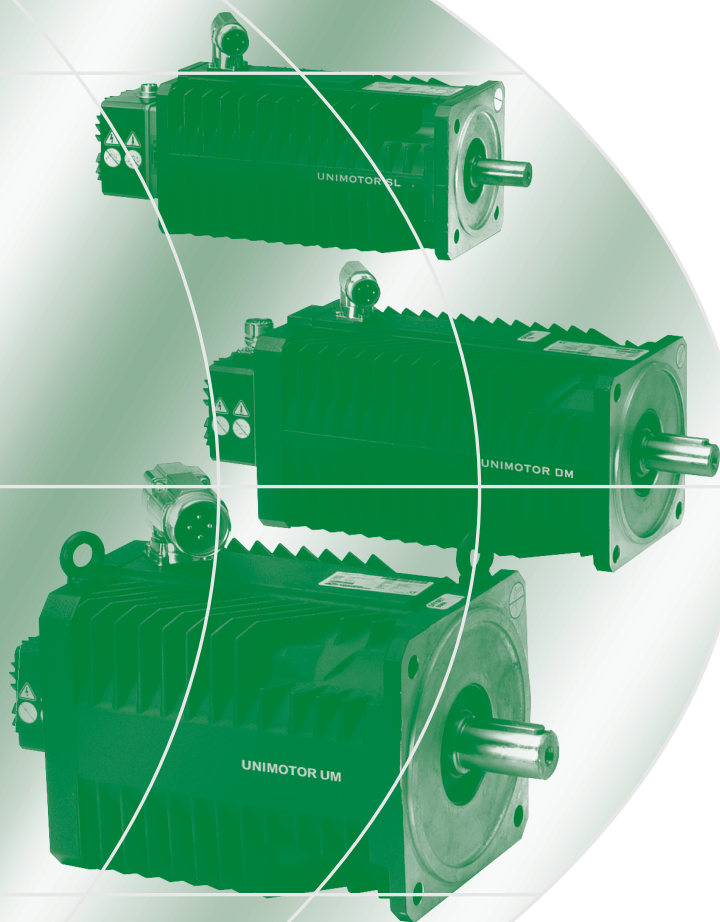




**CONTROL
TECHNIQUES**

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Unimotor Brochure

Control Techniques Dynamics
Brushless AC Servo Motors



Introducing the 75-190UM motor

Unimotor is a range of brushless AC servo motors which support a winding to suit 400V nominal AC drives. The range is available in five frame sizes 75:95:115:142 and 190mm. The unique “finned” motor housing is a high-strength aluminium alloy casting that improves heat dissipation by conduction, radiation and convection. The single piece integral construction permits accurate bearing to housing alignment and maintains air gap concentricity. This arrangement optimises torque output and reduces cogging torque. The design also conforms to the sealing standard (IP65S) when mounted and connected.

Standard Features

- * Modular rotor design.
- * Rotor assembly balanced to ISO1940 (BS 6861) G 6.3.
- * Class H winding insulation.
- * High thermal dissipation due to “finned” design.
- * Thermal overload protection.
- * Incremental Encoder for high precision feedback.
- * PTC thermistors for thermal monitoring and overload protection.
- * IP65S standard (with mating connector) sealed against water spray and dust.
- * Connectors for Power and signal.
- * Low inertia is standard for fast acceleration.
- * UL and CSA recognised insulation system.
- * IEC mounting flange.
- * Shaft key as standard.

Optional Features

- * Hybrid box available.
- * Parking brake.
- * High inertia.
- * Plain shaft (non keyed).
- * Resolver feedback for rugged applications.
- * Sin/Cos encoder for high resolution and accuracy (Single and multi-turn).
- * UL recognised motors.

Optional Products



- * Cable assemblies for power and signal

* Where volumes have justified it, CTD have designed a number of custom specific motors, please contact CTD for details.



- * Gearbox options, high precision low backlash, general purpose and right angle gearboxes available in various ratios.

Motor Specification

Machinery Directive 89/392/EEC amended to 98/37/EC Low Voltage Directive 73/23/EEC

EN 60034	General requirements for rotating electrical machinery
EN 60034-1	Duty: S1 Continuous Storage: -15° to +40° Operating: Min ambient 0°C; max ambient 40°C Less than 1000M altitude Relative humidity: 90% Non condensing Thermal classification: H Delta 100/125°C
EN 60034-5	Degree of Ingress protection: IP65S (with mating connector & cable fitted)
EN 60034-6	Method of cooling: free circulation, free convection
EN 60034-7	Flange mounted: horizontally or vertically
EN 60034-8	Terminal markings: U V W,
EN 60034-11	Thermal protection: PTC thermistor, 165°C TP111 (Not SL variants)
EN 60038-18	Insulation system: Class H 600V, UL number E214439
EN 60072	Dimensions and output for rotating electrical machines
EN 60072-1	Type N (Customer variants)
ISO1940-1	Balancing: to G6.3, (ISO8821 half key convention)

Equipment is not deemed suitable for use in an explosive atmosphere.

