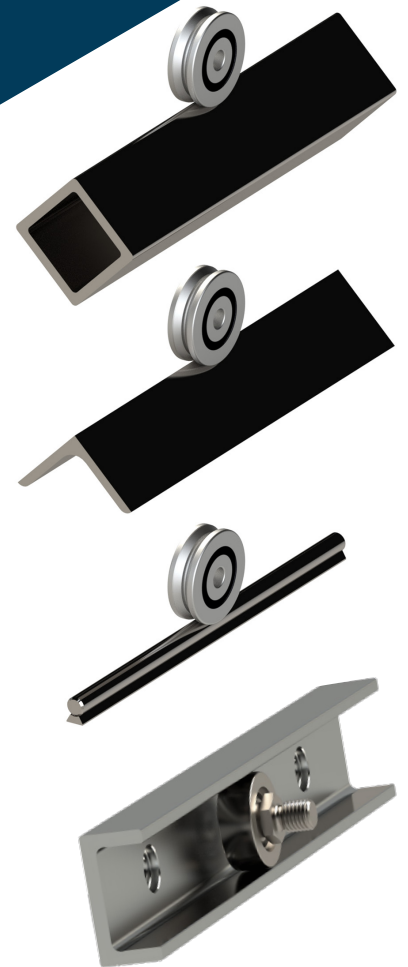
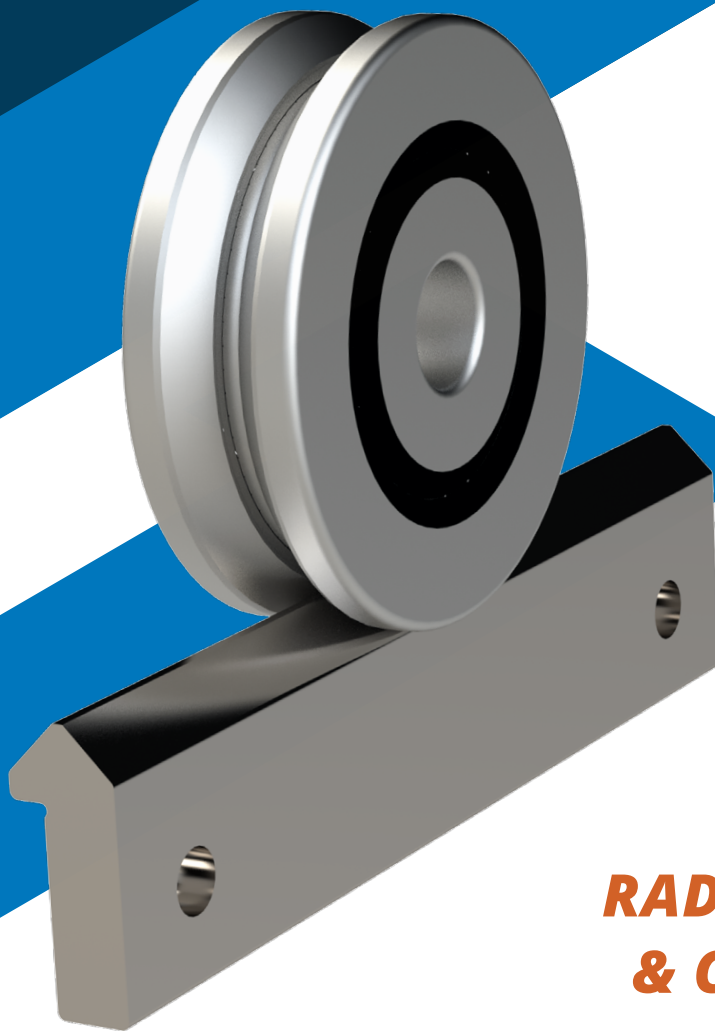


# *Madewell*<sup>®</sup> *Series*



***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

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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

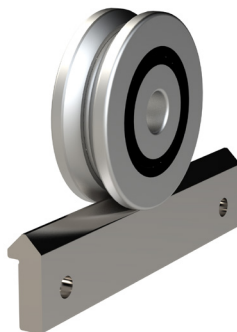
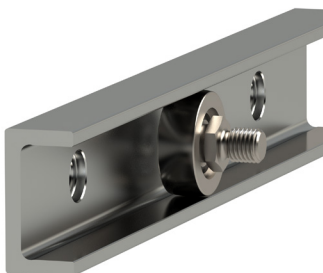
- Up to 7° of angular misalignment with the use of crown rollers
- Low noise
- Concentric and Eccentric Options
- -20°C to +100°C operating temperature

