SERIES

TETRA 56

HOW TO ORDER A BRUSHLESS SERVOMOTOR SERIES TETRA 56

TETRA	56	SR	0.50	E	L	01	001	A	00.02
SERIES	TYPE	WAVEFORM	NOMINAL STALL TORQUE	TRANSDUCER TYPE	MOMENT OF INERTIA	WINDING CODE	TRANSDUCER MODEL	CONNECTION POSITION	MODEL LIST
TETRA	**56**	**SR** = sinewave **TR** = squarewave	**0.50** **0.9** **1.35**	**E** = Encoder **R** = Resolver **H** = Hall Sensor	**L** = Low	See Data Sheet	**001** = Encoder ∅35 4p 2000 ppr **002** = Encoder ∅35 4p 1000 ppr **401** = Resolver 2p size 15 **008** = Hall Sensor 4p	**A** = Std. **B** = On req. **C** = On req. **D** = On req.	**00** = No prearranged **01** = External Encoder prearranged **02** = With brake **04** = Double connector **05** = Double cable gland on terminal box **08** = Connector + cable gland on terminal box

N.B. Servomotors are not including connector flying panels which have to be ordered separately indicating **FC**.

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 56SR 0.5

TORQUE

0.5 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				01	02	03	04	08	12	14	15
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	6000	5000	4000	3000	2000	1400		
	Vn drive 3phase 95 V ac		[rpm]				6300	4200	3000	2000	1300
	Vn drive 3phase 145 V ac		[rpm]						4500	3000	2000
	Vn drive 3phase 220 V ac		[rpm]							4600	3000
	Vn drive 3phase 380 V ac		[rpm]								5200
SERVOMOTOR	WINDING DATA										
	Poles number	P		4							
	Continuos stall torque	Cn0	[Nm]	0.5							
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	5.7	6.8	8.5	11.3	17.0	24.0	36.0	55.0
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.09	0.11	0.14	0.19	0.28	0.40	0.60	0.91
	Stall current	In0	[Arms]	5.33	4.44	3.56	2.67	1.78	1.26	0.84	0.55
	Peak torque	Cmax	[Nm]	1.5							
	Peak current	I cmax	[Arms]	16.0	13.3	10.7	8.0	5.3	3.8	2.5	1.6
	Max current	I max	[Arms]	18.7	15.6	12.4	9.3	6.2	4.4	2.9	1.9
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.72	1.04	1.66	2.82	6.51	11.61	28.08	67.83
	Phase / phase inductance	Lff	[mH]	2.46	3.35	5.30	9.52	21.18	45.78	103.00	233.00
	Electrical time constant	Te	[ms]	3.44	3.22	3.19	3.38	3.25	3.94	3.67	3.43
	Thermal time constant	Tt	[min]	35							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia	Jm	[Kg cm^2]	0.16							
	Max theorethical acceleration	αmax	[rad/s^2]	93750							
	Mechanical time constant	Tm	[ms]	1.3	1.3	1.3	1.3	1.3	1.2	1.3	1.3
	Cogging torque	Tcog	[Nm]	0.015							
	Damping constant at 1000 rpm	Td	[Nm]	0.012							
	Max radial load (at 3000 rpm)	Fr	[N]	240 (applied on the shaft's middle)							
	Max axial load	Fa	[N]	76 (applied on the shaft's middle)							
	Weight	M	[Kg]	1.5							
THERMAL P.	Type of thermal cut - off			N C : normally closed							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 2							
	Static torque	Co	[Nm]	2							
	Rated voltage	Vn	[V]	24 Vcc + 6% -10% Stabilized							
	Rated current	In	[A]	0.46							
	Input power	Pn	[W]	11							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	25							

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1102010003

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 56SR0.9

TORQUE

0.9 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				01	02	03	04	08	12	14	15
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	6000	5000	4000	3000	2000	1400		
	Vn drive 3phase 95 V ac		[rpm]				6300	4200	3000	2000	1300
	Vn drive 3phase 145 V ac		[rpm]						4500	3000	2000
	Vn drive 3phase 220 V ac		[rpm]							4600	3000
	Vn drive 3phase 380 V ac		[rpm]								5200
SERVOMOTOR	WINDING DATA										
	Poles number	P		4							
	Continuos stall torque	Cn0	[Nm]	0.90							
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	5.7	6.8	8.5	11.3	17.0	24.0	36.0	55.0
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.09	0.11	0.14	0.19	0.28	0.40	0.60	0.91
	Stall current	In0	[Arms]	9.60	8.00	6.40	4.80	3.20	2.27	1.51	0.99
	Peak torque	Cmax	[Nm]	2.7							
	Peak current	I cmax	[Arms]	28.8	24.0	19.2	14.4	9.6	6.8	4.5	3.0
	Max current	I max	[Arms]	33.6	28.0	22.4	16.8	11.2	7.9	5.3	3.5
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.33	0.49	0.78	1.32	3.11	5.45	12.78	31.60
	Phase / phase inductance	Lff	[mH]	0.87	1.20	1.88	3.47	7.50	13.33	30.00	70.00
	Electrical time constant	Te	[ms]	2.64	2.45	2.42	2.62	2.42	2.45	2.35	2.22
	Thermal time constant	Tt	[min]	40							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia	Jm	[Kg cm^2]	0.23							
	Max theorethical acceleration	αmax	[rad/s^2]	117391							
	Mechanical time constant	Tm	[ms]	0.9	0.9	0.9	0.9	0.9	0.8	0.8	0.9
	Cogging torque	Tcog	[Nm]	0.027							
	Damping constant at 1000 rpm	Td	[Nm]	0.024							
	Max radial load (at 3000 rpm)	Fr	[N]	240 (applicato sulla mezzeria dell'albero)							
	Max axial load	Fa	[N]	76 (applicato sulla mezzeria dell'albero)							
	Weight	M	[Kg]	1.8							
THERMAL P.	Type of thermal cut - off			N C : normalmente chiuso							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 2							
	Static torque	Co	[Nm]	2							
	Rated voltage	Vn	[V]	24 Vcc + 6% -10% Stabilizzato							
	Rated current	In	[A]	0.46							
	Input power	Pn	[W]	11							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	25							

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1102020003

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 56SR1.35

TORQUE

1.35 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				01	02	03	04	08	12	14	15
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	6000	5000	4000	3000	2000	1400		
	Vn drive 3phase 95 V ac		[rpm]				6300	4200	3000	2000	1300
	Vn drive 3phase 145 V ac		[rpm]						4500	3000	2000
	Vn drive 3phase 220 V ac		[rpm]							4600	3000
	Vn drive 3phase 380 V ac		[rpm]								5200
SERVOMOTOR	WINDING DATA										
	Poles number	P		4							
	Continuos stall torque	Cn0	[Nm]	1.35							
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	5.7	6.8	8.5	11.3	17.0	24.0	36.0	55.0
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.09	0.11	0.14	0.19	0.28	0.40	0.60	0.91
	Stall current	In0	[Arms]	14.40	12.00	9.60	7.20	4.80	3.40	2.27	1.48
	Peak torque	Cmax	[Nm]	4.05							
	Peak current	I cmax	[Arms]	43.2	36.0	28.8	21.6	14.4	10.2	6.8	4.5
	Max current	I max	[Arms]	50.4	42.0	33.6	25.2	16.8	11.9	7.9	5.2
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.20	0.27	0.45	0.72	1.69	2.94	7.15	17.07
	Phase / phase inductance	Lff	[mH]	0.43	0.58	0.86	1.57	3.44	6.22	14.00	25.00
	Electrical time constant	Te	[ms]	2.18	2.18	1.92	2.19	2.04	2.11	1.96	1.46
	Thermal time constant	Tt	[min]	45							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia	Jm	[$Kg\ cm^2$]	0.37							
	Max theorethical acceleration	αmax	[rad/s^2]	109459							
	Mechanical time constant	Tm	[ms]	0.8	0.8	0.8	0.8	0.8	0.7	0.7	0.8
	Cogging torque	Tcog	[Nm]	0.0405							
	Damping constant at 1000 rpm	Td	[Nm]	0.036							
	Max radial load (at 3000 rpm)	Fr	[N]	240 (applied on the shaft's middle)							
	Max axial load	Fa	[N]	76 (applied on the shaft's middle)							
	Weight	M	[Kg]	2.2							
THERMAL P.	Type of thermal cut - off			N C : normally closed							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 2							
	Static torque	Co	[Nm]	2							
	Rated voltage	Vn	[V]	24 Vcc + 6% -10% Stabilized							
	Rated current	In	[A]	0.46							
	Input power	Pn	[W]	11							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	25							

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1102030003

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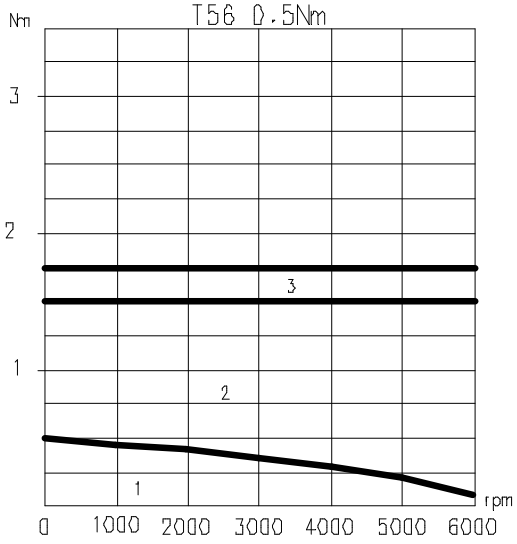
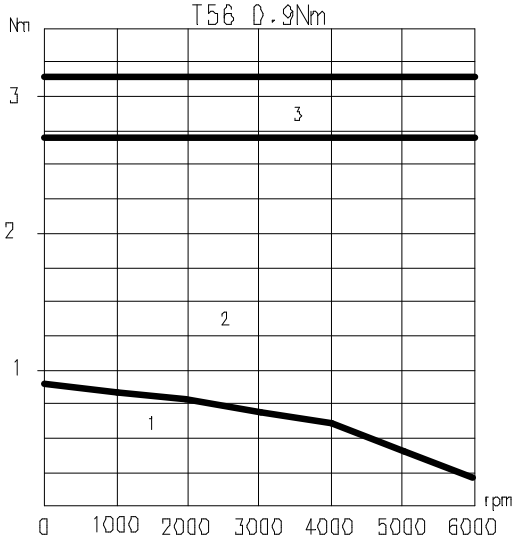
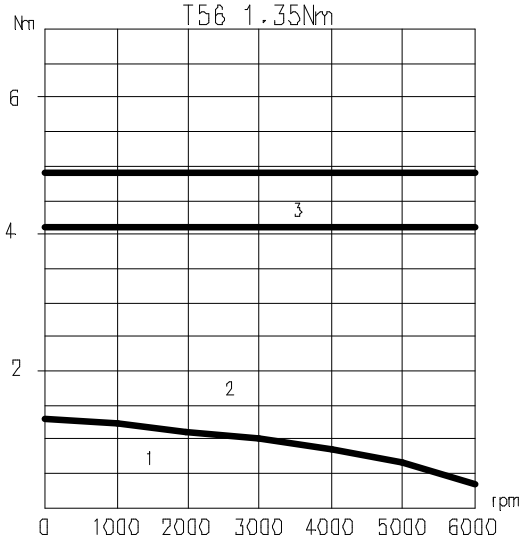
SERIES