This product has been designed to be operated with Control Techniques drives and must not be put into service unless the machinery into which it is to be incorporated has been declared in conformity with the provisions of the machinery directive.

Brake Specification

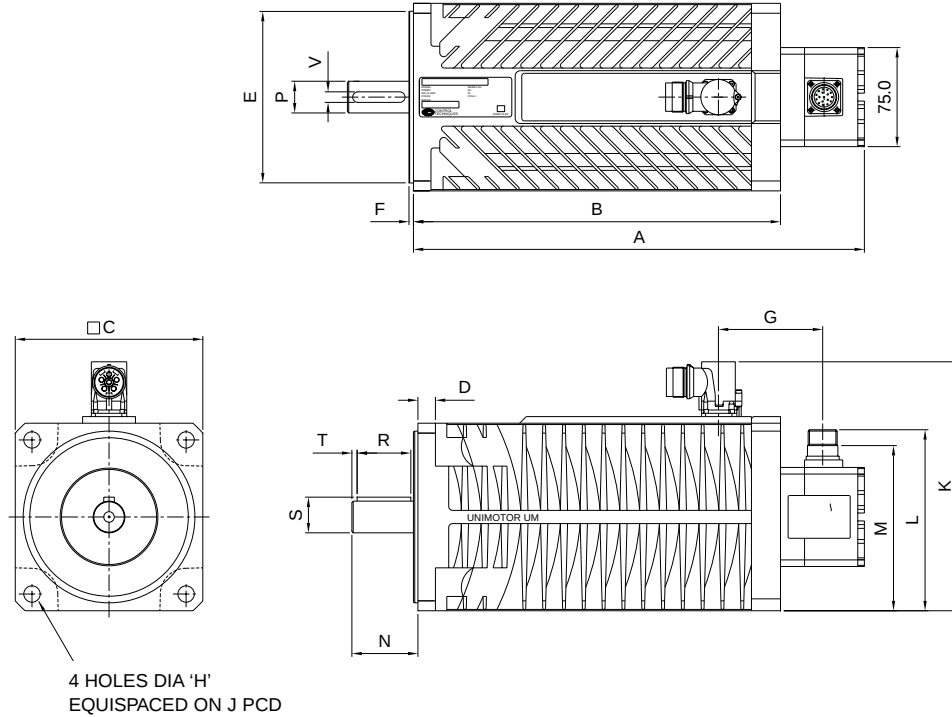
Motor Frame	Supply Volts	Input Power	Static Torque	Release Time	Moment of Inertia	Backlash
Size	V d.c.	Watts	Nm	ms nom	kgcm ² *	Degrees
75	24	6.3	2	22	0.03	0.75
95	24	16	6	30	0.29	0.75
115	24	16	12	40	0.49	0.75
142	24	23	20	85	1.28	0.6
190(A/B)	24	25	40	95	1.28	0.6
190(C/D)	24	25	60	120	2.50	0.6

*Note 1 kgcm² = 1x10⁻⁴kgm²

- The brakes are intended for parking duty and engage on power de-energisation.
- Refer to drive centre if your application requires dynamic braking in emergency conditions.
- To provide protection to the brake control circuit it is recommended that a diode is connected across the output terminals of the solid state or relay contacts devices.

Dimensions (mm) Frame size 75-142

Note: Dimension A,B,M,L and K are shown at the maximum.



