MT30R4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30R4-58	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				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.

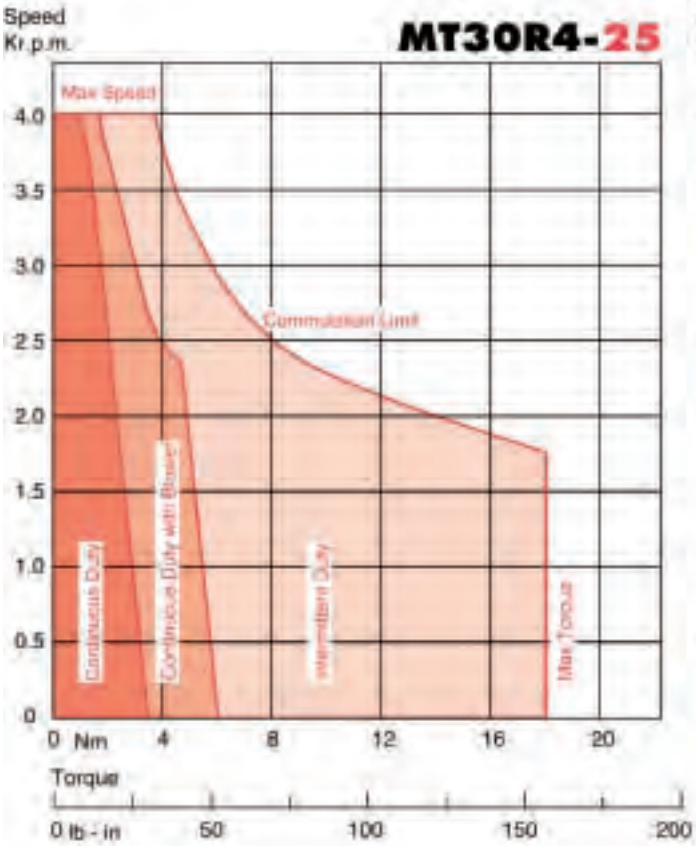
■ **Commutation Curves** opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal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

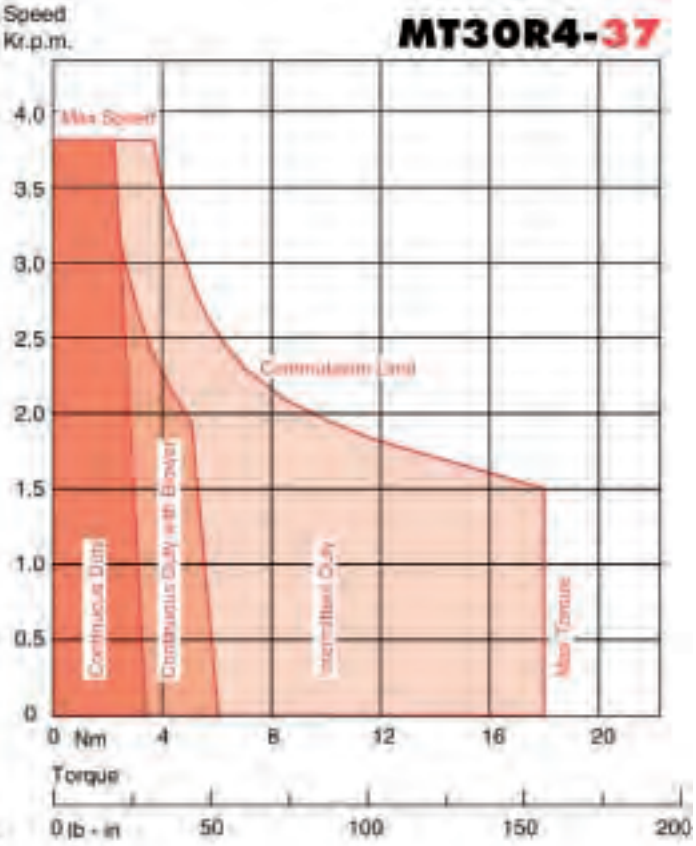
● **Heatsink Ratings** Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)
(12" x 12" x 0.5")

