

Axi-dyne® B3B/M3B Belt Drives



APPLICATION BENEFITS

- Accommodate heavy loads
- Handle high moment loads with consistent, smooth operation
- Cost-effective alternative to auxiliary rail systems
- Longer strokes
- Higher speeds

BEARING SYSTEM



- Heavy duty recirculating bearings in gothic arch rail guide
- Wear resistance with repeatable accuracy
- Patented * sealed bearing system—for long life
- High load and moment capacities
- Consistent tracking for full actuator life

STANDARD MOUNTING



- B3B actuators have T-nut mounting in the body base with four T-nuts for the first 24 inches of stroke. Two nuts are provided for each additional 20 inches.

ACTUATOR/MOTOR FACTORS

- Actuator's operating temperature range (40-130°F, 4-45° C) should take into consideration heat generated by the motor and drive, linear velocity and work cycle time.
- For large frame motors or small actuators, cantilevered motors need to be supported, if subjected to continuous rapid reversing duty and/or under dynamic conditions.

AVAILABLE OPTIONS



Tube Supports: Provide intermediate support of actuator body at the recommended intervals.



Auxiliary Carrier: Increases rigidity, load-carrying capacity and bending moments



Dual 180° Carrier: Allows load to be rotated 90° from the cylinder's carrier, providing an additional load bearing surface. Requires its own proprietary tube supports and foot mounts.



Auxiliary Dual 180° Carrier: Substantially increases loads and moments.



Mounting Plates: Provide clearance height for motors and motor mounts when mounting an actuator on a flush surface and provide the means for top mounting access. Kits include plates and mounting screws.



Motor Mounting and Gearhead Reduction

Direct-Drive—Drive motor is mounted directly to the drive end assembly.



Reduction Drive—Mounts the motor to the reduction assembly, providing a 3:1 speed reduction from the motor to the belt drive wheel.



Gearheads—available for applications requiring reduction for inertia matching or higher torque at lower speeds. High efficiency, single stage, true planetary gearheads are available in 5.5:1 and 10:1 ratios for reduction solutions with most Tol-O-Matic NEMA 23 and 34 face motors.

For gearhead specifications and dimensions, see page F-10.



Switches: Reed, dc Hall-effect and ac TRIAC. See section I.



RODLESS

B3B/M3B Series

- Application benefits
- Bearing system
- Standard mounting
- Actuator/motor factors
- Available options

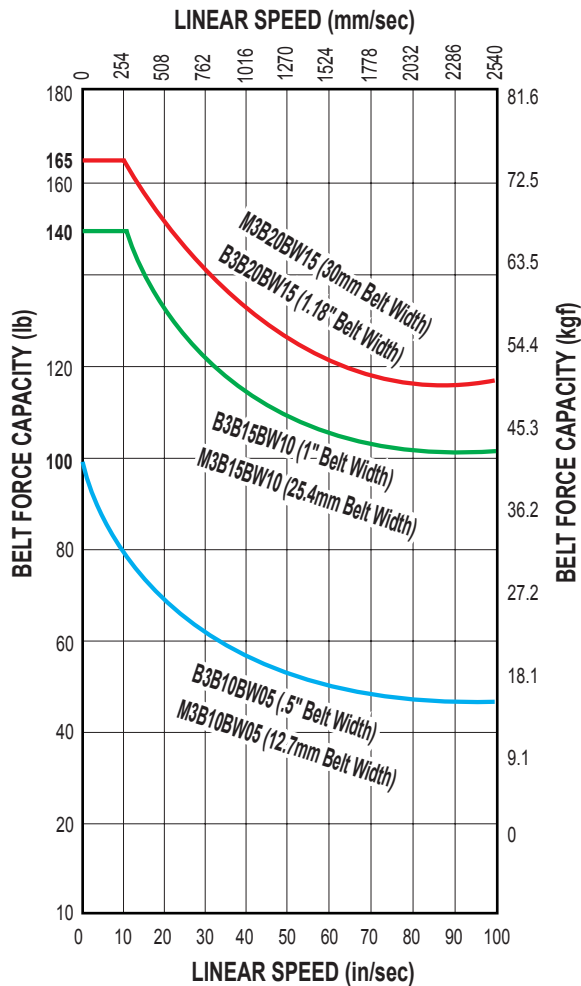
* U.S. Patent No. 5,555,789

Axi^{dyne}® B3B/M3B Belt Drives

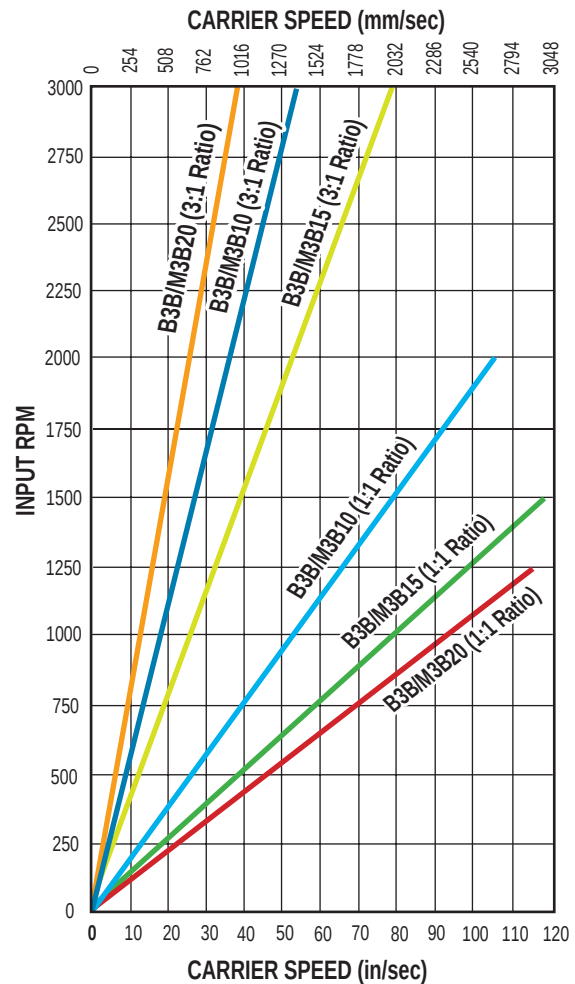
BELT PERFORMANCE

BELT FORCE AND SPEED CAPACITIES

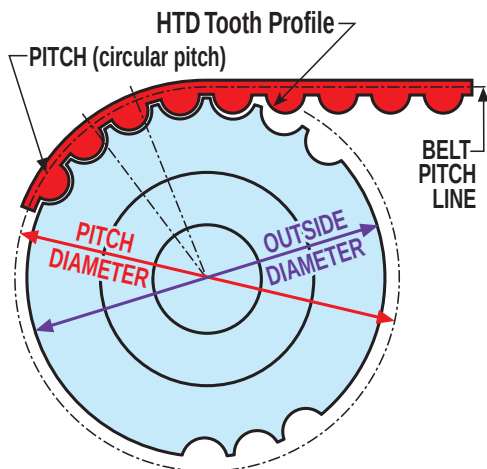
BELT LOAD FOR B3B/M3B ACTUATORS



BELT SPEED FOR B3B/M3B ACTUATORS



BELT SPECIFICATIONS



STYLE:	HTD Tooth
TOOTH PITCH:	5mm
BELT MATERIAL:	Neoprene body with Fiberglass tension members
CHARACTERISTICS:	For higher speed, higher load applications Heavy duty drive and idler pulley bearings

Axi dyne® B3B Belt Drives

OVERALL SERIES SPECIFICATIONS

B3B/M3B BELT, INERTIA AND BREAKAWAY TORQUE SPECIFICATIONS

B3B ENGLISH ACTUATORS								
ACTUATOR SERIES	BELT WIDTH (in)	BELT WEIGHT (lb/in)	BELT DEAD LENGTH (in)	WHEEL PITCH DIA. (in)	PULLEY WHEELS INERTIA (lb-sq in)	INERTIA (lb-in ²)		BREAKAWAY TORQUE (LB-IN)
						BASE ACTUATOR	PER/INCH OF STROKE	
B3B10	.50	.0028	20.10	1.003	.031	0.2846	0.0016	5.000
B3B15	1.00	.0056	30.80	1.504	.303	1.3917	0.0017	10.000
B3B20	1.18	.0066	31.90	1.754	.651	2.6607	0.0114	15.625



RODLESS

M3B METRIC ACTUATORS								
ACTUATOR SERIES	BELT WIDTH (mm)	BELT WEIGHT (g/cm)	BELT DEAD LENGTH (mm)	WHEEL PITCH DIA. (mm)	PULLEY WHEELS INERTIA (kg-sq M x 10 ⁻⁴)	INERTIA (kg-m ² x 10 ⁻⁴)		BREAKAWAY TORQUE (N-m)
						BASE ACTUATOR	PER/mm OF STROKE	
M3B10	12.7	1.27	510.5	25.5	0.000009	83.25	0.47	0.56
M3B15	25.4	2.54	782.3	38.2	0.0000886	407.07	0.50	1.13
M3B20	29.9	2.99	810.3	44.6	0.0001905	778.25	0.33	1.77

B3B/M3B Series

- Belt, inertia and breakaway torque specifications
- General actuator specifications

GENERAL ACTUATOR SPECIFICATIONS

B3B ENGLISH ACTUATORS							
ACTUATOR SERIES	MAXIMUM STROKE (in)	CARRIER WEIGHT (lb)	BASE WEIGHT (lb) (Including Carrier)	WEIGHT PER/in OF STROKE (lb)	STRAIGHTNESS & FLATNESS (in) ¹ (Constrained)	TEMP. RANGE ² (F°)	IP RATING ³
B3B10	292	0.85	7.54	.388	0.00067 x L *	40 - 130	44
B3B15	292	1.56	25.12	.394	0.00067 x L *	40 - 130	44
B3B20	292	2.14	35.40	.714	0.00067 x L *	40 - 130	44

M3B METRIC ACTUATORS							
ACTUATOR SERIES	MAXIMUM STROKE (mm)	CARRIER WEIGHT (kg)	BASE WEIGHT (kg)	WEIGHT PER/mm OF STROKE (g)	STRAIGHTNESS & FLATNESS (mm) (Constrained)	TEMP. RANGE* (C°)	IP RATING**
M3B10	7417	0.40	1.00	6.43	0.00067 x L *	4 - 54	44
M3B15	7417	0.70	3.96	7.04	0.00067 x L *	4 - 54	44
M3B20	7417	0.97	6.52	12.75	0.00067 x L *	4 - 54	44



¹ The listed values relating to straightness/flatness are intended for reference purposes only, and not as an engineering standard of absolute tolerance for a given actuator. Appropriate installation is the single most important factor in reducing such deviation, so good engineering practices such as measurement, mapping, etc. must be employed in applications with stringent straightness/flatness requirements.

² Heat generated by the motor and drive should be taken into consideration as well as linear velocity and work cycle time. For applications that require operation outside of the recommended temperature range, contact the factory.

³ Protected against ingress of solid particles greater than .039 in (1mm) and splashing water.

