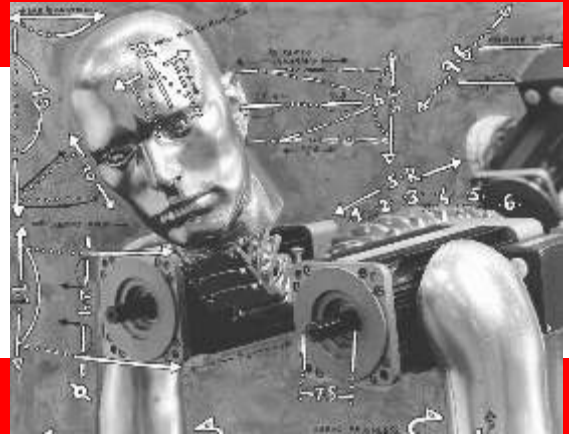
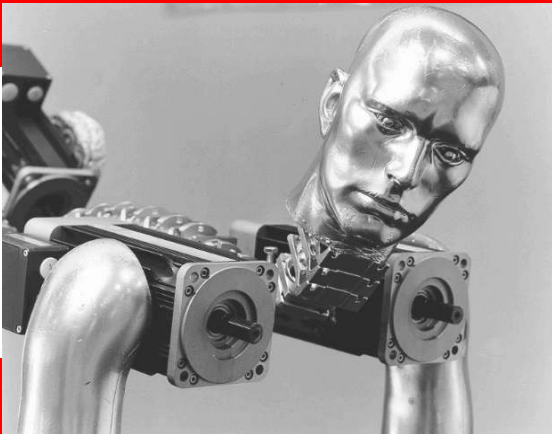




ESA

C.C. SERVOMOTOR



**MOTOR  
POWER**  
COMPANY

[www.motorpowerco.com](http://www.motorpowerco.com)

# ESA

This series of permanent magnets servomotors ensures long-life, high reliability and dynamic performances. This series, that includes torque from 0,32 till 15 Nm, is the solution for any application where smooth running and overload capability is required.



<i>Servomotor</i>	<i>Continuous Stall Torque (Nm)</i>	<i>Motor Diameter (mm)</i>	<i>Brake Length (mm)</i>	<i>Motor Length (mm)</i>
ESA 2S	0.32	58	41.5	136
ESA 2L	0.47			183.5
ESA 3XS	0.6	83.5	44	177.5
ESA 3S	0.93			212.5
ESA 3SL	1.3			229
ESA 3M	1.6			267.5
ESA 3L	2.1			322.5
ESA 6S	2.65	116	*	268
ESA 6F	3.5		*	268
ESA 6M	5.5		*	340
ESA 6L	8		*	412
ESA 9S	6	153.5	*	298
ESA 9M	11		*	363
ESA 9L	15		*	424

\* Included in motor's length

Il freno di emergenza incrementa la lunghezza del motore del valore relativo riportato in tabella alla voce "Lunghezza Freno"

## Protection IP54

Commutator with high number of blades for a sound commutation

Four pole tacho generator with rare earth magnets combined in motor

Skewed armature for smooth running at low speed

SERIE  
Series

**ESA 2S**

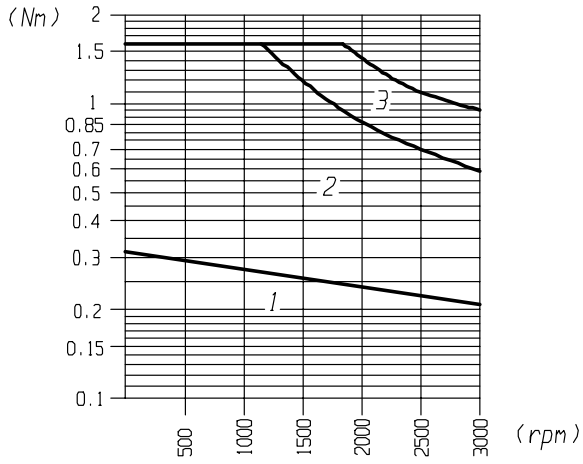
**COPPIA - TORQUE**

**Nm 0.32**

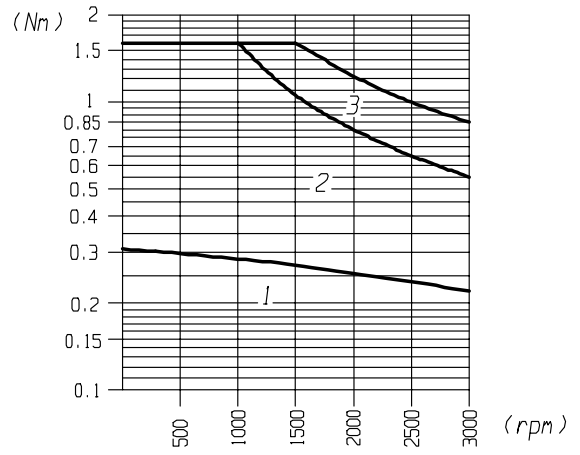
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3000					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	0.32	0.32					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	70	70					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	4.6	3.2					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	1.6	1.6					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	23	16					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	25.3	17.6					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	21.9	31.2					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	4000					
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg cm <sup>2</sup>	0.324	0.324					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	33950	33950					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	6	6					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.015	0.015					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.002	0.002					
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	196	196					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	58	58					
	PESO - <i>Weight</i>	M	[Kg]	1.3	1.3					
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	7.3	10.4					
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.07	0.1						
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	1.58	1.62						
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	15	15						
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.82	1.82						
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.85	1.85						
INDUTTANZA - <i>Inductance</i>	La	[mH]	1.34	3						
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP						54		
CLASSE D' ISOLAMENTO - <i>Insulation class</i>								F		
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	0.5						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10						

**CURVE OPERATIVE  
PERFORMANCE CURVES**

**ESA 2S1**



**ESA 2S2**



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

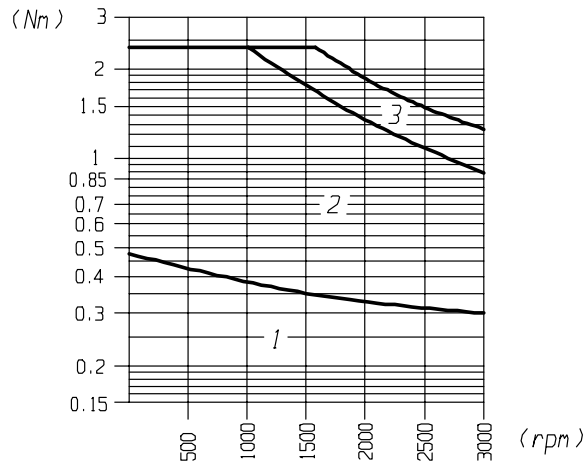
**ESA 2L**

**COPPIA - TORQUE**

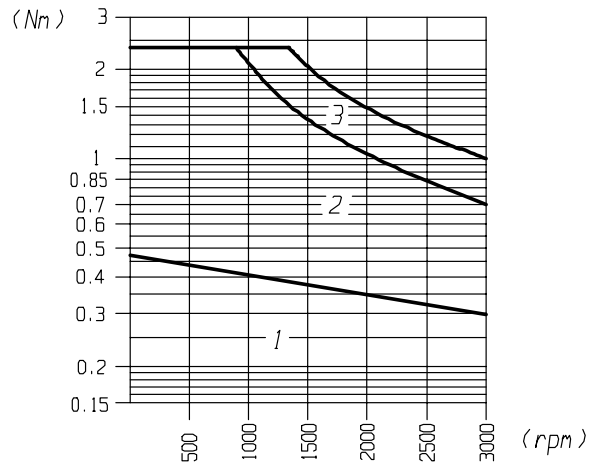
**Nm 0.47**

DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3000					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	0.47	0.47					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	95	95					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	6.5	4.6					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	2.35	2.35					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	32.5	23					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	35.75	25.3					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	22.5	32.1					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	4000					
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg cm <sup>2</sup>	0.607	0.607					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	24711	24711					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	6	7					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.018	0.018					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.003	0.003					
	MAX CARICO RADIALE ( A 3000 RPM) - <i>Max radial load ( at 3000 rpm )</i>	Fr	[N]	196	196					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	58	58					
	PESO - <i>Weight</i>	M	[Kg]	1.85	1.85					
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	7.5	10.7					
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.072	0.103					
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	1.46	1.4					
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	25	25					
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.45	1.16					
	RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.48	1.19					
	INDUTTANZA - <i>Inductance</i>	La	[mH]	0.7	1.65					
	GRADO DI PROTEZIONE - <i>Protection degree</i>		IP						54	
	CLASSE D' ISOLAMENTO - <i>Insulation class</i>								F	
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expctancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	0.5						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10						

ESA 2L1

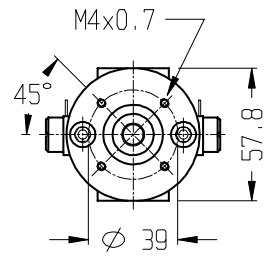
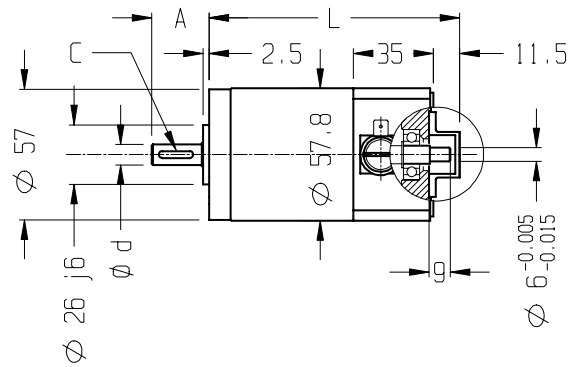
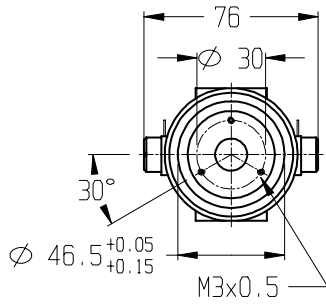


ESA 2L2



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

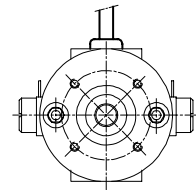
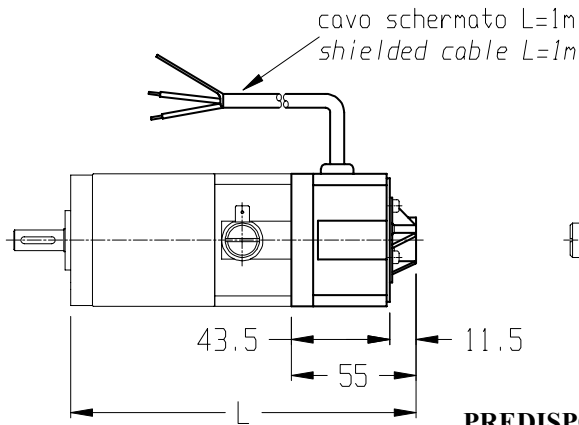
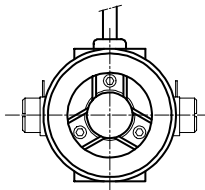


Type	S	L
A	20	25
L	136	183.5
d (j6)	7	9
C	-	3x3x15

**PREDISPOSTO ENCODER STD**  
STD ENCODER PREARRANGEMENT

**DINAMO TACHIMETRICA**

**TACHO GENERATOR**

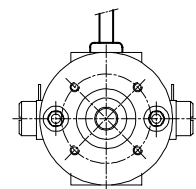
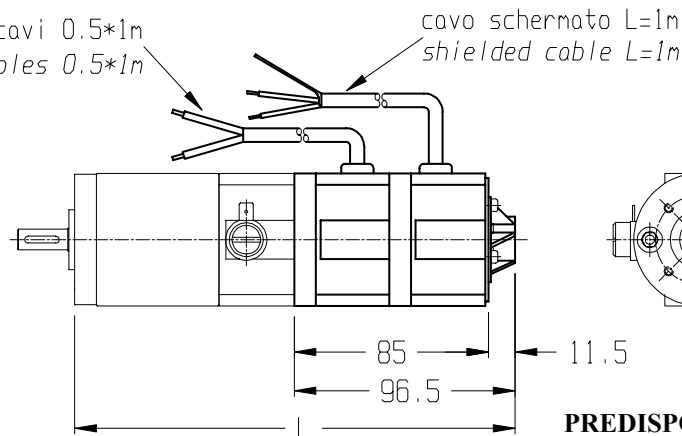
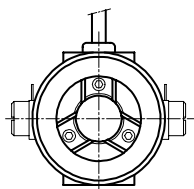


