

PERMANENT MAGNET DC SERVOMOTORS - DATA MANUAL ISSUE 2

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PERMANENT MAGNET DC SERVOMOTORS - USER INFORMATION

E.C. DIRECTIVES

There are 3 main directives that effect applications incorporating servomotors.

Machinery Directive 89/392/EEC

This directive applies to complete machines.

In accordance with the directive, SEM provides a Certificate of Incorporation which includes installation instructions and general service guidelines in different languages.

Low Voltage Directive 73/23/EEC

This directive applies to electrical equipment for use with a DC voltage of 75V to 1500V and AC voltage of 50V to 1000V.

SEM DC servomotors in the ranges MT22, MT30, MT40 and MT52 conform to the EC directive.

A certificate of conformity is available from SEM sales on request.

EMCDirective (Electro Magnetic Compatibility) 89/336/EEC.

This directive applies to products or appliances with an intrinsic function for the end user in which:

- 1. They contain electrical/electronic systems liable to cause an electro magnetic disturbance.
- 2. They contain electrical/electronic systems which may have their performance affected by an electromagnetic disturbance.

SEM can provide data sheets outlining the EMC characteristics of a standard SEM DC servomotor and giving advice on cable screening and other related subjects.

SEM will be pleased to discuss any EMC related problem encountered by customers incorporating SEM DC servomotors into such products or appliances which are governed by the EMC directive.

GENERAL DESCRIPTION

This range of DC Servomotors has been specially designed to meet the application requirements of Machine Tools, Transfer Lines, Robotics and the like. They provide a high torque to inertia ratio, giving fast acceleration and rapid dynamic response. Our data sheets give the full specification.

The motors are suitable for most servo and variable speed applications and are compatible with most drives available. It must be remembered that all SEM data on its range of Servomotors assumes unity Form Factor (i.e. pure DC) and that derating of the motor may be necessary when supplied from a power source exceeding unity Form Factor.

SEM DC brushed servomotors are rated for the temperature rises specified in NEMA standard MG1 part 12.63.2.

Receiving & Storage

On receipt the motors should be inspected. Any damage found should be reported immediately to SEM and the carrier.

The shaft and flange have been coated with a rust inhibitor; this can be removed with a suitable solvent.

If the motors are not to be put into service immediately they should be stored in a clean dry location, and should be run on a light load or no load prior to being put in service. This is to clean any possible filming that may occur due to oxidation on the commutators.

Nameplate Information

When contacting SEM regarding a motor, the type and serial number should be quoted.

Location/Accessibility

The motors should be installed such that they are readily accessible for routine inspection and maintenance.

Environmental Protection

SEM Servomotors are protected against ingress of fluid and dust to the following degrees:-

The MT22 range is protected to IP65 (IP64 at drive end shaft seal). The MT30, 40 and 52 ranges are protected to IP44/65 as standard,IP54 is available as an option. This increases to IP64/65 when

a shaft seal (option WO1) is fitted and the fixing boltholes are sealed. Blower ventilated motors are protected to the following degrees:-The MT30 blower ventilated range is protected to IP20. The MT40 and 52 blower ventilated ranges are protected to IP10.

Mounting of Motors

Where a toothed belt drive is proposed the motors should be face or flange mounted to an angle bracket, or similar, as close as possible to the line of action of the drive. The motor pulley should be positioned as close as possible to the mounting face and the pulley diameter chosen to maintain dynamic shaft loading within the limits indicated on the loading graphs. Particular attention must be given to tensioning of drive belts, with reference to belt manufacturers instructions, so that unnecessarily high shaft loads are avoided on installation.

When a motor is close coupled to a reduction gearbox, it is strongly recommended that to withstand the reaction of high output torques, the complete unit is fitted to the final product by attachment at the gearbox, not by foot mounting the motor.

A foot mounting option is available on SEM servomotors but this should generally be restricted to in-line drives where high lateral moments can be avoided.

Electrical Connections

A diagram plate is fitted under the terminal box lid. (Or attached to each motor in the case of motors fitted with an MS connector). **IMPORTANT** - When the motor is to be used in a closed loop circuit, the polarity of the tacho relative to the rotation of the motor must be as diagram plate. Incorrect polarity could cause the motor to over-speed. Commutator flashover and field demagnetisation could occur.

Viewed from main shaft end:

ROTATION	MOTOR	TACHO
Clockwise	A1 Positive	T1 Positive
	A2 Negative	T2 Negative
Anti-Clockwise	A2 Positive	T2 Positive
	A1 Negative	T1 Negative

Thermal Protection

MT30, 40 and 52. Servomotors have fitted as standard equipment a thermal protector to monitor temperature and protect the armature winding. The protector contacts are of the normally closed type and should be connected in such a manner as to shut down the motor controller when the contacts open.

Under continuous full Load conditions the motor body can be expected to reach a maximum temperature of 100C° before the trip operates. **IMPORTANT** - The protector can only be relied upon to sense over temperature produced by long term overload operation of the motor. As the motor has a large thermal mass, short duration high currents will not be sensed by the thermal overload and could result in damage to the motor. The overload is not capable of switching motor line currents and must be used only in the motor drive circuitry.

Maintenance & Servicing

All routine maintenance can be carried out by the user, but it is recommended that, for major repairs and reconditioning, the motor be sent to an approved motor repair specialist or returned to SEM. If the motor is to be dismantled, any feedback package fitted to the

rear shaft, the tachometer armature, and any electrical connections must be removed first.

Brushes - Motor

It is recommended that the motor brushes in the commutator end housing be inspected for wear every 500 hours of operation or at intervals which are found satisfactory after a usage pattern has been established. The brushes, under normal usage, should give 4,000 hours of life on a unity form factor drive. When the brush has worn to 7mm it should be replaced. Only recommended spares obtainable from SEM should be fitted, as brush grade and spring tension have been specially selected for the motors. Brushes should move freely in their holders and care should be taken to ensure that good contact is made between the brush tag and the brush holder. When inspecting for carbon brush wear, we recommend that any carbon brush dust is cleared from the motor by removal of **all** the brushes from their holders, and blowing clean, dry air into one of the brush holders.

IMPORTANT - It must be noted that commutation and brush wear progressively deteriorate as the commutation limit is approached. If required acceleration or deceleration results in operation regularly close to the limit brushlife will be considerably reduced.

Commutator

The normal colour of the commutator is dark brown: do not remove this film unless commutator is in poor condition. Minor cleaning of the commutator can be carried out by removing one brush and inserting a glass fibre cleaning stick of brush cross sectional area, and rotating the armature; remove other brushes and blow out after cleaning.

Permanent Magnet Field

The permanent magnets used in our Servomotors are made from a highly coercive ferrite material and are designed to withstand high demagnetising fields. The field will be demagnetised if a momentary current exceeds the peak current rating given on the data sheet. Special note should be made when using thyristor drives. The permanent magnet field is open circuit stabilised and the motor armature removal will not affect subsequent motor performance.

On blower ventilated machines, despite the inlet filter, there may be a danger that metal particles and foreign matter may enter the air outlet holes by attraction of the permanent magnets. Care must be taken with ventilated machines.

Should the magnets become demagnetised for any reason the machine must be returned to SEM for re-magnetising.

Bearings

All Servomotors are fitted with single row radial ball bearings, double shielded and permanently lubricated and under normal conditions require no maintenance.

If the commutator end bearing is to be removed, care should be taken so as not to damage or distort the rear shaft extension or shaft pin, as these must run to close tolerances.

Tachometer

The tachometer fits over the main shaft and has a permanent magnet field. This device is a precision instrument and must be treated with care. Foreign matter must not be allowed to enter this area.

The brushes and commutator should be maintained in the same manner as the motor parts.

It is essential that the undercutting is maintained free from mica and copper swarf and the commutator surface is free of burrs to keep the ripple performance within tolerance.

When re-assembling brush ring to motor, note alignment mark to retain correct orientation of parts for optimum performance.

Holding Brake Options

A fail safe brake is available as a standard option.

The brake is primarily a holding brake. For example:- to hold a vertical feed axis under a no voltage condition, however, it can also in some applications be used for emergency stopping.

The brake is located in front of the armature, the stationary body is built into the drive end cover.

The brake fitted is of the "Springset" fail to safe type.

The brake should be connected so that when the motor is started the brake coil is energised, thus releasing the brake. Under normal operating conditions no maintenance is required other than making sure the armature and stationary plates are kept free from foreign matter. Ratings are as follows:-

Frame	Brake Holding Torque	Voltage (DC)	Power (Guide only) Consumed			
MT22	2 Nm	24v (90v)	6.3 Watts (9 Watts)			
MT30	5 Nm	24v (90v)	11 Watts (13 Watts)			
MT40	18 Nm	24v (90v)	27 Watts (27 Watts)			
MT52	18 Nm	24v (90v)	27 Watts (27 Watts)			
Other voltages DC and AC can be ordered						

Blower Options

The motor of the blower type used by SEM is sealed for life and should require no maintenance under normal usage.

The inlet filter should be cleaned at regular intervals, as a dirty filter would restrict the airflow through the servomotor, causing overheating. When dirty this filter can be regenerated by washing in warm water with added detergent and drying.

Mechanical

It is recommended that a general inspection be made at regular intervals to check all bolts, nuts, couplings, etc. to make sure they have not worked loose, and thus prevent serious damage.

End Cover Alignments

The proper orientation of the motor end cover to the motor body is necessary for optimum performance of the motor; an alignment mark should be scribed over end housing and adjacent shell before dismantling, so machine can be re-assembled with correct orientation.

The drive end cover is pinned to the shell. The developed torque of the motor is transmitted by the pins and associated friction between D.E. cover and shell.(Not applicable to MT22)

The commutator end housing is not pinned, as under normal conditions no torgue is transmitted.

Recommended Stand By Replacement Parts List per motor.