TETRA 56

PERFORMANCE CURVES







1 CONTINUOUS DUTY AREA **2** INTERMITTENT DUTY AREA **3** DEMAGNETIZATION LIMIT

DATA SHEET N°4B1002000000

MOTOR POWER COMPANY

SERIES

TETRA 56

TRANSDUCER SERIES

TRANSDUCERS

E TYPE : ENCODER

RATED VOLTAGE	Vn	[V]	5 ± 5%
RATED CURRENT	In	[mA]	200
FREQUENCY	F	[K Hz]	200
WORKING TEMPERATURE	Tn	[°C]	- 20 ÷ + 100°
ELECTRONIC TYPE			LINE DRIVER AM 26 LS31
ROTATION			BIDIRECTIONAL
ZERO IMPULSE			STANDARD
N° OF PULSES REVOLUTION			1000 - 2000
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

R TYPE : RESOLVER

RATED VOLTAGE	Vn	[V rms]	7 ± 5%
RATED CURRENT	In	[mA]	18
PHASE SHIFT			0°
ELECTRIC ERROR			± 10′
MIN. SIN. AMPLITUDE		[mVrms]	20
FREQUENCY	F	[KHz]	10
POLES NUMBER			2
TRASFORMER RATIO			0.5 ± 5%
INPUT INPEDANCE	Zro	[Ohm]	70 + j 100
OUTPUT IMPEDANCE	Zss	[Ohm]	175 + j 257
WORKING TEMPERATURE	Tn	[°C]	- 55 ÷ + 155°

H TYPE : HALL SENSORS

RATED VOLTAGE	Vn	[V]	5 ÷ 24
RATED CURRENT	In	[mA]	100
WORKING TEMPERATURE	Tn	[°C]	-20° ÷ +100°
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

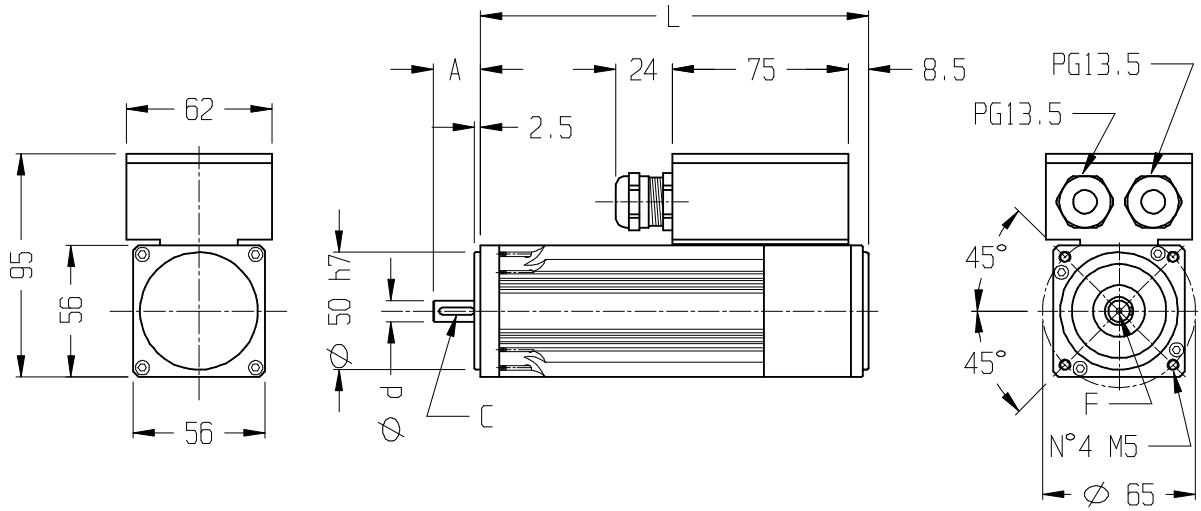
DATA SHEET N° 2B1002000000

SERIES

TETRA 56

DIMENSIONS (mm)

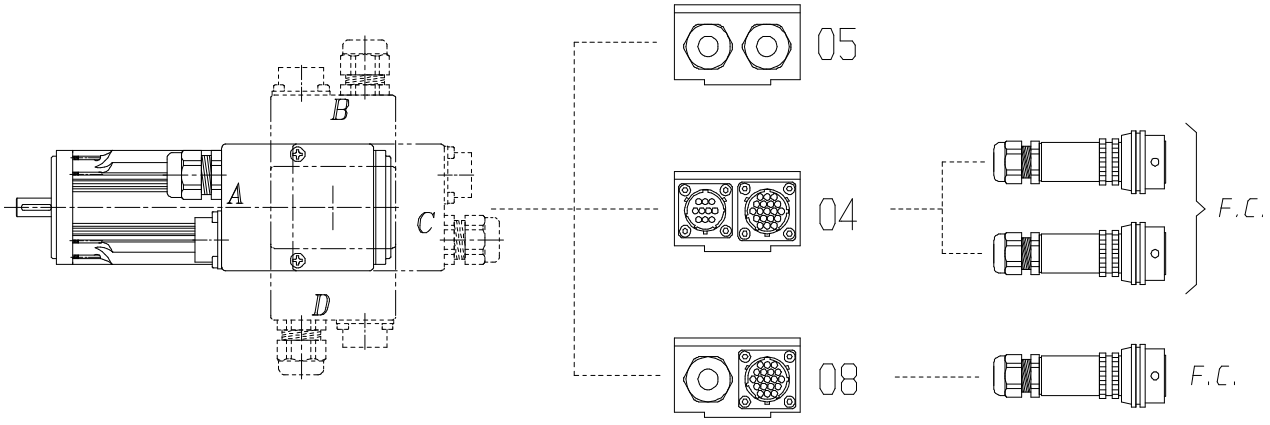
STANDARD



TYPE	0.5	0.9	1.35
A	20	20	23
L	135* - 152**	165* - 182**	195* - 212**
d(j6)	9	9	11
F			M4
C	3x3x15	3x3x15	4x4x18

LENGHT L INCREASED OF 30 MM WITH SAFETY BRAKE MOUNTED.- * LENGHT RESOLVER VERSION - ** LENGHT ENCODER VERSION

CONNECTION POSITIONS



A = Standard Position

DATA SHEET N° 7B10020001AA

SERIES

TETRA 85

HOW TO ORDER A BRUSHLESS SERVOMOTOR SERIES TETRA 85

TETRA	85	SR	3.2	E	L	01	003	A	00.02
SERIES	TYPE	WAVEFORM	NOMINAL STALL TORQUE	TRANSDUCER TYPE	MOMENT OF INERTIA	WINDING TYPE	TRANSDUCER MODEL	CONNECTION POSITION	MODEL LIST
TETRA	**85**	**SR** = sinewave **TR** = squarewave	**1.2** **2.2** **3.2** **4.2**	**E** = Encoder **R** = Resolver **H** = Hall Sensor	**L** = Low **H** = High	See Data Sheet	**003** = Encoder ∅48 4p 2000 ppr **004** = Encoder ∅48 4p 1000 ppr **501** = Resolver 2p size 19 **008** = Hall Sensor 4p	**A** = Std. **B** = On req. **C** = On req. **D** = On req.	**00** = No prearranged **01** = External Encoder prearranged **02** = With brake **04** = Double connector on terminal box **16** = Double cable gland on terminal box **18** = Connector + cable gland on terminal box

N.B. Servomotors are not including connector flying panels which have to be ordered separately indicating **FC**.

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BRUSHLESS SERVOMOTORS

MOTOR POWER COMPANY

SERIES

TETRA 85SR1.2

TORQUE

1.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING									
				01	02	03	04	08	12	14	15	17	18
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	6000	5000	4000	3000	2000	1400				
	Vn drive 3phase 95 V ac		[rpm]				6300	5500	3000	2000	1300		
	Vn drive 3phase 145 V ac		[rpm]						4500	3000	2000	1150	
	Vn drive 3phase 220 V ac		[rpm]							4600	3000	1700	1150
	Vn drive 3phase 380 V ac		[rpm]								5200	3000	2000
SERVOMOTOR	WINDING DATA												
	Poles number	P		4									
	Continuos stall torque	Cn0	[Nm]	1.20									
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	5.7	6.8	8.5	11.3	17.0	24.0	36.0	55.0	96.7	145.0
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.09	0.11	0.14	0.19	0.28	0.40	0.60	0.91	1.60	2.40
	Stall current	In0	[Arms]	12.80	10.67	8.53	6.40	4.27	3.02	2.02	1.32	0.75	0.50
	Peak torque	Cmax	[Nm]	3.60									
	Peak current	I cmax	[Arms]	38.4	32.0	25.6	19.2	12.8	9.1	6.0	4.0	2.3	1.5
	Max current	I max	[Arms]	44.8	37.3	29.9	22.4	14.9	10.6	7.1	4.6	2.6	1.8
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.15	0.22	0.38	0.69	1.53	2.72	6.55	15.56	43.75	105.26
	Phase / phase inductance	Lff	[mH]	1.15	1.72	2.79	5.14	11.16	24.44	55.00	118.00	392.74	880.00
	Electrical time constant	Te	[ms]	7.54	7.72	7.38	7.43	7.30	9.00	8.40	7.59	8.98	8.36
	Thermal time constant	Tt	[min]	15									
	Operating temperature	Tr	[°C]	0 + 40									
	Protection degree	IP		65 (*)									
	Insulation class			F									
	MECHANICAL DATA												
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]	1.3/0.9									
	Max theorethical acceleration	αmax	[rad/s^2]	27692/38710									
	Mechanical time constant	Tm	[ms]	1.6	1.6	1.8	1.8	1.8	1.6	1.7	1.7	1.6	1.7
	Cogging torque	Tcog	[Nm]	0.036									
	Damping constant at 1000 rpm	Td	[Nm]	0.018									
	Max radial load (at 3000 rpm)	Fr	[N]	330 (applied on the shaft's middle)									
	Max axial load	Fa	[N]	105 (applied on the shaft's middle)									
	Weight	M	[Kg]	3.2									
THERMAL P.	Type of thermal cut - off			N C : normally closed									
	Rated voltage	Vn	[V ac]	250									
	Rated current	In	[A]	2.5									
	Operative temperature	Tn	[°C]	140 °C ± 5%									
	Resetting temperature	Tr	[°C]	100 °C ± 15°C									
	Operative time	[ms]		1									
	Insulation class			F									
BRAKE	Type			STD 4.5									
	Static torque	Co	[Nm]	4.5									
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized									
	Rated current	In	[A]	0.5									
	Input power	Pn	[W]	12									
	Release time	Tr	[ms]	2									
	Locking time	Tl	[ms]	35									