Type	S	L
L	177.5	225

**PREDISPOSTO ENCODER STD**  
STD ENCODER PREARRANGEMENT

**FRENO 0,5Nm + DINAMO TACHIMETRICA**

**TACHO GENERATOR + BRAKE 0,5Nm**



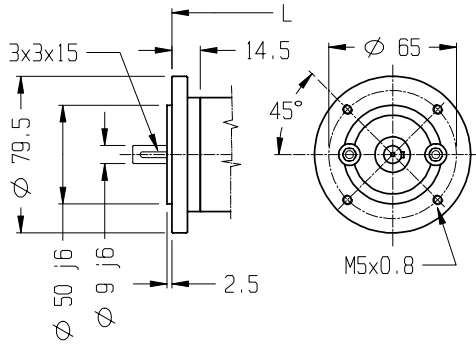
Type	S	L
L	219	266.5

**PREDISPOSTO ENC. STD**  
STD ENC. PREARRANGEMENT

## OPTIONALS

### FLANGIA B14/56

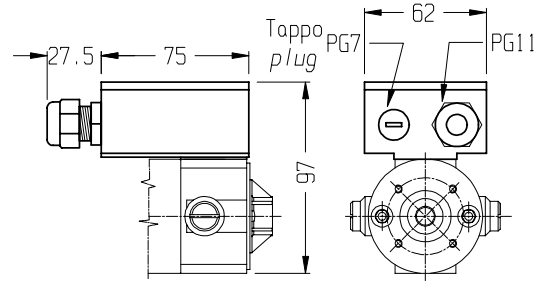
### B14/56 FLANGE



Type	S	L
L	141	188.5

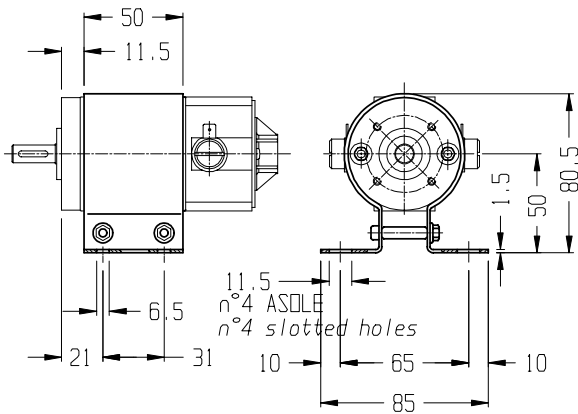
### MORSETTIERA

### TERMINAL BOX



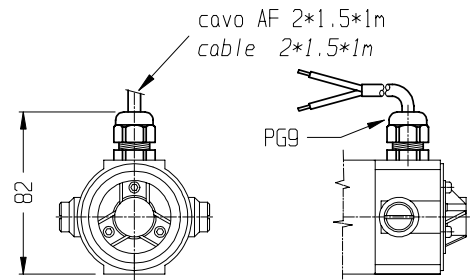
### PIEDE A FASCIA

### FOOT BAND TYPE



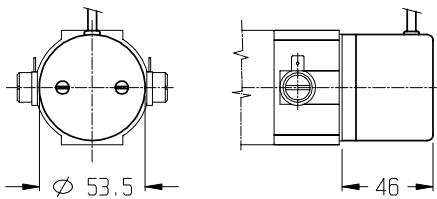
### CAVO

### FLYING LEADS



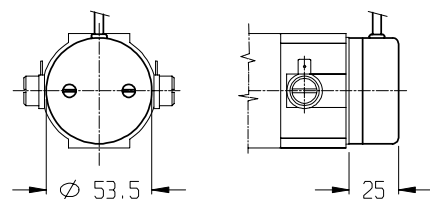
### ENCODER EH53

### ENCODER EH53



### ENCODER EH38

### ENCODER EH38

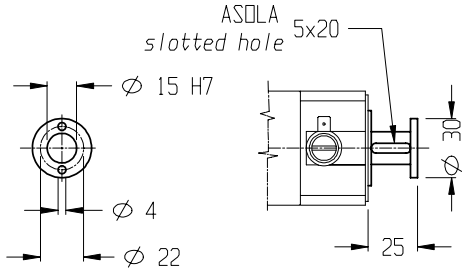




## OPTIONALS

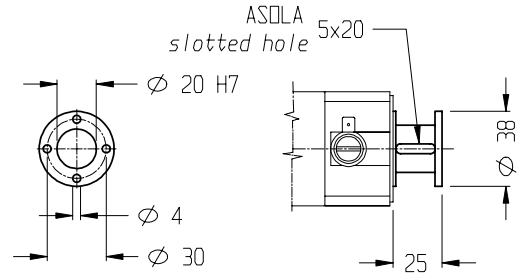
DISTANZ. ENC. N°1

ENCODER SPACER N°1



DISTANZ. ENC. N°2

ENCODER SPACER N°2



SERIE  
Series

**ESA 3XS**

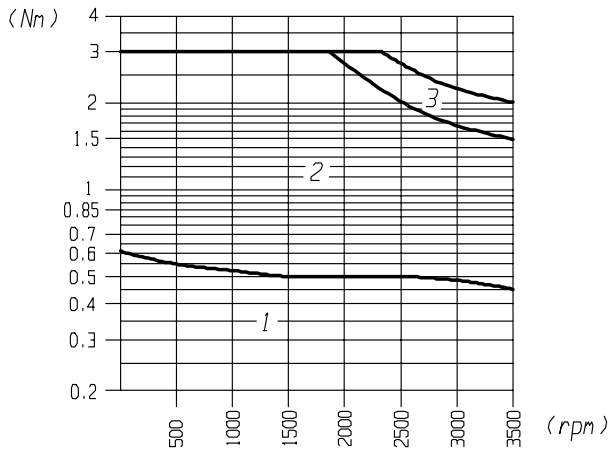
**COPPIA - TORQUE**

**Nm 0.6**

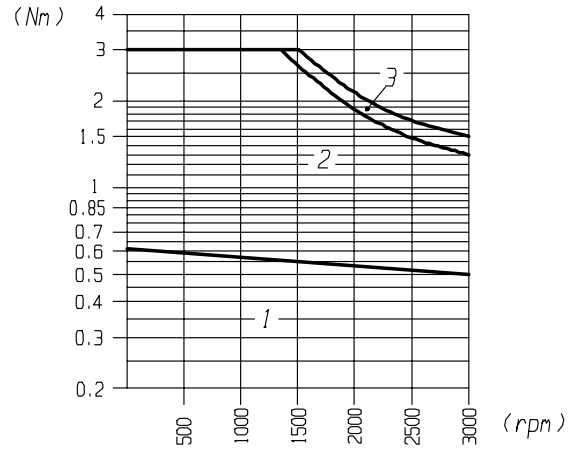
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding							
				1	2	3					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3500	3000	3000					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	0.6	0.6	0.6					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	140	150	150					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	4.6	1.55	3					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	3	3	3					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	23	9.5	15					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	25.3	8.525	16.5					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	45.5	120	60					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	4000	4000					
	<b>DATI MECCANICI - MECHANICAL DATA</b>										
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0003	0.0003	0.0003					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	10000	10000	10000					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	17	15	21					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.037	0.037	0.037					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.027	0.027	0.027					
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	294	294	294					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	88	88	88					
	PESO - <i>Weight</i>	M	[Kg]	3.5	3.5	3.5					
	<b>DATI ELETTRICI - WINDING DATA</b>										
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	13	40	20					
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.13	0.386	0.2						
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	2.8	3.6	2.9						
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	20	20	20						
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.8	7.4	2.5						
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.9	7.5	2.6						
INDUTTANZA - <i>Inductance</i>	La	[mH]	2.5	27	7.5						
GRADO DI PROTEZIONE - <i>Protection degree</i>	IP				54						
CLASSE D' ISOLAMENTO - <i>Insulation class</i>					F						
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)							
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm							
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1							
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12							
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02							
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40							
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86							
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13							
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )							
	NUMERO POLI - <i>Number of poles</i>			4							
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm								
FRENO Brake	TIPO - <i>Type</i>			STD							
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	3							
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24							
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42							
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10							

## CURVE OPERATIVE PERFORMANCE CURVES

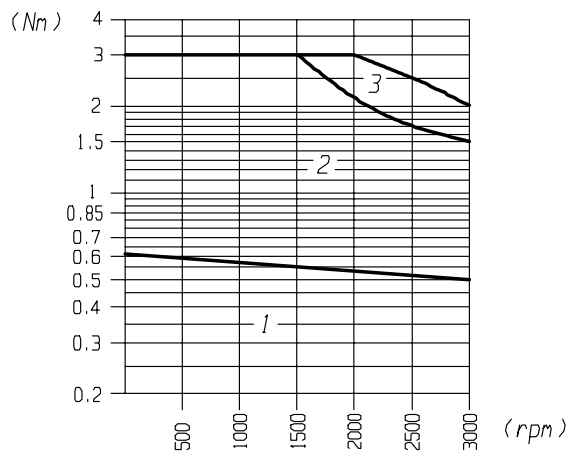
ESA 3XS1



ESA 3XS2



ESA 3XS3



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

**ESA 3S**

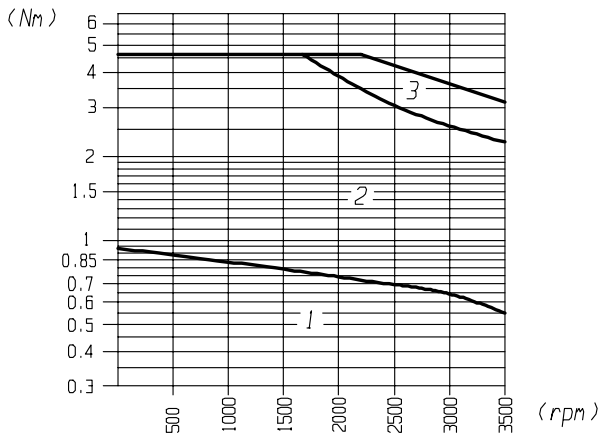
**COPPIA - TORQUE**

**Nm 0.93**

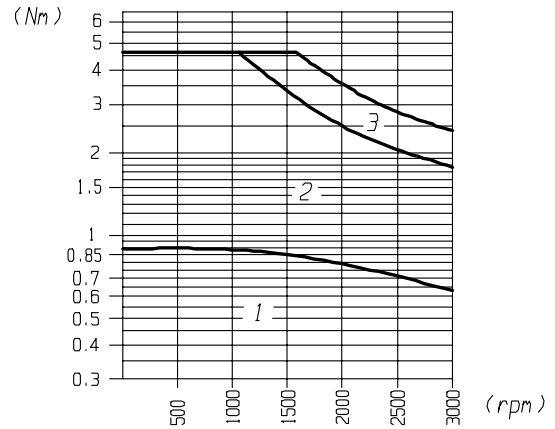
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding							
				1	2	3					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3500	3000	3000					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	0.93	0.93	0.93					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	200	200	200					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	7	2.4	4.8					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	4.65	4.65	4.65					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	35	12	24					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	38.5	13.2	26.4					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	48.3	120	60					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	4000	4000					
	<b>DATI MECCANICI - MECHANICAL DATA</b>										
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0006	0.0006	0.0006					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	7750	7750	7750					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	16	12	16					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.04	0.04	0.04					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.03	0.03	0.03					
	MAX CARICO RADIALE ( A 3000 RPM) - <i>Max radial load ( at 3000 rpm )</i>	Fr	[N]	294	294	294					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	88	88	88					
	PESO - <i>Weight</i>	M	[Kg]	4.6	4.6	4.6					
	<b>DATI ELETTRICI - WINDING DATA</b>										
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	13.8	40	20					
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.133	0.386	0.193						
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	2.36	3.7	2.8						
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	25	25	25						
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.37	2.9	0.86						
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.47	3	0.96						
INDUTTANZA - <i>Inductance</i>	La	[mH]	1.11	11	2.67						
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP							54		
CLASSE D' ISOLAMENTO - <i>Insulation class</i>									F		
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )							
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm							
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1							
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12							
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02							
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40							
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86							
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13							
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )							
	NUMERO POLI - <i>Number of poles</i>			4							
VITA SPAZZOLE PREVISTA - <i>Life expctancy</i>			15000 A 3000 rpm								
FRENO Brake	TIPO - <i>Type</i>			STD							
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	3							
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24							
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42							
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10							

