

WedgeRock RP (Planetary) & RBP (Bevel/Planetary)

700011 Rev-06

Gear Solutions

Features

- Compact
- Efficient drive train
- Patent pending self-locking technology (Optional)
- Modular design accommodates multiple applications
 - Quarter Turn
 - Multi-turn
- Input shaft parallel (RP) or perpendicular (RBP) to output
- Motorized and manual input options
- Splined drive sleeve (Optional)
- Travel indication
- Application engineered



Purpose Engineered, Quality Manufactured, Performance Tested

WedgeRock RP (Planetary) & RBP (Bevel/Planetary)

Manual or motorizable operator for quarter & multi-turn applications.

Imperial

Operator Frame Size	Torque Rating* (1,000 Cycles)	Max Bore*	Max Key Width W/ Bore*	Max Key Height W/ Bore*	Max Standard Flange*	Min Standard Flange*
	[In-Lbs]	[In]	[In]	[In]		
RP / RBP	20,000	3.75	0.75	0.75	FA30	FA16
RP8 / RBP8	100,000	3.75	0.75	0.75	FA30	FA16
RP9 / RBP9	175,000	3.75	0.75	0.75	FA30	FA16
RP10 / RBP10	285,000	6.75	1.75	1.50	FA40	FA25
RP12 / RBP12	475,000	7.50	2.50	1.75	FA48	FA30

Metric

Operator Frame Size	Torque Rating* (1,000 Cycles)	Max Bore*	Max Key Width W/ Bore*	Max Key Height W/ Bore*	Max Standard Flange*	Min Standard Flange*
	[Nm]	[mm]	[mm]	[mm]		
RP / RBP	2,259	95	19	19	F30	F16
RP8 / RBP8	11,298	95	19	19	F30	F16
RP9 / RBP9	19,772	95	19	19	F30	F16
RP10 / RBP10	32,201	171	44	38	F40	F25
RP12 / RBP12	53,668	191	64	44	F48	F30

*Dimensions are subject to change

Flange sizes outside of the standard range can be accommodated

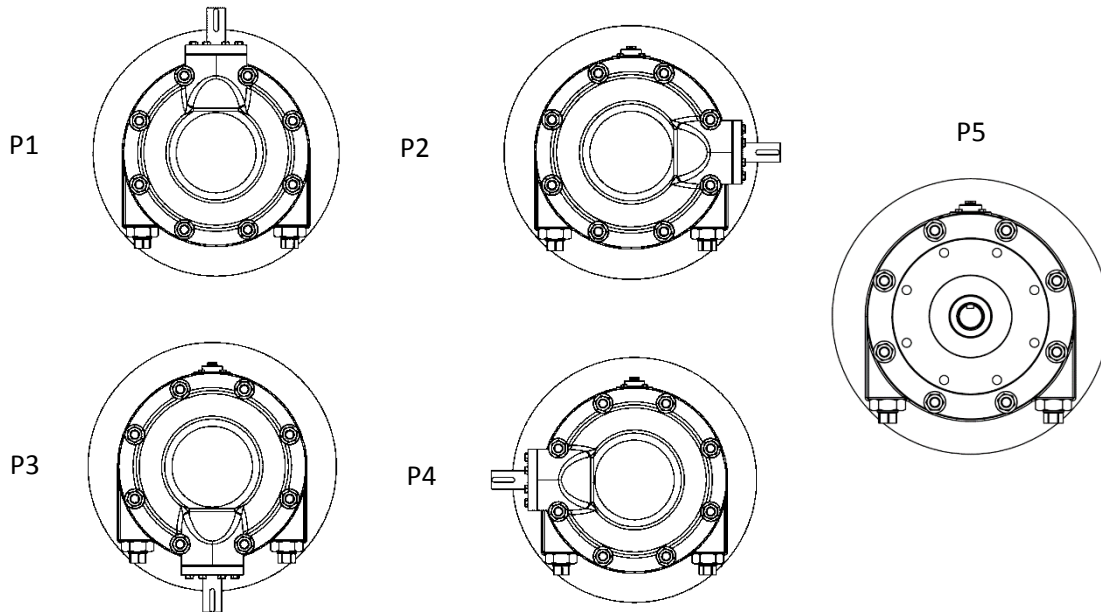
The WedgeRock planetary gearbox allows for modular configurations. Selection of the appropriate ratio within the required frame size can be accomplished using the table below.

