



▶ VC SERIES BEVEL GEARBOX WITH MOTOR MOUNT

GAM can.

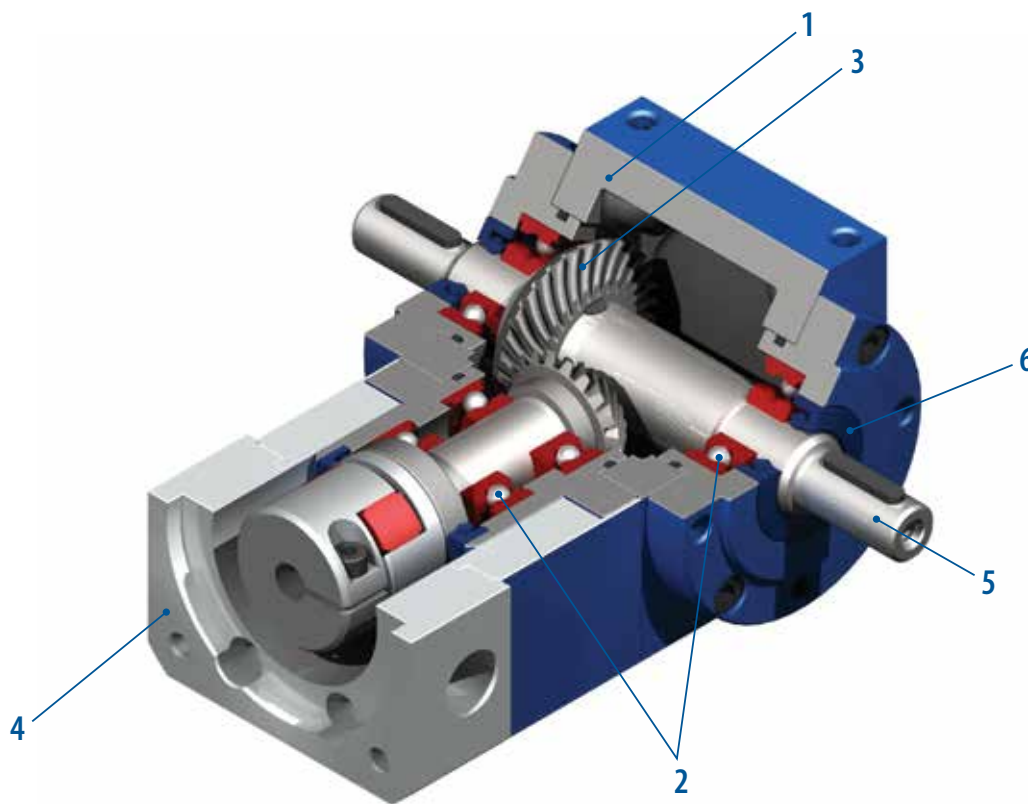
If you don't see exactly what you need, let us know. We can modify the VC Series gearboxes to meet your needs. Page 5 provides examples of GAM capabilities.

GAMVC Series Spiral Bevel Gearboxes

VC Series spiral bevel gearboxes have the same features as the V Series with the addition of an integrated motor mount. The durable, robust construction is designed for dynamic motion control applications.

Features

- 4 output styles in 8 sizes
- High efficiencies 94-98%
- Lubricated for life with synthetic oil
- Includes motor mount customized to your servo motor
- Ratios 1:1 to 100:1 (varies by size)



1. Housing

Sturdy cast iron housing
(Aluminum in size 35mm and 45mm)
- all 6 sides can be used for mounting

2. Bearings

Deep groove ball bearings handle axial and radial loading. (Reinforced and taper roller options available)

3. Spiral Bevel Gearing

Precision cut, hardened, and lapped in pairs for ideal tooth contact. Mathematically precise ratios from 1:1 to 6:1

4. Input

Available with shaft input or integrated motor adapter and coupling to easily mount to any IEC, NEMA, or servo motor

5. Output

Solid shaft with key or keyed hollow shaft are standard. (Smooth shaft or shrink disc clamping available)