**CURVE OPERATIVE  
PERFORMANCE CURVES**

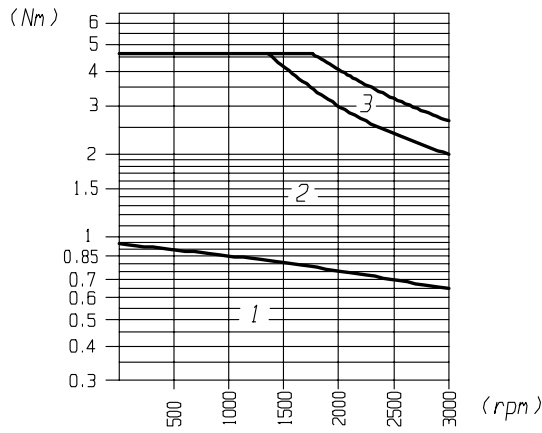
**ESA 3S1**



**ESA 3S2**



**ESA 3S3**



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

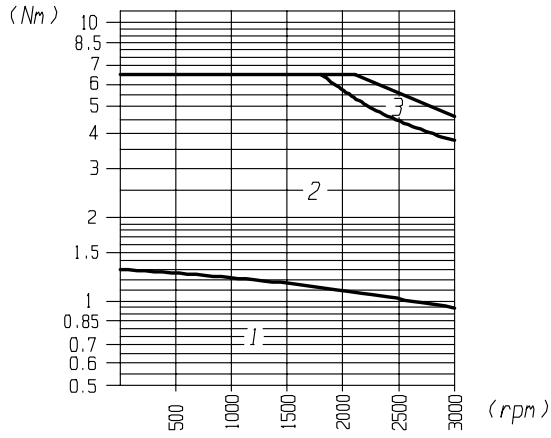
**ESA 3SL**

**COPPIA - TORQUE**

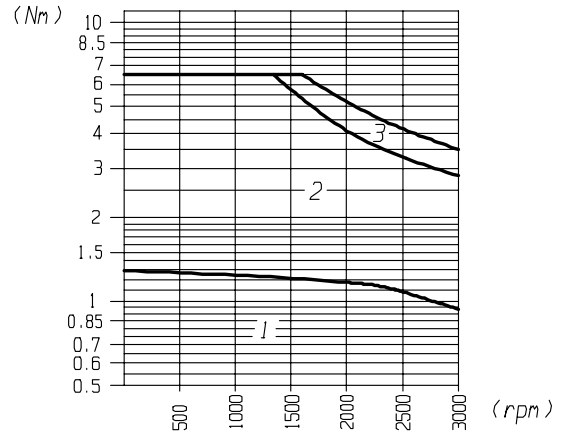
**Nm 1.3**

DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding					
				1	2	3	4		
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3000	3000	3000		
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	1.3	1.3	1.3	1.3		
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	300	300	300	300		
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	8	2.25	3.46	7.1		
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	6.5	6.5	6.5	6.5		
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	40	11.25	17.3	35.5		
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	44	12.375	19.03	39.05		
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	49.5	160	120	57		
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	3400	4000	4000		
	<b>DATI MECCANICI - MECHANICAL DATA</b>								
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0007	0.0007	0.0007	0.0007		
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	10714	10714	10714	10714		
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	14	12	12	14		
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.044	0.044	0.044	0.044		
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.032	0.032	0.032	0.032		
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	343	343	343	343		
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	103	103	103	103		
	PESO - <i>Weight</i>	M	[Kg]	5.3	5.3	5.3	5.3		
	<b>DATI ELETTRICI - WINDING DATA</b>								
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	16.5	60	40	19		
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.16	0.58	0.375	0.183			
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	2.65	3.7	3.8	3			
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	30	30	30	30			
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.39	5.4	2.4	0.57			
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.49	5.5	2.5	0.63			
INDUTTANZA - <i>Inductance</i>	La	[mH]	1.3	20.5	9.46	2			
GRADO DI PROTEZIONE - <i>Protection degree</i>	IP					54			
CLASSE D' ISOLAMENTO - <i>Insulation class</i>						F			
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)					
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm					
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1					
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12					
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02					
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40					
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86					
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13					
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 Ma )					
	NUMERO POLI - <i>Number of poles</i>			4					
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm						
FRENO Brake	TIPO - <i>Type</i>			STD					
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	3					
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24					
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42					
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10					

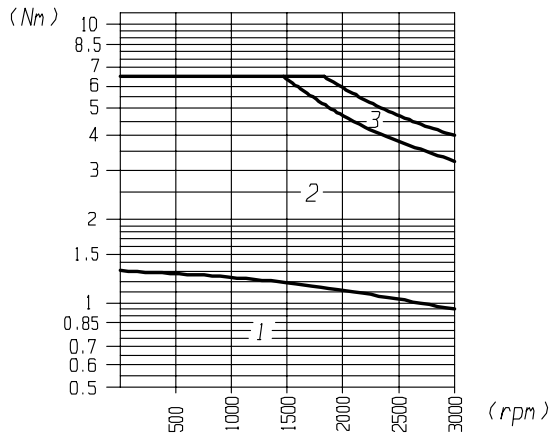
**ESA SL1**



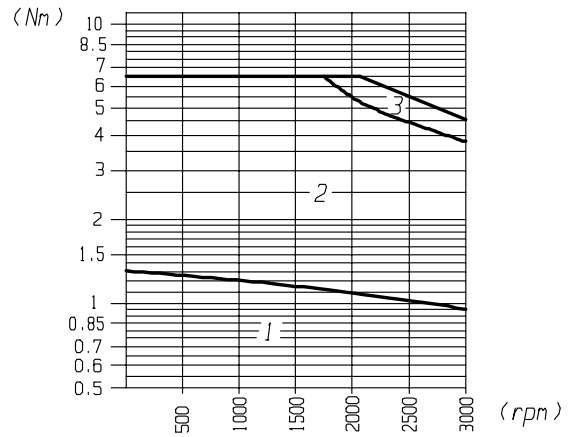
**ESA 3SL2**



**ESA 3SL3**



**ESA 3SL4**



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

# ESA 3M

**COPPIA - TORQUE**

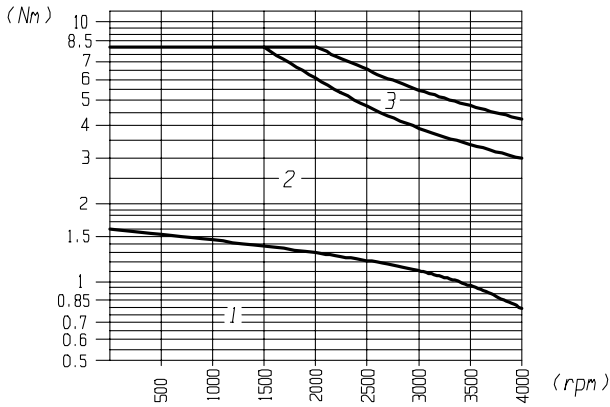
## Nm 1.6

DATI MOTORE - MOTOR RATINGS

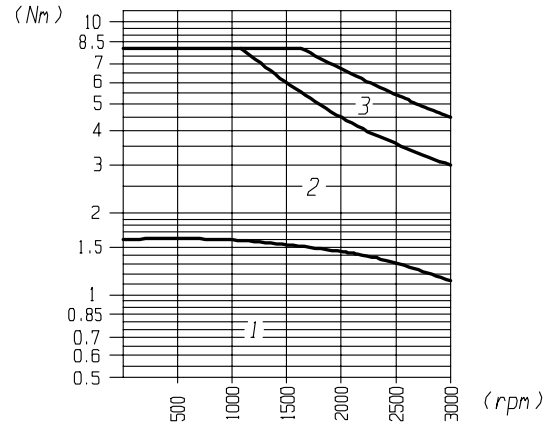
	SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding							
			2	3	5	8				
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	4000	3000	3000	3000			
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	1.6	1.6	1.6	1.6			
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	335	360	360	360			
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	6.2	3	4.15	10			
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	8	8	8	8			
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	31	15	20.75	50			
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	34.1	16.5	22.825	55			
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	108	157.5	120	49.5			
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4500	3400	4000	4000			
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0008	0.0008	0.0008	0.0008			
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	10000	10000	10000	10000			
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	12	10	10	13			
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.048	0.048	0.048	0.048			
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.04	0.04	0.04	0.04			
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	343	343	343	343			
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	103	103	103	103			
	PESO - <i>Weight</i>	M	[Kg]	6.4	6.4	6.4	6.4			
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	27	52.5	40	16.5			
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.26	0.5	0.385	0.16				
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	3	3.3	3.7	2.75				
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	40	40	40	40				
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.8	2.96	1.74	0.3				
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.9	3.06	1.84	0.4				
INDUTTANZA - <i>Inductance</i>	La	[mH]	3	10.2	6.8	1.1				
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP				54				
CLASSE D' ISOLAMENTO - <i>Insulation class</i>						F				
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 Ma )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	3						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.42						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	10						



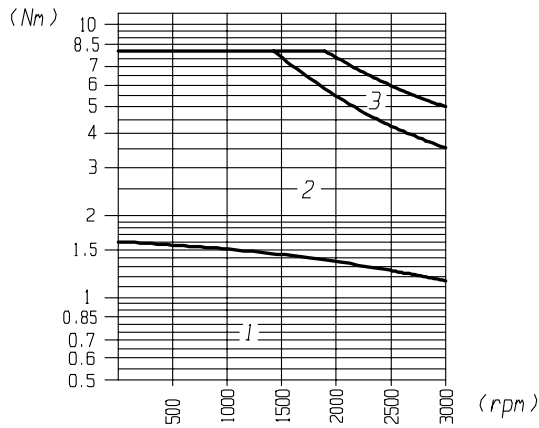
ESA 3M2



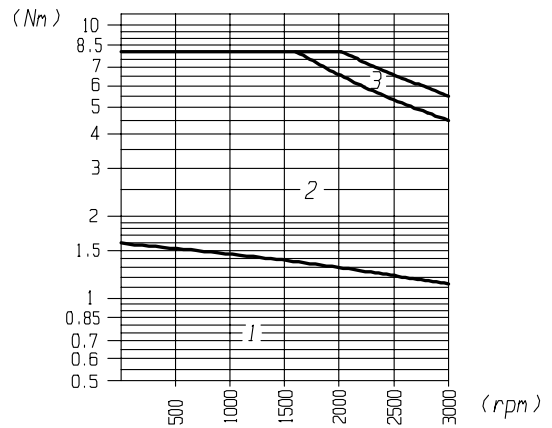
ESA 3M3



ESA 3M5



ESA 3M8



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

**ESA 3L**

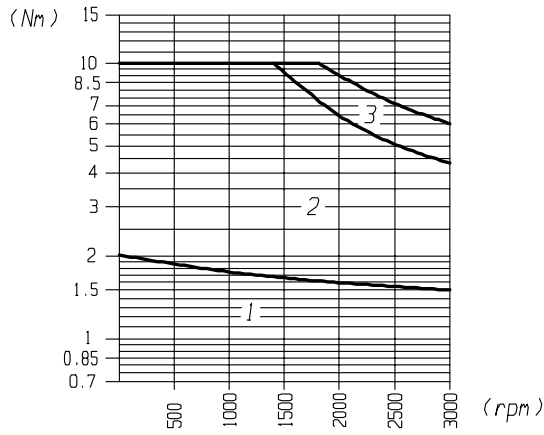
**COPPIA - TORQUE**

**Nm 2.1**

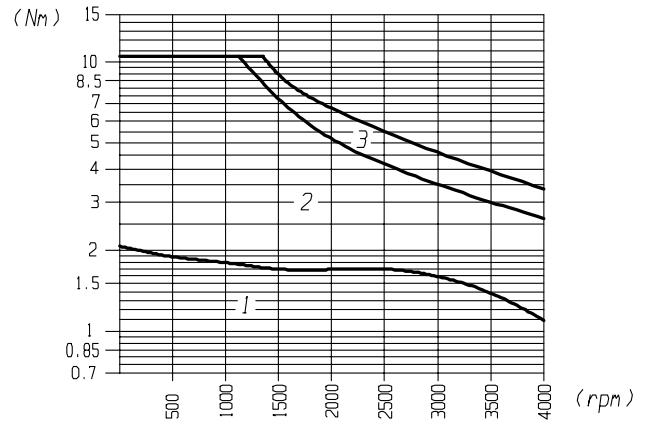
DATI MOTORE - MOTOR RATINGS

	SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding					
			1	3	4	6	7	
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - Rated speed	n	[rpm]	3000	4000	3000	3000	3000
	COPPIA ROTORE BLOCCATO - Continuous stall torque	Cn	[Nm]	2	2.1	2.1	2	2.1
	POTENZA A VELOCITA' NOMINALE - Power at rated speed	Pn	[W]	500	460	500	500	500
	CORRENTE A ROTORE BLOCCATO - Stall current	In	[A]	10.5	6.65	5.4	12.5	3.8
	PICCO DI COPPIA ALLO SPUNTO - Peak torque	Cmax	[Nm]	10	10.5	10.5	10	10.5
	CORRENTE AL PICCO DI COPPIA - Peak current	Imax	[A]	52.5	33.25	27	62.5	19
	CORRENTE SMAGNETIZZANTE - Demagnetise current	Ipeak	[A]	57.75	36.575	29.7	68.75	20.9
	FCEM A VELOCITA' NOMINALE - Bemf at rated speed	E	[V]	59.7	128.8	120	49.5	171
	MAX VELOCITA' - Max speed	Nmax	[rpm]	4000	4000	4000	4000	3200
	DATI MECCANICI - MECHANICAL DATA							
	MOMENTO D'INERZIA - Moment of inertia	Jm	Kg m <sup>2</sup>	0.001	0.001	0.001	0.001	0.001
	MAX. ACC. TEORICA - Max theoretical acceleration	αmax	rad/s <sup>2</sup>	10000	10500	10500	10000	10500
	COSTANTE DI TEMPO MECCANICA - Mechanical time constant	Tm	[ms]	11	9	7	12	8
	COPPIA SMORZAMENTO A 1000 RPM - Damping constant at 1000 rpm	Td	[Nm]	0.055	0.055	0.055	0.055	0.055
	COPPIA ATTRITO STATICO - Static friction torque	Tf	[Nm]	0.05	0.05	0.05	0.05	0.05
	MAX CARICO RADIALE ( A 3000 RPM) - Max radial load ( at 3000 rpm )	Fr	[N]	343	343	343	343	343
	MAX CARICO ASSIALE - Max axial load	Fa	[N]	103	103	103	103	103
	PESO - Weight	M	[Kg]	8	8	8	8	8
	DATI ELETTRICI - WINDING DATA							
COSTANTE DI TENSIONE ± 5% - Voltage constant ± 5%	Ke	V/Krpm	19.9	32.8	40	16.5	57	
COSTANTE DI COPPIA ± 5% - Torque constant ± 5%	Kt	[Nm/A]	0.191	0.316	0.39	0.16	0.55	
COSTANTE DI TEMPO ELETTRICA - Electrical time constant	Te	[ms]	2.9	3.3	3.9	2.4	4.1	
COSTANTE DI TEMPO TERMICA - Thermal time constant	Tt	[min]	50	50	50	50	50	
RESIST. ARMATURA ± 10% A 25°C - Armature resistance ± 10% at 25°C	Ra	[Ohm]	0.32	0.82	1	0.19	2.52	
RESIST. ARMATURA CON SPAZZOLE - Terminal resistance	Rt	[Ohm]	0.42	0.92	1.1	0.29	2.62	
INDUTTANZA - Inductance	La	[mH]	1.23	3.04	4.3	0.69	10.8	
GRADO DI PROTEZIONE - Protection degree		IP	54					
CLASSE D' ISOLAMENTO - Insulation class			F					
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - Voltage constant	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )				
	ONDULAZIONE PICCO/PICCO - Ripple		[ % ]	< 1.5 A 1000 rpm				
	LINEARITA' A 6000 RPM - Linearity at 6000 rpm		[ % ]	< 0.1				
	ERRORE DI REVERSIBILITA' - Reversibility error		[ % ]	< 0.12				
	COEFFICIENTE DI TEMPERATURA - Temperature coefficient		[ % ]	0.02				
	MOMENTO D' INERZIA - Moment of inertia	J	g cm <sup>2</sup>	40				
	RESISTENZA - Resistance	Ra	[ Ohm ]	86				
	INDUTTANZA - Inductance	La	[ mH ]	13				
	CORRENTE - Current	I	[ mA ]	2 ( MAX 8 mA )				
	NUMERO POLI - Number of poles			4				
VITA SPAZZOLE PREVISTA - Life expectancy			15000 A 3000 rpm					
FRENO Brake	TIPO - Type			STD				
	COPPIA STATICA - Static torque	C	[ Nm ]	3				
	TENSIONE DI ALIMENTAZIONE - Power supply voltage	E	[ V ]	24				
	CORRENTE NOMINALE - Rated current	I	[ A ]	0.42				
	POTENZA ASSORBITA - Input power	P	[ W ]	10				

