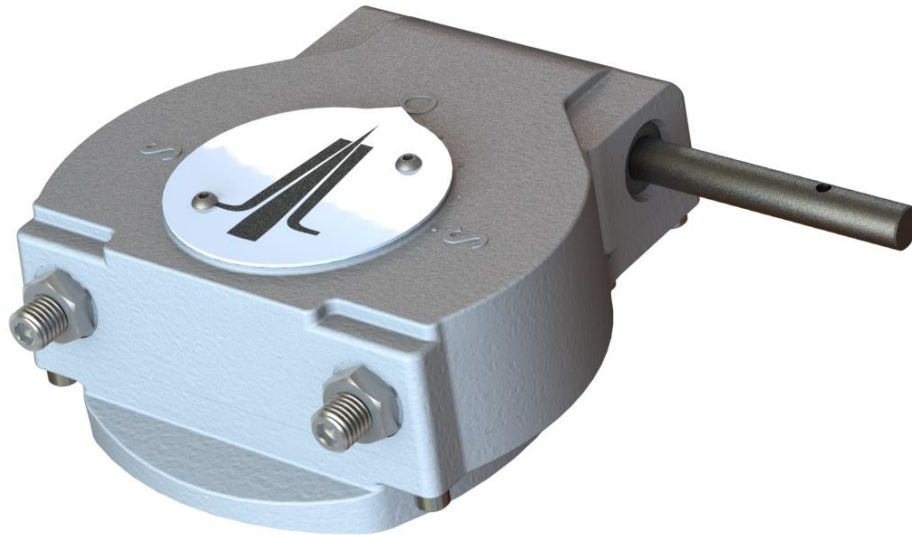


# WedgeRock RC PRODUCT SHEET

700078 Rev-03

## COMMERCIAL QUARTER-TURN GEAR SOLUTIONS



### Features, Options & Configurability

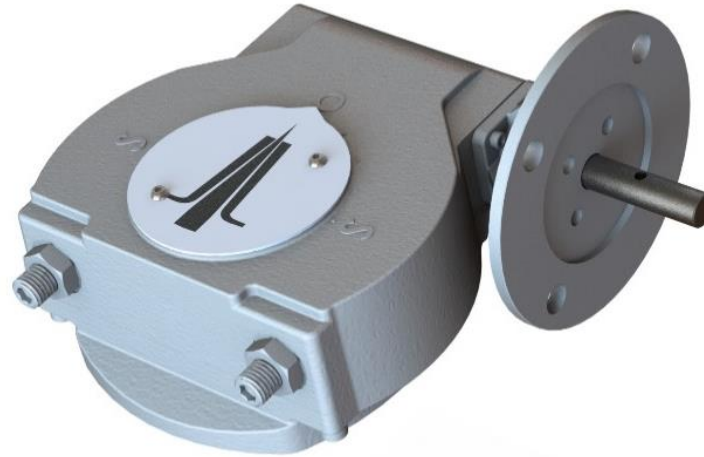
- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Self-Locking</li> <li>• Mechanical stops for quarter turn rotation, <math>\pm 5^\circ</math> adjustment at each stop</li> <li>• 90% filled, Greased for life, no maintenance</li> <li>• Designed and tested to IP68</li> <li>• Input shaft projection Parallel or Perpendicular to output</li> <li>• Available Certifications:             <ul style="list-style-type: none"> <li>○ Buy America Compliant</li> <li>○ AWWA Compliant</li> <li>○ ATEX Compliant</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• Input lockout</li> <li>• Motorized and Manual input options</li> <li>• Buried Service prep</li> <li>• Risers and Adaptors</li> <li>• Temperature range and materials configured per application</li> <li>• Machined for direct mount             <ul style="list-style-type: none"> <li>○ Standard Flanges to MSS SP101 &amp; ISO 5211</li> <li>○ Infinite Custom Bolt Pattern Options</li> </ul> </li> </ul> |
|---|--|

### PURPOSE ENGINEERED - QUALITY MANUFACTURED - PERFORMANCE TESTED

The information in this document is subject to change without notice. Updated documents can be requested or obtained from our website.

