

WedgeRock RP PRODUCT SHEET

700140 Rev-03

PLANETARY GEAR SOLUTIONS



Features, Options & Configurability

- | | |
|---|--|
| <ul style="list-style-type: none"> • Capable of reducing turns to cycle or time to close by 5X over conventional quarter-turn solutions due to increased efficiency and wide range of ratio options. • Optionally Self-Locking • Mechanical stops for quarter turn rotation, $\pm 5^\circ$ adjustment at each stop • 90% filled, Greased for life, no maintenance • Elastomer seals at all ingress points, designed and tested to IP68 • Input shaft projection Parallel or Perpendicular to output with addition of Bevel or Miter gear • Input lockout • Meets requirements of AWWA C500, C509 & C515 • Available Certifications: <ul style="list-style-type: none"> ○ BABA and other USA domestic ○ AWWA Compliant ○ ATEX Compliant | <ul style="list-style-type: none"> • Modular design accommodates; <ul style="list-style-type: none"> ○ Quarter-Turn ○ Multi-Turn ○ Rising Stem ○ Non-Rising Stem ○ Subsea <ul style="list-style-type: none"> ▪ Deep water ▪ Shallow water • Motorized and Manual input options • Buried Service prep • Risers and adaptors • Temperature range and materials configured per application • Machined for direct mount <ul style="list-style-type: none"> ○ Standard Flanges to MSS SP101/MSS SP102 & ISO 5211/ISO 5210 ○ Custom Bolt Pattern Available |
|---|--|

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 QUARTER-TURN RP SERIES

PERFORMANCE

While the RP planetary gear is designed for traditional multi-turn applications, we've included some extra features. The quarter-turn version of the RP is designed with performance in mind versus traditional wormgears..



Motorized Application, Optimized Power Consumption							
	Required Gearbox Rating	Gearbox Ratio	Gearbox Mechanical Advantage	Gearbox Efficiency	Turns to Close	Input Torque Required	Power Required
	IN-LBS (NM)					IN-LBS (NM)	HP (KW)
Standard Efficiency Wormgear	95,000 (10,735)	168	46	23%	42	2088 (236)	3.3 (2.5)
WedgeRock Planetary Gear	95,000 (10,735)	165	151	91%	41	630 (71)	1.0 (0.7)

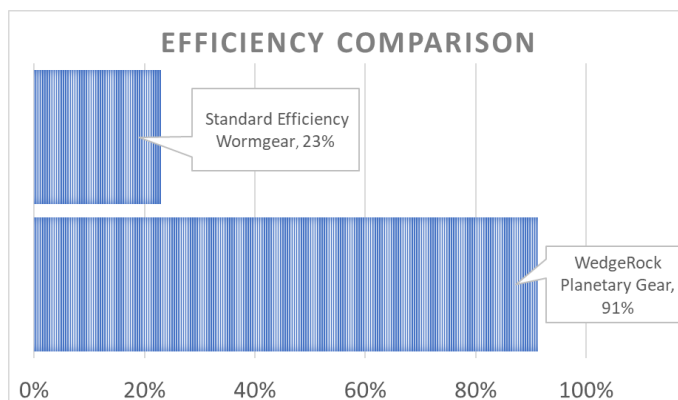
Motorized Application, Optimized Time to Operate						
	Required Gearbox Rating	Gearbox Ratio	Gearbox Mechanical Advantage	Gearbox Efficiency	Turns to Close	Time to Operate 1/4 Turn @ 100 RPM
	IN-LBS (NM)					Seconds
Standard Efficiency Wormgear	95,000 (10,735)	168	46	27%	42	25
WedgeRock Planetary Gear	95,000 (10,735)	45	42	94%	11	7

Manual Application, Optimized Turns to Operate						
	Required Gearbox Rating	Gearbox Ratio	Gearbox Mechanical Advantage	Gearbox Efficiency	Handwheel Diameter	Turns to Operate
	IN-LBS (NM)				IN (MM)	
Standard Efficiency Wormgear	95,000 (10,735)	504	119	24%	36 (914)	126
WedgeRock Planetary Gear	95,000 (10,735)	75	68	91%	36 (914)	19

Value Proposition

Conventional wormgears use inefficient gear design as self-locking feature. WedgeRock uses a patented mechanical bidirectional clutch called PolyLock™ making our high efficiency planetary gears self-locking. The PolyLock clutch allows torque from input to act on drivetrain in clockwise or counterclockwise direction while providing mechanical brake force if backdriving torque is applied to the output by valve or other actuated device.