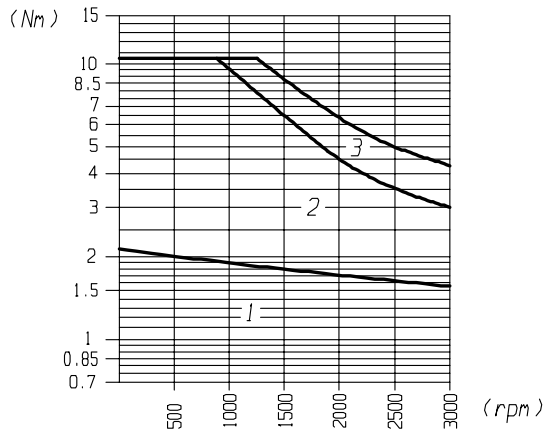
ESA 3L1



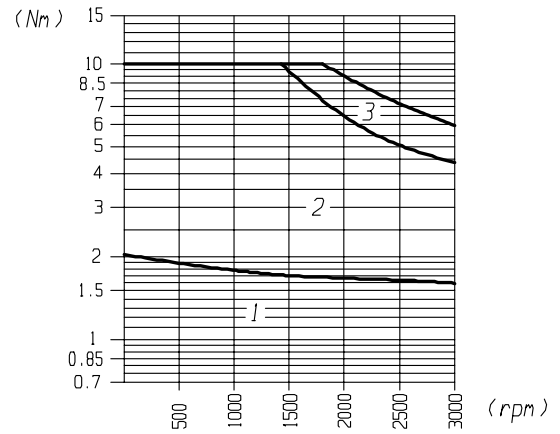
ESA 3L3



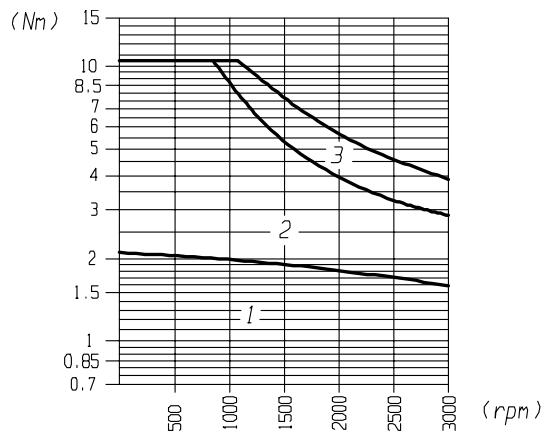
ESA 3L4



ESA 3L6



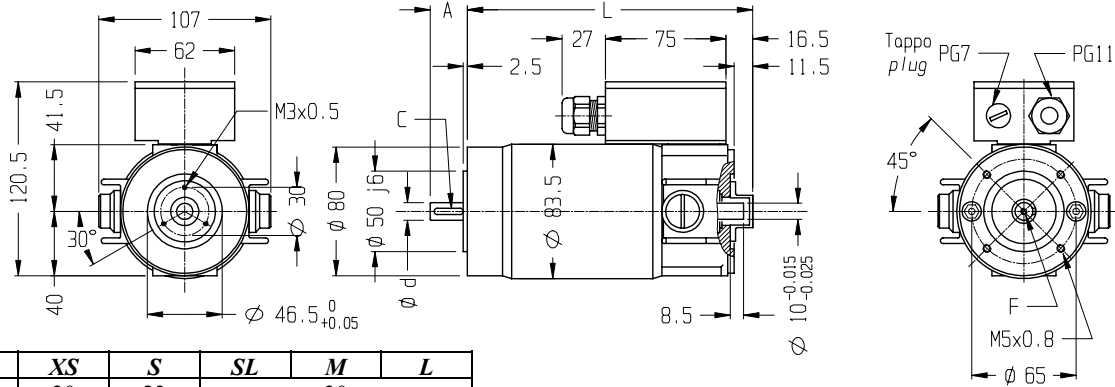
ESA 3L7



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

**DIMENSIONI (mm) DIMENSIONS (mm)**

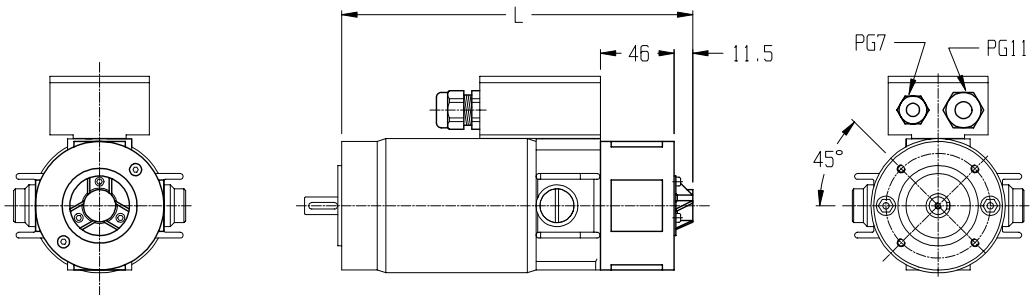


Type	XS	S	SL	M	L
A	20	23		30	
F	-	M4		M5	
L	177.5	212.5	229	267.5	322.5
d (j6)	9	11		14	
C	3x3x15	4x4x18		5x5x25	

**PREDISPOSTO ENCODER STD  
STD ENCODER**

**DINAMO TACHIMETRICA**

*TACHO GENERATOR*

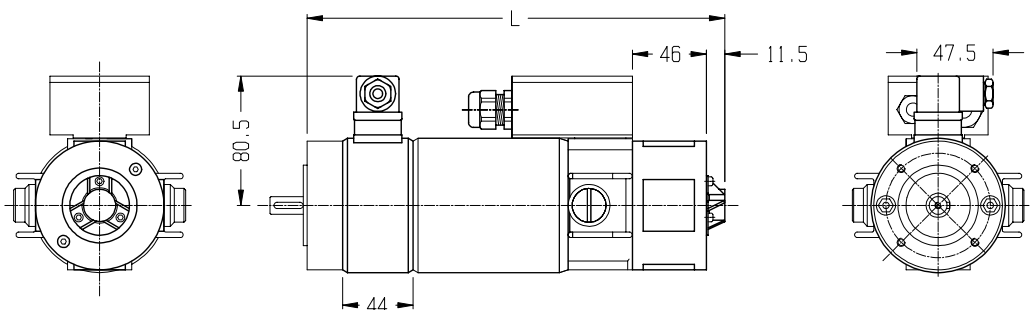


Type	XS	S	SL	M	L
L	218.5	253.5	270	308.5	363.5

**PREDISPOSTO ENCODER STD  
STD ENCODER**

**FRENO + DINAMO TACHIMETRICA**

*TACHO GENERATOR + BRAKE*



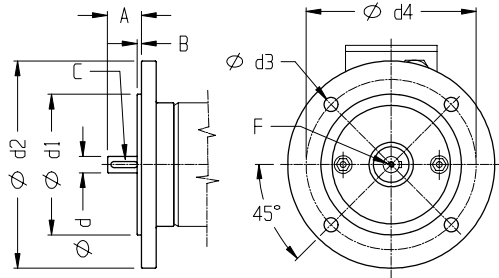
Type	XS	S	SL	M	L
L	262.5	297.5	314	352.5	407.5

**PREDISPOSTO ENCODER STD  
STD ENCODER**

## OPTIONALS

### FLANGIA B5

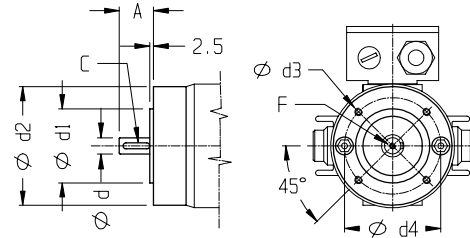
### B5 FLANGE



Size	A	B	d(i6)	d1(i6)	d2	d3	d4	F	C
56	20	3	9	80	120	8.5	100	-	3*3*15
63	23	3	11	95	140	9.5	115	M4	4*4*18
71	30	3.5	14	110	160	9.5	130	M5	5*5*25

### FLANGIA B14

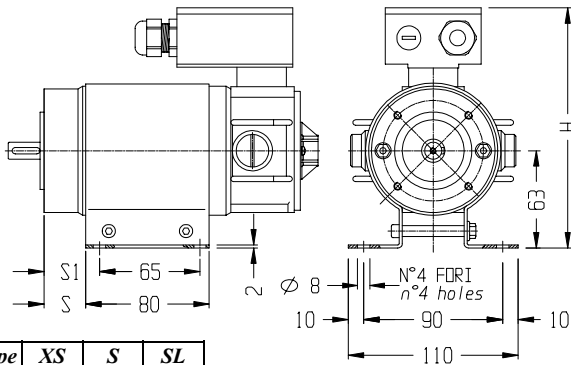
### B14 FLANGE



Size	A	d(i6)	d1(i6)	d2	d3	d4	F	C
63	23	11	60	90	M5	75	M4	4*4*18
71	30	14	70	105	M6	85	M5	5*5*25

### PIEDE A FASCIA

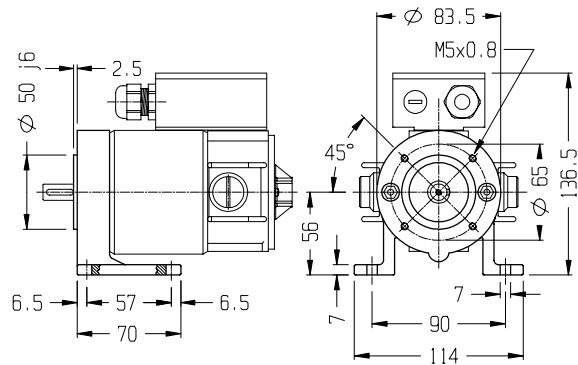
### FOOT BAND TYPE



Type	XS	S	SL
H	155.5	143.5	143.5
S	27	27	27
SI	36	36	36

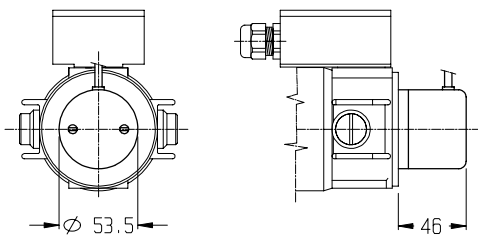
### FLANGIA B3-B14/56

### B3-B14/56 FLANGE



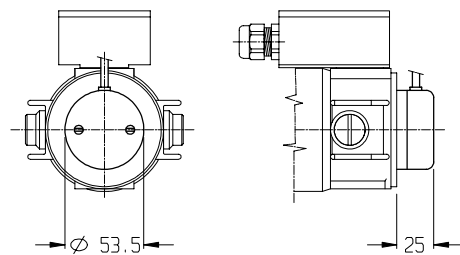
### ENCODER EH53

### ENCODER EH53

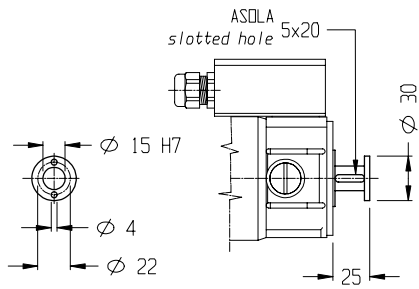


### ENCODER EH38

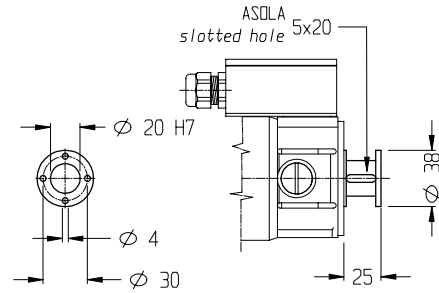
### ENCODER EH38



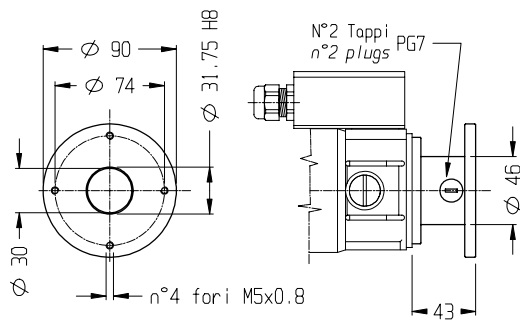
**DISTANZ. ENC. N°1**      *ENCODER SPACER N°1*