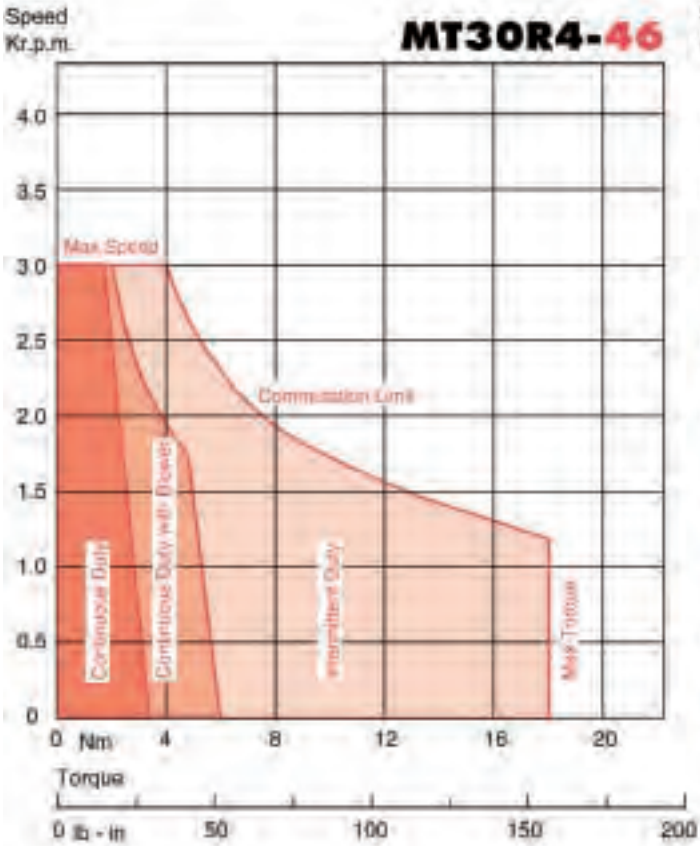
STALL TORQUE 3.2 - 3.5Nm / 28 - 30lb-in

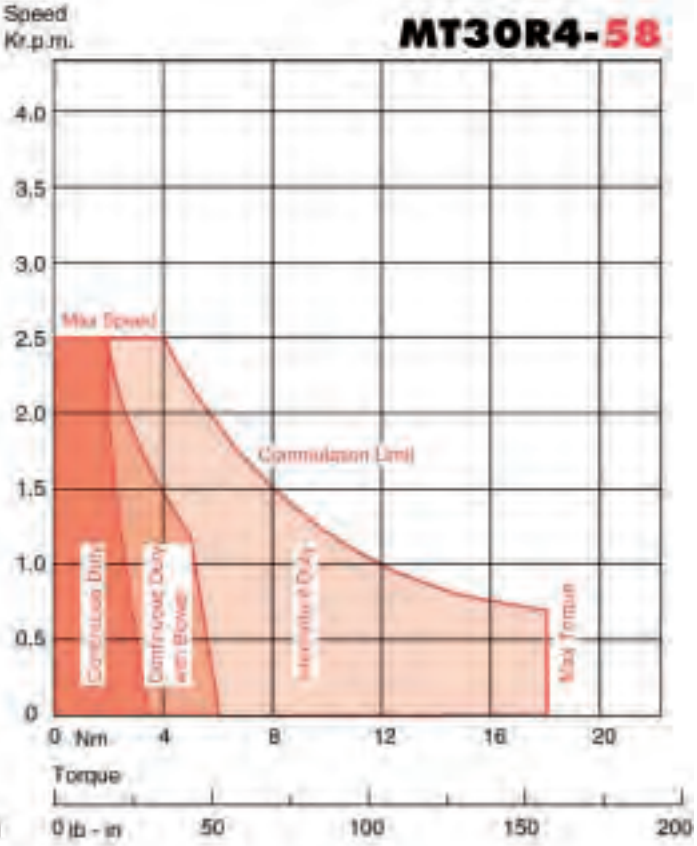
- (R4-25 3.2Nm / 28lb-in)
  (R4-37 3.5Nm / 31lb-in)
  (R4-46 & 58 4.0Nm / 35lb-in)

Performance Curves









MT30U4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30U4-57	MT30U4-48	MT30U4-36	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	Kgm^2	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				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.

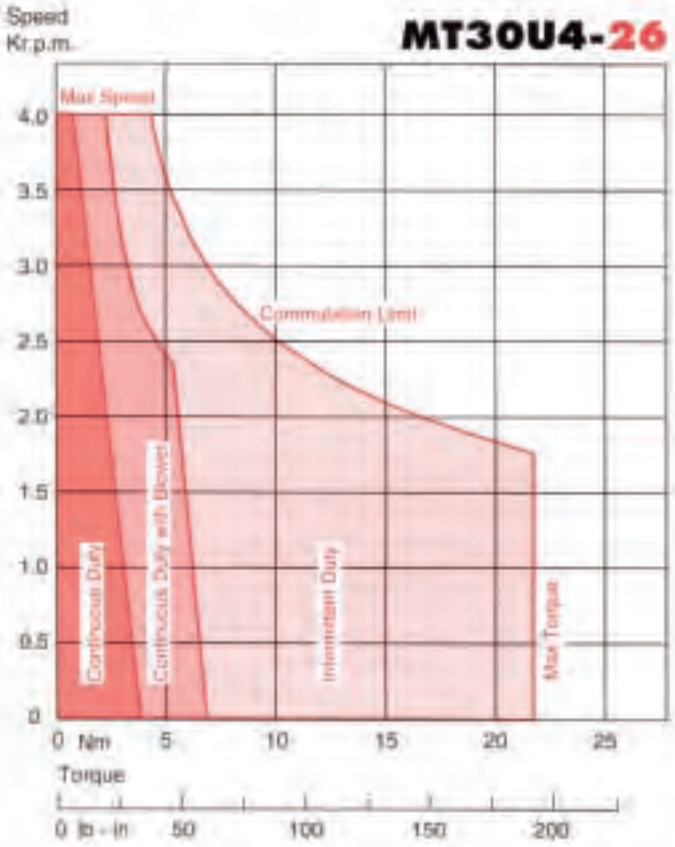
■ **Commutation Curves** opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal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

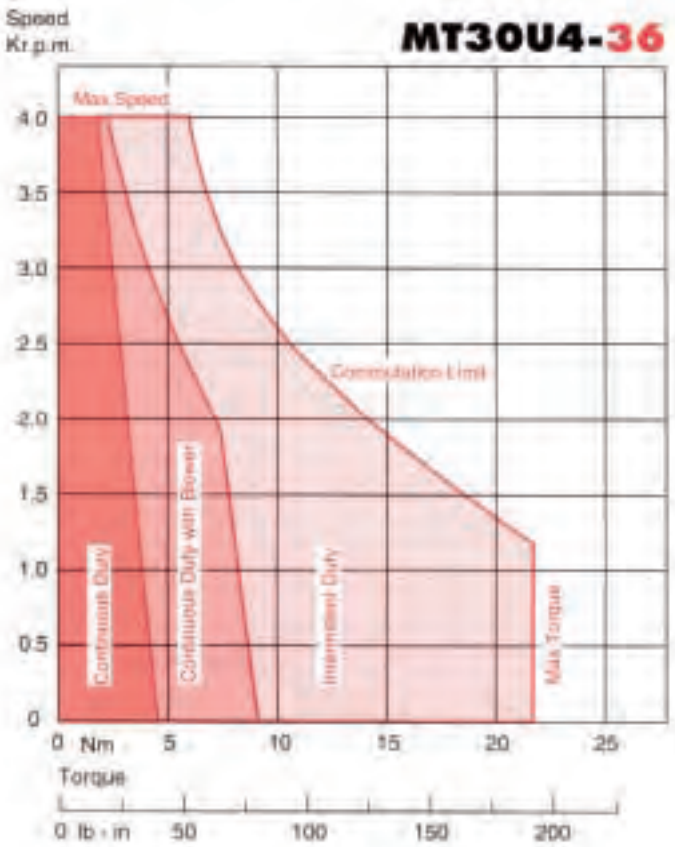
● **Heatsink Ratings** Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)
(12" x 12" x 0.5")

