Tolomatic
EXCELLENCE *IN MOTION*®

B3W RODLESS BELT ACTUATOR

engineered for long life with

ENDURANCE TECHNOLOGY℠

LINEAR SOLUTIONS MADE EASY

B3W Rodless Belt Actuator

ENDURANCE TECHNOLOGY℠

Look for this endurance technology symbol indicating our durability design features

The B3W rodless style actuator is designed for carrying moderate to heavy loads at moderate to high speeds with large bending moment capacities. Based upon the BC3 pneumatic band cylinder, it utilizes a patented integral recirculating ball bearing guidance system that provides consistent and durable performance. Customized stroke lengths up to 292 inches are available. Contact your local distributor or Tol-O-Matic for more information.

MADE IN U.S.A.

YOUR MOTOR HERE

YOU CAN CHOOSE:

- Motor or gearbox supplied and installed by TOL-O-MATIC
- Specify the device to be installed and actuator ships with proper mounting hardware
- Specify and ship your device to TOL-O-MATIC for factory installation

MULTIPLE BELT TECHNOLOGIES

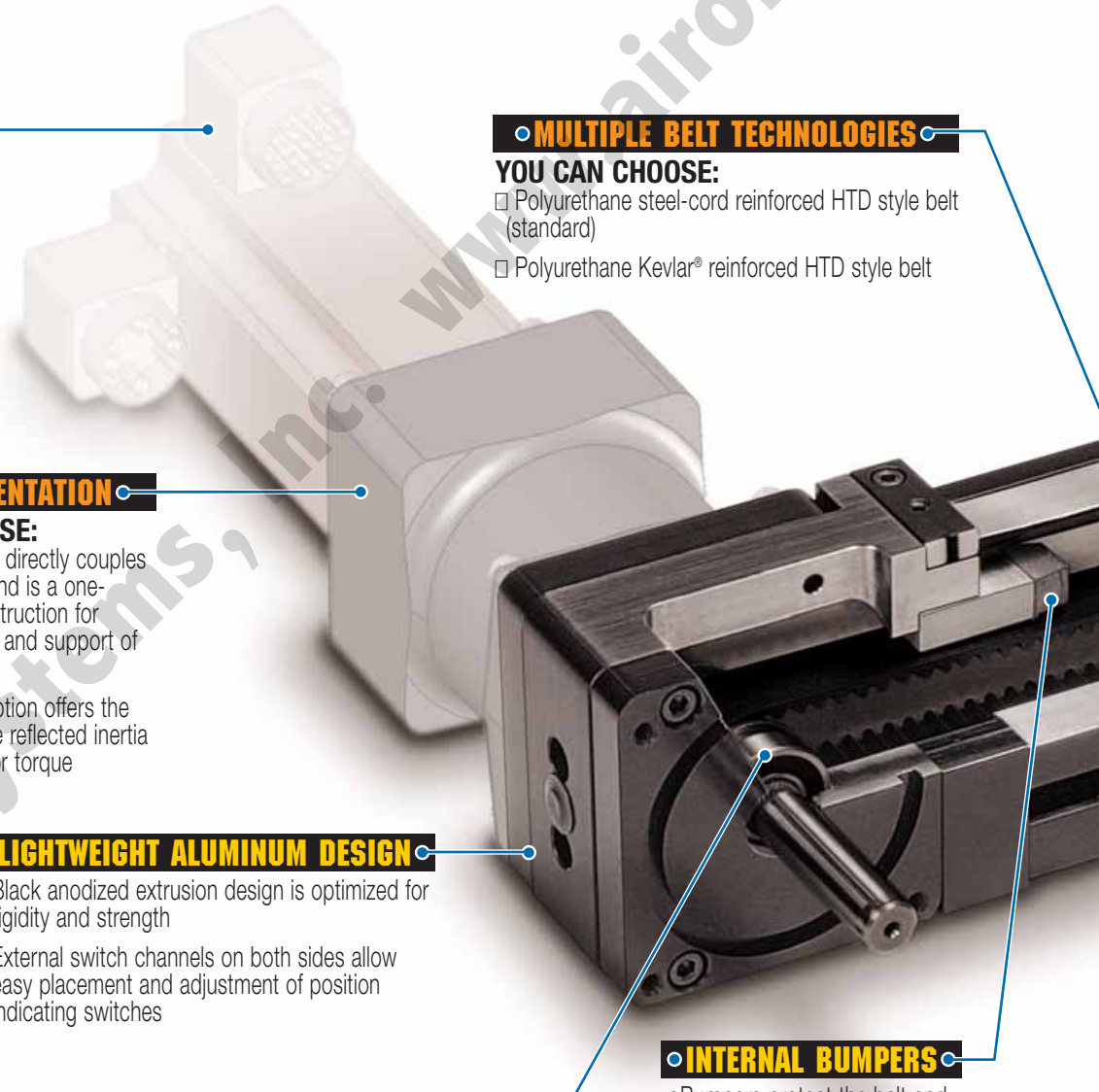
YOU CAN CHOOSE:

- Polyurethane steel-cord reinforced HTD style belt (standard)
- Polyurethane Kevlar® reinforced HTD style belt

MOTOR ORIENTATION

YOU CAN CHOOSE:

- Direct drive option directly couples the driving shafts and is a one-piece housing construction for optimum alignment and support of the motor
- Reduction drive option offers the ability to reduce the reflected inertia and lower the motor torque requirements



LIGHTWEIGHT ALUMINUM DESIGN

- Black anodized extrusion design is optimized for rigidity and strength
- External switch channels on both sides allow easy placement and adjustment of position indicating switches

INTERNAL BUMPERS

- Bumpers protect the belt and clamp assembly from damage at end of stroke

OVERSIZED PULLEY BEARINGS

- Drive shaft assembly incorporates sealed ball bearings for complete support of the increased belt tension at high speeds

B3W Rodless Belt Actuator

TOLOMATIC…LINEAR SOLUTIONS MADE EASY

PATENTED WEDGE BEARING SYSTEM

- Unique design incorporates hardened steel race-ways integral to the aluminum extrusion
- Bearing surfaces are adjusted at the factory for optimum preload and smooth performance

FORMED END CAP WIPERS

- Prevents contam-inants from entering the sealing band area to protect internal components

BELT TENSIONING SYSTEM

- Full access to the idle pulley allows ease of adjustment for alignment and tensioning
- Dual adjustment screws and field tensioning kit provide simple maintenance

STAINLESS STEEL SEALING BAND

- Prevents contaminants from entering the bearing area for extended performance
- Fatigue resistant stainless steel bands are specifically made to offer long life and will not elongate
- Provides IP44 protection for bearings and belt

LOAD-BEARING CARRIER DESIGN

- Recirculating ball bearing system provides guidance, high efficiency and long life
- Load and moments are transmitted directly to the actuator body

OPTIONS

CARRIER OPTIONS

☐ **AUXILIARY CARRIER** doubles the load capacity and increases pitch and yaw bending moment capacities

☐ **DUAL 180° CARRIER** increases the load capacity, increases roll and yaw bending moment capacities and offers a wide mounting platform

MOUNTING OPTIONS

☐ **SURFACE MOUNT** two t-slots are integral on the entire underside of the actuator body for direct mounting

☐ **TUBE SUPPORTS** provide intermediate support of the actuator body throughout long stroke lengths

☐ METRIC OPTION

Provides metric tapped holes for mounting of load to carrier and of actuator to mating surfaces

☐ SWITCHES

Styles include: reed, Hall-effect or triac

B3W Rodless Belt Actuator

ADVANTAGES AND APPLICATIONS

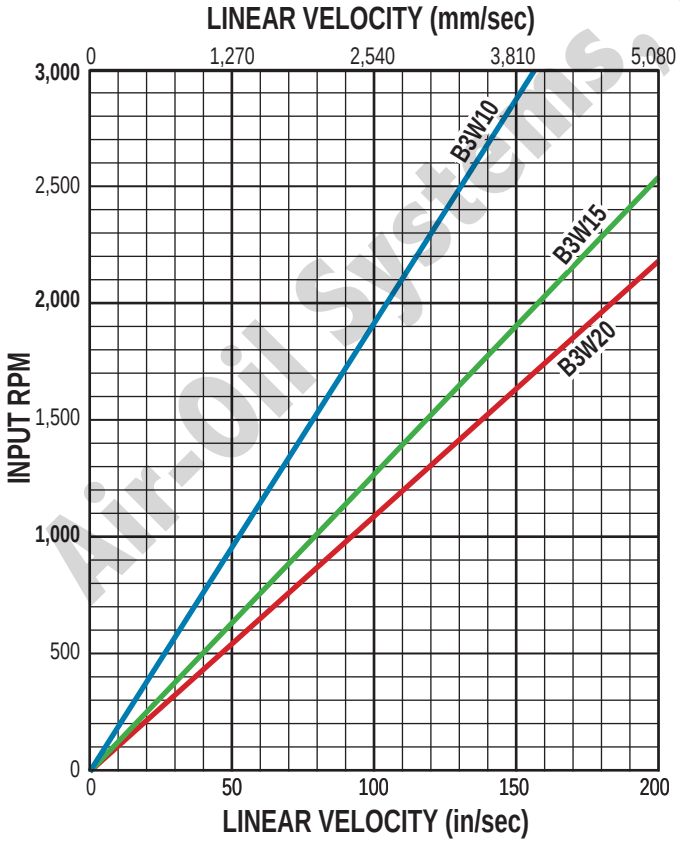
ADVANTAGES OF BELT SOLUTIONS

The use of synchronous belts, often referred to as timing belts, have become a standard in the automated motion industry as an alternate to screw drive mechanisms for producing linear motion. This design for linear motion provides an excellent solution for applications that require:

- High-speed linear velocities
- High acceleration rates
- Long length strokes
- Excellent repeatability
- High duty cycles

A belt solution is ideal for linear positioning and gantry applications. Linear velocities can now reach up to 200 in/sec with acceleration rates at 1200 in/sec^2. Belting material is available in lengths that allow stroke lengths over 24 feet, two to three times longer than screw actuators.

