



MadeWell[®] Series

***RADIAL VEE WHEELS &
CROWN ROLLERS***

EXPERTLY DESIGNED, DELIVERED TO PERFORM

Powered by nearly 70 years of relentless problem-solving and steadfast reliability, Bishop-Wisecarver delivers innovative motion solutions around the world that thrive in harsh and extreme conditions. Our linear and rotary motion solutions, custom complex assemblies, and embedded intelligence systems lead the manufacturing industry, and they are backed by The Signature Experience promise of expert guidance, confidence and customer satisfaction.

PERFECT FOR HARSH AND EXTREME ENVIRONMENTS

When you purchase from Bishop-Wisecarver, you aren't just getting a product that works; you're getting products, systems, and industry-leading expertise you can trust, especially in harsh conditions and critical environments—always exceeding our customers' reliability requirements.

Our Motion Products and Solutions Are Also Perfect For:



**HARSH
ENVIRONMENTS**



LONG LENGTH



LOW NOISE



**HIGH/LOW
TEMPERATURE**



**LOW TOTAL COST
OF OWNERSHIP**



**SMOOTH, LOW
FRICTION MOTION**



**MOIST
ENVIRONMENTS**



FOOD GRADE



CLEAN ROOM



VACUUM

INTRODUCTION

MadeWell® Radial Wheels with precision ground 90° vee running surfaces are designed to be used in the radial direction and for linear guide wheel applications where simplified loading conditions exist and where an economical solution is a primary concern. MadeWell® Radial Wheels are designed to run on 90° angle running surfaces, such as our DualVee® linear guide track.

MadeWell® Crown Rollers with precision ground curved running surfaces ensure smooth linear guidance and are designed to eliminate problems with misalignment and binding which can occur when guide tracks are mounted in parallel. Crown rollers are designed to run on flat surfaces, such as our UtiliTrak® C channels.

Design Benefits

- Up to 7° of angular misalignment with the use of crown rollers
- Low noise
- Concentric and Eccentric Options
- -20°C to +100°C operating temperature

Key Industries

- Architecture
- Automated Buildings
- Engineering Services
- Equipment Manufacturing
- Laboratory Analysis Equipment
- Non-destructive Testing Equipment

Application Examples

- Motorized windows and doors
- Sliding wall panels
- Heavy duty drawer slide applications
- Adjustable furniture features
- CNC engraving
- Guided sawing
- Adjustable position jigs and fixtures
- Assembly workstation tools
- Material handling aids
- Machine doors and guarding

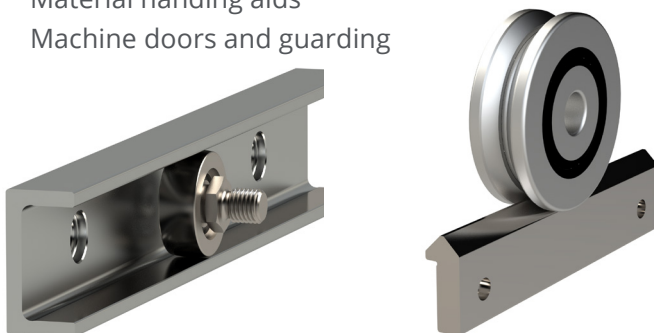


TABLE OF CONTENTS

Introduction	3-4
Application Examples	5-7
Radial Wheels	8
Crown Rollers	9-10
Adjustment Wrenches	11

Need Help

Application + Design Assistance

925.439.8272

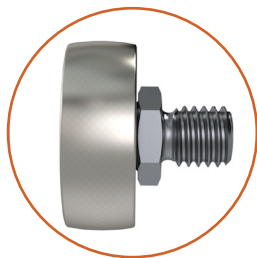
3D Modeling + CAD Drawing

BWC.com

INTRODUCTION



MadeWell®
Radial Vee Wheel
(front view)