	MOTOR TYPE					
	MT22	MT30	MT40	MT52	DBMT52	
MOTOR PART	Qty	Qty	Qty	Qty	Qty	
Motor Brush	2	4	4	8	16	
Brush Caps	2	4	4	8	16	
Brush Cap Sealing Discs	2	4	4	8	16	
Tacho Brush Ring Assembly	1	1	1	1	1	

complete with Brushes

Note: When ordering replacement parts the motor Serial No. stamped on Nameplate must be quoted, along with the Type No. so that proper selection of parts can be made.

Fault Finding

Note: Trouble which at first appears to be with the motor may in many cases lie outside the motor

PROBLEM	POSSIBLE CAUSES
No Rotation at Motor Shaft	 Check Fuses and Connections Brushes Worn Past Limit Motor Load Excessive Motor Overload Open Circuit Armature Open Circuit Brake Failure on Motors Fitted with Brake
Excessive Brush Arcing	 Motor Load Excessive Armature Input Current or Voltage Excessive Damaged Commutator Motor Speed Exceeding Maximum Incorrect Brush Grade Incorrect Neutral Setting Shorted/Earthed Armature
Over Speed	1 Armature Volts Over Limit 2 Wrong Connection Motor/Tacho 3 No Tacho Output 4 Field Demagnetised
Poor Tachometer Ripple	1Tacho Brushes Not Seated 2 Incorrect Neutral Setting 3 Shorted Tachometer Armature 4 Rough Commutator Surface
Noise/ Vibration	1 Loose Components/Through Bolt 2 Defective Bearings 3 Armature Incorrectly Balanced

MT22D2 D.C. Servomotors

Technical Data

Parameter	Unit	MT22D2-19	MT22D2-10	MT22D2-5
GENERAL				
Voltage Gradient No Load	Volts/1000RPM*	19	10	5
Max. Terminal Voltage	Volts	95	50	25
Max. Speed	RPM	5000	5000	5000
Continuous Stall Torque TENV***	Nm	0.5	0.5	0.5
	lb - in	4.4	4.4	4.4
(Size 300x300x12.5mm)	Nm	0.6	0.6	0.6
Cont Stall Torque when fitted to Heatsink	***			
(Size 12x12x0.5in)	lb - in	5.3	5.3	5.3
Continuous Stall Current TENV***	Amps	2.8	5	10
Armature Polar Moment of Inertia	Kgm ²	0.00017	0.00017	0.00017
	lb - in Sec ²	0.0015	0.0015	0.0015
Torque Constant KT**	Nm/Amp*	0.18	0.10	0.05
	lb - in/Amp*	1.59	0.88	0.44
Voltage Constant KV**	Volts Sec Rad -1*	0.18	0.10	0.05
Peak Stall Torque**	Nm	2.0	2.0	2.0
	lb - in	18	18	18
Current at Peak Torque**	Amps	11	21	43
Theoretical Acceleration at Peak Torque	Rad/Sec ²	12000	12000	12000
Winding				
Armature Resistance Less Brushes**	Ohms*	3.5	1.0	0.28
Armature Inductance	Millihenrys*	14.1	4.0	1.12
Mechanical Time Constant**	Milliseconds	18.0	18.0	18.0
Thermal				
Insulation Class		F	F	F
Max. Ambient Temperature	°C	40	40	40
Thermal Time Constant	Minutes*	25	25	25
Mechanical				
Static Friction Torque	Nm	0.055	0.055	0.055
(Shaft Seal Lubricated)	lb - in	0.486	0.486	0.486
Motor Weight	Kg	2.7	2.7	2.7
	lb	5.9	5.9	5.9
TACHOMETER				
Voltage Gradient	Volts/1000RPM*	9.5	7	
	Volts Sec Rad -1*	0.095	0.067	
Ripple	Per Cent	1.0	1.0	
	Cycles/Rev	33	33	
Armature Resistance**	Ohms	90	65	
Armature Inductance	Millihenrys*	15	8	
Maximum Current	Amps	0.02	0.03	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 0.5Nm / 4.4lb-in







MT22G2 D.C. Servomotors

Technical Data

GENERAL Voltage Gradient No Load Volts/1000RPM* 19 10 5 Max. Terminal Voltage Volts 95 50 25 Max. Speed RPM 5000 5000 5000 Continuous Stall Torque TENV*** Nm 0.7 0.7 0.7 Ib - in 6.2 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink<***	Parameter	Unit	MT22G2-19	MT22G2-10	MT22G2-5
Voltage Gradient No Load Volts/1000RPM* 19 10 5 Max. Terminal Voltage Volts 95 50 25 Max. Speed RPM 5000 5000 5000 Continuous Stall Torque TENV*** Nm 0.7 0.7 0.7 Ib - in 6.2 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink *** ** ** ** (Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad ** 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Lurrent at Peak Torque **	GENERAL				
Max. Terminal Voltage Volts 95 50 25 Max. Speed RPM 5000 5000 5000 Continuous Stall Torque TENV*** Nm 0.7 0.7 0.7 Ib - in 6.2 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink "" 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm ² 0.0028 0.0028 0.0028 Ib - in Sec ² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Amps 2.0 42.0 84.0 Current at Peak Torque** Amps 2.1 0.5 Minding	Voltage Gradient No Load	Volts/1000RPM*	19	10	5
Max. Speed RPM 5000 5000 Continuous Stall Torque TENV*** Nm 0.7 0.7 Ib - in 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink ***	Max. Terminal Voltage	Volts	95	50	25
Continuous Stall Torque TENV*** Nm 0.7 0.7 0.7 Ib - in 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink *** (Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.00028 0.00028 0.00028 Ib - in Sec² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.5 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.5 Peak Stall Torque** Nm 4.0 4.0 4.0 Lurent at Peak Torque** Amps 2.0 42.0 84.0 Current at Peak Torque** Amps 2.5 0.63 0.16 Armature Resistance Less Brushes** Ohms* 2.5 0.63 0.16	Max. Speed	RPM	5000	5000	5000
Ib - in 6.2 6.2 6.2 (Size 300x300x12.5mm) Nm 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink *** *** *** *** (Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.00028 0.00028 0.00028 Ib - in Sec² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Ib - in 35.4 35.4 35.4 Current at Peak Torque** Amps 2.0 44.0 14000 Winding - - - - - Armature Resistance Less Brushes** Ohms* 2.5 0.63 0.16 Armature	Continuous Stall Torque TENV***	Nm	0.7	0.7	0.7
Nm 0.8 0.8 0.8 0.8 Cont Stall Torque when fitted to Heatsink *** ''' ''' ''' (Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.0028 0.0028 0.0028 Ib - in Sec² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 0.18 0.10 0.05 0.0024 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Lurrent at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec² 14000 14000 14000 Winding 2.5 0.63 0.16 Armature Resistance Less Brushes** Ohms* 2.5		lb - in	6.2	6.2	6.2
Cont Stall Torque when fitted to Heatsink *** (Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.00028 0.00028 0.00028 Ib - in Sec² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Lurrent at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec² 14000 14000 14000 Winding 5.5 0.63 0.16 Armature Inductance Millihenrys* 8.2 2.1 0.5 14000 Mechanical Time Constant** Millikeconds 17.0	(Size 300x300x12.5mm)	Nm	0.8	0.8	0.8
(Size 12x12x0.5in) Ib - in 7.1 7.1 7.1 Continuous Stall Current TENV*** Amps 3.9 7 14 Armature Polar Moment of Inertia Kgm² 0.00028 0.00028 0.00028 0.00024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Ib - in 35.4 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Winding Harmature Resistance Less Brushes** Ohms* 2.5 0.63 0.16 Armature Inductance Millihenrys* 8.2 2.1 0.5 Mechanical Time Constant** Milliseconds 17.0 17.0 17.0	Cont Stall Torque when fitted to Heatsink	***			
Continuous Stall Current TENV***Amps3.9714Armature Polar Moment of InertiaKgm²0.000280.000280.00028Ib - in Sec²0.00240.00240.0024Torque Constant KT**Nm/Amp*0.180.100.05Ib - in/Amp*1.590.880.44Voltage Constant KV**Volts Sec Rad -1*0.180.100.05Peak Stall Torque**Nm4.04.04.04.0Current at Peak Torque**Amps22.042.084.0WindingHampture Resistance Less Brushes**Ohms*2.50.630.16Armature InductanceMillihenrys*8.22.10.5Mechanical Time Constant**Milliseconds17.017.017.0ThermalFFFFF	(Size 12x12x0.5in)	lb - in	7.1	7.1	7.1
Armature Polar Moment of Inertia Kgm² 0.00028 0.00028 0.00028 0.00028 Ib - in Sec² 0.0024 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Ib - in 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec² 14000 14000 14000 Winding	Continuous Stall Current TENV***	Amps	3.9	7	14
Ib - in Sec ² 0.0024 0.0024 0.0024 Torque Constant KT** Nm/Amp* 0.18 0.10 0.05 Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 4.0 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec ² 14000 14000 14000 Winding Jamature Resistance Less Brushes** Ohms* 2.5 0.63 0.16 Armature Inductance Millihenrys* 8.2 2.1 0.5 Mechanical Time Constant** Milliseconds 17.0 17.0 17.0 Insulation Class F F F F F	Armature Polar Moment of Inertia	Kgm ²	0.00028	0.00028	0.00028
Torque Constant KT**Nm/Amp*0.180.100.05Ib - in/Amp*1.590.880.44Voltage Constant KV**Volts Sec Rad -1*0.180.100.05Peak Stall Torque**Nm4.04.04.0Ib - in35.435.435.435.4Current at Peak Torque**Amps22.042.084.0Theoretical Acceleration at Peak TorqueRad/Sec²140001400014000Winding		lb - in Sec ²	0.0024	0.0024	0.0024
Ib - in/Amp* 1.59 0.88 0.44 Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Ib - in 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec ² 14000 14000 14000 Winding	Torque Constant KT**	Nm/Amp*	0.18	0.10	0.05
Voltage Constant KV** Volts Sec Rad -1* 0.18 0.10 0.05 Peak Stall Torque** Nm 4.0 4.0 4.0 Ib - in 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec ² 14000 14000 14000 Winding Villihenrys* 8.2 0.63 0.16 Armature Resistance Less Brushes** Ohms* 8.2 2.1 0.5 Mechanical Time Constant** Milliseconds 17.0 17.0 17.0 Thermal F F F F F		lb - in/Amp*	1.59	0.88	0.44
Peak Stall Torque** Nm 4.0 4.0 4.0 4.0 Ib - in 35.4 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec ² 14000 14000 14000 Winding Jamature Resistance Less Brushes** Ohms* 2.5 0.63 0.16 Armature Inductance Millihenrys* 8.2 2.1 0.5 Mechanical Time Constant** Milliseconds 17.0 17.0 17.0 Thermal F F F F F	Voltage Constant KV**	Volts Sec Rad -1*	0.18	0.10	0.05
Ib - in 35.4 35.4 35.4 Current at Peak Torque** Amps 22.0 42.0 84.0 Theoretical Acceleration at Peak Torque Rad/Sec ² 14000 14000 14000 Winding Vinding Vindung Vindung Vindung Vindung 0.63 0.16 Armature Resistance Less Brushes** Ohms* 8.2 2.1 0.5 Mechanical Time Constant** Milliseconds 17.0 17.0 17.0 Thermal F F F F F	Peak Stall Torque**	Nm	4.0	4.0	4.0
Current at Peak Torque**Amps22.042.084.0Theoretical Acceleration at Peak TorqueRad/Sec²140001400014000WindingArmature Resistance Less Brushes**Ohms*2.50.630.16Armature InductanceMillihenrys*8.22.10.5Mechanical Time Constant**Milliseconds17.017.017.0ThermalFFFF		lb - in	35.4	35.4	35.4
Theoretical Acceleration at Peak TorqueRad/Sec²140001400014000Winding </td <td>Current at Peak Torque**</td> <td>Amps</td> <td>22.0</td> <td>42.0</td> <td>84.0</td>	Current at Peak Torque**	Amps	22.0	42.0	84.0
WindingOhms*2.50.630.16Armature Resistance Less Brushes**Ohms*8.22.10.5Armature InductanceMillihenrys*8.22.10.5Mechanical Time Constant**Milliseconds17.017.017.0ThermalFFFF	Theoretical Acceleration at Peak Torque	Rad/Sec ²	14000	14000	14000
Armature Resistance Less Brushes**Ohms*2.50.630.16Armature InductanceMillihenrys*8.22.10.5Mechanical Time Constant**Milliseconds17.017.017.0ThermalInsulation ClassFFF	Winding				
Armature InductanceMillihenrys*8.22.10.5Mechanical Time Constant**Milliseconds17.017.017.0Thermal Insulation ClassFFF	Armature Resistance Less Brushes**	Ohms*	2.5	0.63	0.16
Mechanical Time Constant**Milliseconds17.017.017.0ThermalFFFInsulation ClassFFF	Armature Inductance	Millihenrys*	8.2	2.1	0.5
Thermal F F Insulation Class F F	Mechanical Time Constant**	Milliseconds	17.0	17.0	17.0
Insulation Class F F F	Thermal				
	Insulation Class		F	F	F
Max. Ambient Temperature°C4040	Max. Ambient Temperature	°C	40	40	40
Thermal Time Constant Minutes* 25 25 25	Thermal Time Constant	Minutes*	25	25	25
Mechanical	Mechanical				
Static Friction TorqueNm0.0550.0550.055	Static Friction Torque	Nm	0.055	0.055	0.055
(Shaft Seal Lubricated) Ib - in 0.486 0.486 0.486	(Shaft Seal Lubricated)	lb - in	0.486	0.486	0.486
Motor Weight Kg 3.3 3.3 3.3	Motor Weight	Kg	3.3	3.3	3.3
lb 7.3 7.3 7.3		lb	7.3	7.3	7.3
TACHOMETER	TACHOMETER				
Voltage Gradient Volts/1000RPM* 9.5 7	Voltage Gradient	Volts/1000RPM*	9.5	7	
Volts Sec Rad -1* 0.095 0.067		Volts Sec Rad -1*	0.095	0.067	
RipplePer Cent1.01.0	Ripple	Per Cent	1.0	1.0	
Cycles/Rev 33 33		Cycles/Rev	33	33	
Armature Resistance** Ohms 90 65	Armature Resistance**	Ohms	90	65	
Armature InductanceMillihenrys*158	Armature Inductance	Millihenrys*	15	8	
Maximum Current Amps 0.02 0.03	Maximum Current	Amps	0.02	0.03	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 0.7Nm / 6.2lb-in