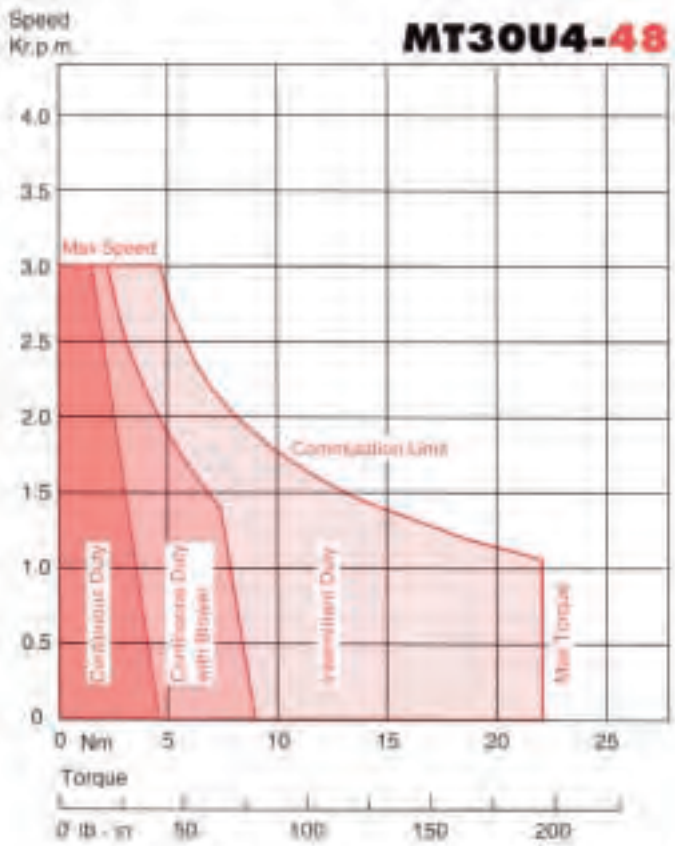
STALL TORQUE 4.0 - 4.5Nm / 35 - 40lb-in

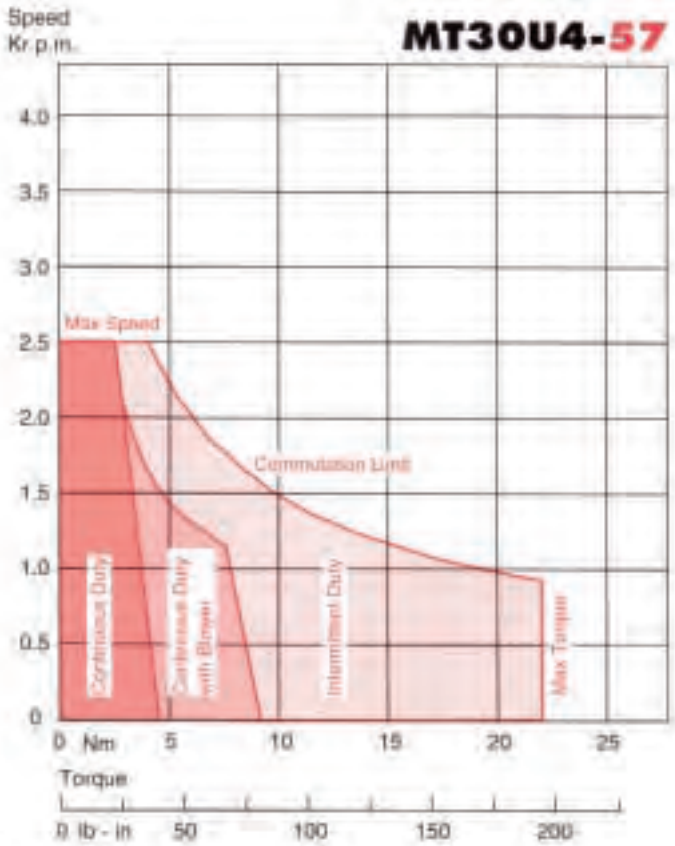
- (U4-26 4.3Nm / 38lb-in)
- (U4-36 4.6Nm / 41lb-in)
- (U4-48 & 57 4.9Nm / 43lb-in)

Performance Curves









MT30Z4 D.C. Servomotors

Technical Data

Parameter	Unit	MT30Z4-85	MT30Z4-61	MT30Z4-37
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	Kgm^2	0.0030	0.0030	0.0030
	lb - in Sec^2	0.027	0.027	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			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.