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1104010004

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 85SR2.2

TORQUE

2.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING									
				01	02	03	04	08	12	14	15	17	18
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	6000	5000	4000	3000	2000	1400				
	Vn drive 3phase 95 V ac		[rpm]				6300	4200	3000	2000	1300		
	Vn drive 3phase 145 V ac		[rpm]						4500	3000	2000	1150	
	Vn drive 3phase 220 V ac		[rpm]							4600	3000	1700	1150
	Vn drive 3phase 380 V ac		[rpm]								5200	3000	2000
SERVOMOTOR	WINDING DATA												
	Poles number	P		4									
	Continuos stall torque	Cn0	[Nm]	2.20									
	Voltage constant ± 5%	Ke	[Vrms/Krpm]	5.7	6.8	8.5	11.3	17.0	24.0	36.0	55.0	96.7	145.0
	Torque constant ± 5%	Kt	[Nm/Arms]	0.09	0.11	0.14	0.19	0.28	0.40	0.60	0.91	1.60	2.40
	Stall current	In0	[Arms]	23.47	19.56	15.65	11.73	7.82	5.54	3.69	2.42	1.38	0.92
	Peak torque	Cmax	[Nm]	6.60									
	Peak current	I cmax	[Arms]	70.4	58.7	46.9	35.2	23.5	16.6	11.1	7.3	4.1	2.8
	Max current	I max	[Arms]	82.1	68.5	54.8	41.1	27.4	19.4	12.9	8.5	4.8	3.2
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.06	0.09	0.16	0.25	0.54	1.11	2.18	5.18	19	34.78
	Phase / phase inductance	Lff	[mH]	0.39	0.56	1.00	1.56	3.50	7.23	15.30	35.75	47.3	245.80
	Electrical time constant	Te	[ms]	6.56	6.30	6.30	6.13	6.49	6.49	7.01	6.90	5.99	7.07
	Thermal time constant	Tt	[min]	20									
	Operating temperature	Tr	[°C]	0 + 40									
	Protection degree	IP		65 (*)									
	Insulation class			F									
	MECHANICAL DATA												
	Moment of inertia h/l	Jm	[Kg cm^2]	1.8/1.4									
	Max theorethical acceleration	αmax	[rad/s^2]	36666/48529									
	Mechanical time constant	Tm	[ms]	0.9	1.0	1.1	1.0	0.9	1.0	0.8	0.9	1.0	0.8
	Cogging torque	Tcog	[Nm]	0.066									
	Damping constant at 1000 rpm	Td	[Nm]	0.035									
	Max radial load (at 3000 rpm)	Fr	[N]	330 (applied on the shaft's middle)									
	Max axial load	Fa	[N]	105 (applied on the shaft's middle)									
	Weight	M	[Kg]	4.2									
THERMAL P.	Type of thermal cut - off			N C : normally closed									
	Rated voltage	Vn	[V ac]	250									
	Rated current	In	[A]	2.5									
	Operative temperature	Tn	[°C]	140 °C ± 5%									
	Resetting temperature	Tr	[°C]	100 °C ± 15°C									
	Operative time	[ms]		1									
	Insulation class			F									
BRAKE	Type			STD 4.5									
	Static torque	Co	[Nm]	4.5									
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized									
	Rated current	In	[A]	0.5									
	Input power	Pn	[W]	12									
	Release time	Tr	[ms]	2									
	Locking time	Tl	[ms]	35									

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1104010005

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BRUSHLESS SERVOMOTORS

MOTOR POWER COMPANY

SERIES

TETRA 85SR3.2

TORQUE

3.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				06	09	12	14	15	16	17	18
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	2600		1400					
	Vn drive 3phase 95 V ac		[rpm]	5500	4000	3000	2000	1300			
	Vn drive 3phase 145 V ac		[rpm]		6100	4500	3000	2000	1500	1150	
	Vn drive 3phase 220 V ac		[rpm]				4600	3000	2300	1700	1150
	Vn drive 3phase 380 V ac		[rpm]					5200	4000	3000	2000
SERVOMOTOR	WINDING DATA										
	Poles number	P		4							
	Continuos stall torque	Cn0	[Nm]	3.20							
	Voltage constant ± 5%	Ke	[Vrms/Krpm]	13.1	18.0	24.0	36.0	55.0	72.5	96.7	145.0
	Torque constant ± 5%	Kt	[Nm/Arms]	0.22	0.30	0.40	0.60	0.91	1.20	1.60	2.40
	Stall current	In0	[Arms]	14.79	10.75	8.06	5.37	3.52	2.67	2.00	1.33
	Peak torque	Cmax	[Nm]	9.60							
	Peak current	I cmax	[Arms]	44.4	32.2	24.2	16.1	10.6	8.0	6.0	4.0
	Max current	I max	[Arms]	51.8	37.6	28.2	18.8	12.3	9.3	7.0	4.7
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.25	0.46	0.74	1.77	3.98	7.01	11.87	26.71
	Phase / phase inductance	Lff	[mH]	1.24	2.21	3.92	8.82	19.80	32.93	58.53	131.70
	Electrical time constant	Te	[ms]	5.03	4.81	5.28	4.99	4.98	4.70	4.93	4.93
	Thermal time constant	Tt	[min]	30							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia h/l	Jm	[Kg cm²]	2.9/2.2							
	Max theorethical acceleration	αmax	[rad/s²]	33103/43439							
	Mechanical time constant	Tm	[ms]	1.2	1.1	1.0	1.1	1.1	1.1	1.0	1.0
	Cogging torque	Tcog	[Nm]	0.096							
	Damping constant at 1000 rpm	Td	[Nm]	0.053							
	Max radial load (at 3000 rpm)	Fr	[N]	330 (applied on the shaft's middle)							
	Max axial load	Fa	[N]	105 (applied on the shaft's middle)							
	Weight	M	[Kg]	5.4							
THERMAL P.	Type of thermal cut - off			N C : normally closed							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 4.5							
	Static torque	Co	[Nm]	4.5							
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized							
	Rated current	In	[A]	0.5							
	Input power	Pn	[W]	12							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	35							

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1104030004

BRUSHLESS SERVOMOTORS

MOTOR POWER COMPANY

SERIES

TETRA 85SR4.2

TORQUE

4.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				06	09	12	14	15	16	17	18
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	2600		1400					
	Vn drive 3phase 95 V ac		[rpm]	5500	4000	3000	2000	1300			
	Vn drive 3phase 145 V ac		[rpm]		6100	4500	3000	2000	1500	1150	
	Vn drive 3phase 220 V ac		[rpm]				4600	3000	2300	1700	1150
	Vn drive 3phase 380 V ac		[rpm]					5200	4000	3000	2000
SERVOMOTOR	WINDING DATA										
	Poles number	P		4							
	Continuos stall torque	Cn0	[Nm]	4.20							
	Voltage constant ± 5%	Ke	[Vrms/Krpm]	13,1	18.0	24.0	36.0	55.0	72.5	96.7	145.0
	Torque constant ± 5%	Kt	[Nm/Arms]	0.22	0.3	0,4	0.60	0,91	1.20	1.60	2.40
	Stall current	In0	[Arms]	19.42	14.11	10,58	7.05	4,62	3.50	2.63	1.75
	Peak torque	Cmax	[Nm]	12.60							
	Peak current	I cmax	[Arms]	58.2	42.3	31,7	21.2	13,8	10.5	7.9	5.3
	Max current	I max	[Arms]	68	49.4	37	24.7	16,2	12.3	9.2	6.1
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.13	0.31	0,45	1.08	2.37	3.72	7.44	18.20
	Phase / phase inductance	Lff	[mH]	0.56	1.24	1,85	4.43	10.68	19.82	35.24	81.70
	Electrical time constant	Te	[ms]	4.42	4.03	4.15	4.11	4.50	5.33	4.74	4.49
	Thermal time constant	Tt	[min]	40							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia h/l	Jm	[Kg cm^2]	3.5/2.6							
	Max theorethical acceleration	αmax	[rad/s^2]	36000/47727							
	Mechanical time constant	Tm	[ms]	0.7	0.9	0,7	0.8	0.8	0.7	0.8	0.8
	Cogging torque	Tcog	[Nm]	0.126							
	Damping constant at 1000 rpm	Td	[Nm]	0.07							
	Max radial load (at 3000 rpm)	Fr	[N]	330 (applied on the shaft's middle)							
	Max axial load	Fa	[N]	105 (applied on the shaft's middle)							
	Weight	M	[Kg]	6.3							
THERMAL P.	Type of thermal cut - off			N C : normally closed							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 4.5							
	Static torque	Co	[Nm]	4.5							
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized							
	Rated current	In	[A]	0.5							
	Input power	Pn	[W]	12							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	35							