CARRIER SPEED CAPABILITIES

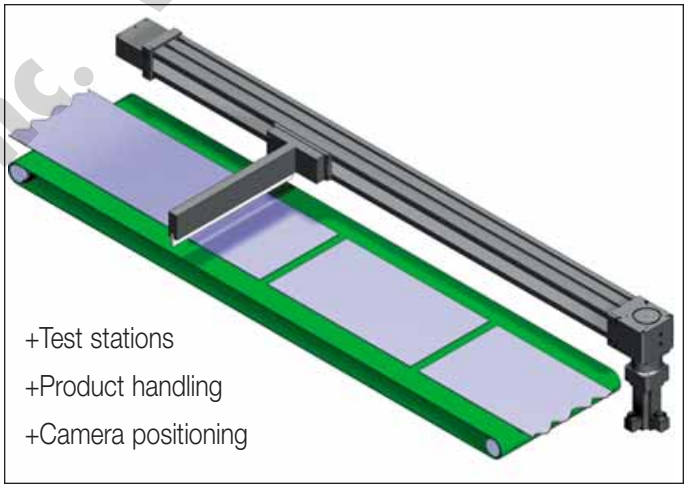


APPLICATION OF BELT ACTUATORS

A rodless belt actuator integrates the advantages of a linear belt solution with a load support and guidance system. This combination allows you to install a pre-assembled and compact solution, often without the need of external guide rails or load support systems. Available in multiple frame sizes with options such as dual carriers and dual support systems, you can choose the proper level of load and moment support required by your application. The result of this combination is a belt actuator that is:

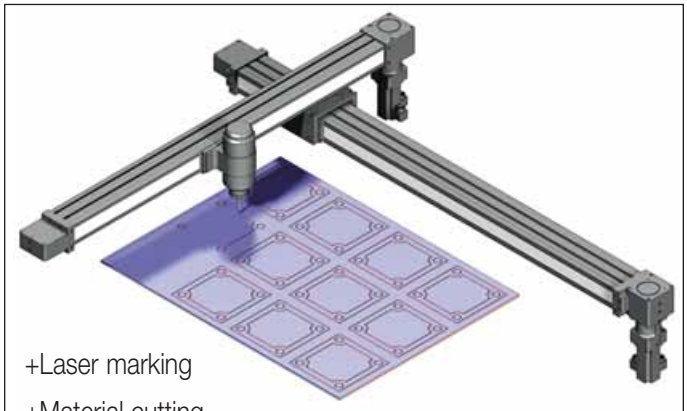
- Easy to size, design and order
- Quick to install and maintain
- Simple to integrate and control
- Provides a lower installed cost

APPLICATION: High Speed Flying Cut Off



+Test stations
+Product handling
+Camera positioning

APPLICATION: X-Y Gantry



+Laser marking
+Material cutting
+Adhesive dispensing

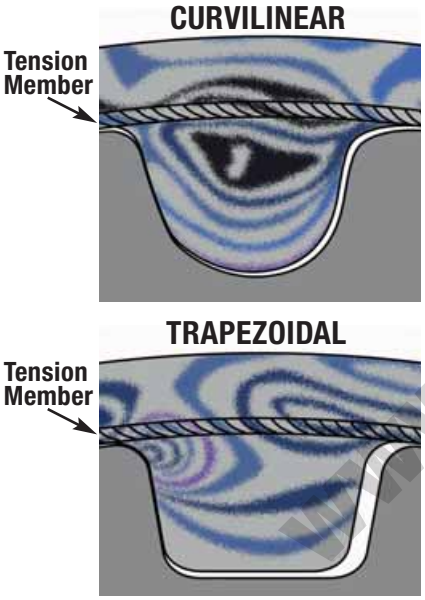
B3W Rodless Belt Actuator

BELT CONSTRUCTION AND PERFORMANCE

BELT CONSTRUCTION

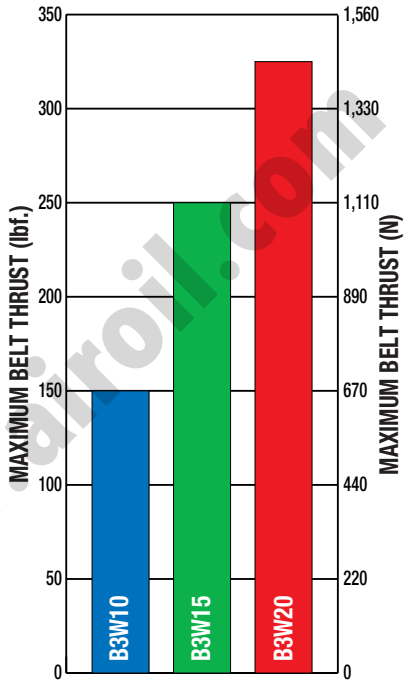
ENDURANCE TECHNOLOGY℠

Tolomatic installs an HTD synchronous belt in the B3W product line which features a curvilinear tooth profile. This type of tooth profile distributes tooth load more evenly and provides greater tooth shear strength, allowing for higher thrust loading. The deep teeth of the HTD profile are more cogging-resistant at a given tension, preventing potentially damaging positioning errors.

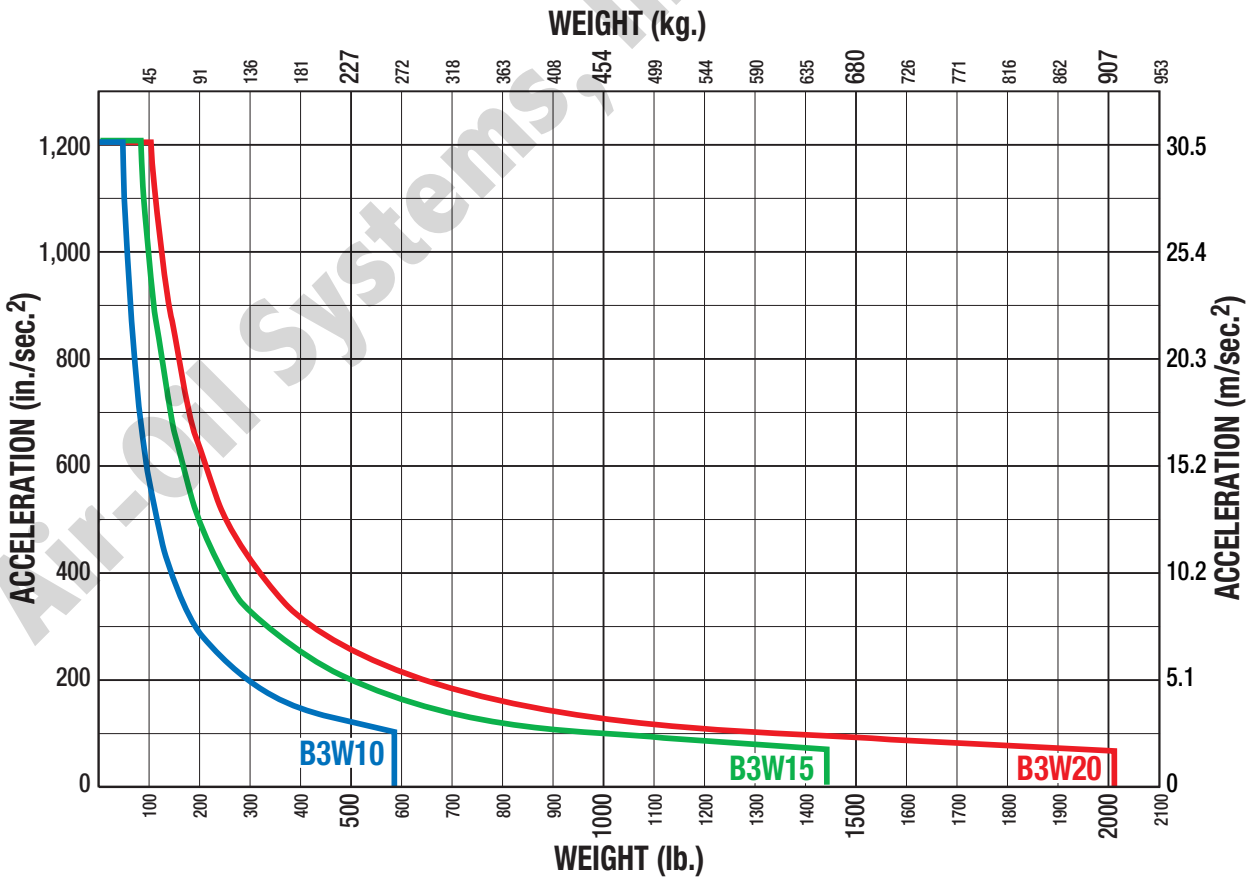


Our standard belt is a polyurethane material reinforced with steel tension members to produce high carrier thrusts without belt stretch. A Kevlar® reinforced belt featuring equal thrust capability is also available for applications that may experience high shock loading.

MAXIMUM BELT THRUST



MAXIMUM ACCELERATION AS A FUNCTION OF LOAD WEIGHT



B3W Rodless Belt Actuator

OVERALL SERIES SPECIFICATIONS

SIZING SOFTWARE AVAILABLE AT WWW.TOLOMATIC.COM

B3W SPECIFICATIONS

		STANDARD				METRIC		
		B3W10	B3W15	B3W20		M3W10	M3W15	M3W20
Max. Stroke	in	204	204	156	mm	5,182	5,182	3,962
Max. Velocity	in/sec	200	200	200	m/sec	5.08	5.08	5.08
Max. Acceleration	in/sec^2	1,200	1,200	1,200	m/sec^2	30.48	30.48	30.48
Max. Input Torque	lb-in	75.23	112.80	244.40	N-m	8.50	12.75	27.61
Breakaway Torque	lb-in	9.38	12.50	28.13	N-m	1.06	1.41	3.18
Dual 180 or Aux Carrier	lb-in	11.88	15.00	31.25	N-m	1.34	1.69	3.53
Dual 180 & Aux Carrier	lb-in	16.88	25.00	47.50	N-m	1.91	2.82	5.37
Pulley Pitch Dia.	in	1.003	1.504	1.754	mm	25.48	38.20	44.55
Stoke per Rev.	in/rev	3.151	4.725	5.510	mm/rev	80.04	120.02	139.95
Repeatability	in	+/- 0.002	+/- 0.002	+/- 0.002	mm	+/- 0.05	+/- 0.05	+/- 0.05
Straightness & Flatness[1]	in	0.00067 x L	0.00067 x L	0.00067 x L	mm	0.017 x L	0.017 x L	0.017 x L
Temp. Range[2]	°F	40 - 130	40 - 130	40 - 130	°C	4 - 54	4 - 54	4 - 54
IP Rating[3]	IP	44	44	44	IP	44	44	44
Weight (zero stroke)	lb	7.54	25.12	35.40	kg	3.42	11.39	16.06
Weight (per unit of stroke)	lb/in	0.389	0.395	0.716	kg/mm	0.0069	0.0071	0.0128
Weight of pulley	lb	0.015	0.054	0.1036	kg	0.0068	0.0244	0.0470
Weight of carrier	lb	0.85	1.56	2.14	kg	0.39	0.71	0.97
Inertia (zero stroke)	lb-in^2	0.2846	1.3917	2.6607	kg-cm^2	0.833	4.073	7.786
Inertia (per unit of stroke)	lb-in^2/in	0.0016	0.0017	0.0114	kg-cm^2/mm	0.00018	0.00020	0.00131
Inertia of pulley	lb-in^2	0.0093	0.0748	0.1441	kg-cm^2	0.027	0.219	0.422
Inertia of carrier	lb-in^2	0.1041	0.5089	0.9728	kg-cm^2	0.305	1.489	2.847

[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.*

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.