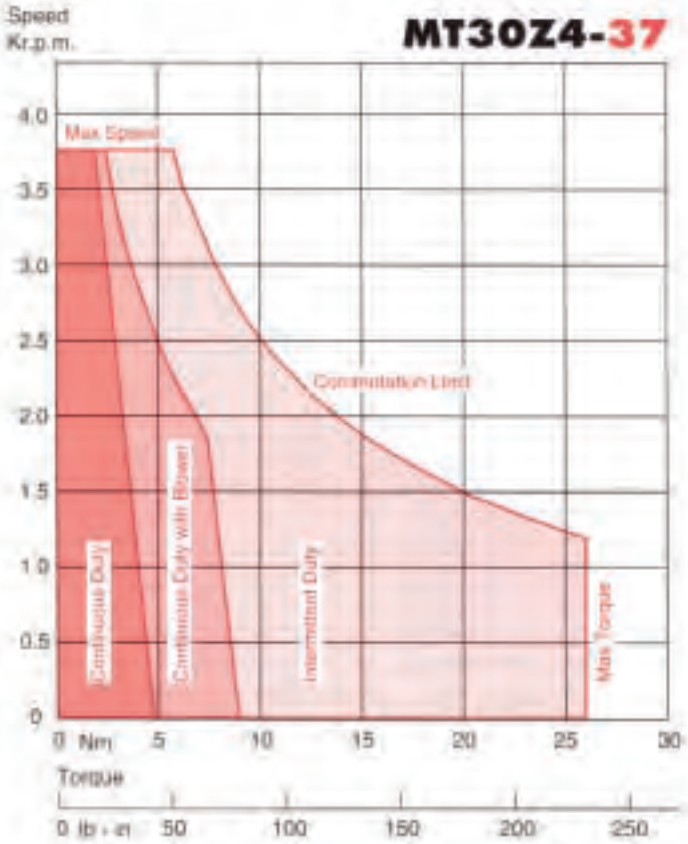
■ **Commutation Curves** opposite and peak torque are based on the **peak value** of the current wave form. For a form factor greater than unity the maximum torque permitted will be lower than that detailed on the performance curves. **IMPORTANT** The commutation curves are based on a load inertia equal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

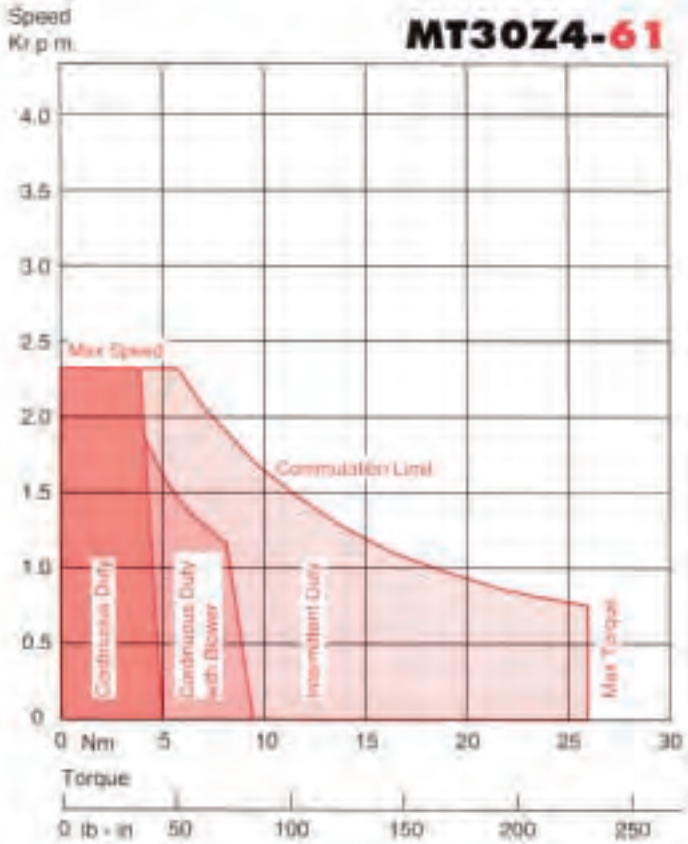
● **Heatsink Ratings** Torque ratings shown in brackets (opposite top right) are correct for motors when fitted to a heatsink size (300mm x 300mm x 12mm)
(12" x 12" x 0.5")