Motorized application can be optimized using WedgeRock planetary gears, for faster close times, or reducing electric actuator frame size. Manual applications can be optimized to reduce number of turns to operate extending manually operated valve size, reducing installation and maintenance cost.



WedgeRock RP SERIES

GENERAL OVERVIEW



RP SERIES PLANETARY REDUCTION GEAR			
MODEL	INPUT SHAFT DIAMETER (KEY PER ANSI B17.1)	MIN STANDARD INPUT FLANGE	MAX STANDARD INPUT FLANGE
	IN (MM)		
RP5	1.00 / 1.50 (25.4 / 38.1)	F/FA10	F/FA16
RP6	1.00 / 1.50 (25.4 / 38.1)	F/FA14	F/FA16
RP8	1.50 / 2.00 (38.1 / 50.8)	F/FA16	F/FA25

MANUAL AND MOTORIZED OPERATION

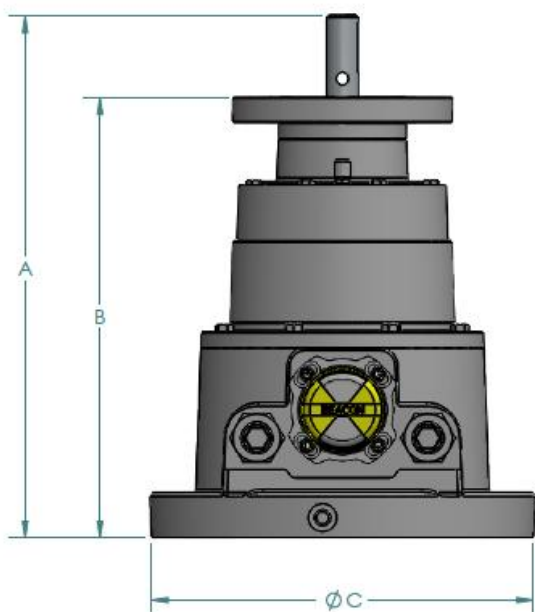
				DIRECT DRIVE			SPLINED DRIVER				
MODEL	TORQUE RATING			MAX BORE W/ SQUARE KEY PER ANSI B17.1	MAX BORE W/ RECTANGULAR KEY PER ANSI B17.1	MAX CIRCUMSCRIBED DIAMETER OF DRIVE FEATURE	MAX BORE W/ SQUARE KEY PER ANSI B17.1	MAX BORE W/ RECTANGULAR KEY PER ANSI B17.1	MAX CIRCUMSCRIBED DIAMETER OF DRIVE FEATURE	MAX STEM ENGAGEMENT	STANDARD FLANGE
	200 CYCLES 1.5X S.F. ²	1,000 CYCLES 2.0X S.F. ²	10,000 CYCLES 2.5X S.F. ²								
	IN-LBS (NM)	IN-LBS (NM)	IN-LBS (NM)								
RP5	13,333 (1,507)	10,000 (1,130)	8,000 (904)	2.00 (50.8)	2.00 (50.8)	2.51 (63.7)				4.00 (101.6)	F10/FA10 F16/FA16
RP6	37,333 (4,219)	28,000 (3,164)	22,400 (2,531)	3.50 (88.9)	3.63 (92.1)	4.39 (111.6)				5.28 (134.1)	F16 ¹ /FA16 ¹ F25/FA25
RP6H	60,000 (6,780)	45,000 (5,085)	36,000 (4,068)	3.50 (88.9)	3.63 (92.1)	4.39 (111.6)				5.28 (134.1)	F16 ¹ /FA16 ¹ F25/FA25
RP8	133,333 (15,067)	100,000 (11,300)	80,000 (9,040)				3.75 (95.3)	4.00 (101.6)	4.85 (123.2)	6.13 (155.6)	F25/FA19 ¹ F30/FA30
RP9	233,333 (26,367)	175,000 (19,775)	140,000 (15,820)				4.75 (120.7)	5.13 (130.2)	6.04 (153.4)	7.65 (194.2)	F25/FA19 ¹ F35/FA36
RP10	320,000 (36,160)	240,000 (27,120)	192,000 (21,696)				5.50 (139.7)	5.88 (149.2)	6.98 (177.3)	7.82 (198.6)	F25 ¹ /FA25 ¹ F40/FA40
RP12	533,333 (60,267)	400,000 (45,200)	320,000 (36,160)				7.00 (177.8)	7.13 (181.0)	8.75 (222.3)	8.37 (212.5)	F30 ¹ /FA30 ¹ F48/FA48
RP14	1,000,000 (113,000)	750,000 (84,750)	600,000 (67,800)				7.63 (193.7)	8.00 (203.2)	9.62 (244.3)	10.28 (261.2)	F35 ¹ /FA35 ¹ F60/FA60
RP18	1,800,000 (203,400)	1,350,000 (152,550)	1,080,000 (122,040)				8.13 (206.4)	8.63 (219.1)	10.20 (259.1)	13.80 (350.5)	F48 ¹ /FA48 ¹ F60/FA60
RP24	3,000,000 (339,000)	2,250,000 (254,250)	1,800,000 (203,400)				10.00 (254.0)	10.75 (273.1)	12.57 (319.3)	16.00 (406.4)	F48 ¹ /FA48 ¹ AS NEEDED
RP36	6,000,000 (678,000)	4,500,000 (508,500)	3,600,000 (406,800)				12.63 (320.7)	13.13 (333.4)	15.72 (399.3)	16.00 (406.4)	F60 ¹ /FA60 ¹ AS NEEDED

