

Products To Be Phased Out

MDC 8 SERIES

Ref: ID 29 819/11.79

M D C 8. 20B/MM- 0/WI296 /SOXXX

1. Motor_____
2. DC = Direct Current_____
3. Motor Frame Size_____
4. Motor Length = 1, 2, 3, 4 or 5_____
5. Cooling_____
 - 0 = TENV
 - 1 = Blower Vented
6. Armature Winding Code_____
7. Flange Dimensions_____
 - M = Metric (Standard)
 - S = Special Order
8. Output Shaft Dimensions_____
 - M = Metric (Standard)
 - S = Special Order
10. Brake_____
 - 0 = without brake
 - 1 = with brake
11. Position Feedback Assembly:
 - Feedback Mechanical Connection_____
 - = No Feedback Provisions (end of type code)
 - W = Stub Shaft
 - G = Feedback Gearing
 - Type of Position Feedback_____
 - = No Feedback Included (end of type code)
 - I = Incremental Encoder
 - R = Resolver
 - S = Special Order
 - Feedback Assembly Number_____
 - See the end of this chapter for available assemblies
12. Special order number (determined by Indramat)_____
 - Identical to So number of related documentation

Products To Be Phased Out

MDC 9 SERIES

Ref: ID 71 004/04.62

M D C 9. 20B/MMA-0/WI296 /SOXXX

1. Motor_____
2. DC = Direct Current_____
3. Motor Frame Size_____
4. Motor Length = 1, 2, 3 or 4_____
5. Cooling_____
- 0 = TENV
6. Armature Winding Code_____
7. Flange Dimensions_____
- M = Metric (Standard)
- Z = Inch
- S = Special Order
8. Output Shaft Dimensions_____
- M = Metric (Standard)
- Z = Inch
- S = Special Order
9. Connector Orientation (see outline)_____
- A = 'A' side (preferred)
- B = 'B' side
10. Brake_____
- 0 = without brake
- 1 = with brake
11. Position Feedback Assembly:
Feedback Mechanical Connection_____
- = No Feedback Provisions (end of type code)
- W = Stub Shaft
- G = Feedback Gearing
- Type of Position Feedback_____
- = No Feedback Included (end of type code)
- I = Incremental Encoder
- R = Resolver
- S = Special Order
- Feedback Assembly Number_____
- See the end of this chapter for available assemblies
12. Special order number (determined by Indramat)_____
- Identical to So number of related documentation

THIS MOTOR IS NO LONGER AVAILABLE

MDC 10 SERIES

Ref: ID 9 857

M D C 10 20B/MMA-0/WI296 /SOXXX

1. Motor_____
2. DC Current_____
3. Motor Frame Size_____
4. Motor Length = 1, 2, 3 or 4_____
5. Cooling_____
 - 0 = TENV
 - 1 = Blower Vented
6. Armature Winding Code_____
7. Flange Dimensions_____
 - M = Metric (Standard)
 - Z = Inch
 - S = Special Order
8. Output Shaft Dimensions_____
 - M = Metric (Standard)
 - Z = Inch
 - S = Special Order
9. Connector Orientation (see outline)_____
 - A = 'A' side (preferred)
 - B = 'B' side
10. Brake_____
 - 0 = without brake
 - 1 = with brake
11. Position Feedback Assembly:
 - Feedback Mechanical Connection_____
 - = No Feedback Provisions (end of type code)
 - W = Stub Shaft
 - G = Feedback Gearing
 - Type of Position Feedback_____
 - = No Feedback Included (end of type code)
 - I = Incremental Encoder
 - R = Resolver
 - S = Special Order
 - Feedback Assembly Number_____
 - See the end of this chapter for available assemblies
12. Special order number (determined by Indramat)_____
 - Identical to So number of related documentation

MDC MOTOR POSITION FEEDBACK PACKAGES

Refer to AC Motor section for available packages.
 (WI number for MDC equals MAC WI number - 100).

MDC 3 SERVOMOTOR

INDRAMAT MDC 3 servomotors are designed to provide superior performance and reliability for your motion control requirements.

Standard features:

- 56 frame style
- Fully sealed construction
- Over-temperature switch
- MS type connector

Available options:

- 8 pole ceramic magnet field
 - High voltage, low ripple tachometer
- able options:**
- Spring set brake
 - Blower ventilated versions
 - Resolver or encoder feedback packages
 - Special shaft and mounting arrangements

MOTOR PARAMETERS^①

Parameter	Symbol	Unit	Model			
			3.10C	3.20C	3.30B	3.40B
Armature	I _C	Amps				
Nominal TENV			22	22	33	33
Continuous Blower Current Ventilated			32	32	47	—
Nominal TENV	T _C	lb-in Nm	78	156	234	313
Continuous			9	18	26	35
Torque		lb-in Nm	113	227	333	—
Blower Ventilated			13	26	38	—
Peak Pulse Current	I _P	Amps	200	200	300	300
Torque Constant ²	K _t	lb-in/Amp Nm/Amp	3.54 0.40	7.08 0.80	7.08 0.80	9.47 1.07
Voltage Constant (BEMF) ²	K _b	Volts/1000 RPM Volt-sec/ rad	42 0.40	84 0.80	84 0.80	112 1.07
Armature Resistance @ 20° C	R _m	Ohms	0.17	0.26	0.15	0.19
Armature In- ductance	L _m	mHy	0.45	0.90	0.50	0.60
Maximum Peak Voltage	V _p	Volts	170	170	170	170
Polar Moment of Inertia	J _m	lb-in-sec ² kg-m ²	0.174 0.020	0.345 0.039	0.522 0.059	0.690 0.078
Mechanical Time Constant	T _m	msec	20.8	15.5	13.9	13.0
Electrical Time Constant	T _e	msec	2.6	3.5	3.3	3.2
Thermal Time Constant	T _{th}	min	120	170	220	250
Viscous Damping (Short Circuit Torque)	F _o	lb-in-sec ² Nms	8.41 0.95	22.13 2.50	36.70 4.15	53.10 6.00
Maximum Ambient Temp.	—	°C	45	45	45	45
Insulation Class	—	—	F	F	F	F
Weight	—	lbs kg	79 35.6	104 47.0	129 58.4	154 69.8