# WedgeRock RC SERIES

## GENERAL OVERVIEW



### MANUAL AND MOTORIZED OPERATION

MODEL	TORQUE RATING			MAX BORE W/ SQUARE KEY PER ANSI B17.1	MAX BORE W/ RECTANGULAR KEY PER ANSI B17.1	MAX CIRCUMSCRIBED DIAMETER OF DRIVE FEATURE	MAX STEM ENGAGEMENT	STANDARD FLANGE	FLARED FLANGE
	MANUAL <sup>1</sup>	MOTORIZED <sup>2</sup>	AWWA <sup>3</sup>						
	<i>IN-LBS (NM)</i>	<i>IN-LBS (NM)</i>	<i>IN-LBS (NM)</i>						
			<i>IN (MM)</i>	<i>IN (MM)</i>	<i>IN (MM)</i>	<i>IN (MM)</i>	<i>MIN MAX</i>	<i>MAX</i>	
RC 2.5	4,167 (471)	3,125 (353)	2,500 (283)	1.38 (34.9)	1.38 (34.9)	1.71 (43.4)	2.38 (60.3)	F07/FA07 F07/FA07	F10/FA10
RC 5	8,333 (942)	6,250 (706)	5,000 (565)	1.75 (44.5)	1.75 (44.5)	2.15 (54.6)	2.75 (69.9)	F08/FA08 <sup>4</sup> F10/FA10	F14/FA14
RC 10	16,667 (1,883)	12,500 (1,413)	10,000 (1,130)	2.00 (50.8)	2.00 (50.8)	2.52 (63.9)	3.47 (88.1)	F10/FA10 F12/FA12	F16/FA16
RC 16	26,667 (3,013)	20,000 (2,260)	16,000 (1,808)	2.38 (60.3)	2.50 (63.5)	3.01 (76.5)	3.72 (94.5)	F12/FA12 F14/FA14	F20/FA19
RC 24	40,000 (4,520)	30,000 (3,390)	24,000 (2,712)	2.75 (69.9)	2.75 (69.9)	3.39 (86.2)	3.91 (99.3)	F14/FA14 F16/FA16	F20/FA19
RC 36	60,000 (6,780)	45,000 (5,085)	36,000 (4,068)	3.25 (82.6)	3.25 (82.6)	4.01 (101.9)	3.72 (94.5)	F16/FA16 F20/FA19	F25/FA25
RC 48	80,000 (9,040)	60,000 (6,780)	48,000 (5,424)	3.63 (92.1)	3.63 (92.1)	4.52 (114.8)	3.91 (99.3)	F16/FA16 F25/FA25	F30/FA30

1) Ratings for cycles per ISO/DIS 22109, On-Off for Manual Service

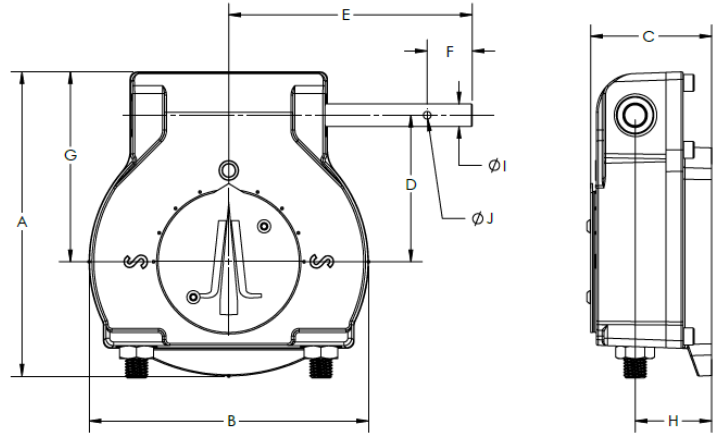
2) Ratings for cycles per ISO/DIS 22109, On-Off & Inching Automated Service

3) Ratings for cycles per AWWA C504-15 and C517-1; Models RC10 and above suitable for use with a 2" nut.

