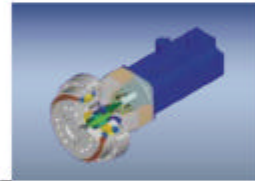
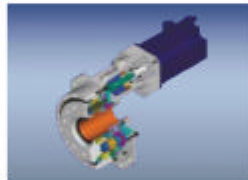




# Nabtesco

*High Performance Reduction Gears & Servo Actuators*

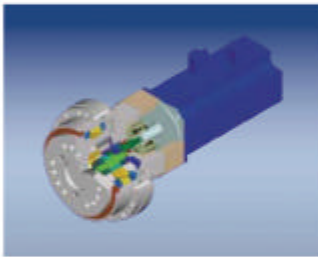


# PRECISION REACHES A NEW LEVEL

## High Performance Reduction Gears and Servo Actuators

Nabtesco is a world leader in the manufacturing of motion control systems and components with over 2 million of our precision gear reducers and servo-actuators in use around the world today. For high quality and proven performance, Nabtesco is the only choice.

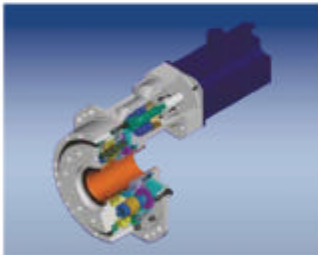
### Gear Head Models



#### RD-E<sub>SERIES</sub>

#### In-Line

The RD-E in-line gear head combines high performance and extreme precision in a complete, easy to use package. Our patented 2-stage cycloidal technology supplies large torque, high-ratio and significant shock-load capabilities with extreme precision and excellent quality. The unit also utilizes internal angular support bearings to achieve very high thrust and moment capacities. Less than 1 arc-min backlash is standard with ratios 31:1 thru 185:1 available.



#### RD-C<sub>SERIES</sub>

#### Hollow Shaft

The RD-C Series Hollow Shaft Gear Head provides a large center thru-hole for applications that require space saving or unique design configurations. The unit utilizes our patented cycloidal technology and integrated support bearings to provide high-end positioning performance - all in a completely sealed and ready to mount package. Less than 1 arc-min backlash is standard with ratios 81:1 thru 258:1 available.



#### GH<sub>SERIES</sub>

#### High Speed

The GH Series Reducer provides high output speed and low backlash (6 arc-min) in a very compact, highly rigid reducer. The GH is available in standard flange and shaft type output configurations and is shipped sealed, pre-greased and ready to mount to your servomotor.

## Component Models



### **RV-E** SERIES In-Line

The in-line RV-E reducers provide high-end performance in a very compact and highly rigid configuration. The unit incorporates rolling contact elements to provide high efficiency and long life, integrated angular bearings to support external loads and a 2-stage reduction design to reduce vibration and inertia while increasing ratio capabilities. Less than 1 arc-min Backlash standard.



### **RV-C** SERIES Hollow Shaft

The RV-C reducers provide a Hollow Shaft Center for more system design flexibility and greater space saving options. Cables and other necessary equipment easily pass through the thru-hole (up to 5"). The unit provides high torsional stiffness, high shock load capabilities and ratios up to 300:1. Less than 1 arc-min Backlash standard.



### **RV** SERIES No Main Bearing Support

This series of RV reducers do not include main support bearings. This model is ideal for precision application which do not require the gear to support external loads or where additional bearings are already provided. Less than 1 arc-min Backlash standard.

## Servo Actuator



### **AR** SERIES Servo Actuator

The High Performance AR Series Servo-Actuator integrates our Zero-Backlash, High Performance RV Reduction Gear, Servomotor, Electromagnetic Holding Break and Encoder into a flat and very compact one-piece unit. The unit has highly accurate indexing capabilities/repeatability, holds up to 255 addresses and is ideal for a variety of applications wherever precise motion control is required. Less than 1 arc-min backlash is standard with a rated torque range from 200-14,000 in-lbs.

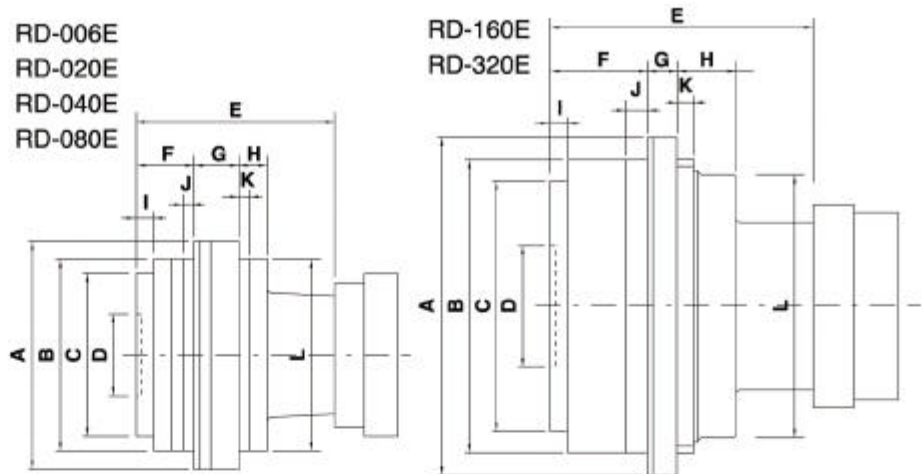
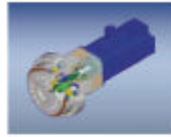
**High Precision Control**  
**High Durability**  
**Low Inertia**  
**High Efficiency**  
**Low Backlash**  
**Low Vibration**