(0.8Nm / 7.1lb-in)



MT22R2 D.C. Servomotors

Technical Data

Parameter	Unit	MT22R2-24	MT22R2-19	MT22R2-12	MT22R2-10
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	24	19	12	10
Max. Terminal Voltage	Volts	120	95	60	50
Max. Speed	RPM	5000	5000	5000	5000
Continuous Stall Torque TENV***	Nm	1.2	1.2	1.2	1.2
-	lb - in	10.6	10.6	10.6	10.6
(Size 300x300x12.5mm)	Nm	1.35	1.35	1.35	1.35
Cont Stall Torque when fitted to Heatsink*	**				
(Size 12x12x0.5in)	lb - in	11.9	11.9	11.9	11.9
Continuous Stall Current TENV***	Amps	5.2	6.7	10.9	12.0
Armature Polar Moment of Inertia	Kgm ²	0.0006	0.0006	0.0006	0.0006
	lb - in Sec ²	0.00531	0.00531	0.00531	0.00531
Torque Constant KT**	Nm/Amp*	0.23	0.18	0.11	0.10
	lb - in/Amp*	2.03	1.59	0.97	0.88
Voltage Constant KV**	Volts Sec Rad -1*	0.23	0.18	0.11	0.10
Peak Stall Torque**	Nm	8.0	8.0	8.0	8.0
	lb - in	71.0	71.0	71.0	71.0
Current at Peak Torque**	Amps	35	44	70	84
Theoretical Acceleration at Peak Torque	Rad/Sec ²	13,300	13,300	13,300	13,300
Winding					
Armature Resistance Less Brushes**	Ohms*	1.6	0.98	0.34	0.26
Armature Inductance	Millihenrys*	4.1	2.6	0.89	0.65
Mechanical Time Constant**	Milliseconds	16	16	16	16
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	25	25	25	25
Mechanical					
Static Friction Torque	Nm	0.055	0.055	0.055	0.055
(Shaft Seal Lubricated)	lb - in	0.486	0.486	0.486	0.486
Motor Weight	Кд	5	5	5	5
	lb	11	11	11	11
TACHOMETER					
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.09		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	33		33	
Armature Resistance**	Ohms	90		65	
Armature Inductance	Millihenrys*	15		8	
Maximum Current	Amps	0.02		0.03	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 1.2Nm / 10.6lb-in

(1.35Nm / 11.9lb-in)









METRIC D.C. SERVOMOTORS

`م^' SERIES

FITTED STANDARD / OPTIONAL FEATURES

Standard features are shown by ● in black.

Available fitted options are shown in red.

Please quote No. and reference of options along with motor type No. when placing an order.

If options or features are required which are not detailed below, they may be possible, so please ask SEM sales.

NO REFERENCE

MECHANICAL INTERFACE

- M00 FACE M05 SQUARE FLANGE R01 **CLOSE TOLERANCE**
- S00 SHAFT
- SHAFT S01 KEYWAY K00 **KEYWAY** K01 K99 NO KEYWAY
- SHAFT END TAPPED D02 H01 HAND CRANK

MOTOR PROTECTION

- P00 IP64 / IP65 P01 IP44
- SHAFT SEAL W01 TROPICALISED P99

BRAKES

- B00 24V DC BRAKE
- 90V DC BRAKE B01
- RECTIFIER L01

ELECTRICAL TERMINATIONS

- LEADS OUT C00 **MS CONNECTOR (IP44)** C01
 - MS PLUG & CABLE CLAMP FOR C01 (IP65) C04
 - **MS CONNECTOR (IP65)** C12
 - MS PLUG & CABLE CLAMP FOR C12 (IP65) C13
 - TWIN LEADS OUT (IP44 ONLY) C22

TACHOGENERATORS

- TACHOGENERATOR T07
- T95 **TACHOGENERATOR**
- T14 **TACHOGENERATOR**
- NO TACHOGENERATOR N99

ENCODERS

- E01 ENCODER
- **FNCODFR** F02
- **ENCODER** E03

ENCODER FITTINGS

- A04 ENCODER ADAPTOR **ENCODER ADAPTOR** 80A
- **ENCODER COVER (IP65)** G01
- G02
- C04
- G08
- G14 **ENCODER COVER (IP65)**
- MS PLUG & CABLE CLAMP FOR G14 (IP65) Straight plug MS 3102E-24-7PS (IP75) G26

DESCRIPTION

See page 11 See page 12 Interface (face & shaft) to IEC72 PRECISION (DIN 42955 Tolerance R) See page 11 9mm Dia X 20mm Long (See page 12) See page 11 3mm x 3mm x 12mm long Plain shaft M4 X 12mm Deep tapped in drive shaft Rear shaft to enable hand rotation of motor

Enclosure protection IP65. Shaft sealing IP64 Enclosure protection IP44 when cable exit C22 is incorporated Oil seal fitted at drive end/shaft interface Special treatment on internal parts

2 Nm torque, 24V DC supply 2 Nm torque, 90V DC supply 110V AC input, 90V DC output for B01 (supplied loose for external mounting)

0.5 metre long radial exit (No terminal box) Receptacle MS3102A-24-7P (16 Pin) fitted to rear side cast cover G08 (IP44) Straight plug MS3106A-18-1S and cable clamp 97-3057-1010-1 (IP44) Receptacle MS 3102E-24-7P (16 pin). As C01 but IP65 Straight plug MS 3106E-18-1S (IP65) See page 12. Separate motor and tacho leads out 0.5 m long secured to motor body