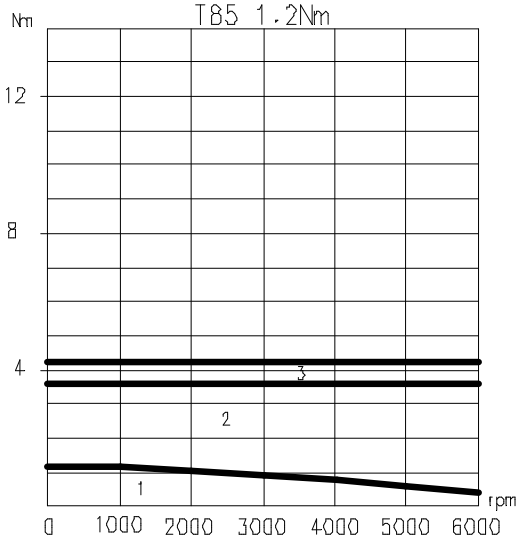
(*) with oil seal mounted on the flange

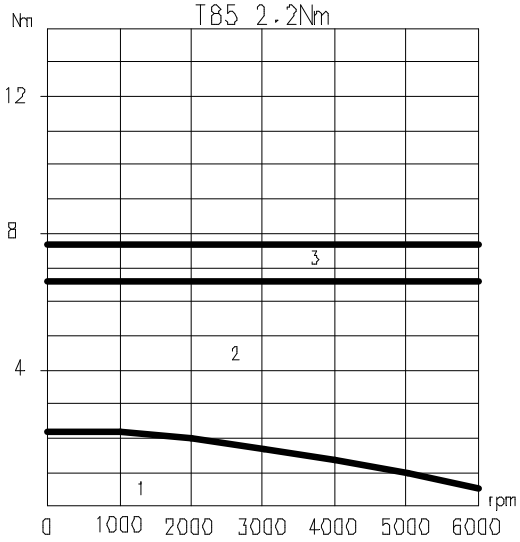
DATA SHEET N° 1B1104040004

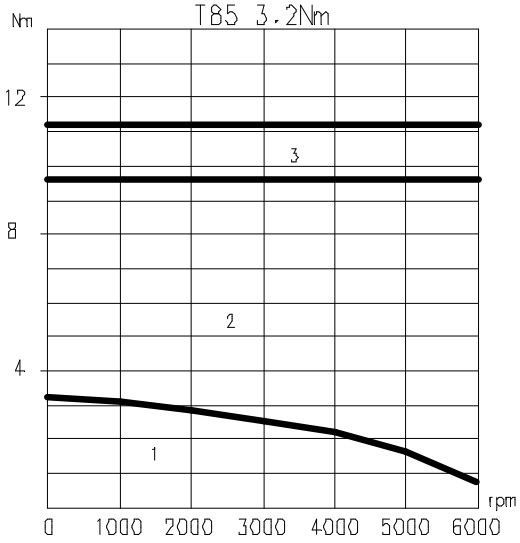
SERIES

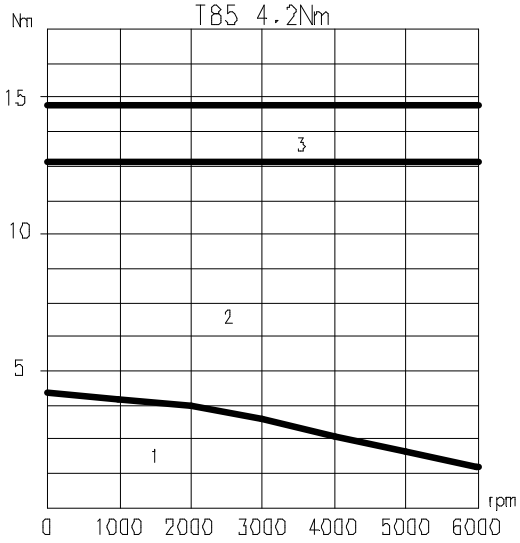
TETRA 85

PERFORMANCE CURVES









1 CONTINUOUS DUTY AREA **2** INTERMITTENT DUTY AREA **3** DEMAGNETIZATION LIMIT

DATA SHEET N°4B1004000000

SERIES

TETRA 85

TRANSDUCER SERIES

TRANSDUCERS

E TYPE : ENCODER

RATED VOLTAGE	Vn	[V]	5 ± 5%
RATED CURRENT	In	[mA]	200
FREQUENCY	F	[K Hz]	200
WORKING TEMPERATURE	Tn	[°C]	- 20 ÷ + 100°
ELECTRONIC TYPE			LINE DRIVER AM 26 LS31
ROTATION			BIDIRECTIONAL
ZERO IMPULSE			STANDARD
N° OF PULSES REVOLUTION			1000 - 2000
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

R TYPE : RESOLVER

RATED VOLTAGE	Vn	[V rms]	7 ± 5%
RATED CURRENT	In	[mA]	18
PHASE SHIFT			- 5°
ELECTRIC ERROR			± 10′
MIN. SIN. AMPLITUDE		[mVrms]	25
FREQUENCY	F	[KHz]	10
POLES NUMBER			2
TRASFORMER RATIO			0.5 ± 5%
INPUT INPEDANCE	Zro	[Ohm]	110 + j 140
OUTPUT IMPEDANCE	Zss	[Ohm]	130 + j 240
WORKING TEMPERATURE	Tn	[°C]	- 55 ÷ + 155°

H TYPE : HALL SENSORS

RATED VOLTAGE	Vn	[V]	5 ÷ 24
RATED CURRENT	In	[mA]	100
WORKING TEMPERATURE	Tn	[°C]	-20° ÷ +100°
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

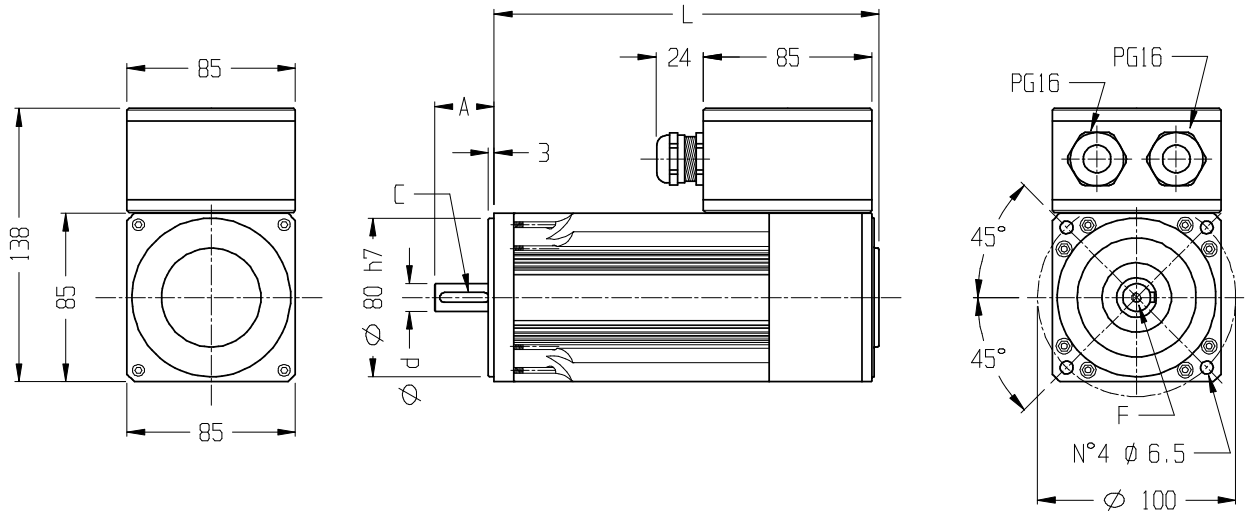
DATA SHEET N° 2B1004000000

SERIES

TETRA 85

DIMENSIONS (mm)

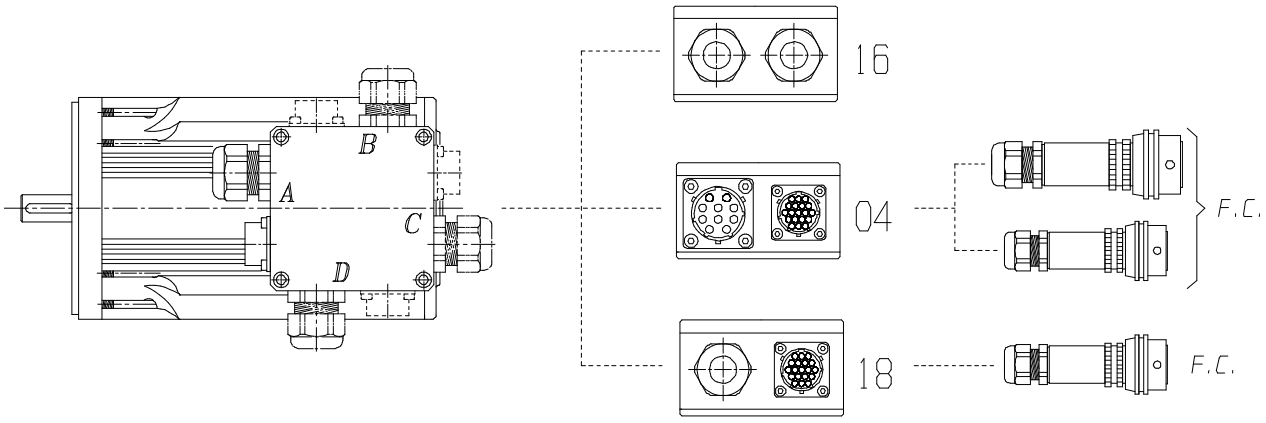
STANDARD



TYPE	1.2	2.2	3.2	4.2
A	30	30	40	40
L	166	196	226	256
d(j6)	14	14	19	19
F	M5	M5	M6	M6
C	5*5*25	5*5*25	6*6*30	6*6*30

LENGHT L INCREASED OF 30 MM WITH SAFETY BRAKE MOUNTED.

CONNECTION POSITIONS



A = Standard Position

DATA SHEET N° 7B10040001AA

SERIES

TETRA 115

HOW TO ORDER A BRUSHLESS SERVOMOTOR SERIES TETRA 115

TETRA	115	SR	3	E	L	01	001	A	00.02
SERIES	TYPE	WAVEFORM	NOMINAL STALL TORQUE	TRANSDUCER TYPE	MOMENT OF INERTIA	WINDING TYPE	TRANSDUCER MODEL	CONNECTION POSITION	MODEL LIST
TETRA	**115**	**SR** = sinewave **TR** = squarewave	**3** **5.2** **7** **9.2** **11**	**E** = Encoder **R** = Resolver **H** = Hall Sensor	**L** = Low **H** = High	See Data Sheet	**101** = Encoder ∅48 6p 2000 ppr **102** = Encoder ∅48 6p 1000 ppr **501** = Resolver 2p size 19 **107** = Hall Sensor 6p	**A** = Std. **B** = On req. **C** = On req. **D** = On req.	**00** = No prearranged **01** = External Encoder prearranged **02** = With brake **04** = Double connector on terminal box **16** = Double cable gland on terminal box **18** = Connector + cable gland on terminal box

N.B. Servomotors are not including connector flying panels which have to be ordered separately indicating **FC**.