Dimensions – Frame Sizes 75-142

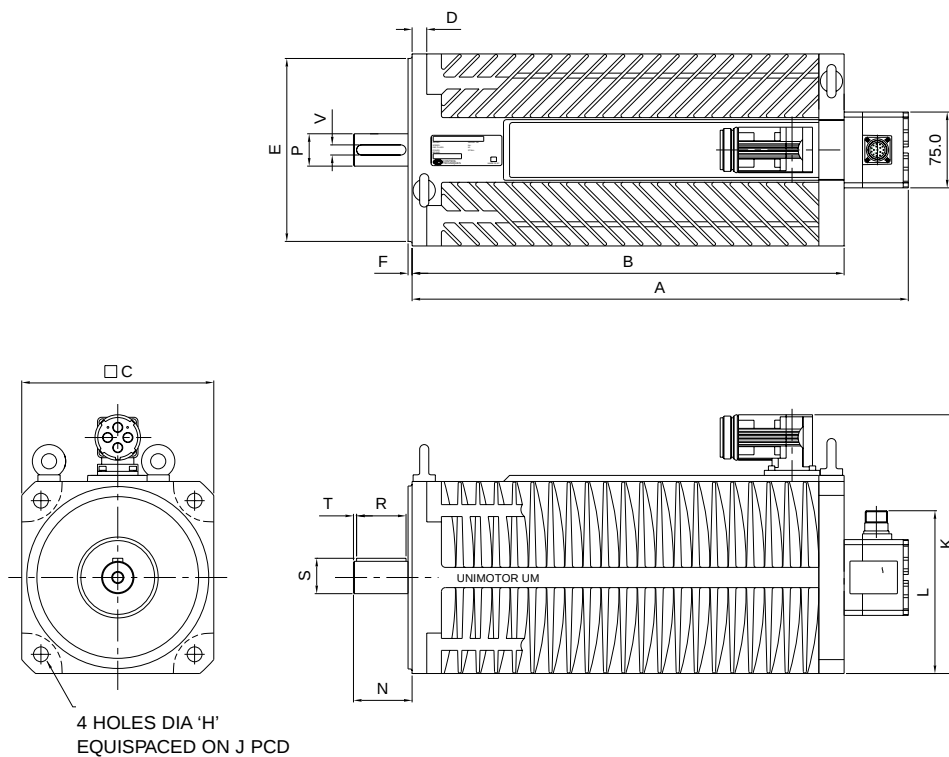
FRAME SIZE	75					95					115					142				
Dimension / Length suffix	A	B	C	D		A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
A Length Overall (Unbraked)	211	241	271	301		222	252	282	312	342	242	272	302	332	362	225	255	285	315	345
A Length Overall (Braked)	241	271	301	331		252	282	312	342	372	272	302	332	362	392	285	315	345	375	405
B Body Length (Unbraked)	146	176	206	236		157	187	217	247	277	177	207	237	267	297	190	190	220	250	280
B Body Length (Braked)	176	206	236	266		187	217	247	277	307	207	237	267	297	327	220	250	280	310	340
C Flange Square		75.0						95.0					115.0					142.0		
D Flange Thickness		7.0						9.0					11.0					12.3		
E Register Diameter		60.0 (J6)						80.0 (J6)					95.0 (J6)					130.0 (J6)		
F Register Length		2.4						2.9					2.9					3.4		
G Power to Connect C/L		61.0						62.5					66.0					80.0		
H Fixing Holes Diameter		5.8 (H14)						7.0 (H14)					10.0 (H14)					12.0 (H14)		
J Fixing Hole p.c.d.		75.0						100.0					115.0					165.0		
K Overall Height		126.0						146.0					166.0					193.0		
L Signal Connector Height (UM)		107.0						117.0					127.0					140.0		
M Signal Connector Height (SL)		88.0						98.0					108.0					121.0		
N Shaft Length (front)	23.0	30.0	30.0	30.0		30.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
P Shaft Diameter (front)	11.0	14.0	14.0	14.0		14.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0

Shaft Key Dimensions (option A)

R Key Length	14.0	22.0	22.0	22.0	22.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0	40.0
S Key Height	12.4	15.9	15.9	15.9	15.9	21.4	21.4	21.4	21.4	21.4	21.4	21.4	26.9	26.9	26.9	26.9	26.9	26.9	26.9	26.9
T Key to Shaft End	3.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
V Key Width	4.0	5.0	5.0	5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	8.0	8.0	8.0	8.0	8.0	8.0	8.0

Dimensions (mm) Frame size 190

Note: Dimension A,B,M,L and K are shown at the maximum.



Dimensions (mm) Frame size 190

FRAME SIZE

190

Dimension / Length suffix	A	B	C	D
A Length Overall (Unbraked)	273	327	381	435
A Length Overall (Braked)	327	381	435	489
B Body Length (Unbraked)	210	264	318	372
B Body Length (Braked)	264	318	372	425
C Flange Square		190.0		
D Flange Thickness		14.5		
E Register Diameter		180.0 (J6)		
F Register Length		4.0		
G Power to Connect C/L		0		
H Fixing Holes Diameter		14.5 (H14)		
J Fixing Hole p.c.d.		215.0		
K Overall Height		260.0		
L Signal Connector Height (UM)		161.1		
N Shaft Length (front)	58.0	58.0	58.0	58.0
P Shaft Diameter (front)	32.0(K6)	32.0(K6)	32.0(K6)	32.0(K6)