NOTE: Zero stroke inertia and weight are for an assembled actuator (including carrier, pulley and belt material) that has zero stroke length. To calculate system inertia use the formula below:

System Inertia = Inertia (zero stroke) + [Inertia (per unit of stroke) x number of units]

(For weight calculation substitute inertia with weight in the above formula)

B3W Rodless Belt Actuator

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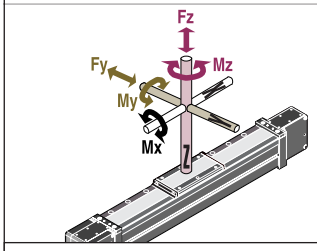
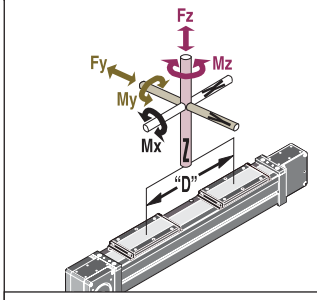
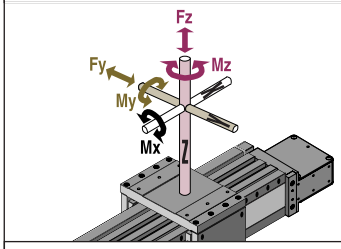
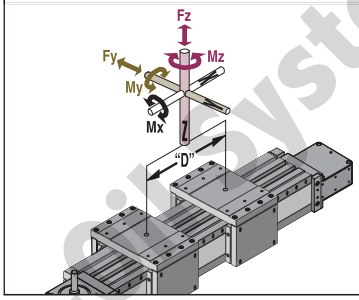
DYNAMIC BENDING MOMENTS AND LOADS

			STANDARD			METRIC		
STANDARD CARRIER			**B3W10**	**B3W15**	**B3W20**	**M3W10**	**M3W15**	**M3W20**
	**Mx Moment** (Roll)	(lb-in : N-m)	250	859	1,662	28.2	97.1	187.8
	My Moment (Pitch)	(lb-in : N-m)	269	1,033	1,472	30.4	116.7	166.3
	Mz Moment (Yaw)	(lb-in : N-m)	156	596	850	17.6	67.3	96.0
	Fy Load (Radial)	(lb : N)	341	840	1,159	1,517	3,737	5,155
	Fz Load (Lateral)	(lb : N)	591	1454	2008	2,629	6,468	8,932
AUXILIARY CARRIER: Increases rigidity, load-carrying capacity and moments			**B3W10**	**B3W15**	**B3W20**	**M3W10**	**M3W15**	**M3W20**
	**Mx Moment** (Roll)	*(lb-in : N-m)	500	1,718	3,324	56.5	194.1	375.6
	My Moment (Pitch)	*(lb-in : N-m)	2,825	11,734	16,265	319.2	1,325.8	1,837.7
	Mz Moment (Yaw)	*(lb-in : N-m)	1,630	6,779	9,388	184.2	765.9	1,060.7
	Fy Load (Radial)	(lb : N)	682	1,680	2,318	3,034	7,473	10,311
	Fz Load (Lateral)	(lb : N)	1,182	2,908	4,016	5,258	12,935	17,864
	Minimum Dimension 'D'	(in : mm)	4.88	8.07	8.10	124.0	205.2	205. 7
DUAL 180° CARRIER: Allows 90° rotation of load, adds load bearing surface			**B3WD10**	**B3WD15**	**B3WD20**	**M3WD10**	**M3WD15**	**M3WD20**
	**Mx Moment** (Roll)	(lb-in : N-m)	657	2,468	4,527	74.2	278.8	511.5
	My Moment (Pitch)	(lb-in : N-m)	312	1,192	1,700	35.3	134.7	192.1
	Mz Moment (Yaw)	(lb-in : N-m)	538	2,066	2,944	60.8	233.4	332.6
	Fy Load (Radial)	(lb : N)	1,182	2,908	4,016	5,258	12,935	17,864
	Fz Load (Lateral)	(lb : N)	682	1,680	2,318	3,034	7,473	10,311
AUXILIARY DUAL 180° CARRIER: Substantially increases moment and loads			**B3WD10**	**B3WD15**	**B3WD20**	**M3WD10**	**M3WD15**	**M3WD20**
	**Mx Moment** (Roll)	*(lb-in : N-m)	1,314	4,936	9,054	148.5	557.7	1,023.0
	My Moment (Pitch)	*(lb-in : N-m)	3,328	13,558	18,776	376.0	1,531.9	2,121.4
	Mz Moment (Yaw)	*(lb-in : N-m)	5,768	23,468	32,530	651.7	2,651.5	3,675.4
	Fy Load (Radial)	(lb : N)	2,364	5,816	8,032	10,516	25,871	35,728
	Fz Load (Lateral)	(lb : N)	1,364	3,360	4,636	6,067	14,946	20,622
	Minimum Dimension 'D'	(in : mm)	4.88	8.07	8.10	124.0	205.0	205.7

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 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 7.

B3W Rodless Belt Actuator

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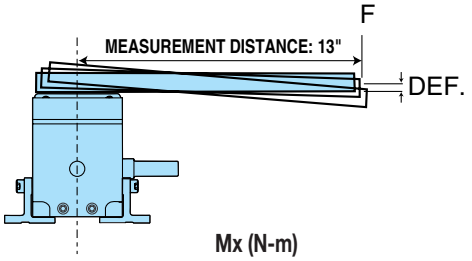
LOAD DEFLECTION

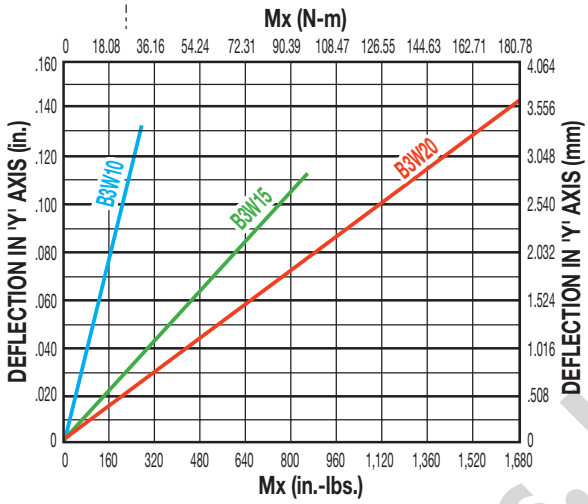
Y-AXIS DEFLECTION

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



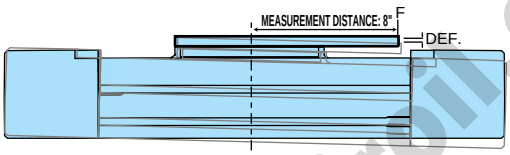


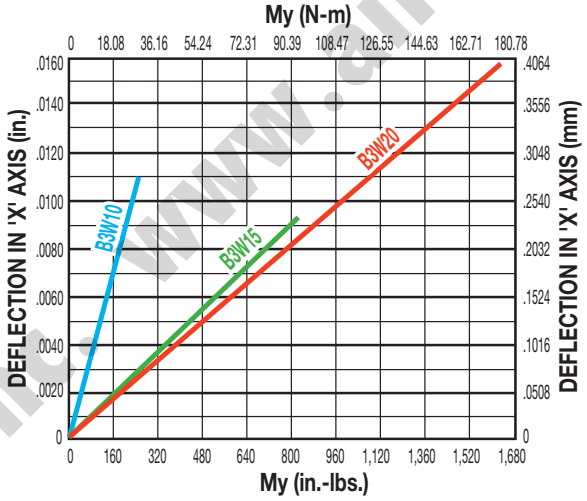
X-AXIS DEFLECTION

Figures calculated with the following considerations:

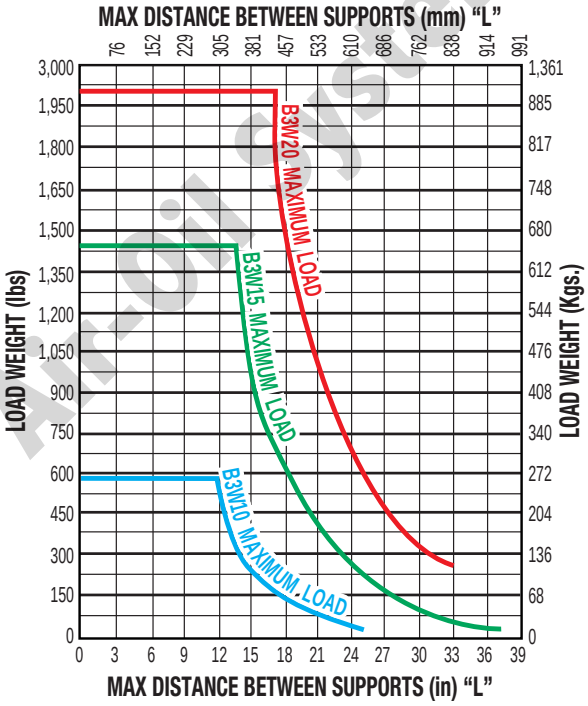
1.) Tube supports spaced at minimum distances for each bore size