4) Spigot diameter does not fit on standard flange

# WedgeRock RC

## ENVELOPE DIMENSIONS

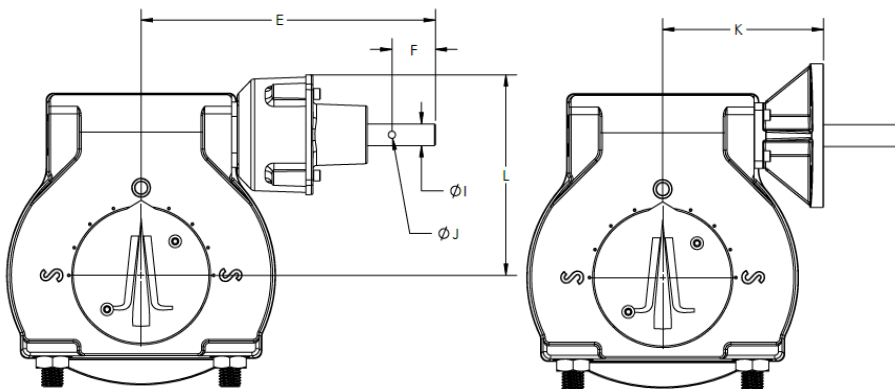


### RC ENVELOPE DIMENSIONS AND WEIGHT

MODEL	A	B	C	D	E	F	G	H	I	J	K	L	WEIGHT
	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	IN (MM)	LBS (KG)
RC2.5	5.3 (136)	4.3 (110)	2.5 (63)	2.1 (53)	5.4 (138)	1.5 (38)	3.0 (77)	1.4 (35)	0.44 (11.2)	0.13 (3.3)	N/A	N/A	9 (4)
RC5	6.2 (156)	5.1 (129)	2.9 (75)	2.6 (65)	6.0 (152)	1.5 (38)	4.1 (105)	1.6 (41)	0.56 (14.2)	0.19 (4.8)	N/A	N/A	12 (5)
RC10	7.6 (194)	5.8 (146)	3.6 (92)	3.3 (84)	5.6 (143)	1.5 (38)	4.6 (118)	2.1 (54)	0.75 (19.1)	0.25 (6.4)	5.0 (127)	N/A	26 (12)
RC10 + SPUR	7.6 (194)	5.8 (146)	3.6 (92)	3.3 (84)	9.69 (246)	1.5 (38)	4.6 (118)	2.1 (54)	0.75 (19.1)	0.25 (6.4)	N/A	5.4 (137)	34 (16)
RC16	8.8 (224)	7.2 (182)	3.9 (99)	3.9 (98)	6.4 (162)	1.5 (38)	5.2 (132)	2.3 (58)	0.75 (19.1)	0.25 (6.4)	5.3 (134)	N/A	39 (18)
RC16 + SPUR	8.8 (224)	7.2 (182)	3.9 (99)	3.9 (98)	9.93 (252)	1.5 (38)	5.2 (132)	2.3 (58)	0.75 (19.1)	0.25 (6.4)	N/A	5.9 (151)	47 (21)
RC24	11.2 (283)	9.6 (244)	4.1 (104)	4.9 (124)	8.1 (206)	1.5 (38)	6.4 (161)	2.4 (62)	0.75 (19.1)	0.25 (6.4)	5.5 (140)	N/A	56 (25)
RC24 + SPUR	11.2 (283)	9.6 (244)	4.1 (104)	4.9 (124)	10.17 (258)	1.5 (38)	6.4 (161)	2.4 (62)	0.75 (19.1)	0.25 (6.4)	N/A	6.9 (176)	64 (29)
RC36	12.3 (311)	14.6 (370)	4.1 (104)	7.0 (178)	10.0 (253)	1.5 (38)	8.3 (212)	2.4 (62)	0.75 (19.1)	0.25 (6.4)	6.3 (161)	N/A	90 (41)
RC36 + SPUR	12.3 (311)	14.6 (370)	4.1 (104)	7.0 (178)	11.0 (280)	1.5 (38)	8.3 (212)	2.4 (62)	0.75 (19.1)	0.25 (6.4)	N/A	9.1 (230)	98 (45)
RC48	14.4 (365)	12.6 (320)	4.5 (115)	6.7 (169)	11.7 (298)	1.5 (38)	8.7 (220)	3.4 (86)	0.75 (19.1)	0.25 (6.4)	7.0 (179)	N/A	103 (47)
RC48 + SPUR	14.4 (365)	12.6 (320)	4.5 (115)	6.7 (169)	11.7 (298)	1.5 (38)	8.7 (220)	3.4 (86)	0.75 (19.1)	0.25 (6.4)	N/A	8.7 (222)	111 (50)
RC48 + RP5	14.4 (365)	12.6 (320)	4.5 (115)	6.7 (169)	12.4 (316)	2.0 (51)	8.7 (220)	3.4 (86)	1.00 (25.4)	0.39 (9.9)	N/A	10.0 (253.0)	124 (56)