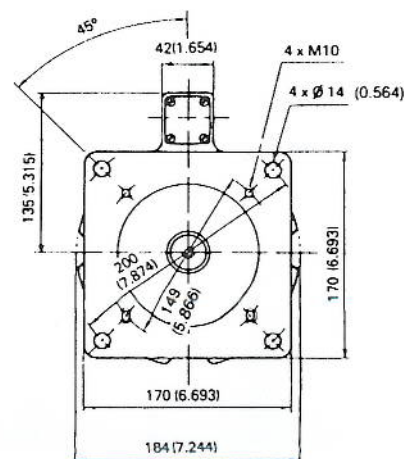
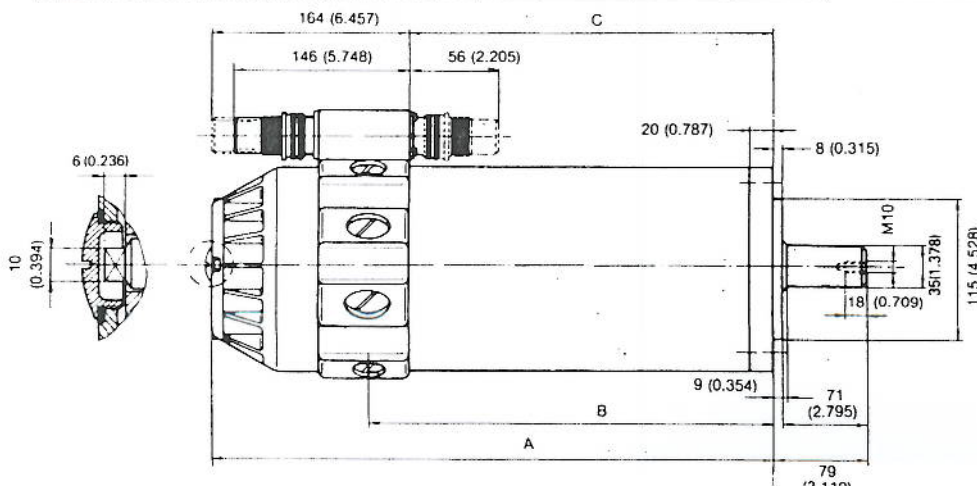
Tachometer Voltage Constant ⁽²⁾	K_b	Volts/ K RPM Volt-sec/ rad	33 0.317
Arm. Resistance @ 20°C	R_a	Ohms	60
Min. Load Resistance	R_L	Ohms	15K
VSWR	—	%	0.5
Brake Holding Torque	T_h	lb-in Nm	174 20
Nominal Voltage	V	DC Volts	24
Nominal Current	A	Amps	0.75
Winding Resistance @ 20° C	R_b	Ohms	38

① All specifications subject to change without notice.
 ② Specified value is $\pm 10\%$.

① All specifications subject to change without notice

(2) Specified value is $\pm 10\%$.

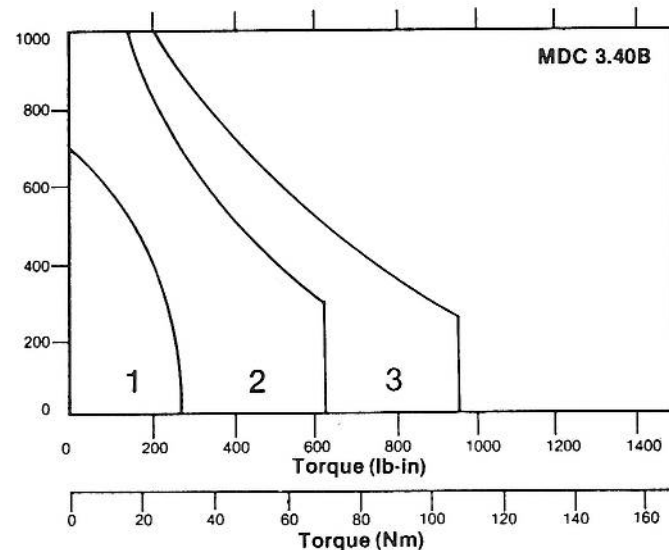
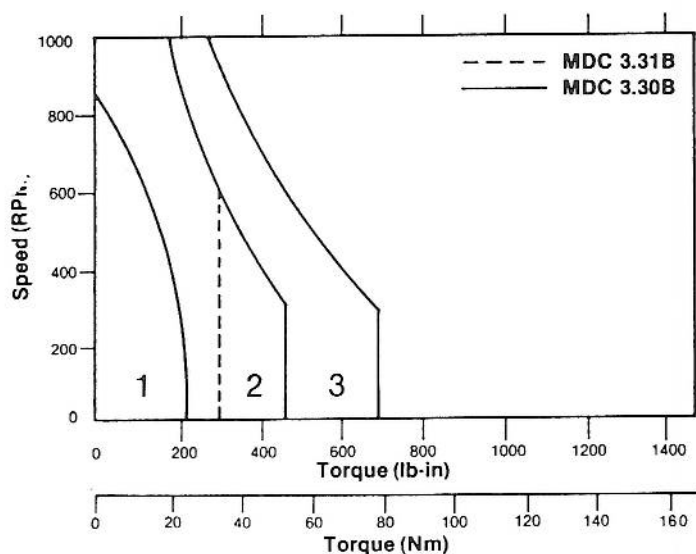
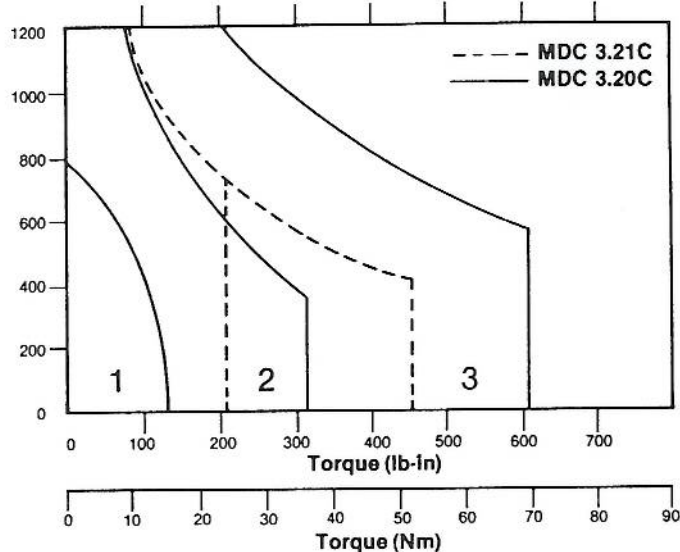
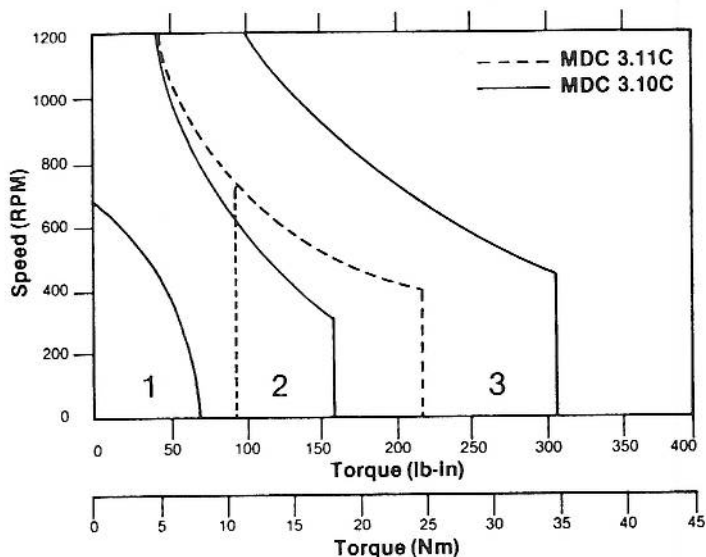
		Motor Size				
		3.1	3.2	3.3	3.4	
Dimensions	A	mm	370	470	570	670
		in	14.57	18.50	22.44	26.38
	B	mm	238	338	438	538
		in	9.37	13.01	17.24	21.18
	C	mm	205	305	405	505
		in	8.07	12.01	15.95	19.88