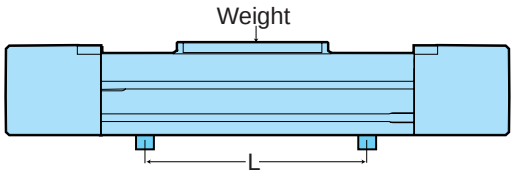
2.) Measurement distance from F to center of carrier is 8 inches





SUPPORT RECOMMENDATIONS





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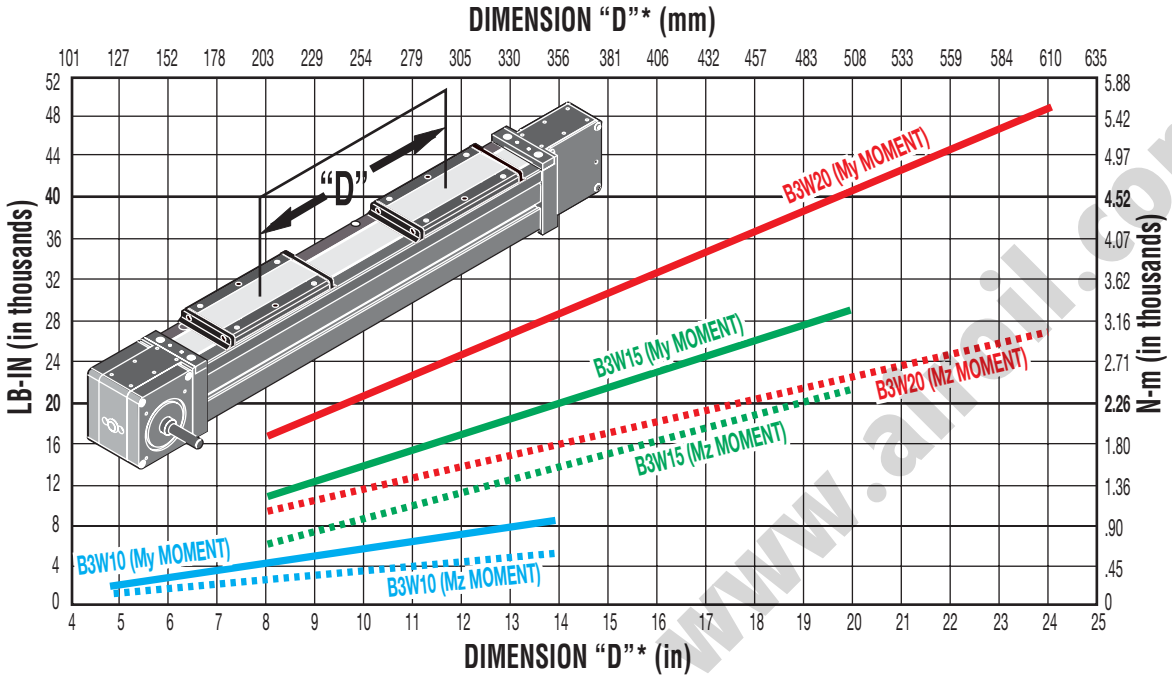
SIZING SOFTWARE

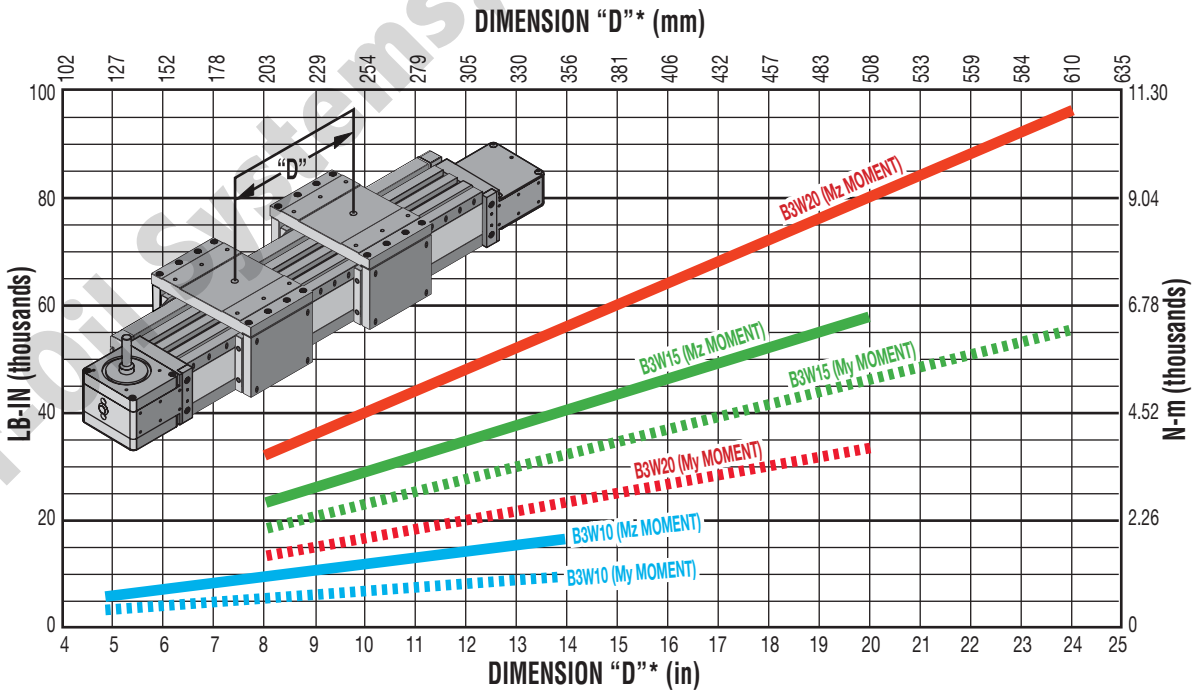
AUXILIARY CARRIER: BENDING MOMENT AT 'D' DISTANCE



Rates shown on charts 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 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.

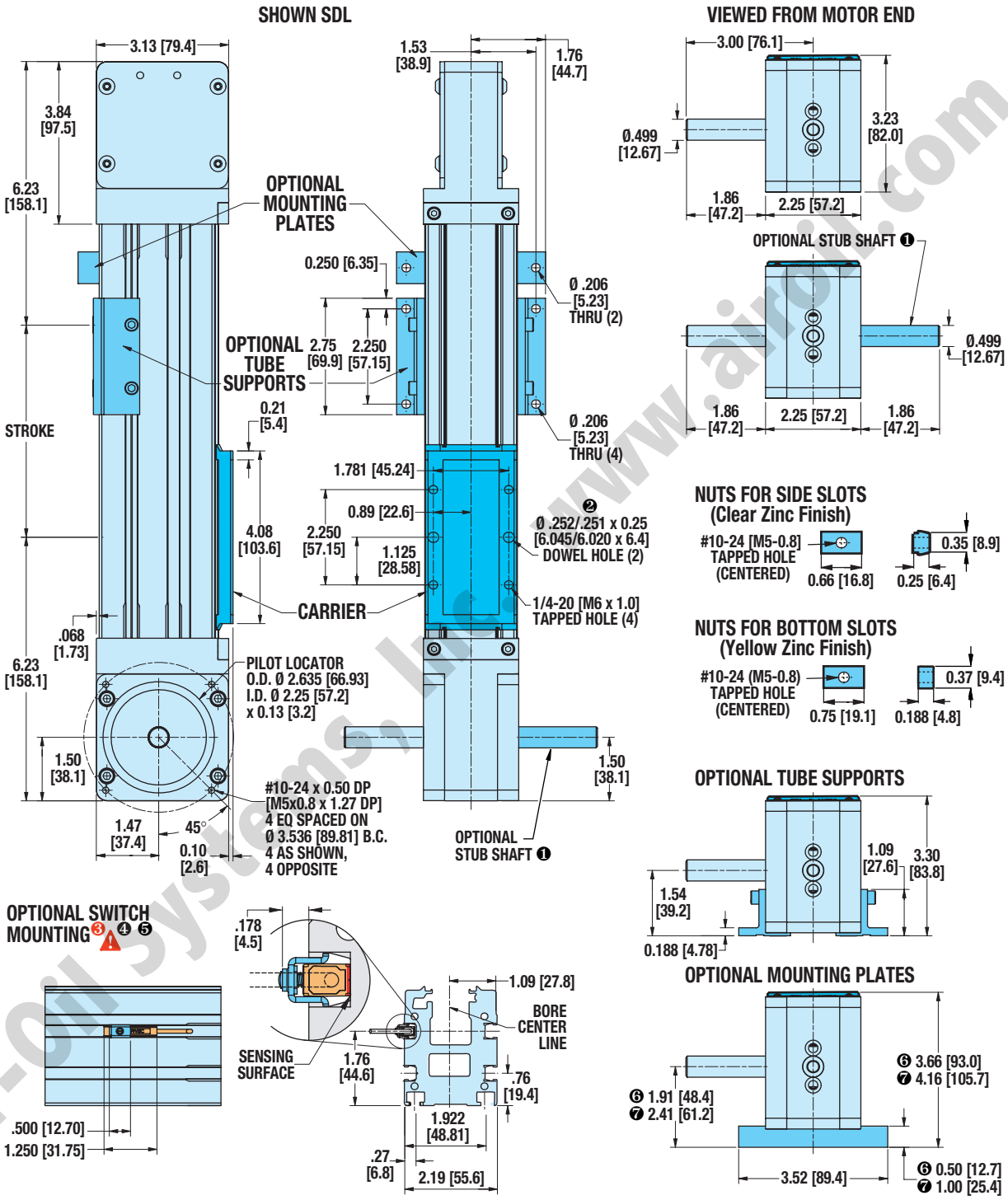
* Customer must specify Dimension "D" (Distance between carrier center lines) in configuration string.