1) Spigot diameter does not fit on standard flange

2) Published safety factor for gearbox design. Application should be sized to published torque rating and include any application safety factor

WedgeRock RP SERIES

ENVELOPE DIMENSIONS



RP ENVELOPE DIMENSIONS AND WEIGHT				
MODEL	A	B	C	WEIGHT
	IN (MM)	IN (MM)	IN (MM)	LBS (KG)
RP5	13.1 (333)	10.5 (267)	8.4 (213)	72 (33)
RP6	15.2 (386)	13.1 (333)	12.0 (305)	131 (59)
RP6 + RP5	16.4 (417)	13.8 (351)	12.0 (305)	142 (64)
RP6H + RP5	16.4 (417)	13.8 (351)	12.0 (305)	148 (67)
RP8	18.4 (467)	16.9 (429)	15.0 (381)	268 (122)
RP8 + RP6	19.7 (499)	18.4 (467)	15.0 (381)	262 (119)
RP8 + RP6 + RP5	21.7 (551)	19.1 (485)	15.0 (381)	265 (120)
RP9 + RP8	23.9 (606)	22.4 (568)	16.8 (427)	481 (218)
RP9 + RP8 + RP5	23.8 (604)	21.2 (539)	16.8 (427)	390 (177)
RP10 + RP8	27.3 (694)	25.8 (656)	18.8 (477)	660 (299)
RP10 + RP8 + RP5	27.3 (693)	24.7 (627)	18.8 (477)	628 (285)
RP12 + RP8	27.8 (705)	26.3 (667)	22.3 (565)	832 (377)
RP12 + RP8 + RP6	29.0 (738)	27.8 (706)	22.3 (565)	826 (375)
RP12 + RP8 + RP6 + RP5	31.1 (789)	28.5 (724)	22.3 (565)	829 (376)
RP14 + RP10 + RP6	34.1 (867)	32.9 (835)	27.8 (705)	1403 (636)
RP14 + RP10 + RP6 + RP5	33.6 (853)	36.1 (918)	27.8 (705)	1406 (638)
RP18	AVAILABLE UPON REQUEST			
RP24	AVAILABLE UPON REQUEST			
RP36	AVAILABLE UPON REQUEST			
RP36 + RP18	AVAILABLE UPON REQUEST			
Dimensions represent most common configurations. Other dimensional configurations possible.				
Weight may vary with final configuration.				