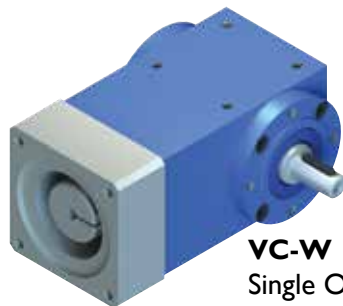
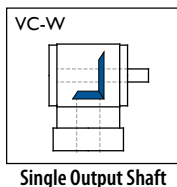
6. Seals

Lubricated for life and protected with high quality NBR seals. (Viton® and FPM seals available)

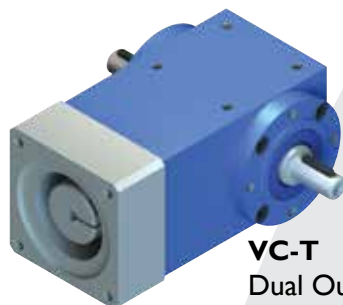
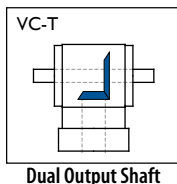
▶ VC SERIES CONFIGURATIONS

VC Series

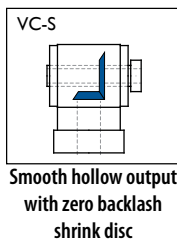
- Sizes 35 to 200 mm
- Ratios 1:1 to 6:1 (varies by size)



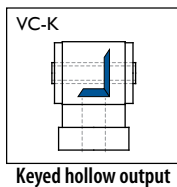
VC-W
Single Output Shaft



VC-T
Dual Output Shaft



VC-S
Smooth Hollow Output
with zero-backlash shrink disc



VC-K
Keyed Hollow Output

VC Series (High Ratio)

- Sizes 90 to 140 mm
- Ratios 7:1 to 100:1
- 2-stage with GAM EPL input stage



VC-W (High Ratio)
Single Output Shaft



VC-T (High Ratio)
Dual Output Shaft



VC-S (High Ratio)
Smooth Hollow Output
with zero-backlash shrink disc



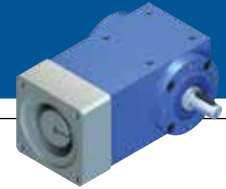
VC-K (High Ratio)
Keyed Hollow Output



VC-Series (mini)
Sizes 35 and 45 mm
(VC-W shown)