B3W10 Rodless Belt Actuator

DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM
WWW.3DCONTENTCENTRAL.COM

B3W10 ACTUATOR AND OPTIONS



❶ ONE STUB SHAFT IS STANDARD ON ALL B3W ACTUATORS

❷ DOWEL PINS ⌖ .003 (.08mm) Ⓜ

❸ ⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

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

❻ WHEN USED WITH 23-FRAME MOTORS

❼ WHEN USED WITH 34-FRAME MOTORS

Unless otherwise noted, all dimensions shown are in inches [Dimensions in brackets are in millimeters]

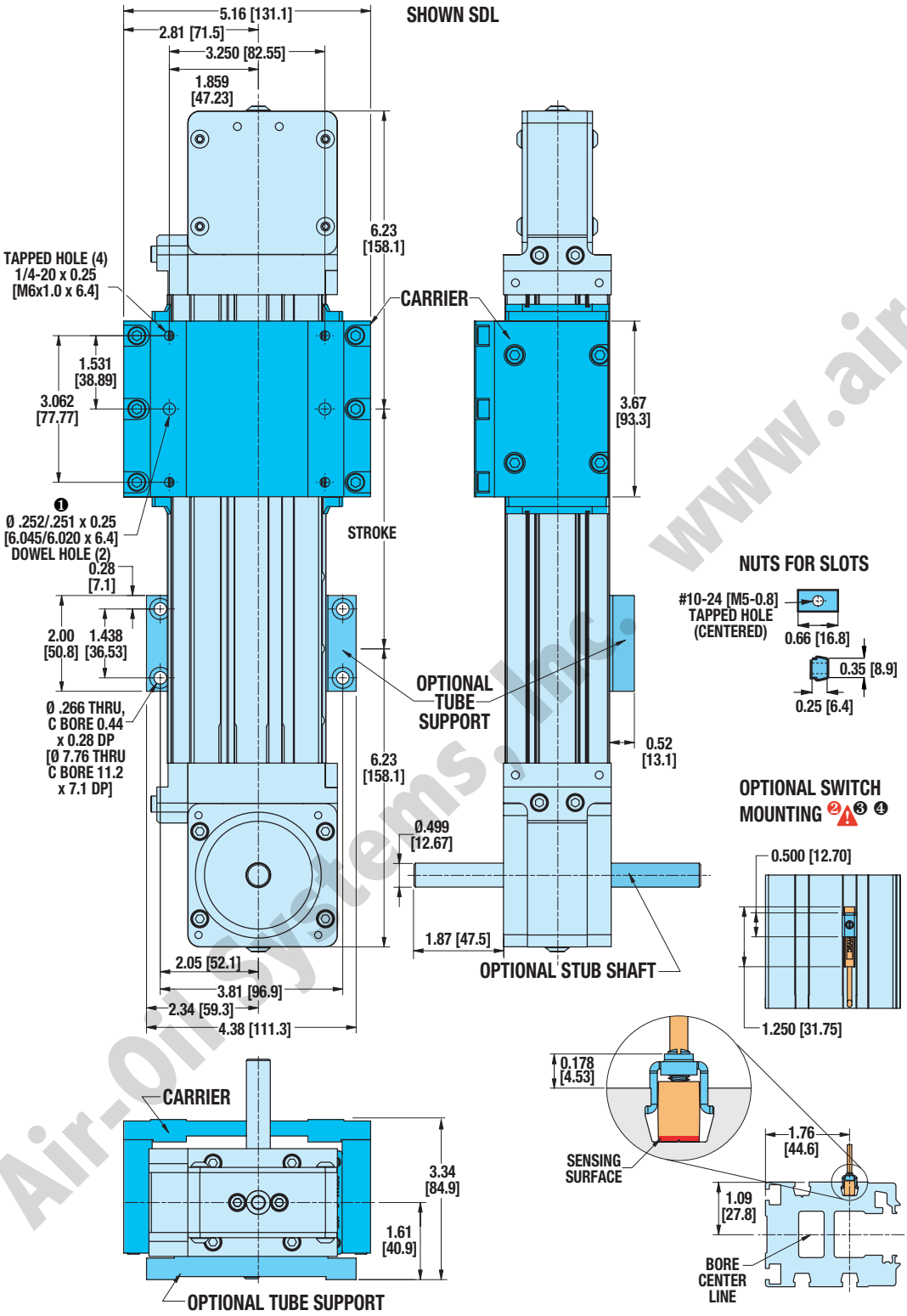
B3W10 Rodless Belt Actuator

DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

WWW.3DCONTENTCENTRAL.COM

B3WD10 DUAL 180° OPTION



❶ DOWEL PINS ⌖ .003 (.08mm) Ⓜ

❷⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

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

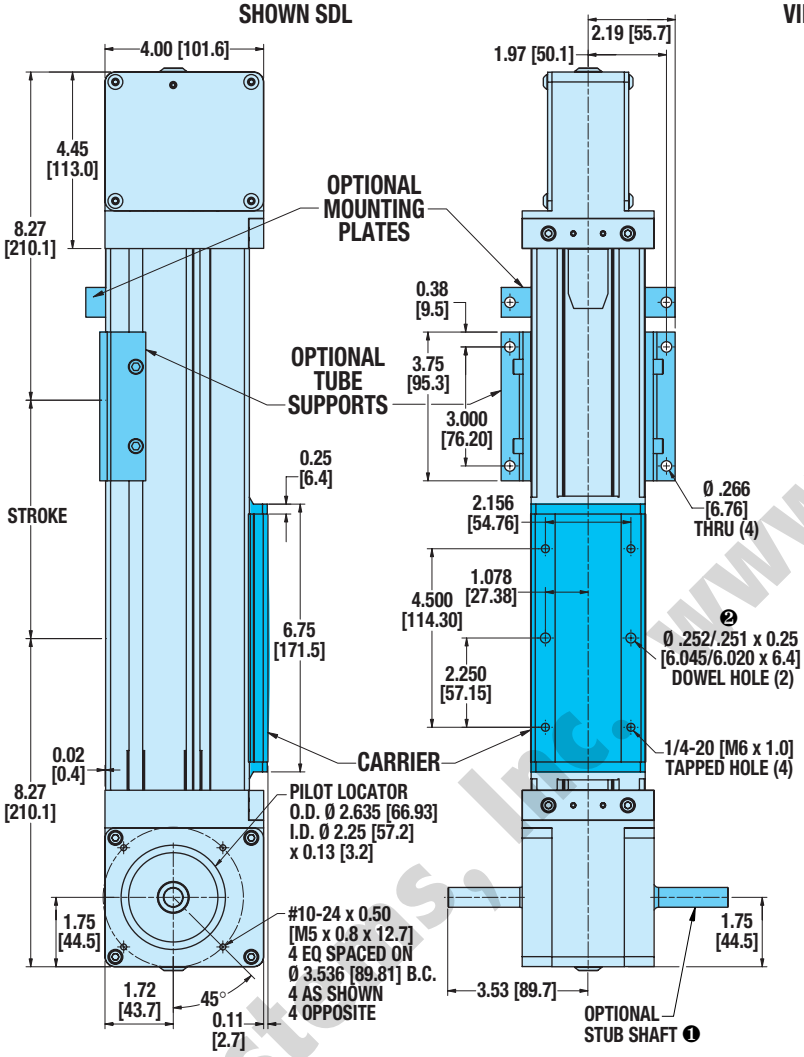
B3W15 Rodless Belt Actuator

DIMENSIONS

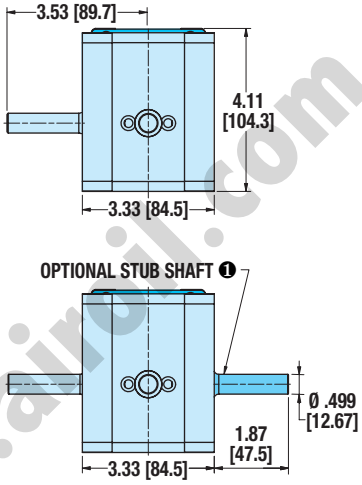
3D CAD AVAILABLE AT WWW.TOLOMATIC.COM
WWW.3DCONTENTCENTRAL.COM

B3W15 ACTUATOR AND OPTIONS

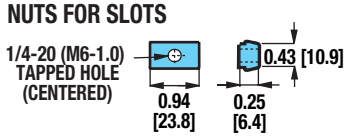
SHOWN SDL



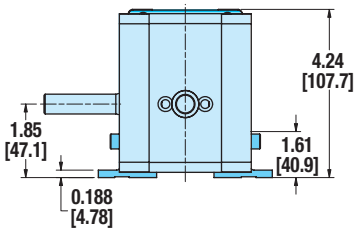
VIEWED FROM MOTOR END



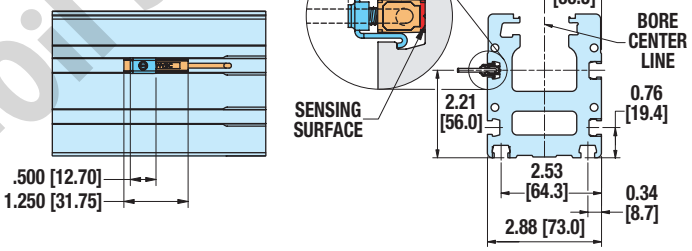
NUTS FOR SLOTS



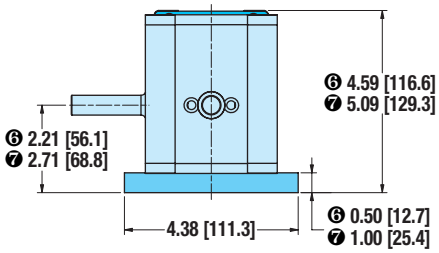
OPTIONAL TUBE SUPPORTS