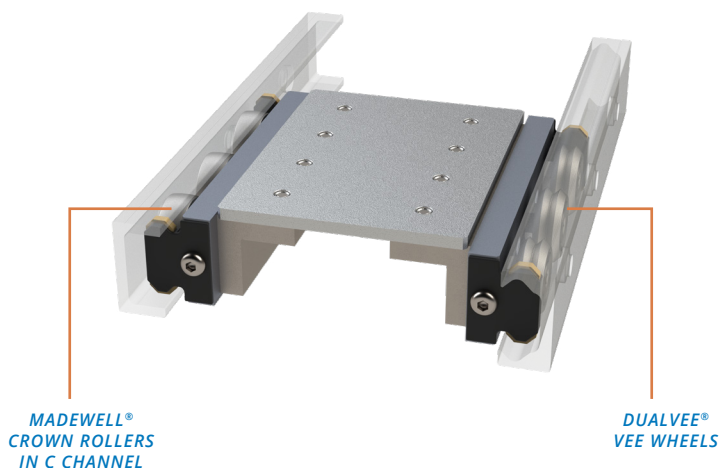


MadeWell®
Crown Roller
(front view)

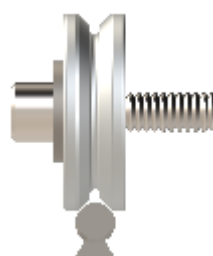
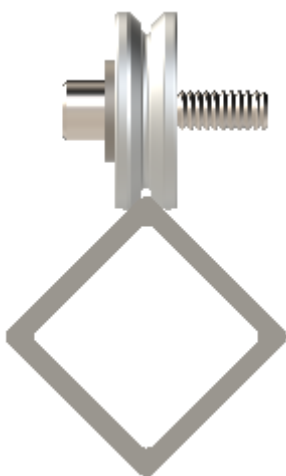
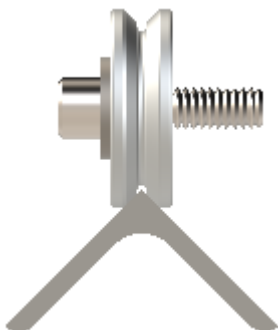


MadeWell®
Polymer Crown Roller
(cross-section)

MadeWell® crown rollers and DualVee® vee wheels on UtiliTrak® SW Linear Guides utilizing Bridge Kit



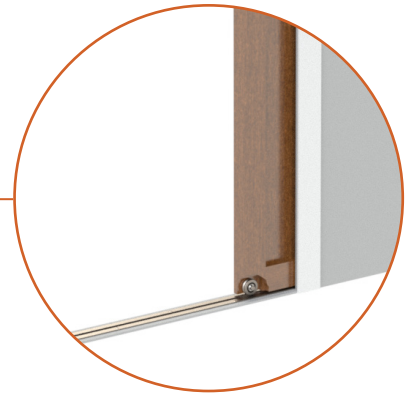
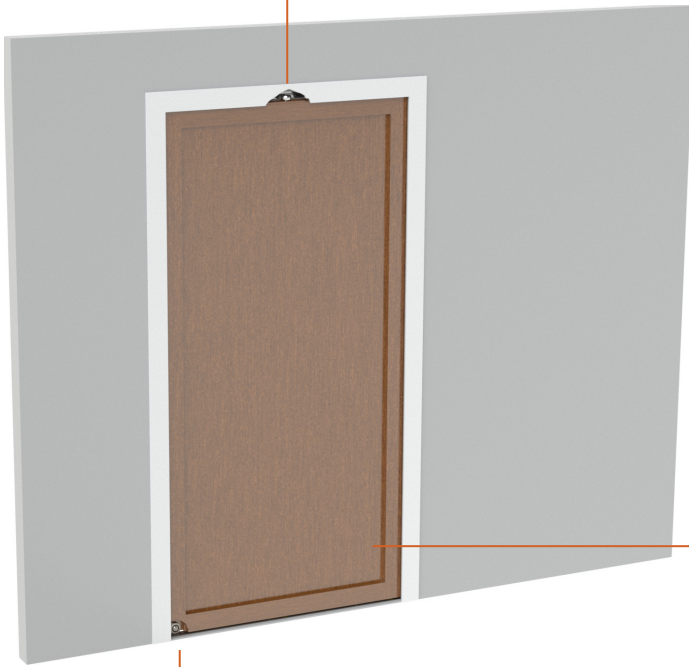
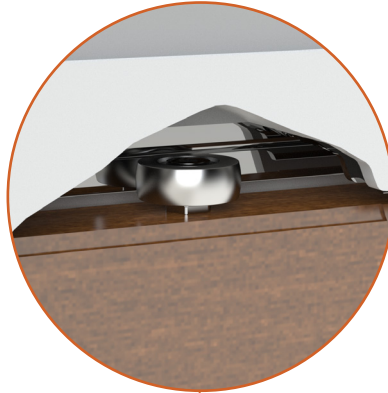
MadeWell® Radial Vee wheel can be run on angle iron, square or round shaft.