▶ VC SERIES: RATIOS 1:1 TO 6:1



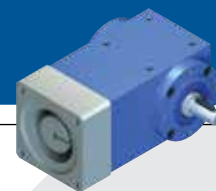
Technical Specifications

S5 Cyclical Operation - Ratios 1:1 to 6:1

VC Series			035*	045*	065	090	120	140	160	200					
	S5 Cyclical Operation = 30% per hour with ambient temperature of -10 to +30 degrees C														
Ratios Available		1:1		1,2,3,4:1		1, 1.5, 2, 3:1		1, 1.5, 2, 3, 4, 5, 6:1				1, 1.5, 2, 3, 4, 5, 6:1			
Nominal Output Torque (T _{2n})	Nm (lb-in)	1:1	4.5 (40)	9 (80)	8 (71)	25 (221)	50 (443)	120 (1062)	180 (1593)	350 (3098)					
		1.5:1	-	-	10 (89)	25 (221)	61 (540)	113 (1000)	185 (1637)	330 (2921)					
		2:1	-	7 (62)	10 (89)	25 (221)	65 (575)	110 (974)	185 (1637)	320 (2832)					
		3:1	-	5.5 (49)	8 (71)	23 (204)	58 (513)	110 (974)	190 (1682)	420 (3717)					
		4:1	-	4.5 (40)	-	23 (204)	60 (531)	105 (929)	180 (1593)	350 (3098)					
		5:1	-	-	-	23 (204)	60 (531)	100 (885)	180 (1593)	300 (2655)					
		6:1	-	-	-	23 (204)	54 (478)	95 (841)	130 (1151)	210 (1859)					
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	1:1	5.5 (49)	11 (97)	15 (133)	40 (354)	70 (620)	180 (1593)	350 (3098)	700 (6196)					
		1.5:1	-	-	17 (150)	37 (327)	105 (929)	200 (1770)	330 (2921)	690 (6107)					
		2:1	-	8.5 (75)	17 (150)	36 (319)	98 (867)	190 (1682)	320 (2832)	600 (5311)					
		3:1	-	6.5 (58)	15 (133)	36 (319)	95 (841)	177 (1567)	280 (2478)	630 (5576)					
		4:1	-	5.5 (49)	-	36 (319)	87 (770)	162 (1434)	270 (2390)	550 (4868)					
		5:1	-	-	-	36 (319)	92 (814)	143 (1266)	270 (2390)	505 (4470)					
		6:1	-	-	-	31 (274)	71 (628)	122 (1080)	200 (1947)	315 (2788)					
Emergency Output Torque (T _{2NOT})	Nm (lb-in)	1:1	8 (71)	16 (142)	23 (204)	50 (443)	150 (1328)	260 (2301)	480 (4248)	980 (8674)					
		1.5:1	-	-	25 (221)	50 (443)	140 (1239)	280 (2478)	500 (4426)	850 (7523)					
		2:1	-	12.5 (111)	25 (221)	60 (531)	140 (1239)	280 (2478)	550 (4868)	800 (7081)					
		3:1	-	10 (89)	20 (177)	60 (531)	140 (1239)	260 (2301)	400 (3540)	850 (7523)					
		4:1	-	8 (71)	-	60 (531)	140 (1239)	260 (2301)	400 (3540)	800 (7081)					
		5:1	-	-	-	50 (443)	120 (1062)	220 (1947)	380 (3363)	800 (7081)					
		6:1	-	-	-	45 (398)	110 (974)	200 (1947)	350 (3098)	625 (5532)					
Vent Filter may be required (n _i)	RPM	all ratios	-	-	-	>2200	>1700	>1400	>1200	>900					
			-	-	-	if housing temperature > 50 degrees C (also depends on duty cycle, ambient temperature, and mounting orientation)									
Max Input Speed (n _{1max})	RPM	1:1	3000	3000	4400	3200	2400	2100	1800	1500					
		1.5:1	-	-	6000	4800	3600	3000	2500	2250					
		2:1	-	3000	6000	6000	4800	4200	3200	3000					
		3:1	-	3000	6000	6000	6000	5000	4500	4000					
		4:1	-	3000	-	6000	6000	6000	5000	4500					
		5:1	-	-	-	6000	6000	6000	6000	5000					
		6:1	-	-	-	6000	6000	6000	6000	6000					
Standard Backlash* (j)	arcmin	all ratios	<15	<15	<20	<20	<20	<20	<20	<20					
Reduced Backlash*(j)	arcmin	1:1 - 2:1	<8	<8	<6	< 6	< 6	< 6	< 6	< 6					
		3:1 - 6:1	-	<8	<10	<10	<10	<10	<10	<10					
Allowable Radial Load (F _{rad})	N (lbs)	nominal load @100 rpm output	Contact GAM		750 (169)	1250 (281)	2000 (450)	3000 (675)	5300 (1193)	8000 (1800)					
Allowable Axial Load (F _{axial})	N (lbs)		Contact GAM		375 (84)	625 (141)	1000 (225)	1500 (338)	2650 (596)	4000 (900)					
Weight (m) ³	kg (lbs)	-	Contact GAM		See Page 164										
Efficiency at Load		94-98%													
Service Life / Housing Material			10,000 hours / Aluminum			15,000 hours / Cast Iron									
Lubrication			Synthetic Oil			Synthetic Oil									

