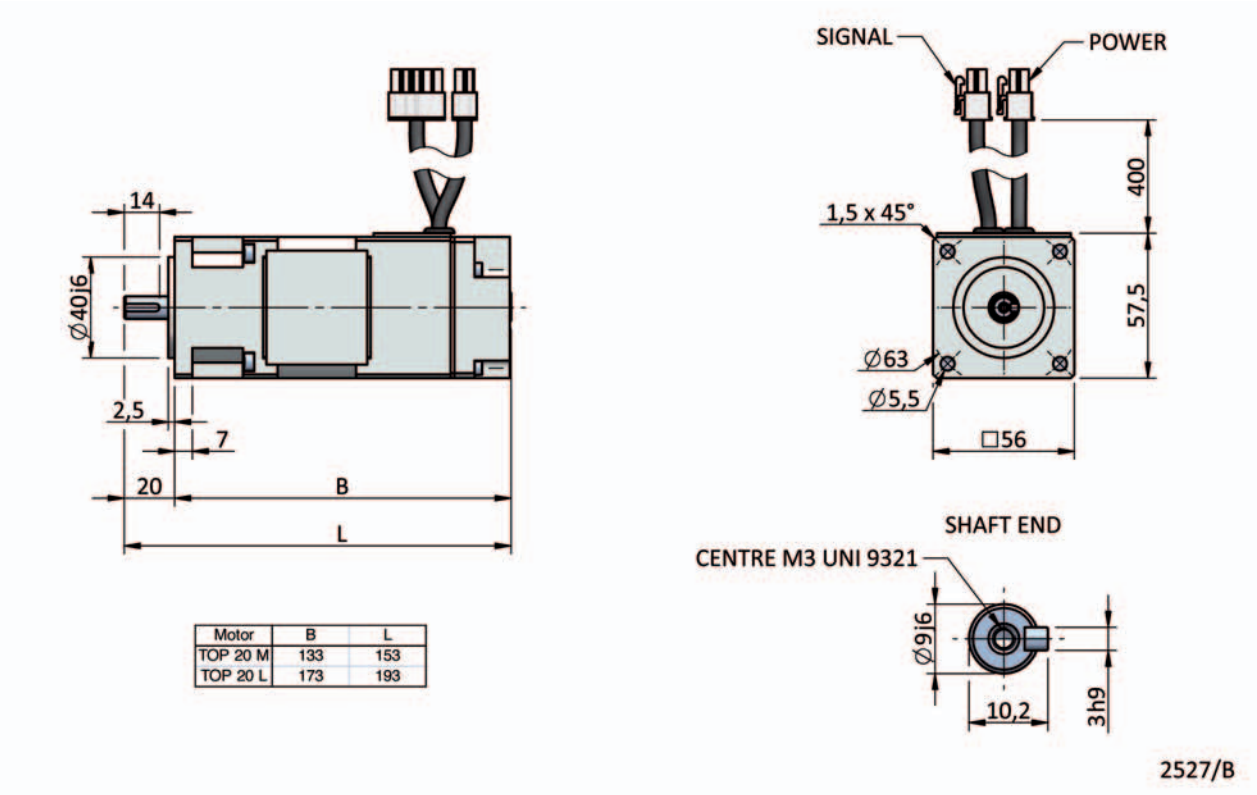


VERSION D: MOTOR WITH ROTATABLE RIGHT ANGLE CONNECTORS
(Electrofan option not available)



3066/B

VERSION E: STANDARD EXECUTION (RESOLVER / EF36)



Motor	B	L
TOP 20 M	133	153
TOP 20 L	173	193

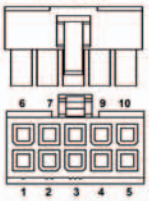
TOP 20 CONNECTIONS DIAGRAM

Power supply

(Rèceptacle male front view)

1	U
2	V
3	W
4	GROUND

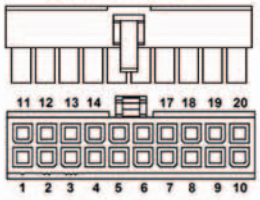
Resolver



(Rèceptacle male front view)