### 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



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### Need Help

#### Application + Design Assistance

925.439.8272

#### 3D Modeling + CAD Drawing

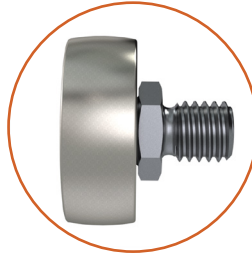
BWC.com

# INTRODUCTION

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**MadeWell®**  
**Radial Vee Wheel**  
*(front view)*

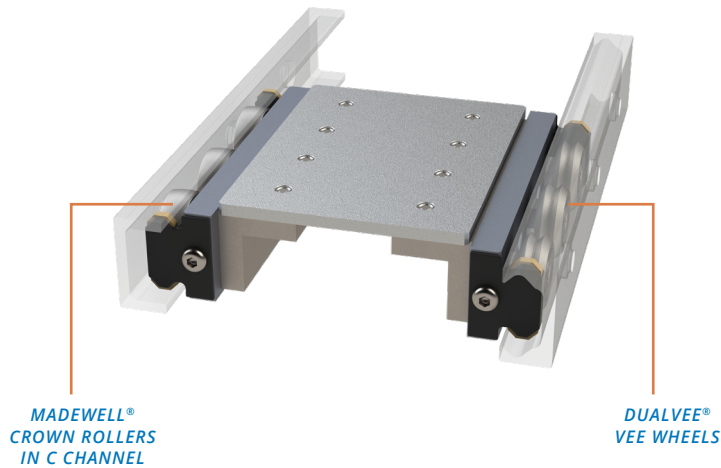


**MadeWell®**  
**Crown Roller**  
*(front view)*

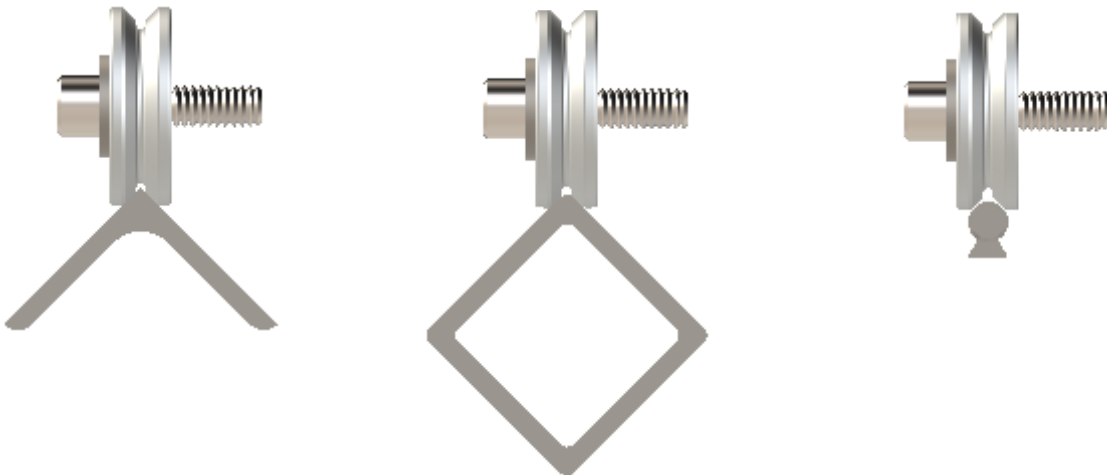


**MadeWell®**  
**Polymer Crown Roller**  
*(cross-section)*

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.