* See page 224 for definitions

► VC SERIES: RATIOS 1:1 TO 6:1



Technical Specifications

SI Continuous Operation - Ratios 1:1 to 6:1

VC Series		035*		045*		065		090		120		140		160		200	
	Thermal Limit	0.35 kw		0.60 kw		Housing Temperature <= 90 degrees C											
		Continuous Output Torque (T _n)															
Ratio	Input Speed	Nm (lb-in)															
1:1	4000 rpm	-		-		3.6 (32)		8 (71)		-		-		-		-	
	3000 rpm	1.11	(9.8)	1.9	(16.9)	4.8	(42)	11	(97)	18	(159)	-		-		-	
	2400 rpm	1.39	(12.3)	2.39	(21.1)	6	(51)	14	(124)	23	(204)	37	(327)	56	(496)	-	
	1500 rpm	2.23	(19.7)	3.8	(33.8)	8	(71)	17	(150)	37	(327)	60	(531)	90	(797)	157	(1390)
1.5:1	4000 rpm	-		-		5.4 (48)		12 (106)		21 (186)		34 (301)		-		-	
	3000 rpm	-		-		7.2 (64)		17 (150)		28 (248)		45 (398)		68 (602)		-	
	2400 rpm	-		-		9 (80)		21 (186)		35 (310)		56 (496)		85 (752)		147 (1301)	
	1500 rpm	-		-		10 (89)		25 (221)		56 (496)		90 (797)		136 (1204)		236 (2089)	
2:1	4000 rpm	-		-		7.2 (64)		17 (150)		28 (248)		45 (398)		-		-	
	3000 rpm	-		3.81	(33.7)	9.6	(85)	23	(204)	37	(327)	60	(531)	90	(797)	157	(1390)
	2400 rpm	-		4.77	(42)	10	(89)	24	(212)	46	(407)	75	(664)	113	(1000)	196	(1735)
	1500 rpm	-		7	(62)	10	(89)	27	(239)	73	(646)	120	(1062)	181	(1602)	314	(2779)
3:1	4000 rpm	-		-		7.2 (64)		21 (186)		42 (372)		68 (602)		102 (903)		177 (1567)	
	3000 rpm	-		5.5	(49)	9.6	(85)	23	(204)	56	(496)	90	(797)	136	(1204)	235	(2080)
	2400 rpm	-		5.5	(49)	10	(89)	24	(212)	63	(558)	113	(1000)	170	(1505)	294	(2602)
	1500 rpm	-		5.5	(49)	10	(89)	27	(239)	74	(655)	130	(1151)	230	(2036)	472	(4178)
4:1	4000 rpm	-		-		-		21 (186)		52 (460)		85 (752)		136 (1204)		235 (2080)	
	3000 rpm	-		4.5	(39.8)	-		23	(204)	60	(531)	103	(912)	180	(1593)	314	(2779)
	2400 rpm	-		4.5	(39.8)	-		25	(221)	67	(593)	111	(982)	200	(1770)	393	(3478)
	1500 rpm	-		4.5	(39.8)	-		27	(239)	74	(655)	120	(1062)	220	(1947)	455	(4027)
5:1	4000 rpm	-		-		-		21 (186)		52 (460)		90 (797)		160 (1416)		275 (2434)	
	3000 rpm	-		-		-		23	(204)	60	(531)	100	(885)	180	(1593)	300	(2655)
	2400 rpm	-		-		-		25	(221)	65	(575)	105	(929)	198	(1752)	340	(3009)
	1500 rpm	-		-		-		27	(239)	72	(637)	115	(1018)	215	(1903)	380	(3363)
6:1	4000 rpm	-		-		-		21 (186)		45 (398)		85 (752)		115 (1018)		190 (1682)	
	3000 rpm	-		-		-		23	(204)	54	(478)	95	(841)	130	(1151)	210	(1859)
	2400 rpm	-		-		-		25	(221)	59	(522)	102	(903)	137	(1213)	225	(1991)
	1500 rpm	-		-		-		27	(239)	64	(566)	108	(956)	145	(1283)	240	(2124)