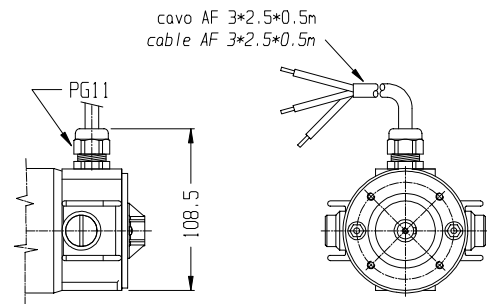
**DISTANZ. ENC. N°2**      *ENCODER SPACER N°2*



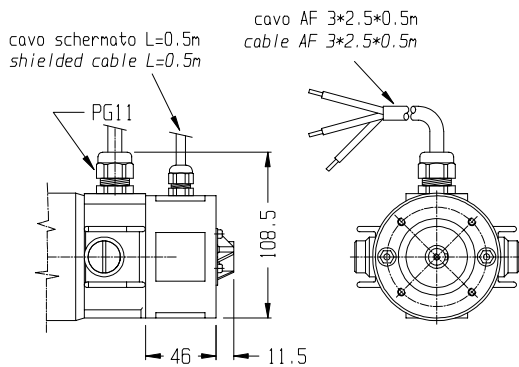
**DISTANZ. ENC. N°3**      *ENCODER SPACER N°3*



**CAVO**      *FLYING LEADS*



**CAVO + DINAMO**      *TACHO + FLYING LEADS*



SERIE  
Series

**ESA 6S**

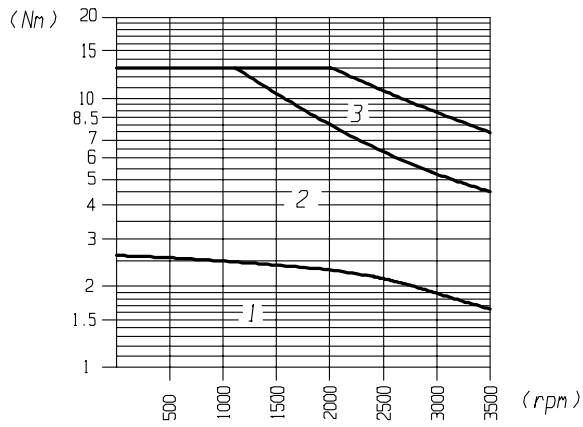
**COPPIA - TORQUE**

**Nm 2.65**

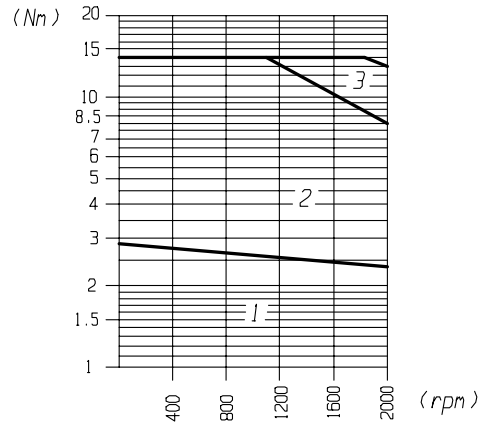
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2	5				
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3500	2000	3000				
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	2.65	2.95	2.4				
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	590	500	500				
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	7.8	5.1	13.7				
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	13.25	14.25	12				
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	39	25.5	68.5				
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	42.9	28.05	75.35				
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	124.25	116	50.7				
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	3000	4000				
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0018	0.0018	0.0018				
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	7360	7916	6660				
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	17	14	23				
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.113	0.113	0.113				
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.068	0.068	0.068				
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	588	588	588				
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	176	176	176				
	PESO - <i>Weight</i>	M	[Kg]	9.4	9.4	9.4				
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	35.5	58	16.9				
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.34	0.56	0.175				
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	5.35	5.9	2.94				
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	40	40	40				
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	1	2.25	0.24				
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	1.1	2.35	0.34					
INDUTTANZA - <i>Inductance</i>	La	[mH]	5.9	13.8	1					
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP			54					
CLASSE D' ISOLAMENTO - <i>Insulation class</i>					F					
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD	SVS					
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	12	16					
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24	24					
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.6	0.4					
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	14	9.5					

## CURVE OPERATIVE PERFORMANCE CURVES

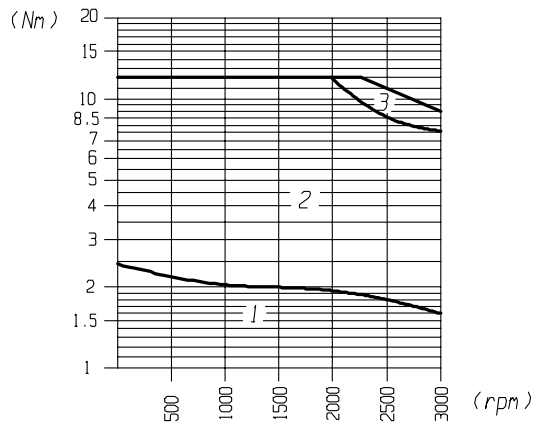
ESA 6S1



ESA 6S2



ESA 6S5



1 = Area di ciclo continuo  
 2 = Area di ciclo intermittente  
 3 = Area di accel. decel.

1 = Continuous duty area  
 2 = Intermittent duty area  
 3 = Accel. decel. duty area



SERIE  
Series

# ESA 6F

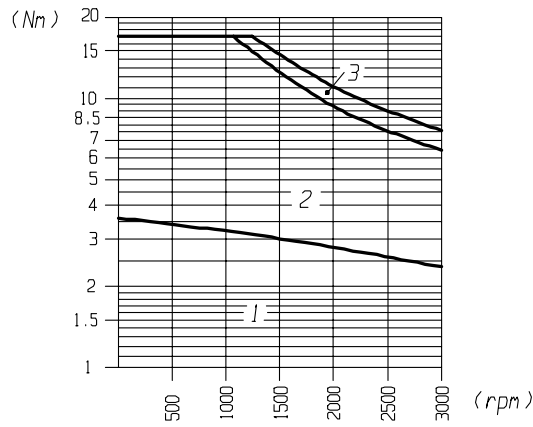
**COPPIA - TORQUE**

## Nm 3.5

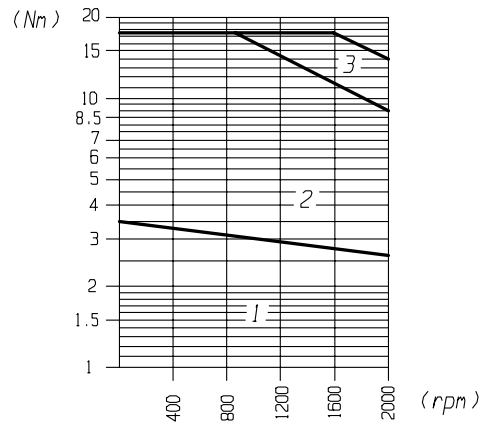
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding							
				2	3	4					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	2000	1200					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	3.5	3.5	3.5					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	720	580	380					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	9	6	3.65					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	17.5	17.5	17.5					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	45	30	16.5					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	49.5	33	20.075					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	120	120	119					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	4000	3000	1800					
	<b>DATI MECCANICI - MECHANICAL DATA</b>										
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0018	0.0018	0.0018					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	9720	9720	9720					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	12	9	9					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.138	0.138	0.138					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.143	0.143	0.143					
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	588	588	588					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	176	176	176					
	PESO - <i>Weight</i>	M	[Kg]	9.4	9.4	9.4					
	<b>DATI ELETTRICI - WINDING DATA</b>										
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	40	60	99					
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.39	0.58	0.96					
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	3.5	4	4.47					
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	40	40	40					
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.92	1.7	4.4					
	RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.97	1.75	4.45					
INDUTTANZA - <i>Inductance</i>	La	[mH]	3.4	7.1	19.9						
GRADO DI PROTEZIONE - <i>Protection degree</i>	IP				54						
CLASSE D' ISOLAMENTO - <i>Insulation class</i>					F						
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )							
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm							
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1							
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12							
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02							
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40							
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86							
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13							
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )							
	NUMERO POLI - <i>Number of poles</i>			4							
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm								
FRENO Brake	TIPO - <i>Type</i>			STD	SVS						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	12	16						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.6	0.4						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	14	9.5						

## CURVE OPERATIVE PERFORMANCE CURVES

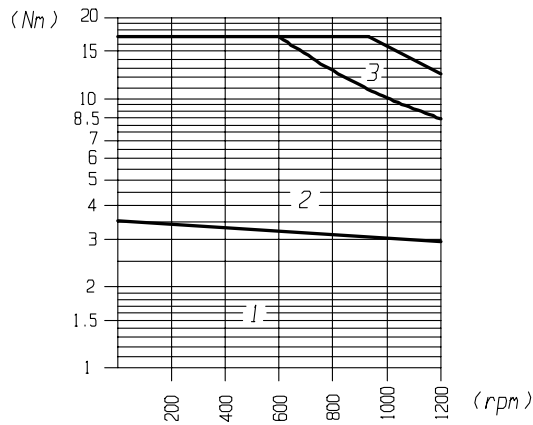
ESA 6F2



ESA 6F3



ESA 6F4



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

# ESA 6M

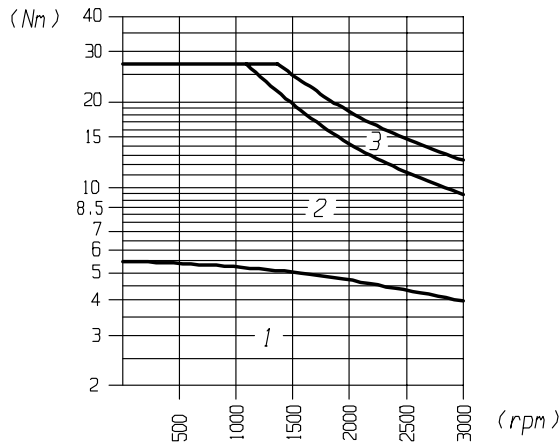
**COPPIA - TORQUE**

## Nm 5.5

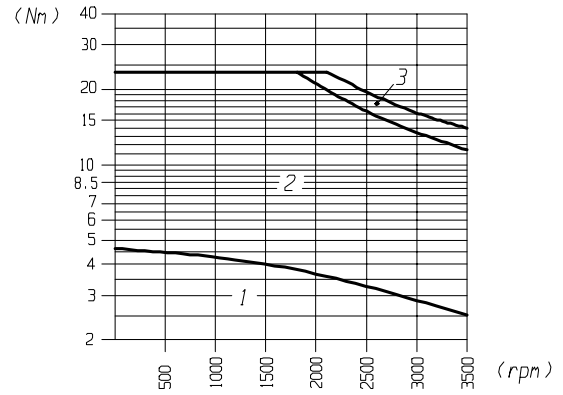
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding					
				1	2	3	4	7	
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3500	3000	3000	1200	
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	5.5	4.6	5.5	5.5	5.5	
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	1250	920	1100	1100	720	
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	9.8	14	14	12	5.5	
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	27.5	23	27.5	27.5	27.5	
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	49	70	70	60	27.5	
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	53.9	77	77	66	30.25	
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	173	119	120	141	126	
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	3500	4000	4000	3500	1800	
	<b>DATI MECCANICI - MECHANICAL DATA</b>								
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0028	0.0028	0.0028	0.0028	0.0028	
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	9820	8214	9820	9820	9820	
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	8	9	9	8	6.5	
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.191	0.191	0.191	0.191	0.191	
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.162	0.162	0.162	0.162	0.162	
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	588	588	588	588	588	
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	176	176	176	176	176	
	PESO - <i>Weight</i>	M	[Kg]	13.6	13.6	13.6	13.6	13.6	
	<b>DATI ELETTRICI - WINDING DATA</b>								
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	57.7	34	40	47	105	
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.56	0.33	0.39	0.453	1		
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	3.7	3.2	3.67	3.6	4		
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	50	50	50	50	50		
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.8	0.29	0.4	0.53	2.3		
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.85	0.34	0.45	0.58	2.35		
INDUTTANZA - <i>Inductance</i>	La	[mH]	3.15	1.1	1.65	2.1	9.4		
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP				54			
CLASSE D' ISOLAMENTO - <i>Insulation class</i>						F			
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)					
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm					
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1					
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12					
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02					
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40					
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86					
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13					
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )					
	NUMERO POLI - <i>Number of poles</i>			4					
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm						
FRENO Brake	TIPO - <i>Type</i>			STD	SVS				
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	12	16				
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24	24				
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	0.6	0.4				
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	14	9.5				