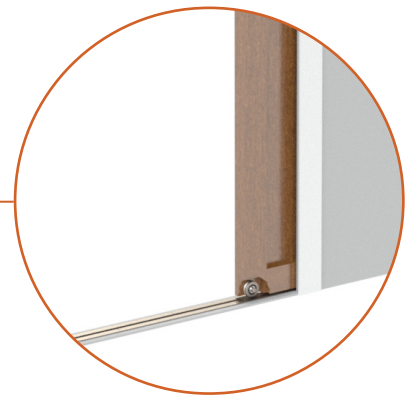
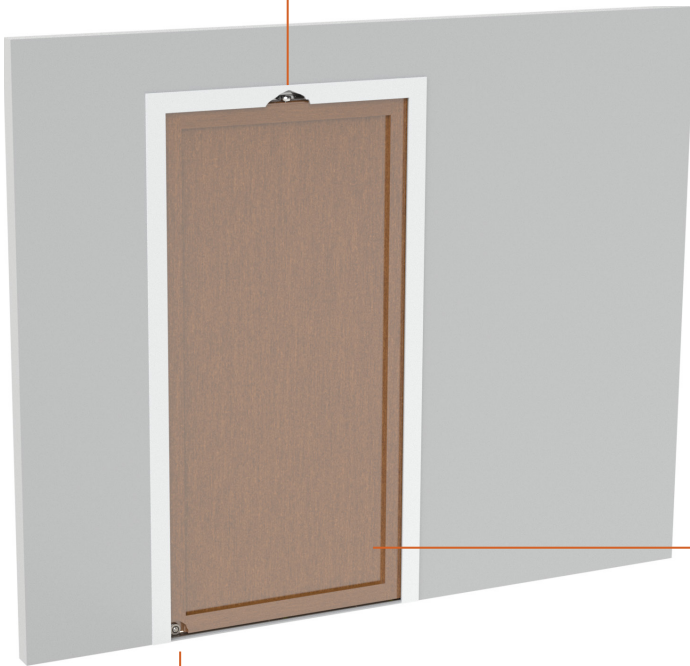
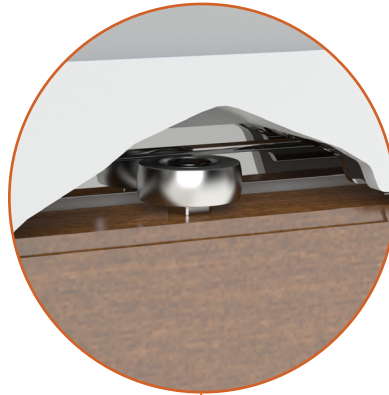


# APPLICATION EXAMPLES

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## 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.