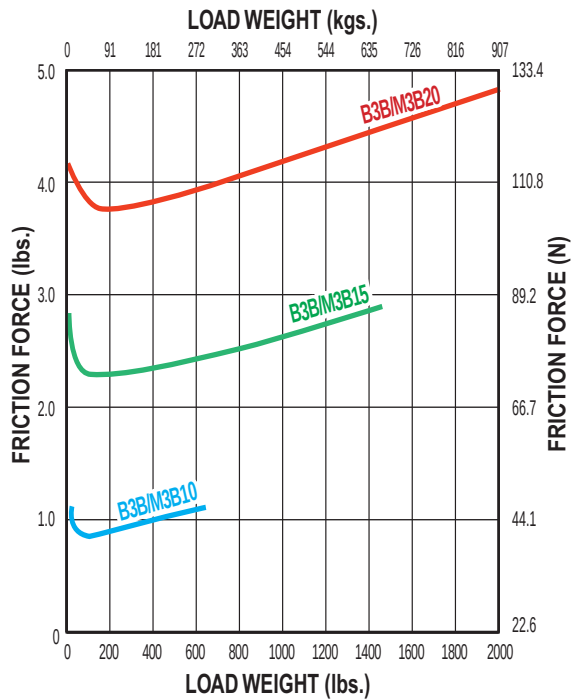
* "L" is maximum distance between supports—See the support recommendation diagram on page C-34.

LARGE FRAME MOTORS AND SMALLER SIZE ACTUATORS: Cantilevered motors need to be supported, if subjected to continuous rapid reversing duty and/or under dynamic conditions.

Axi dyne® B3B/M3B Belt Drives

OVERALL SERIES SPECIFICATIONS

FRICTION FORCE

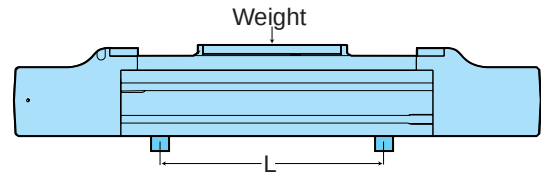
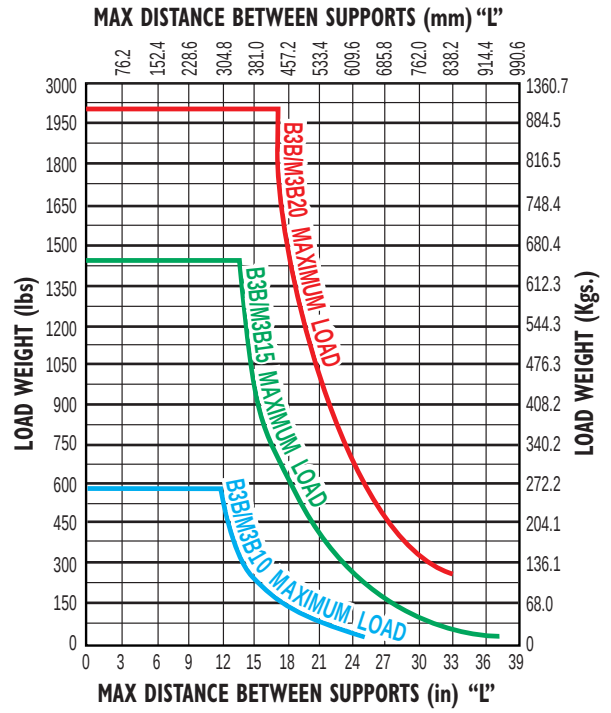


RODLESS

B3B/M3B Series

- Friction force
- Support recommendations

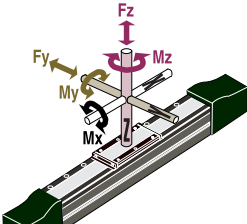
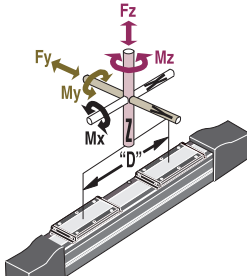
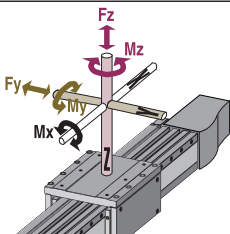
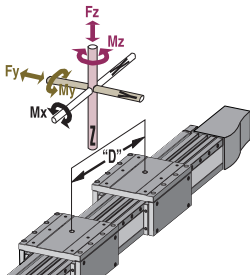
SUPPORT RECOMMENDATIONS

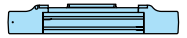


Axi-dyne® B3B Belt Drives

OVERALL SERIES SPECIFICATIONS

DYNAMIC BENDING MOMENTS AND LOADS

		MAXIMUM BENDING MOMENTS AND LOADS			ENGLISH			METRIC		
STANDARD CARRIER			B3B10	B3B15	B3B20	M3B10	M3B15	M3B20		
	Mx Moment (Roll)	(lb-in : N-m)	250	859	1662	28.2	97.1	187.8		
	My Moment (Pitch)	(lb-in : N-m)	269	1033	1472	30.4	116.7	166.3		
	Mz Moment (Yaw)	(lb-in : N-m)	156	596	850	17.9	67.3	96.0		
	Fy Load (Radial)	(lb : N)	341	840	1159	1517	3738	5158		
	Fz Load (Lateral)	(lb : N)	591	1454	2008	2630	6470	8936		
AUXILIARY CARRIER: Increases rigidity, load-carrying capacity and moments			B3B10	B3B15	B3B20	M3B10	M3B15	M3B20		
	Mx Moment (Roll)	*(lb-in : N-m)	500	1718	3324	56.5	194.1	375.6		
	My Moment (Pitch)	*(lb-in : N-m)	2825	11,734	16,265	319.2	1325.8	1837.8		
	Mz Moment (Yaw)	*(lb-in : N-m)	1630	6779	9388	184.2	765.9	1060.8		
	Fy Load (Radial)	(lb : N)	682	1680	2318	3035	7476	10315		
	Fz Load (Lateral)	(lb : N)	1182	2908	4016	5260	1294	17871		
	Minimum Dimension 'D'	(in : mm)	4.88	8.07	8.10	124.0	205.0	205.7		
DUAL 180° CARRIER: Allows 90° rotation of load, adds load bearing surface			B3B10	B3B15	B3B20	M3B10	M3B15	M3B20		
	Mx Moment (Roll)	(lb-in : N-m)	657	2468	4527	74.2	278.9	511.2		
	My Moment (Pitch)	(lb-in : N-m)	312	1192	1700	35.3	134.7	192.1		
	Mz Moment (Yaw)	(lb-in : N-m)	538	2066	2944	60.8	233.4	332.6		
	Fy Load (Radial)	(lb : N)	1182	2908	4016	5260	1294	17871		
	Fz Load (Lateral)	(lb : N)	682	1680	2318	3035	7476	10315		
AUXILIARY DUAL 180° CARRIER: Substantially increases moment and loads			B3B15	B3B20	M3B10	M3B15	M3B20			
	Mx Moment (Roll)	*(lb-in : N-m)	1314	4936	9054	147	553	1014		
	My Moment (Pitch)	*(lb-in : N-m)	3328	13558	18776	373	1518	2103		
	Mz Moment (Yaw)	*(lb-in : N-m)	5768	23468	32530	646	2628	3643		
	Fy Load (Radial)	(lb : N)	2364	5816	8032	1072	2638	3643		
	Fz Load (Lateral)	(lb : N)	1364	3360	4636	619	1524	2103		
	Minimum Dimension 'D'	(in : mm)	4.88	8.07	8.10	124.0	205.0	205.7		



RODLESS

B3B/M3B Series

- Bending moments and loads



The Dual 180° carrier requires its own proprietary tube supports and foot mounts. See dimensional information. Breakaway torque will also increase when using the Auxiliary carrier or the Dual 180° carrier options. When ordering, determine your working stroke and enter this value into the configuration string. Overall actuator length will automatically be calculated.

Deflection Considerations: In applications where substantial Mx or My moments come into play, deflection of the cylinder tube, carrier and supports must be considered. The deflection factors shown in the Load Deflection charts on the following page, are based on cylinder mounted with tube supports at minimum recommended spacing. If more rigidity is desired, refer to the Auxiliary or Dual Carrier options.

*Loads shown in table are at minimum "D" dimension, for ratings with longer "D" dimension see graph on page C-37.

Axi-dyne® B3B/M3B Belt Drives

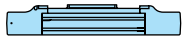
OVERALL SERIES SPECIFICATIONS

LOAD DEFLECTION

Y-AXIS DEFLECTION

Figures calculated with the following considerations:

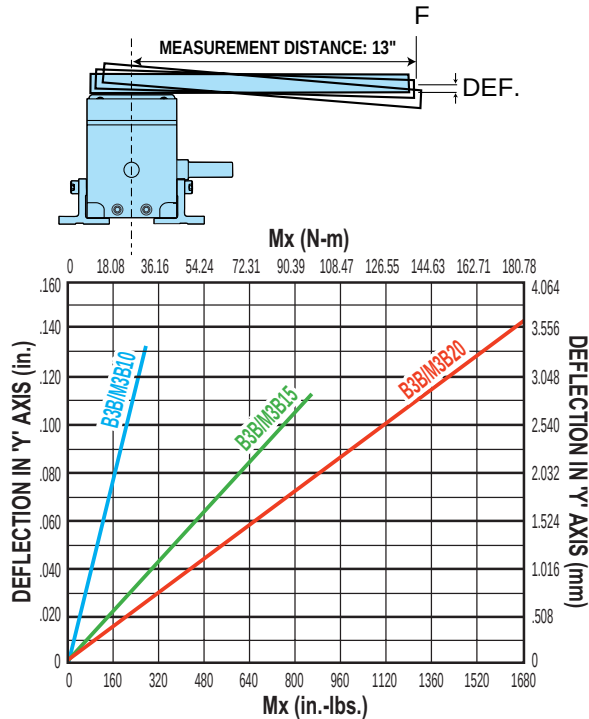
- 1.) Tube supports spaced at minimum distances for each bore size
- 2.) Measurement distance from F to center of carrier is 13 inches



RODLESS

B3B/M3B Series

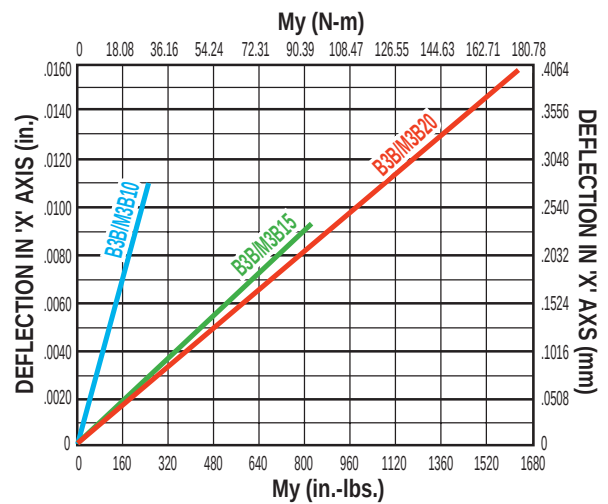
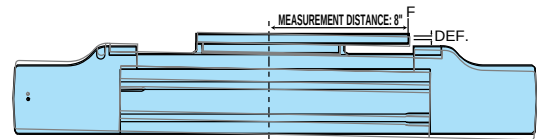
• Load deflection



X-AXIS DEFLECTION

Figures calculated with the following considerations:

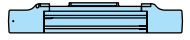
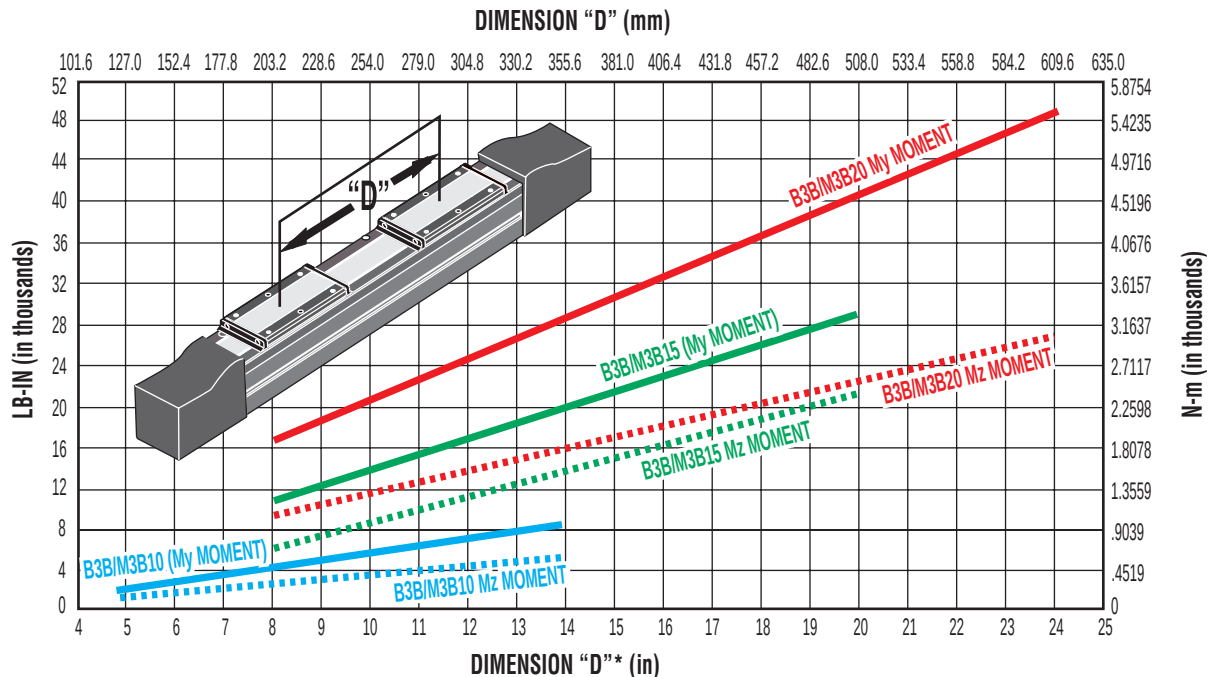
- 1.) Tube supports spaced at minimum distances for each bore size
- 2.) Measurement distance from F to center of carrier is 8 inches



Axi-dyne® B3B/M3B Belt Drives

OVERALL SERIES SPECIFICATIONS

AUXILIARY CARRIER: BENDING MOMENT AT 'D' DISTANCE



RODLESS

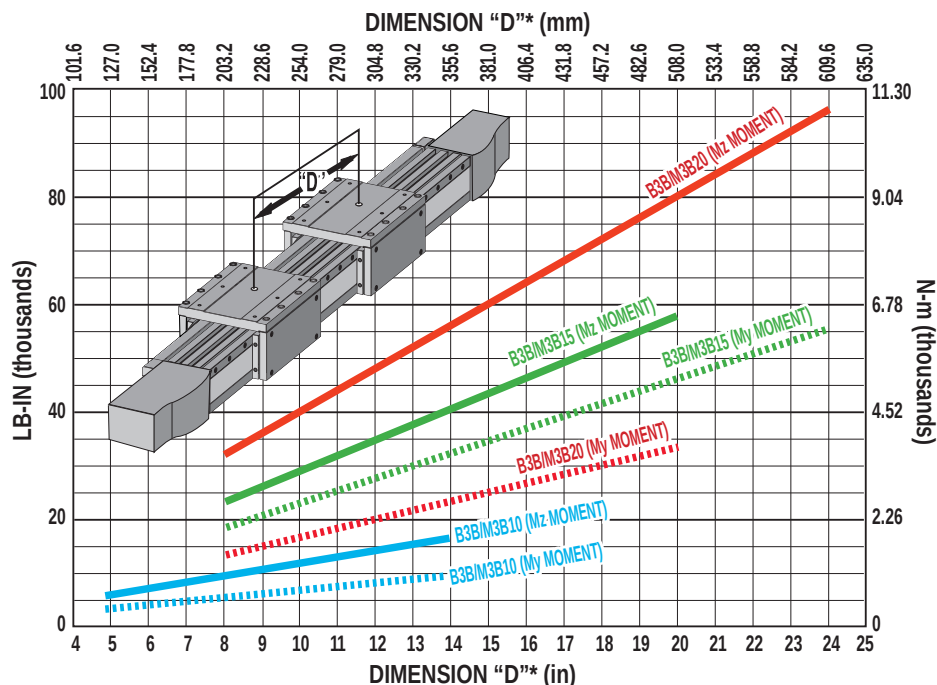
B3B/M3B Series

- Auxiliary carrier specifications
- Auxiliary dual 180° carrier specifications

Rates shown on charts were calculated with these assumptions:
 1.) Coupling between carriers is rigid.
 2.) Load is equally distributed between carriers.
 3.) Coupling device applies no misalignment loads to carriers.

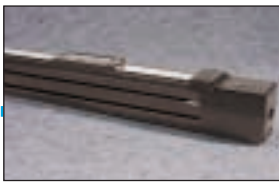
* Customer must specify Dimension "D" (Distance between carrier center lines) in configuration string.

AUXILIARY DUAL 180° CARRIER: BENDING MOMENT AT 'D' DISTANCE



Rates shown on charts were calculated with these assumptions:
 1.) Coupling between carriers is rigid.
 2.) Load is equally distributed between carriers.
 3.) Coupling device applies no misalignment loads to carriers.

* Customer must specify Dimension "D" (Distance between carrier center lines) in configuration string.