7V/1000 RPM 9.5V/1000 RPM 14V/1000 RPM No velocity feedback

HEIDENHAIN ERN1120 Series - 250 PPR HEIDENHAIN ERN1120 Series - 500PPR HEIDENHAIN ERN1120 Series - 1000 PPR

for BEC 755 encoder & SUMTAK model LHT encoder for Heidenhain 1251/2 encoder Cast cover with 1 X M10 tapped hole and cable gland ENCODER COVER (IP65) ENCODER COVER (IP65) MS PLUG & CABLE CLAMP FOR G08 (IP44) ENCODER COVER (IP44) Cast cover with 1 X PG7 tapped hole and cable gland Straight plug MS3102A-24-7S & cable clamp 97-3057-1016-1 Cast cover with receptacle MS3102A-24-7P (16 Pin) fitted Cast cover with receptacle MS 3102E-24-7P (16 Pin)

MT30E4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30E4- <mark>52</mark>	MT30E4- <mark>32</mark>	MT30E4-25	MT30E4-20
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	52	32	25	20
Max. Terminal Voltage	Volts	140	130	100	80
Max. Speed	RPM	2700	4000	4000	4000
Continuous Stall Torque TENV***	Nm	1.2	1.2	1.2	1.2
	lb - in	10.6	10.6	10.6	10.6
Continuous Stall Torque Blower Cooled***	Nm	2.0	2.0	2.0	2.0
	lb - in	18	18	18	18
Continuous Stall Current TENV***	Amps	2.5	4.1	5.4	7.0
Armature Polar Moment of Inertia	Kgm ²	0.0011	0.0011	0.0011	0.0011
	lb - in Sec ²	0.01	0.01	0.01	0.01
Torque Constant KT**	Nm/Amp*	0.48	0.29	0.22	0.17
	lb - in/Amp*	4.2	2.6	1.9	1.5
Voltage Constant KV**	Volts Sec Rad -1*	0.48	0.29	0.22	0.17
Peak Stall Torque**	Nm	6.0	6.0	6.0	6.0
	lb - in	53	53	53	53
Current at Peak Torque**	Amps	13	22	29	37
Theoretical Acceleration at Peak Torque	Rad/Sec ²	5500	5500	5500	5500
Winding					
Armature Resistance Less Brushes**	Ohms*	5.9	2.2	1.25	0.9
Armature Inductance	Millihenrys*	28	10	6	3.7
Mechanical Time Constant**	Milliseconds	30	30	30	30
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	40	40	40	40
Mechanical					
Static Friction Torque	Nm	0.15	0.15	0.15	0.15
	lb - in	1.3	1.3	1.3	1.3
Motor Weight	Kg	5.1	5.1	5.1	5.1
	lb	11	11	11	11
TACHOMETER			S	TANDARD FOR L	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 1.2Nm / 10.6lb-in

(1.4Nm / 12.4lb-in)



MT30F4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30F4-52	MT30F4-45	MT30F4- <mark>39</mark>	MT30F4-25
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	52	45	39	25
Max. Terminal Voltage	Volts	140	140	140	100
Max. Speed	RPM	2700	3100	3600	4000
Continuous Stall Torque TENV***	Nm	1.6	1.6	1.6	1.6
	lb - in	14	14	14	14
Continuous Stall Torque Blower Cooled***	Nm	3.0	3.0	3.0	3.0
	lb - in	26	26	26	26
Continuous Stall Current TENV***	Amps	3.4	3.9	4.4	7.0
Armature Polar Moment of Inertia	Kgm ²	0.0012	0.0012	0.0012	0.0012
	lb - in Sec ²	0.011	0.011	0.011	0.011
Torque Constant KT**	Nm/Amp*	0.47	0.41	0.36	0.23
	lb - in/Amp*	4.2	3.6	3.2	2.0
Voltage Constant KV**	Volts Sec Rad -1*	0.47	0.41	0.36	0.23
Peak Stall Torque**	Nm	7.5	7.5	7.5	7.5
	lb - in	66	66	66	66
Current at Peak Torque**	Amps	18	21	24	34
Theoretical Acceleration at Peak Torque	Rad/Sec ²	6200	6200	6200	6200
Winding					
Armature Resistance Less Brushes**	Ohms*	4.0	3.1	2.3	1.0
Armature Inductance	Millihenrys*	22.0	16.0	13.0	5.0
Mechanical Time Constant**	Milliseconds	23	23	23	25
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	40	40	40	40
Mechanical					
Static Friction Torque	Nm	0.15	0.15	0.15	0.15
	lb - in	1.3	1.3	1.3	1.3
Motor Weight	Kg	5.4	5.4	5.4	5.4
	lb	12	12	12	12
TACHOMETER				STANDARD FOR	USA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.67	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

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STALL TORQUE 1.6Nm / 14lb-in

(1.8Nm / 16.0lb-in)



MT30H4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30H4- <mark>65</mark>	MT30H4-44	MT30H4-33	MT30H4-22
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	65	44	33	22
Max. Terminal Voltage	Volts	140	140	130	90
Max. Speed	RPM	2100	3100	4000	4000
Continuous Stall Torque TENV***	Nm	2.1	2.1	2.1	2.1
	lb - in	19	19	19	19
Continuous Stall Torque Blower Cooled***	Nm	4.0	4.0	4.0	4.0
	lb - in	35	35	35	35
Continuous Stall Current TENV***	Amps	3.5	4.4	6.8	10.5
Armature Polar Moment of Inertia	Kgm²	0.0014	0.0014	0.0014	0.0014
	lb - in Sec ²	0.012	0.012	0.012	0.012
Torque Constant KT**	Nm/Amp*	0.61	0.43	0.31	0.20
	lb - in/Amp*	5.4	3.8	2.7	1.7
Voltage Constant KV**	Volts Sec Rad -1*	0.61	0.43	0.31	0.20
Peak Stall Torque**	Nm	10.0	10.0	10.0	10.0
	lb - in	88	88	88	88
Current at Peak Torque**	Amps	18	26	37	57
Theoretical Acceleration at Peak Torque	Rad/Sec ²	7100	7100	7100	7100
Winding					
Armature Resistance Less Brushes**	Ohms*	4.6	2.0	1.3	0.4
Armature Inductance	Millihenrys*	24.0	12.0	6.0	2.4
Mechanical Time Constant**	Milliseconds	18	18	18	18
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	50	50	50	50
Mechanical					
Static Friction Torque	Nm	0.15	0.15	0.15	0.15
	lb - in	1.3	1.3	1.3	1.3
Motor Weight	Kg	6.5	6.5	6.5	6.5
-	lb	14	14	14	14
TACHOMETER			S	TANDARD FOR L	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 2.1Nm / 19lb-in

(2.3Nm / 20.4lb-in)









MT30M4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30M4-59	MT30M4- <mark>48</mark>	MT30M4-38	MT30M4-24
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	59	48	38	24
Max. Terminal Voltage	Volts	140	140	140	100
Max. Speed	RPM	2400	3000	3700	4000
Continuous Stall Torque TENV***	Nm	3.0	3.0	3.0	3.0
	lb - in	26	26	26	26
Continuous Stall Torque Blower Cooled***	Nm	5.5	5.5	5.5	5.5
	lb - in	49	49	49	49
Continuous Stall Current TENV***	Amps	5.5	6.8	8.6	13.6
Armature Polar Moment of Inertia	Kgm²	0.0017	0.0017	0.0017	0.0017
	lb - in Sec ²	0.015	0.015	0.015	0.015
Torque Constant KT**	Nm/Amp*	0.54	0.44	0.35	0.22
	lb - in/Amp*	4.8	3.9	3.1	1.9
Voltage Constant KV**	Volts Sec Rad -1*	0.54	0.44	0.35	0.22
Peak Stall Torque**	Nm	14	14	14	14
	lb - in	124	124	124	124
Current at Peak Torque**	Amps	30	37	47	75
Theoretical Acceleration at Peak Torque	Rad/Sec ²	8200	8200	8200	8200
Winding					
Armature Resistance Less Brushes**	Ohms*	2.0	1.3	0.82	0.33
Armature Inductance	Millihenrys*	15.5	10.5	6.5	2.6
Mechanical Time Constant**	Milliseconds	13	13	15	18
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	50	50	50	50
Mechanical					
Static Friction Torque	Nm	0.15	0.15	0.15	0.15
	lb - in	1.3	1.3	1.3	1.3
Motor Weight	Kg	7.3	7.3	7.3	7.3
	lb	16	16	16	16
TACHOMETER			S	TANDARD FOR U	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. IMPORTANT The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm) ")

STALL TORQUE 3.0Nm / 26lb-in











MT30R4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30R4- <mark>58</mark>	MT30R4-46	MT30R4-37	MT30R4-25
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	58	46	37	25
Max. Terminal Voltage	Volts	140	140	140	100
Max. Speed	RPM	2500	3000	3800	4000
Continuous Stall Torque TENV***	Nm	3.5	3.5	3.5	3.2
	lb - in	30.0	30.0	30.0	28.0
Continuous Stall Torque Blower Cooled***	Nm	6.0	6.0	6.0	6.0
	lb - in	53	53	53	53
Continuous Stall Current TENV***	Amps	6.1	7.6	9.5	13.3
Armature Polar Moment of Inertia	Kgm ²	0.0020	0.0020	0.0020	0.0020
	lb - in Sec ²	0.018	0.018	0.018	0.018
Torque Constant KT**	Nm/Amp*	0.57	0.46	0.37	0.24
	lb - in/Amp*	5.0	4.0	3.3	2.1
Voltage Constant KV**	Volts Sec Rad -1*	0.57	0.46	0.37	0.24
Peak Stall Torque**	Nm	18.0	18.0	18.0	18.0
	lb - in	160	160	160	160
Current at Peak Torque**	Amps	37	47	57	86
Theoretical Acceleration at Peak Torque	Rad/Sec ²	9000	9000	9000	9000
Winding					
Armature Resistance Less Brushes**	Ohms*	1.7	0.90	0.72	0.40
Armature Inductance	Millihenrys*	11.5	7.0	5.0	2.2
Mechanical Time Constant**	Milliseconds	11.0	11.0	12.0	14.0
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	60	60	60	60
Mechanical					
Static Friction Torque	Nm	0.20	0.20	0.20	0.20
	lb - in	1.8	1.8	1.8	1.8
Motor Weight	Kg	8.3	8.3	8.3	8.3
	lb	18	18	18	18
TACHOMETER			S	TANDARD FOR U	ISA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. IMPORTANT The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm) 0.5")