System Performance Curves

MDC 3 Servomotor with TRK 3 Three Phase Controller

1 = continuous duty 2 = intermittent duty 3 = safe accel-decel zone



Torque Ratings Based on 15 Minute Duty Cycle

Note: These curves illustrate conservatively rated system performance of the MDC 3 servomotor used with the indicated controller. For greater duty cycle and speed requirements, contact the INDRAMAT Application Department for assistance.

Motor Type ^①	Units	% Duty				
		20	40	60	80	100
MDC3.10C	lb-in	159	115	89	80	71
	Nm	18	13	10	9	8
MDC 3.11C BLOWER VENTILATED	lb-in	221	159	124	106	97
	Nm	25	18	14	12	11
MDC 3.20C	lb-in	319	221	186	159	142
	Nm	36	25	21	18	16
MDC 3.21C BLOWER VENTILATED	lb-in	451	319	266	230	204
	Nm	51	36	30	26	23
MDC 3.30B	lb-in	478	337	275	239	213
	Nm	54	38	31	27	24
MDC 3.31B BLOWER VENTILATED	lb-in	478	478	390	337	301
	Nm	54	54	44	38	34
MDC 3.40B	lb-in	638	452	363	319	283
	Nm	72	51	41	36	32

① TENV Models—3.10C, 3.20C, 3.30B, 3.40B

Blower Ventilated Versions—3.11C, 3.21C, 3.31B

MDC 8 SERVOMOTOR

INDRAMAT MDC 8 servomotors are designed to provide superior performance and reliability, offering high torque capabilities for large machine applications.

Standard features:

- 180 frame style
- Fully sealed construction
- Over-temperature switch
- MS type connector

- 6 pole ceramic magnet field
- High voltage, low ripple tachometer

Available options:

- Spring set brake
- Blower ventilated versions
- Resolver or encoder feedback packages
- Special shaft and mounting arrangements