**Features**

## Gear Head Model



In-Line



## Dimensions

MODEL	A φ inch (mm)	Bh7 φ inch (mm)	Ch7 φ inch (mm)	DH7 φ inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K inch (mm)	Lh7 φ inch (mm)	Mass lb (kg)
006E	4.94 (125.5)	4.06 (103)	3.39 (86)	0.79 (20)	5.20 (132)	1.12 (28.5)	1.26 (32)	0.96 (24.5)	0.33 (8.5)	0.31 (8)	0.31 (8)	4.06 (103)	12.13 (5.5)
020E	5.91 (150)	4.88 (124)	4.13 (105)	1.26 (32)	5.37 (136.5)	1.18 (30)	1.57 (40)	0.96 (24.5)	0.22 (5.5)	0.39 (10)	0.39 (10)	4.80 (122)	18.08 (8.2)
040E	7.56 (192)	6.30 (160)	5.31 (135)	1.97 (50)	6.13 (155.8)	1.22 (31)	2.03 (51.5)	0.89 (22.5)	0.28 (7)	0.39 (10)	0.39 (10)	6.30 (160)	38.14 (17.3)
080E	8.78 (223)	7.48 (190)	6.30 (160)	2.17 (55)	7.17 (182)	2.13 (54)	1.63 (41.5)	1.02 (26)	0.67 (17)	0.39 (10)	0.39 (10)	7.48 (190)	55.56 (25.2)
160E	11.02 (280)	9.45 (240)	8.03 (204)	5.12 (130)	8.29 (210.5)	2.89 (73.6)	0.87 (22)	1.89 (42.9)	0.52 (13.1)	0.59 (15)	0.39 (10)	9.45 (240)	98.11 (44.5)
320E	12.08 (325)	11.18 (284)	9.65 (245)	5.98 (152)	9.31 (236.5)	3.44 (87.5)	1.06 (27)	2.05 (52)	0.63 (16)	0.79 (20)	0.59 (15)	11.18 (284)	151.46 (68.7)

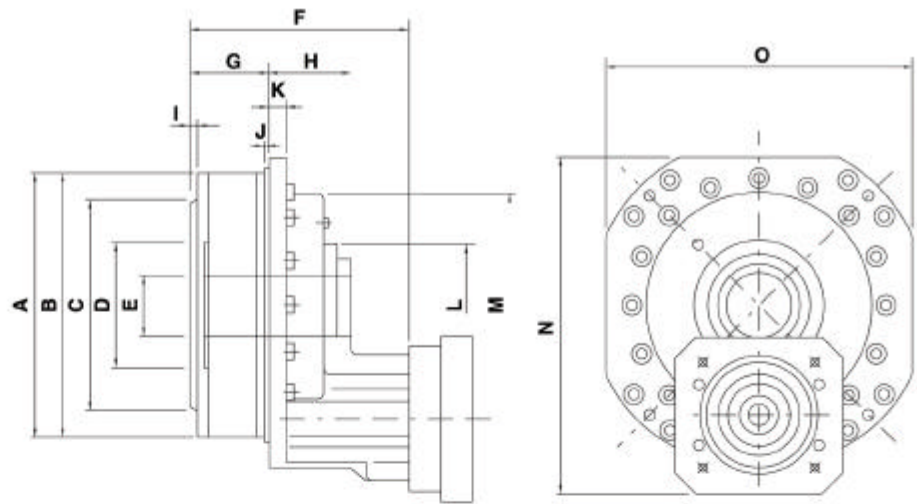
## Specifications

Model	Speed Ratio		Rated Torque lb-in (Nm)	Allowable Acc./Dec. Torque lb-in (Nm)	Momentary Max. Allowable Torque lb-in (Nm)	Rated Speed rpm	Max. Speed rpm	Backlash arc.min	Torsional Rigidity lb-in/arc.min (Nm/arc.min)	Capacity of Main Bearing		
										Rated Moment lb-in (Nm)	Max. Moment lb-in (Nm)	Max. Axial Load lb (N)
006E	31.0	79.0	521 (58)	1,042 (117)	2,604 (294)	30	100	1.5	177 (20)	1,736 (196)	3,472 (392)	331 (1,470)
	43.0	103.0										
	53.5	—										
020E	41.0	105.0	1,476 (167)	3,645 (412)	7,378 (833)	15	75	1.0	434 (49)	7,812 (882)	15,623 (1,764)	882 (3,920)
	57.0	161.0										
	81.0	—										
040E	41.0	105.0	3,645 (412)	9,114 (1,029)	18,227 (2,058)	15	70	1.0	955 (108)	14,755 (1,666)	29,511 (3,332)	1,168 (5,194)
	57.0	153.0										
	81.0	—										
080E	41.0	101.0	6,944 (784)	17,359 (1,960)	34,719 (3,920)	15	70	1.0	1,736 (196)	19,095 (2,156)	38,190 (4,312)	1,764 (7,840)
	57.0	153.0										
	81.0	—										
160E	66.0	145.0	13,887 (1,568)	34,719 (3,920)	69,437 (7,840)	15	45	1.0	3,472 (392)	34,719 (3,920)	69,437 (7,840)	3,307 (14,700)
	81.0	171.0										
	101.0	—										
320E	66.0	141.0	27,775 (3,136)	69,437 (7,840)	138,874 (15,680)	15	35	1.0	8,680 (980)	62,493 (7,056)	124,987 (14,112)	4,409 (19,600)
	81.0	185.0										
	101.0	—										