APPLICATION EXAMPLES

Pocket Door

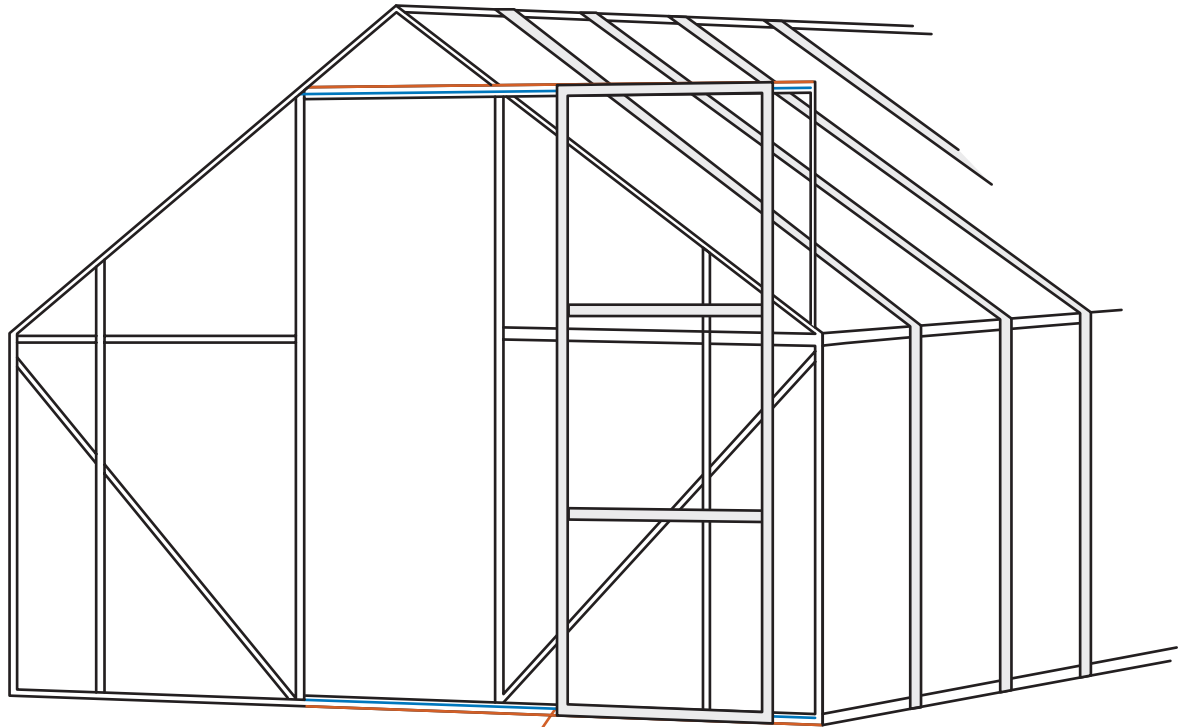
The MadeWell® Radial Wheels and Crown Rollers are installed on a pocket door to provide smooth and reliable motion for the heavy woodwork. The weight of the door is supported by Radial Wheels located at the bottom of the door where the vee features accurately guide the motion along the threshold. Crown Rollers are installed at the top and guide the door inside a channel.



APPLICATION EXAMPLES

Sliding Greenhouse Door

The combination of MadeWell® Radial Wheels and DualVee® track allow for compact and weather-resistant solution. Sliding doors are common in greenhouse applications because they save space and come in a variety of sizes. MadeWell® radial wheels are perfect for lighter loads, but still maintain durable motion despite inclement weather conditions.