WedgeRock RP SERIES

AVAILABLE RATIOS

COMMON RATIOS FOR RP5 & RP6

RATIO ¹ [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 ² [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]

COMMON RATIOS FOR RP6H-RP24

RATIO ¹ [MOST COMMON]	[2.5]	2.60	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 ² [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

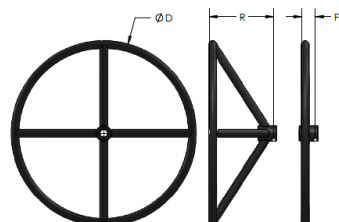
COMMON RATIOS FOR RP36

RATIO ¹ [MOST COMMON]	2.44	2.63	2.86	3.17	3.60	4.25	[5.33]	6.20	[^] Catalog torque rating to be reduced by 20% using this ratio ^{^^} Catalog torque rating to be reduced by 40% using this ratio ^{^^^} Catalog torque rating to be reduced by 60% using this ratio								
MECHANICAL ADVANTAGE ² [MOST COMMON]	2.3	2.5	2.7	3.0	3.4	4.0	[5.1]	5.9									

1) Additional ratios available upon request.

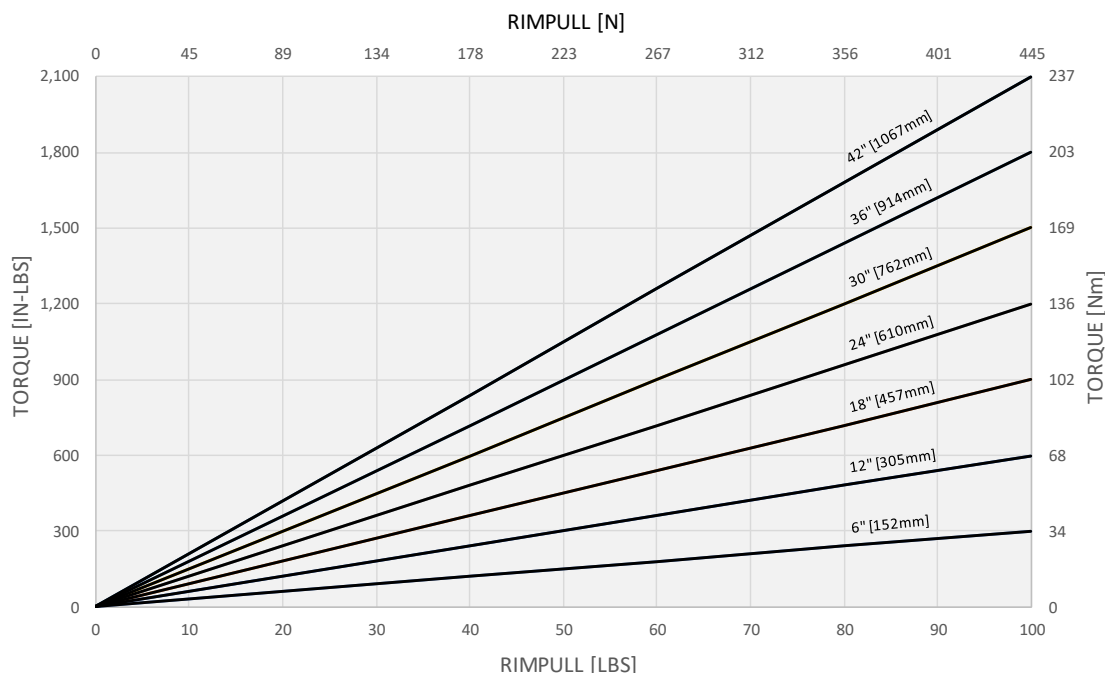
2) Mechanical advantage can fall short of published value by 10% until gearbox has worn in. Wear in should occur within 10 cycles.

WedgeRock HANDWHEELS



D	R	F
IN	IN	IN
(MM)	(MM)	(MM)
6	5.25	1.75
(152)	(133)	(44)
12	5.25	1.75
(305)	(133)	(44)
18	6.25	1.75
(457)	(159)	(44)
24	8.38	1.75
(610)	(213)	(44)
30	10.00	1.75
(762)	(254)	(44)
36	9.63	1.75
(914)	(244)	(44)
42	10.13	1.75
(1,067)	(257)	(44)