## Gear Head Model



Hollow Shaft



## Dimensions

MODEL	Ah7 φ inch (mm)	B φ inch (mm)	Ch7 φ inch (mm)	DH7 φ inch (mm)	E φ inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K inch (mm)	L φ inch (mm)	M φ inch (mm)	N inch (mm)	O inch (mm)	Mass lb (kg)
010C	5.75 (146)	5.75 (146)	4.33 (110)	1.81 (46)	0.98 (25)	6.20 (157.5)	1.81 (46)	2.50 (63.5)	0.18 (4.5)	0.26 (6.5)	0.55 (14)	2.09 (53)	4.96 (126)	7.70 (195.5)	6.69 (170)	22.05 (10.0)
027C	7.44 (189)	7.17 (182)	5.51 (140)	2.69 (66)	1.42 (36)	6.87 (174.5)	2.26 (57.5)	2.46 (62.5)	0.20 (5)	0.20 (5)	0.55 (14)	3.07 (78)	6.46 (164)	9.27 (235.5)	8.07 (205)	35.49 (16.1)
050C	9.06 (230)	8.78 (222.5)	6.93 (176)	3.66 (93)	1.85 (47)	7.74 (196.5)	2.28 (68)	2.80 (71)	0.20 (5)	0.16 (4)	0.59 (15)	4.06 (103)	7.52 (191)	11.06 (281)	9.92 (252)	57.76 (26.2)
100C	10.16 (258)	9.86 (250.5)	7.83 (199)	4.17 (106)	2.36 (60)	7.87 (200)	2.85 (72.5)	3.01 (76.5)	0.20 (5)	0.20 (5)	0.59 (15)	4.72 (120)	8.35 (212)	12.81 (325.5)	11.02 (280)	76.94 (34.9)
200C	13.94 (354)	13.66 (347)	10.24 (260)	5.43 (138)	2.95 (75)	10.31 (262)	4.02 (102)	4.00 (101.5)	0.28 (7)	0.20 (5)	0.79 (20)	5.59 (142)	11.50 (292)	16.73 (425)	14.49 (368)	190.70 (86.5)
320C	17.32 (440)	15.75 (400)	13.39 (340)	7.87 (200)	4.72 (120)	10.93 (277.5)	3.98 (101)	5.20 (132)	0.22 (5.5)	1.38 (35)	0.98 (25)	8.43 (214)	14.80 (376)	20.61 (523.5)	17.60 (447)	293.21 (133.0)

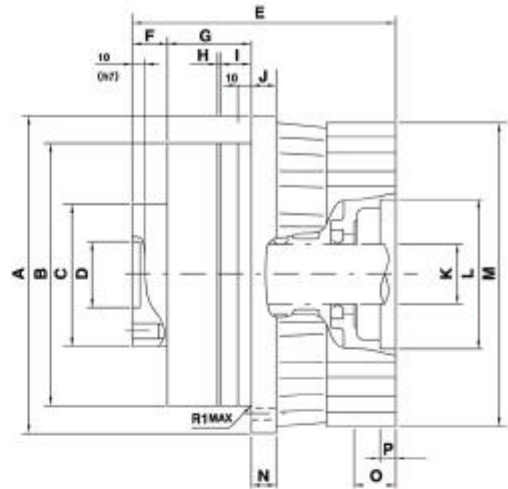
## Specifications

Model	Speed Ratio		Rated Torque	Allowable Acc./Dec. Torque	Momentary Max. Allowable Torque	Rated Speed	Max. Speed	Backlash	Torsional Rigidity	Hollow	Capacity of Main Bearing		
											Rated Moment	Max. Moment	Max. Axial Load
	lb-in (Nm)	lb-in (Nm)	lb-in (Nm)	rpm	rpm	arc.min	lb-in/arc.min (Nm/arc.min)	φ mm	lb-in (Nm)	lb-in (Nm)	lb (N)		
010C	81.00	189.00	868 (98)	2,170 (245)	4,340 (490)	15	80	1.0	417 (47)	25	6,076 (686)	12,152 (1,372)	1,323 (5,880)
	108.00	243.00											
	153.00	—											
027C	99.82	233.45	2,344 (265)	5,859 (662)	11,718 (1,323)	15	60	1.0	1,302 (147)	36	8,680 (980)	17,359 (1,960)	1,984 (8,820)
	141.68	—											
	184.00	—											
050C	109.00	239.80	4,340 (490)	10,850 (1,225)	21,699 (2,450)	15	50	1.0	2,257 (255)	47	15,623 (1,764)	31,247 (3,528)	2,646 (11,760)
	152.60	—											
	196.20	—											
100C	100.50	258.00	8,680 (980)	21,699 (2,450)	43,398 (4,900)	15	40	1.0	4,513 (510)	60	21,699 (2,450)	43,398 (4,900)	3,087 (13,720)
	150.00	—											
	210.00	—											
200C	105.83	245.08	17,359 (1,960)	43,398 (4,900)	86,796 (9,800)	15	30	1.0	8,680 (980)	75	78,117 (8,820)	156,233 (17,640)	4,409 (19,600)
	155.96	—											
	206.09	—											
320C	115.00	253.00	27,775 (3,136)	69,437 (7,840)	138,874 (15,680)	15	25	1.0	17,359 (1,960)	120	182,272 (20,580)	347,185 (39,200)	6,614 (29,400)
	157.00	—											
	207.00	—											

## Gear Head Model

**GH**  
series

High Speed



## Dimensions

MODEL	A φinch (mm)	B φinch (mm)	C φinch (mm)	D φinch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K φinch (mm)	L φinch (mm)	M φinch (mm)	N inch (mm)	O inch (mm)	P inch (mm)
<b>7</b>	5.51 (140)	4.72 (120)	2.17 (55)	0.98 (25)	5.36 (136.2)	0.79 (20)	1.82 (46.2)	0.03 (0.7)	0.79 (20)	0.79 (20)	1.10 (28)	3.15 (80)	5.24 (133)	0.75 (19)	0.47 (12)	0.28 (7)
<b>17</b>	7.09 (180)	5.94 (151)	2.83 (72)	1.38 (35)	6.18 (157)	0.79 (20)	2.05 (52)	0.07 (1.7)	0.67 (17)	0.98 (25)	1.50 (38)	4.33 (110)	6.69 (170)	0.94 (24)	0.98 (25)	0.39 (10)
<b>24</b>	7.68 (195)	6.30 (160)	3.78 (96)	1.65 (42)	5.75 (146)	0.39 (10)	2.56 (65)	0.04 (1)	1.02 (26)	0.59 (15)	1.42 (36)	4.33 (110)	7.32 (186)	0.55 (14)	0.37 (9.5)	0.28 (7)
<b>40</b>	9.45 (240)	7.87 (200)	4.25 (108)	1.97 (50)	7.96 (202.2)	1.06 (27)	2.51 (63.7)	0.05 (1.2)	0.91 (23)	0.79 (20)	1.77 (45)	4.50 (114.3)	9.02 (229)	0.75 (19)	1.26 (32)	0.47 (12)
<b>100</b>	14.72 (374)	12.20 (310)	5.67 (144)	2.76 (70)	—	0.98 (25)	4.84 (123)	—	3.35 (85)	—	—	—	—	—	—	—

Note: Reference dimensions only.