RP/RBP Base Ratio Selection*

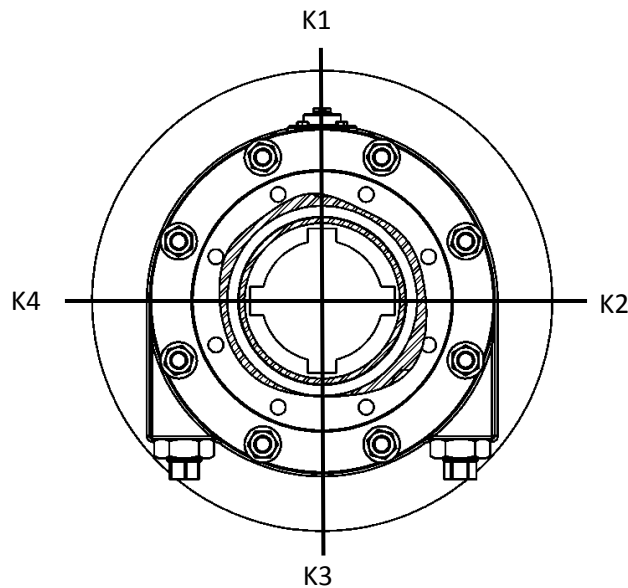
Input Planetary Ratio Variable		RP/RBP Base Ratio - 3.00:1 Rating: 20,000 In-Lbs (2,259 Nm)		RP8/RBP8 Base Ratio - 5.00:1 Rating: 100,000 In-Lbs (11,298 Nm)		RP9/RBP9 Base Ratio - 2.50:1 Rating: 175,000 In-Lbs (19,772 Nm)		RP10/RBP10 Base Ratio - 3.00:1 Rating: 285,000 In-Lbs (32,201 Nm)		RP12/RBP12 Base Ratio - 5.00:1 Rating: 475,000 In-Lbs (53,668 Nm)	
Ratio	MA [±10%]	Ratio	MA [±10%]	Ratio	MA [±10%]	Ratio	MA [±10%]	Ratio	MA [±10%]	Ratio	MA [±10%]
0.00	0.00	3.00	2.88	15.00	13.97	37.50	33.87	45.00	40.65	75.00	67.74
2.50	2.43	7.50	6.98	37.50	33.87	93.75	82.14	112.50	98.57	187.50	164.28
2.60	2.52	7.80	7.26	39.00	35.23	97.50	85.43	117.00	102.51	195.00	170.85
2.71	2.63	8.13	7.57	40.65	36.72	101.63	89.04	121.95	106.85	203.25	178.08
2.78	2.70	8.34	7.77	41.70	37.67	104.25	91.34	125.10	109.61	208.50	182.68
2.85	2.76	8.55	7.96	42.75	38.61	106.88	93.64	128.25	112.37	213.75	187.28
3.00	2.91	9.00	8.38	45.00	40.65	112.50	98.57	135.00	118.28	225.00	197.14
3.18	3.08	9.54	8.88	47.70	43.09	119.25	104.48	143.10	125.38	238.50	208.97
3.29	3.19	9.87	9.19	49.35	44.58	123.38	108.10	148.05	129.72	246.75	216.19
3.40	3.30	10.20	9.50	51.00	46.07	127.50	111.71	153.00	134.05	255.00	223.42
3.67	3.56	11.01	10.25	55.05	49.72	137.63	120.58	165.15	144.70	275.25	241.16
4.00	3.88	12.00	11.17	60.00	54.20	150.00	131.42	180.00	157.71	300.00	262.85
4.20	4.07	12.60	11.73	63.00	56.91	157.50	138.00	189.00	165.60	315.00	275.99
4.43	4.30	13.29	12.38	66.45	60.02	166.13	145.55	199.35	174.66	332.25	291.11
5.00	4.85	15.00	13.97	75.00	67.74	187.50	164.28	225.00	197.14	375.00	328.56
5.80	5.63	17.40	16.20	87.00	78.58	217.50	190.57	261.00	228.68	435.00	381.13
6.33	6.14	18.99	17.68	94.95	85.76	237.38	207.98	284.85	249.58	474.75	415.96
9.00	8.73	27.00	25.14	135.00	121.94	337.50	295.71	405.00	354.85	675.00	591.41