Dimensions represent most common configurations. Other dimensional configurations possible.

Weight may vary with final configuration.

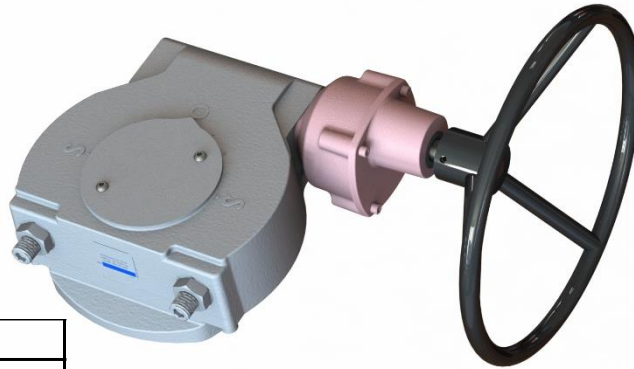


### RC FLAREBASE DIMENSIONS AND WEIGHT

MODEL	A	B	+ C + D	+ WEIGHT
	IN (MM)	IN (MM)	IN (MM)	LBS (KG)
RC2.5	5.6 (142)	4.92 (125)	N/A	0.80 (0)
RC5	7.0 (179)	6.89 (175)	N/A	3.70 (2)
RC10	8.9 (226)	8.38 (213)	0.1 (3)	14.70 (7)
RC16	9.7 (245)	8.75 (222)	0.4 (10)	10.00 (5)
RC24	11.4 (289)	10.18 (259)	N/A	16.30 (7)
RC36	14.9 (378)	12.94 (329)	0.03 (1)	21.10 (10)
RC48	15.3 (389)	13.50 (343)	N/A	15.30 (7)

# WedgeRock RP & SPUR SERIES

## AUXILIARY GEAR ASSEMBLIES



REDUCTION GEARS FOR RC			
MODEL	INPUT SHAFT DIAMETER (KEY PER ANSI B17.1)	MIN STANDARD INPUT FLANGE	MAX STANDARD INPUT FLANGE
	IN (MM)		
RC Spur	0.75 (19.1)	F/FA07	F/FA14
RP5	1.00 / 1.50 (25.4 / 38.1)	F/FA10	F/FA16

RC SPUR RATIOS		
RATIO	2.20	3.30
MECHANICAL ADVANTAGE**	2.0	3.0

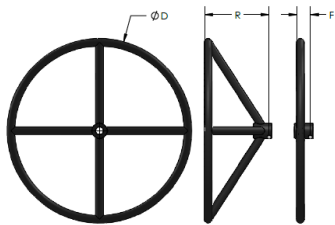
### COMMON RP RATIOS FOR ALL FRAME SIZES

RATIO* [MOST COMMON]	2.50	[2.6]	2.71	2.78	2.85	[3.00]	3.18	[3.29]	3.40	3.67	4.00	[4.20]	4.43	[5.00]	5.80	[6.33]	[9.00]
MECHANICAL ADVANTAGE** [MOST COMMON]	2.4	[2.5]	2.6	2.7	2.8	[2.9]	3.1	[3.2]	3.3	3.6	3.9	[4.1]	4.3	[4.9]	5.6	[6.1]	[8.7]

\* Additional ratios available upon request.