OPTIONAL SWITCH MOUNTING ❸ ❹ ❺



OPTIONAL MOUNTING PLATES



❶ ONE STUB SHAFT IS STANDARD ON ALL B3W ACTUATORS

❷ DOWEL PINS ⌖ .003 (.08mm) Ⓜ

❸ ⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

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

❻ WHEN USED WITH 23-FRAME MOTORS

❼ WHEN USED WITH 34-FRAME MOTORS

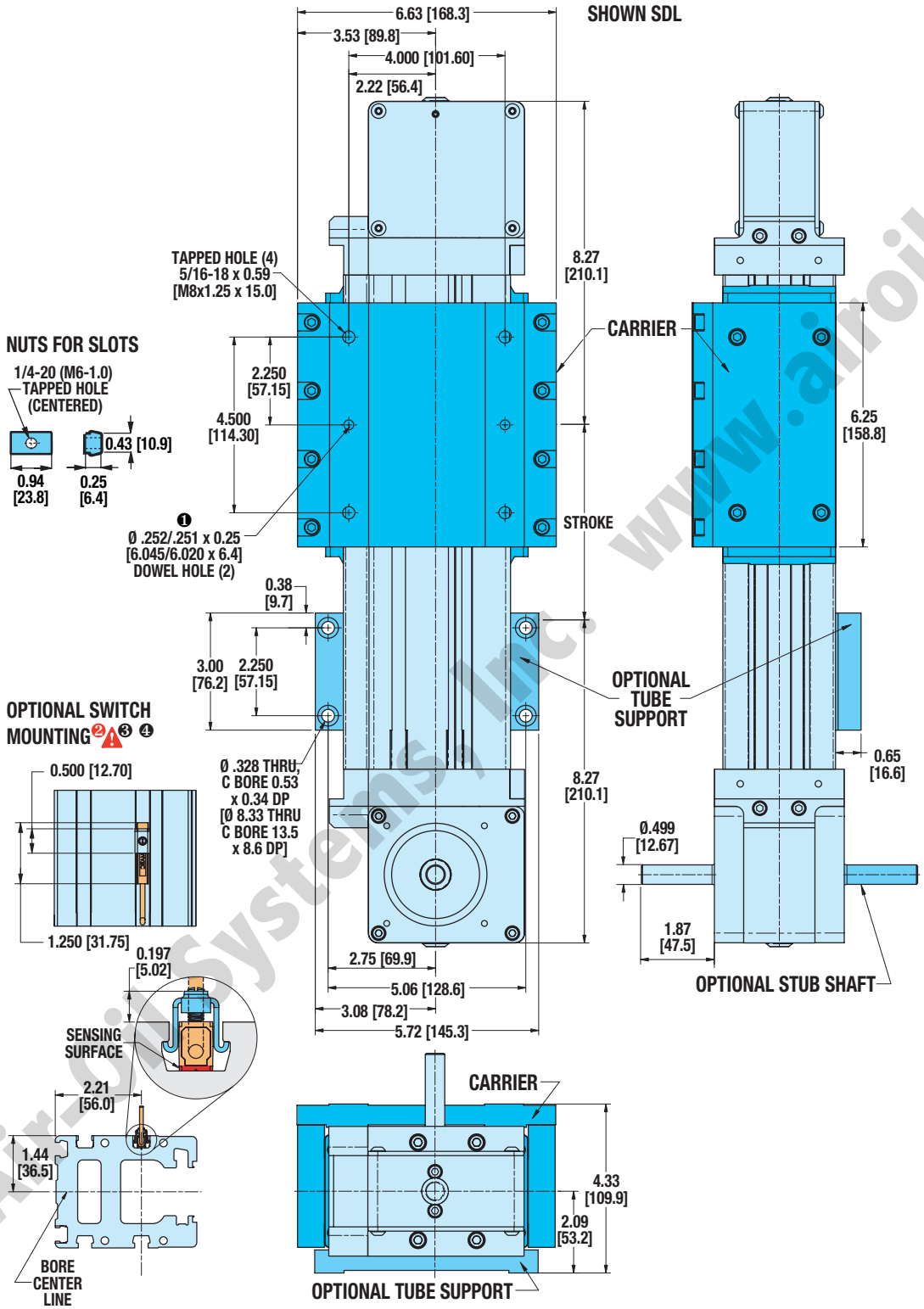
Unless otherwise noted, all dimensions shown are in inches [Dimensions in brackets are in millimeters]

B3W15 Rodless Belt Actuator

DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

B3WD15 DUAL 180° OPTION



❶ DOWEL PINS ⌖ .003 (.08mm) Ⓜ

❷⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

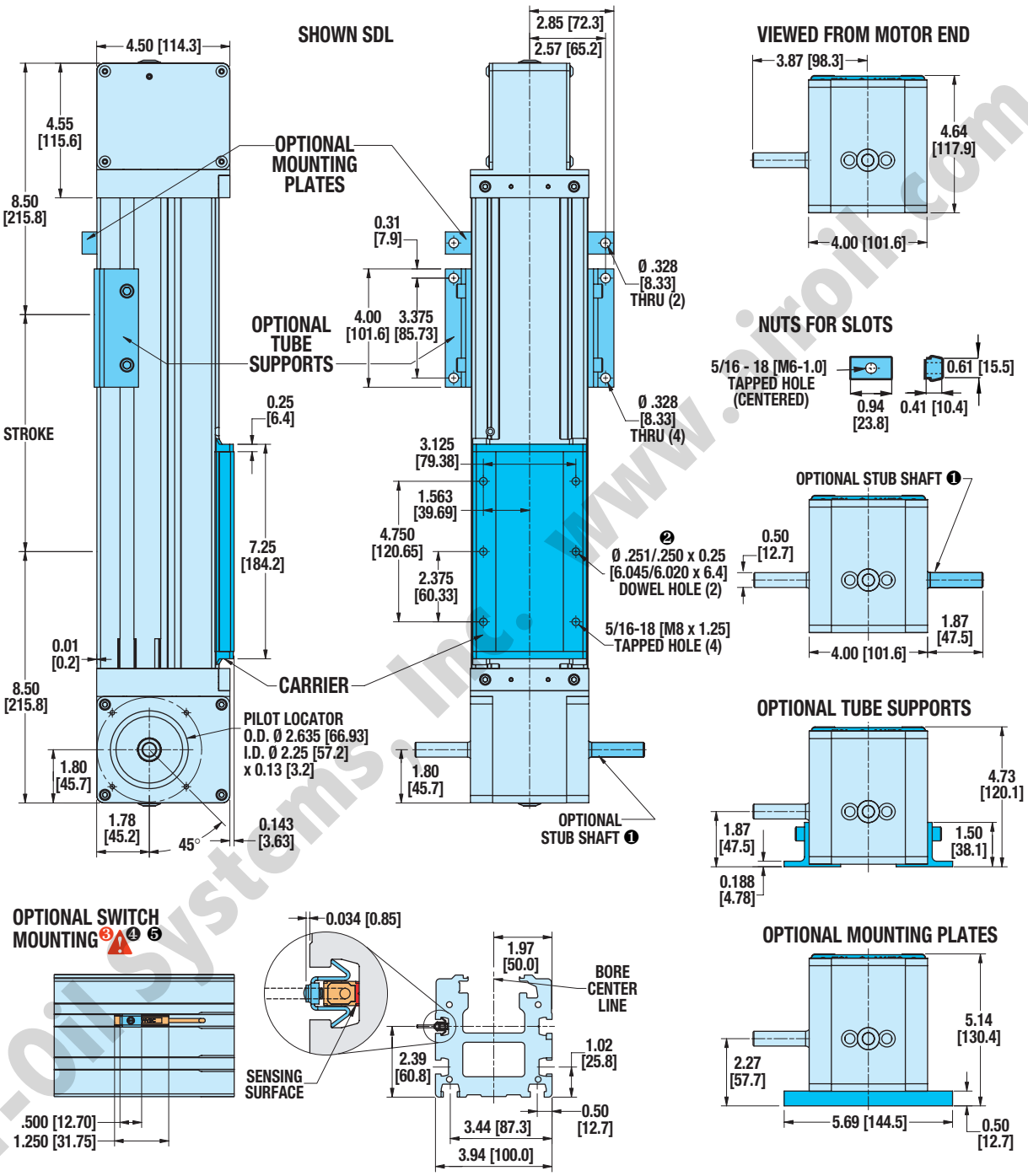
❹ NOTE: Some actuators require switch mounting on a specific side of the actuator. Call Tol-O-Matic 1-800-328-2174 for details

B3W20 Rodless Belt Actuator

DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM
WWW.3DCONTENTCENTRAL.COM

B3W20 ACTUATOR AND OPTIONS



❶ ONE STUB SHAFT IS STANDARD ON ALL B3W ACTUATORS

❷ DOWEL PINS ⌖ | .003 (.08mm) | Ⓜ

❸ ⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

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

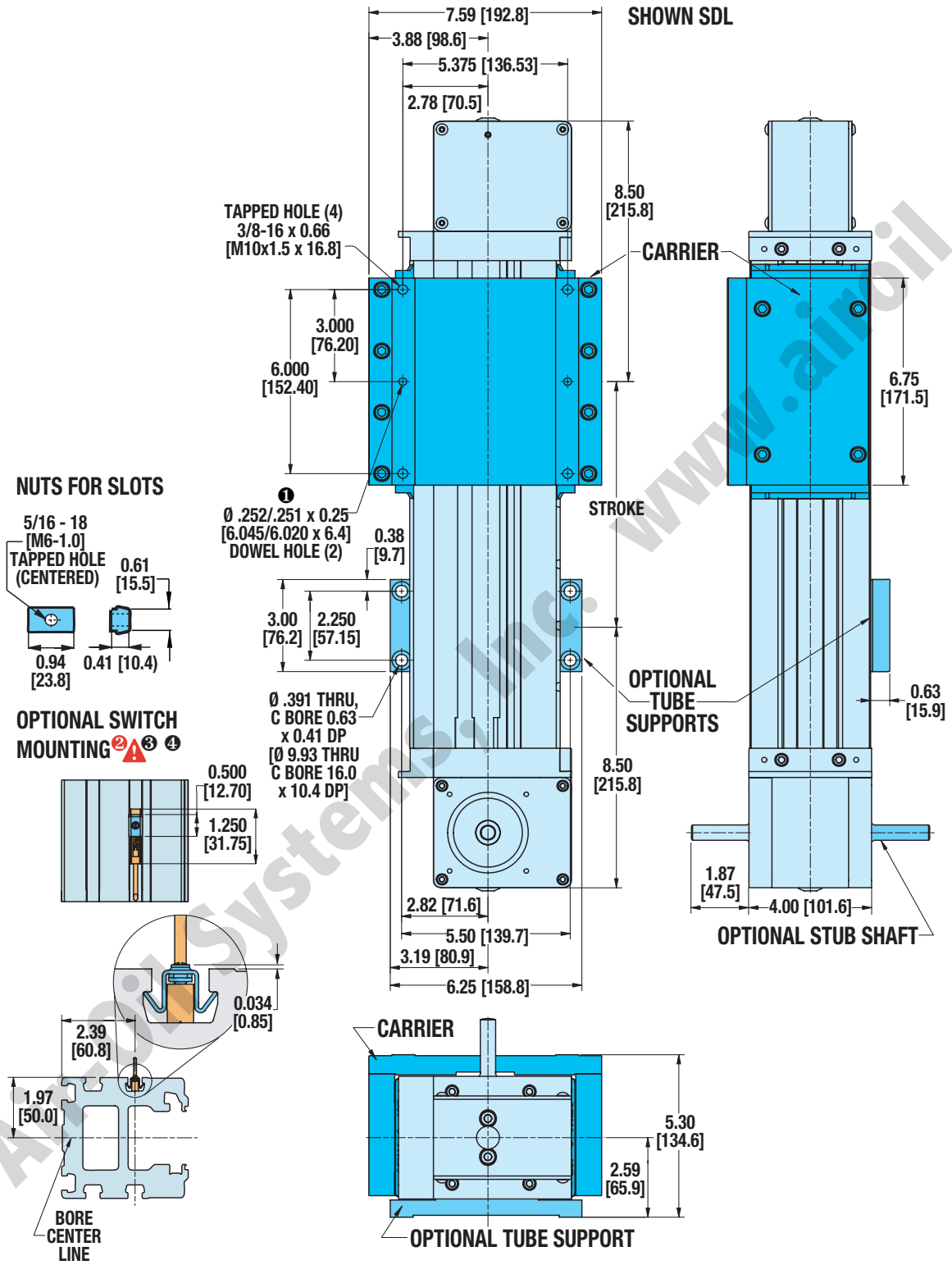
Unless otherwise noted, all dimensions shown are in inches [Dimensions in brackets are in millimeters]