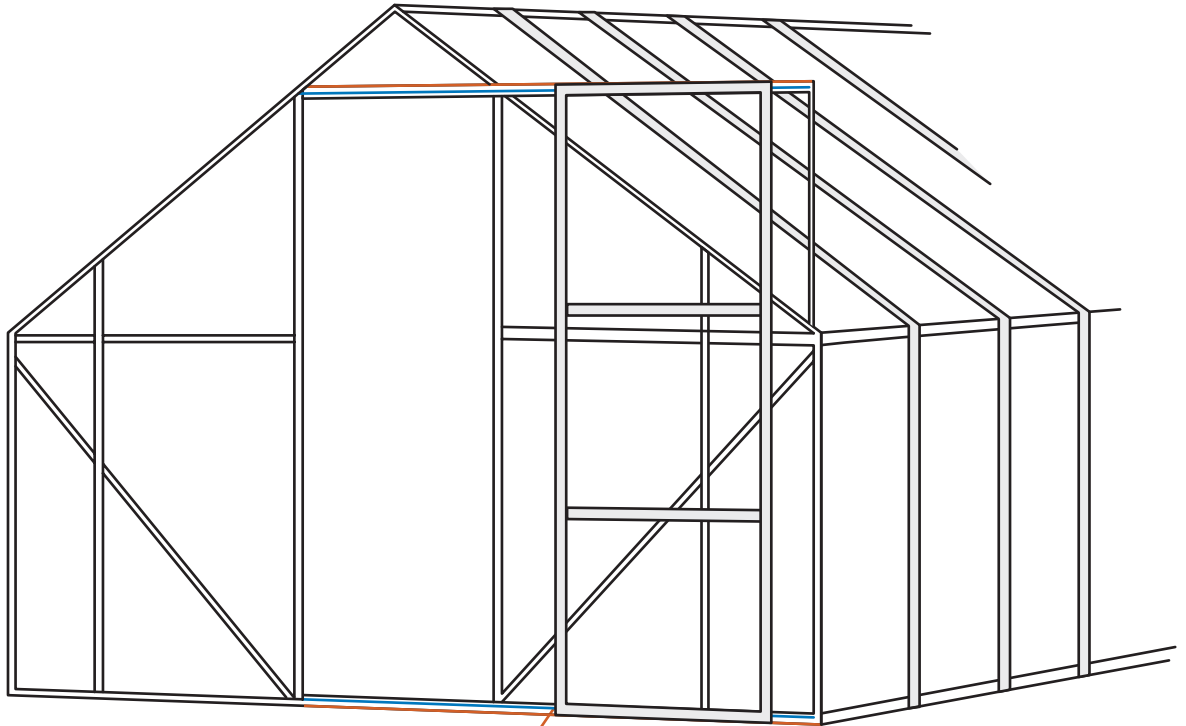


## APPLICATION EXAMPLES

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### *Sliding Greenhouse Door*

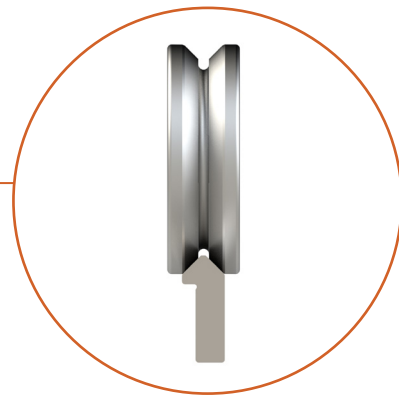
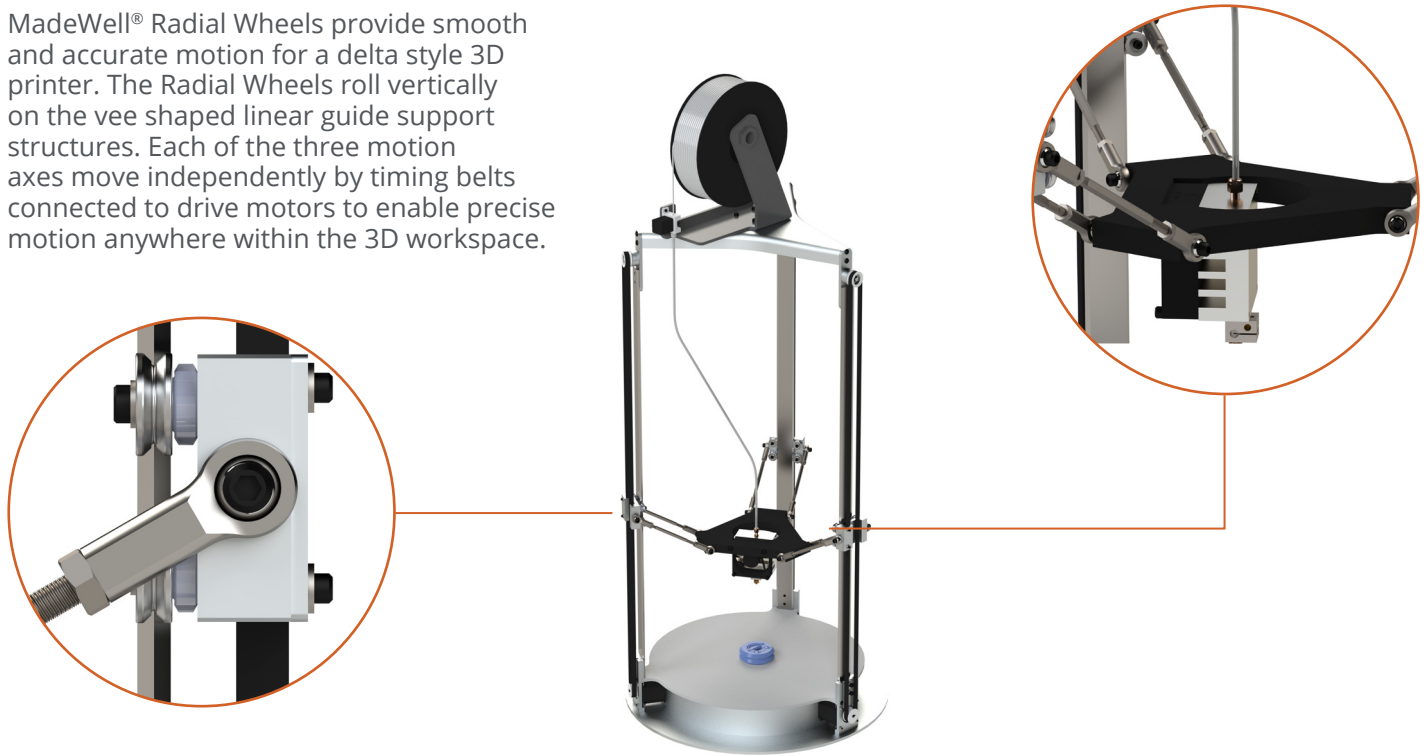
The combination of MadeWell® Radial Wheels and DualVee® track allow for compact and weather-resistant solution. Sliding doors are common in greenhouse applications because they save space and come in a variety of sizes. MadeWell® radial wheels are perfect for lighter loads, but still maintain durable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