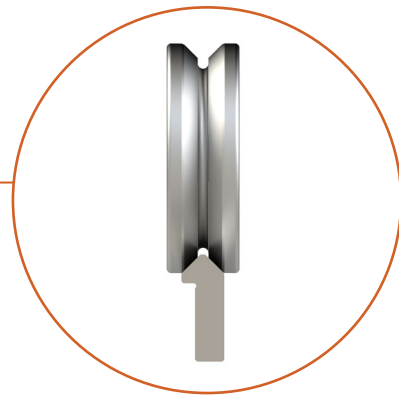
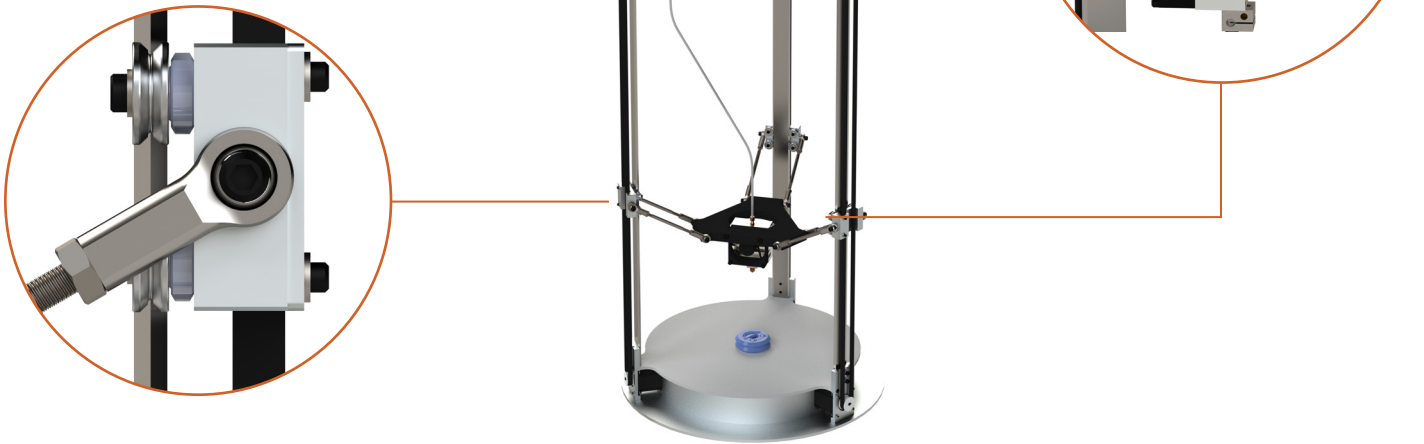


**MADEWELL®
RADIAL WHEELS**

APPLICATION EXAMPLES

Delta Style 3D Printer

MadeWell® Radial Wheels provide smooth and accurate motion for a delta style 3D printer. The Radial Wheels roll vertically on the vee shaped linear guide support structures. Each of the three motion axes move independently by timing belts connected to drive motors to enable precise motion anywhere within the 3D workspace.

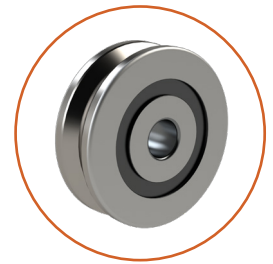
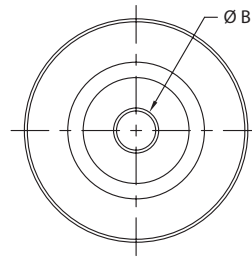
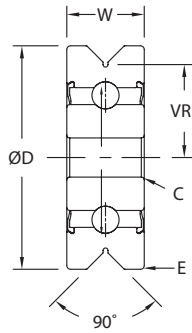


Machine Tool Door Assembly

The sheet metal access doors of a machine tool are guided on MadeWell® Radial Wheels and DualVee® linear guide track that feature a matching vee profile for operation in debris contaminated environments. The single row ball bearing construction of the radial wheels are ideal for cost sensitive fabrications where more complex guide bearing designs are excessive.