▶ VC SERIES: RATIOS 7:1 TO 100:1



Technical Specifications

S5 Cyclical Operation - Ratios 7:1 to 100:1

VC Series			090		120		140	
			S5 Cyclical Operation = 30% per hour with ambient temperature of -10° to +30°C					
Ratios Available			Ratio	2-stage: 7, 10, 15, 20, 25, 30, 40, 50			3:-stage: 70, 100:1	
Nominal Output Torque (T _{2n})	Nm (lb-in)	7:1	47	(416)	120	(1062)	120	(1062)
		10:1	40	(354)	100	(885)	100	(885)
		15:1	34	(301)	102	(903)	168	(1487)
		20:1	36	(319)	103	(912)	191	(1690)
		25:1	34	(301)	89	(788)	142	(1257)
		30:1	36	(319)	106	(938)	174	(1540)
		40:1	36	(319)	88	(779)	164	(1451)
		50:1	36	(319)	92	(814)	146	(1292)
		70:1	50	(443)	129	(1142)	165	(1460)
		100:1	50	(443)	106	(938)	198	(1752)
Max Acceleration Output Torque (T _{2B})	Nm (lb-in)	7:1	100	(885)	180	(1593)	180	(1593)
		10:1	75	(664)	150	(1328)	150	(1328)
		15:1	70	(620)	155	(1372)	280	(2478)
		20:1	80	(708)	169	(1496)	300	(2655)
		25:1	60	(531)	140	(1239)	250	(2213)
		30:1	70	(620)	155	(1372)	280	(2478)
		40:1	70	(620)	155	(1372)	280	(2478)
		50:1	60	(531)	140	(1239)	250	(2213)
		70:1	105	(929)	180	(1593)	180	(1593)
		100:1	105	(929)	169	(1496)	320	(2832)
Emergency Output Torque (T _{2NOT})	Nm (lb-in)	7:1	130	(1151)	234	(2071)	234	(2071)
		10:1	98	(867)	195	(1726)	195	(1726)
		15:1	91	(805)	202	(1788)	364	(3221)
		20:1	104	(920)	220	(1947)	390	(3452)
		25:1	78	(690)	182	(1611)	325	(2876)
		30:1	91	(805)	202	(1788)	364	(3221)
		40:1	91	(805)	202	(1788)	364	(3221)
		50:1	78	(690)	182	(1611)	325	(2876)
		70:1	137	(1212)	234	(2071)	234	(2071)
		100:1	137	(1212)	220	(1947)	416	(3682)
Breather (Vent Filter) may be required (n ₁)	RPM	All ratios	>2200		>1700		>1400	
		if housing temperature > 50°C*						
Max Input Speed (n _{1max})	RPM	All ratios	6000		5000		5000	
Standard Backlash*** (j)	arcmin	7:1, 10:1, 70:1	< 30 - 34					
		All other ratios	< 22 - 27					
Reduced Backlash*** (j)	arcmin	7:1, 10:1, 70:1	< 16 - 20					
		All other ratios	< 11 - 13					
Allowable Radial Load (F _{rad})**	N (lbs)		1250	(281)	2000	(450)	3000	(675)
Allowable Axial Load (F _{axial})**	N (lbs)		625	(141)	1000	(225)	1500	(338)
Efficiency at Load		87% - 89%						
Service Life / Housing Material		15,000 hours / Cast Iron						
Lubrication		Synthetic Oil						