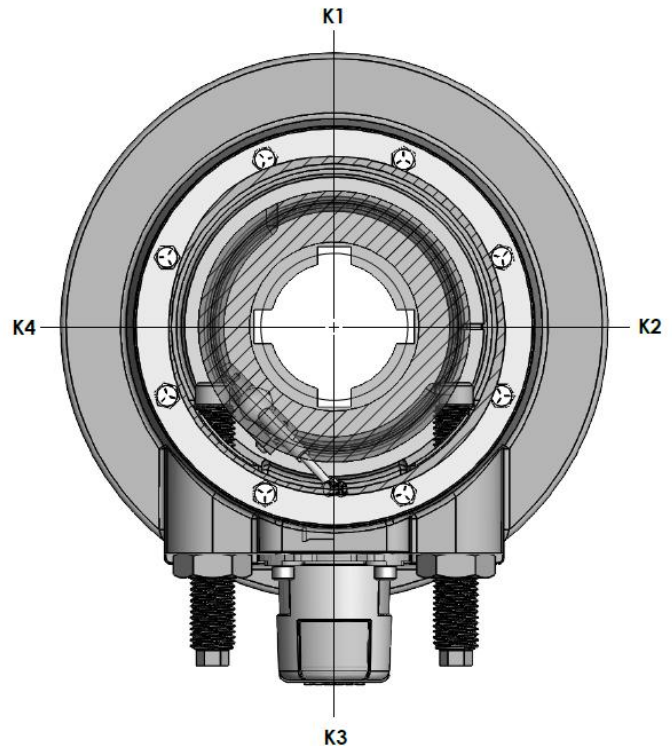
HANDWHEEL SIZE CHART



WedgeRock RP SERIES

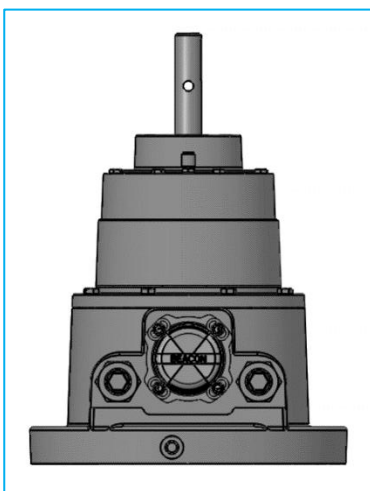
KEYWAY POSITION

TOP VIEW, QUADRANT IN CLOSED
POSITION FOR QUARTER-TURN
APPLICATIONS AS SHOWN

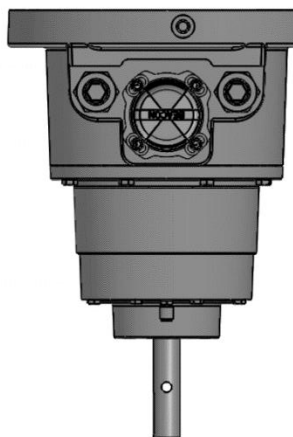


GEAR OPERATOR ORIENTATION TO ALLOW FOR
PROPER VENT CONFIGURATION **[STANDARD]**

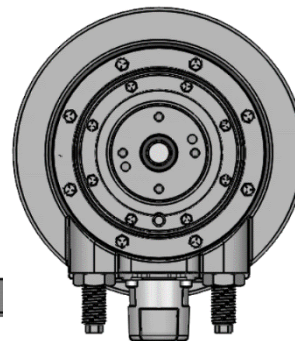
V1



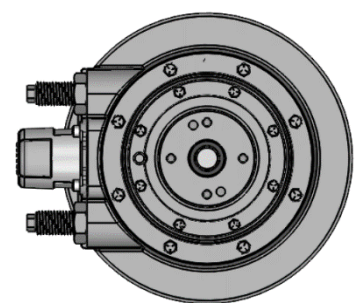
V2



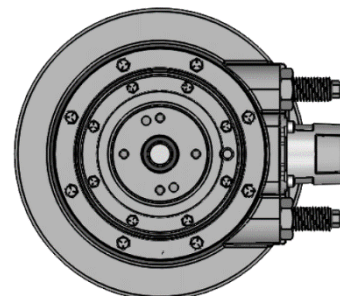
H1



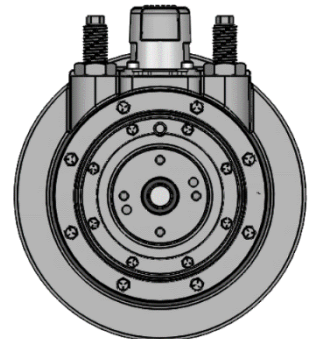
H2



H3



H4



WedgeRock RP SERIES

TEMPERATURE AND SERVICE CONDITIONS



STANDARD COMPONENT MATERIAL SELECTION FOR SPECIFIED ENVIRONMENTS

COMPONENT	SERVICE CONDITION					
	STANDARD PIPELINE		OFFSHORE	SUBSEA		DISTRICT HEATING
	TOPSIDE	BURIED	PLATFORM	SHALLOW	COMPENSATED	CORROSIVE
STOP BASE ¹	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	BRONZE
RP HOUSING ¹	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	BRONZE
OUTPUT HUB ¹	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	BRONZE
PLANET GEARS	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
SUN GEAR	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
PLANET CARRIER	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
HUB BEARINGS	BRASS	BRASS	BRASS	BRASS	BRASS	BRONZE
INPUT SHAFT	STAINLESS STEEL	STAINLESS STEEL	SUPER DUPLEX STAINLESS STEEL	SUPER DUPLEX STAINLESS STEEL	SUPER DUPLEX STAINLESS STEEL	SUPER DUPLEX STAINLESS STEEL
STOPS	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL	ALLOY STEEL
JAM NUT(S)	STEEL	SEALED STEEL	SEALED STEEL	SEALED STEEL	SEALED STEEL	SEALED BRONZE
FASTENERS ²	GRADE 5	GRADE 5	316SS	GRADE 5 / 316SS	GRADE 5 / 316SS	316SS
SEALS ³	BUNA	BUNA	BUNA	PTFE/BUNA	PTFE/BUNA	BUNA
LUBRICATION ⁴	GREASE	GREASE	GREASE	GREASE	OIL	GREASE
FINISH ⁵	EPOXY PRIMER	EPOXY PRIMER	EPOXY PRIMER	EPOXY PRIMER	EPOXY PRIMER	N/A

1) Models RP18 and larger may use carbon steel fabrications in place of ductile iron.

2) 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.

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

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

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

WedgeRock RP SERIES

TEMPERATURE AND SERVICE CONDITIONS

Explosion Protection

Available explosion protection configuration conforms to ATEX requirements for T3 or T4. The following is the standard ATEX rating:

II 2 G Ex h IIB T4 Gb
 II 2 D Ex h IIIC T135°C Db

Enclosure Protection

The standard RP has been verified to meet IP68 requirements, ensuring sealing integrity when submerged in water at depths greater than 1 m. The unit is suitable for uncompensated subsea operation to 100 m and for compensated applications to depths exceeding 6,000 m.

Ambient Temperature Rating

TEMPERATURE SERVICE CONDITIONS		
SERVICE CONDITION	MIN OPERATING TEMP	MAX OPERATING TEMP
	°F (°C)	°F (°C)
STANDARD SERVICE	-40 (-40)	225 (107)
HIGH TEMPERATURE SERVICE	-15 (-26)	400 (204)
LOW TEMPERATURE SERVICE	-60 (-51)	225 (107)
ATEX T4 STANDARD	-31 (-35)	160 (70)
ATEX T4 EXTENDED	-60 (-51)	160 (70)
Wider operating temperature ranges are available. Consult with factory.		