B3W20 Rodless Belt Actuator

DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

B3WD20 DUAL 180° OPTION



❶ DOWEL PINS ⌖ .003 (.08mm) Ⓜ

❷ ⚠ CAUTION: DO NOT OVERTIGHTEN SWITCH HARDWARE WHEN INSTALLING

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

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

B3W10 Rodless Belt Actuator

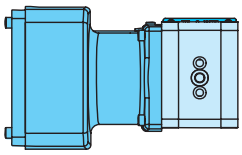
DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

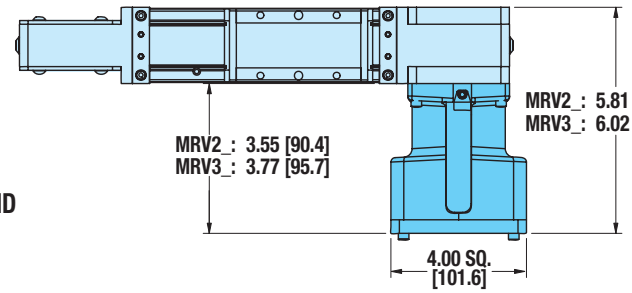
WWW.3DCONTENTCENTRAL.COM

B3W(D)10 DIRECT DRIVE MOTOR MOUNTING

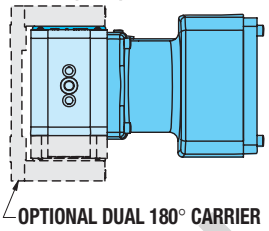
LEFT (SDL)



VIEWED FROM MOTOR END

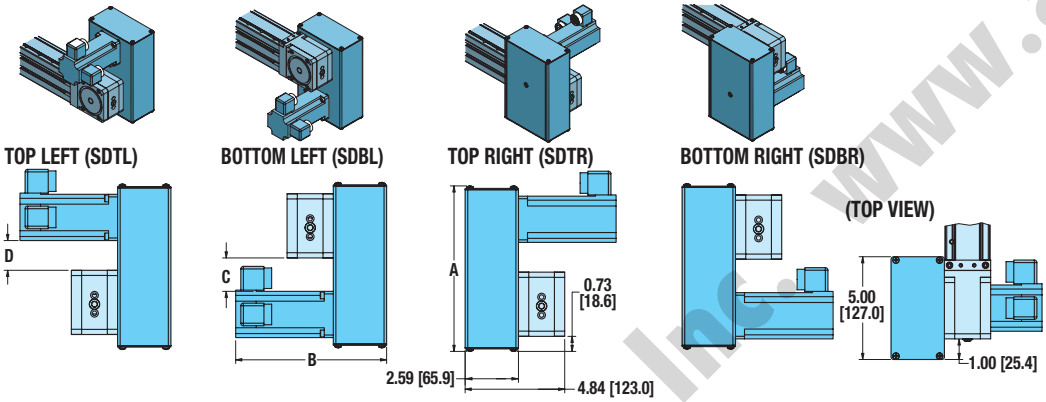


RIGHT (SDR)

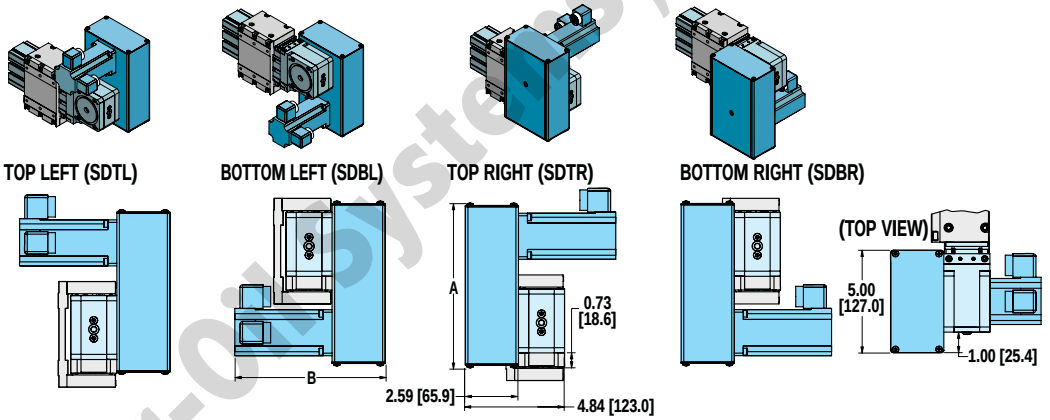


B3W(D)10 REDUCTION DRIVE MOTOR MOUNTING

STANDARD CARRIER



DUAL 180° CARRIER



DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	8.05	204.5	7.34	186.4	1.63	41.4	1.44	36.6
	MRV22	8.05	204.5	8.34	211.8	1.63	41.4	1.44	36.6
	MRV23	8.05	204.5	9.34	237.2	1.63	41.4	1.44	36.6
	MRV24	8.05	204.5	10.34	262.6	1.63	41.4	1.44	36.6
	MRV31	8.57	217.7	8.70	221.0	0.98	24.9	0.80	20.3
	MRV32	8.57	217.7	9.95	252.7	0.98	24.9	0.80	20.3
	MRV33	8.57	217.7	11.20	284.5	0.98	24.9	0.80	20.3

SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in²	kg-cm²
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.213	0.6233
	MRV31, 32, 33	3.92	1.78	0.213	0.6233

3:1 REDUCTION EFFICIENCY: 0.95

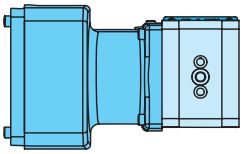
B3W15 Rodless Belt Actuator

DIMENSIONS

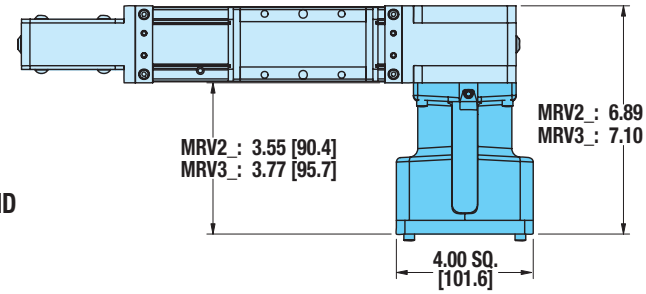
3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

B3W(D)15 DIRECT DRIVE MOTOR MOUNTING

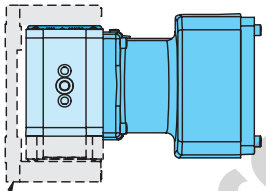
LEFT (SDL)



VIEWED FROM MOTOR END

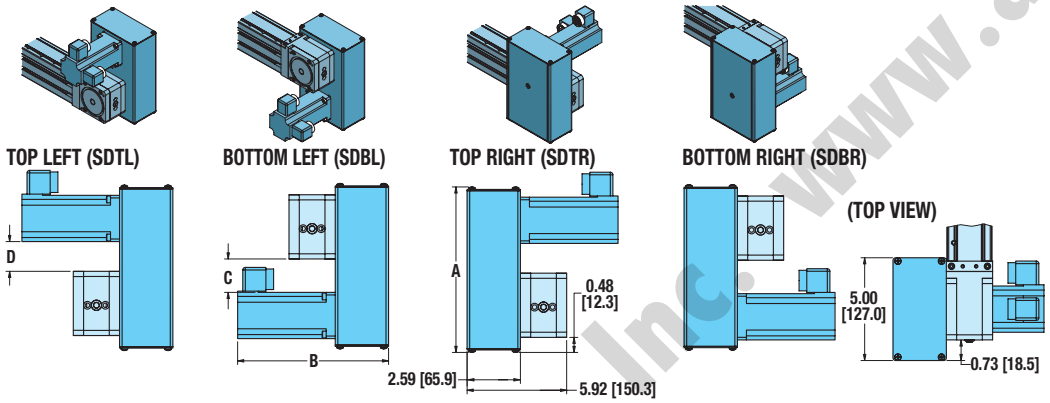


RIGHT (SDR)