Please refer to the appropriate outline drawings for precise dimensions and tolerances.

## Specifications

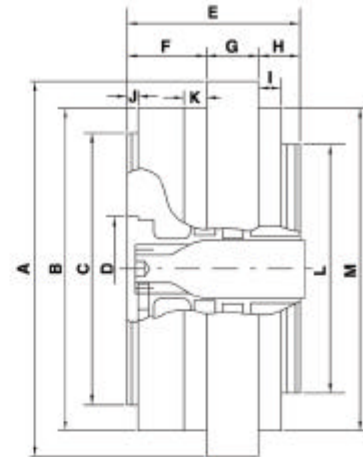
Model	Ratio	Rated Torque	Allowable Acc./Dec. Torque	Max. Allowable Torque (E-Stop)	Rated Moment	Thrust Load	Backlash	Rated Speed	Max. Output Speed	Weight
	1:R	lb-in (Nm)	lb-in (Nm)	lb-in (Nm)	lb-in (Nm)	lb (N)	Min	rpm	rpm	lb (kg)
<b>7</b>	11-31	611 (69)	1,824 (206)	4,251 (480)	3,215 (363)	331 (1,470)	6	50	250	17.6 (8)
<b>17</b>	11-31	1,479 (167)	4,428 (500)	10,327 (1,166)	5,385 (608)	441 (1,960)	6	50	250	34.2 (15.5)
<b>24</b>	11-31	2,081 (235)	6,253 (706)	14,578 (1,646)	6,253 (706)	661 (2,940)	6	50	250	34.2 (15.5)
<b>40</b>	11-31	3,472 (392)	10,415 (1,176)	24,303 (2,744)	12,151 (1,372)	661 (2,940)	6	50	250	78.3 (35.5)
<b>100</b>	21-31	8,672 (980)	26,019 (2,940)	60,711 (6,860)	43,365 (4,900)	49,436 (5,586)	10	50	65	198 (90)

## Component Model

# RV-E

series

## In-Line



## Dimensions

MODEL	A φ inch (mm)	B φ inch (mm)	C φ inch (mm)	D φ inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K inch (mm)	L φ inch (mm)	M φ inch (mm)
<b>6</b>	4.80 (122)	4.06 (103)	3.39 (86)	1.02 (26)	2.09 (53)	0.94 (24)	0.47 (12)	0.67 (17)	0.31 (8)	0.16 (4)	0.31 (8)	3.07 (78)	4.06 (103)
<b>20</b>	5.71 (145)	4.88 (124)	4.13 (105)	1.26 (32)	2.56 (65)	1.18 (30)	0.79 (20)	0.59 (15)	0.31 (8)	0.22 (5.5)	0.39 (10)	3.62 (92)	4.84 (123)
<b>40</b>	7.48 (190)	6.30 (160)	5.31 (135)	1.97 (50)	2.99 (76)	1.22 (31)	0.94 (24)	0.83 (21)	0.51 (13)	0.28 (7)	0.39 (10)	4.86 (123.5)	6.30 (160)
<b>80</b>	8.74 (222)	7.48 (190)	6.30 (160)	2.44 (62)	3.31 (84)	1.89 (48)	0.59 (15)	0.83 (21)	0.47 (12)	0.43 (11)	0.39 (10)	5.51 (140)	7.48 (190)
<b>110</b>	9.61 (244)	8.19 (208)	7.17 (182)	3.15 (80)	3.64 (92.5)	2.64 (67)	0.75 (19)	0.26 (6.5)	—	0.55 (14)	0.59 (15)	6.06 (154)	—
<b>160</b>	11.02 (280)	9.45 (240)	8.03 (204)	4.33 (110)	4.09 (104)	2.70 (68.5)	0.98 (25)	0.41 (10.5)	—	0.31 (8)	0.59 (15)	7.01 (178)	—
<b>320</b>	12.80 (325)	11.18 (284)	9.65 (245)	5.12 (130)	4.92 (125)	3.13 (79.5)	1.18 (30)	0.61 (15.5)	—	0.31 (8)	0.79 (20)	8.43 (214)	—
<b>450</b>	14.57 (370)	12.91 (328)	10.83 (275)	6.06 (154)	5.51 (140)	3.31 (84)	1.50 (38)	0.71 (18)	—	0.31 (8)	0.79 (20)	9.76 (248)	—

Note: Reference dimensions only.

Please refer to the appropriate outline drawings for precise dimensions and tolerances.