RADIAL WHEELS

- Designed to only be run in the radial axis
- Carbon steel and stainless steel versions
- Designed to run on a 90° running surface
- Three single row bearing sizes (1, 2, 3) to accommodate design envelope and load carrying requirements
- Recommended maximum operating speed is 5.5 m/s
- Recommended operating temperature range: -20°C to +100°C



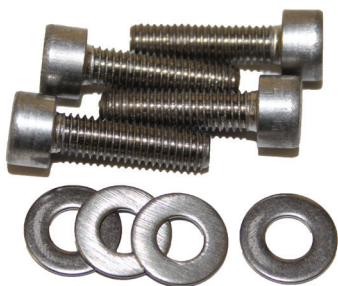
MadeWell®
Radial Wheel

Dimensions

SIZE	STOCK CODE	MATERIAL	OUTSIDE DIAMETER (D)		WHEEL WIDTH (W)		BORE DIAMETER (B)		VEE RADIUS INSIDE (VRI)		INNER RADIUS (C)		OUTER RADIUS (E)		WEIGHT (G)
			IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	
1	W1RX	AISI 52100 Carbon Steel	Ø.771	Ø19.58	.274	6.96	Ø.201 +/- .002	Ø5.11 +/- 0.05	.313	7.94	.012	0.30	.012	0.41	10
	W1RSSX	AISI 440C Stainless Steel													
2	W2RX	AISI 52100 Carbon Steel	Ø1.210	Ø30.73	.383	9.73	Ø.251 +/- .002	Ø6.38 +/- 0.05	.500	12.7	.020	0.51	.024	0.61	38
	W2RSSX	AISI 440C Stainless Steel													
3	W3RX	AISI 52100 Carbon Steel	Ø1.803	Ø45.80	.551	14.00	Ø.316 +/- .002	Ø8.026 +/- 0.05	.750	19.05	.024	0.61	.024	0.61	122
	W3RSSX	AISI 440C Stainless Steel													

LOAD CAPACITY RATINGS	WHEEL SIZE	WORKING RADIAL LOAD CAPACITY L_R		WORKING AXIAL LOAD CAPACITY L_A	
		N	LBF	N	LBF
	1	670	151	138	31
	2	1500	337	320	72
	3	3700	832	800	180

Notes:
See [Technical Data](#) catalog for more information on sizing, life estimation, and mounting.



Working Load Capacities

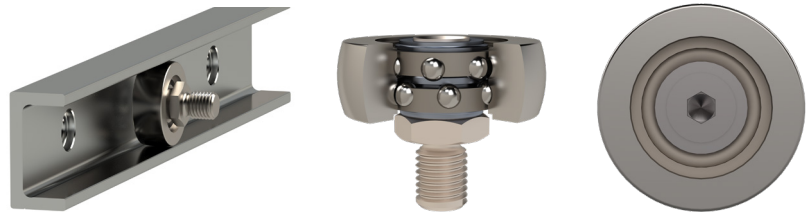
Working load capacities are based on empirical data on guide wheels used in general applications with static and dynamic load conditions. Our guide wheels can routinely achieve travel life of one million cycles or higher when these specified load capacities are observed.

RECOMMENDED MOUNTING HARDWARE	WHEEL SIZE	STOCK CODE	SCREWS	MOUNTING WASHER
	1	W1RX	M5	M5 DIN 433
		W1RSSX		
	2	W2RX	1/4"	SAE Type A 1/4"
		W2RSSX		
	3	W2RX	M8 or 5/16"	M8 DIN 125 SAE Type A 5/16"
		W3RSSX		

CROWN ROLLERS

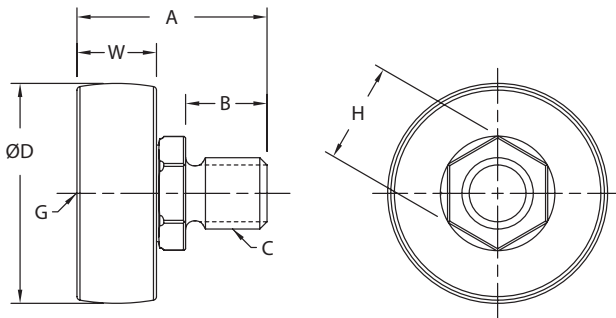
Steel Series

- Double row angular contact ball bearing design; made from AISI 52100 bearing grade steel
- Threaded mounting stud with hex features are permanently attached
- Designed to run on flat surfaces, such as UtiliTrak® C channel
- Concentric version is for mounting to a fixed location; eccentric version enables fit and preload adjustment
- Can be used in tandem with DualVee® guide wheels for wide span or high load capacity applications