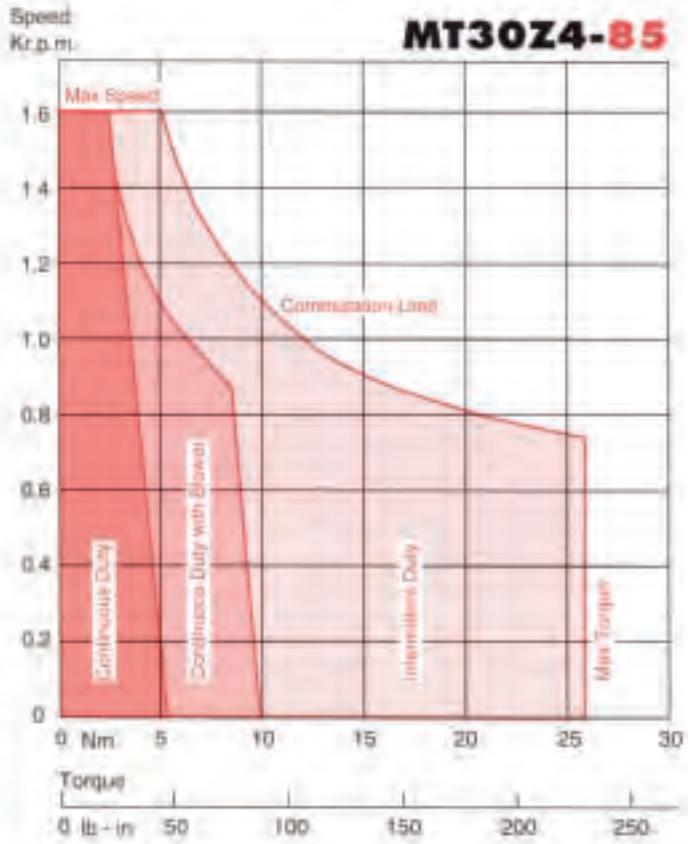
STALL TORQUE 4.4 - 5.5Nm / 39 - 48lb-in

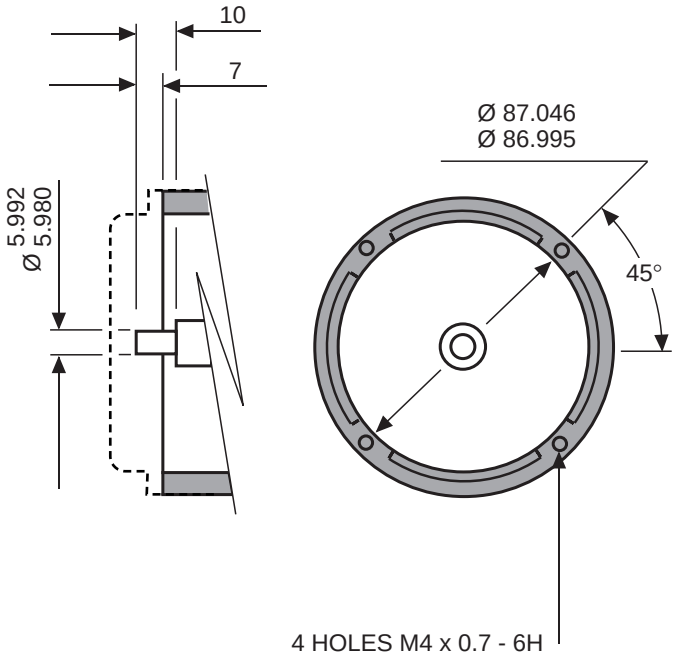
● (Z4-37 4.6Nm / 41lb-in)
(Z4-61 5.2Nm / 46lb-in)
(Z4-85 6.0Nm / 53lb-in)

Performance Curves



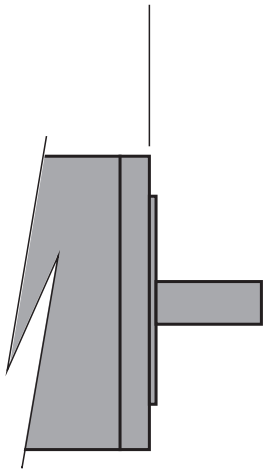






NON DRIVE END SHAFT ARRANGEMENT

FACE & SPIGOT ARE SQUARE & CONCENTRIC TO SHAFT WITHIN 0.08 TOTAL INDICATOR READING
(0.04 FOR OPTION R01 ONLY)



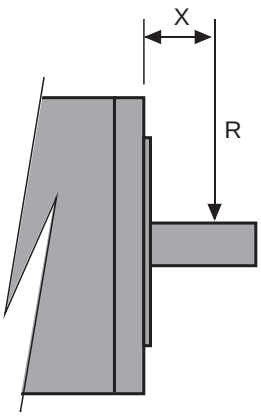
RUN OUT OF SHAFT WITHIN
0.05 TOTAL INDICATOR READING

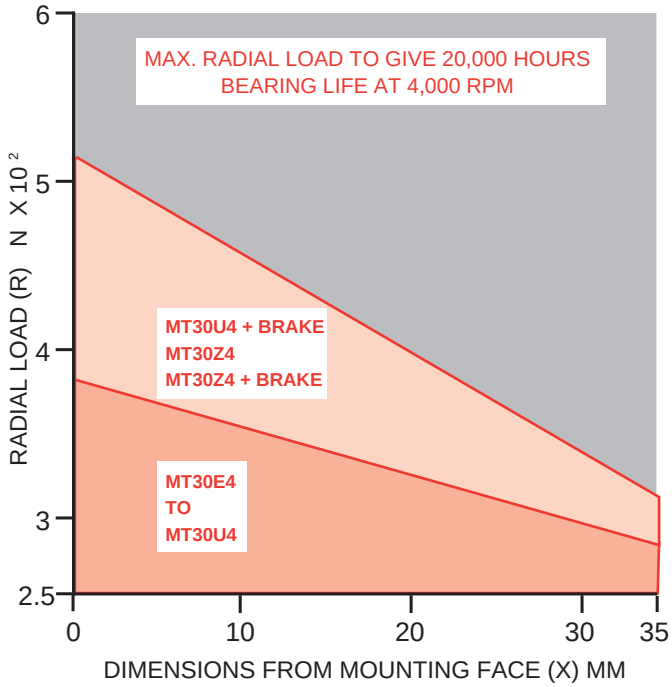
STANDARD TOLERANCES CONFORM TO
IEC72 (DIN 42955 TOLERANCE N)
OPTION RO1 CLOSE TOLERANCES CONFORM TO
IEC72 PRECISION (DIN 42955 TOLERANCE R)