STALL TORQUE 3.2 - 3.5Nm / 28 - 30lb-in

 (R4-25 3.3Nm / 29lb-in) (R4-37 3.6Nm / 31lb-in) (R4-46 & 58 4.0Nm / 35lb-in)



MT30U4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30U4-57	MT30U4-48	MT30U4- <mark>36</mark>	MT30U4-26
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	57	48	36	26
Max. Terminal Voltage	Volts	140	140	140	100
Max. Speed	RPM	2500	3000	4000	4000
Continuous Stall Torque TENV***	Nm	4.5	4.5	4.5	4.0
	lb - in	40	40	40	35
Continuous Stall Torque Blower Cooled***	Nm	8.0	8.0	8.0	7.0
	lb - in	71	71	71	62
Continuous Stall Current TENV***	Amps	8.3	10.2	13.2	16.6
Armature Polar Moment of Inertia	Kgm²	0.0023	0.0023	0.0023	0.0023
	lb - in Sec ²	0.020	0.020	0.020	0.020
Torque Constant KT**	Nm/Amp*	0.54	0.44	0.34	0.24
	lb - in/Amp*	4.8	3.9	3.0	2.1
Voltage Constant KV**	Volts Sec Rad -1*	0.54	0.44	0.34	0.24
Peak Stall Torque**	Nm	22	22	22	22
	lb - in	195	195	195	195
Current at Peak Torque**	Amps	47	57	75	100
Theoretical Acceleration at Peak Torque	Rad/Sec ²	9600	9600	9600	9600
Winding					
Armature Resistance Less Brushes**	Ohms*	1.1	0.72	0.45	0.22
Armature Inductance	Millihenrys*	8.1	5.5	3.3	1.7
Mechanical Time Constant**	Milliseconds	10	11	13	16
Thermal					
Insulation Class		F	F	F	F
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	60	60	60	60
Mechanical					
Static Friction Torque	Nm	0.20	0.20	0.20	0.20
	lb - in	1.8	1.8	1.8	1.8
Motor Weight	Kg	9.3	9.3	9.3	9.3
	lb	20	20	20	20
TACHOMETER			S	TANDARD FOR L	ISA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 4.0 - 4.5Nm / 35 - 40lb-in

(U4-26
 (U4-36
 (U4-36
 (U4-48 & 57
 (U4-48 & 57









MT30Z4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30Z4- <mark>8</mark>	8 <mark>5</mark> MT3	0Z4- <mark>61</mark>	MT30Z4- <mark>37</mark>
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	85	61		37
Max. Terminal Voltage	Volts	140	140		140
Max. Speed	RPM	1600	2300)	3750
Continuous Stall Torque TENV***	Nm	5.5	5.0		4.4
	lb - in	48	44		39
Continuous Stall Torque Blower Cooled***	Nm	10.0	9.0		8.0
	lb - in	88	80		70
Continuous Stall Current TENV***	Amps	6.8	8.6		12.6
Armature Polar Moment of Inertia	Kgm²	0.0030	0.00	30	0.0030
	lb - in Sec ²	0.027	0.02	7	0.027
Torque Constant KT**	Nm/Amp*	0.81	0.58		0.35
	lb - in/Amp*	7.2	5.1		3.1
Voltage Constant KV**	Volts Sec Rad -1*	0.81	0.58		0.35
Peak Stall Torque**	Nm	26.0	26.0		26.0
	lb - in	230	230		230
Current at Peak Torque**	Amps	32.0	50.0		86.0
Theoretical Acceleration at Peak Torque	Rad/Sec ²	8700	8700	8700	
Winding					
Armature Resistance Less Brushes**	Ohms*	2.2	1.2		0.35
Armature Inductance	Millihenrys*	17.0	8.0		3.0
Mechanical Time Constant**	Milliseconds	12.0	12.0		10.0
Thermal					
Insulation Class		F	F		F
Max. Ambient Temperature	°C	40	40		40
Thermal Time Constant	Minutes*	60	60		60
Mechanical					
Static Friction Torque	Nm	0.20	0.20		0.20
	lb - in	1.8	1.8		1.8
Motor Weight	Kg	11.3	11.3		11.3
	lb	25	25		25
TACHOMETER			STANI	DARD FOR US	A ONLY
Voltage Gradient	Volts/1000RPM*		9.5	7	
	Volts Sec Rad -1*		0.090	0.067	
Ripple	Per Cent		1.0	1.0	
	Cycles/Rev		25	25	
Armature Resistance**	Ohms		36	24	
Armature Inductance	Millihenrys*		55	36	
Maximum Current	Amps		0.025	0.035	

* Tolerance Plus or Minus 10%
** At 25°C
*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)

STALL TORQUE 4.4 - 5.5Nm / 39 - 48lb-in

(Z4-37 4.6Nm / 41lb-in)
 (Z4-61 5.2Nm / 46lb-in)
 (Z4-85 6.0Nm / 53lb-in)















MT30 series

Standard Features are shown by \bullet in black.

Available fitted options are shown in red.

Please quote No. and reference of options along with motor type No. when placing an order.

If options or features are required which are not detailed below, they may be possible, so please ask SEM sales.

NO. REFERENCE

DESCRIPTION

MECHANICAL INTERFACE

• M00	FACE
M05	FLANGE
R01	CLOSE TOLERANCE INTERFACE

- S00 SHAFT
- S01 SHAFT
- K00 KEYWAY
- K99 NO KEYWAY
- D01 SHAFT END TAPPED
- H01 HAND CRANK

MOTOR PROTECTION

• P00 IP44/65

W01 SHAFT SEAL P99 TROPICALISED

BRAKES

- B00 24V DC BRAKE
- B01 90V DC BRAKE
- L01 RECTIFIER

FORCED VENTILATION

V00	220V BLOWER
V01	110V BLOWER
V99	PREPARED FOR BLOWER

See page 29 See page 31 Interface (face & shaft) to IEC72 PRECISION (DIN 42955Tolerance R) See page 29 14mm Dia x 30mm Long See page 29 Plain Shaft M6 x 15mm Deep tapped in drive shaft Rear shaft to enable hand rotation of motor

Enclosure protection IP44/65 as supplied. IP64/65 if shaft seal is fitted and fixing bolt holes are sealed Oil seal fitted at drive end/shaft interface Special treatment on internal parts

5 Nm torque 24V DC supply 5 Nm torque 90V DC supply 110V AC input 90V DC output for B01 Mounted inside motor terminal box (supplied loose for external mounting when motor MS Connectors are fitted)

220 volt 50HZ single phase input 110 volt 50HZ single phase input Motor prepared for blower but no blower fitted (covers are fitted over blower preparation)

NO. REFERENCE

DESCRIPTION

ELECTRICAL TERMINATIONS

- CO0 TERMINAL BOX
 - C01 TERMINAL BOX
 - C02 MS CONNECTOR (IP44)
 - C03 MS PLUG AND CABLE
 - CLAMP FOR C02 (IP44)
 - C09 FLYING LEADS OUT
 - C10 MS CONNECTOR (IP65)
 - C11 MS PLUG & CABLE CLAMP FOR C10 (IP65)

TACHOGENERATORS

- T07 TACHOGENERATOR
- T95 TACHOGENERATOR
 - T19 TACHOGENERATOR
 - T30 TACHOGENERATOR
 - N99 NO TACHOGENERATOR

ENCODERS

- E01 ENCODER
- E02 ENCODER
- E03 ENCODER

ENCODER FITTINGS

- A01 ENCODER ADAPTOR
- A02 ENCODER ADAPTOR
- A03 ENCODER ADAPTOR
- A04 ENCODER ADAPTOR
- A05 ENCODER ADAPTOR A06 ADAPTOR
- A10 SYNCHRO CLAMPS
- G01 ENCODER COVER
- G02 ENCODER COVER (IP65)
- G03 ENCODER COVER (IP44)
- G07 ENCODER COVER (IP65)
- G15 ENCODER COVER (IP65)
- C05 MS PLUG AND CABLE CLAMP FOR G03 (IP44)
- C11 MS PLUG & CABLE CLAMP FOR G15 (IP65)

With 2 x M20 tapped holes With 2 x PG16 tapped holes Receptacle MS3102A-18-1P(10 pin) fitted to terminal box Straight plug MS3106A-18-1S and Cable clamp 97-3057-1010-1 0.5 metre long (No terminal box) radial exit Receptacle MS3102E-18-1P(10 pin) fitted to terminal box

Straight plug MS 3106E-18-1S (IP65)

7V/1000 RPM 9.5V/1000 RPM 19.5V/1000 RPM 30V/1000 RPM No velocity feedback

HEIDENHAIN ERN1120 Series - 250 PPR HEIDENHAIN ERN1120 Series - 500 PPR HEIDENHAIN ERN1120 Series - 1000 PPR

for Heidenhain ROD 426, 436, 456, Litton G60 & Leine & Linde type 63 for Heidenhain ROD 420 & 450 for Muirhead H25E & Litton G70 for BFC 755 for Tamagawa TS5300 series for Size 11 resolver for A01, A03 and A06 Cast cover with 1 X M10 tapped hole, and cable gland for A04 only Cast cover with 1 X PG7 tapped hole, and cable gland for A04 only Cast cover with MS receptacle MS3102A-18-1P, for A04 only Cast cover with 2 x axial exit cable glands for A05 & A06 only Cast cover with MS receptacle MS 3102E-18-1P for A04 only (IP65) Straight plug MS3106A-18-1S Cable clamp 97-3057-1010-1 (IP44) Straight plug MS3106E-18-1S & cable clamp (IP65)