CURVE OPERATIVE  
PERFORMANCE CURVES

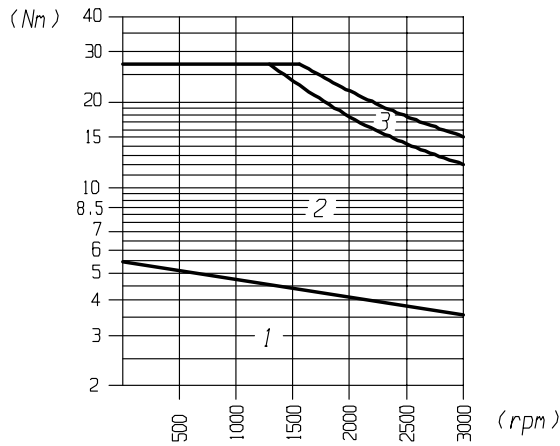
ESA 6M1



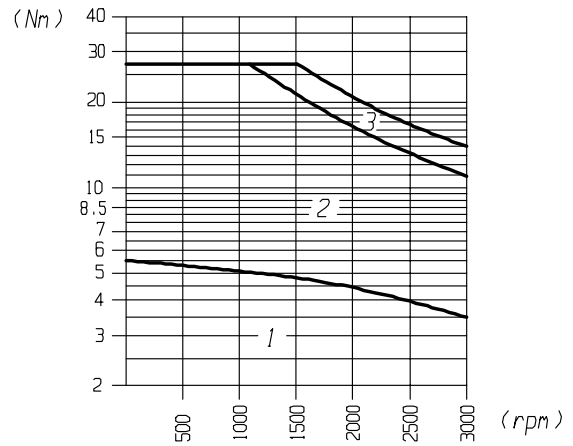
ESA 6M2



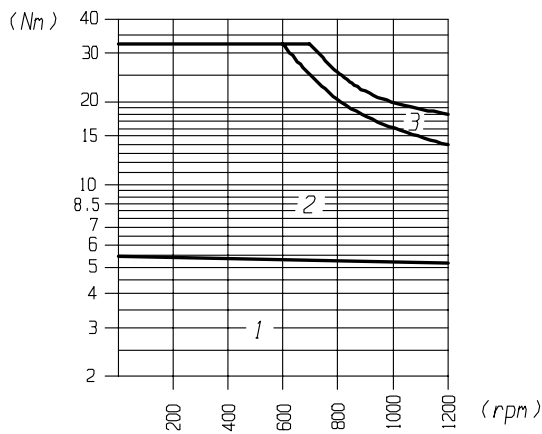
ESA 6M3



ESA 6M4



ESA 6M7



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

# ESA 6L

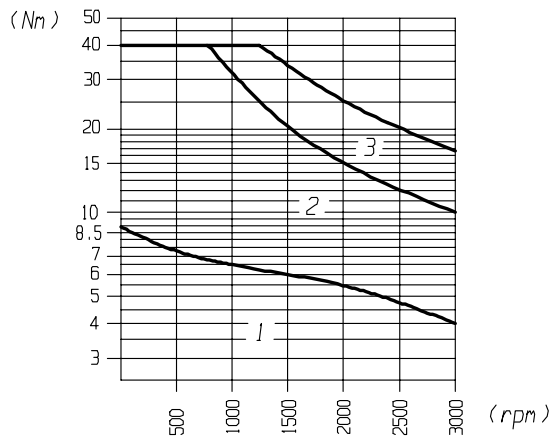
**COPPIA - TORQUE**

## Nm 8

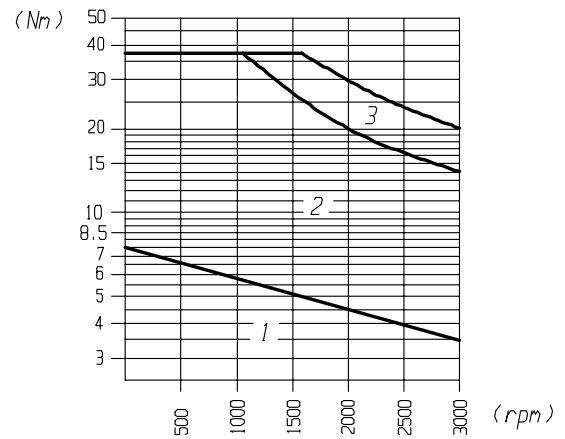
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2	3	5	7	8	
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3000	3000	2000	1500	1200	
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	8	7.5	8	8	8	8	
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	1260	1100	1260	1320	1100	920	
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	14.5	21	15.5	13.8	9.9	8	
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	40	37.5	40	40	40	40	
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	72.5	105	77.5	69	49.5	40	
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	Ipeak	[A]	79.75	115.5	82.25	75.9	54.45	44	
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	171	114	160.5	120	128	128	
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	3500	4000	3500	3000	2500	1800	
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.0051	0.0051	0.0051	0.0051	0.0051	0.0051	
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	7840	7350	7840	7840	7840	7840	
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	7	12	7	8	8	7	
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.21	0.21	0.21	0.21	0.21	0.21	
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.21	0.21	0.21	0.21	0.21	0.21	
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	588	588	588	588	588	588	
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	176	176	176	176	176	176	
	PESO - <i>Weight</i>	M	[Kg]	17	17	17	17	17	17	
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	57	37.5	53.5	60	84	105	
COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.55	0.36	0.514	0.57	0.808	1		
COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	4.1	2.7	4.1	3.8	4.15	4.5		
COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	60	60	60	60	60	60		
RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.37	0.26	0.35	0.45	1	1.26		
RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.42	0.31	0.4	0.5	1.05	1.31		
INDUTTANZA - <i>Inductance</i>	La	[mH]	1.72	0.85	1.65	1.9	4.2	5.9		
GRADO DI PROTEZIONE - <i>Protection degree</i>	IP		54							
CLASSE D' ISOLAMENTO - <i>Insulation class</i>			F							
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% (MAX 9000 rpm)						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[%]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[%]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[%]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[%]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[Ohm]	86						
	INDUTTANZA - <i>Inductance</i>	La	[mH]	13						
	CORRENTE - <i>Current</i>	I	[mA]	2 (MAX 8 mA)						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD	SVS					
	COPPIA STATICA - <i>Static torque</i>	C	[Nm]	12	16					
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[V]	24	24					
	CORRENTE NOMINALE - <i>Rated current</i>	I	[A]	0.6	0.4					
	POTENZA ASSORBITA - <i>Input power</i>	P	[W]	14	9.5					

**CURVE OPERATIVE  
PERFORMANCE CURVES**

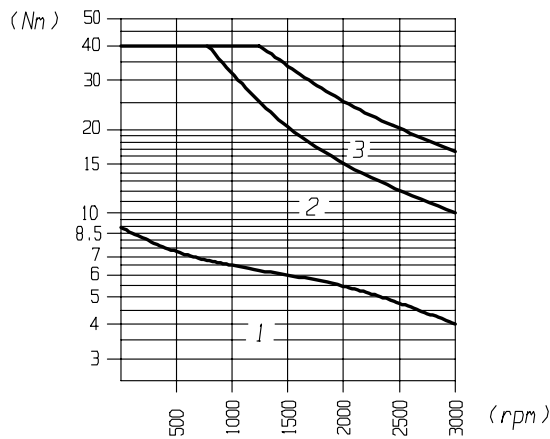
**ESA 6L1**



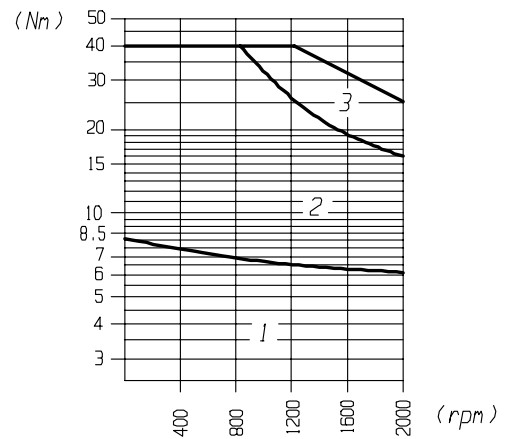
**ESA 6L2**



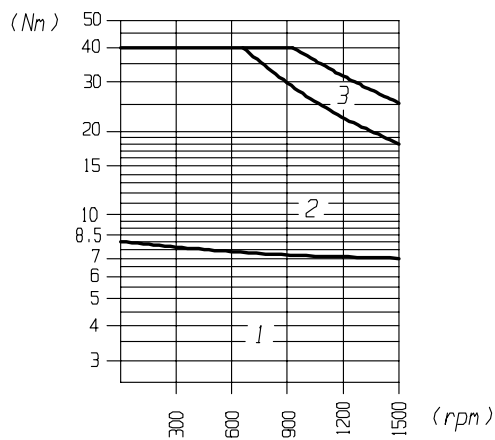
**ESA 6L3**



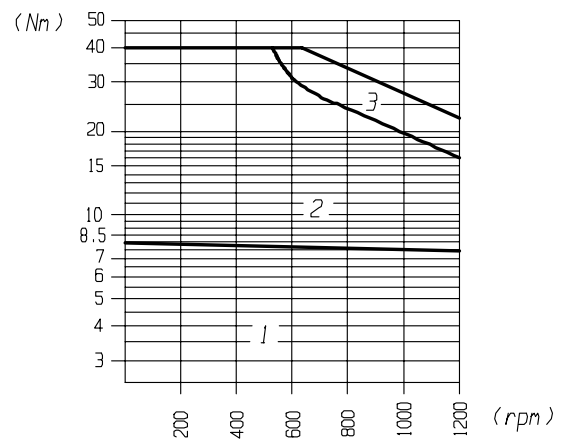
**ESA 6L5**



**ESA 6L7**



**ESA 6L8**



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

# ESA 6

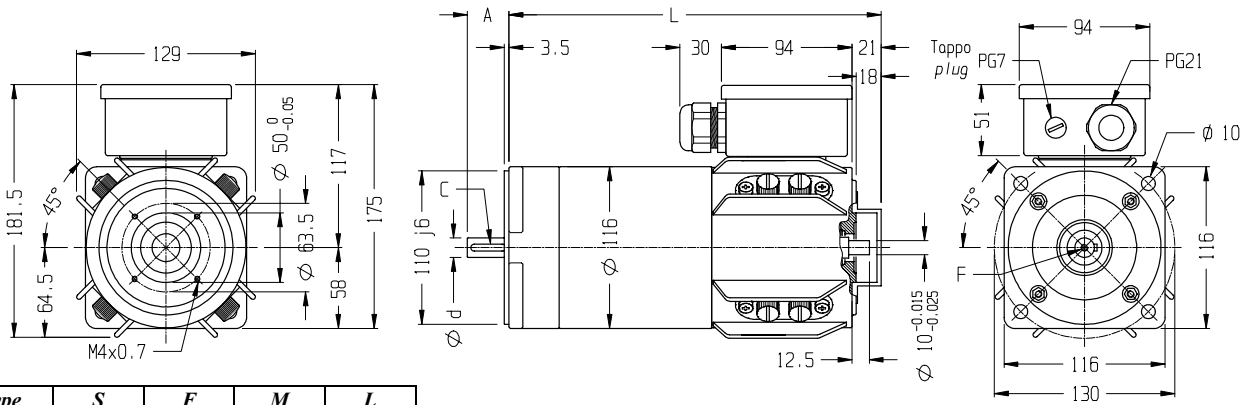
SERVOMOTORI C.C.