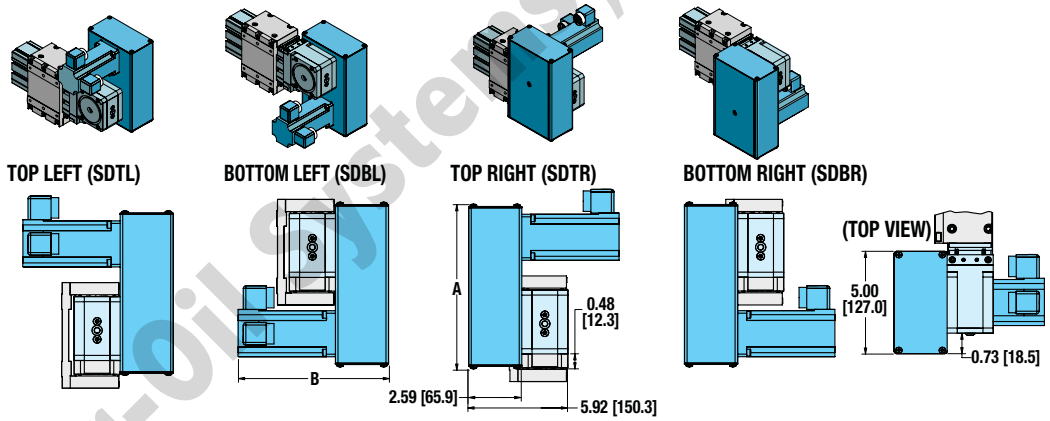


B3W(D)15 REDUCTION DRIVE MOTOR MOUNTING

STANDARD CARRIER



DUAL 180° CARRIER



DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	8.05	204.5	7.34	186.4	1.38	35.1	0.82	20.8
	MRV22	8.05	204.5	8.34	211.8	1.38	35.1	0.82	20.8
	MRV23	8.05	204.5	9.34	237.2	1.38	35.1	0.82	20.8
	MRV24	8.05	204.5	10.34	262.6	1.38	35.1	0.82	20.8
	MRV31	8.57	217.7	8.70	221.0	0.73	18.5	0.18	4.6
	MRV32	8.57	217.7	9.95	252.7	0.73	18.5	0.18	4.6
	MRV33	8.57	217.7	11.20	284.5	0.73	18.5	0.18	4.6

SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in²	kg-cm²
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.213	0.6233
	MRV31, 32, 33	3.92	1.78	0.213	0.6233

3:1 REDUCTION EFFICIENCY: 0.95

B3W20 Rodless Belt Actuator

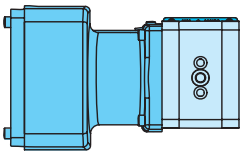
DIMENSIONS

3D CAD AVAILABLE AT WWW.TOLOMATIC.COM

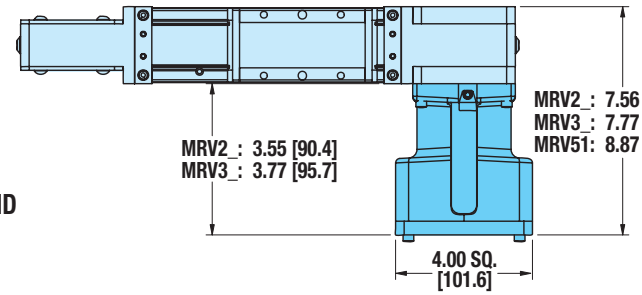
WWW.3DCONTENTCENTRAL.COM

B3W(D)20 DIRECT DRIVE MOTOR MOUNTING

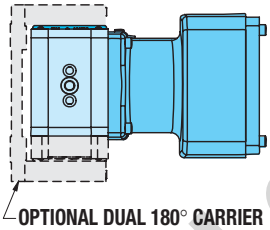
LEFT (SDL)



VIEWED FROM MOTOR END

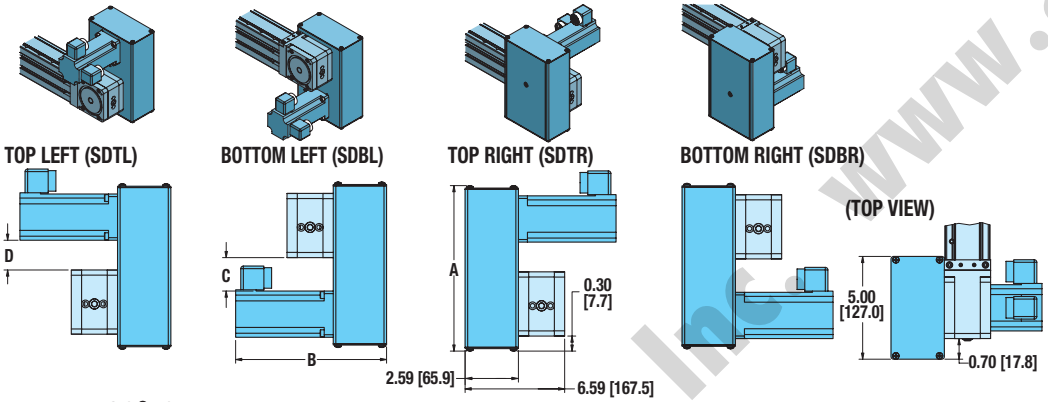


RIGHT (SDR)

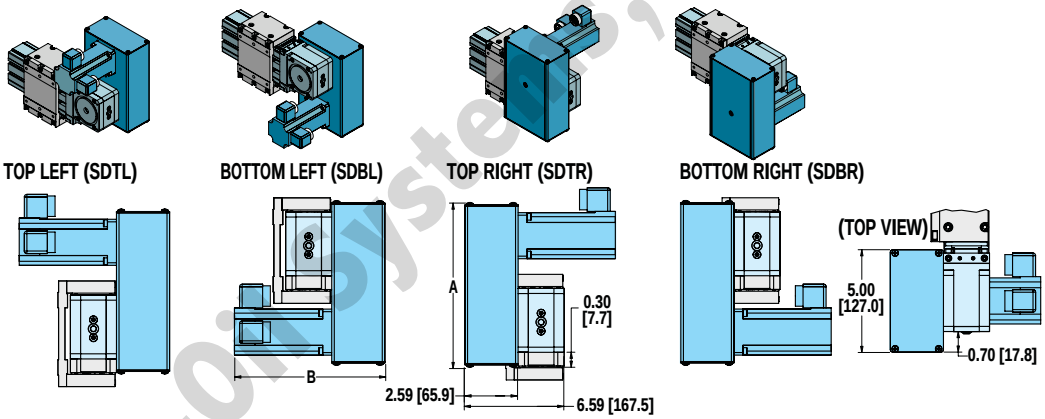


B3W(D)20 REDUCTION DRIVE MOTOR MOUNTING

STANDARD CARRIER



DUAL 180° CARRIER



DIMENSIONS

	MOTOR	A		B		C		D	
		in.	mm	in.	mm	in.	mm	in.	mm
BRUSHLESS	MRV21	8.05	204.5	7.34	186.4	1.32	33.5	0.38	9.7
	MRV22	8.05	204.5	8.34	211.8	1.32	33.5	0.38	9.7
	MRV23	8.05	204.5	9.34	237.2	1.32	33.5	0.38	9.7
	MRV24	8.05	204.5	10.34	262.6	1.32	33.5	0.38	9.7
	MRV31	9.31	236.5	8.70	221.0	1.41	35.8	0.47	11.9
	MRV32	9.31	236.5	9.95	252.7	1.41	35.8	0.47	11.9
	MRV33	9.31	236.5	11.20	284.5	1.41	35.8	0.47	11.9
	MRV51	11.73	297.9	12.55	318.8	2.40	61.0	1.45	36.8

SPECIFICATIONS

	MOTOR	WEIGHT OF REDUCTION DRIVE		REDUCTION INERTIA AT MOTOR SHAFT	
		lb	kg	lb-in²	kg-cm²
BRUSHLESS	MRV21, 22, 23, 24	3.40	1.54	0.213	0.6233
	MRV31, 32, 33	3.92	1.78	0.213	0.6233
	MRV51	4.78	2.17	0.213	0.6233

3:1 REDUCTION EFFICIENCY: 0.95

B3W Rodless Belt Actuator

ORDERING

BASE MODEL SPECIFICATIONS **OPTIONS SPECIFICATIONS**

B3WD 20 BWS40 SK56 SDTR DC18 TS2 BM2 TN16

MODEL TYPE

B3W	B3W Series Belt Drive
B3WD	B3W Series Belt Drive with Dual 180˚ Carrier
M3W*	B3W Series Metric Belt Drive
M3WD*	B3W Series Metric Belt Drive with Dual 180˚ Carrier

**** The M3W metric version provides metric tapped holes for mounting of the load to the carrier and of the actuator to mounting surfaces***

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

BWS18	18mm Polyurethane Steel belt (B3W10)
BWS30	30mm Polyurethane Steel belt (B3W15)
BWS40	40mm Polyurethane Steel belt (B3W20)

STROKE LENGTH

SK_ _ _._ _ _	Stroke, 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, enter 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

SUPPORTS AND MOUNTING PLATES

(both may be selected)

TS _	Tube Supports, enter quantity desired
MP_	Mounting Plates, enter quantity desired

SWITCHES

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

T-NUTS

TN _	Additional T-Nuts, enter quantity

TO ORDER MOTORS/CONTROLS/INTERFACES

BRUSHLESS SERVO (SEE PAGE F-33*)

**in Axidyne Catalog #3600-4609*

⚠ ***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	B3W10	B3W15	B3W20	M3W10	M3W15	M3W20
Tube Supports	3410-9006	3415-9006	3420-9006	4410-9006	4415-9006	4420-9006
Tube Supports (B3WD Dual 180˚ models)	3410-9170	3415-9170	3420-9170	4410-9170	4415-9170	4420-9170
1/2" Mounting Plates (MRV 23-frame motors)	3410-9056	3415-9056	—	4410-9030	4415-9030	—
1/2" Mounting Plates (MRV all frame motors)	—	—	3420-9056	—	—	4420-9030
1" Mounting Plates (MRV all frame motors)	3410-9057	—	—	4410-9031	—	—
1" Mounting Plates (MRV 34-frame motors)	—	3415-9057	—	—	4415-9031	—

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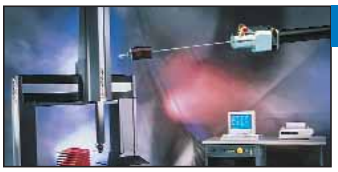

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ALSO CONSIDER THESE OTHER TOLOMATIC PRODUCTS:

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RODLESS CYLINDERS: Band Cylinders, Cable Cylinders, Magnetically Coupled Cylinders/Slides; Guided Rod Cylinder Slides
BROCHURE #9900-9075 BAND CYLINDER BROCHURE #9900-4015 CATALOG #9900-4000 www.tolomatic.com/pneumatic

POWER TRANSMISSION PRODUCTS

GEARBOXES: Float-A-Shaft™, Slide-Rite™; Disc Cone Clutch; Caliper Disc Brake
BROCHURE #9900-9076 CATALOG #9900-4009 www.tolomatic.com/pt

MORE INFORMATION:

ELECTRIC PRODUCTS
CATALOG #3600-4609

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Toll-Free: 1-800-328-2174
Email: help@tolomatic.com • http://www.tolomatic.com

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