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 115SR3

TORQUE

3 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING						
				09	12	14	15	16	17	18
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]		1400					
	Vn drive 3phase 95 V ac		[rpm]	4000	3000	2000	1300			
	Vn drive 3phase 145 V ac		[rpm]	6100	4500	3000	2000	1500	1150	
	Vn drive 3phase 220 V ac		[rpm]			4600	3000	2300	1700	1150
	Vn drive 3phase 380 V ac		[rpm]				5200	4000	3000	2000
SERVOMOTOR	WINDING DATA									
	Poles number	P					6			
	Continuos stall torque	Cn0	[Nm]				3.00			
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	18.0	24.0	36.0	55.0	72.5	96.7	145.0
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.30	0.40	0.60	0.91	1.20	1.60	2.40
	Stall current	In0	[Arms]	10.08	7.56	5.04	3.30	2.50	1.88	1.25
	Peak torque	Cmax	[Nm]				9.00			
	Peak current	I cmax	[A rms]	30.2	22.7	15.1	9.9	7.5	5.6	3.8
	Max current	I max	[Arms]	35.3	26.4	17.6	11.5	8.8	6.6	4.4
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.45	0.90	1.80	4.57	7.50	15.95	29.68
	Phase / phase inductance	Lff	[mH]	1.09	2.09	3.60	7.80	15.03	26.97	61.25
	Electrical time constant	Te	[ms]	2.42	2.33	2.00	1.71	2.00	1.69	2.06
	Thermal time constant	Tt	[min]				20			
	Operating temperature	Tr	[°C]				0 + 40			
	Protection degree	IP					65 (*)			
	Insulation class						F			
	MECHANICAL DATA									
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]				7.3/4.7			
	Max theorethical acceleration	αmax	[rad/s^2]				12328/19149			
	Mechanical time constant	Tm	[ms]	2.4	2.7	2.4	2.6	2.3	2.9	2.4
	Cogging torque	Tcog	[Nm]				0.09			
	Damping constant at 1000 rpm	Td	[Nm]				0.028			
	Max radial load (at 3000 rpm)	Fr	[N]				600 (applied on the shaft's middle)			
	Max axial load	Fa	[N]				180 (applied on the shaft's middle)			
	Weight	M	[Kg]				4.7			
THERMAL P.	Type of thermal cut - off						N C : normally closed			
	Rated voltage	Vn	[V ac]				250			
	Rated current	In	[A]				2.5			
	Operative temperature	Tn	[°C]				140 °C ± 5%			
	Resetting temperature	Tr	[°C]				100 °C ± 15°C			
	Operative time	[ms]					1			
	Insulation class						F			
BRAKE	Type						STD 9			
	Static torque	Co	[Nm]				9			
	Rated voltage	Vn	[V]				24 Vcc +6% -10% Stabilized			
	Rated current	In	[A]				0.75			
	Input power	Pn	[W]				18			
	Release time	Tr	[ms]				2			
	Locking time	Tl	[ms]				40			

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1106010003

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 115SR5.2

TORQUE

5.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING							
				09	12	14	15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]		1400						
	Vn drive 3phase 95 V ac		[rpm]	4000	3000	2000	1300				
	Vn drive 3phase 145 V ac		[rpm]	6100	4500	3000	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]			4600	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]				5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA										
	Poles number	P		6							
	Continuos stall torque	Cn0	[Nm]	5.20							
	Voltage constant ± 5%	Ke	[Vrms/Krpm]	18.0	24.0	36.0	55.0	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/Arms]	0.30	0.40	0.60	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	17.46	13.10	8.73	5.72	4.34	3.25	2.17	1.30
	Peak torque	Cmax	[Nm]	15.60							
	Peak current	I cmax	[Arms]	52.4	39.3	26.2	17.1	13.0	9.8	6.5	3.9
	Max current	I max	[Arms]	61.1	45.8	30.6	20.0	15.2	11.4	7.6	4.6
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.25	0.38	0.95	2.13	3.49	7.26	13.69	40.69
	Phase / phase inductance	Lff	[mH]	0.70	1.04	2.49	6.76	11.36	20.48	45.42	126.90
	Electrical time constant	Te	[ms]	2.78	2.73	2.63	3.17	3.25	2.82	3.32	3.12
	Thermal time constant	Tt	[min]	25							
	Operating temperature	Tr	[°C]	0 + 40							
	Protection degree	IP		65 (*)							
	Insulation class			F							
	MECHANICAL DATA										
	Moment of inertia h/l	Jm	[Kg cm²]	10.6/6.8							
	Max theorethical acceleration	αmax	[rad/s²]	14716/22941							
	Mechanical time constant	Tm	[ms]	1.9	1.6	1.8	1.7	1.7	1.9	1.6	1.7
	Cogging torque	Tcog	[Nm]	0.156							
	Damping constant at 1000 rpm	Td	[Nm]	0.055							
	Max radial load (at 3000 rpm)	Fr	[N]	600 (applied on the shaft's middle)							
	Max axial load	Fa	[N]	180 (applied on the shaft's middle)							
	Weight	M	[Kg]	6.2							
THERMAL P.	Type of thermal cut - off			N C : normally closed							
	Rated voltage	Vn	[V ac]	250							
	Rated current	In	[A]	2.5							
	Operative temperature	Tn	[°C]	140 °C ± 5%							
	Resetting temperature	Tr	[°C]	100 °C ± 15°C							
	Operative time	[ms]		1							
	Insulation class			F							
BRAKE	Type			STD 9							
	Static torque	Co	[Nm]	9							
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized							
	Rated current	In	[A]	0.75							
	Input power	Pn	[W]	18							
	Release time	Tr	[ms]	2							
	Locking time	Tl	[ms]	40							

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1106020003

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BRUSHLESS SERVOMOTORS

MOTOR POWER COMPANY

SERIES

TETRA 115SR7

TORQUE

7 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING						
				12	14	15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]	1400						
	Vn drive 3phase 95 V ac		[rpm]	3000	2000	1300				
	Vn drive 3phase 145 V ac		[rpm]	4500	3000	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]		4600	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]			5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA									
	Poles number	P					6			
	Continuos stall torque	Cn0	[Nm]				7.00			
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	24.0	36.0	55.0	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.40	0.60	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	17.63	11.75	7.694	5.84	4.38	2.92	1.75
	Peak torque	Cmax	[Nm]				21.00			
	Peak current	I cmax	[Arms]	52.9	35.3	23.1	17.5	13.1	8.8	5.3
	Max current	I max	[Arms]	61.7	41.1	26.9	20.4	15.3	10.2	6.1
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.26	0.45	1.26	2.28	3.89	9.13	24.54
	Phase / phase inductance	Lff	[mH]	0.76	1.43	3.83	7.04	12.79	29.41	81.00
	Electrical time constant	Te	[ms]	2.92	3.17	3.04	3.09	3.29	3.22	3.30
	Thermal time constant	Tt	[min]				30			
	Operating temperature	Tr	[°C]				0 + 40			
	Protection degree	IP					65 (*)			
	Insulation class						F			
	MECHANICAL DATA									
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]				14.1/8.8			
	Max theorethical acceleration	αmax	[rad/s^2]				14883/23864			
	Mechanical time constant	Tm	[ms]	1.4	1.1	1.3	14	1.3	1.4	1.4
	Cogging torque	Tcog	[Nm]				0.21			
	Damping constant at 1000 rpm	Td	[Nm]				0.083			
	Max radial load (at 3000 rpm)	Fr	[N]				600 (applied on the shaft's middle)			
	Max axial load	Fa	[N]				180 (applied on the shaft's middle)			
	Weight	M	[Kg]				7.5			
THERMAL P.	Type of thermal cut - off						N C : normally closed			
	Rated voltage	Vn	[V ac]				250			
	Rated current	In	[A]				2.5			
	Operative temperature	Tn	[°C]				140 °C ± 5%			
	Resetting temperature	Tr	[°C]				100 °C ± 15°C			
	Operative time	[ms]					1			
	Insulation class						F			
BRAKE	Type						STD 9			
	Static torque	Co	[Nm]				9			
	Rated voltage	Vn	[V]				24 Vcc +6% -10% Stabilized			
	Rated current	In	[A]				0.75			
	Input power	Pn	[W]				18			
	Release time	Tr	[ms]				2			
	Locking time	Tl	[ms]				40			

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1106030003

Motor Power Company s.r.l. - Reggio Emilia - Italy Tel +39 0522 682710 - Fax 0522 683552

BRUSHLESS SERVOMOTORS

SERIES

TETRA 115SR9.2

TORQUE

9.2 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING					
				14	15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]						
	Vn drive 3phase 95 V ac		[rpm]	2000	1300				
	Vn drive 3phase 145 V ac		[rpm]	3000	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	4600	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]		5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA								
	Poles number	P		6					
	Continuos stall torque	Cn0	[Nm]	9.20					
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	36.0	55.0	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.60	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	15.45	10.11	7.67	5.75	3.84	2.30
	Peak torque	Cmax	[Nm]	27.60					
	Peak current	I cmax	[Arms]	46.3	30.3	23.0	17.3	11.5	6.9
	Max current	I max	[Arms]	54.1	35.4	26.8	20.1	13.4	8.1
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.37	0.89	1.61	2.88	6.77	17.73
	Phase / phase inductance	Lff	[mH]	1.36	3.30	6.05	10.47	22.94	64.40
	Electrical time constant	Te	[ms]	3.71	3.72	3.79	3.63	3.39	3.63
	Thermal time constant	Tt	[min]	35					
	Operating temperature	Tr	[°C]	0 + 40					
	Protection degree	IP		65 (*)					
	Insulation class			F					
	MECHANICAL DATA								
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]	17/510.9					
	Max theorethical acceleration	αmax	[rad/s^2]	16235/25321					
	Mechanical time constant	Tm	[ms]	1.1	1.1	1.2	1.2	1.3	1.2
	Cogging torque	Tcog	[Nm]	0.276					
	Damping constant at 1000 rpm	Td	[Nm]	0.11					
	Max radial load (at 3000 rpm)	Fr	[N]	600 (applied on the shaft's middle)					
	Max axial load	Fa	[N]	180 (applied on the shaft's middle)					
	Weight	M	[Kg]	8.8					
THERMAL P.	Type of thermal cut - off			N C : normally closed					
	Rated voltage	Vn	[V ac]	250					
	Rated current	In	[A]	2.5					
	Operative temperature	Tn	[°C]	140 °C ± 5%					
	Resetting temperature	Tr	[°C]	100 °C ± 15°C					
	Operative time	[ms]		1					
	Insulation class			F					
BRAKE	Type			STD 9					
	Static torque	Co	[Nm]	9					
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized					
	Rated current	In	[A]	0.75					
	Input power	Pn	[W]	18					
	Release time	Tr	[ms]	2					
	Locking time	Tl	[ms]	40					