*Custom ratios available upon request

Input Shaft Projection



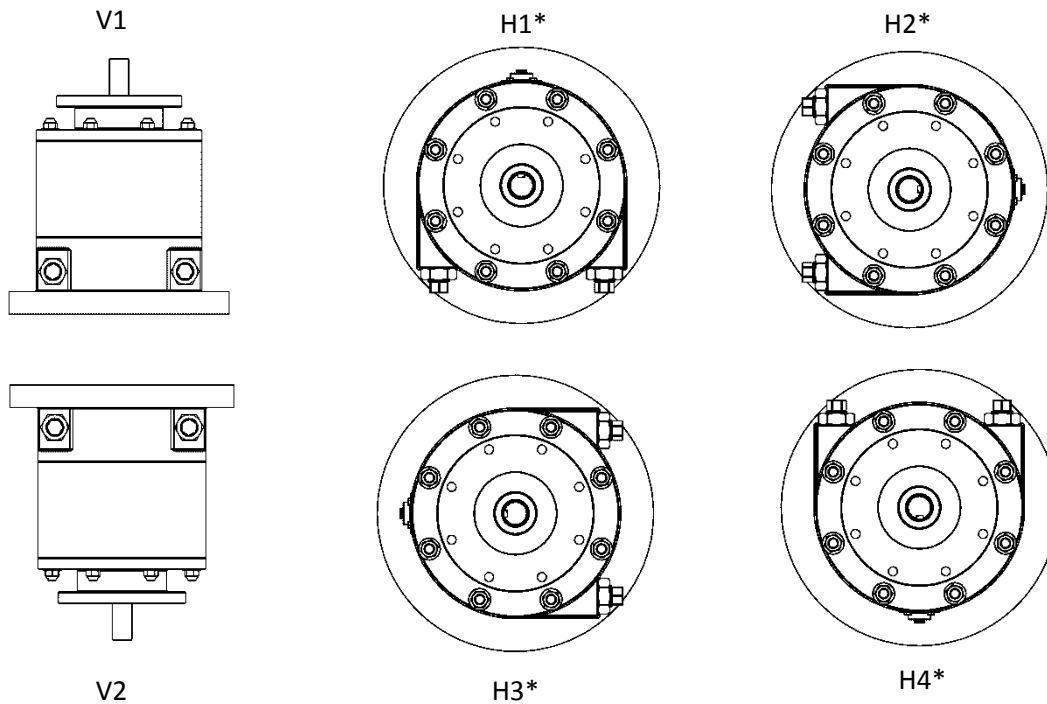
Keyway Position*



*Top view with quadrant in fully clockwise closed position

Gearbox Orientation

Indication of gearbox installation orientation allows for proper locating of the pressure relief valve for optimized venting. Standard venting is per installed orientation V1 in the chart below.



*Use V1, V2 or H for multi-turn applications

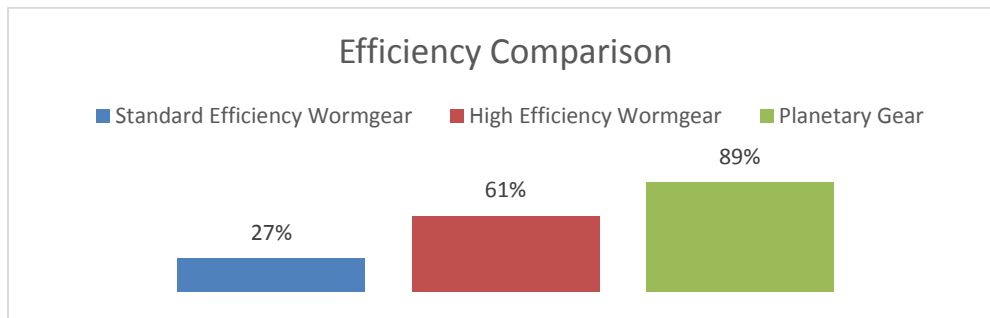
Why Efficiency Matters

The increased efficiency of our product allows for at minimum over 2X the performance of standard wormgears with the WedgeRock wormgear, and over 3X the performance with the WedgeRock Planetary.