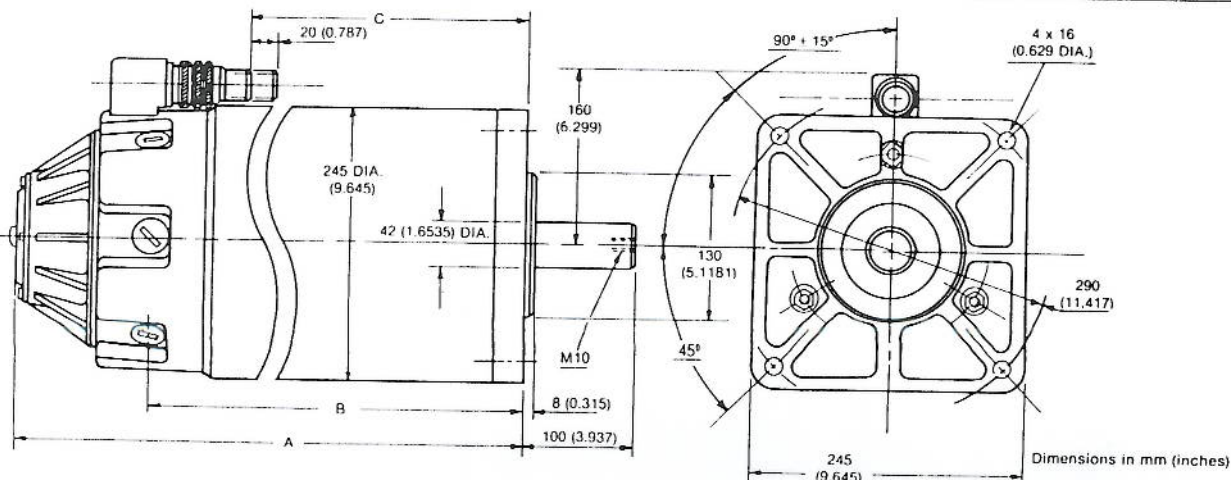
MOTOR PARAMETERS

Parameter	Symbol	Unit	MODEL					
			8.00B	8.10B	8.20B	8.30B	8.40B	8.50A
Armature								
Nominal	TENV	Amps	33	33	33	33	33	33
Continuous	Blower	Amps	47	47	47	47	47	47
Current	Ventilated							
Nominal	TENV	lb-in	187	280	374	561	748	748
Continuous	Blower	Nm	21	32	42	63	84	84
Torque	Ventilated	lb-in	266	400	553	799	1065	1065
		Nm	30	45	69	90	120	120
Peak Pulse Current	I_p	Amps	300	300	300	300	300	300
Torque Constant ϕ	K_t	lb-in/Amp	5.67	8.50	11.33	16.99	22.66	22.66
		Nm/Amp	0.64	0.96	1.28	1.92	2.56	2.56
Voltage Constant (BEMF) ϕ	K_b	Volts/1000 RPM	67	101	134	201	268	268
		Volt-sec/rad	0.64	0.96	1.28	1.92	2.56	2.56
Armature Resistance @ 20°C	R_m	Ohms	0.11	0.14	0.17	0.24	0.30	0.30
Armature Inductance	L_m	mHy	0.09	0.12	0.15	0.24	0.30	0.30
Maximum Peak Voltage	V_p	Volts	300	300	300	300	300	300
Polar Moment of Inertia	J_m	lb-in-sec ²	0.389	0.584	0.779	1.168	1.558	1.558
		kg-m ²	0.044	0.066	0.088	0.132	0.176	0.176
Mechanical Time Constant	T_m	msec	17	10	9.0	8.5	8.0	8.0
Electrical Time Constant	T_e	msec	1.09	0.86	0.88	1.0	1.0	1.0
Thermal Time Constant	T_{th}	min	180	180	180	180	180	180
Viscous Damping (Short Circuit Torque)	F_o	lb-in-sec ²	31.7	58.2	85.2	136.0	193.3	193.3
		Nms	3.58	6.58	9.63	15.4	21.8	21.8
Maximum Ambient Temp.	—	°C	45	45	45	45	45	45
Insulation Class	—	—	F	F	F	F	F	F
Weight	—	lbs	110	138	165	221	276	286
		kg	50	62.5	75	100	125	130

Tachometer Voltage Constant ϕ	K_b	Volts/KRPM	33
		Volt-sec/rad	0.317
Arm. Resistance @ 20°C	R_a	Ohms	60
Min. Load Resistance	R_L	Ohms	15K
VSWR	—	%	0.5
Brake Holding Torque	T_h	lb-in Nm	443 50
Nominal Voltage	V	DC Volts	24
Nominal Current	A	Amps	1.3
Winding Resistance @ 20°C	R_b	Ohms	18

¹ All specifications subject to change without notice.
² Specified value is $\pm 10\%$.

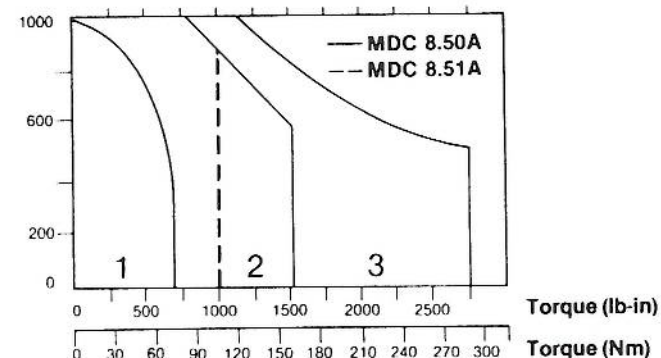
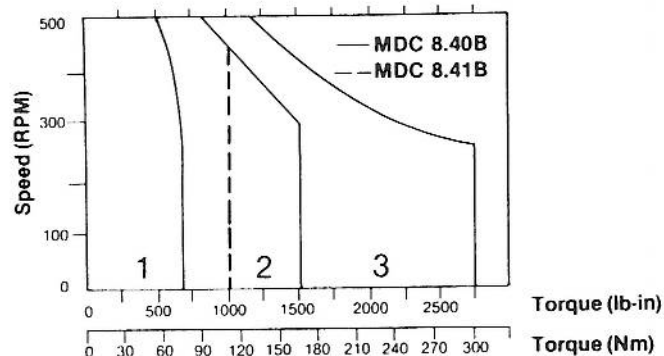
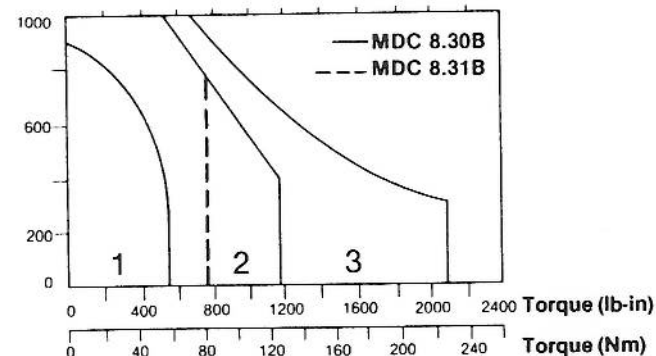
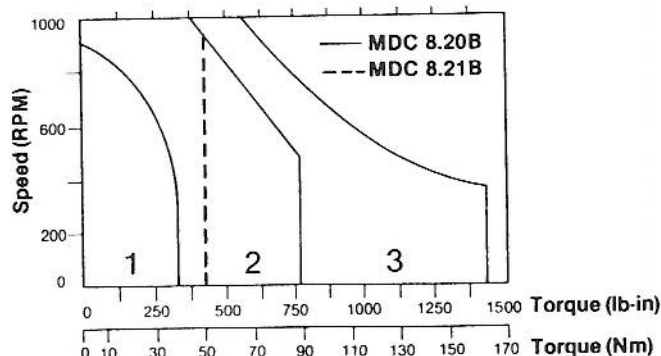
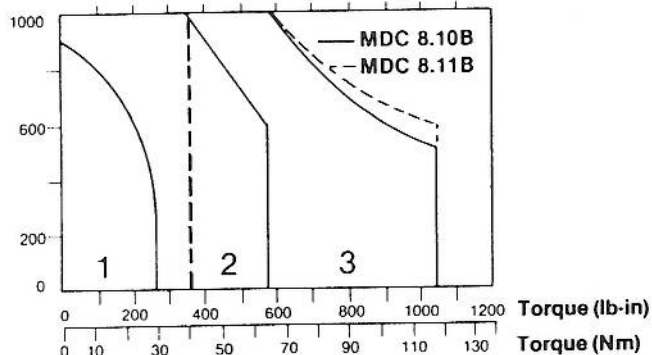
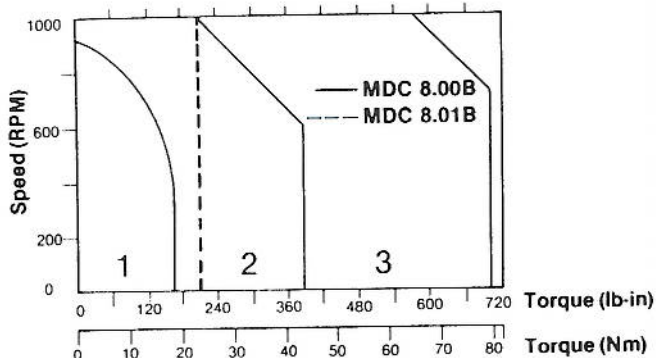
		Motor Size (With Brake)					
Dimensions		8.0	8.1	8.2	8.3	8.4	8.5
		mm	mm	mm	mm	mm	mm
A	mm	395	445	495	595	695	775
B	mm	15.55	17.52	19.49	23.43	27.36	30.51
C	mm	235	285	335	435	535	615
D	mm	9.25	11.22	13.19	17.13	21.06	24.21
E	mm	175	225	275	375	475	535
F	mm	6.89	8.86	10.85	14.76	18.70	21.06