* also depends on duty cycle, ambient temperature, and mounting orientation

** Nominal load @100 rpm output

*** See page 224 for definitions

► VC SERIES: RATIOS 7:1 TO 100:1



Technical Specifications

SI Continuous Operation - Ratios 7:1 to 100:1

VC Series		090		120		140	
	Thermal Limit	Housing Temperature <= 90°C					
		Continuous Output Torque (T _n)					
Ratio	Input Speed	Nm (lb-in)					
7:1	4000 rpm	37 (327)		94 (832)		96 (850)	
	3000 rpm	38 (336)		96 (850)		96 (850)	
	2400 rpm	38 (336)		96 (850)		96 (850)	
	1500 rpm	39 (345)		96 (850)		96 (850)	
10:1	4000 rpm	32 (283)		80 (708)		80 (708)	
	3000 rpm	32 (283)		80 (708)		80 (708)	
	2400 rpm	32 (283)		80 (708)		80 (708)	
	1500 rpm	32 (283)		80 (708)		80 (708)	
15:1	4000 rpm	26 (230)		78 (690)		129 (1142)	
	3000 rpm	27 (239)		82 (726)		133 (1177)	
	2400 rpm	28 (248)		82 (726)		135 (1195)	
	1500 rpm	28 (248)		84 (743)		138 (1221)	
20:1	4000 rpm	28 (248)		80 (708)		149 (1319)	
	3000 rpm	28 (248)		82 (726)		152 (1345)	
	2400 rpm	29 (257)		82 (726)		153 (1354)	
	1500 rpm	29 (257)		84 (743)		156 (1381)	
25:1	4000 rpm	27 (239)		68 (602)		109 (965)	
	3000 rpm	27 (239)		71 (628)		112 (991)	
	2400 rpm	28 (248)		71 (628)		114 (1009)	
	1500 rpm	28 (248)		73 (646)		116 (1027)	
30:1	4000 rpm	28 (248)		83 (735)		136 (1204)	
	3000 rpm	28 (248)		85 (752)		138 (1221)	
	2400 rpm	29 (257)		85 (752)		139 (1230)	
	1500 rpm	29 (257)		86 (761)		141 (1248)	
40:1	4000 rpm	28 (248)		69 (611)		129 (1142)	
	3000 rpm	28 (248)		70 (620)		131 (1159)	
	2400 rpm	29 (257)		70 (620)		132 (1168)	
	1500 rpm	29 (257)		71 (628)		133 (1177)	
50:1	4000 rpm	28 (248)		72 (637)		115 (1018)	
	3000 rpm	28 (248)		74 (655)		116 (1027)	
	2400 rpm	29 (257)		74 (655)		117 (1035)	
	1500 rpm	29 (257)		75 (664)		118 (1044)	
70:1	4000 rpm	40 (354)		103 (912)		132 (1168)	
	3000 rpm	40 (354)		103 (912)		132 (1168)	
	2400 rpm	40 (354)		103 (912)		132 (1168)	
	1500 rpm	40 (354)		104 (920)		132 (1168)	
100:1	4000 rpm	29 (257)		85 (752)		158 (1398)	
	3000 rpm	29 (257)		85 (752)		158 (1398)	
	2400 rpm	29 (257)		85 (752)		159 (1407)	
	1500 rpm	29 (257)		85 (752)		159 (1407)	

▶ VC-W & VC-T: INERTIA & WEIGHT

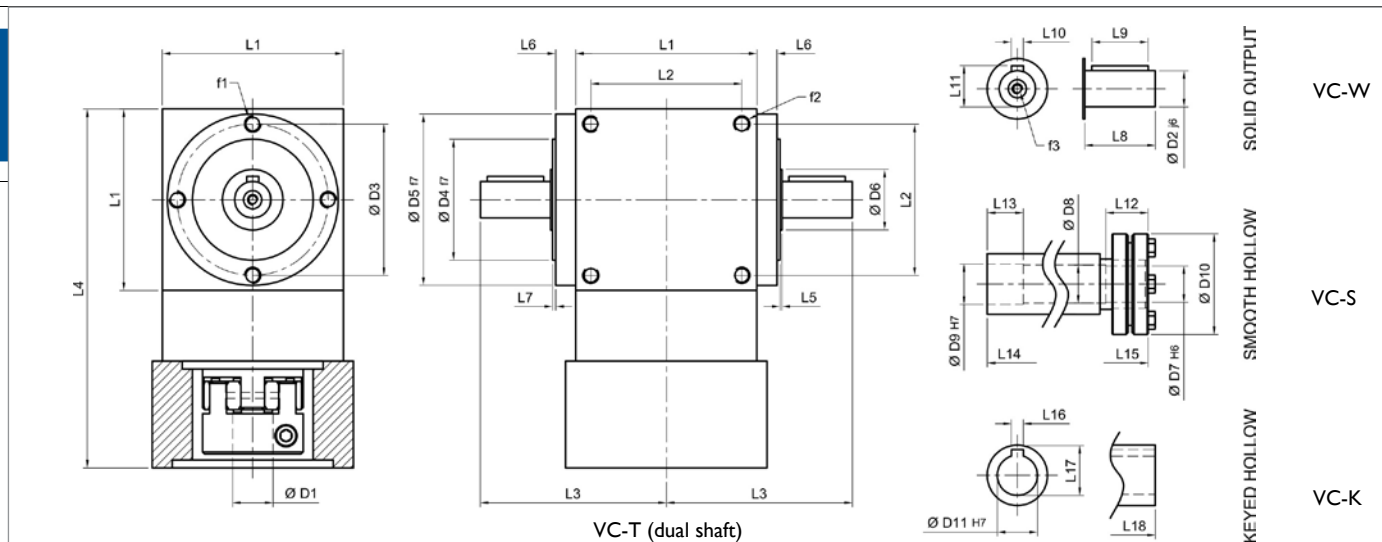
Mass Moment of Inertia & Weight: VC-W & VC-T