Axi dyne® B3B/M3B10 Series

BELT LOAD AND SPEED

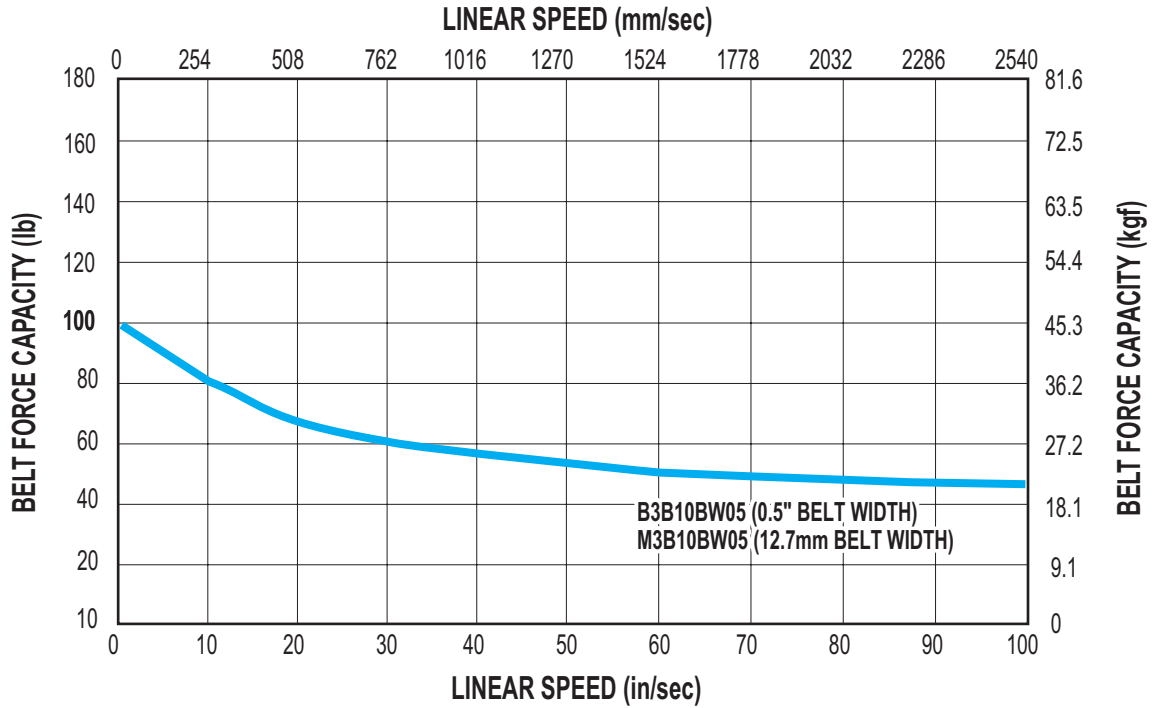
B3B/M3B10 BELT LOAD



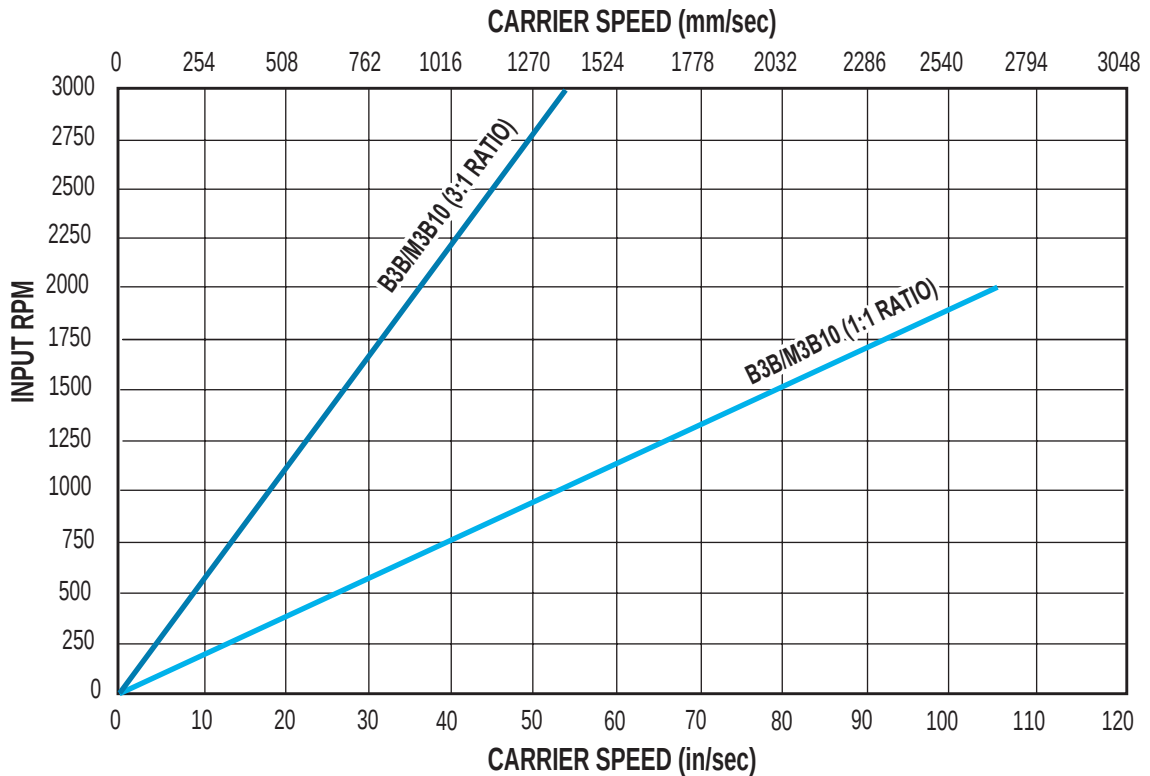
RODLESS

B3B/M3B10 Series

- Belt load
- Belt speed



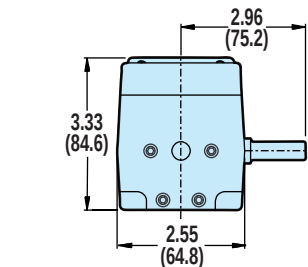
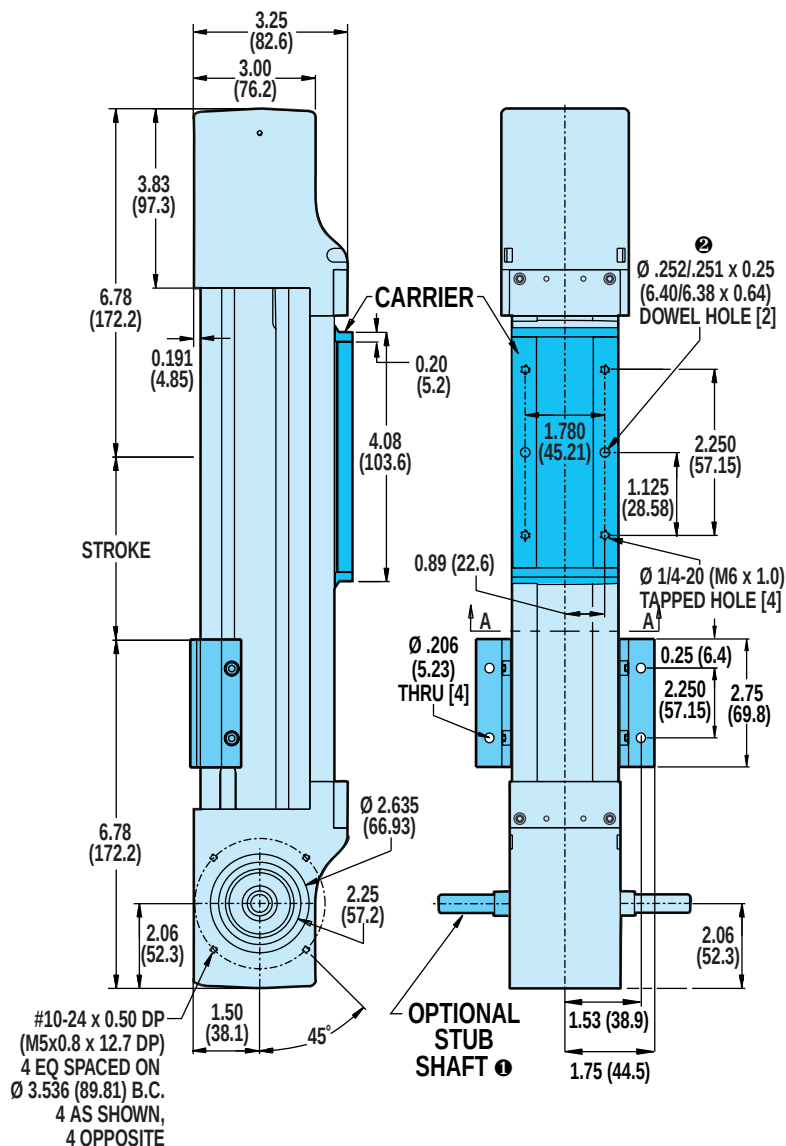
B3B/M3B10 BELT SPEED



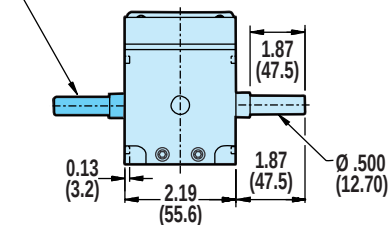
Axi-dyne® B3B/M3B10 Series

DIMENSIONS

B3B/M3B10 ACTUATOR AND OPTIONS



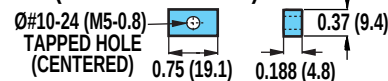
OPTIONAL STUB SHAFT ①



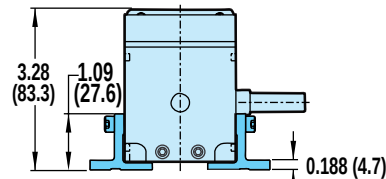
NUTS FOR SIDE SLOTS (Clear Zinc Finish)



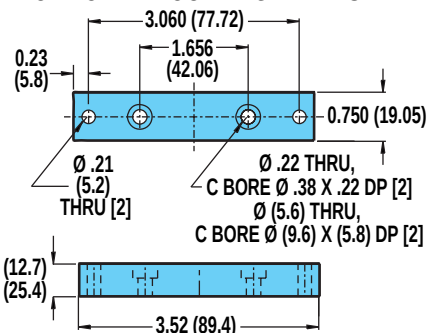
NUTS FOR BOTTOM SLOTS (Yellow Zinc Finish)



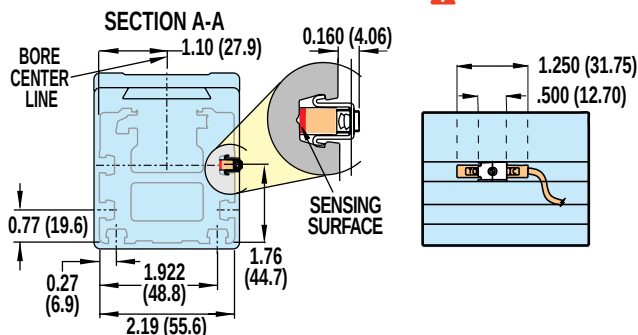
OPTIONAL TUBE SUPPORTS



OPTIONAL MOUNTING PLATES



OPTIONAL SWITCH MOUNTING ③ ④ ⑤



① ONE STUB SHAFT IS STANDARD ON ALL B3B ACTUATORS

② DOWEL PINS $\oplus$.003 (08mm) M

③ **CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING**

④ NOTE: The scored face of the switch indicates the sensing surface and must face toward the magnet

⑤ NOTE: Some actuators require switch mounting on a specific side of the actuator. Call Tol-O-Matic 1-800-328-2174 for details

⑥ WHEN USED WITH 23-FRAME MOTORS

⑦ WHEN USED WITH 34-FRAME MOTORS

Unless otherwise noted, all dimensions shown are in inches (Dimensions in parenthesis are in millimeters)

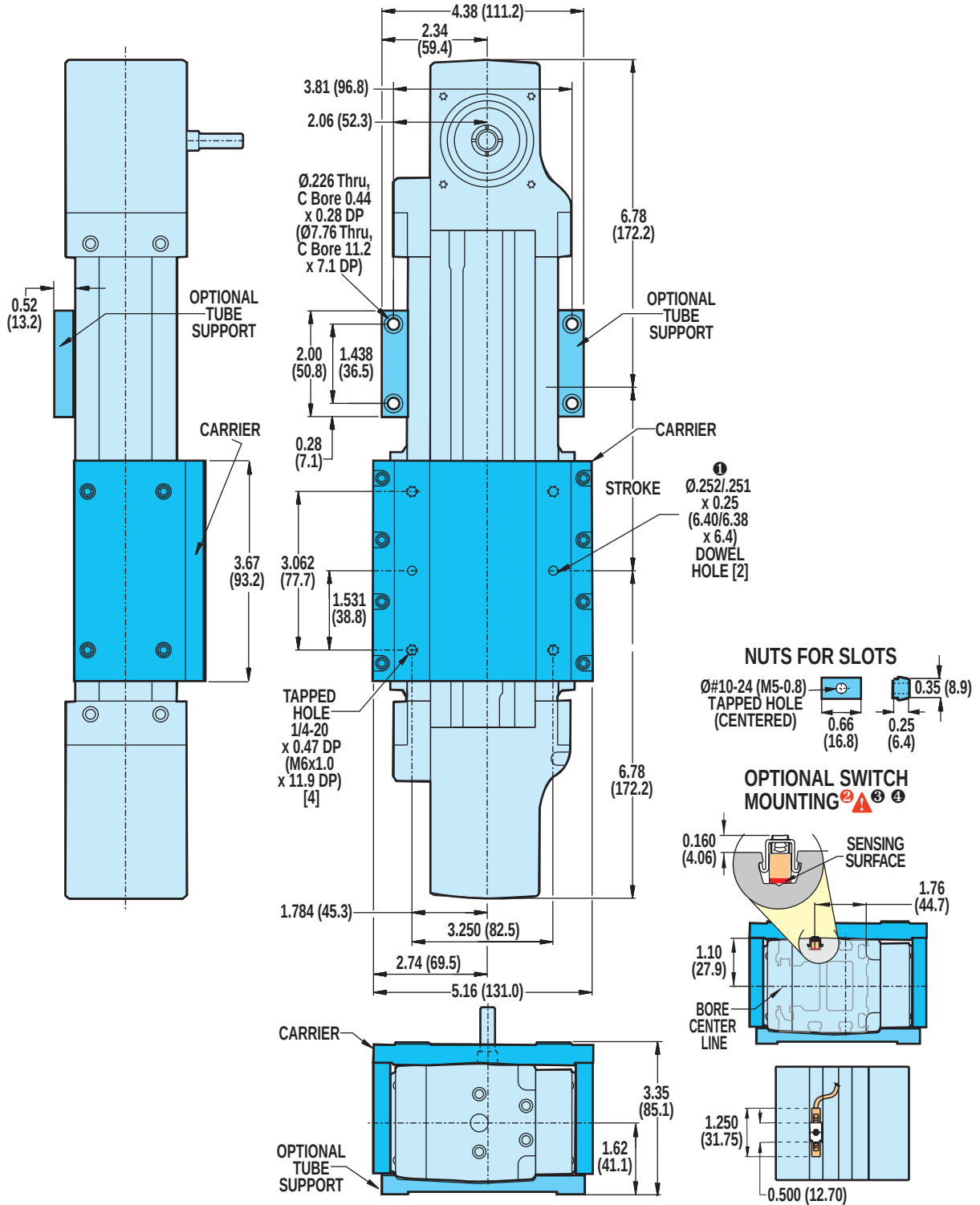
DIMENSIONS

B3BD/M3BD10 DUAL 180° OPTION



B3B/M3B10 Series

- Dual 180° carrier dimensions



- 1 DOWEL PINS**  .003 (08mm) 

- 2 CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING**

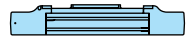
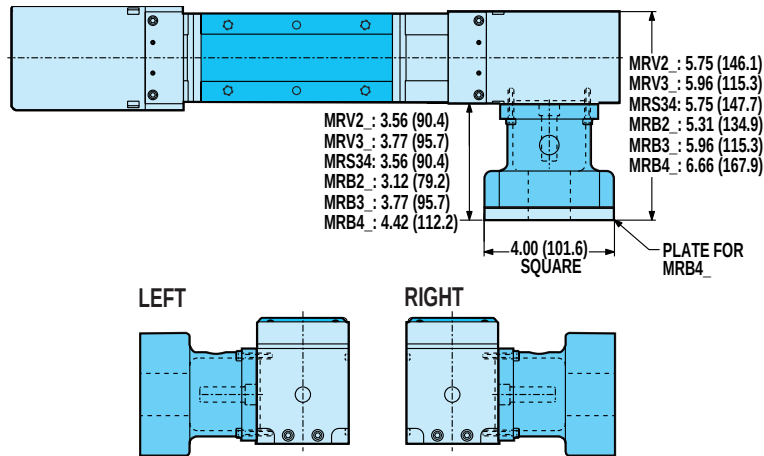
- ③ NOTE:** The scored face of the switch indicates the sensing surface and must face toward the magnet

- ④ NOTE:** Some actuators require switch mounting on a specific side of the actuator. Call Tol-O-Matic 1-800-328-2174 for details