System Performance Curves

MDC 8 Servomotor with TRK 3 Three Phase Controller

1 = continuous duty 2 = intermittent duty 3 = safe accel-decel zone



Note: These curves illustrate conservatively rated system performance of the MDC 8 servomotor used with the indicated controller. For greater duty cycle and speed requirements, contact the INDRAMAT Application Department for assistance.

Torque Ratings Based on 15 Minute Duty Cycle

Motor Type	Units	% Duty				
		20	40	60	80	100
MDC 8.00B	lb-in	381	266	221	186	168
	Nm	43	30	25	21	19
MDC 8.01B VENTILATED	lb-in	381	381	310	266	239
	Nm	43	43	35	30	27
MDC 8.10B	lb-in	575	398	327	283	257
	Nm	65	45	37	32	29
MDC 8.11B VENTILATED	lb-in	575	575	460	398	354
	Nm	65	65	52	45	40
MDC 8.20B	lb-in	752	531	434	372	336
	Nm	85	60	49	42	38
MDC 8.21B VENTILATED	lb-in	761	761	620	540	478
	Nm	86	86	70	61	54

Motor Type	Units	% Duty				
		20	40	60	80	100
MDC 8.30B	lb-in	1142	814	664	575	513
	Nm	129	92	75	65	58
MDC 8.31B VENTILATED	lb-in	1142	1142	921	797	708
	Nm	129	129	104	90	80
MDC 8.40B	lb-in	1584	1080	876	761	682
	Nm	179	122	99	86	77
MDC 8.41B VENTILATED	lb-in	1584	1584	1231	1062	947
	Nm	179	179	139	120	107
MDC 8.50B	lb-in	1584	1080	876	761	682
	Nm	179	122	99	86	77
MDC 8.51B VENTILATED	lb-in	1584	1584	1231	1062	947
	Nm	179	179	139	120	107

MDC 9 SERVOMOTOR

INDRAMAT MDC 9 servomotors are designed for high speed closed loop operation, providing superior performance and reliability for your motion control requirements.

Standard Features:

- 56 frame style
- Fully sealed construction
- Over-temperature switch
- MS type connector

- 6 pole ceramic magnet field
- High voltage, low ripple tachometer

Available Options:

- Spring set brake
- Resolver or encoder feedback packages
- Special shaft and mounting arrangements

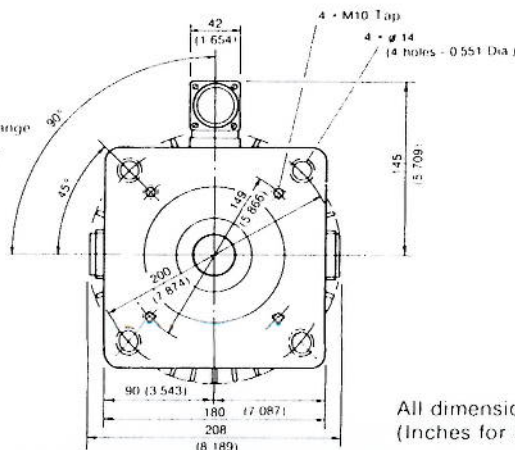
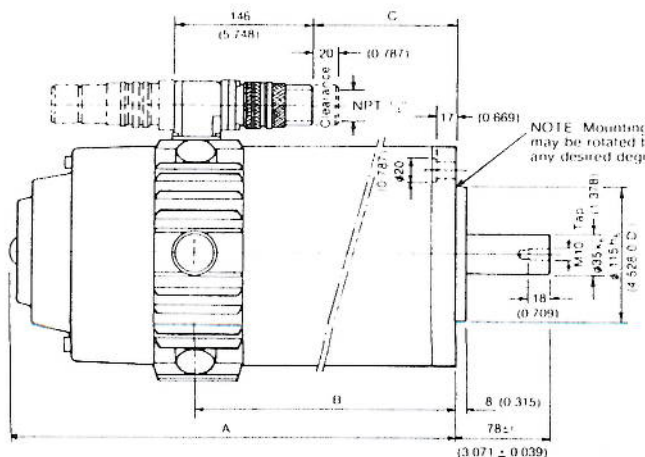
MOTOR PARAMETERS

Parameter	Symbol	Unit	Model			
			9.10C	9.20B	9.30B	9.40B
Armature						
Nominal Continuous Current ^①	I _c	Amps	24	33	33	33
Nominal Continuous Torque ^①	T _c	lb-in Nm	89 10	159 18	239 27	319 36
Maximum RPM	N	RPM	2000	1500	1300	1000
Peak Pulse Current	I _p	Amps	170	250	250	250
Torque Constant @ 20°C	K _t	lb-in/Amp Nm/Amp	5.05 0.57	6.73 0.76	10.09 1.14	13.45 1.52
Voltage Constant (BEMF) @ 20°C	K _b	Volts/1000 RPM Volt-sec/rad	59.7 0.57	79.6 0.76	119.4 1.14	159.2 1.52
Armature Resistance @ 20°C	R _m	Ohms	0.205	0.150	0.195	0.240
Armature Inductance	L _m	mH	1.35	0.90	1.20	1.50
Maximum Peak Voltage	V _p	Volts	230	230	230	230
Polar Moment of Inertia	J _m	lb-in-sec ² kg-m ²	0.221 0.025	0.363 0.041	0.504 0.057	0.558 0.063
Mechanical Time Constant	T _m	msec	16	11	8.5	6.5
Electrical Time Constant	T _e	msec	6.59	6.0	6.15	6.25
Thermal Time Constant	T _{th}	min	60	60	60	60
Viscous Damping (Short Circuit Torque) @ 20°C	F _v	lb-in-sec ² Nms	13.98 1.58	34.08 3.85	58.95 6.66	85.24 9.63
Maximum Ambient Temp		°C	45	45	45	45
Insulation Class			F	F	F	F
Weight		lbs kg	69.3 31.5	96.8 44	124.3 56.5	151.8 69