## 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.

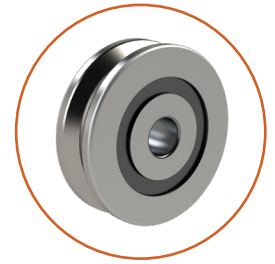
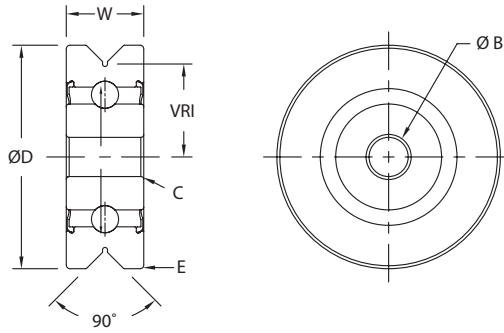


### Machine Tool Door Assembly

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



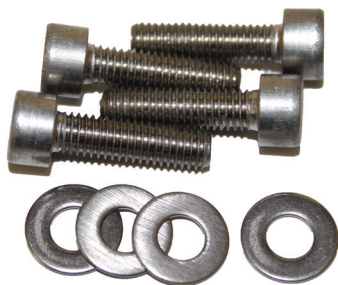
**MadeWell®  
Radial Wheel**

## 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.



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

## 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.



# CROWN ROLLERS

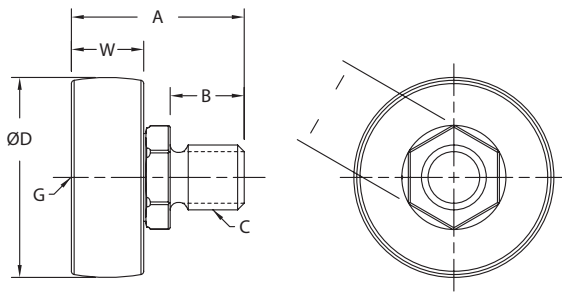
## Steel Series

- 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

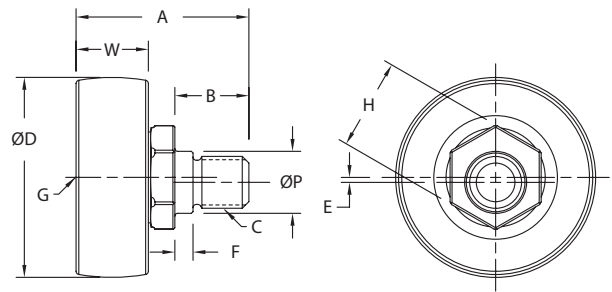


LOAD CAPACITY RATINGS	WHEEL SIZE	WHEEL MATERIAL	WORKING AXIAL LOAD CAPACITY $L_R$	
			N	LBF
	1	52100 Carbon Steel	1220	274
2	52100 Carbon Steel	2650	596	
3	52100 Carbon Steel	5900	1326	

### 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														
	CSWICIE1	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														
	CSWICIE2	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	CSWIC3	Shielded	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		
	CSWIC3X	Sealed														
	CSWICIE3	Shielded	Eccentric			.425 [10.80]	M10 X 1.5								.170 [4.32]	Ø.422 +.002/-0.000 [Ø10.72 +.05/-0.00]
	CSWIE3	Sealed														