MT40P4 D.C. Servomotors

Technical Data

Parameter	Unit	MT40P4-76	MT40P4-61	MT40P4- <mark>38</mark>	
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	76	61	38	
Max. Terminal Voltage	Volts	180	180	150	
Max. Speed	RPM	2400	3000	4000	
Continuous Stall Torque TENV***	Nm	6.0	6.0	6.0	
	lb - in	53	53	53	
Continuous Stall Torque Blower Cooled***	Nm	12.0	12.0	12.0	
	lb - in	106	106	106	
Continuous Stall Current TENV***	Amps	8.7	11.0	17.0	
Armature Polar Moment of Inertia	Kgm²	0.0077	0.0077	0.0077	
	lb - in Sec ²	0.068	0.068	0.068	
Torque Constant KT**	Nm/Amp*	0.69	0.55	0.35	
	lb - in/Amp*	6.1	4.9	3.1	
Voltage Constant KV**	Volts Sec Rad -1*	0.69	0.55	0.345	
Peak Stall Torque**	Nm	34.0	34.0	34.0	
	lb - in	300	300	300	
Current at Peak Torque**	Amps	50.0	63.0	100.0	
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4400	4400	4400	
Winding					
Armature Resistance Less Brushes**	Ohms*	1.0	0.6	0.25	
Armature Inductance	Millihenrys*	4.5	3.0	1.2	
Mechanical Time Constant**	Milliseconds	19.0	18.0	20.0	
Thermal					
Insulation Class		Н	Н	Н	
Max. Ambient Temperature	°C	40	40	40	
Thermal Time Constant	Minutes*	90	90	90	
Mechanical					
Static Friction Torque	Nm	0.23	0.23	0.23	
	lb - in	2.0	2.0	2.0	
Motor Weight	Kg	17.5	17.5	17.5	
	lb	38.5	38.5	38.5	
TACHOMETER			STANDARD FOR USA ONLY		
Voltage Gradient	Volts/1000RPM*	9.5	7		
	Volts Sec Rad -1*	0.09	0.06	57	
Ripple	Per Cent	1.0	1.0		
	Cycles/Rev	25	25		
Armature Resistance**	Ohms	36	24		
Armature Inductance	Millihenrys*	55	36		
Maximum Current	Amps	0.02	.5 0.03	35	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (450mm x 450mm x 20mm)

(18" x 18" x 0.8")

STALL TORQUE 6.0Nm / 53lb-in

(6.8Nm /60lb-in)



MT40W4 D.C. Servomotors

Technical Data

Parameter	Unit	MT40W4- <mark>90</mark>	MT40W4- <mark>68</mark>	MT40W4- <mark>45</mark>
GENERAL				
Voltage Gradient No Load	Volts/1000RPM*	90	68	45
Max. Terminal Voltage	Volts	180	180	180
Max. Speed	RPM	2000	2600	4000
Continuous Stall Torque TENV***	Nm	8.5	8.5	8.5
	lb - in	75	75	75
Continuous Stall Torque Blower Cooled***	Nm	16.0	16.0	16.0
	lb - in	140	140	140
Continuous Stall Current TENV***	Amps	10.0	13.0	20.0
Armature Polar Moment of Inertia	Kgm²	0.011	0.011	0.011
	lb - in Sec ²	0.094	0.094	0.094
Torque Constant KT**	Nm/Amp*	0.85	0.64	0.42
	lb - in/Amp*	7.5	5.7	3.7
Voltage Constant KV**	Volts Sec Rad -1*	0.85	0.64	0.42
Peak Stall Torque**	Nm	50	50	50
	lb - in	440	440	440
Current at Peak Torque**	Amps	65	86	130
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4500	4500	4500
Winding				
Armature Resistance Less Brushes**	Ohms*	0.80	0.47	0.20
Armature Inductance	Millihenrys*	6.0	3.3	1.2
Mechanical Time Constant**	Milliseconds	14.0	17.0	17.0
Thermal				
Insulation Class		Н	Н	Н
Max. Ambient Temperature	°C	40	40	40
Thermal Time Constant	Minutes*	100	100	100
Mechanical				
Static Friction Torque	Nm	0.23	0.23	0.23
	lb - in	2.0	2.0	2.0
Motor Weight	Kg	21.5	21.5	21.5
	lb	47	47	47
TACHOMETER			STANDARD FOR L	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5	7	
	Volts Sec Rad -1*	0.090	0.067	
Ripple	Per Cent	1.0	1.0	
	Cycles/Rev	25	25	
Armature Resistance**	Ohms	36	24	
Armature Inductance	Millihenrys*	55	36	
Maximum Current	Amps	0.025	0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (450mm x 450mm x 20mm)

STALL TORQUE 8.5Nm / 75lb-in

• (10.0Nm / 88.5lb-in)

Performance Curves



0 lb - in 100

200

300

400



500

MT40ZD4 D.C. Servomotors

Technical Data

Parameter	Unit	MT40ZD4	-90 MT40ZC	04-60 MT40ZD4-45
GENERAL				
Voltage Gradient No Load	Volts/1000RPM*	90	60	45
Max. Terminal Voltage	Volts	180	180	180
Max. Speed	RPM	2000	3000	4000
Continuous Stall Torque TENV***	Nm	11.0	11.0	11.0
	lb - in	97	97	97
Continuous Stall Torque Blower Cooled***	Nm	21.0	21.0	21.0
	lb - in	185	185	185
Continuous Stall Current TENV***	Amps	13.5	20.0	26.0
Armature Polar Moment of Inertia	Kgm²	0.014	0.014	0.014
	lb - Sec ²	0.13	0.13	0.13
Torque Constant KT**	Nm/Amp*	0.82	0.55	0.41
	lb - in/Amp*	7.5	4.8	3.6
Voltage Constant KV**	Volts Sec Rad -1*	0.85	0.55	0.41
Peak Stall Torque**	Nm	66	66	66
	lb - in	580	580	580
Current at Peak Torque**	Amps	85	125	170
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4700	4700	4700
Winding				
Armature Resistance Less Brushes**	Ohms*	0.56	0.25	0.15
Armature Inductance	Millihenrys*	4.0	1.8	1.0
Mechanical Time Constant**	Milliseconds	14.0	16.0	17.0
Thermal				
Insulation Class		Н	Н	Н
Max. Ambient Temperature	°C	40	40	40
Thermal Time Constant	Minutes*	100	100	100
Mechanical				
Static Friction Torque	Nm	0.25	0.25	0.25
	lb - in	2.2	2.2	2.2
Motor Weight	Kg	26.0	26.0	26.0
	lb	57	57	57
TACHOMETER			STANDAR	D FOR USA ONLY
Voltage Gradient	Volts/1000RPM*		9.5	7
	Volts Sec Rad -1*		0.090	0.067
Ripple	Per Cent		1.0	1.0
	Cycles/Rev		25	25
Armature Resistance**	Ohms		36	24
Armature Inductance	Millihenrys*		55	36
Maximum Current	Amps		0.025	0.035

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

• Heatsink Ratings Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (450mm x 450mm x 20mm)

STALL TORQUE 11.0Nm / 97lb-in (12.0Nm / 106lb-in)









METRIC D.C. SERVOMOTORS

SFRIES

Standard features are shown by ● in black.

Available fitted options are shown in red.

Please quote No. and reference of option along with motor type No. when placing an order.

If options or features are required which are not detailed below, they may be possible, so please ask SEM sales.

NO. REFERENCE

DESCRIPTION

MECHANICAL INTERFACE

• M00	FLANGE
M02	FACE
R01	CLOSE TOLERANCE INTERFACE

- S00 SHAFT
- KOO KEYWAY
- K99 NO KEYWAY
- D01 SHAFT END TAPPED H01 HAND CRANK

MOTOR PROTECTION

● P00 IP44/65 PROTECTION

W01 SHAFT SEAL

P99 TROPICALISED

BRAKES

- B01 90V DC BRAKE
- L01 RECTIFIER

FORCED VENTILATION

V00 220V BLOWER

- V01 110V BLOWER
- V99 PREPARED FOR BLOWER

See page 41 See page 43 Interface (face & shaft) to IEC72 PRECISION (DIN 42955 Tolerance R) See page 41 See page 41 Plain shaft M8 x 15mm Deep tapped in drive shaft Rear shaft to enable hand rotation of motor

Enclosure protection IP44 at shaft. IP65 for remainder of motor. IP64/65 if option W01 shaft seal is fitted Oil seal fitted at drive end/shaft interface Special treatment on internal parts

18 Nm torque 24V DC supply
18 Nm torque 90V DC supply
110V AC input 90V DC output for B01 mounted inside motor terminal box
(supplied loose for external mounting when motor MS Connectors are fitted)

220 volt 50HZ single phase input110 volt 50HZ single phase inputMotor prepared for blower but no blowerfitted (covers are fitted over blower preparation)

NO. REFERENCE

DESCRIPTION

ELECTRICAL TERMINATIONS

- C00 TERMINAL BOX
 C01 TERMINAL BOX
 C02 MS CONNECTOR (IP44)
 C03 MS PLUG AND CABLE
 CLAMP FOR C02 (IP44)
 C09 FLYING LEADS OUT
 C10 MS CONNECTOR (IP65)
 - C11 MS PLUG (IP65)

