Torque Motor

D.C. Torque Motors are servo actuators which, in their simplest form, comprise a permanent magnet field and a wound armature designed to convert electrical power into mechanical torque.

These servo actuators are often referred to as direct-drive motors as they can be coupled to their load systems without the need for an intermediate gear train. The inherent characteristics of a D.C. Torque Motor, with its high torque output, direct response and ability to operate accurately at low speeds, makes it ideal for use in torque, positioning, and controlled speed systems.

As well as offering D.C. Motors in brushed or brushless form. Models may be supplied housed or unhoused with a choice of permanent magnets such as Alnico, or Rare Earth types.

The Company also specialises in the design of motor packages to suit individual customers requirements. These can include motors combined with encoders, resolvers, tachos, gearboxes brakes and associated electronics.

AMETEK
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Torque Motor

Some Examples of Brushless Metric D.C. Torque Motors

Model No.	Peak Torque	Power I/P at Peak Torque	Motor Constant	No Load Speed	Rotor Inertia $x10^{-6}$	Elec. Time Const.	Temp. Rise	Volts at Peak Torque	D.C. Resist ±12.5%	O.D.	I.D.	L	W
	Nm	Watt	Nm/√W	rad/s	$kg.m^2$	ms	$^0C/W$	Volts	Ohms	mm	mm	mm	kg
QMU050S35A1	0.54	192	0.0389	333	$4.0x10^{-6}$	0.50	6.0	24	3.00	50	15.75	35	0.25
QMU050S45A1	1.065	220	0.0716	195	$7.3x10^{-6}$	0.65	3.85	24	2.60	50	15.75	45	0.36
QMU050S60A1	1.65	288	0.097	164	$10.8x10^{-6}$	0.75	2.85	24	2.00	50	15.75	60	0.50
QMU075S45A1	2.3	647	0.09	263.5	$3.0X10^{-5}$	0.90	3.2	24	0.89	75	25	45	0.60
QMU075S60A1	5.0	835	0.173	157	$5.9X10^{-5}$	1.25	2.15	24	0.69	75	25	60	0.90
QMU075S75A1	6.4	694	0.243	102.5	$9.0X10^{-5}$	1.40	1.6	24	0.83	75	25	75	1.22
QMU100S55A1	3.15	680	0.12	203.5	$2.25X10^{-4}$	0.45	1.9	100	14.65	100	50	55	1.00
QMU100S70A1	7.00	888	0.234	119.5	$4.25X10^{-4}$	0.60	1.27	100	11.25	100	50	70	1.53
QMU100S85A1	11.55	1175	0.336	96	$6.25X10^{-4}$	0.70	0.96	100	8.50	100	50	85	2.06
QMU150S40A1	11.70	2083	0.256	168.4	$1.1X10^{-3}$	0.40	1.45	100	4.80	150	115	40	1.00
QMU150S55A1	24.20	2439	0.49	95.5	$2.1X10^{-3}$	0.50	0.91	100	4.10	150	115	55	1.70
QMU150S70A1	36.70	3075	0.66	79	$3.0X10^{-3}$	0.55	0.66	100	3.25	150	115	70	2.30
QMU225S40A1	27.25	5653	0.362	185.5	$0.84X10^{-2}$	0.50	1.15	310	17.00	225	135	40	2.50
QMU225S60A1	72.50	4055	1.138	52.8	$2.25X10^{-2}$	0.70	0.62	310	23.70	225	135	60	5.40
QMU225S85A1	173.25	6865	2.09	37.4	$4.35X10^{-2}$	0.90	0.37	310	14.00	225	135	85	11.10
QMU300S55A1	71.30	4699	1.04	62.3	$3.9X10^{-2}$	0.30	0.49	310	20.45	300	250	55	4.10
QMU300S80A1	138.90	5111	1.94	34.8	$7.3X10^{-2}$	0.40	0.3	310	18.80	300	250	80	7.10
QMU300S125A1	293.60	7813	3.32	25	$14.3X10^{-2}$	0.50	0.5	310	12.30	300	250	125	13.50

Some Examples of Brushed Metric D.C. Torque Motors

Model No.	Peak Torque	Power I/P at Peak Torque	Motor Constant	No Load Speed	Rotor Inertia $x10^{-6}$	Elec. Time Const.	Temp. Rise	Volts at Peak Torque	D.C. Resist ±12.5%	O.D.	I.D.	L	W
	Nm	Watt	Nm/√W	rad/s	$kg.m^2$	ms	$^0C/W$	Volts	Ohms	mm	mm	mm	kg
BMU050S12A1	0.28	261	0.017	860	$8.7x10^{-6}$	0.20	15.0	28	3.0	50	15.75	12	0.11
BMU050S20A1	0.60	301	0.035	480	$16.5x10^{-6}$	0.23	9.6	28	2.6	50	15.75	20	0.20
BMU050S30A1	0.88	360	0.046	390	$26.0x10^{-6}$	0.25	6.0	36	3.6	50	15.75	30	0.30
BMU075S20A1	0.75	68	0.091	84	$0.9X10^{-4}$	0.57	8.0	28	11.6	75	25	20	0.37
BMU075S35A1	1.70	106	0.165	60	$1.7X10^{-4}$	0.68	4.3	28	7.4	75	25	35	0.70
BMU075S50A1	2.50	127	0.222	48	$2.6X10^{-4}$	0.85	2.8	28	6.2	75	25	50	1.05
BMU100S25A1	2.80	206	0.195	70	$4.4X10^{-4}$	0.84	3.9	28	3.8	100	50	25	0.75
BMU100S45A1	6.00	290	0.352	46	$8.5X10^{-4}$	0.96	0.7	28	2.7	100	50	45	1.50
BMU100S65A1	9.85	450	0.464	43	$12.5X10^{-4}$	1.45	1.3	50	5.5	100	50	65	2.20
BMU150S20A1	2.80	250	0.177	85	$1.2X10^{-3}$	0.50	2.8	50	10.0	150	105	20	0.75
BMU150S30A1	6.00	300	0.346	48	$1.9X10^{-3}$	0.54	1.7	50	8.3	150	105	30	1.35
BMU150S40A1	11.60	555	0.492	45	$2.6X10^{-3}$	0.84	1.2	50	4.5	150	105	40	2.00
BMU225S30A1	23.60	450	1.11	18	$1.7X10^{-2}$	4.00	1.4	50	5.5	225	130	30	3.50
BMU225S50A1	47.00	500	2.10	10	$3.0X10^{-2}$	6.00	0.7	50	5.0	225	130	50	6.50
BMU225S70A1	85.50	910	2.83	11	$5.0X10^{-2}$	7.30	0.5	100	11.0	225	130	70	10.00
BMU300S30A1	24.00	312	1.35	13	$3.3X10^{-2}$	1.50	0.8	50	8.0	300	245	30	3.20
BMU300S50A1	53.20	485	2.41	9	$5.7X10^{-2}$	2.50	0.4	50	5.2	300	245	50	5.80
BMU300S90A1	125.40	1110	3.80	9	$12.0X10^{-2}$	1.70	0.2	100	9.0	300	245	90	12.00

AMETEK®
MUIRHEAD AEROSPACE
www.muirheadaerospace.com
A business unit of AMETEK AEROSPACE & DEFENSE

Muirhead Aerospace
Oakfield Road Penge
London SE20 8EW – UK
Tel :+44 (0) 20 8659 9090
Fax : +44 (0) 20 8659 9906
Email : muirheadaerospace.sales@ametek.co.uk