Parameter	Symbol	Unit	Value
Tachometer			
Voltage Constant @ 20°C ^②	K _b	Volts/KRPM Volt-sec/rad	33 0.317
Arm. Resistance @ 20°C	R _a	Ohms	115
Load Resistance	R _L	Ohms	15K
Ripple		%	0.5
Brake			
Holding Torque	T _h	lb-in Nm	443 20
Nominal Voltage ^②	V	DC Volts	24
Winding Resistance @ 20°C	R _w	Ohms	38

- ① Motor temperature rise = 50°C.
 ② Specified value is ±10%
 ③ All specifications subject to change without notice.

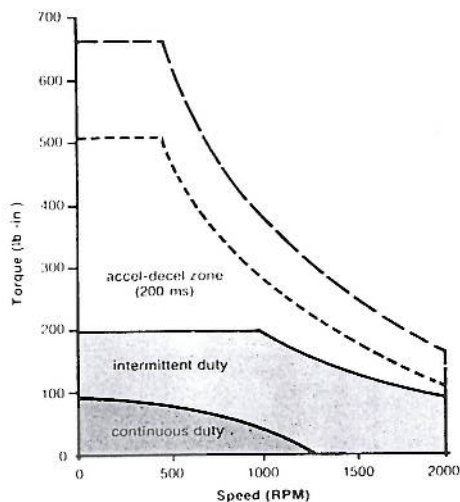
Dimensions		Motor Size			
		9.10C	9.20B	9.30B	9.40B
A	mm	363	463	563	663
	in	14.291	18.228	22.165	26.102
B	mm	216	316	416	516
	in	8.504	12.441	16.378	20.315
C	mm	120	220	320	420
	in	4.724	8.661	12.598	16.535



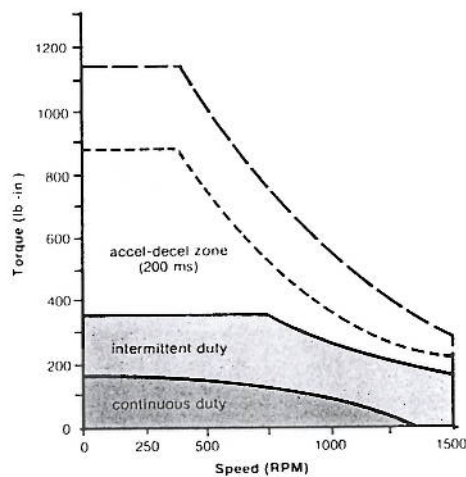
All dimensions are in mm.
 (Inches for reference only.)

SYSTEM PERFORMANCE CURVES

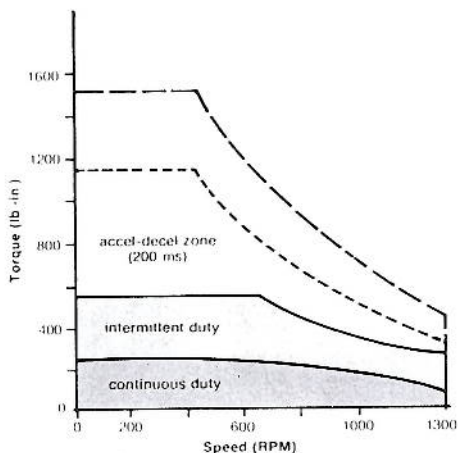
MDC 9 Servomotors with 1TRM 3 Three Phase Controller



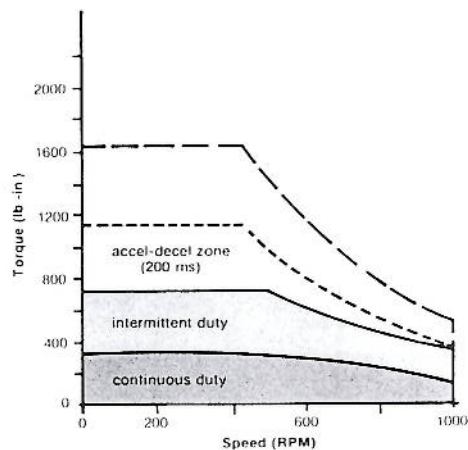
MDC 9.10C Servomotor



MDC 9.20B Servomotor



MDC 9.30B Servomotor



MDC 9.40B Servomotor

Torque Ratings Based on 15 Minute Duty Cycle

Motor Type	Units	Torque at % Duty				
		20	40	60	80	100
MDC 9.10C	lb-in	194.7	141.6	115.1	97.4	88.5
	Nm	22	16	13	11	10
MDC 9.20B	lb-in	354.0	247.8	203.6	177.0	159.3
	Nm	40	28	23	20	18
MDC 9.30B	lb-in	531.0	380.6	309.8	265.5	239.0
	Nm	60	43	35	30	27
MDC 9.40B	lb-in	708.0	504.5	407.1	354.0	318.6
	Nm	80	57	46	40	36

—— Maximum peak torque produced by the AC components of the output of the single phase SCR controller.

----- Average peak torque

Note: These curves illustrate conservatively rated system performance of the servomotors with the indicated controller, based on a 45°C ambient temperature. Operation at higher temperatures is possible, but with reduced torque loads. For special requirements, contact the INDRAMAT Application Department for assistance.

MDC 10 SERVOMOTOR

INDRAMAT MDC 10 servomotors are compact units with high RPM capabilities to satisfy your motion control requirements for small machines.