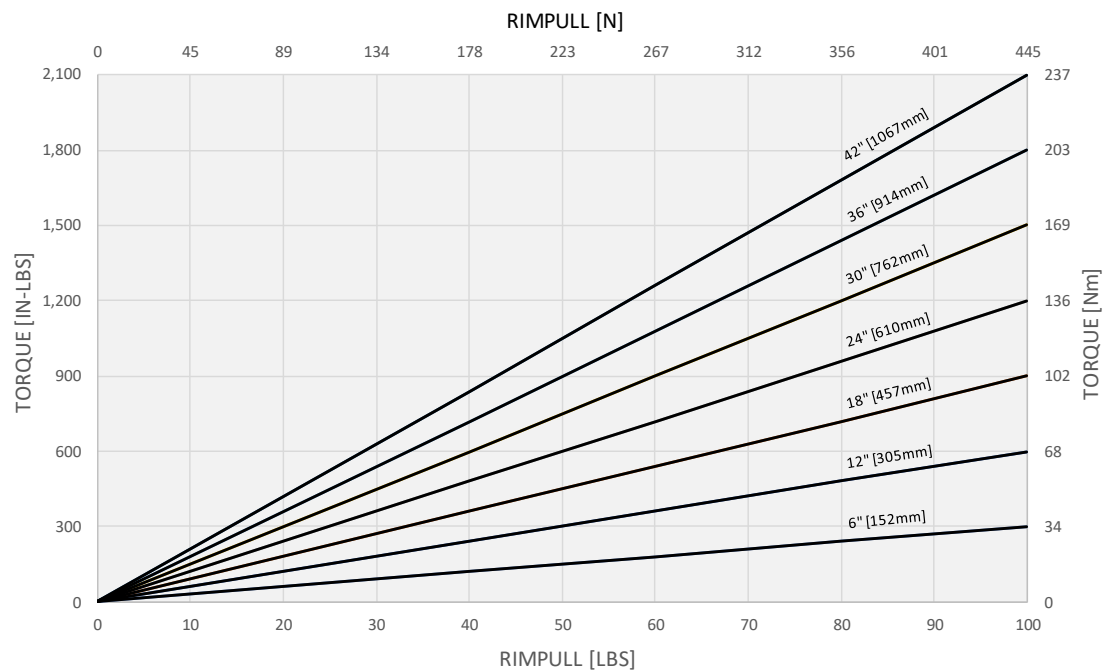
\*\* Mechanical advantage can fall short of published value by 10% until gearbox has worn in. Wear in should occur within 10 cycles.

# WedgeRock HANDWHEELS



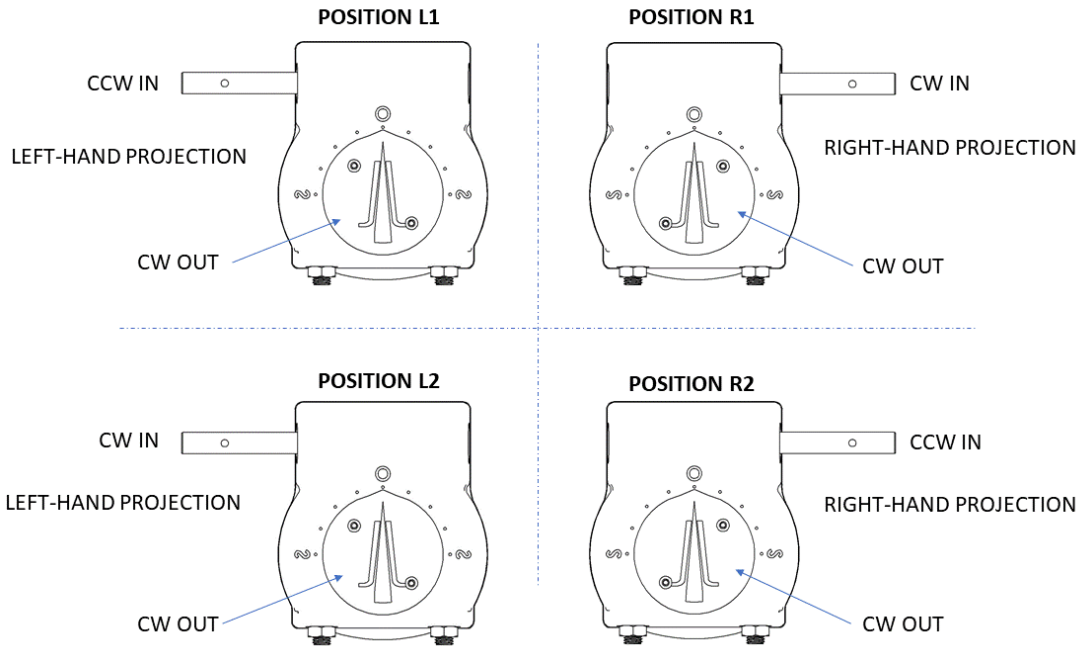
D	R	F
IN	IN	IN
(MM)	(MM)	(MM)
6	2.91	1.75
(152)	(74)	(44)
12	3.88	1.75
(305)	(98)	(44)
18	4.56	1.75
(457)	(116)	(44)
24	5.81	1.75
(610)	(148)	(44)
30	7.19	1.75
(762)	(183)	(44)
36	8.19	1.75
(914)	(208)	(44)
42	10.13	1.75
(1,067)	(257)	(44)