TACHOGENERATORS

- T07 TACHOGENERATOR
- T95 TACHOGENERATOR
 - T19 TACHOGENERATOR
 - T30 TACHOGENERATOR
 - N99 NO TACHOGENERATOR

ENCODERS

- E01 ENCODER
- E02 ENCODER
- E03 ENCODER

ENCODER FITTINGS

- A01 ENCODER ADAPTOR
- A02 ENCODER ADAPTOR
- A03 ENCODER ADAPTOR
- A04 ENCODER ADAPTOR
- A05 ENCODER ADAPTOR
- A06 ADAPTOR
- A10 SYNCHRO CLAMPS
- G01 ENCODER COVER
- G02 ENCODER COVER (IP65)
- G03 ENCODER COVER (IP44)
- G07 ENCODER COVER (IP65)
- G15 ENCODER COVER (IP65)
- C05 MS PLUG AND CABLE CLAMP FOR G03 (IP44)
- C27 MS PLUG & CABLE CLAMP FOR G15 (IP65)

With 2 x M20 tapped holes With 2 X PG16 tapped holes Receptacle MS3102A-24-11P(9 pin) fitted to motor (IP44) Straight plug MS3106A-24-11S and Cable clamp 97-3057-1016-12 (IP44) 0.5 metre long (No terminal box radial exit) Receptacle MS 3102E-24-11P (9 pin) fitted to motor (IP65) Straight plug MS 3106E-24-11S (IP65)

7V/1000 RPM 9.5V/1000 RPM 19.5V/1000 RPM 30V/1000 RPM No velocity feedback

HEIDENHAIN ERN1120 Series - 250 PPR HEIDENHAIN ERN1120 Series - 500 PPR HEIDENHAIN ERN1120 Series 1000 PPR

for Heidenhain ROD 426, 436, 456, Litton G60 & Leine & Linde type 63 for Heidenhain ROD 420 & 450 for Muirhead H25E & Litton G70 for BEC 755 & SUMTAK model LHT for Tamagawa TS5300 series for Size 11 resolver for A01, A03 and A06 Cast cover with 1 X M10 tapped hole, and cable gland for A04 only Cast cover with 1 X PG7 tapped hole, and cable gland for A04 only Cast cover with MS receptacle MS3102A-18-1P, for A04 only Cast cover with 2 x axial exit cable glands for A05 & A06 only Cast cover with MS receptacle MS 3102E-18-1P for A04 only (IP65) Straight plug MS3106A-18-1S (IP44) Cable clamp 97-3057-1010-1 Straight plug MS3106E-18-1S (IP65)

MT52K8 D.C. Servomotors

Technical Data

Parameter	Unit	MT52K8- <mark>87</mark>	MT52K8- <mark>62</mark>	MT52K8-50	MT52K8- <mark>37</mark>
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	87	62	50	37
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1500	2100	2600	3500
Continuous Stall Torque TENV***	Nm	8.0	8.0	8.0	8.0
	lb - in	70	70	70	70
Continuous Stall Torque Blower Cooled***	Nm	16	16	16	16
	lb - in	140	140	140	140
Continuous Stall Current TENV***	Amps	9.7	13.5	17.0	22.8
Armature Polar Moment of Inertia	Kgm ²	0.013	0.013	0.013	0.013
	lb - in Sec ²	0.115	0.115	0.115	0.115
Torque Constant KT**	Nm/Amp*	0.82	0.59	0.47	0.35
	lb - in/Amp*	7.3	5.2	4.2	3.1
Voltage Constant KV**	Volts Sec Rad -1*	0.82	0.59	0.47	0.35
Peak Stall Torque**	Nm	59	59	59	59
	lb - in	520	520	520	520
Current at Peak Torque**	Amps	71	100	125	170
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4500	4500	4500	4500
Winding					
Armature Resistance Less Brushes**	Ohms*	1.10	0.55	0.35	0.19
Armature Inductance	Millihenrys*	5.0	2.45	1.50	0.90
Mechanical Time Constant**	Milliseconds	22.0	22.0	22.0	22.0
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	40	40	40	40
Mechanical					
Static Friction Torque	Nm	0.50	0.50	0.50	0.50
	lb - in	4.4	4.4	4.4	4.4
Motor Weight	Kg	23	23	23	23
	lb	51	51	51	51
TACHOMETER			S	TANDARD FOR U	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5 7			
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

^{**} At 25°C

STALL TORQUE 8.0Nm / 70lb-in

MT52V8 D.C. Servomotors

Technical Data

Parameter	Unit	MT52V8- <mark>87</mark>	MT52V8- <mark>69</mark>	MT52V8- <mark>50</mark>	MT52V8- <mark>37</mark>
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	87	69	50	37
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1500	1900	2600	3500
Continuous Stall Torque TENV***	Nm	15.0	15.0	15.0	15.0
	lb - in	130	130	130	130
Continuous Stall Torque Blower Cooled***	Nm	30.0	30.0	30.0	30.0
	lb - in	265	265	265	265
Continuous Stall Current TENV***	Amps	18.3	23.8	33.3	44.0
Armature Polar Moment of Inertia	Kgm²	0.026	0.026	0.026	0.026
	lb - in Sec ²	0.230	0.230	0.230	0.230
Torque Constant KT**	Nm/Amp*	0.82	0.65	0.47	0.34
	lb - in/Amp*	7.2	5.8	4.1	3.0
Voltage Constant KV**	Volts Sec Rad -1*	0.82	0.63	0.45	0.34
Peak Stall Torque**	Nm	110	110	110	110
	lb - in	970	970	970	970
Current at Peak Torque**	Amps	140	180	250	330
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4200	4200	4200	4200
Winding					
Armature Resistance Less Brushes**	Ohms*	0.41	0.25	0.13	0.07
Armature Inductance	Millihenrys*	2.0	1.3	0.7	0.4
Mechanical Time Constant**	Milliseconds	18.0	18.0	18.0	18.0
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant**	Minutes*	60	60	60	60
Mechanical					
Static Friction Torque	Nm	0.60	0.60	0.60	0.60
	lb - in	5.3	5.3	5.3	5.3
Motor Weight	Kg	31	31	31	31
	lb	68	68	68	68
TACHOMETER			:	STANDARD FOR	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5 7			
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

^{**} At 25°C

STALL TORQUE 15.0Nm / 130lb-in

MT52ZF8 D.C. Servomotors

Technical Data

Parameter	Unit	MT52ZF8-86	MT52ZF8-67	MT52ZF8-48	MT52ZF8-38
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	86	67	48	38
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1500	2000	2700	3500
Continuous Stall Torque TENV***	Nm	22.0	22.0	18.0	16.0
	lb - in	190	190	160	140
Continuous Stall Torque Blower Cooled***	Nm	45.0	45.0	35.0	30.0
	lb - in	400	400	310	265
Continuous Stall Current TENV***	Amps	26.0	34.0	39.0	43.0
Armature Polar Moment of Inertia	Kgm ²	0.034	0.034	0.034	0.034
	lb - in Sec ²	0.300	0.300	0.300	0.300
Torque Constant KT**	Nm/Amp*	0.81	0.65	0.46	0.37
	lb - in/Amp*	7.2	5.7	4.1	3.3
Voltage Constant KV**	Volts Sec Rad -1*	0.84	0.65	0.46	0.37
Peak Stall Torque**	Nm	180	180	180	180
	lb - in	1600	1600	1600	1600
Current at Peak Torque**	Amps	220	285	400	500
Theoretical Acceleration at Peak Torque	Rad/Sec ²	5300	5300	5300	5300
Winding					
Armature Resistance Less Brushes**	Ohms*	0.216	0.136	0.060	0.043
Armature Inductance	Millihenrys*	1.0	0.6	0.3	0.2
Mechanical Time Constant**	Milliseconds	11.0	11.0	11.0	11.0
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant**	Minutes*	75	75	75	75
Mechanical					
Static Friction Torque	Nm	0.70	0.70	0.70	0.70
	lb - in	6.2	6.2	6.2	6.2
Motor Weight	Kg	39	39	39	39
	lb	86	86	86	86
TACHOMETER				STANDARD FOR	USA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

STALL TORQUE 16 - 22Nm / 140 - 190lb-in

MT52ZR8 D.C. Servomotors

Technical Data

Parameter	Unit	MT52ZR8-92	MT52ZR8-66	MT52ZR8-53	MT52ZR8-39
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	92	66	53	39
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1400	2000	2500	3300
Continuous Stall Torque TENV***	Nm	30.0	24.0	21.0	16.0
	lb - in	260	210	190	140
Continuous Stall Torque Blower Cooled***	Nm	55.0	45.0	40.0	30.0
	lb - in	490	400	350	270
Continuous Stall Current TENV***	Amps	36.0	40.0	42.0	43.0
Armature Polar Moment of Inertia	Kgm²	0.043	0.043	0.043	0.043
	lb - in Sec ²	0.380	0.380	0.380	0.380
Torque Constant KT**	Nm/Amp*	0.85	0.61	0.5	0.37
	lb - in/Amp*	7.5	5.4	4.4	3.3
Voltage Constant KV**	Volts Sec Rad -1*	0.85	0.61	0.5	0.37
Peak Stall Torque**	Nm	240	240	240	240
	lb - in	2100	2100	2100	2100
Current at Peak Torque**	Amps	285	400	500	650
Theoretical Acceleration at Peak Torque	Rad/Sec ²	5600	5600	5600	5600
Winding					
Armature Resistance Less Brushes**	Ohms*	0.170	0.084	0.054	0.029
Armature Inductance	Millihenrys*	0.78	0.40	0.25	0.14
Mechanical Time Constant**	Milliseconds	10.0	10.0	10.0	10.0
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	90	90	90	90
Mechanical					
Static Friction Torque	Nm	0,70	0.70	0.70	0.70
	lb - in	6.2	6.2	6.2	6.2
Motor Weight	Kg	48	48	48	48
	lb	106	106	106	106
TACHOMETER			S	TANDARD FOR L	JSA ONLY
Voltage Gradient	Volts/1000RPM*	9.5		7	
	Volts Sec Rad -1*	0.090		0.067	
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36		24	
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