Axi dyne® B3B/M3B10 Series

DIMENSIONS

B3B(D)/M3B(D)10 DIRECT DRIVE MOTOR MOUNTING

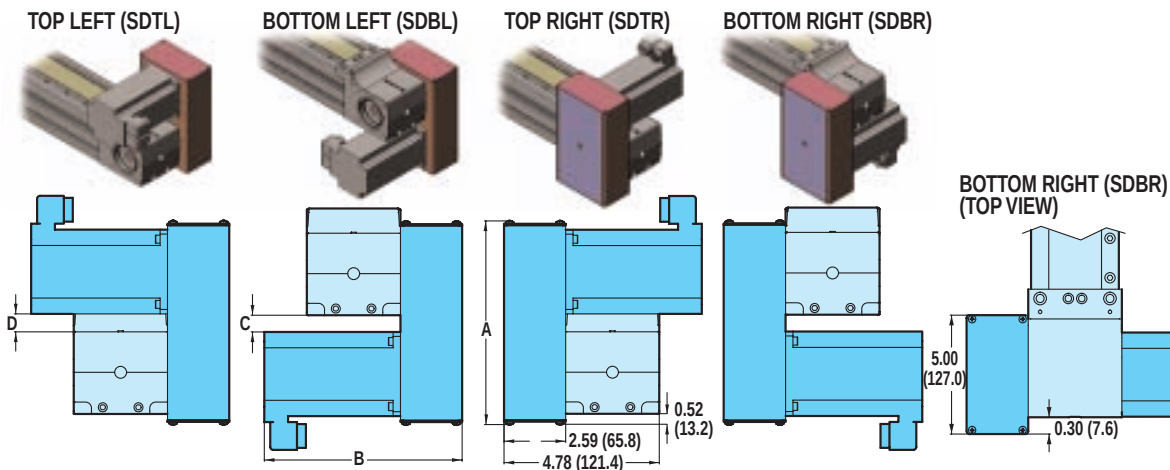


RODLESS

B3B/M3B10 Series

- Direct drive motor mounting
- Reduction drive motor mounting

B3B(D)/M3B(D)10 REDUCTION DRIVE MOTOR MOUNTING



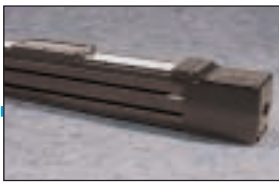
DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	7.98	202.6	7.34	186.4	1.60	40.6	1.60	40.6
	MRV22	7.98	202.6	8.34	211.8	1.60	40.6	1.60	40.6
	MRV23	7.98	202.6	9.34	237.2	1.60	40.6	1.60	40.6
	MRV24	7.98	202.6	10.34	262.6	1.60	40.6	1.60	40.6
	MRV31	8.49	215.6	8.70	221.0	0.95	24.1	0.95	24.1
	MRV32	8.49	215.6	9.95	252.7	0.95	24.1	0.95	24.1
STEPPER	MRV33	8.49	215.6	11.20	284.5	0.95	24.1	0.95	24.1
	MRS231	7.98	202.6	4.65	118.1	1.60	40.6	3.25	82.6
	MRS232	7.98	202.6	5.69	144.5	1.60	40.6	3.25	82.6
	MRS341	8.49	215.6	5.17	131.3	1.04	26.4	1.04	26.4
	MRS342	8.49	215.6	6.35	161.3	1.04	26.4	1.04	26.4
BRUSHED	MRS343	8.49	215.6	7.65	194.3	1.04	26.4	1.04	26.4
	MRB21	7.98	202.6	8.92	226.6	1.60	40.6	1.60	40.6
	MRB31	8.49	215.6	7.66	194.6	1.09	27.7	1.09	27.7
	MRB32	8.49	215.6	10.31	261.9	1.09	27.7	1.09	27.7
	MRB41	8.85	224.8	13.22	335.8	0.72	18.3	0.72	18.3
	MRB42	8.85	224.8	14.22	361.2	0.72	18.3	0.72	18.3

SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in ²	kg-m ² x 10 ⁻⁴
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.229	66.98
	MRV31, 32, 33	3.92	1.78	0.229	66.98
STEPPER	MRS231, 232	3.33	1.51	0.144	42.12
	MRS341, 342, 343	3.84	1.76	0.199	58.21
BRUSHED	MRB21	3.33	1.51	0.208	60.84
	MRB31, 32	3.92	1.78	0.229	66.98
	MRB41, 42	4.62	2.10	0.226	66.11