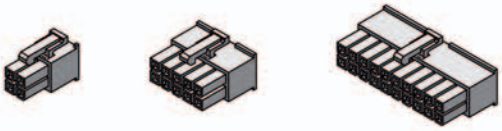
1	V REF +
2	SEN +
3	COS +
4	KLIXON / KTY (+)
5	Free
6	V REF -
7	SEN -
8	COS -
9	KLIXON / KTY (-)
10	SHIELD

Encoder TTL + Hall

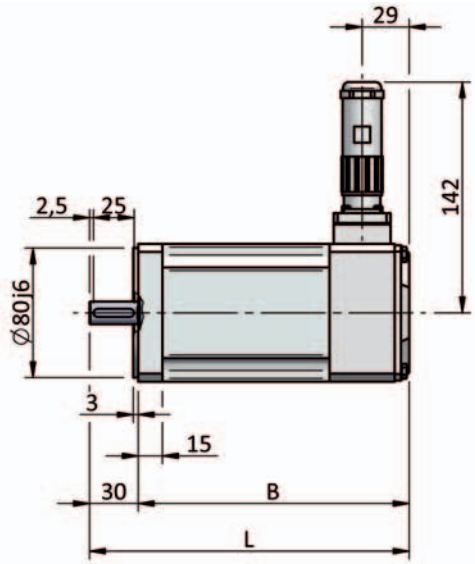


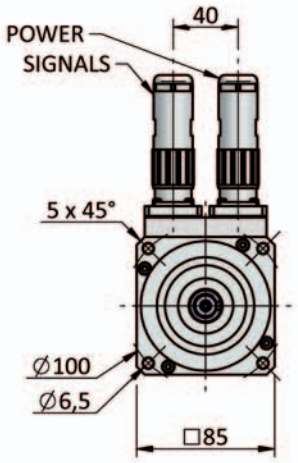
(Rèceptacle male front view)

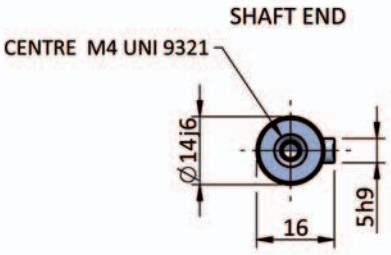
1	A+
2	A-
3	Z
4	U
5	V
6	V-
7	0V
8	KLIXON / KTY (+)
9	KLIXON / KTY (-)
10	+ Vdc
11	B+
12	B-
13	Z-
14	U-
15	W-
16	W
17	SHIELD
18	Free
19	Free
20	Free



VERSION B: STANDARD EXECUTION (RESOLVER / AD36 - EF36 - S21)