VC Series			065		090		120		140		160		200	
Type	Ratio	Stage	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)
W	1:1	1	0.4680	3.5	3.6690	6.9	16.9680	17.3	40.2700	25.5	37.0520	38	185.5200	60
	1.5:1	1	0.3190	3.5	2.7900	6.9	8.8473	17.3	22.7860	25.5	37.5230	38	119.4940	60
	2:1	1	0.2590	3.5	1.6950	6.9	6.7790	17.3	16.3860	25.5	25.4770	38	86.1880	60
	3:1	1	0.1940	3.5	1.3410	6.9	5.1172	17.3	11.4390		17.3860	38	55.8380	60
	4:1	1	-	-	1.2060	6.9	4.5420	17.3	9.7640	25.5	15.0700	38	43.3230	60
	5:1	1	-	-	1.1401	6.9	4.2271	17.3	9.2930	25.5	14.1140	38	40.0860	60
	6:1	1			1.0970	6.9	4.0430	17.3	8.9250	25.5	13.1640	38	36.8890	60
	7:1	2	-	-	1.0222	7.7	3.6142	18.1	3.9361	24.3	-	-	-	-
	10:1	2	-	-	0.9556	7.7	3.205	18.1	3.3627	24.3	-	-	-	-
	15:1	2	-	-	1.0855	7.7	4.1426	18.1	4.3074	24.3	-	-	-	-
	20:1	2	-	-	0.9414	7.7	3.1365	18.1	3.1868	24.3	-	-	-	-
	25:1	2	-	-	1.063	7.7	4.0801	18.1	4.1113	24.3	-	-	-	-
	30:1	2	-	-	0.9389	7.7	3.1232	18.1	3.1644	24.3	-	-	-	-
	40:1	2	-	-	0.9336	7.7	3.1122	18.1	3.1184	24.3	-	-	-	-
	50:1	2	-	-	0.9332	7.7	3.1075	18.1	3.1153	24.3	-	-	-	-
	70:1	3	-	-	0.9305	8.5	3.1021	20.2	3.1054	26.4	-	-	-	-
	100:1	3	-	-	0.9304	8.5	3.102	20.2	3.1049	26.4	-	-	-	-
T	1:1	1	0.4780	3.6	3.6974	7.0	17.2660	17.5	41.2520	26.0	38.0810	38.5	188.6320	62
	1.5:1	1	0.3230	3.6	2.8023	7.0	8.9795	17.5	23.2230	26.0	37.9810	38.5	120.8800	62
	2:1	1	0.2620	3.6	1.7020	7.0	6.8534	17.5	16.6310	26.0	25.7340	38.5	86.9670	62
	3:1	1	0.2380	3.6	1.3441	7.0	5.1502	17.5	11.5480	26.0	17.5000	38.5	56.1850	62
	4:1	1	-	-	1.2075	7.0	4.5610	17.5	9.8250	26.0	15.1340	38.5	43.5180	62
	5:1	1	-	-	1.1412	7.0	4.2390	17.5	9.3320	26.0	14.1550	38.5	40.2110	62
	6:1	1			1.0980	7.0	4.0511	17.5	8.9520	26.0	13.1930	38.5	36.9750	62
	7:1	2	-	-	1.039	7.8	3.7184	18.3	4.1568	24.8	-	-	-	-
	10:1	2	-	-	0.9638	7.8	3.256	18.3	3.4708	24.8	-	-	-	-
	15:1	2	-	-	1.092	7.8	4.1718	18.3	4.3726	24.8	-	-	-	-
	20:1	2	-	-	0.9437	7.8	3.1505	18.3	3.2252	24.8	-	-	-	-
	25:1	2	-	-	1.0658	7.8	4.0928	18.3	4.14	24.8	-	-	-	-
	30:1	2	-	-	0.9405	7.8	3.1305	18.3	3.1806	24.8	-	-	-	-
	40:1	2	-	-	0.9346	7.8	3.1169	18.3	3.1276	24.8	-	-	-	-
	50:1	2	-	-	0.9339	7.8	3.1107	18.3	3.1225	24.8	-	-	-	-
	70:1	3	-	-	0.9307	8.6	3.1032	20.4	3.1076	26.9	-	-	-	-
	100:1	3	-	-	0.9305	8.6	3.102	20.4	3.105	26.9	-	-	-	-