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1106040003

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BRUSHLESS SERVOMOTORS

MOTOR POWER COMPANY

SERIES

TETRA 115SR11

TORQUE

11 Nm

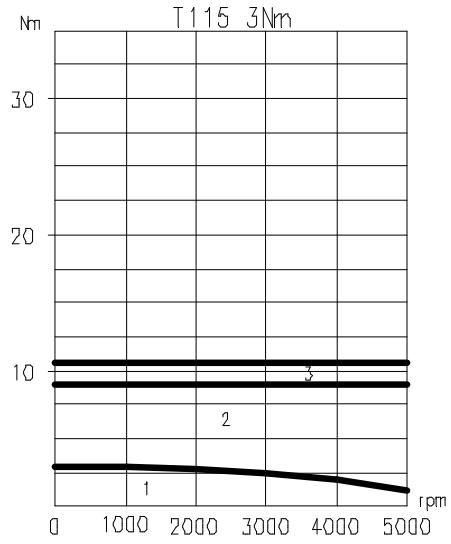
	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING						
				13	14	15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]							
	Vn drive 3phase 95 V ac		[rpm]		2000	1300				
	Vn drive 3phase 145 V ac		[rpm]	4000	3000	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	6000	4600	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]			5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA									
	Poles number	P					6			
	Continuos stall torque	Cn0	[Nm]				11.00			
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	27.5	36.0	55.0	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.45	0.60	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	24.18	18.47	12.09	9.17	6.88	4.59	2.75
	Peak torque	Cmax	[Nm]				33.00			
	Peak current	I cmax	[Arms]	72.5	55.4	36.3	27.5	20.6	13.8	8.3
	Max current	I max	[Arms]	84.6	64.6	42.3	32.1	24.1	16.1	9.6
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.19	0.35	0.76	1.18	2.40	5.32	13.81
	Phase / phase inductance	Lff	[mH]	0.78	1.38	3.10	4.69	9.19	20.02	56.34
	Electrical time constant	Te	[ms]	4.05	3.90	4.05	3.96	3.83	3.77	4.08
	Thermal time constant	Tt	[min]				40			
	Operating temperature	Tr	[°C]				0 + 40			
	Protection degree	IP					65			
	Insulation class						F			
	MECHANICAL DATA									
	Moment of inertia h/l	Jm	[Kg cm^2]				20.8/13			
	Max theorethical acceleration	αmax	[rad/s^2]				15865/25385			
	Mechanical time constant	Tm	[ms]	1.2	1.3	1.2	1.1	1.2	1.2	1.1
	Cogging torque	Tcog	[Nm]				0.33			
	Damping constant at 1000 rpm	Td	[Nm]				0.138			
	Max radial load (at 3000 rpm)	Fr	[N]				600 (applied on the shaft's middle)			
	Max axial load	Fa	[N]				180 (applied on the shaft's middle)			
	Weight	M	[Kg]				9.9			
THERMAL P.	Type of thermal cut - off						N C : normally closed			
	Rated voltage	Vn	[V ac]				250			
	Rated current	In	[A]				2.5			
	Operative temperature	Tn	[°C]				140 °C ± 5%			
	Resetting temperature	Tr	[°C]				100 °C ± 15°C			
	Operative time	[ms]					1			
	Insulation class						F			
BRAKE	Type						STD 18			
	Static torque	Co	[Nm]				18			
	Rated voltage	Vn	[V]				24 Vcc +6% -10% Stabilized			
	Rated current	In	[A]				1			
	Input power	Pn	[W]				24			
	Release time	Tr	[ms]				3			
	Locking time	Tl	[ms]				50			

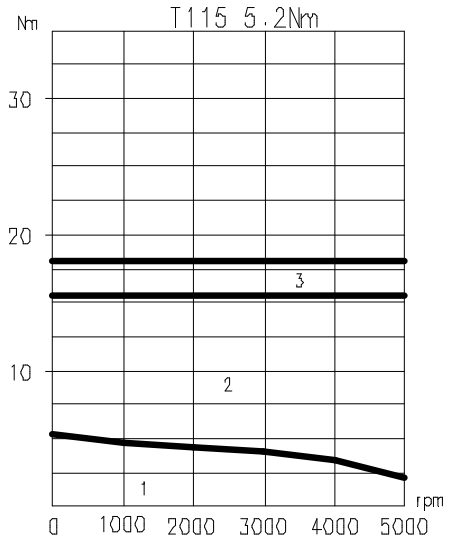
DATA SHEET N° 1B1106050003

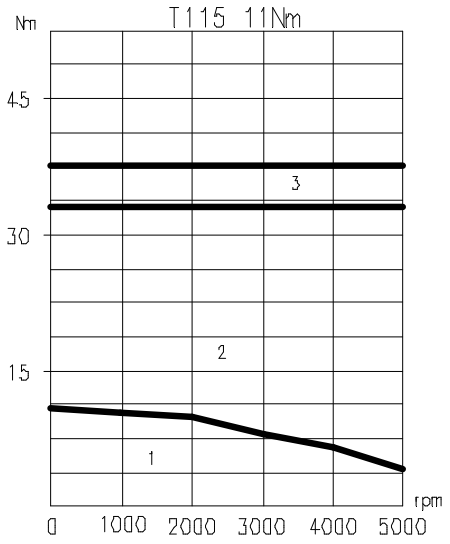
SERIES

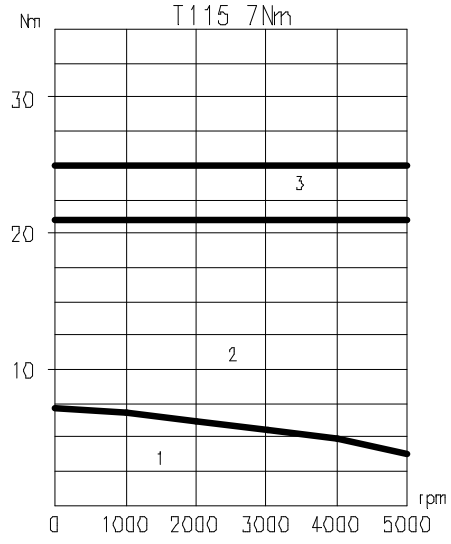
TETRA 115

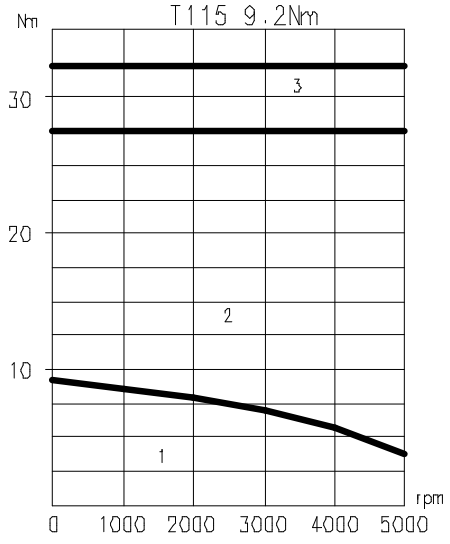
PERFORMANCE CURVES











1 CONTINUOUS DUTY AREA **2** INTERMITTENT DUTY AREA **3** DEMAGNETIZATION LIMIT

DATA SHEET N°4B1006000001

MOTOR POWER COMPANY

SERIES

TETRA 115

TRANSDUCER SERIES

TRANSDUCERS

E TYPE : ENCODER

RATED VOLTAGE	Vn	[V]	5 ± 5%
RATED CURRENT	In	[mA]	200
FREQUENCY	F	[K Hz]	200
WORKING TEMPERATURE	Tn	[°C]	- 20 ÷ + 100°
ELECTRONIC TYPE			LINE DRIVER AM 26 LS31
ROTATION			BIDIRECTIONAL
ZERO IMPULSE			STANDARD
N° OF PULSES REVOLUTION			1000 - 2000
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

R TYPE : RESOLVER

RATED VOLTAGE	Vn	[V rms]	7 ± 5%
RATED CURRENT	In	[mA]	18
PHASE SHIFT			- 5°
ELECTRIC ERROR			± 10′
MIN. SIN. AMPLITUDE		[mVrms]	25
FREQUENCY	F	[KHz]	10
POLES NUMBER			2
TRASFORMER RATIO			0.5 ± 5%
INPUT INPEDANCE	Zro	[Ohm]	110 + j 140
OUTPUT IMPEDANCE	Zss	[Ohm]	130 + j 240
WORKING TEMPERATURE	Tn	[°C]	- 55 ÷ + 155°

H TYPE : HALL SENSORS

RATED VOLTAGE	Vn	[V]	5 ÷ 24
RATED CURRENT	In	[mA]	100
WORKING TEMPERATURE	Tn	[°C]	-20° ÷ +100°
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

DATA SHEET N° 2B1006000001

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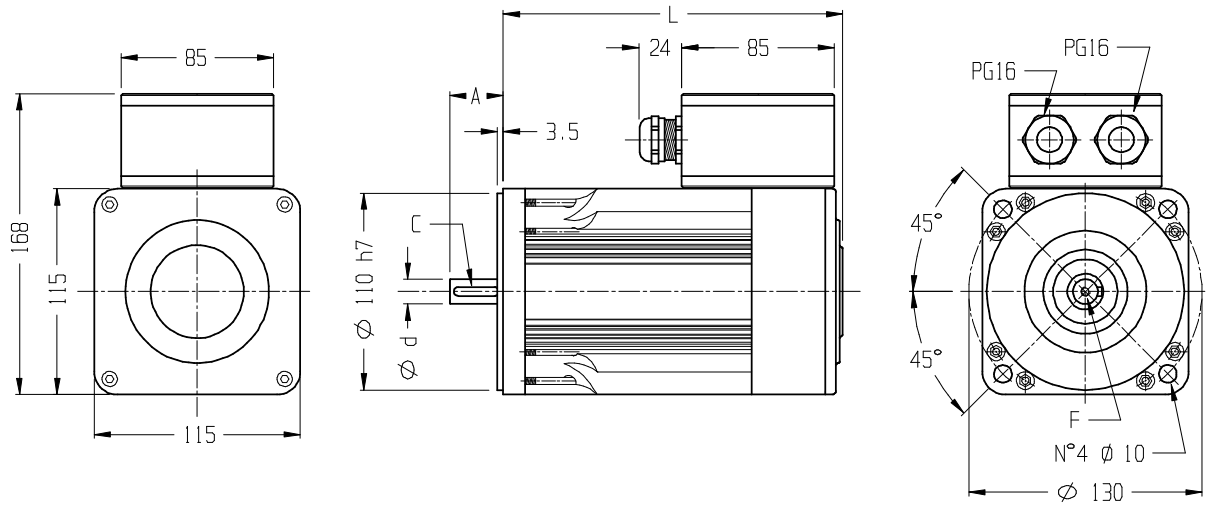
SERIES

TETRA 115

DIMENSIONS (MM)

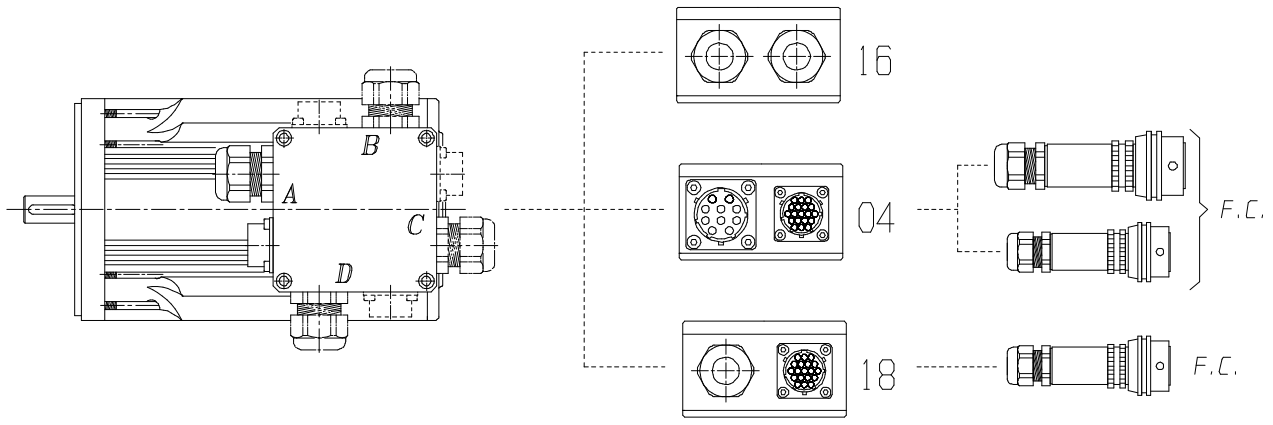
STANDARD



TYPE	3.0	5.2	7.0	9.2	11	
A	30	40	40	40	40	(50)
L	164	189	214	239	264	(264)
d(j6)	14	19	19	19	19	(24)
F	M5	M6	M6	M6	M6	(M8)
C	5*5*25	6*6*30	6*6*30	6*6*30	6*6*30	(8*7*40)