Standard features:

- Compact 5 inch outside diameter
- High RPM capabilities (up to 3000)
- Fully sealed construction
- Over-temperature switch

- MS type connector
- 4 pole ceramic magnet field
- High voltage, low ripple tachometer

Available options:

- Spring set brake
- Blower ventilated versions
- Resolver or encoder feedback packages
- Special shaft and mounting arrangements

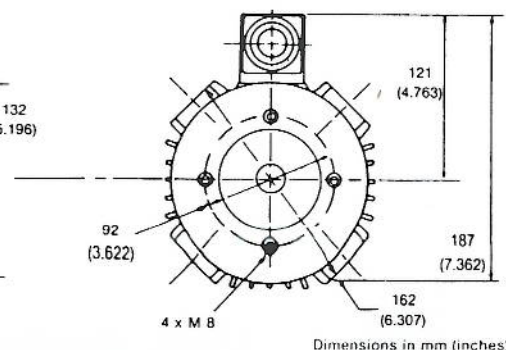
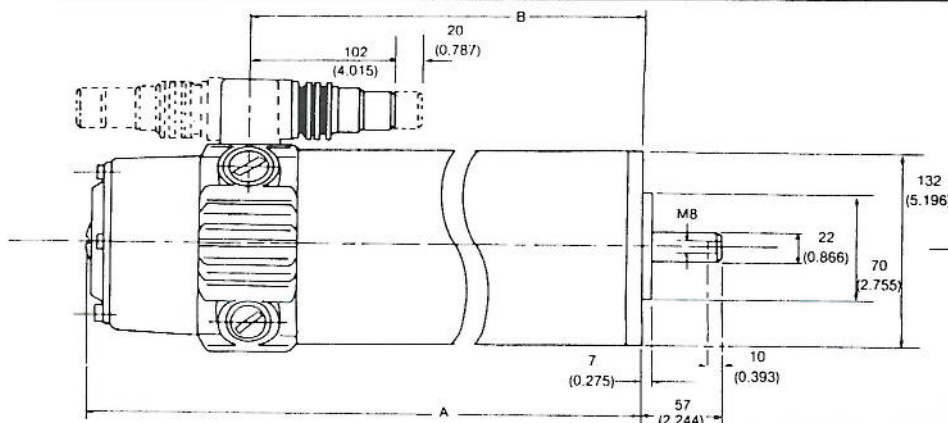
MOTOR PARAMETERS^①

Parameter	Symbol	Unit	MODEL							
			10.20F	10.30D	10.40C	10.10H	10.20D	10.30C		
Armature	TENV Blower Ventilated	Amps	2000 RPM—MAX SPEED			3000 RPM—MAX SPEED				
Nominal			13	19	24	11	19	24		
Continuous			—	26	30	—	—	—		
Current	TENV Blower Ventilated	Amps	2000 RPM—MAX SPEED			3000 RPM—MAX SPEED				
Nominal			13	19	24	11	19	24		
Continuous			—	26	30	—	—	—		
Torque	T _c	lb-in Nm	54	79	100	29	51	74		
Continuous			6.1	8.9	11.3	3.3	5.7	8.4		
Torque			—	108	125	—	—	—		
	Blower Ventilated	lb-in Nm	—	12.2	14.1	—	—	—		
Peak Pulse Current			I _p	Amps	100	150	200	75	150	200
Torque Constant ^②			K _t	lb-in/Amp Nm/Amp	4.16 0.47	4.16 0.47	4.16 0.47	2.66 0.30	2.66 0.30	3.10 0.35
Voltage Constant (BEMF) ^②	K _b	Volts/1000 RPM Volt-sec/rad	49	49	49	31	31	36		
			0.47	0.47	0.47	0.30	0.30	0.35		
Armature Resistance @ 20°C	R _m	Ohms	0.40	0.24	0.17	0.50	0.19	0.15		
Armature Inductance	L _m	mHy	2.4	1.2	0.9	4.2	1.1	0.7		
Maximum Peak Voltage	V _p	Volts	170	170	170	170	170	170		
Polar Moment of Inertia	J _m	lb-in-sec ² kg-m ²	0.044	0.066	0.089	0.027	0.044	0.066		
			0.005	0.008	0.010	0.003	0.005	0.008		
Mechanical Time Constant	T _m	msec	9.0	8.1	7.8	17	11	9.0		
Electrical Time Constant	T _e	msec	6.0	5.0	5.3	8.4	5.8	4.7		
Thermal Time Constant	T _{th}	min	70	85	100	55	70	85		
Viscous Damping (Short Circuit Torque)	F _o	lb-in-sec ² Nms	4.87 0.55	8.14 0.92	11.15 1.26	1.59 0.18	4.16 0.47	7.26 0.82		
Maximum Ambient Temp.	—	°C	40	40	40	40	40	40		
Insulation Class	—	—	F	F	F	F	F	F		
Weight	TENV Blower (Ventilated)	lbs	41	53	64	29	41	53		
		kg	18.5	24.0	29.0	13.0	18.5	24.0		
		lbs.	—	54	65	—	—	—		
	kg	—	24.5	29.5	—	—	—			

Tachometer Voltage Constant ^②	K _d	Volts/KRPM Volt-sec/rad	33 0.317
Arm. Resistance @ 20°C	R _a	Ohms	60
Min. Load Resistance	R _L	Ohms	15K
VSWR	—	%	0.5
Brake Holding Torque	T _h	lb-in Nm	44 5
Nominal Voltage	V	DC Volts	24
Nominal Current	A	Amps	0.5
Winding Resistance @ 20°C	R _b	Ohms	47

^① All specifications subject to change without notice.
^② Specified value is ± 10%.