MODEL	Torque Rating	Standard Gear Stack Configuration & Ratios	Configurable Input Ratio	Total Gear Ratio						Mechanical Advantage						Input Torque					
	In-Lbs/(Nm)			Configurable Ratio (more options available)						+/- 10%						In-Lbs/(Nm)					
RP5 - RP6 Configurable Standard Ratios				2.60	3.00	4.20	5.00	6.33	9.00	2.60	3.00	4.20	5.00	6.33	9.00	2.60	3.00	4.20	5.00	6.33	9.00
RP6H - RP14 Configurable Standard Ratios				2.50	3.00	4.00	5.00	6.33	9.00	2.50	3.00	4.00	5.00	6.33	9.00	2.50	3.00	4.00	5.00	6.33	9.00
RP5	10,000 (1130)			2.6	3.0	4.2	5.0	6.3	9.0	2.5	2.9	4.1	4.9	6.1	8.7	3965 (448)	3436 (388)	2455 (277)	2062 (233)	1629 (184)	1145 (129)
RP6	28,000 (3164)			2.6	3.0	4.2	5.0	6.3	9.0	2.5	2.9	4.1	4.9	6.1	8.7	11102 (1254)	9622 (1087)	6873 (777)	5773 (652)	4560 (515)	3207 (362)
		RP6-5.00	RP5	13	15	21	25	32	45	12	14	20	24	30	42	2289 (259)	1984 (224)	1417 (160)	1190 (135)	940 (106)	661 (75)
RP6H	45,000 (5085)			2.5	3.0	4.0	5.0			2.4	2.9	3.9	4.9			18557 (2097)	15464 (1747)	11598 (1311)	9278 (1048)		
		RP6H-5.00	RP5	13	15	21	25	32	45	12	14	20	24	30	42	3679 (416)	3188 (360)	2277 (257)	1913 (216)	1511 (171)	1063 (120)
RP8	100,000 (11299)						5.0	6.3	9.0				4.9	6.1	8.7				20619 (2330)	9772^ (1104)	4582^^ (518)
		RP8-5.00	RP6	13	15	21	25	32	45	12	14	20	24	30	42	8175 (924)	7085 (801)	5061 (572)	4251 (480)	3358 (379)	2362 (267)
		RP8-5.00 RP6-5.00	RP5	65	75	105	125	158	225	59	68	96	114	144	205	1686 (190)	1461 (165)	1044 (118)	877 (99)	692 (78)	487 (55)
RP9	175,000 (19774)						5.0	6.3	9.0				4.9	6.1	8.7				36082 (4077)	17101^ (1932)	8018^^ (906)
		RP9-5.00	RP8	13	15	20	25	32	45	12	14	19	24	30	42	14879 (1681)	12399 (1401)	9300 (1051)	7440 (841)	5877 (664)	4133 (467)
		RP9-5.00 RP8-6.33	RP5	82	95	133	158	200	285	75	87	121	144	183	260	2330 (263)	2019 (228)	1442 (163)	1212 (137)	957 (108)	673 (76)
RP10	240,000 (27119)						5.0	6.3	9.0				4.9	6.1	8.7				49485 (5591)	23452^ (2650)	10997^^ (1243)
		RP10-5.00	RP8	13	15	20	25	32	45	12	14	19	24	30	42	20406 (2306)	17005 (1921)	12754 (1441)	10203 (1153)	8059 (911)	5668 (640)
		RP10-5.00 RP8-9.00	RP5	117	135	189	225	285	405	107	123	172	205	260	370	2248 (254)	1948 (220)	1391 (157)	1169 (132)	923 (104)	649 (73)
RP12	400,000 (45198)						5.0	6.3	9.0				4.9	6.1	8.7				82474 (9319)	39087^ (4417)	18328^^ (2071)
		RP12-5.00	RP8	13	15	20	25	32	45	12	14	19	24	30	42	34010 (3843)	28342 (3202)	21256 (2402)	17005 (1921)	13432 (1518)	9447 (1067)