D.C. SERVOMOTORS



DIMENSIONI (mm)

DIMENSIONS (mm)

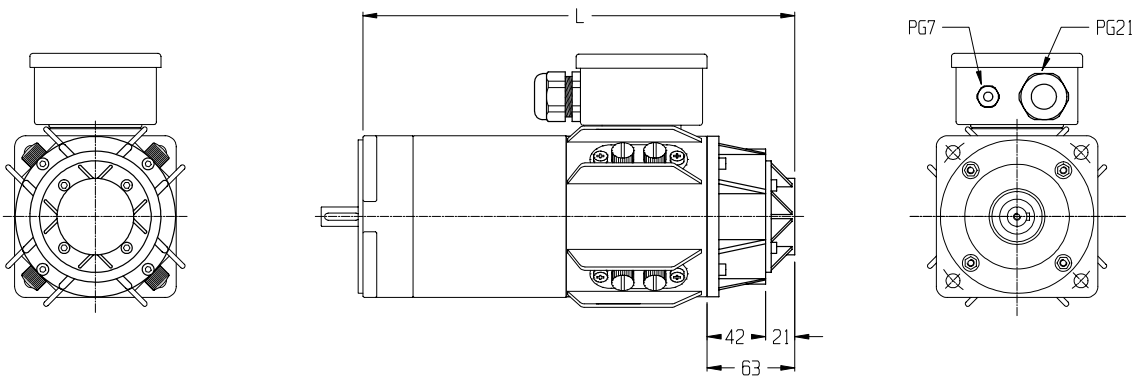


Type	S	F	M	L
A	30		40	
F	M5		M6	
L		268	340	412
d (j6)	14		19	
C	5x5x25		6x6x30	

PREDISPOSTO ENCODER STD  
STD ENCODER PREARRANGEMENT

## DINAMO TACHIMETRICA

## TACHO GENERATOR

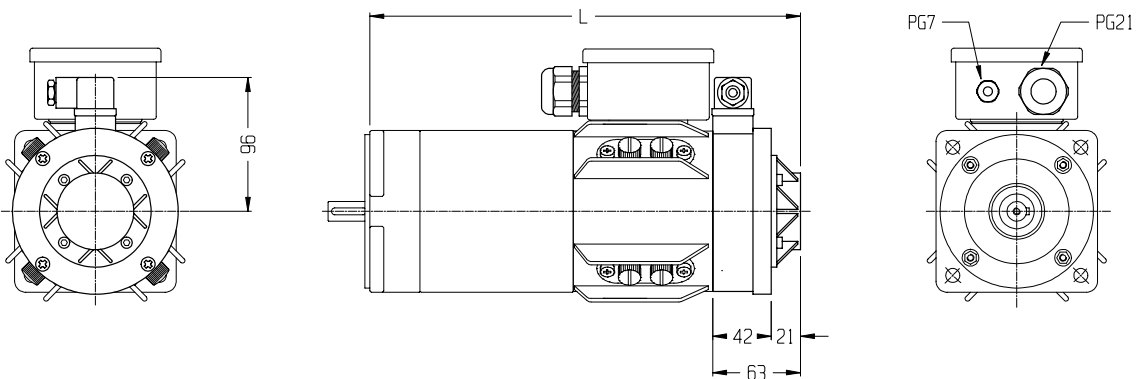


Type	S	F	M	L
L	309		381	453

PREDISPOSTO ENCODER STD  
STD ENCODER PREARRANGEMENT

## FRENO + DINAMO TACHIMETRICA

## TACHO GENERATOR + BRAKE



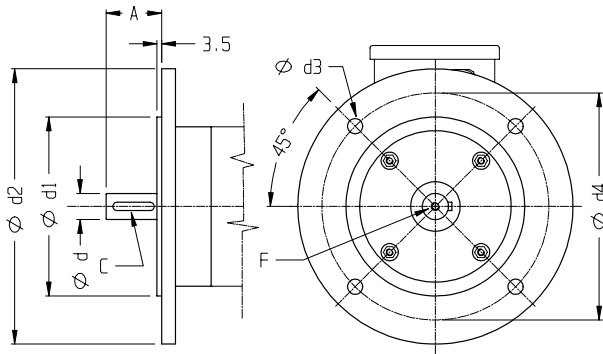
Type	S	F	M	L
L	309		381	453

PREDISPOSTO ENCODER STD  
STD ENCODER PREARRANGEMENT

## OPTIONALS

**FLANGIA B5**

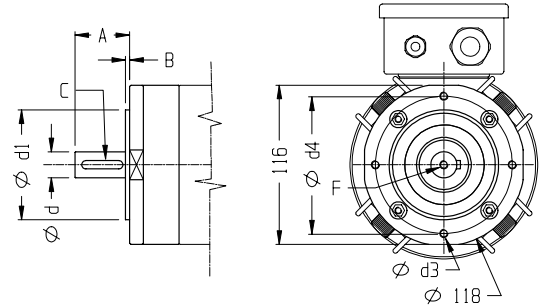
*B5 FLANGE*



Size	A	C	d(h7)	d1(h7)	d2	d3	d4	F
71	30	5x5x25	14	110	160	9.5	130	M5
80	40	6x6x30	19	130	200	11	165	M6

**FLANGIA B14**

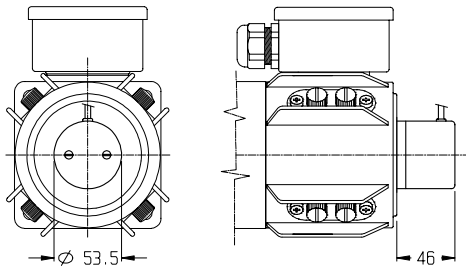
*B14 FLANGE*



Size	A	B	C	d(h7)	d1(h7)	d3	d4	F
71	30	2.5	5x5x25	14	70	M6	85	M5
80	40	3	6x6x30	19	80	M6	100	M6

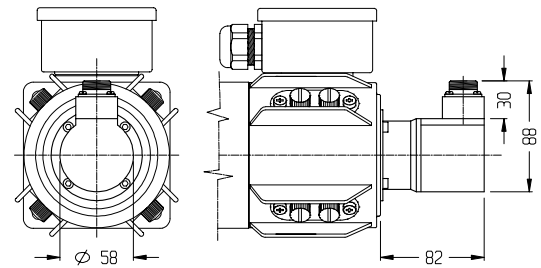
**ENCODER EH53**

*ENCODER EH53*



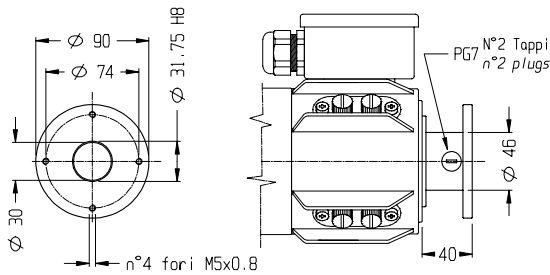
**ENCODER EL72**

*ENCODER EL72*



**DISTANZ. ENC N°1**

*ENCODER SPACER N°1*





SERIE  
Series

**ESA 9S**

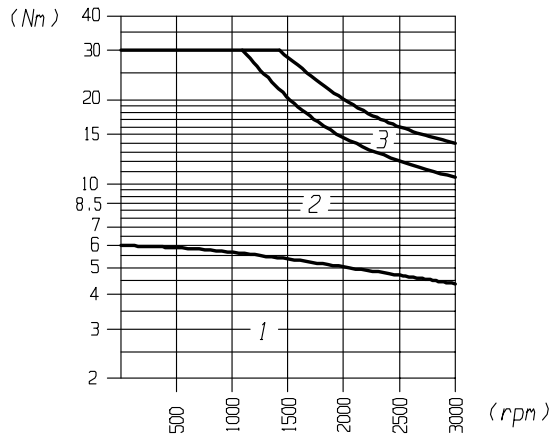
**COPPIA - TORQUE**

**Nm 6**

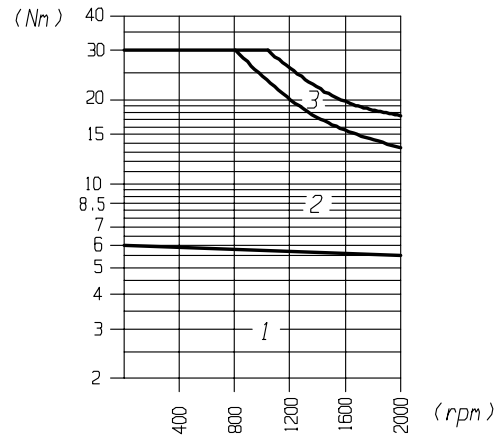
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2					
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	2000					
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	6	6					
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	1380	1150					
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	11	7.8					
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	27	27					
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	49.5	35					
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	60.5	42.9					
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	171	160					
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	3500	2500					
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.006	0.006					
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	4500	4500					
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	17	17					
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.25	0.25					
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.17	0.17					
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	784	784					
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	235	235					
	PESO - <i>Weight</i>	M	[Kg]	14	14					
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	57	80					
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.55	0.77					
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	6.5	7					
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	70	70					
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.8	1.6					
	RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.85	1.65					
	INDUTTANZA - <i>Inductance</i>	La	[mH]	5.5	11.55					
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP					54			
CLASSE D' ISOLAMENTO - <i>Insulation class</i>							F			
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	16						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	2.3						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	9.5						

CURVE OPERATIVE  
PERFORMANCE CURVES

ESA 9S1



ESA 9S2



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

**ESA 9M**

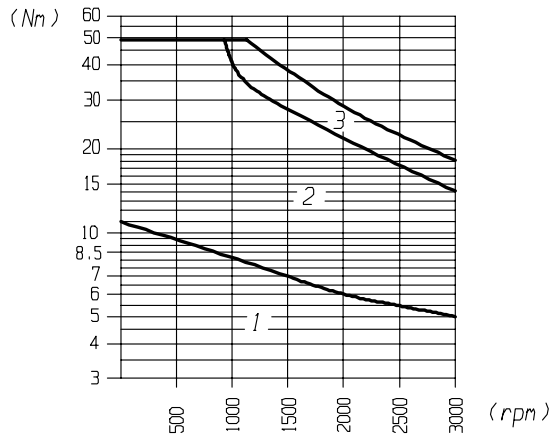
**COPPIA - TORQUE**

**Nm 11**

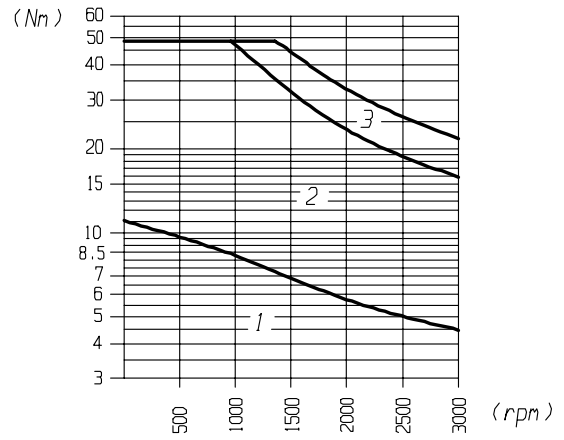
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2	3				
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	3000	2000				
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	11	11	11				
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	1570	1400	1500				
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	20	25	13.4				
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	49.5	49.5	49.5				
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	90	112.5	60				
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	110	137.5	73.7				
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	171	138	170				
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	3500	3500	2500				
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.01	0.01	0.01				
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	4950	4950	4950				
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	12	13	10				
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.35	0.35	0.35				
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.22	0.22	0.22				
	MAX CARICO RADIALE ( A 3000 RPM) - <i>Max radial load ( at 3000 rpm )</i>	Fr	[N]	784	784	784				
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	235	235	235				
	PESO - <i>Weight</i>	M	[Kg]	22	22	22				
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	57	46	85				
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.55	0.44	0.82				
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	6.4	6	6.6				
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	80	80	80				
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.31	0.2	0.61				
	RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.36	0.25	0.66				
	INDUTTANZA - <i>Inductance</i>	La	[mH]	2.3	1.5	4.35				
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP			54					
CLASSE D' ISOLAMENTO - <i>Insulation class</i>					F					
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expctancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	16						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	2.3						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	9.5						