### HANDWHEEL SIZE CHART

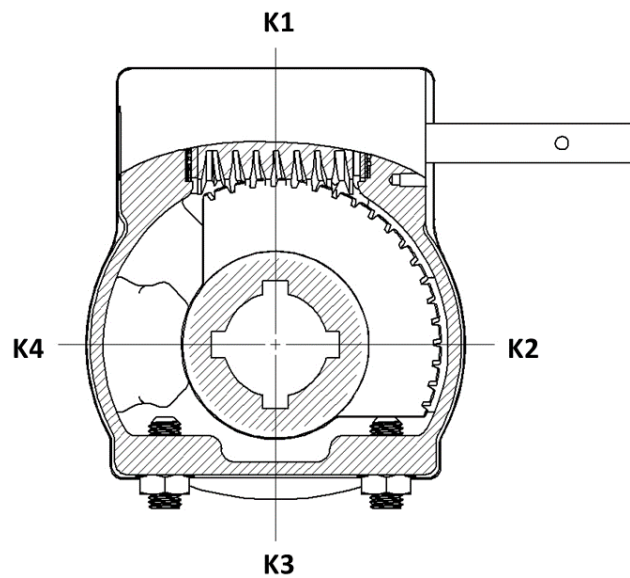


# WedgeRock RC SERIES

## INPUT SHAFT PROJECTION



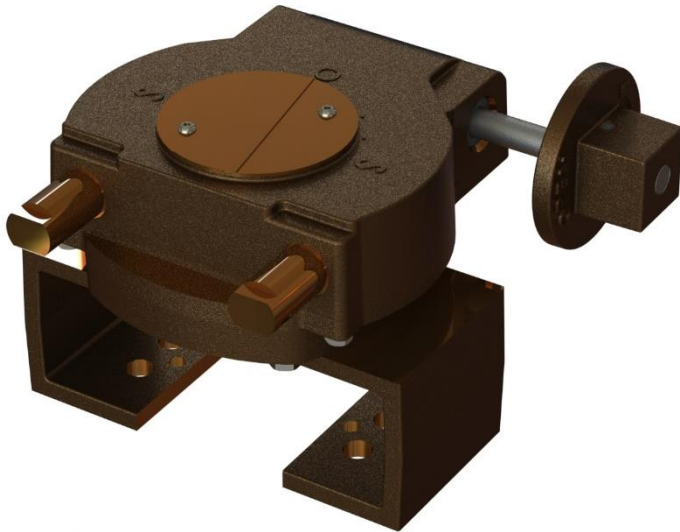
## KEYWAY POSITION



TOP VIEW WITH QUADRANT IN CLOSED POSITION

# WedgeRock RC SERIES

## TEMPERATURE AND SERVICE CONDITIONS



TEMPERATURE SERVICE CONDITIONS				
SERVICE CONDITION	SEAL MATERIAL	LUBRICANT	MIN OPERATING TEMP	MAX OPERATING TEMP
			°F (°C)	°F (°C)
STANDARD SERVICE	BUNA	STANDARD GREASE	-40 (-40)	225 (107)
HIGH-TEMP SERVICE	VITON	HIGH-TEMP GREASE	-15 (-26)	400 (204)
LOW-TEMP SERVICE	LOW TEMP BUNA	LOW-TEMP GREASE	-60 (-51)	225 (107)