		Motor Size (with Brake)			
DIMENSIONS	A	10.1	10.2	10.3	10.4
		mm	mm	mm	mm
	in	10.79	13.39	15.98	18.58
	B	mm	mm	mm	mm
	in	5.75	8.35	10.94	13.54



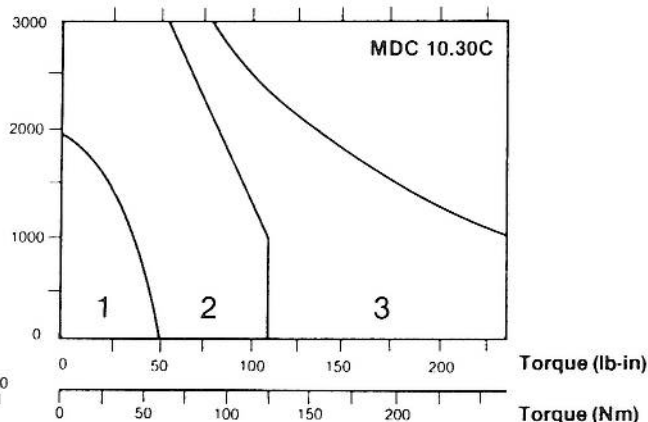
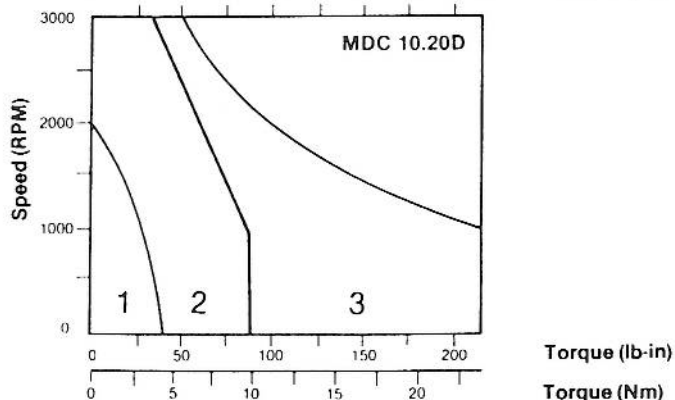
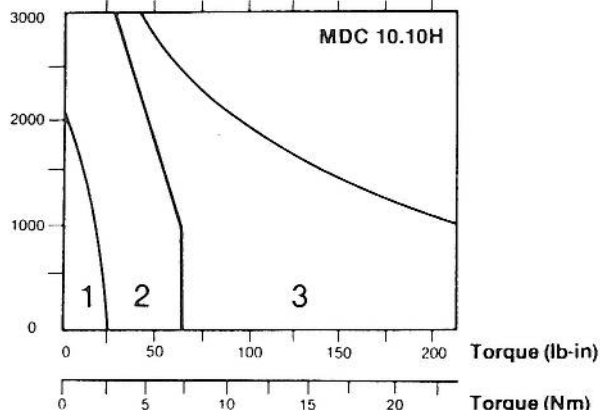
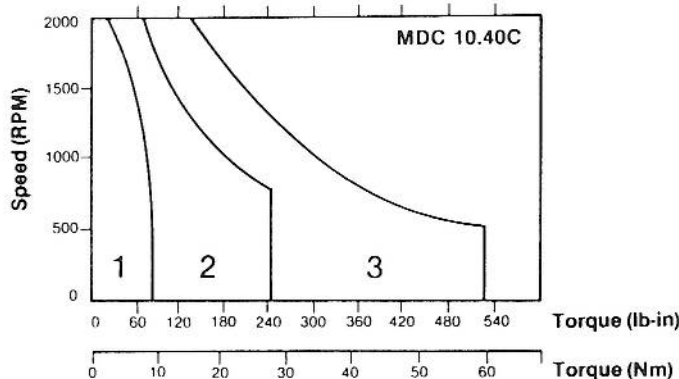
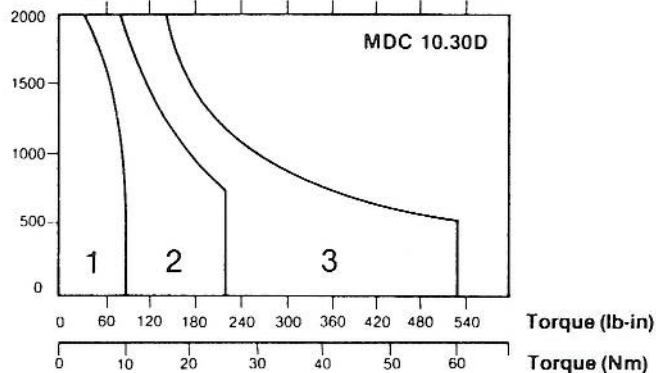
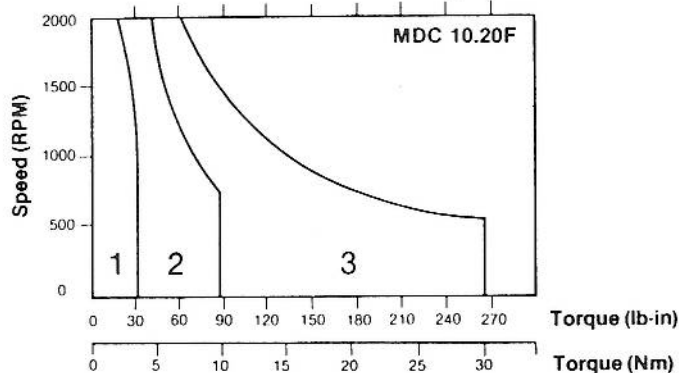
System Performance Curves

MDC 10 Servomotor with TRK 3 Three Phase Controller

1 = continuous duty

2 = intermittent duty

3 = safe accel-decel zone



Note: These curves illustrate conservatively rated system performance of the MDC 10 servomotor used with the indicated controller. For greater duty cycle and speed requirements, contact the INDRAMAT Application Department for assistance.

Torque Ratings Based on 15 Minute Duty Cycle

Motor Type ¹	Units	% Duty				
		20	40	60	80	100
MDC 10.20F	lb-in	89	63	51	44	40
	Nm	10.0	7.1	5.8	5.0	4.5
MDC 10.30D	lb-in	125	89	72	62	56
	Nm	14.1	10.0	8.1	7.0	6.3
MDC 10.31D VENTILATED	lb-in	177	126	103	89	80
	Nm	20.0	14.2	11.6	10.0	9.0
MDC 10.40C	lb-in	188	133	109	94	84
	Nm	21.2	15.0	12.3	10.6	9.5

Motor Type ¹	Units	% Duty				
		20	40	60	80	100
MDC 10.41C VENTILATED	lb-in	239	168	137	119	106
	Nm	27.0	19.0	15.5	13.4	12.0
MDC 10.10H	lb-in	59	42	35	30	27
	Nm	6.7	4.7	3.9	3.4	3.0
MDC 10.20D	lb-in	85	60	50	43	38
	Nm	9.6	6.8	5.6	4.8	4.3
MDC 10.30C	lb-in	112	80	74	57	51
	Nm	12.7	9.0	8.4	6.4	5.7

¹ Blower Ventilated Versions—10.31D, 10.41C; all others TENV.