^{**} At 25°C

STALL TORQUE 16 - 30Nm / 140 - 260lb-in

DBMT52ZF8 D.C. Servomotors

Technical Data

Parameter	Unit	DBMT52ZF8-86	DBMT52ZF8-67	DBMT52ZF8-48	DBMT52ZF8-38
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	86	67	48	38
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1500	2000	2700	3500
Continuous Stall Torque TENV***	Nm	27.5	27.5	27.5	27.5
	lb - in	240	240	240	240
Continuous Stall Torque Blower Cooled***	Nm	45	45	45	45
	lb - in	400	400	400	400
Continuous Stall Current TENV***	Amps	34.0	43.0	60.0	74.0
Armature Polar Moment of Inertia	Kgm ²	0.038	0.038	0.038	0.038
	lb - in Sec ²	0.34	0.34	0.34	0.34
Torque Constant KT**	Nm/Amp*	0.81	0.65	0.46	0.37
	lb - in/Amp*	7.2	5.7	4.1	3.3
Voltage Constant KV**	Volts Sec Rad -1*	0.81	0.65	0.46	0.37
Peak Stall Torque**	Nm	180	180	180	180
	lb - in	1600	1600	1600	1600
Current at Peak Torque**	Amps	220	285	400	500
Theoretical Acceleration at Peak Torque	Rad/Sec ²	4700	4700	4700	4700
Winding					
Armature Resistance Less Brushes**	Ohms*	0.216	0.136	0.060	0.043
Armature Inductance	Millihenrys*	1.0	0.6	0.3	0.2
Mechanical Time Constant**	Milliseconds	12.5	12.5	12.5	12.5
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	75	75	75	75
Mechanical					
Static Friction Torque	Nm	1.0	1.0	1.0	1.0
	lb - in	9.0	9.0	9.0	9.0
Motor Weight	Kg	41	41	41	41
	lb	90	90	90	90
TACHOMETER			ST	ANDARD FOR U	SA ONLY
Voltage Gradient	Volts/1000RPM*	9.5 7			
	Volts Sec Rad -1*	0.090 0.067			
Ripple	Per Cent	1.0		1.0	
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36 24			
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

*** At 40°C Ambient

Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

^{**} At 25°C

STALL TORQUE 27.5Nm / 240lb-in

DBMT52ZR8 D.C. Servomotors

Technical Data

Parameter	Unit	DBMT52ZR8-92	DBMT52ZR8-66	DBMT52ZR8-53	DBMT52ZR8-39
GENERAL					
Voltage Gradient No Load	Volts/1000RPM*	92	66	53	39
Max. Terminal Voltage	Volts	130	130	130	130
Max. Speed	RPM	1400	2000	2500	3300
Continuous Stall Torque TENV***	Nm	37.0	37.0	34.0	28.0
	lb - in	330	330	300	250
Continuous Stall Torque Blower Cooled***	Nm	55.0	55.0	55.0	55.0
	lb - in	490	490	490	490
Continuous Stall Current TENV***	Amps	44.0	61.0	71.0	76.0
Armature Polar Moment of Inertia	Kgm ²	0.046	0.046	0.046	0.046
	lb - in Sec ²	0.410	0.410	0.410	0.410
Torque Constant KT**	Nm/Amp*	0.85	0.61	0.5	0.37
	lb - in/Amp*	7.5	5.4	4.4	3.3
Voltage Constant KV**	Volts Sec Rad -1*	0.85	0.61	0.48	0.37
Peak Stall Torque**	Nm	240	240	240	240
	lb - in	2100	2100	2100	2100
Current at Peak Torque**	Amps	285	400	500	650
Theoretical Acceleration at Peak Torque	Rad/Sec ²	5200	5200	5200	5200
Winding					
Armature Resistance Less Brushes**	Ohms*	0.170	0.084	0.054	0.029
Armature Inductance	Millihenrys*	0.78	0.40	0.25	0.14
Mechanical Time Constant**	Milliseconds	11.0	11.0	11.0	11.0
Thermal					
Insulation Class		Н	Н	Н	Н
Max. Ambient Temperature	°C	40	40	40	40
Thermal Time Constant	Minutes*	90	90	90	90
Mechanical					
Static Friction Torque	Nm	1.0	1.0	1.0	1.0
	lb - in	9.0	9.0	9.0	9.0
Motor Weight	Kg	50	50	50	50
	lb	110	110	110	110
TACHOMETER			ST	FANDARD FOR U	SA ONLY
Voltage Gradient	Volts/1000RPM*	9.5 7			
	Volts Sec Rad -1*	0.90 0.067			
Ripple	Per Cent 1.0 1.0				
	Cycles/Rev	25		25	
Armature Resistance**	Ohms	36 24			
Armature Inductance	Millihenrys*	55		36	
Maximum Current	Amps	0.025		0.035	

* Tolerance Plus or Minus 10%

** At 25°C

*** At 40°C Ambient

■ Motor Performance data is on the basis of a pure D.C. i.e. unity system form factor supply. Appropriate performance derating is necessary when using a supply with a system form factor greater than unity.

Commutation Curves opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal to the motor inertia. Advice should be taken in the event the load inertia is greater than the motor inertia.

STALL TORQUE 28 - 37Nm / 250 - 330lb-in

METRIC D.C. SERVOMOTORS

MT52 series

Standard features are shown by \bullet in black.

Available fitted options are shown in red.

Please quote No. and reference of options along with motor type No. when placing an order.

If options or features are required which are not detailed below, they may be possible, so please ask SEM sales.

NO. REFERENCE

DESCRIPTION

MECHANICAL INTERFACE

• M00	FLANGE
M02	FACE
R01	CLOSE TOLERANCE INTERFACE

- S00 SHAFT
- KOO KEYWAY
 - K99 NO KEYWAY
 - D01 SHAFT END TAPPED
 - H01 HAND CRANK

MOTOR PROTECTION

● P00 IP44/65 PROTECTION

W01 SHAFT SEAL P99 TROPICALISED

BRAKES

B00	24V DC BRAKE

- B01 90V DC BRAKE L01 RECTIFIER
- LUI RECTIFIER

FORCED VENTILATION

V00 220V BLOWERV01 110V BLOWERV99 PREPARED FOR BLOWER

See page 59 See page 61 Interface (face & shaft) to IEC72 PRECISION (DIN 42955 Tolerance R) See page 59 See page 59 Plain shaft M12 x 20mm Deep tapped in drive shaft Rear shaft to enable hand rotation of motor

Enclosure protection IP44 at shaft. IP65 for remainder of motor. IP64/65 if shaft seal option W01 is fitted Oil seal fitted at drive end/shaft interface Special treatment on internal parts

18 Nm torque 24V DC supply
18 Nm torque 90V DC supply
110V AC input 90V DC output for B01
Mounted inside terminal box
(supplied loose for external mounting when motor MS Connectors are fitted)

220 volt 50HZ single phase input 110 volt 50HZ single phase input Motor prepared for blower but no blower fitted (covers are fitted over blower preparation)

NO. REFERENCE

DESCRIPTION

ELECTRICAL TERMINATIONS

- C00 TERMINAL BOX
 C01 TERMINAL BOX
 C02 MS CONNECTORS (IP44)
 - C03 MS PLUGS AND CABLE CLAMPS FOR C02 (IP44)
 - C09 FLYING LEADS OUT
 - C10 MS CONNECTORS (IP65)
 - C11 MS PLUGS FOR C10 (IP65)

TACHOGENERATORS

- T07 TACHOGENERATOR
- T95 TACHOGENERATOR
 - T19 TACHOGENERATOR
- T30 TACHOGENERATOR
- N99 NO TACHOGENERATOR

ENCODERS

E01 ENCODER

- E02 ENCODER
- E03 ENCODER

ENCODER FITTINGS

A01	ENCODER ADAPTOR
A02	ENCODER ADAPTOR
A03	ENCODER ADAPTOR
A04	ENCODER ADAPTOR
A05	ENCODER ADAPTOR
A06	ADAPTOR
A10	SYNCHRO CLAMPS
G01	ENCODER COVER (IP65)
G02	ENCODER COVER (IP65)
G03	ENCODER COVER (IP44)
G07	ENCODER COVER (IP65)
G15	ENCODER COVER (IP65)
C05	MS PLUG AND CABLE (IP44)

C27 MS PLUG FOR G15 (IP65)

With 1x M20 and 1 x M25 tapped holes With 1 x PG16 and 1 x PG21 tapped holes Motor receptacle MS3102A-32-5P (2 pin) and Feedback receptacle MS3102A-14S-6P (6 pin) fitted to motor

MS3106A-32-5S and MS3106A-14S-6S straight plugs and cable clamps 97-3057-1020-1 and 97-3057-1007-1 0.5 metre long radial exit (No terminal box) Motor receptacleMS 3102E-32-5P (2 pin) and feedback receptacle MS 3102E-14S-6P (6 pin) fitted to motor MS 3106E-32-5S and MS 3106-14S-6S straight plugs

7V/1000 RPM 9.5V/1000 RPM 19.5V/1000 RPM 30V/1000 RPM No velocity feedback

HEIDENHAIN ERN1120 Series - 250 PPR HEIDENHAIN ERN1120 Series - 500 PPR HEIDENHAIN ERN1120 Series - 1000 PPR

for Heidenhain ROD 426, 436, 456, Litton G60 & Leine & Linde type 63 for Heidenhain ROD 420 & 450 for Muirhead H25E & Litton G70 for BEC 755 & SUMTAK model LHT for Tamagawa TS5300 series for Size 11 resolver for A01, A03 and A06 Cast cover with 1 X M10 tapped hole, and cable gland for A04 only Cast cover with 1 X PG7 tapped hole, and cable gland for A04 only Cast cover with MS receptacle MS3102A-18-1P, for A04 only (IP44) Cast cover with 2 x axial exit cable glands for A05 & A06 only Cast cover with MS receptacle MS 3102E-18-1P for A04 only (IP65) Straight plug MS3106A-18-1S Cable clamp 97-3057-1010-1 MS 3106E-18-1S (IP65) Straight plug