## Specifications

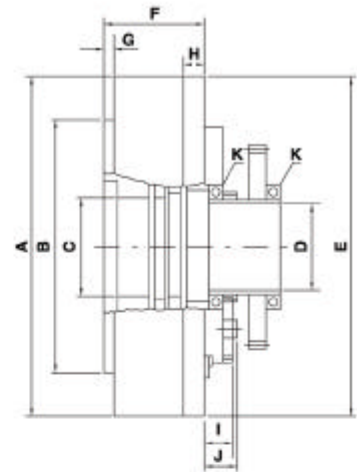
Model	Ratio	Rated Torque	Allowable Acc./Dec. Torque	Max. Allowable Torque (E-Stop)	Rated Moment	Max. Moment	Thrust Load	Torsional Rigidity	Backlash	Rated Speed	Max. Output Speed	Weight
	1:R	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb(N)	lb-in/min(Nm/min)	Min	rpm	rpm	lb(kg)
<b>6</b>	31-103	514(58)	1,036(117)	2,604(294)	1,736(196)	3,472(392)	331(1,470)	177(20)	1.5	30	100	5.5(25)
<b>20</b>	57-161	1,479(167)	3,649(412)	7,378(833)	7,812(882)	15,623(1,764)	882(3,920)	434(49)	1	15	75	9.7(44)
<b>40</b>	57-153	3,649(412)	9,113(1,029)	18,227(2,058)	14,755(1,666)	29,510(3,332)	1,168(5,194)	957(108)	1	15	70	20.9(95)
<b>80</b>	57-153	6,944(784)	17,359(1,960)	34,718(3,920)	19,095(2,156)	38,190(4,312)	1,764(7,840)	1,736(196)	1	15	70	28.0(127)
<b>110</b>	81-175.28	9,547(1,078)	23,869(2,695)	47,737(5,390)	26,038(2,940)	52,077(5,880)	2,425(10,780)	2,604(294)	1	15	50	39.7(18)
<b>160</b>	81-171	13,887(1,568)	34,718(3,920)	69,436(7,840)	34,718(3,920)	67,436(7,840)	3,307(14,700)	3,472(392)	1	15	45	61.6(28)
<b>320</b>	81-185	27,774(3,136)	69,436(7,840)	138,872(15,680)	62,492(7,056)	124,984(14,112)	4,409(19,600)	8,679(980)	1	15	35	103.4(47)
<b>450</b>	81-192.4	39,058(4,410)	97,644(11,025)	195,288(22,050)	78,115(8,820)	156,230(17,640)	5,511(24,500)	10,415(1,176)	1	15	25	151.8(69)

## Component Model

# RV-C

series

## Hollow Shaft Type



## Dimensions

MODEL	A φinch (mm)	B φinch (mm)	C φinch (mm)	D φinch (mm)	E φinch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K Ball Bearing
10	5.79 (147)	4.33 (110)	1.34 (34)	1.22 (31)	5.75 (146)	1.95 (49.5)	0.16 (4)	0.39 (10)	0.67 (17.0)	0.76 (19.2)	6807
27	7.17 (182)	5.51 (140)	1.85 (47)	1.69 (43)	7.13 (181)	2.26 (57.5)	0.20 (5)	0.39 (10)	0.65 (16.6)	0.77 (19.5)	6810
50	8.76 (222.5)	6.93 (176)	2.60 (66)	2.24 (57)	8.74 (222)	2.68 (68)	0.20 (5)	0.47 (12)	0.80 (20.2)	0.94 (23.8)	6813
100	9.86 (250.5)	7.83 (199)	2.87 (73)	2.80 (71)	9.84 (250)	2.86 (72.6)	0.20 (5)	0.47 (12)	0.78 (19.9)	0.83 (21.15)	6816
200	13.66 (347)	10.24 (260)	3.94 (100)	3.54 (90)	13.62 (346)	4.02 (102)	0.28 (7)	0.39 (10)	1.23 (31.2)	1.31 (33.2)	6820
320	17.24 (438)	13.39 (340)	5.51 (140)	5.43 (138)	17.32 (440)	3.98 (101)	0.22 (5.5)	—	1.46 (37.0)	1.71 (43.5)	6830
400	19.09 (485)	13.78 (350)	5.51 (140)	5.43 (138)	—	4.35 (110.5)	0.24 (6)	—	1.54 (39.0)	1.71 (43.5)	6830
500	18.70 (520)	15.35 (390)	5.91 (150)	5.43 (138)	—	5.14 (130.5)	0.30 (7.5)	—	1.87 (47.5)	1.97 (50.0)	6832
900	22.44 (570)	15.35 (390)	5.31 (135)	—	—	6.50 (165)	0.89 (22.5)	—	—	—	—

Note: Reference dimensions only.

Please refer to the appropriate outline drawings for precise dimensions and tolerances.

## Specifications

Model	Ratio Range*	Rated Torque	Allowable Acc./Dec. Torque	Max. Allowable Torque (E-Stop)	Rated Moment	Max. Moment	Thrust Load	Torsional Rigidity	Backlash	Rated Speed	Max. Output Speed	Weight
	1:R	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb(N)	lb-in/min(Nm/min)	Min	rpm	rpm	lb(kg)
10	80-250	868(98)	2,170(245)	4,340(490)	6,076(686)	12,151(1,372)	1,323(5,880)	416(47)	1	15	80	10.1(4.6)
27	100-250	2,347(265)	5,863(662)	11,717(1,323)	8,679(980)	17,359(1,960)	1,984(8,820)	1,302(147)	1	15	60	18.7(8.5)
50	100-250	4,340(490)	10,849(1,225)	21,699(2,450)	15,623(1,764)	31,246(3,528)	2,846(11,760)	2,258(255)	1	15	50	33.1(15)
100	100-280	8,679(980)	21,699(2,450)	43,397(4,900)	21,699(2,450)	43,397(4,900)	3,086(13,720)	4,517(510)	1	15	40	43.0(19.5)
200	100-280	17,368(1,960)	43,397(4,900)	86,795(9,800)	78,115(8,820)	156,230(17,640)	4,409(19,600)	8,679(980)	1	15	30	125.7(57)
320	120-350	27,774(3,136)	69,436(7,840)	138,872(15,680)	182,269(20,580)	347,179(39,200)	6,614(29,400)	17,359(1,960)	1	15	25	176.4(80)
400	120-350	34,692(3,920)	86,730(9,800)	173,460(19,600)	216,987(24,500)	520,380(58,800)	7,718(34,300)	21,699(2,450)	1	15	20	237.6(108)
500	180-350	43,397(4,900)	108,493(12,250)	216,987(24,500)	303,781(34,300)	694,358(78,400)	8,818(39,200)	30,378(3,430)	1	15	20	352.7(160)
900	180-350	78,057(8,820)	195,143(22,050)	390,285(44,100)	370,285(44,100)	780,570(88,200)	11,466(50,960)	43,397(4,900)	1	15	15	506(230)

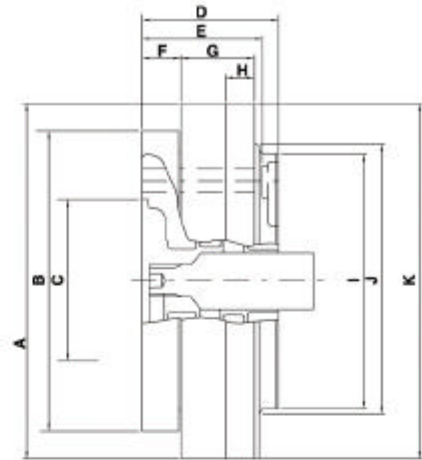
\* Please contact Nabtesco for exact RV-C speed ratio.