Typical valve sizing scenario:

	Valve Torque	Gearbox Efficiency	Turns to Close(1)	Time to close(2)	Power to Close(3)
Standard Wormgear	750,000	27%	481	289	3.7
WedgeRock Wormgear		61%	213	128	1.6
WedgeRock Planetary		89%	147	88	1.1

- 1) Turns to close based on 80 lbs (350 N) of rim pull on 36" handwheel, 1,440 in-lbs (1952 Nm)
- 2) Time to close in seconds based on 100 RPM input speed
- 3) Power to close in HP based on 180 second close time requirement



On top of the advantage in gear efficiency, our gear actuators are configured per application, meaning our ratios are optimized to deliver the highest performance possible. In many applications, this can increase our performance over standard gears further.

In the comparison below, a typically sized standard wormgear operator can require 5.5X more turns to operate, 5.5X more time to operate, or 5.5X more power to operate than a WedgeRock gear operator.

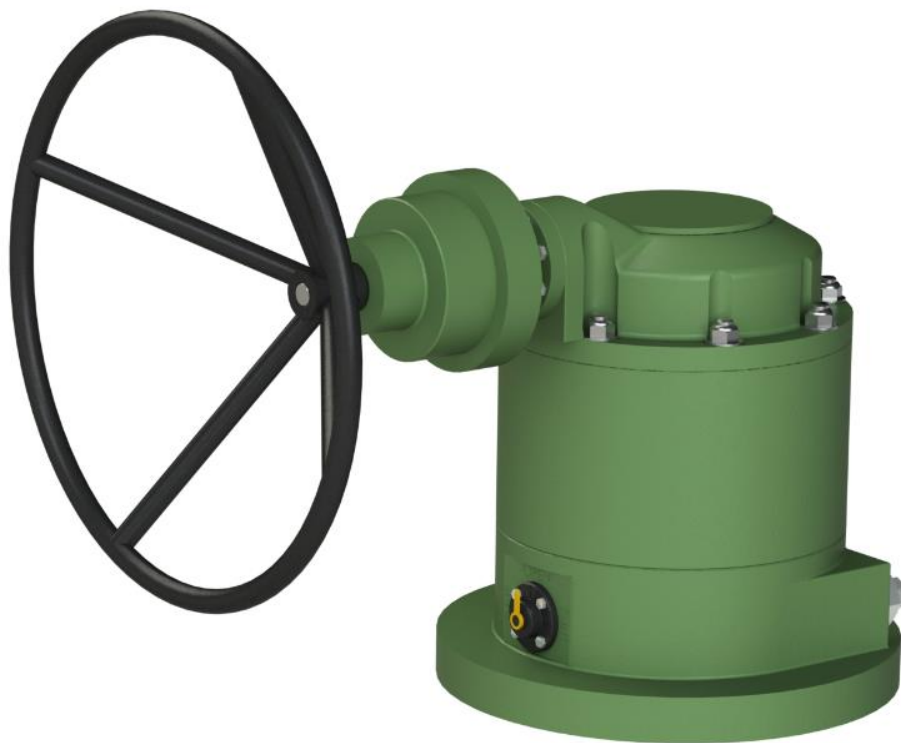
Valve Size In/(mm)	Torque w/ SF In-Lbs/(Nm)	Handwheel Diameter In/(mm)	Break Rim Pull Lbs/(N)	Turns to Close			Reduction in Turns	
				Standard	WedgeRock Wormgear	WedgeRock Planetary	WedgeRock Wormgear	WedgeRock Planetary
24 (600)	180000 (20,337)	36 (900)	< 80 (<356)	154	73	29	2.1X	5.3X
30 (750)	325000 (36,720)			226	79	56	2.9X	4.5X
36 (900)	475000 (53,668)			305	120	84	2.5X	3.6X

WedgeRock RP

Quarter turn planetary gearbox can be configured with any available ratio offered. It comes with a base which houses indication and stops.