### STANDARD COMPONENT MATERIAL SELECTION FOR SPECIFIED ENVIRONMENTS

COMPONENT	SERVICE CONDITION						
	STANDARD PIPELINE		OFFSHORE	NAVY			DISTRICT HEATING
	TOPSIDE	BURIED	PLATFORM	STANDARD	CORROSIVE - AL	CORROSIVE - BZ	CORROSIVE
HOUSING/BASEPLATE	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	ALUMINUM	BRONZE	BRONZE
WORMGEAR QUADRANT	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	BRONZE	BRONZE	BRONZE
WORM	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
INDICATOR	316SS	DUCTILE IRON COVER	316SS	316SS	ALUMINUM	BRONZE	BRONZE
INPUT SHAFT	QPQ COATED STEEL	QPQ COATED STEEL	QPQ COATED STEEL	17-4PH	QPQ COATED STEEL	MONEL	SUPER DUPLEX STAINLESS STEEL
STOPS	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
JAM NUT(S)	STEEL	SEALED STEEL	SEALED STEEL	STEEL	SEALED BRONZE	SEALED BRONZE	SEALED BRONZE
FASTENERS <sup>1</sup>	STEEL	STEEL	316SS	316SS	316SS	MONEL	316SS
SEALS <sup>2</sup>	BUNA / SEALENT	BUNA / SEALENT	BUNA / SEALENT	BUNA / SEALENT	BUNA / SEALENT	BUNA / SEALENT	BUNA / SEALENT
LUBRICATION <sup>3</sup>	GREASE	GREASE	GREASE	GREASE	GREASE	GREASE	GREASE
FINISH <sup>4</sup>	EPOXY PRIMER	EPOXY PRIMER	EPOXY PRIMER	EPOXY PRIMER	N/A	N/A	N/A

1) Standard fasteners for application. Option to use Grade 5, 316SS, B7(M), L7(M), Monel, or other materials per project specification. Grade 5 is zinc plated.

2) Standard seals for application unless otherwise specified. Refer to temperature service condition table.

3) Lubrication per temperature condition. Refer to temperature service condition table.

4) Standard finish unless otherwise specified. Standard epoxy 7-10 mils dft.

MANUAL RATING	MODEL	Torque Rating	Gear Ratio					Mechanical Advantage					Input Torque									
		In-Lbs/(Nm)						+/- 10%					In-Lbs/(Nm)									
	RC2.5	4,167 (471)	40						14							309 (35)						
	RC5	8,333 (942)	40						13							661 (75)						
	RC10	16,667 (1883)	48						11							1475 (167)						
	RC10 + SPUR	16,667 (1883)	106	158					22	34						745 (84)	497 (56)					
	RC16	26,667 (3013)	48						13							2005 (227)						
	RC16 + SPUR	26,667 (3013)	106	158					26	40						1013 (114)	675 (76)					
	RP24	40,000 (4520)	64						18							2247 (254)						
	RC24 + SPUR	40,000 (4520)	141	211					35	53						1135 (128)	757 (85)					
	RC36	60,000 (6780)	74						25							2381 (269)						
	RC36 + SPUR	60,000 (6780)	163	244					50	75						1203 (136)	802 (91)					
	RC48	80,000 (9040)	66						18							4348 (491)						
	RC48 + SPUR	80,000 (9040)	145	218					39	59						2037 (230)	1358 (153)					
	RC48 + RP5	80,000 (9040)	172	198	277	330	418	594	46	54	75	89	113	161	1724 (195)	1494 (169)	1067 (121)	896 (101)	708 (80)	498 (56)		

### Useful Equations

#<sub>in</sub> = Input Turns to Operate ¼ Turn

D<sub>hw</sub> = Handwheel Diameter

MA = Mechanical Advantage

N = Gear Ratio

F<sub>rp</sub> = Rimpull

RPM = Input RPM

T<sub>1/4</sub> = Time to Operate ¼ Turn (Sec)