## Component Model

**RV**  
series

Original Type



## Dimensions

MODEL	A φ inch (mm)	B φ inch (mm)	C φ inch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I φ inch (mm)	J φ inch (mm)	K φ inch (mm)
<b>15</b>	5.11 (129.9)	4.13 (105)	1.26 (32)	2.56 (65)	2.17 (55)	0.63 (16)	1.26 (32)	0.47 (12)	3.54 (90)	3.94 (100)	5.12 (130)
<b>30</b>	6.28 (159.5)	5.31 (135)	1.97 (50)	2.81 (71.5)	2.36 (60)	0.87 (22)	1.34 (34)	0.59 (15)	4.72 (120)	5.08 (129)	6.30 (160)
<b>60</b>	7.85 (199.5)	6.30 (160)	2.44 (62)	2.81 (71.5)	2.52 (64)	0.75 (19)	1.65 (42)	0.59 (15)	5.59 (142)	6.01 (152.6)	7.87 (200)
<b>160</b>	9.43 (239.5)	8.03 (204)	4.33 (110)	3.78 (96)	3.23 (82)	1.06 (27)	2.05 (52)	1.18 (30)	6.89 (175)	7.48 (190)	9.44 (239.9)
<b>320</b>	11.40 (289.5)	9.65 (245)	5.12 (130)	4.63 (117.6)	4.02 (102)	1.30 (33)	2.48 (63)	0.98 (25)	8.19 (208)	8.82 (224)	11.42 (290)
<b>450</b>	12.78 (324.5)	10.83 (275)	6.06 (154)	5.06 (128.5)	4.31 (109.5)	1.38 (35)	2.85 (72.5)	1.18 (30)	9.13 (232)	9.92 (252)	12.80 (325)
<b>550</b>	14.55 (369.5)	12.44 (316)	7.09 (180)	5.79 (147)	5.04 (128)	1.61 (41)	3.23 (82)	1.18 (30)	10.24 (260)	11.57 (294)	14.57 (370)

Note: Reference dimensions only.

Please refer to the appropriate outline drawings for precise dimensions and tolerances.

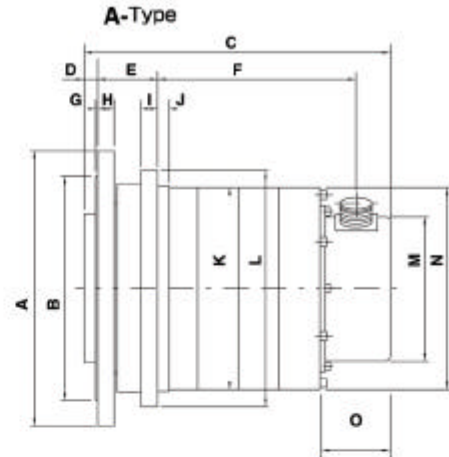
## Specifications

Model	Ratio	Rated Torque	Allowable Acc./Dec. Torque	Max. Allowable Torque (E-Stop)	Torsional Rigidity	Backlash	Rated Speed	Max. Output Speed	Weight
	1:R	lb-in(Nm)	lb-in(Nm)	lb-in(Nm)	lb-in/min(Nm/min)	Min	rpm	rpm	lb(kg)
<b>15</b>	57-141	1,213(137)	2,427(274)	6,076(686)	347(39.2)	1	15	60	7.7(3.5)
<b>30</b>	57-153	2,949(333)	7,378(833)	14,755(1,666)	868(98)	1	15	50	14.3(6.5)
<b>60</b>	57-153	5,642(637)	14,104(1,592.5)	28,208(3,185)	1,736(196)	1	15	40	22.0(10)
<b>160</b>	81-171	13,887(1,568)	34,718(3,920)	58,586(6,615)	3,472(392)	1	15	45	44.1(20)
<b>320</b>	81-185	27,774(3,136)	69,436(7,840)	108,493(12,250)	8,679(980)	1	15	35	80.5(36.5)
<b>450</b>	81-192.4	39,058(4,410)	97,644(11,025)	164,910(18,620)	10,415(1,176)	1	15	25	110.2(50)
<b>550</b>	123-192.4	47,737(5,390)	119,343(13,475)	238,685(26,950)	14,755(1,666)	1	15	20	156.5(71)