CURVE OPERATIVE  
PERFORMANCE CURVES

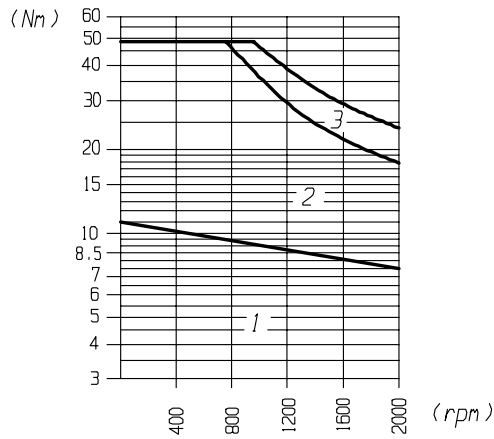
ESA 9M1



ESA 9M2



ESA 9M3



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area

SERIE  
Series

**ESA 9L**

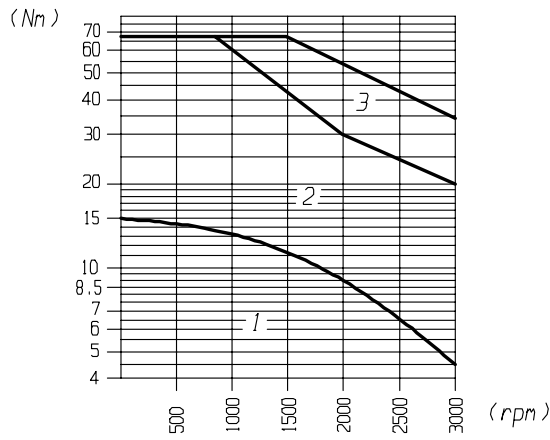
**COPPIA - TORQUE**

**Nm 15**

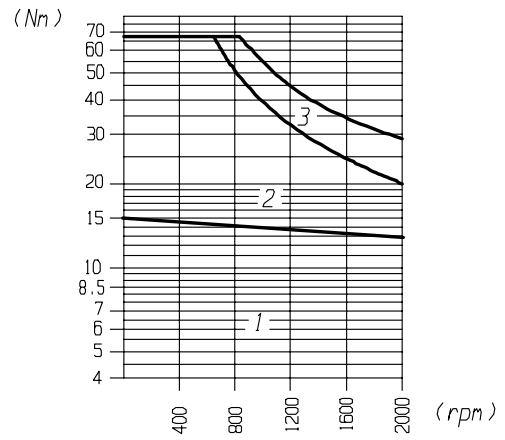
DATI MOTORE - MOTOR RATINGS		SIMBOLI Symbols	UNITA' Units	TIPO DI AVVOLGIMENTO Type of winding						
				1	2	3				
SERVOMOTORE - Servomotor	VELOCITA' NOMINALE - <i>Rated speed</i>	n	[rpm]	3000	2000	1500				
	COPPIA ROTORE BLOCCATO - <i>Continuous stall torque</i>	Cn	[Nm]	15	15	15				
	POTENZA A VELOCITA' NOMINALE - <i>Power at rated speed</i>	Pn	[W]	1400	2680	2040				
	CORRENTE A ROTORE BLOCCATO - <i>Stall current</i>	In	[A]	27.5	18.3	14.2				
	PICCO DI COPPIA ALLO SPUNTO - <i>Peak torque</i>	Cmax	[Nm]	67.5	67.5	67.5				
	CORRENTE AL PICCO DI COPPIA - <i>Peak current</i>	Imax	[A]	124	82	64				
	CORRENTE SMAGNETIZZANTE - <i>Demagnetise current</i>	lpeak	[A]	151.25	100.65	78.1				
	FCEM A VELOCITA' NOMINALE - <i>Bemf at rated speed</i>	E	[V]	171	170	165				
	MAX VELOCITA' - <i>Max speed</i>	Nmax	[rpm]	3500	2400	1800				
	<b>DATI MECCANICI - MECHANICAL DATA</b>									
	MOMENTO D'INERZIA - <i>Moment of inertia</i>	Jm	Kg m <sup>2</sup>	0.014	0.014	0.014				
	MAX. ACC. TEORICA - <i>Max theoretical acceleration</i>	αmax	rad/s <sup>2</sup>	4820	4820	4820				
	COSTANTE DI TEMPO MECCANICA - <i>Mechanical time constant</i>	Tm	[ms]	13	12	12				
	COPPIA SMORZAMENTO A 1000 RPM - <i>Damping constant at 1000 rpm</i>	Td	[Nm]	0.45	0.45	0.45				
	COPPIA ATTRITO STATICO - <i>Static friction torque</i>	Tf	[Nm]	0.3	0.3	0.3				
	MAX CARICO RADIALE (A 3000 RPM) - <i>Max radial load (at 3000 rpm)</i>	Fr	[N]	784	784	784				
	MAX CARICO ASSIALE - <i>Max axial load</i>	Fa	[N]	235	235	235				
	PESO - <i>Weight</i>	M	[Kg]	30	30	30				
	<b>DATI ELETTRICI - WINDING DATA</b>									
	COSTANTE DI TENSIONE ± 5% - <i>Voltage constant ± 5%</i>	Ke	V/Krpm	57	85	110				
	COSTANTE DI COPPIA ± 5% - <i>Torque constant ± 5%</i>	Kt	[Nm/A]	0.55	0.82	1.06				
	COSTANTE DI TEMPO ELETTRICA - <i>Electrical time constant</i>	Te	[ms]	4.95	5.2	5.4				
	COSTANTE DI TEMPO TERMICA - <i>Thermal time constant</i>	Tt	[min]	90	90	90				
	RESIST. ARMATURA ± 10% A 25°C - <i>Armature resistance ± 10% at 25°C</i>	Ra	[Ohm]	0.23	0.52	0.88				
	RESIST. ARMATURA CON SPAZZOLE - <i>Terminal resistance</i>	Rt	[Ohm]	0.28	0.57	0.93				
	INDUTTANZA - <i>Inductance</i>	La	[mH]	1.39	2.95	5				
GRADO DI PROTEZIONE - <i>Protection degree</i>		IP			54					
CLASSE D' ISOLAMENTO - <i>Insulation class</i>					F					
DINAMO T. Tacho generator	COSTANTE DI TENSIONE - <i>Voltage constant</i>	Ke	V/Krpm	10 +/- 5% ( MAX 9000 rpm )						
	ONDULAZIONE PICCO/PICCO - <i>Ripple</i>		[ % ]	< 1.5 A 1000 rpm						
	LINEARITA' A 6000 RPM - <i>Linearity at 6000 rpm</i>		[ % ]	< 0.1						
	ERRORE DI REVERSIBILITA' - <i>Reversibility error</i>		[ % ]	< 0.12						
	COEFFICIENTE DI TEMPERATURA - <i>Temperature coefficient</i>		[ % ]	0.02						
	MOMENTO D' INERZIA - <i>Moment of inertia</i>	J	g cm <sup>2</sup>	40						
	RESISTENZA - <i>Resistance</i>	Ra	[ Ohm ]	86						
	INDUTTANZA - <i>Inductance</i>	La	[ mH ]	13						
	CORRENTE - <i>Current</i>	I	[ mA ]	2 ( MAX 8 mA )						
	NUMERO POLI - <i>Number of poles</i>			4						
VITA SPAZZOLE PREVISTA - <i>Life expectancy</i>			15000 A 3000 rpm							
FRENO Brake	TIPO - <i>Type</i>			STD						
	COPPIA STATICA - <i>Static torque</i>	C	[ Nm ]	16						
	TENSIONE DI ALIMENTAZIONE - <i>Power supply voltage</i>	E	[ V ]	24						
	CORRENTE NOMINALE - <i>Rated current</i>	I	[ A ]	2.3						
	POTENZA ASSORBITA - <i>Input power</i>	P	[ W ]	9.5						

**CURVE OPERATIVE  
PERFORMANCE CURVES**

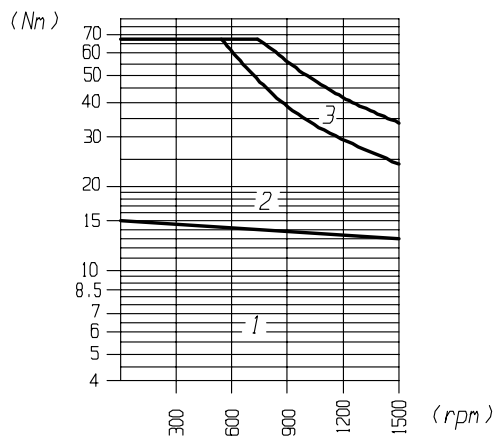
**ESA 9L1**



**ESA 9L2**

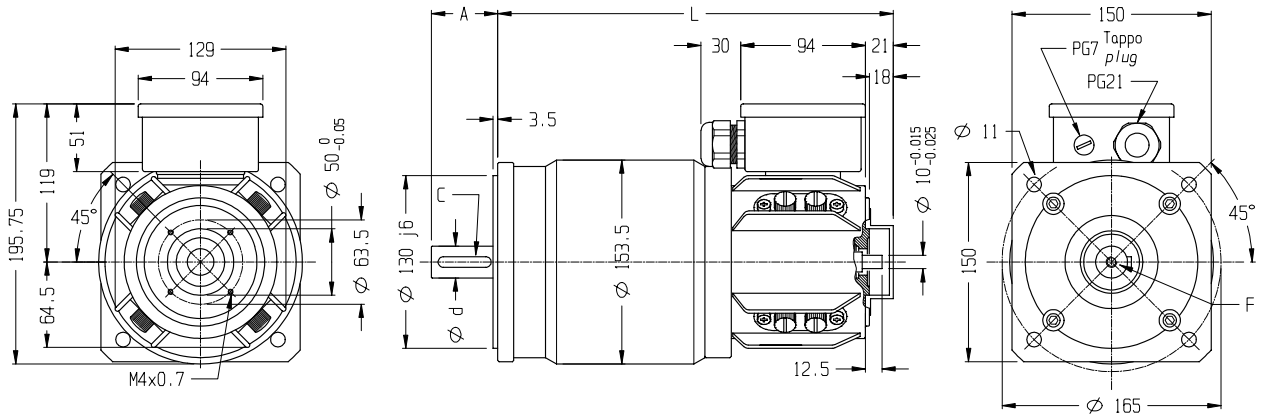


**ESA 9L3**



1 = Area di ciclo continuo  
2 = Area di ciclo intermittente  
3 = Area di accel. decel.

1 = Continuous duty area  
2 = Intermittent duty area  
3 = Accel. decel. duty area



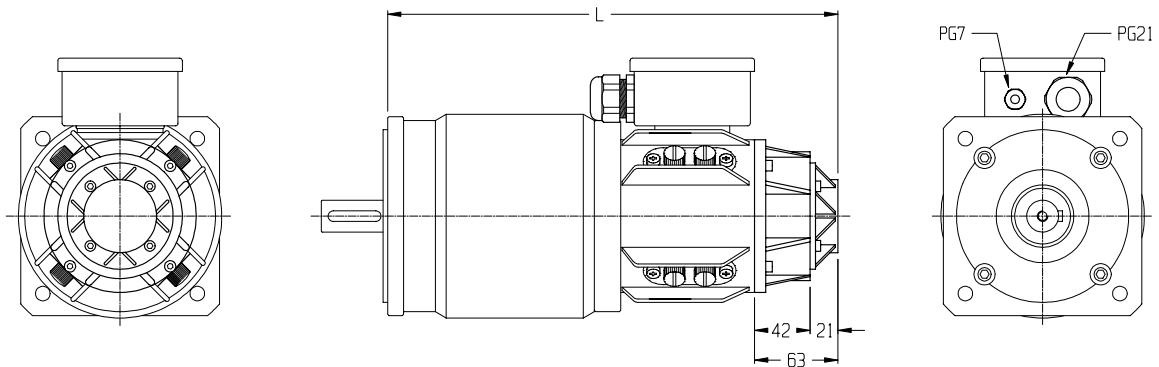
Type	S	M	L
A		50	
F		M8	
d(i6)		24	

Type	S	M	L
L	298	363	424
C		8*7*40	

**PREDISPOSTO ENCODER STD**  
STD ENCODER PREARRANGEMENT

**DINAMO TACHIMETRICA**

*TACHO GENERATOR*

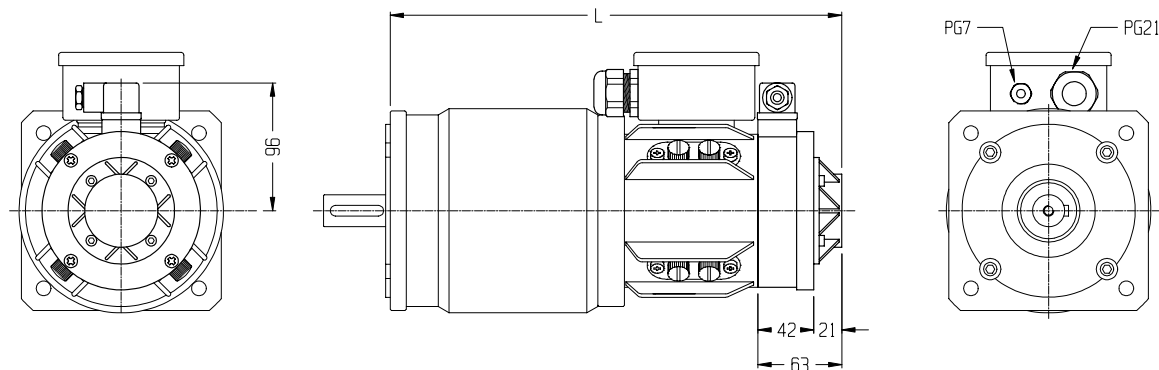


Type	S	M	L
L	339	404	465

**PREDISPOSTO ENCODER STD**  
STD ENCODER PREARRANGEMENT

**FRENO + DINAMO TACHIMETRICA**

*TACHO GENERATOR + BRAKE*



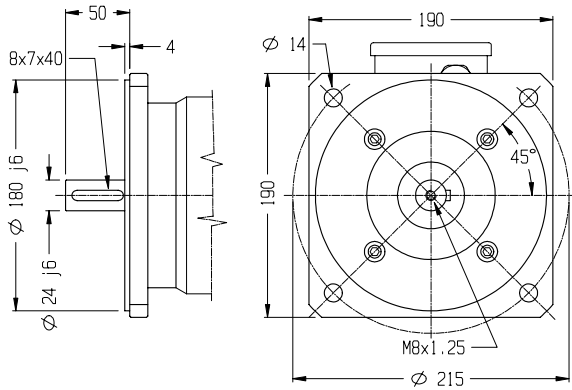
Type	S	M	L
L	339	404	465

**PREDISPOSTO ENCODER STD**  
STD ENCODER PREARRANGEMENT

## OPTIONALS

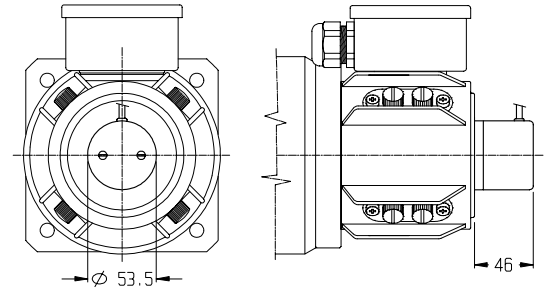
**FLANGIA B5/100**

*B5/100 FLANGE*



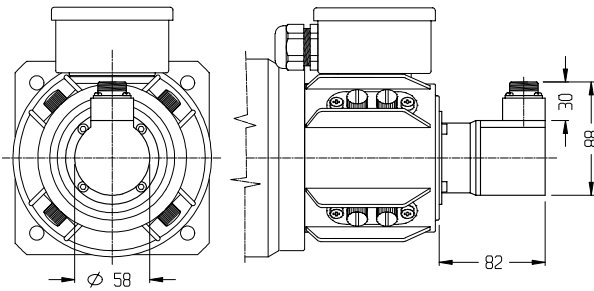
**ENCODER EH53**

*ENCODER EH53*



**ENCODER EL72**

*ENCODER EL72*



**DISTANZ. ENC. N°1**

*ENCODER SPACER N°1*