LENGHT L INCREASED OF 50 MM WITH SAFETY BRAKE MOUNTED.
( ) = ON REQUEST

CONNECTION POSITIONS



A = Standard Position

DATA SHEET N°7B10060001AA

SERIES

TETRA 142

HOW TO ORDER A BRUSHLESS SERVOMOTOR SERIES TETRA 142

TETRA	142	SR	21	E	L	01	001	A	00.02
SERIES	TYPE	WAVEFORM	NOMINAL STALL TORQUE	TRANSDUCER TYPE	MOMENT OF INERTIA	WINDING TYPE	TRANSDUCER MODEL	CONNECTION POSITION	MODEL LIST
TETRA	**142**	**SR** = sinewave **TR** = squarewave	**12** **16.5** **21** **25.5**	**E** = Encoder **R** = Resolver **H** = Hall Sensor	**L** = Low **H** = High	See Data Sheet	**101** = Encoder ∅48 6p 2000 ppr **102** = Encoder ∅48 6p 1000 ppr **501** = Resolver 2p size 19 **107** = Hall Sensor 6p	**A** = Std. **B** = On req. **C** = On req. **D** = On req.	**00** = No prearranged **01** = External Encoder prearranged **02** = With brake **04** = Double connector on terminal box **16** = Double cable gland on terminal box **18** = Connector + cable gland on terminal box

N.B. Servomotors are not including connector flying panels which have to be ordered separately indicating **FC**.

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 142SR12

TORQUE

12 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING					
				14	15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]						
	Vn drive 3phase 95 V ac		[rpm]	2000	1300				
	Vn drive 3phase 145 V ac		[rpm]	3000	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	4600	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]		5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA								
	Poles number	P		6					
	Continuos stall torque	Cn0	[Nm]	12.00					
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	36.0	55.0	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.61	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	19.78	13.19	10.01	7.50	5.00	3.00
	Peak torque	Cmax	[Nm]	36.00					
	Peak current	I cmax	[Arms]	59.4	39.6	30.0	22.5	15.0	9.0
	Max current	I max	[Arms]	69.2	46.2	35.0	26.3	17.5	10.5
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.24	0.61	1.01	1.66	3.95	10.49
	Phase / phase inductance	Lff	[mH]	1.10	2.91	4.98	8.33	18.75	54.00
	Electrical time constant	Te	[ms]	4.60	4.78	4.93	5.02	4.74	5.15
	Thermal time constant	Tt	[min]	35					
	Operating temperature	Tr	[°C]	0 + 40					
	Protection degree	IP		65 (*)					
	Insulation class			F					
	MECHANICAL DATA								
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]	38.4/23					
	Max theorethical acceleration	αmax	[rad/s^2]	9375/15652					
	Mechanical time constant	Tm	[ms]	1.6	1.7	1.5	1.6	1.5	1.6
	Cogging torque	Tcog	[Nm]	0.36					
	Damping constant at 1000 rpm	Td	[Nm]	0.15					
	Max radial load (at 3000 rpm)	Fr	[N]	800 (applied on the shaft's middle)					
	Max axial load	Fa	[N]	240 (applied on the shaft's middle)					
	Weight	M	[Kg]	13.5					
THERMAL P.	Type of thermal cut - off			N C : normally closed					
	Rated voltage	Vn	[V ac]	250					
	Rated current	In	[A]	2.5					
	Operative temperature	Tn	[°C]	140 °C ± 5%					
	Resetting temperature	Tr	[°C]	100 °C ± 15°C					
	Operative time	[ms]		1					
	Insulation class			F					
BRAKE	Type			STD 18					
	Static torque	Co	[Nm]	18					
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized					
	Rated current	In	[A]	1					
	Input power	Pn	[W]	24					
	Release time	Tr	[ms]	3					
	Locking time	Tl	[ms]	50					

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1108010003

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BRUSHLESS SERVOMOTORS

SERIES

TETRA 142SR16.5

TORQUE

16.5 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING				
				15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]					
	Vn drive 3phase 95 V ac		[rpm]	1300				
	Vn drive 3phase 145 V ac		[rpm]	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]	5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA							
	Poles number	P				6		
	Continuos stall torque	Cn0	[Nm]			16.50		
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	55	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	18.14	13.76	10.32	6.88	4.13
	Peak torque	Cmax	[Nm]			49.50		
	Peak current	I cmax	[Arms]	54.4	41.3	31.0	20.6	12.4
	Max current	I max	[Arms]	63.5	48.2	36.1	24.1	14.4
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.43	0.74	1.36	3.13	8.08
	Phase / phase inductance	Lff	[mH]	1.95	3.64	6.98	15.70	43.60
	Electrical time constant	Te	[ms]	4.57	4.92	5.13	5.01	5.39
	Thermal time constant	Tt	[min]			40		
	Operating temperature	Tr	[°C]			0 + 40		
	Protection degree	IP				65 (*)		
	Insulation class					F		
	MECHANICAL DATA							
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]			45.9/27		
	Max theorethical acceleration	αmax	[rad/s^2]			10784/18333		
	Mechanical time constant	Tm	[ms]		1.4	1.4	1.5	1.4
	Cogging torque	Tcog	[Nm]			0.495		
	Damping constant at 1000 rpm	Td	[Nm]			0.20		
	Max radial load (at 3000 rpm)	Fr	[N]			800 (applied on the shaft's middle)		
	Max axial load	Fa	[N]			240 (applied on the shaft's middle)		
	Weight	M	[Kg]			15.5		
THERMAL P.	Type of thermal cut - off					N C : normally closed		
	Rated voltage	Vn	[V ac]			250		
	Rated current	In	[A]			2.5		
	Operative temperature	Tn	[°C]			140 °C ± 5%		
	Resetting temperature	Tr	[°C]			100 °C ± 15°C		
	Operative time	[ms]				1		
	Insulation class					F		
BRAKE	Type					STD 18		
	Static torque	Co	[Nm]			18		
	Rated voltage	Vn	[V]			24 Vcc +6% -10% Stabilized		
	Rated current	In	[A]			1		
	Input power	Pn	[W]			24		
	Release time	Tr	[ms]			3		
	Locking time	Tl	[ms]			50		

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1108020004

BRUSHLESS SERVOMOTORS

SERIES

TETRA 142SR21

TORQUE

21 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING				
				15	16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]					
	Vn drive 3phase 95 V ac		[rpm]	1300				
	Vn drive 3phase 145 V ac		[rpm]	2000	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	3000	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]	5200	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA							
	Poles number	P				6		
	Continuos stall torque	Cn0	[Nm]			21.00		
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	55	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	0.91	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	23.08	17.51	13.13	8.75	5.25
	Peak torque	Cmax	[Nm]			63.00		
	Peak current	I cmax	[Arms]	69.2	52.5	39.4	26.3	15.8
	Max current	I max	[Arms]	80.8	61.3	46.0	30.6	18.4
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.25	0.50	0.87	2.03	5.65
	Phase / phase inductance	Lff	[mH]	1.10	2.24	3.78	8.95	24.37
	Electrical time constant	Te	[ms]	4.42	4.46	4.35	4.42	4.31
	Thermal time constant	Tt	[min]			45		
	Operating temperature	Tr	[°C]			0 + 40		
	Protection degree	IP				65 (*)		
	Insulation class					F		
	MECHANICAL DATA							
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]			61.2/36.1		
	Max theorethical acceleration	αmax	[rad/s^2]			10289/17500		
	Mechanical time constant	Tm	[ms]		1.3	1.2	1.3	1.3
	Cogging torque	Tcog	[Nm]			0.63		
	Damping constant at 1000 rpm	Td	[Nm]			0.25		
	Max radial load (at 3000 rpm)	Fr	[N]			800 (applied on the shaft's middle)		
	Max axial load	Fa	[N]			240 (applied on the shaft's middle)		
	Weight	M	[Kg]			18.5		
THERMAL P.	Type of thermal cut - off					N C : normally closed		
	Rated voltage	Vn	[V ac]			250		
	Rated current	In	[A]			2.5		
	Operative temperature	Tn	[°C]			140 °C ± 5%		
	Resetting temperature	Tr	[°C]			100 °C ± 15°C		
	Operative time	[ms]				1		
	Insulation class					F		
BRAKE	Type					STD 36		
	Static torque	Co	[Nm]			36		
	Rated voltage	Vn	[V]			24 Vcc +6% -10% Stabilized		
	Rated current	In	[A]			1.08		
	Input power	Pn	[W]			26		
	Release time	Tr	[ms]			3		
	Locking time	Tl	[ms]			90		

(*) with oil seal mounted on the flange

DATA SHEET N° 1B1108030004

Motor Power Company s.r.l. - Reggio Emilia - Italy Tel +39 0522 682710 - Fax 0522 683552