DRIVE END INTERFACE TOLERANCES

DIMENSIONS IN MILLIMETRES FOR INCH SERIES SEE DRAWING C5130/0

SHAFT LOADING LIMITS

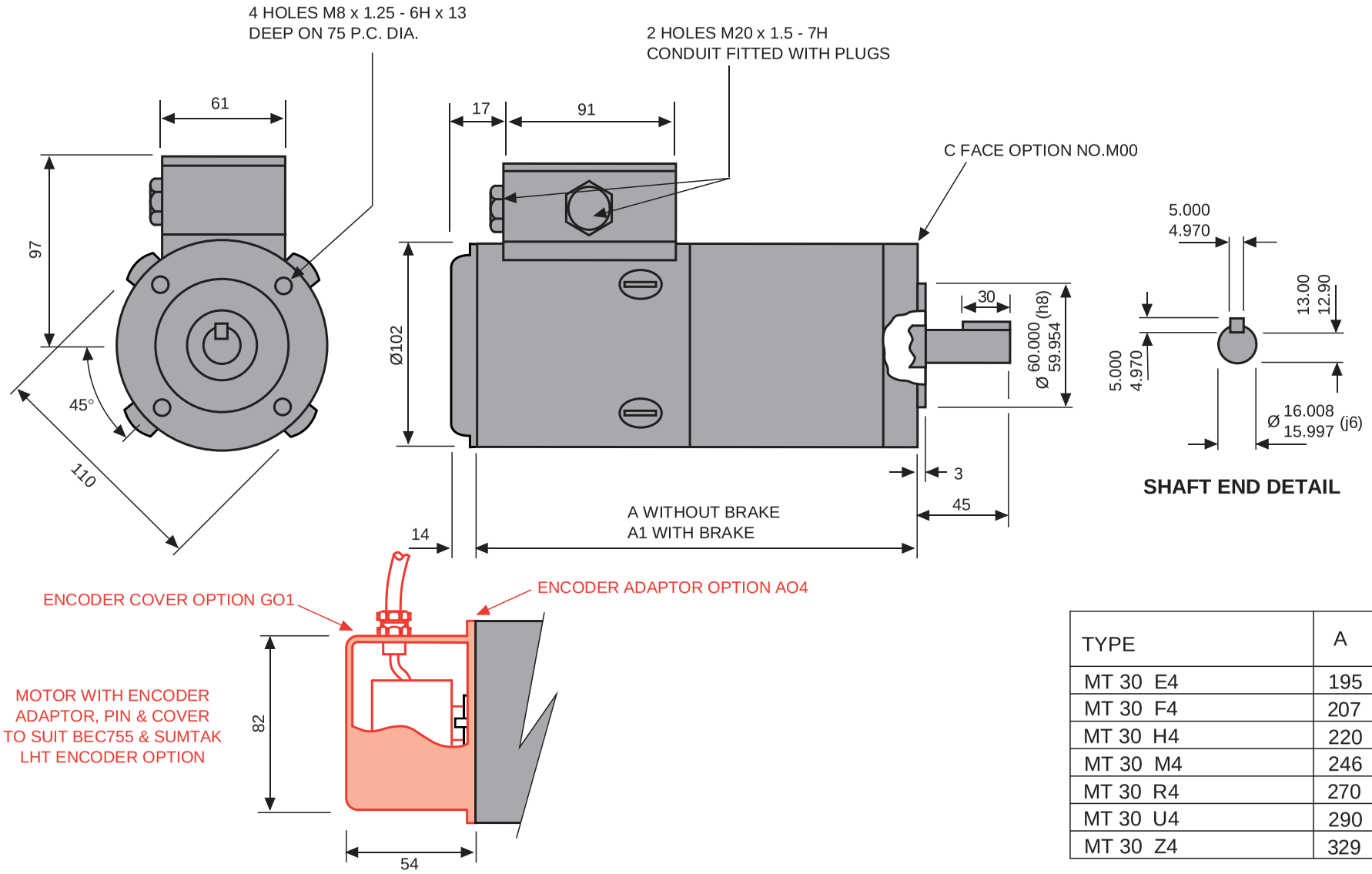




The above graph may be used as a guide for applications and includes an adequate safety factor for normal industrial use. If axial loads are to be applied, SEM should be consulted. Where radial loading in excess of the above maximum is deemed essential, the specific case should be referred to SEM.

METRIC D.C. SERVOMOTORS **MT30 SERIES**	**MECHANICAL DETAIL**	C5130/OM SHEET 1 OF 4 SHEETS

DIMENSIONS IN MILLIMETRES FOR INCH SERIES SEE DRAWING C-5130/0



TYPE	A	A1
MT 30 E4	195	242
MT 30 F4	207	254
MT 30 H4	220	267
MT 30 M4	246	293
MT 30 R4	270	317
MT 30 U4	290	341
MT 30 Z4	329	376