T<sub>in</sub> = Input Torque

T<sub>out</sub> = Output Torque

Input turns to operate ¼ turn

$$\#_{in} = \frac{N}{4}$$

Time to operate ¼ turn (Seconds)

$$T_{1/4} = \frac{15 \times N}{RPM}$$

Mechanical Advantage

$$MA = \frac{T_{out}}{T_{in}}$$

Required Input Torque

$$T_{in} = \frac{T_{out}}{MA}$$

Required Rimpull

$$F_{rp} = \frac{2 \times T_{in}}{D_{hw}}$$

Required Handwheel Diameter

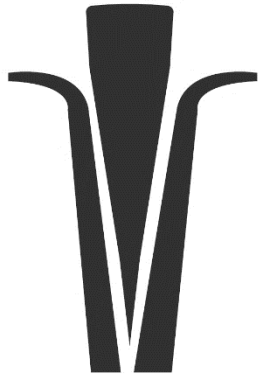
$$D_{hw} = \frac{2 \times T_{in}}{F_{rp}}$$

MOTORIZED RATING	MODEL	Torque Rating	Gear Ratio					Mechanical Advantage					Input Torque									
		In-Lbs/(Nm)						+/- 10%					In-Lbs/(Nm)									
	RC2.5	3,125 (353)	40						14							231 (26)						
	RC5	6,250 (706)	40						13							496 (56)						
	RC10	12,500 (1412)	48						11							1106 (125)						
	RC10 + SPUR	12,500 (1412)	106						22							559 (63)						
	RC16	20,000 (2260)	48						13							1504 (170)						
	RC16 + SPUR	20,000 (2260)	106						26							759 (86)						
	RP24	30,000 (3390)	64						18							1685 (190)						
	RC24 + SPUR	30,000 (3390)	141						35							851 (96)						
	RC36	45,000 (5085)	74						25							1786 (202)						
	RC36 + SPUR	45,000 (5085)	163						50							902 (102)						
	RC48	60,000 (6780)	66						18							3261 (368)						
	RC48 + SPUR	60,000 (6780)	145	218					39	59						2037 (230)	1358 (153)					
	RC48 + RP5	80,000 (9040)	172	198	277	330	418	594	46	54	75	89	113	161	1724 (195)	1494 (169)	1067 (121)	896 (101)	708 (80)	498 (56)		

AWWA RATING	MODEL	Torque Rating	Gear Ratio					Mechanical Advantage					Input Torque									
		In-Lbs/(Nm)						+/- 10%					In-Lbs/(Nm)									
	RC2.5	2,500 (282)	40						14							185 (21)						
	RC5	5,000 (565)	40						13							397 (45)						
	RC10	10,000 (1130)	48						11							885 (100)						
	RC10 + SPUR	10,000 (1130)	106						22							447 (51)						
	RC16	16,000 (1808)	48						13							1203 (136)						
	RC16 + SPUR	16,000 (1808)	106						26							608 (69)						
	RP24	24,000 (2712)	64						18							1348 (152)						
	RC24 + SPUR	24,000 (2712)	141						35							681 (77)						
	RC36	36,000 (4068)	74						25							1429 (161)						
	RC36 + SPUR	36,000 (4068)	163						50							722 (82)						
	RC48	48,000 (5424)	66						18							2609 (295)						
	RC48 + SPUR	48,000 (5424)	145						36							1318 (149)						

Mechanical advantage can fall short of published value by 10% until gearbox has worn in. Wear in should occur within 10 cycles.

## ABOUT WEDGEROCK



The WedgeRock name and logo symbolize the elegance of a simple and effective design and the grit, focus, and determination required to make things happen – the work required to get big things moving. Pragmatism and hard work are central to our culture and reflected in everything we do.

Don't let our dirty hands and old school approach fool you. WedgeRock brings industry leading innovation to your engineered projects in standard lead times.

With a focused approach, WedgeRock provides solutions for the most demanding torque and thrust application. Whether you need to operate valves thousands of meters below the ocean surface, or a purpose designed gear operator for your valve line, give us a call or send an email to get the partnership started.

## OUR MISSION

**WedgeRock provides performance engineered actuation solutions for demanding applications.**