BRUSHLESS SERVOMOTORS

SERIES

TETRA 142SR25.5

TORQUE

25.5 Nm

	SINEWAVE FORM	SYMBOLS	UNITS	TYPE OF WINDING			
				16	17	18	19
MOTOR rpm	Vn drive 3phase 45 V ac		[rpm]				
	Vn drive 3phase 95 V ac		[rpm]				
	Vn drive 3phase 145 V ac		[rpm]	1500	1150		
	Vn drive 3phase 220 V ac		[rpm]	2300	1700	1150	
	Vn drive 3phase 380 V ac		[rpm]	4000	3000	2000	1200
SERVOMOTOR	WINDING DATA						
	Poles number	P		6			
	Continuos stall torque	Cn0	[Nm]	25.50			
	Voltage constant ± 5%	Ke	[V_{rms}/K_{rpm}]	72.5	96.7	145.0	241.7
	Torque constant ± 5%	Kt	[Nm/A_{rms}]	1.20	1.60	2.40	4.00
	Stall current	In0	[Arms]	21.26	15.95	10.63	6.38
	Peak torque	Cmax	[Nm]	76.50			
	Peak current	I cmax	[Arms]	63.8	47.8	31.9	19.1
	Max current	I max	[Arms]	74.4	55.8	37.2	22.3
	Phase/phase resistance ±10% at 25°C	Rff	[Ohm]	0.44	0.82	1.74	5.07
	Phase / phase inductance	Lff	[mH]	2.12	3.77	7.56	22.00
	Electrical time constant	Te	[ms]	4.78	4.61	4.35	4.34
	Thermal time constant	Tt	[min]	50			
	Operating temperature	Tr	[°C]	0 + 40			
	Protection degree	IP		65 (*)			
	Insulation class			F			
	MECHANICAL DATA						
	Moment of inertia h/l	Jm	[$Kg\ cm^2$]	68.9/40.5			
	Max theorethical acceleration	αmax	[rad/s^2]	11103/18889			
	Mechanical time constant	Tm	[ms]	1.2	1.3	1.2	1.3
	Cogging torque	Tcog	[Nm]	0.765			
	Damping constant at 1000 rpm	Td	[Nm]	0.30			
	Max radial load (at 3000 rpm)	Fr	[N]	800 (applied on the shaft's middle)			
	Max axial load	Fa	[N]	240 (applied on the shaft's middle)			
	Weight	M	[Kg]	20.5			
THERMAL P.	Type of thermal cut - off			N C : normally closed			
	Rated voltage	Vn	[V ac]	250			
	Rated current	In	[A]	2.5			
	Operative temperature	Tn	[°C]	140 °C ± 5%			
	Resetting temperature	Tr	[°C]	100 °C ± 15°C			
	Operative time	[ms]		1			
	Insulation class			F			
BRAKE	Type			STD 36			
	Static torque	Co	[Nm]	36			
	Rated voltage	Vn	[V]	24 Vcc +6% -10% Stabilized			
	Rated current	In	[A]	1.08			
	Input power	Pn	[W]	26			
	Release time	Tr	[ms]	3			
	Locking time	Tl	[ms]	90			

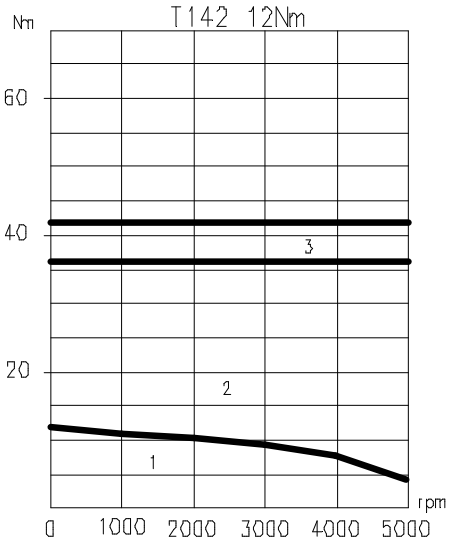
(*) with oil seal mounted on the flange

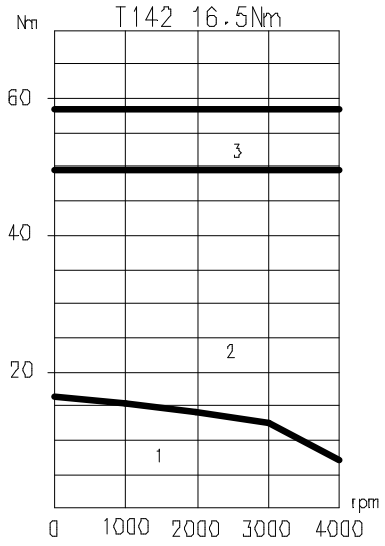
DATA SHEET N° 1B1108040003

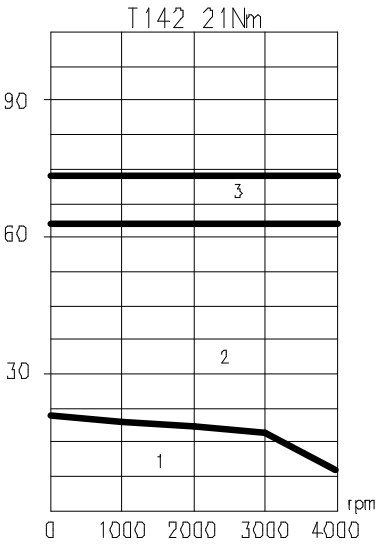
SERIES

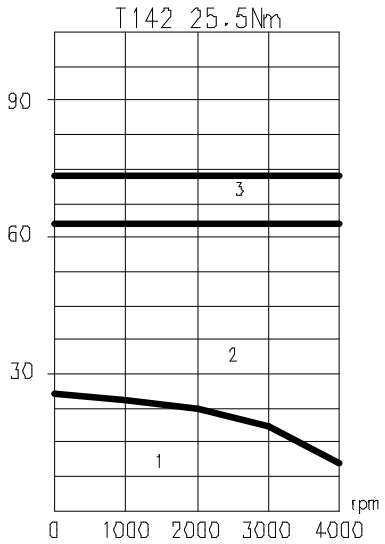
TETRA 142

PERFORMANCE CURVES









1 CONTINUOUS DUTY AREA **2** INTERMITTENT DUTY AREA **3** DEMAGNETIZATION LIMIT

DATA SHEET N°4B1008000000

MOTOR POWER COMPANY

SERIES

TETRA 142

TRANSDUCER SERIES

TRANSDUCERS

E TYPE :ENCODER

RATED VOLTAGE	Vn	[V]	5 ± 5%
RATED CURRENT	In	[mA]	200
FREQUENCY	F	[K Hz]	200
WORKING TEMPERATURE	Tn	[°C]	- 20 ÷ + 100°
ELECTRONIC TYPE			LINE DRIVER AM 26 LS31
ROTATION			BIDIRECTIONAL
ZERO IMPULSE			STANDARD
N° OF PULSES REVOLUTION			1000 - 2000
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

R TYPE : RESOLVER

RATED VOLTAGE	Vn	[V rms]	7 ± 5%
RATED CURRENT	In	[mA]	18
PHASE SHIFT			- 5°
ELECTRIC ERROR			± 10′
MIN. SIN. AMPLITUDE		[mVrms]	25
FREQUENCY	F	[KHz]	10
POLES NUMBER			2
TRASFORMER RATIO			0.5 ± 5%
INPUT INPEDANCE	Zro	[Ohm]	110 + j 140
OUTPUT IMPEDANCE	Zss	[Ohm]	130 + j 240
WORKING TEMPERATURE	Tn	[°C]	- 55 ÷ + 155°

H TYPE : HALL SENSORS

RATED VOLTAGE	Vn	[V]	5 ÷ 24
RATED CURRENT	In	[mA]	100
WORKING TEMPERATURE	Tn	[°C]	-20° ÷ +100°
N° OF COMMUTATION SIGNALS			3 DIFFERENTIAL

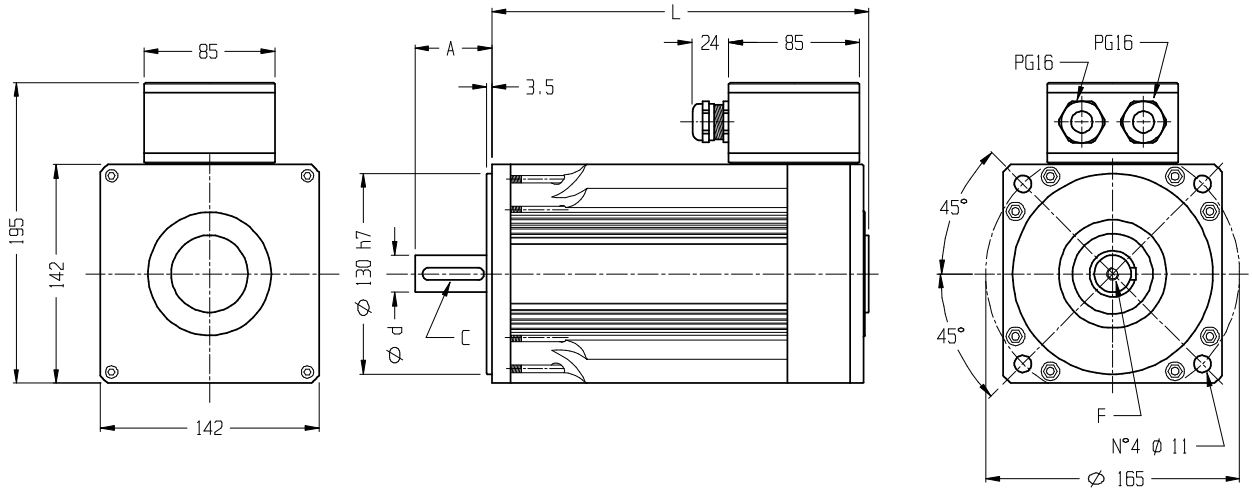
DATA SHEET N° 2B1008000000

SERIES

TETRA 142

DIMENSIONS (MM)

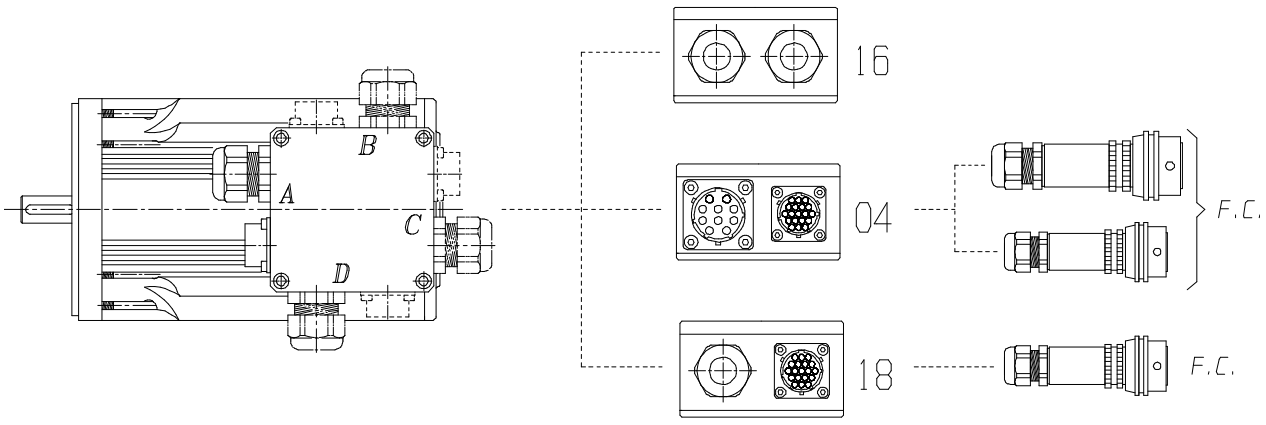
STANDARD



TYPE	12	16.5	21	25.5	
A	50	50	50	50	(60)
L	245	275	305	335	(335)
d(j6)	24	24	24	24	(28)
F	M8	M8	M8	M8	(M10)
C	8*7*40	8*7*40	8*7*40	8*7*40	(8*7*50)

LENGHT L INCREASED OF 60 MM WITH SAFETY BRAKE MOUNTED.
( ) = ON REQUEST

CONNECTION POSITIONS



A = Standard Position

DATA SHEET N° 7B10080001AA