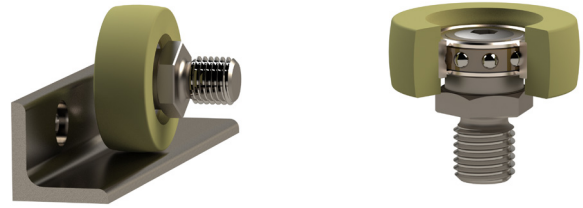
#### Notes:

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

# CROWN ROLLERS

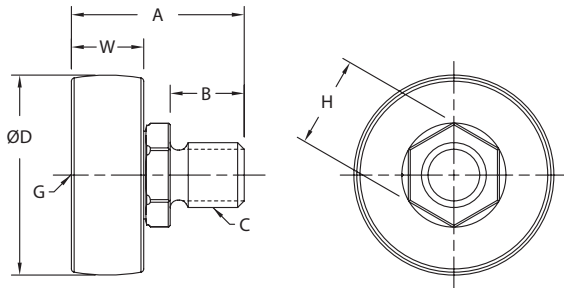
## Polymer Series

- 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

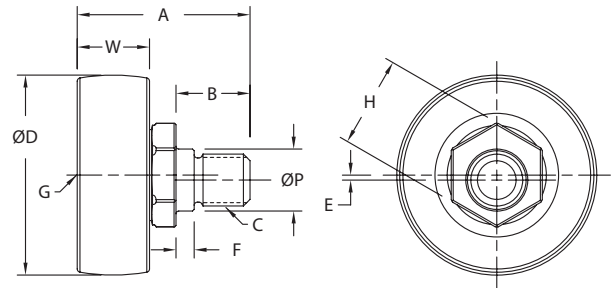


LOAD CAPACITY RATINGS	WHEEL SIZE	WHEEL MATERIAL	WORKING AXIAL LOAD CAPACITY $L_R$	
			N	LBF
	0	Polymer	28	6 to 6.2
	1	Polymer	55	12
	1	Polymer	70	16

### Concentric



### Eccentric



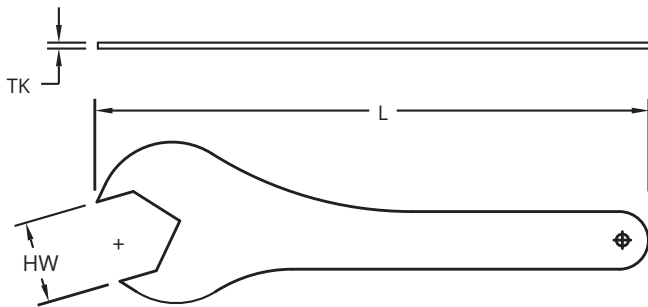
### Dimensions

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				

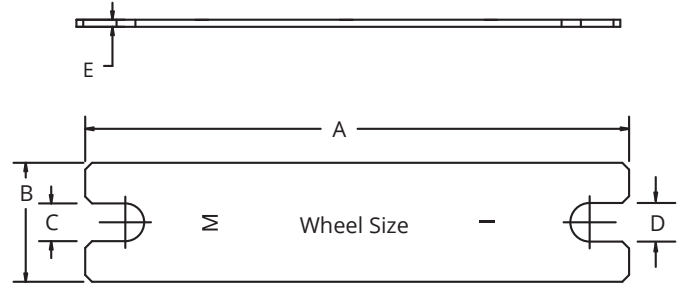
#### Notes:

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
<b>Wheel Bolt</b>	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
<b>Eccentric Bushing</b>	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)
<b>Wheel Stud</b>	1	BAW1	7.00	1.50	.474 - .479	.439 - .444	.0747 + .0143/-0.0050
	2	BAW2	8.00	1.75	.553 - .558	.566 - .571	.1046 + .0244/-0.0136
	3	BAW3	9.00	2.00	.750 - .755	.753 - .758	.1345 + .0055/-0.0165
	4	BAW4	9.00	2.00	.868 - .873	.878 - .883	.1345 + .1275/-0.0165

**Notes:**

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

# MOTION SOLUTIONS FROM BISHOP-WISECARVER ARE LIMITED ONLY BY YOUR IMAGINATION

## **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  
ALR  
HDRT  
1-Trak  
GFX

## **Custom Solutions**

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

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 **BISHOP  
WISECARVER**  
Expertly Designed, Delivered to Perform

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Pittsburg, CA 94565