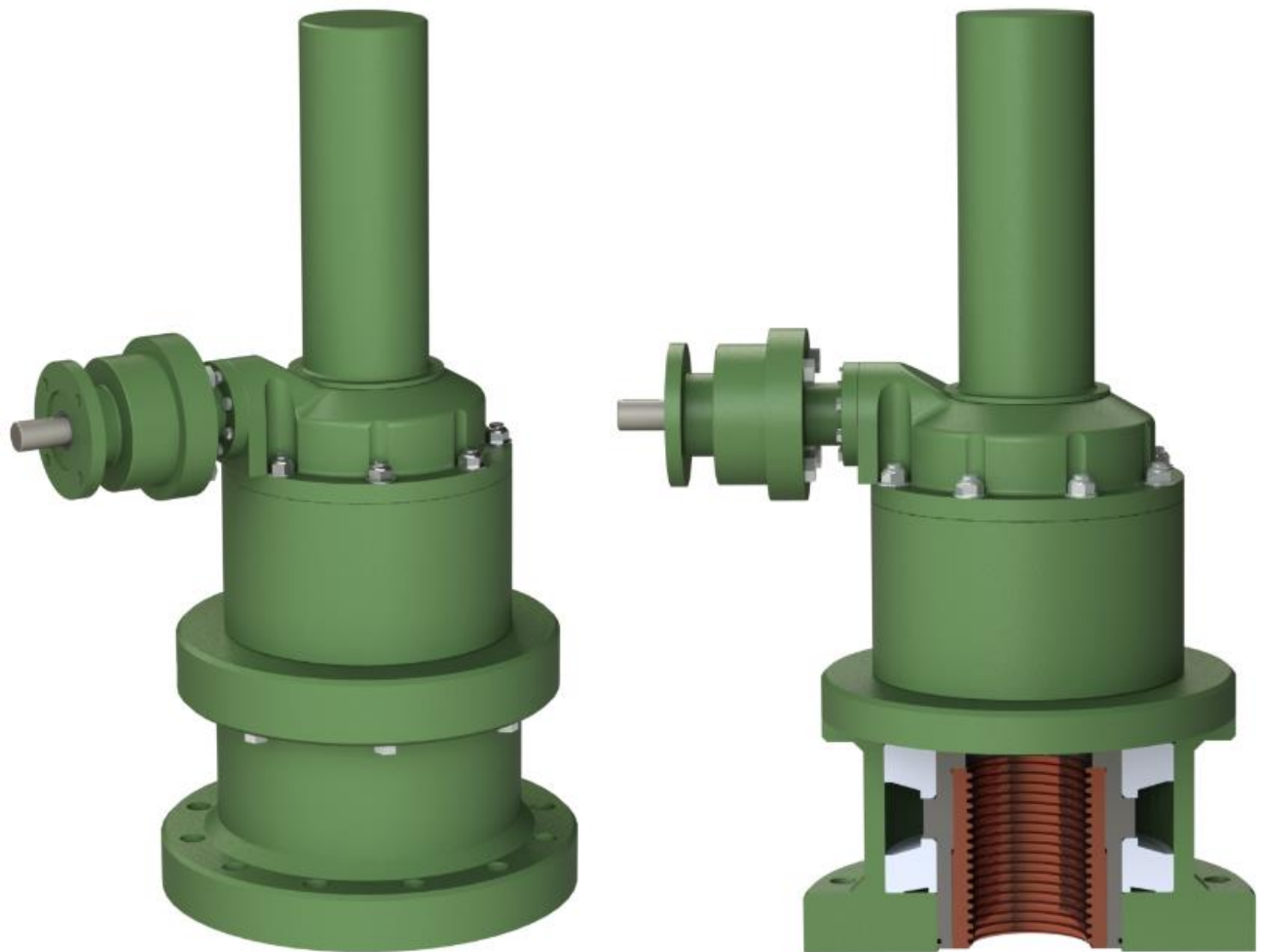
Motorized



Manual

WedgeRock RPt & RBPt

Multi turn, thrust capable gearbox for rising stem applications must be configured with any planetary base ratio before a bevel gear is used. This will allow the stem to rise up through the gearbox. A bevel gear must be used in order to keep the rising stem from interfering with the input shaft. An RT thrust base is mounted to the bottom.