METRIC D.C. SERVOMOTORS

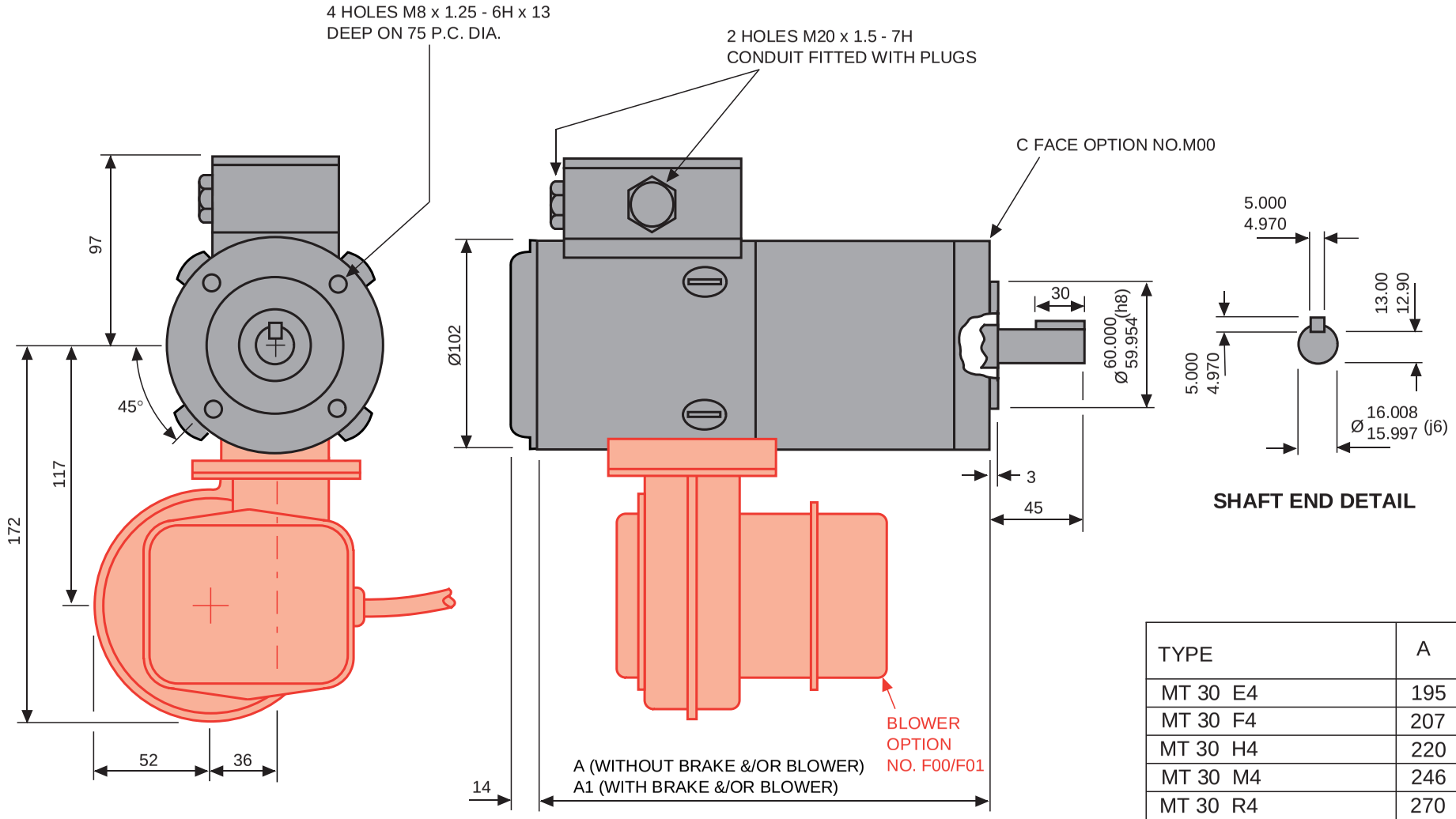
MT30 SERIES

STANDARD MT30 SERVOMOTOR

WITH ADAPTOR AND COVER FOR BEC755 OR SUMTAK ENCODER SHOWN IN RED

C5130/OM

DIMENSIONS IN MILLIMETRES FOR INCH SERIES SEE DRAWING C-5130/0



SHAFT END DETAIL

TYPE	A	A1
MT 30 E4	195	242
MT 30 F4	207	254
MT 30 H4	220	267
MT 30 M4	246	293
MT 30 R4	270	317
MT 30 U4	290	341
MT 30 Z4	329	376