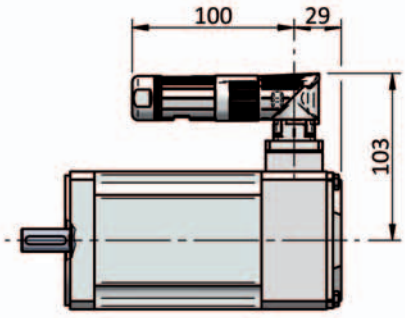


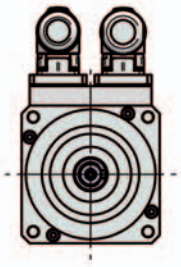


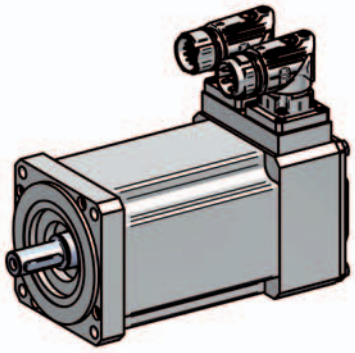


Motor	B	L
TOP40 M	166	196
TOP40 L	186	216

VERSION D: MOTOR WITH ROTATABLE RIGHT ANGLE CONNECTORS

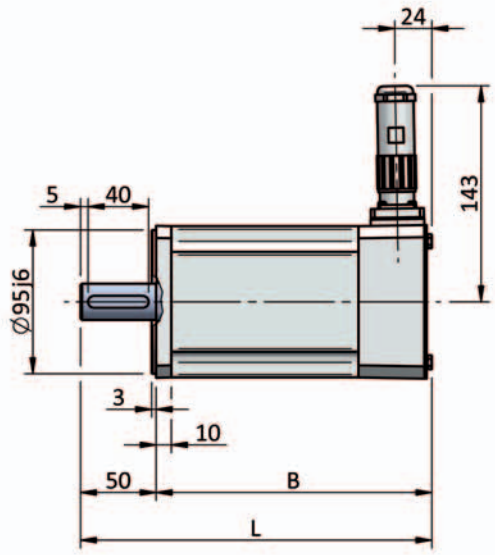


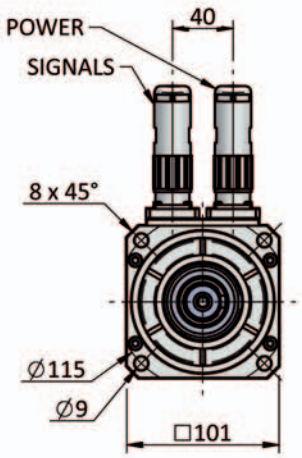




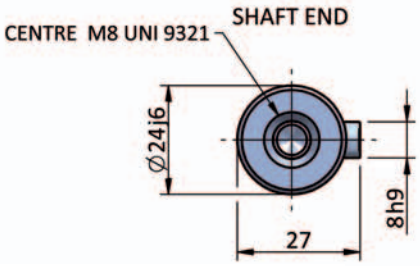
2523/C

VERSION B: STANDARD EXECUTION (RESOLVER / AD36 - EF36 - S21)

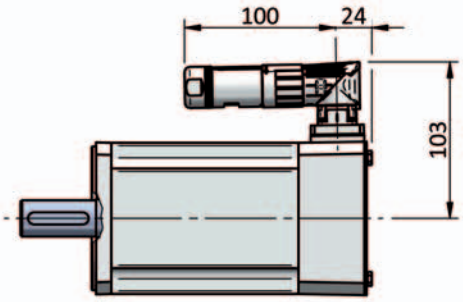


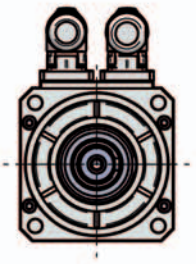


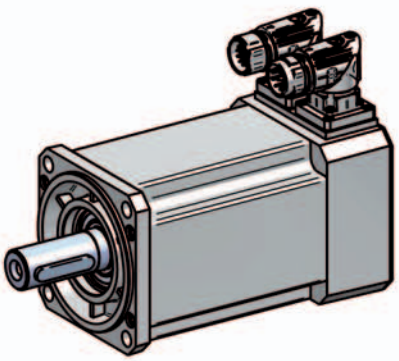
Motor	B	L
TOP50 M	184	234
TOP50 L	214	264



VERSION D: MOTOR WITH ROTATABLE RIGHT ANGLE CONNECTORS



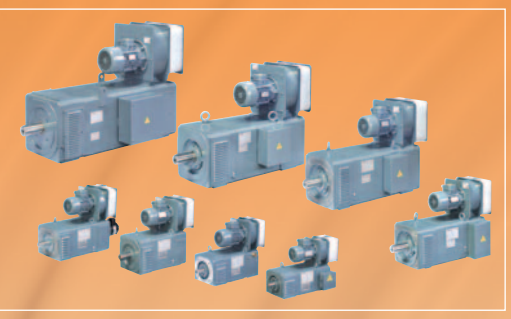




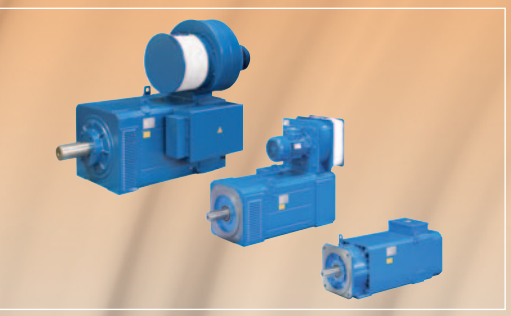
2524/C

MAGNETIC PRODUCT RANGE

TORQUE MOTORS



D.C. MOTORS



ASYNCHRONOUS VECTORIAL SERVOMOTORS

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