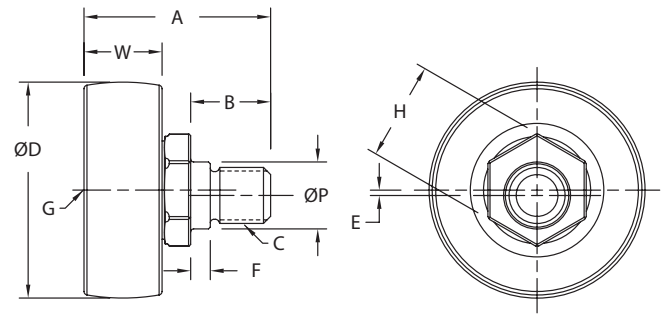


LOAD CAPACITY RATINGS	WHEEL SIZE	WHEEL MATERIAL	WORKING AXIAL LOAD CAPACITY L_r	
			N	LBF
	1	52100 Carbon Steel	1220	274
	2	52100 Carbon Steel	2650	596
	3	52100 Carbon Steel	5900	1326

Concentric



Eccentric



Dimensions

WHEEL SIZE	STOCK CODE	PROTECTION	STUD DESIGN	WHEEL WIDTH (W)	OVERALL LENGTH (A)	THREAD LENGTH (B)	THREAD (C)	OUTER DIAMETER (D)	(E)	PILOT LENGTH (F)	PILOT DIAMETER (P)	INTERNAL HEX (G)	HEX (H)	WEIGHT (g)
1	CSWIC1	Shielded	Concentric	.310 [7.87]	.761 [19.33]	.319 [8.10]	M8 X 1.25	Ø.771 [Ø19.58]	.024 [0.61]	N/A	N/A	N/A	.472 [12.00]	25
	CSWIC1X	Sealed												
	CSWIE1	Shielded	Eccentric			.234 [5.94]	M6 X 1.0			.085 [2.16]	Ø.248 +.002/-0.000 [Ø6.31 +.05/-0.00]			
	CSWIE1X	Sealed												
2	CSWIC2	Shielded	Concentric	.438 [11.11]	1.046 [26.57]	.448 [11.38]	M10 X 1.5	Ø1.210 [Ø30.73]	.030 [0.76]	N/A	N/A	.236 [6.00]	.551 [14.00]	65
	CSWIC2X	Sealed												
	CSWIE2	Shielded	Eccentric			.338 [8.59]	M8 X 1.25			.110 [2.79]	Ø.375 +.002/-0.000 [Ø9.53 +.05/-0.00]			
	CSWIE2X	Sealed												
3	CSWIC3X	Sealed	Concentric	.625 [15.88]	1.444 [36.68]	.595 [15.11]	M12 X 1.75	Ø1.803 [Ø45.80]	.059 [1.50]	N/A	N/A	.315 [8.00]	.748 [19.00]	190
	CSWIE3X	Sealed	Eccentric			.425 [10.80]	M10 X 1.5			.170 [4.32]	Ø.422 +.002/-0.000 [Ø10.72 +.05/-0.00]			

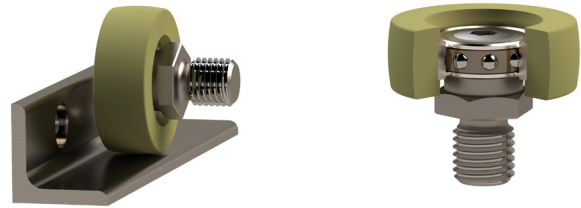
Notes:

1. Values are in inches [millimeters].
2. See [Technical Data](#) catalog for more information on sizing, life estimation, and mounting.