		RP12-5.00 RP8-5.00	RP6	65	75	105	125	158	225	59	68	96	114	144	205	6743 (762)	5844 (660)	4174 (472)	3506 (396)	2769 (313)	1948 (220)
		RP12-5.00 RP8-5.00	RP6-4.20 RP5	273	315	441	525	665	945	242	279	390	465	588	837	1655 (187)	1434 (162)	1025 (116)	861 (97)	680 (77)	478 (54)
RP14	750,000 (84746)						5.0	6.3	9.0				4.9	6.1	8.7				154639 (17473)	73289^ (8281)	34364^^ (3883)
		RP14-5.00	RP10	13	15	20	25	32	45	12	14	19	24	30	42	63769 (7206)	53141 (6005)	39855 (4503)	31884 (3603)	25185 (2846)	17714 (2002)
		RP14-5.00 RP10-9.00	RP6	117	135	189	225	285	405	107	123	172	205	260	370	7024 (794)	6087 (688)	4348 (491)	3652 (413)	2885 (326)	2029 (229)
		RP14-5.00 RP10-5.00	RP6-6.33 RP5	411	475	665	791	1002	1424	364	420	588	700	887	1261	2059 (233)	1784 (202)	1275 (144)	1071 (121)	846 (96)	595 (67)
RP18	1,350,000 (152542)						5.0	6.3	9.0				4.9	6.1	8.7				278351 (31452)	131920^ (14906)	61856^^ (6989)
		RP18-5.00	RP12	13	15	20	25	32	45	12	14	19	24	30	42	114784 (12970)	95653 (10808)	71740 (8106)	57392 (6485)	45333 (5122)	31884 (3603)
		RP18-5.00 RP12-9.00	RP8	113	135	180	225	285	405	103	123	164	205	260	370	13148 (1486)	10957 (1238)	8218 (929)	6574 (743)	5193 (587)	3652 (413)
		RP18-5.00 RP12-5.00	RP8-6.33 RP6	411	475	665	791	1002	1424	364	420	588	700	887	1261	3706 (419)	3212 (363)	2294 (259)	1927 (218)	1522 (172)	1071 (121)
RP24	2,250,000 (254237)						5.0	6.3	9.0				4.9	6.1	8.7				463918 (52420)	219866^ (24844)	103093^^ (11649)
		RP24-5.00	RP14	13	15	20	25	32	45	12	14	19	24	30	42	191306 (21617)	159422 (18014)	119566 (13510)	95653 (10808)	75555 (8537)	53141 (6005)
		RP24-5.00 RP14-9.00	RP8	113	135	180	225	285	405	103	123	164	205	260	370	21914 (2476)	18261 (2063)	13696 (1548)	10957 (1238)	8655 (978)	6087 (688)
		RP24-5.00 RP14-9.00	RP8-9.00 RP6	1053	1215	1701	2025	2564	3645	932	1076	1506	1793	2270	3227	2414 (273)	2092 (236)	1494 (169)	1255 (142)	991 (112)	697 (79)
RP36	4,500,000 (508475)			2.4	3.2	3.6	4.3	5.3	6.2	2.4	3.1	3.5	4.1	5.2	6.0	1901301 (214836)	1463462 (165363)	1288660 (145611)	1091571 (123341)	870389 (98349)	748254 (84548)
		RP36-6.20	RP18	16	19	25	31	39	56	15	18	23	29	37	53	308558 (34865)	257132 (29054)	192849 (21791)	154279 (17433)	121863 (13770)	85711 (9685)
		RP36-6.20 RP18-9.00	RP10	140	167	223	279	353	502	127	153	204	255	322	458	35345 (3994)	29454 (3328)	22090 (2496)	17672 (1997)	13959 (1577)	9818 (1109)
		RP36-6.20 RP18-9.00	RP10-9.00 RP6	1306	1507	2109	2511	3179	4520	1156	1334	1867	2223	2814	4001	3893 (440)	3374 (381)	2410 (272)	2024 (229)	1599 (181)	1125 (127)