3:1 REDUCTION EFFICIENCY: 0.95



Axi dyne® B3B/M3B15 Series

BELT LOAD AND SPEED

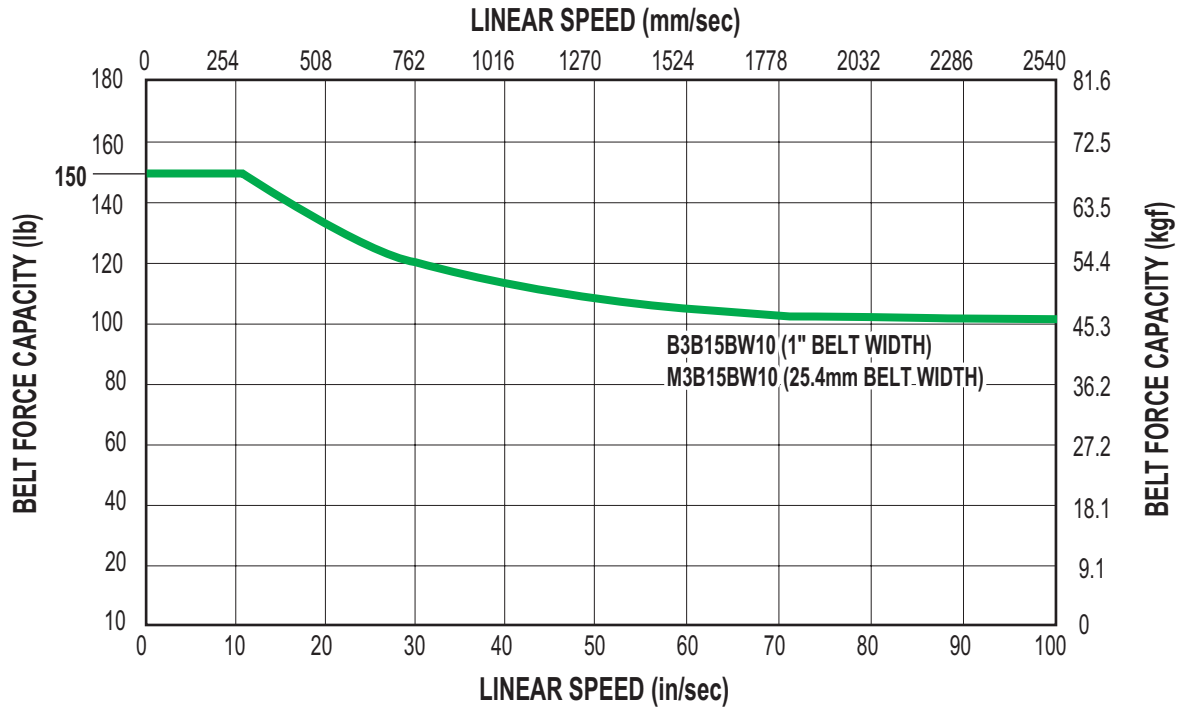
B3B/M3B15 BELT LOAD



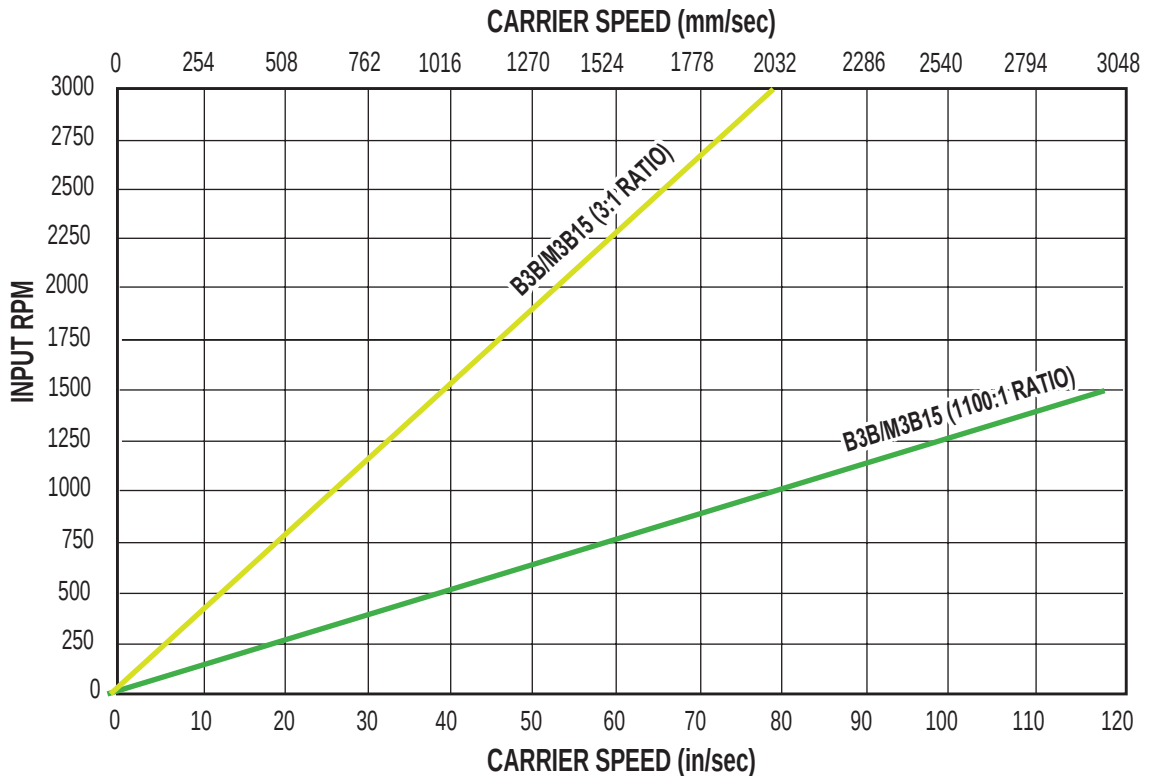
RODLESS

B3B/M3B15 Series

- Belt load
- Belt speed



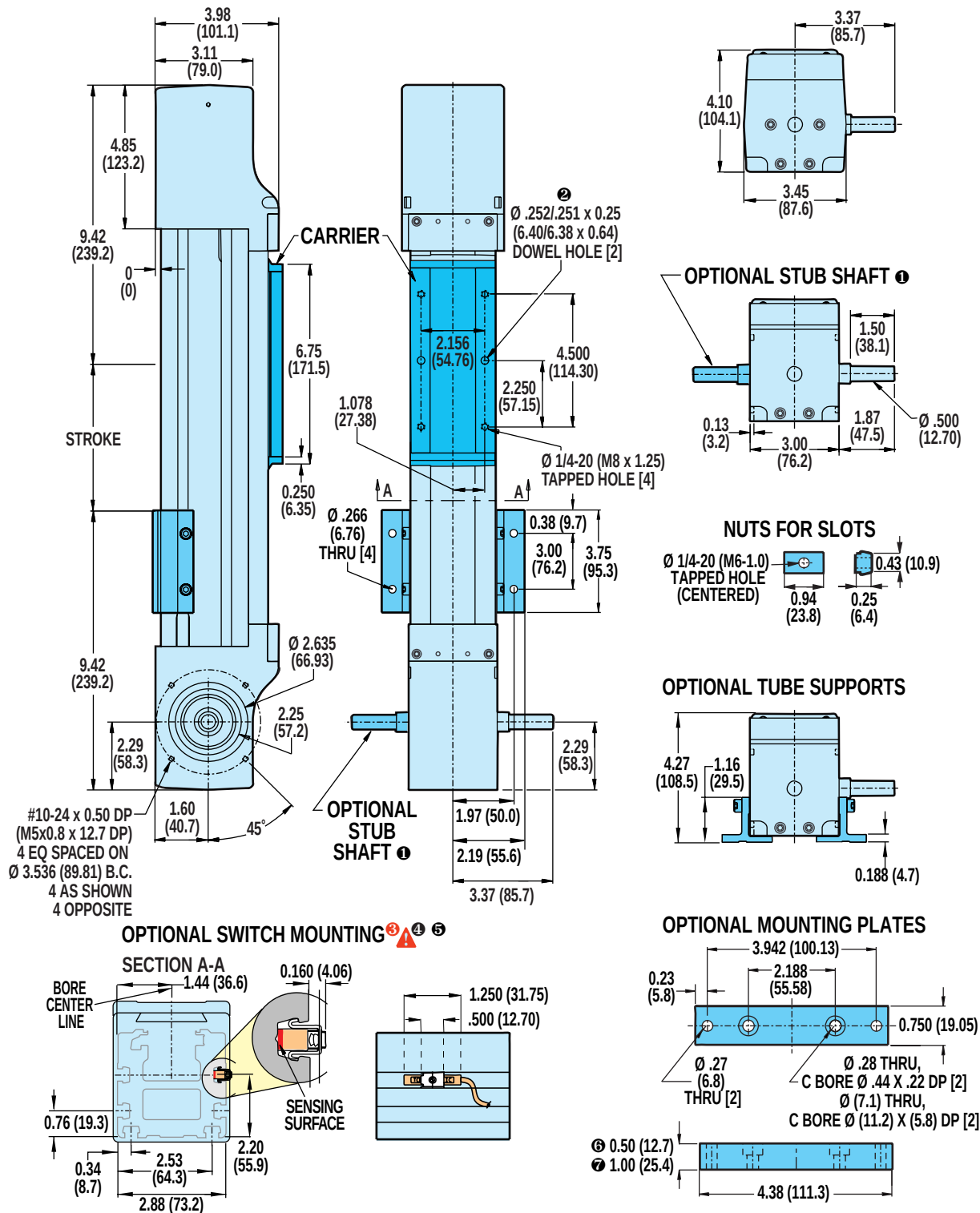
B3B/M3B15 BELT SPEED



Axi-dyne® B3B/M3B15 Series

DIMENSIONS

B3B/M3B15 ACTUATOR AND OPTIONS



RODLESS

B3B/M3B15 Series

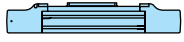
- Actuator and option dimensions

Unless otherwise noted, all dimensions shown are in inches (Dimensions in parenthesis are in millimeters)

Axi dyne® B3B/M3B I5 Series

DIMENSIONS

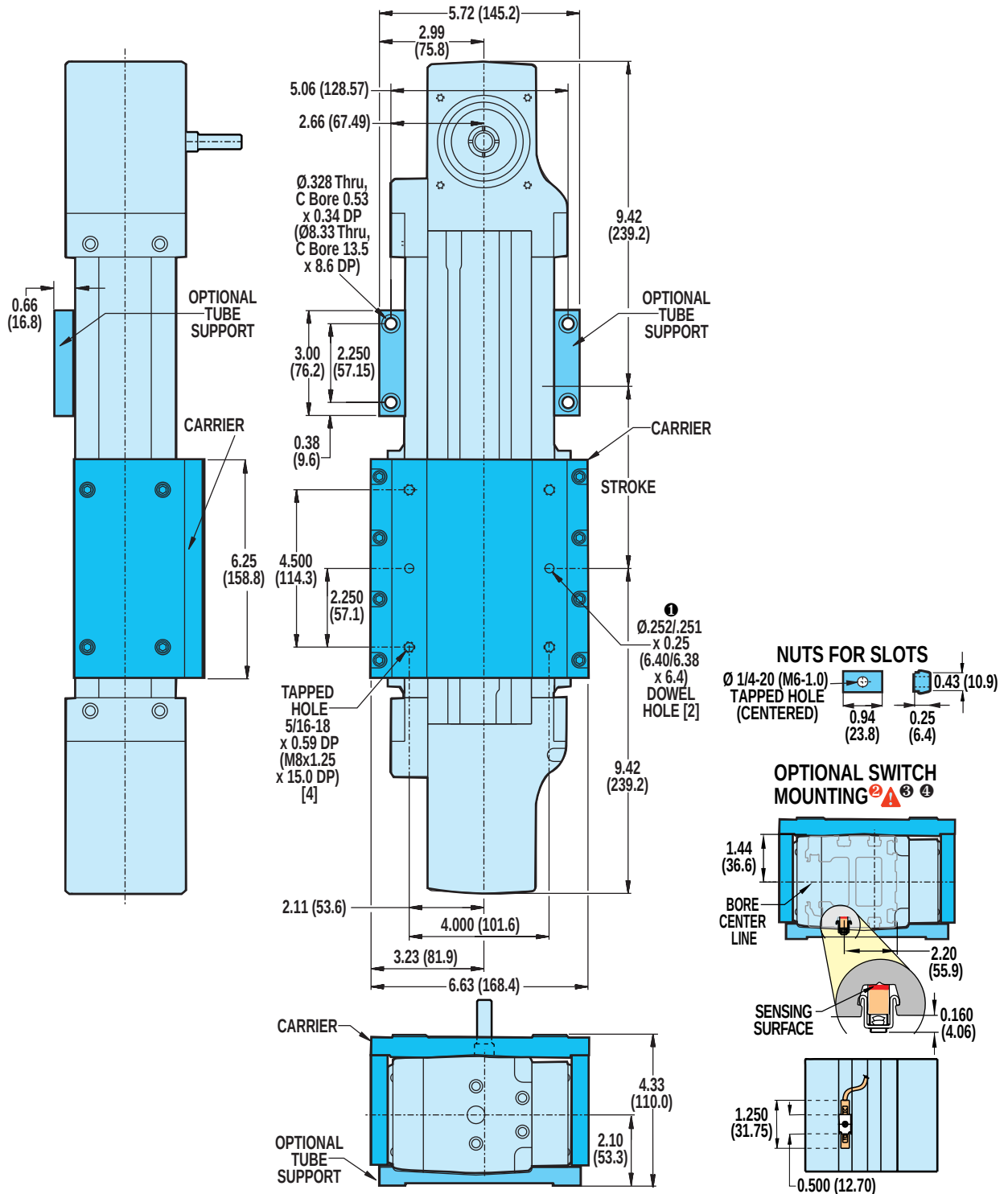
B3BD/M3BD I5 DUAL 180° OPTION



RODLESS

B3B/M3B I5 Series

- Dual 180° carrier option dimensions



① DOWEL PINS $\frac{1}{16}$.003 (08mm) (M)

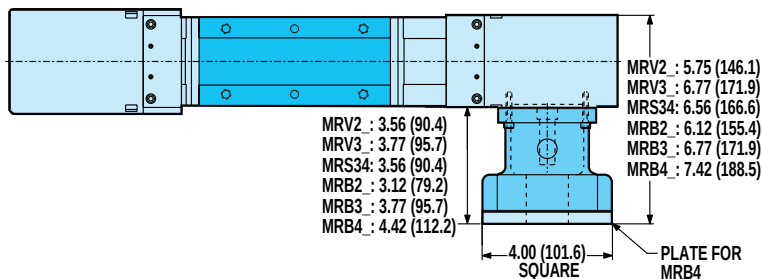
③ NOTE: The scored face of the switch indicates the sensing surface and must face toward the magnet

④ NOTE: Some actuators require switch mounting on a specific side of the actuator. Call Tol-O-Matic 1-800-328-2174 for details

⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

DIMENSIONS

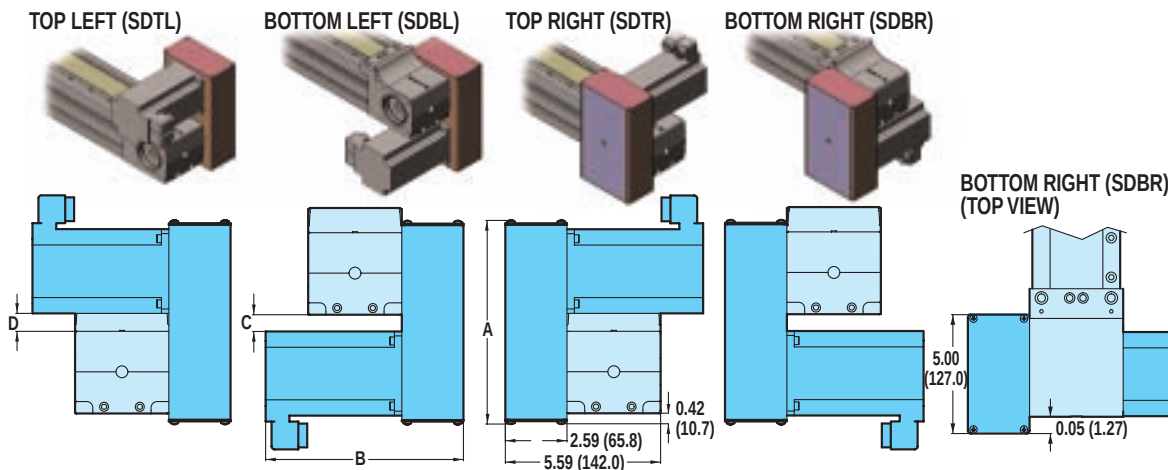
B3B(D)/M3B(D) I5 DIRECT DRIVE MOTOR MOUNTING

**RODLESS**

B3B/M3B15 Series

- Direct drive motor mounting dimensions
- Reduction drive motor mounting dimensions

B3B(D)/M3B(D) 15 REDUCTION DRIVE MOTOR MOUNTING



DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	7.98	202.6	7.34	186.4	1.50	31.8	1.59	40.4
	MRV22	7.98	202.6	8.34	211.8	1.50	31.8	1.59	40.4
	MRV23	7.98	202.6	9.34	237.2	1.50	31.8	1.59	40.4
	MRV24	7.98	202.6	10.34	262.6	1.50	31.8	1.59	40.4
	MRV31	8.49	215.6	8.70	221.0	0.85	21.6	0.95	24.1
	MRV32	8.49	215.6	9.95	252.7	0.85	21.6	0.95	24.1
	MRV33	8.49	215.6	11.20	284.5	0.85	21.6	0.95	24.1
STEPPER	MRS341	8.49	215.6	5.17	131.3	0.93	23.6	1.03	26.2
	MRS342	8.49	215.6	6.35	161.3	0.93	23.6	1.03	26.2
	MRS343	8.49	215.6	7.65	194.3	0.93	23.6	1.03	26.2
BRUSHED	MRB21	7.98	202.6	8.92	226.6	1.50	31.8	1.59	40.4
	MRB31	8.49	215.6	7.66	194.6	0.99	25.1	1.09	27.7
	MRB32	8.49	215.6	10.31	261.9	0.99	25.1	1.09	27.7
	MRB41	8.85	224.8	13.22	335.8	0.62	15.7	0.72	18.3
	MRB42	8.85	224.8	14.22	361.2	0.62	15.7	0.72	18.3

SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in ²	kg-m ² x 10 ⁻⁴
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.229	66.98
	MRV31, 32, 33	3.92	1.78	0.229	66.98
STEPPER	MRS341, 342, 343	3.84	1.76	0.199	58.21
BRUSHED	MRB21	3.33	1.51	0.208	60.84
	MRB31, 32	3.92	1.78	0.229	66.98
	MRB41, 42	4.62	2.10	0.226	66.11

3:1 REDUCTION EFFICIENCY: 0.95



Axi dyne® B3B/M3B20 Series

BELT LOAD AND SPEED

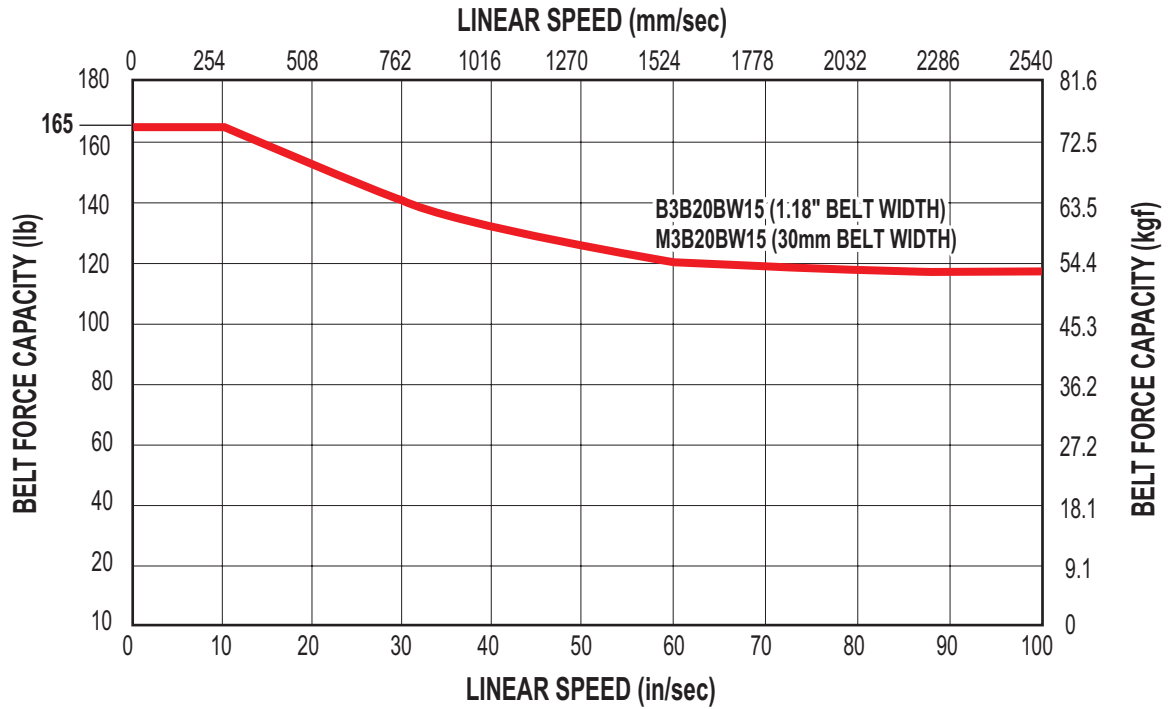
B3B/M3B20 BELT LOAD



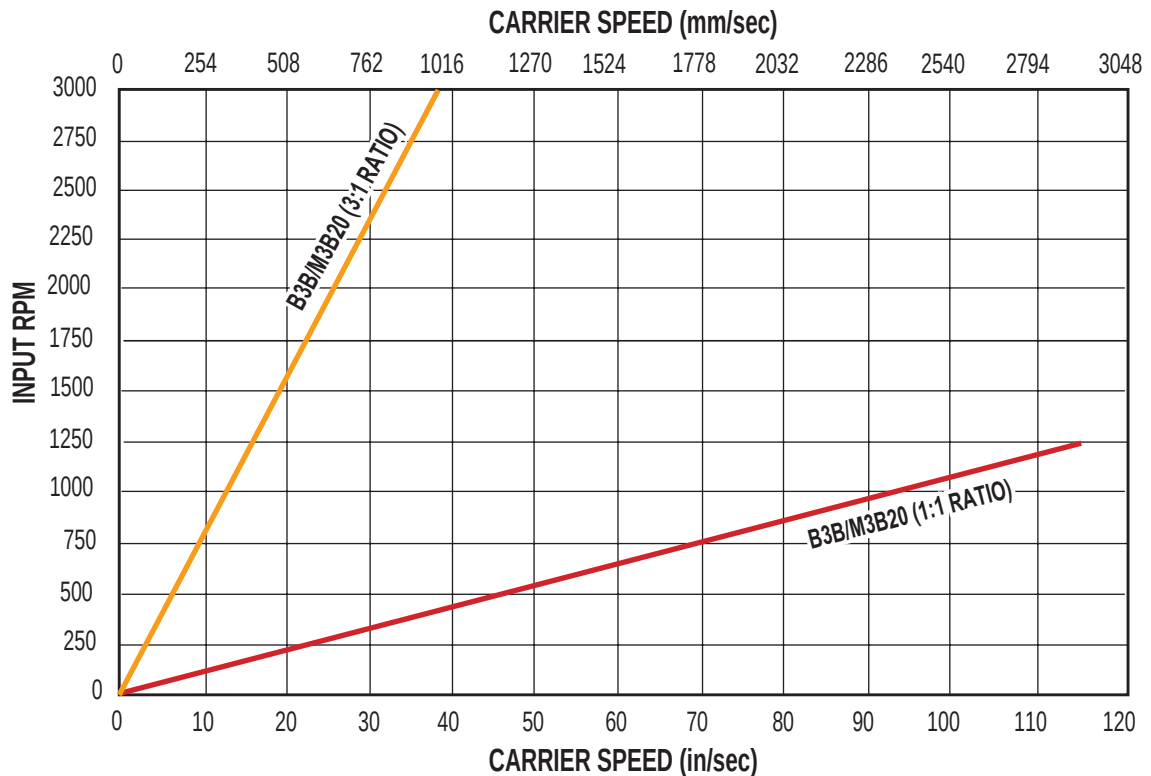
RODLESS

B3B/M3B20 Series

- Belt load
- Belt speed



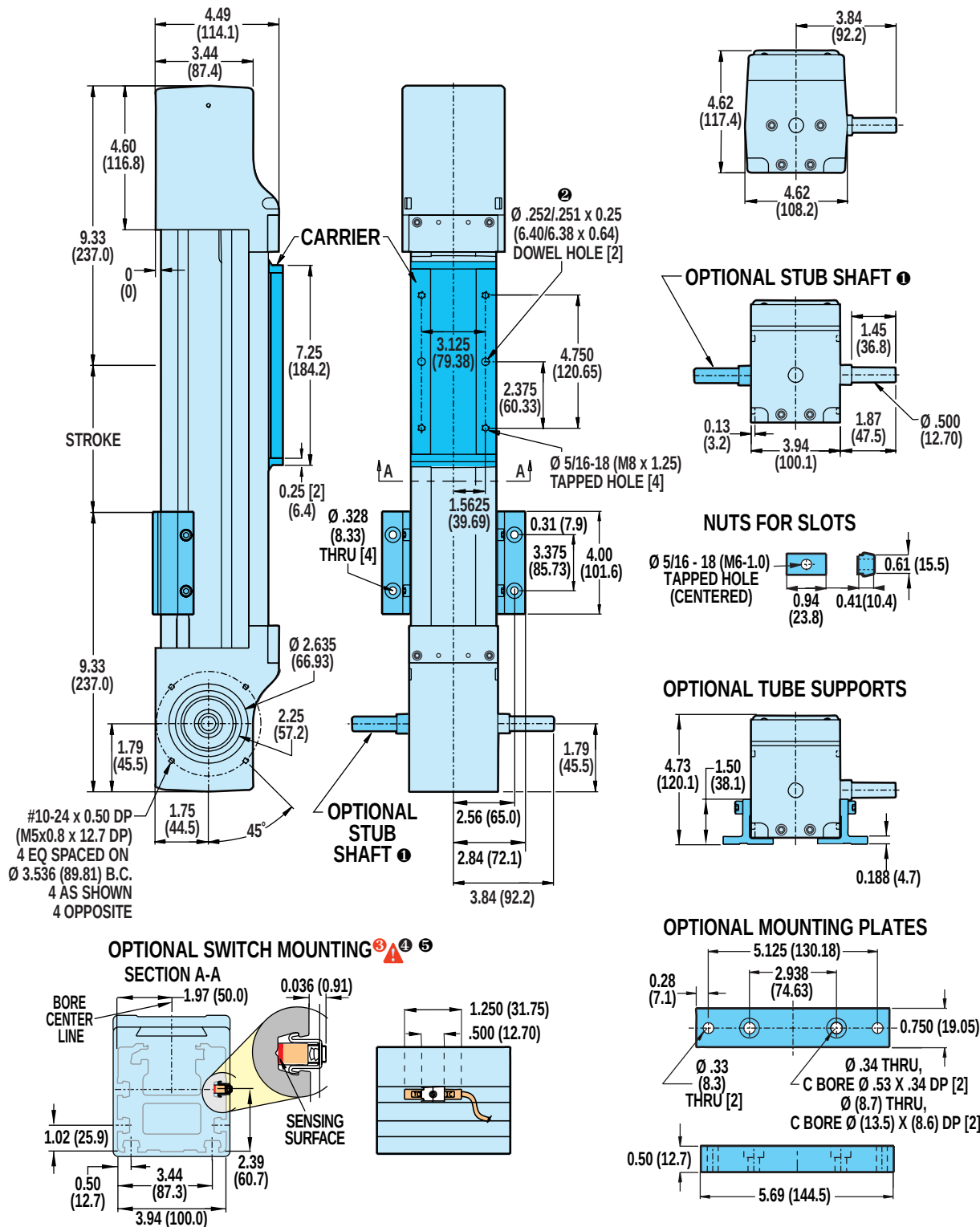
B3B/M3B20 BELT SPEED



Axi-dyne® B3B/M3B20 Series

DIMENSIONS

B3B/M3B20 ACTUATOR AND OPTIONS



RODLESS

B3B/M3B20 Series

- Actuator and option dimensions

Unless otherwise noted, all dimensions shown are in inches (Dimensions in parenthesis are in millimeters)