WedgeRock RPs

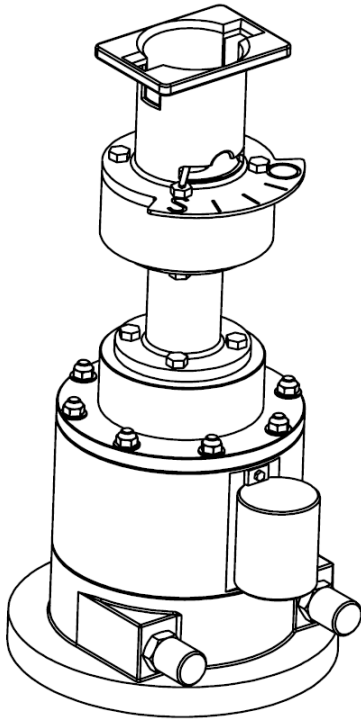
Subsea planetary gear offers a robust concentric design.

Features

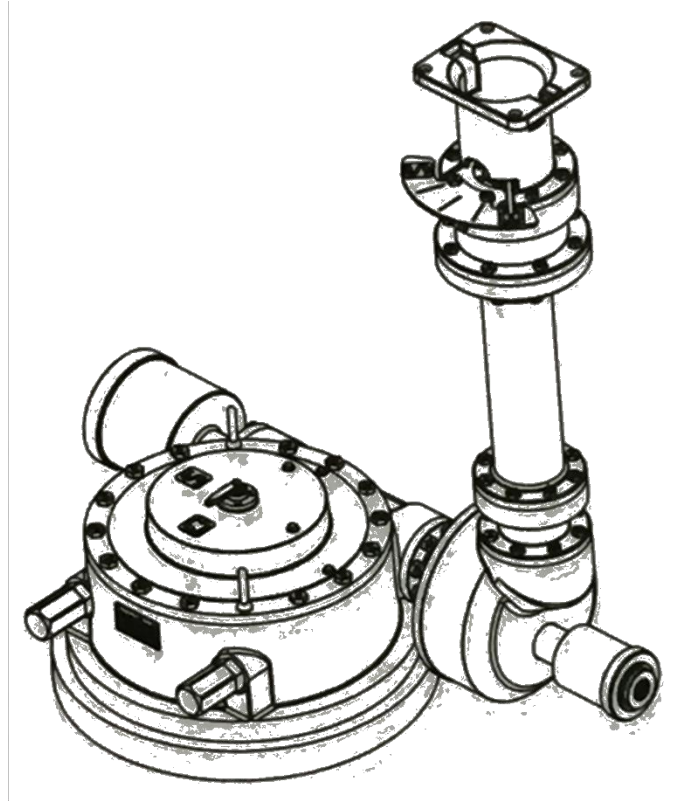
- Many gear solutions and configurations available
- Engineered to meet API specifications
- Designed per project specifications
- Quick delivery
- Application engineered
- Super duplex input shafts
- Dual mechanical seals at all interfaces
- Compensation to any required depth
- Non compensated shallow subsea to 300 ft [100m]



Subsea weight comparison



~855 lbs
(~3800 N)



~1660 lbs
(~7385 N)

STANDARD GEARS INCLUDE:

- Ductile Iron Housings (Carbon Steel if fabricated).
- Standard Temperature Range: -40° to 225°F.
 - Seal: -40 to 225° F (BUNA)
 - Grease : -40 to 400°F long term exposure
- Machined for direct mount without adaption.
- Designed for Ingress Protection Rating: IP68
- Pressure relief valves in the housing and stem, relieves pressure build caused by temperature changes. (For effective venting Gear Orientation must be provided for proper relief valve positioning.)

ADDITIONAL OPTIONS AVAILABLE:

- Low Temp. -50°F
 - Seal: Low Temp. to -50°F (Nitrile)
 - Grease: Low Temp. to -50°F
 - Housing and Other Materials of Construction capable of -50°F
- High Temp. -15° to 400°F
 - Seal: -15 to 400°F (Viton)
 - Grease : -40 to 400°F long term exposure
- Risers and Adaptors
- Lockouts
- Arrestor Brackets (Supports the use of a Portable Torque Tool.)

ADDITIONAL CONFIGURATIONS AVAILABLE:

- Buy America Compliant
- AWWA Compliant (Standard and in 316 SS)
- Declutchable and Lost Motion Overrides
(For use with hydraulic and pneumatic actuators.)
- Configurable Sub Sea Compliant options

Options and Configurations are not limited to the above, please make request for special applications and specification requirements.