[^] Torque rating reduced by 40% using this ratio

^{^^} Torque rating reduced by 60% using this ratio

Notes:

- Actual mechanical advantage may be up to 10% lower than the published value until the gearbox has properly worn in. Full wear-in typically occurs within the first 10 operating cycles.
- The calculated input torque values in the table correspond to the 1,000-cycle rated output torque for each model.
- Many additional gear ratios are available upon request.

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Useful Equations

$\#_{in}$	INPUT TURNS TO OPERATE ¼ TURN
D_{hw}	HANDWHEEL DIAMETER
MA	MECHANICAL ADVANTAGE
N	GEAR RATIO
F_{rp}	RIMPULL
RPM	INPUT RPM
$T_{1/4}$	TIME TO OPERATE ¼ TURN (SECONDS)
T_{inmax}	ONE-TIME MAX INPUT TORQUE
T_{in}	INPUT TORQUE
T_{out}	OUTPUT TORQUE
T_{200}	200 CYCLE TORQUE RATING
T_{1000}	1,000 CYCLE TORQUE RATING
T_{10000}	10,000 CYCLE TORQUE RATING
200 cycle torque rating:	
$T_{200} = T_{1000} \times 1.33$	
10,000 cycle torque rating:	
$T_{10000} = T_{1000} \times 0.80$	
One-Time max input torque	
$T_{inmax} = 2 \times \frac{T_{1000}}{MA}$	
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	
$D_{hw} = \frac{2 \times T_{in}}{F_{rp}}$	

Other RP Configurations

RB + RP BASE

RB mounted to a higher torque capacity RP planetary gear to allow input perpendicular from output.

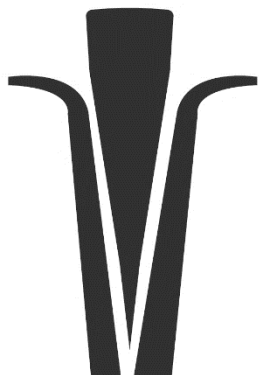


RP Subsea



Subsea planetary gear offers robust concentric design. Compensation to any depth. Non-compensated shallow subsea to 300 ft [100m]. Application Engineered.

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.