METRIC D.C. SERVOMOTORS
MT30 SERIES

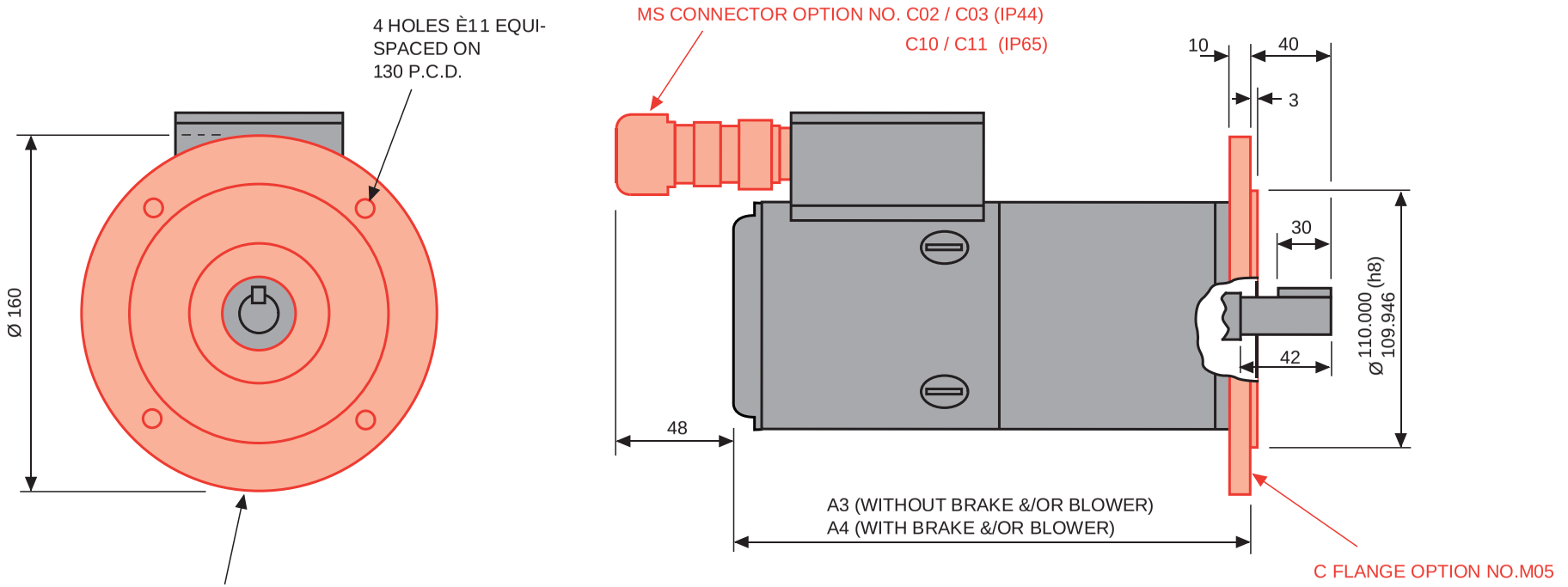
STANDARD MT30 SERVOMOTOR

WITH BLOWER OPTION SHOWN IN RED

C5130/OM

SHEET 3 OF 4 SHEETS

DIMENSIONS IN MILLIMETRES FOR INCH SERIES SEE DRAWING C-5130/0



FLANGE FACE & SPIGOT ARE SQUARE
& CONCENTRIC TO SHAFT WITHIN 0.2
TOTAL INDICATOR READING

TYPE	A3	A4
MT 30 E4	211	258
MT 30 F4	223	270
MT 30 H4	236	283
MT 30 M4	262	309
MT 30 R4	286	333
MT 30 U4	306	357
MT 30 Z4	345	392

METRIC D.C. SERVOMOTORS
MT30 SERIES

MT30 SERVOMOTOR
WITH MS CONNECTOR AND 'C' FLANGE
OPTIONS SHOWN IN RED

C5130/OM
SHEET 4 OF 4 SHEETS

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	DESCRIPTION
MECHANICAL INTERFACE		
● M00	FACE	See page 29
M05	FLANGE	See page 31
R01	CLOSE TOLERANCE INTERFACE	Interface (face & shaft) to IEC72 PRECISION (DIN 42955Tolerance R)
● S00	SHAFT	See page 29
S01	SHAFT	14mm Dia x 30mm Long
● K00	KEYWAY	See page 29
K99	NO KEYWAY	Plain Shaft
D01	SHAFT END TAPPED	M6 x 15mm Deep tapped in drive shaft
H01	HAND CRANK	Rear shaft to enable hand rotation of motor
MOTOR PROTECTION		
● P00	IP44/65	Enclosure protection IP44/65 as supplied. IP64/65 if shaft seal is fitted and fixing bolt holes are sealed
W01	SHAFT SEAL	Oil seal fitted at drive end/shaft interface
P99	TROPICALISED	Special treatment on internal parts
BRAKES		
B00	24V DC BRAKE	5 Nm torque 24V DC supply
B01	90V DC BRAKE	5 Nm torque 90V DC supply
L01	RECTIFIER	110V AC input 90V DC output for B01 Mounted inside motor terminal box (supplied loose for external mounting when motor MS Connectors are fitted)
FORCED VENTILATION		
V00	220V BLOWER	220 volt 50HZ single phase input
V01	110V BLOWER	110 volt 50HZ single phase input
V99	PREPARED FOR BLOWER	Motor prepared for blower but no blower fitted (covers are fitted over blower preparation)

NO.	REFERENCE	DESCRIPTION
ELECTRICAL TERMINATIONS		
●	C00 TERMINAL BOX	With 2 x M20 tapped holes
	C01 TERMINAL BOX	With 2 x PG16 tapped holes
	C02 MS CONNECTOR (IP44)	Receptacle MS3102A-18-1P(10 pin) fitted to terminal box
	C03 MS PLUG AND CABLE	Straight plug MS3106A-18-1S and
	CLAMP FOR C02 (IP44)	Cable clamp 97-3057-1010-1
	C09 FLYING LEADS OUT	0.5 metre long (No terminal box) radial exit
	C10 MS CONNECTOR (IP65)	Receptacle MS3102E-18-1P(10 pin) fitted to terminal box
	C11 MS PLUG & CABLE CLAMP FOR C10 (IP65)	Straight plug MS 3106E-18-1S (IP65)
TACHOGENERATORS		
	T07 TACHOGENERATOR	7V/1000 RPM
●	T95 TACHOGENERATOR	9.5V/1000 RPM
	T19 TACHOGENERATOR	19.5V/1000 RPM
	T30 TACHOGENERATOR	30V/1000 RPM
	N99 NO TACHOGENERATOR	No velocity feedback
ENCODERS		
	E01 ENCODER	HEIDENHAIN ERN1120 Series - 250 PPR
	E02 ENCODER	HEIDENHAIN ERN1120 Series - 500 PPR
	E03 ENCODER	HEIDENHAIN ERN1120 Series - 1000 PPR
ENCODER FITTINGS		
	A01 ENCODER ADAPTOR	for Heidenhain ROD 426, 436, 456, Litton G60 & Leine & Linde type 63
	A02 ENCODER ADAPTOR	for Heidenhain ROD 420 & 450
	A03 ENCODER ADAPTOR	for Muirhead H25E & Litton G70
	A04 ENCODER ADAPTOR	for BEC 755
	A05 ENCODER ADAPTOR	for Tamagawa TS5300 series
	A06 ADAPTOR	for Size 11 resolver
	A10 SYNCHRO CLAMPS	for A01, A03 and A06
	G01 ENCODER COVER	Cast cover with 1 X M10 tapped hole, and cable gland for A04 only
	G02 ENCODER COVER (IP65)	Cast cover with 1 X PG7 tapped hole, and cable gland for A04 only
	G03 ENCODER COVER (IP44)	Cast cover with MS receptacle MS3102A-18-1P, for A04 only
	G07 ENCODER COVER (IP65)	Cast cover with 2 x axial exit cable glands for A05 & A06 only
	G15 ENCODER COVER (IP65)	Cast cover with MS receptacle MS 3102E-18-1P for A04 only (IP65)
	C05 MS PLUG AND CABLE CLAMP FOR G03 (IP44)	Straight plug MS3106A-18-1S Cable clamp 97-3057-1010-1 (IP44)
	C11 MS PLUG & CABLE CLAMP FOR G15 (IP65)	Straight plug MS3106E-18-1S & cable clamp (IP65)