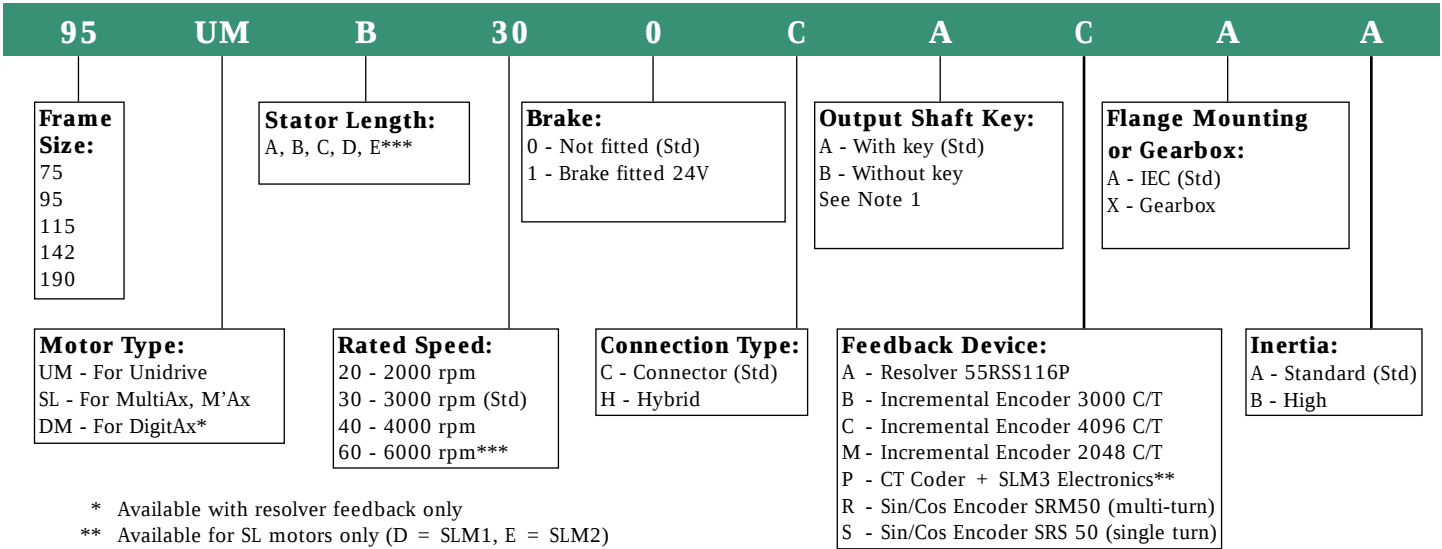
Shaft Output Key Dimensions (option A)

R Key Length	49.0
S Key Height	35.0
T Key to Shaft End	3.1
V Key Width	10.0

Ordering Information

Use the information below in the illustration to create an order code for a UM motor. The details in the band are an example of an order reference. (Std) = Standard selection.

ORDER REFERENCE EXAMPLE



* Available with resolver feedback only

** Available for SL motors only (D = SLM1, E = SLM2)

*** Not available for some motors

(Std) = Standard option

Note 1: Applies to output shaft of the motor or when gearbox fitted, output shaft of gearbox.

Connection details

Power Plugs

	75-142 with brake	75-142 without brake
Pin	Function	Function
1	Phase U	Phase U
2	Phase V	Phase V
3	Earth	Earth
4	Phase W	Phase W
5	Brake	N/C
6	Brake	N/C
Shell	Screen	Screen
	190 with brake	190 without brake
Pin	Function	Function
U	Phase U	Phase U
V	Phase V	Phase V
⓪	Earth	Earth
W	Phase W	Phase W
+	Brake	N/C
-	Brake	N/C
Shell	Screen	Screen

Signal Plugs

	Encoder	Resolver	Sincos
Pin	Function	Function	Function
1	Thermistor 0V	Excitation high	REF Cos
2	Thermistor Signal	Excitation low	+ Daten
3	Screen	Cos high	-Daten
4	S1	Cos low	+ Cos
5	S1 Inverse	Sin high	+ Sin
6	S2	Sin low	REF Sin
7	S2 Inverse	Thermistor	Thermistor
8	S3	Thermistor	Thermistor
9	S3 Inverse		Screen
10	Channel A		0 Volts
11	Index		-
12	Index Inverse		+ Volts
13	Channel A Inverse		
14	Channel B		
15	Channel B Inverse		
16	+ 5V		
17	0 Volts		
Body	Screen	Screen	

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