CROWN ROLLERS

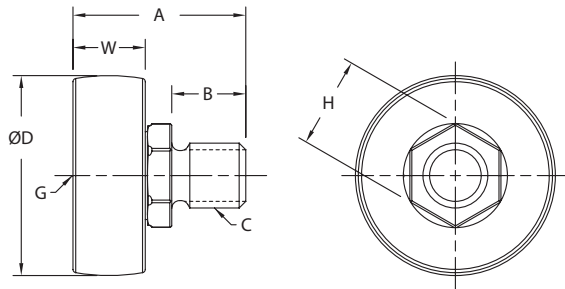
Polymer Series

- Smooth, light duty and light loading applications
- Threaded mounting stud with hex features are permanently attached
- Designed to run on flat surfaces, such as UtiliTrak® C channel
- Concentric version is for mounting to a fixed location; eccentric version enables fit and preload adjustment
- Can be used in tandem with DualVee® guide wheel for wide span or high load capacity applications
- Materials are polyamide overmolded on an AISI 440C martensitic stainless steel, single row ball bearing

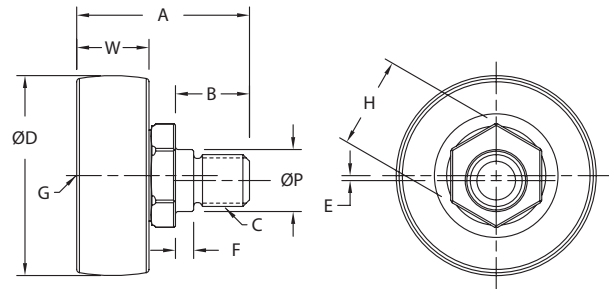


LOAD CAPACITY RATINGS	WHEEL SIZE	WHEEL MATERIAL	WORKING AXIAL LOAD CAPACITY L_R	
			N	LBF
	0	Polymer	28	6 to 6.2
	1	Polymer	55	12
	2	Polymer	70	16

Concentric



Eccentric



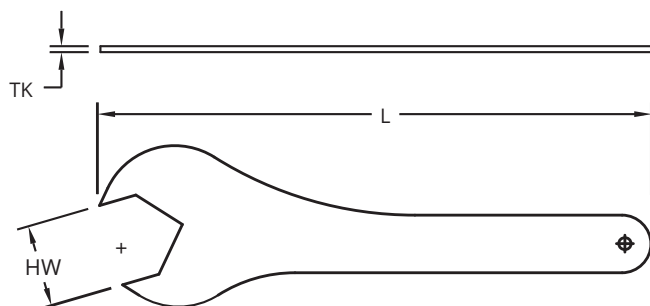
Dimensions

WHEEL SIZE	STOCK CODE	PROTECTION	STUD DESIGN	WHEEL WIDTH (W)	OVERALL LENGTH (A)	THREAD LENGTH (B)	THREAD (C)	OUTER DIAMETER (D)	(E)	PILOT LENGTH (F)	PILOT DIAMETER (P)	INTERNAL HEX (G)	HEX (H)	WEIGHT (g)
0	CSWIC0P	Shielded	Concentric	.250 [6.35]	.667 [16.94]	.300 [7.62]	M6 X 1.0	Ø.584 [Ø14.83]	N/A	N/A	N/A	N/A	.433 [11.00]	6
	CSWIE0P		Eccentric			.215 [5.48]	M5 X 0.8		.032 [0.81]	.085 [2.16]	Ø.219 +.002/-0.000 [Ø5.56 +.05/-0.00]			6
1	CSWIC1P	Shielded	Concentric	.310 [7.87]	.761 [19.33]	.319 [8.10]	M8 X 1.25	Ø.771 [Ø19.58]	N/A	N/A	N/A	N/A	.472 [12.00]	11
	CSWIE1P		Eccentric			.234 [5.94]	M6 X 1.0		.033 [0.84]	.085 [2.16]	Ø.248 +.002/-0.000 [Ø6.31 +.05/-0.00]			10
2	CSWIC2P	Shielded	Concentric	.438 [11.11]	1.046 [26.57]	.448 [11.38]	M10 X 1.5	Ø1.210 [Ø30.73]	N/A	N/A	N/A	.158 [4.00]	.551 [14.00]	27
	CSWIE2P		Eccentric			.338 [8.59]	M8 X 1.25		.038 [0.97]	.110 [2.79]	Ø.375 +.002/-0.000 [Ø9.53 +.05/-0.00]			26