## Servo-Actuator



### High Precision Servo Actuators



### Dimensions

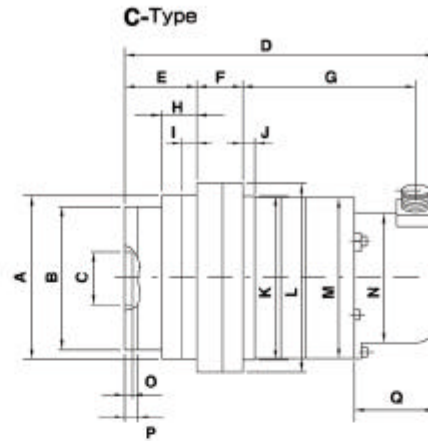
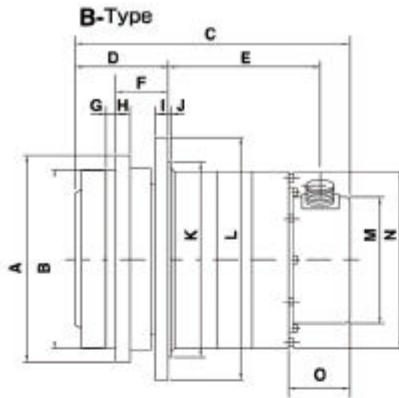
MODEL	A φinch (mm)	B φinch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K φinch (mm)	L φinch (mm)	M φinch (mm)	N φinch (mm)	O inch (mm)
<b>15A</b>	6.89 (175)	5.51 (140)	9.24 (234.6)	0.46 (11.6)	1.87 (47.5)	6.28 (159.5)	0.16 (4)	0.39 (10)	0.79 (20)	0.39 (10)	4.88 (124)	5.71 (145)	3.94 (100)	4.84 (123)	2.56 (65)
<b>30A</b>	9.06 (230)	7.09 (180)	10.33 (262.5)	0.47 (12)	2.50 (63.5)	6.06 (154)	0.12 (3)	0.51 (13)	0.94 (24)	0.79 (20)	6.30 (160)	7.48 (190)	4.33 (110)	6.26 (159)	2.56 (65)
<b>60A</b>	10.24 (260)	8.27 (210)	11.22 (285)	0.47 (12)	2.17 (55)	7.28 (185)	0.12 (3)	0.55 (14)	0.59 (15)	0.39 (10)	7.48 (190)	8.74 (222)	5.31 (135)	7.44 (189)	2.60 (66)
<b>135A</b>	12.80 (325)	10.63 (270)	13.23 (336)	0.59 (15)	2.36 (60)	9.06 (230)	0.16 (4)	0.71 (18)	0.87 (22)	0.59 (15)	9.45 (240)	11.02 (280)	6.65 (169)	9.41 (239)	2.60 (66)

MODEL	A φinch (mm)	B φinch (mm)	C inch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K φinch (mm)	L φinch (mm)	M φinch (mm)	N φinch (mm)	O inch (mm)
<b>15B</b>	5.71 (145)	4.88 (124)	9.61 (244)	3.23 (82)	5.75 (146)	1.87 (47.5)	0.39 (10)	0.79 (20)	0.39 (10)	0.12 (3)	5.51 (140)	6.89 (175)	3.94 (100)	4.84 (123)	2.56 (65)
<b>30B</b>	7.48 (190)	6.30 (160)	10.77 (273.5)	3.82 (97)	5.65 (143.5)	2.50 (63.5)	0.39 (10)	0.94 (24)	0.51 (13)	0.12 (3)	7.09 (180)	9.06 (230)	4.33 (110)	6.26 (159)	2.56 (65)
<b>60B</b>	8.74 (222)	7.48 (190)	11.48 (291.5)	3.84 (97.5)	6.34 (161)	2.17 (55)	0.39 (10)	0.59 (15)	0.55 (14)	0.12 (3)	8.27 (210)	10.24 (260)	5.31 (135)	7.44 (189)	2.60 (66)
<b>135B</b>	11.02 (280)	9.45 (240)	13.44 (341.5)	4.86 (123.5)	7.36 (187)	2.36 (60)	0.59 (15)	0.87 (22)	0.71 (18)	0.16 (4)	10.63 (270)	12.80 (325)	6.65 (169)	9.41 (239)	2.60 (66)

MODEL	A φinch (mm)	B φinch (mm)	C φinch (mm)	D inch (mm)	E inch (mm)	F inch (mm)	G inch (mm)	H inch (mm)	I inch (mm)	J inch (mm)	K φinch (mm)	L φinch (mm)	M φinch (mm)	N φinch (mm)	O inch (mm)	P inch (mm)	Q inch (mm)
<b>15C</b>	4.88 (124)	4.33 (110)	1.57 (40)	9.45 (240)	2.13 (54)	1.38 (35)	5.31 (135)	1.02 (26)	0.39 (10)	0.39 (10)	4.88 (124)	5.71 (145)	4.84 (123)	3.94 (100)	0.24 (6)	0.39 (10)	2.56 (65)
<b>30C</b>	6.30 (160)	5.51 (140)	2.36 (60)	10.61 (269.5)	2.36 (60)	1.89 (48)	5.08 (129)	0.94 (24)	0.39 (10)	0.39 (10)	6.30 (160)	7.48 (190)	6.26 (159)	4.33 (110)	0.24 (6)	0.39 (10)	2.56 (65)
<b>60C</b>	7.48 (190)	6.69 (170)	3.15 (80)	11.46 (291)	2.87 (73)	0.59 (15)	6.69 (170)	1.46 (37)	0.39 (10)	0.47 (12)	7.48 (190)	8.74 (222)	7.44 (189)	5.31 (135)	0.24 (6)	0.39 (10)	2.60 (66)
<b>135C</b>	9.45 (240)	8.27 (210)	3.94 (100)	13.54 (344)	4.11 (104.5)	0.87 (22)	7.36 (187)	2.38 (60.5)	0.59 (15)	0.59 (15)	9.45 (240)	11.02 (280)	9.41 (239)	6.65 (169)	0.31 (8)	0.39 (10)	2.60 (66)

Note: Reference dimensions only.

Please refer to the appropriate outline drawings for precise dimensions and tolerances..