Axi^{dyne}® B3B/M3B20 Series

DIMENSIONS

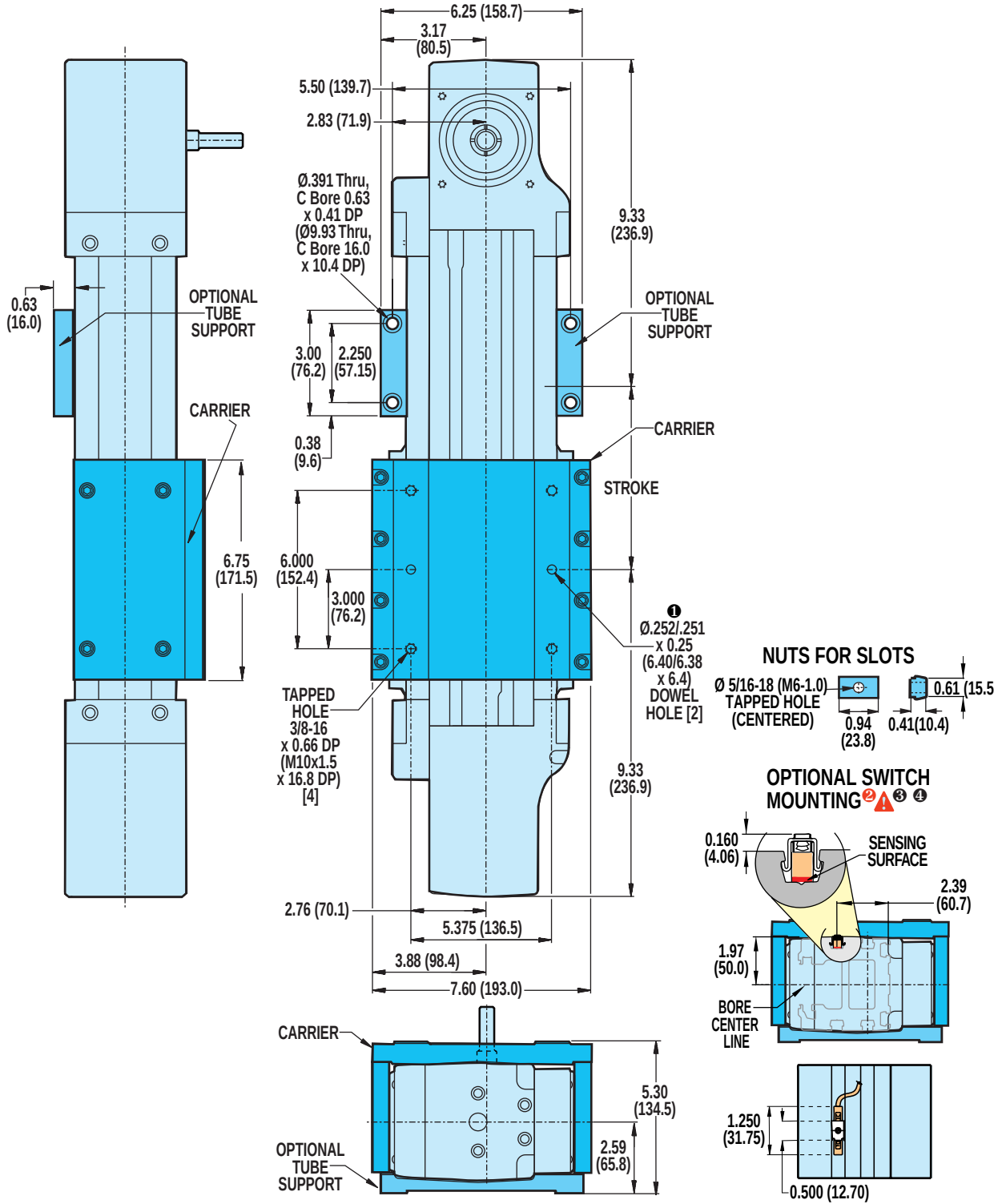
B3BD/M3BD20 DUAL 180° OPTION



RODLESS

B3B/M3B20 Series

- Dual 180° carrier
option dimensions



- ① DOWEL PINS**  .003 (08mm) 

- ② CAUTION: DO NOT OVERTIGHTEN SWITCH
HARDWARE WHEN INSTALLING**

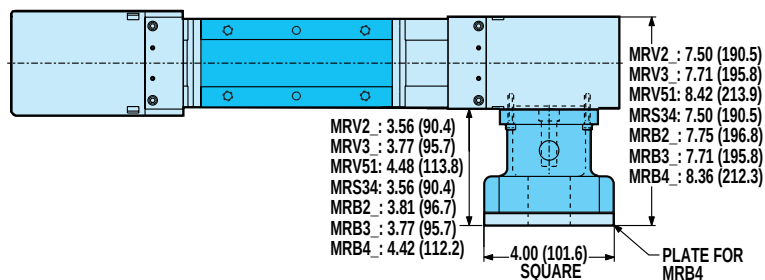
- 3 NOTE:** The scored face of the switch indicates the sensing surface and must face toward the magnet

- ④ NOTE:** Some actuators require switch mounting on a specific side of the actuator. Call Tol-O-Matic 1-800-328-2174 for details

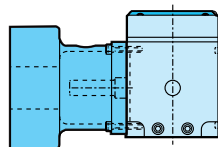
Axi dyne® B3B/M3B20 Series

DIMENSIONS

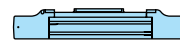
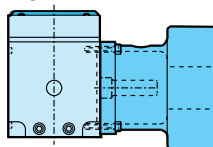
B3BD/M3BD20 DIRECT DRIVE MOTOR MOUNTING



LEFT



RIGHT



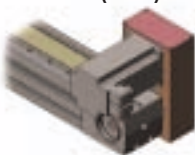
RODLESS

B3B/M3B20 Series

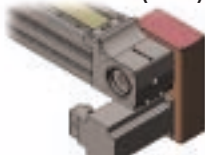
- Direct drive motor mounting
- Reduction drive motor mounting

B3BD/M3BD20 REDUCTION DRIVE MOTOR MOUNTING

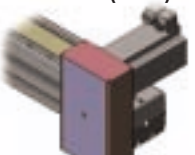
TOP LEFT (SDTL)



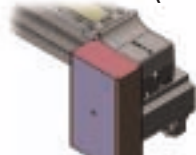
BOTTOM LEFT (SDBL)



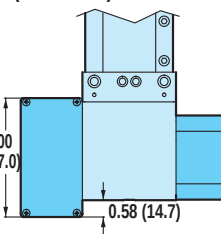
TOP RIGHT (SDTR)



BOTTOM RIGHT (SDBR)



BOTTOM RIGHT (SDBR)
(TOP VIEW)



DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	7.98	202.6	7.34	186.4	1.35	34.3	1.30	33.0
	MRV22	7.98	202.6	8.34	211.8	1.35	34.3	1.30	33.0
	MRV23	7.98	202.6	9.34	237.2	1.35	34.3	1.30	33.0
	MRV24	7.98	202.6	10.34	262.6	1.35	34.3	1.30	33.0
	MRV31	8.49	215.6	8.70	221.0	0.70	17.9	0.70	16.6
	MRV32	8.49	215.6	9.95	252.7	0.70	17.9	0.70	16.6
	MRV33	8.49	215.6	11.20	284.5	0.70	17.9	0.70	16.6
	MRV51	11.66	296.1	12.55	318.8	2.35	59.6	2.35	58.3
STEPPER	MRS342	8.49	215.6	6.35	161.3	0.79	20.0	0.79	18.7
	MRS343	8.49	215.6	7.65	194.3	0.79	20.0	0.79	18.7
BRUSHED	MRB21	7.98	202.6	8.92	226.6	1.35	34.3	1.35	33.0
	MRB31	8.49	215.6	7.66	194.6	0.84	21.4	0.84	20.2
	MRB32	8.49	215.6	10.31	261.9	0.84	21.4	0.84	20.2
	MRB41	8.85	224.8	13.22	335.8	0.47	12.0	0.47	10.8
	MRB42	8.85	224.8	14.22	361.2	0.47	12.0	0.47	10.8

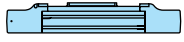
SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in ²	kg-m ² x 10 ⁻⁴
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.229	66.98
	MRV31, 32, 33	3.92	1.78	0.229	66.98
	MRV51	4.78	2.17	0.226	66.11
STEPPER	MRS342, 343	3.84	1.76	0.199	58.20
BRUSHED	MRB21	3.33	1.51	0.208	60.84
	MRB31, 32	3.92	1.78	0.229	66.98
	MRB41, 42	4.62	2.10	0.226	66.11

3:1 REDUCTION EFFICIENCY: 0.95

Axi-dyne® B3B/M3B Belt Drives

ORDERING



RODLESS

B3B/M3B Series

• Ordering

BASE MODEL SPECIFICATIONS

B3BD 20 BWN15 SK56 SDTR

MODEL TYPE

B3B B3B Series English Belt Drive
B3BD B3B Series English Belt Drive with Dual 180° Carrier
M3B B3B Series Metric Belt Drive
M3BD B3B Series Metric Belt Drive with Dual 180° Carrier

TUBE BORE DIAMETER

10 1-inch (25 mm) bore
15 1 1/2-inch (40 mm) bore
20 2-inch (50 mm) bore

BELT MATERIAL AND WIDTH

BWN05 1/2-inch Neoprene/Fiberglass belt (B3B10)
BWN10 1-inch Neoprene/Fiberglass belt (B3B15)
BWN15 1.18-inch Neoprene/Fiberglass belt (B3B20)

STROKE LENGTH

SK Stroke, then enter desired stroke length in decimal inches

MOTOR MOUNTING / REDUCTIONS

(must choose one)

SDL, SDLB* Direct Drive on left
SDR, SDRB* Direct Drive on right

⚠ *A motor size and code must be selected when specifying a 3:1 reduction. Reference the ordering pages in sections F, G and H for the motor types and selections.*

SDTL, SDTLB* 3:1 Reduction on top left
SDTR, SDTRB* 3:1 Reduction on top right
SDBL, SDBLB* 3:1 Reduction on bottom left
SDBR, SDBRB* 3:1 Reduction on bottom right
**For Dual Stub Shaft option*

AUXILIARY CARRIER

DC_ Auxiliary Carrier, then center-to-center spacing desired in decimal inches. (Center-to-Center spacing will add to overall dead length and will not subtract from the stroke length)

OPTIONS SPECIFICATIONS

DC18 TS2 BM2 TN16

SUPPORTS AND MOUNTING PLATES

(both may be selected)

TS_ Tube Supports plus quantity desired
MP_ Mounting Plates plus quantity desired

SWITCHES

RM_ Reed Switch (Form A) with 5-meter lead/QD, and quantity desired
RT_ Reed Switch (Form A) with 5-meter lead, and quantity desired
BM_ Reed Switch (Form C) with 5-meter lead/QD, and quantity desired
BT_ Reed Switch (Form C) with 5-meter lead, and quantity desired
KM_ Hall-effect Sinking Switch with 5-meter lead/QD, and quantity desired
KT_ Hall-effect Sinking Switch with 5-meter lead, and quantity desired
TM_ Hall-effect Sourcing Switch with 5-meter lead/QD, and quantity desired
TT_ Hall-effect Sourcing Switch with 5-meter lead, and quantity desired
CM_ TRIAC Switch with 5-meter lead/QD, and quantity desired
CT_ TRIAC Switch with 5-meter lead, and quantity desired

T-NUTS

TN_ Additional T-Nuts and quantity

TO ORDER MOTORS/CONTROLS/INTERFACES

BRUSHLESS SERVO (SEE PAGE F-33)

MICROSTEPPING (SEE PAGE G-23)

BRUSHED DC (SEE PAGE H-26)

⚠ *Not all codes listed are compatible with all options.*

Use the Tol-O-Motion™ Sizing Software to determine available options and accessories based on your application requirements.

FIELD RETROFIT KITS

ITEM	B3B10	B3B15	B3B20	M3B10	M3B15	M3B20
Tube Supports	3410-9006	3415-90096	3420-9006	4410-9006	4415-9006	4420-9006
Tube Supports (B3BD Dual 180° models)	3410-9170	3415-9170	3420-9170	4410-9170	4415-9170	4420-9170
1/2" Mounting Plates (MRB/MRS/MRV 23-frame motors)	3410-9056	3415-9056	—	3410-9056	3415-9056	—
1/2" Mounting Plates (MRB/MRS/MRV all frame motors)	—	—	3420-9056	—	—	3420-9056
1" Mounting Plates (MRB/MRS 23-frame; MRV all frame motors)	3410-9057	—	—	3410-9057	—	—
1" Mounting Plates (MRB/MRS/MRV 34-frame motors)	—	3415-9057	—	—	3415-9057	—