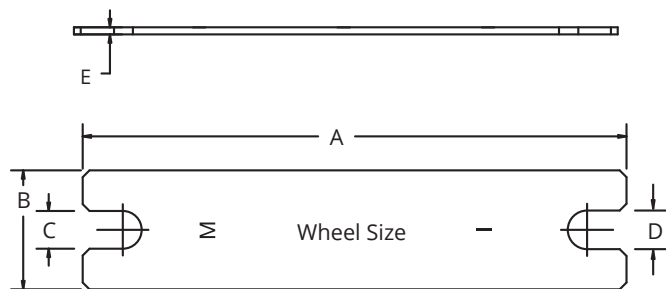
Notes:

1. Values are in inches [millimeters].
2. See [Technical Data](#) catalog for more information on sizing, life estimation, and mounting.

ADJUSTMENT WRENCHES



Wheel Bolt/Eccentric Bushing Wrench



Wheel Stud Wrench

Dimensions								
WRENCH TYPE	WHEEL SIZE	STOCK CODE	WRENCH SIZE (HW)		LENGTH (L)		THICKNESS (TK)	
			IN	MM	IN	MM	IN	MM
Wheel Bolt	1	1PWRB	.220	5.6	4.125	104.78	.09	2.3
	2	2PWRB	.345	8.8	4.785	121.54	.125	3.2
	3	3PWRB	.440	11.2	5.407	137.34	.125	3.2
	4	4PWRB	.503	12.8	5.956	151.28	.125	3.2
Eccentric Bushing	1	1PWRX	.438	11.1	4.398	111.71	.063	1.6
	2	2PWRX	.564	14.3	5.024	127.61	.063	1.6
	3	3PWRX	.752	19.1	5.802	147.37	.09	2.3
	4	4PWRX	.878	22.3	6.625	168.28	.09	2.3

Dimensions							
WRENCH TYPE	WHEEL SIZE	STOCK CODE	LENGTH (A)	WIDTH (B)	WRENCH SIZE (C)	WRENCH SIZE (D)	THICKNESS (E)
Wheel Stud	0	BAW0	5.00	1.25	.440 - .435	.383 - .378	.0747 + .0223/- .0050
	1	BAW1	7.00	1.50	.474 - .479	.439 - .444	.0747 + .0143/- .0050
	2	BAW2	8.00	1.75	.553 - .558	.566 - .571	.1046 + .0244/- .0136
	3	BAW3	9.00	2.00	.750 - .755	.753 - .758	.1345 + .0055/- .0165

- Notes:**
1. Values are in inches [millimeters].
 2. Wrenches are universal for metric and inch.

Components & Accessories

DualVee®
MadeWell®
GV3
SL2
PRT2
HDS2
HDRT
MCS
Motor Mounts
Gantry Brackets
Wrenches

Manual Linear Guide Systems

DualVee®
UtiliTrak®
MinVee®
GV3
Simple Select®
SL2
HDS2
MHD
HTS

Actuated Linear Guide Systems

LoPro®
XLA™
ECO60™
SlickStick™
SteadyRail™
HDLS
HDCS
PDU2
DAPDU2
SBD
PSD
SDM
DLS

Rotary Guide Systems

PRT2
DTS2
DTS
DTS+
ALR
HDRT
1-Trak
GFX

Robot Transfer Units

DualVee® RTU
LoPro® RTU

Custom Solutions

Extruded Profile Guides
Custom Bearings
Custom Subassemblies
Engineering Services
Large Diameter Ring Guides and Track

BWC.COM

Women's Business Enterprise



- Certified WOSB

Contact

Web: **BWC.com**
Phone: **(925) 439-8272**
Email: **Sales@bwc.com**

Corporate Office

Bishop-Wisecarver
2104 Martin Way
Pittsburg, CA 94565

Quality Certifications



- Certified Bay Area Green Business
- Certified Evergreen



Certifications & Compliance

- EN 9100:2018
- JISQ 9100:2016
- ISO 13485 & GMP Compliance
- Responsible Minerals Initiative
- RoHS
- International Traffic in Arms Regulations Compliant