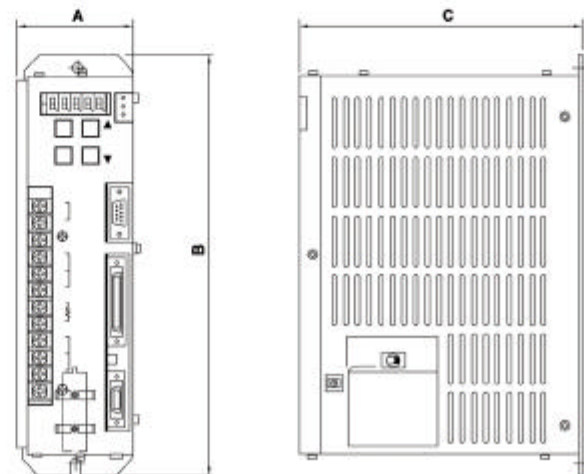
## Specifications

Model	Rated Output kW	Ratio	Rated Torque	Allowable Acc./Dec. Torque	Allowable Moment	Thrust Load	Torsional Rigidity	Backlash	Max. Output Speed	Weight
		1:R	lb-in (Nm)	lb-in (Nm)	lb-in (Nm)	lb (N)	lb-in (Nm)	Min	rpm	lb (kg)
<b>15</b>	0.4	57-121	585-1,249 (66-141)	2,329-2,427 (263-274)	5,385 (608)	441 (1,960)	301 (34)	1	54-25	27.6 (12.5)
<b>30</b>	0.9	57-121	1,169-2,498 (132-282)	4,083-8,750 (461-988)	14,755 (1,666)	1,168 (5,194)	957 (108)	1	54-25	59.5 (27)
<b>60</b>	1.5	81-153	3,330-6,332 (376-715)	11,106-17,359 (1,254-1,960)	15,366 (1,735)	1,764 (7,840)	1,736 (196)	1	38-20	82.7 (37.5)
<b>135</b>	3	81-171	6,669-14,162 (753-1,599)	19,998-34,718 (2,258-3,920)	34,718 (3,920)	3,307 (14,700)	3,472 (392)	1	31-15	162.0 (73.5)
<b>ARH7</b>	0.9	11-31	230-647 (26-73)	806-1,824 (91-206)	4,083 (461)	331 (1,470)	133 (15)	6	273-97	41.9 (19)
<b>ARH17</b>	1.5	11-31	461-1,293 (52-146)	1,523-4,304 (172-486)	7,121 (804)	441 (1,960)	257 (29)	6	273-97	72.7 (33)
<b>ARH24</b>	3	11-31	912-2,586 (103-292)	2,746-6,164 (310-696)	7,466 (843)	661 (2,940)	390 (44)	6	222-81	112.4 (51)

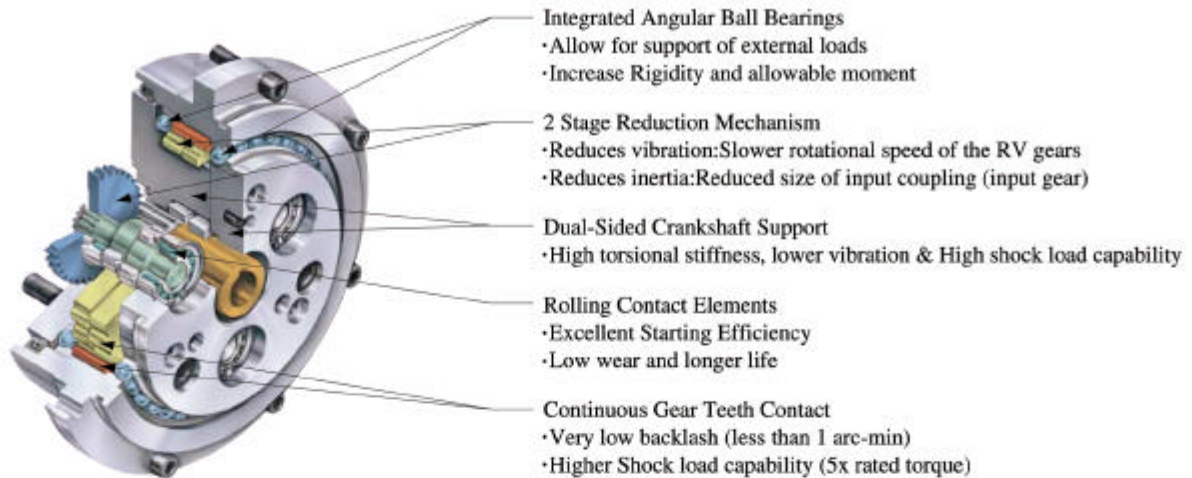
## Servo Amplifier With Controller

### Dimensions

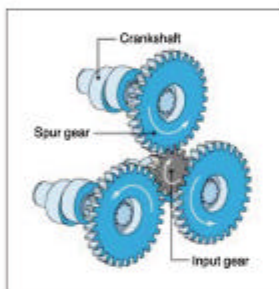
MODEL	A inch (mm)	B inch (mm)	C inch (mm)	Weight lb (kg)
<b>ARN15</b>	3.35 (85)	8.66 (220)	6.18 (157)	5.28 (2.4)
<b>ARN30</b>	3.35 (85)	8.66 (220)	6.18 (157)	5.28 (2.4)
<b>ARN60</b>	4.53 (115)	10.08 (256)	9.02 (229)	13.2 (6)
<b>ARN135</b>	4.53 (115)	10.08 (256)	9.02 (229)	13.2 (6)



# Nabtesco's Patented 2-stage Cycloidal Gearbox

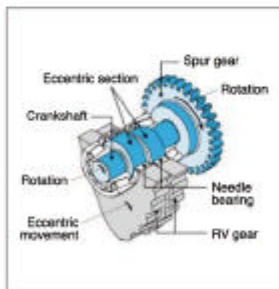


## RV Gear Mechanism



### (First Stage)

- The servomotor rotation is transmitted through the input gear to the spur gears, with the speed reduced accordingly. Crankshafts, which are directly connected to the spur gears, rotate at the same speed.



### (Second Stage)

- Two RV gears are mounted to the eccentric region of the crankshaft (2 RV gears are used to equally balance forces and to provide continuous teeth contact).
- As the crankshafts rotate, the two RV gears also revolve. One complete crankshaft rotation causes the RV gears to revolve one pitch of a pin, with all of the RV teeth in constant contact with all of the pins.
- The pins are arrayed at a constant pitch in the grooves of the gearbox and the number of pins is one larger than the number of teeth.
- This rotation is then transmitted to the output of the gearbox via the crankshafts at a speed reduced in proportion to the number of pins. The total reduction ratio is equal to the first reduction ratio multiplied by the second reduction ratio.

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