► VC-S & VC-K: INERTIA & WEIGHT

Mass Moment of Inertia & Weight: VC-S & VC-K

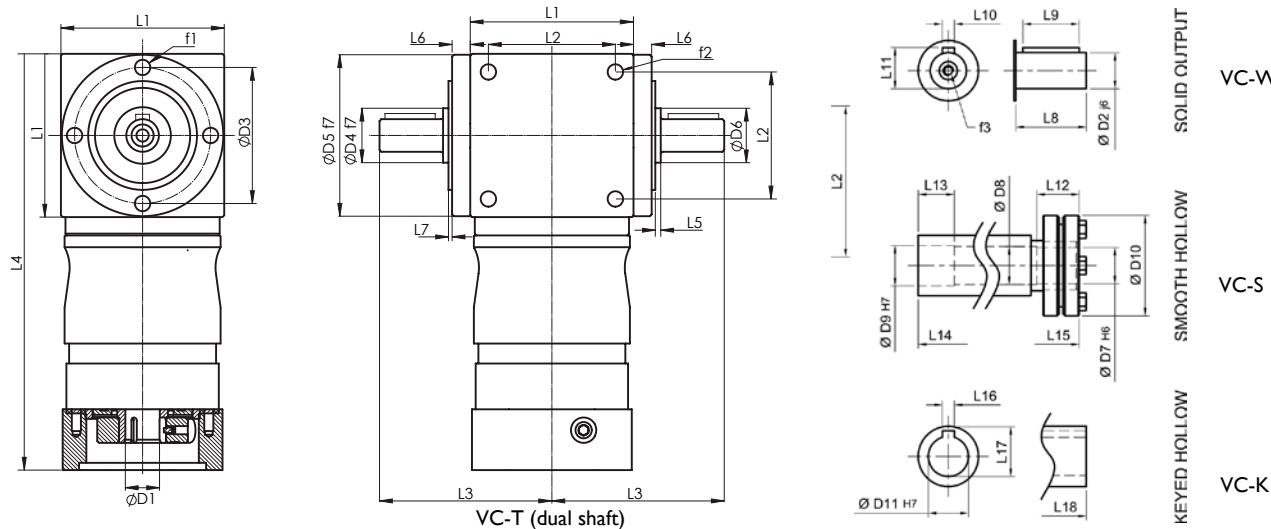
VC Series			065		090		120		140		160		200	
Type	Ratio	Stage	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)	Mass Moment of Inertia (kg cm ²)	Weight (kg)
S	1:1	1	0.6460	3.4	4.2360	6.7	18.6470	17.3	43.2350	25.7	46.1740	37.6	233.2300	61.3
	1.5:1	1	0.4968	3.4	3.0420	6.7	9.5940	17.3	24.1040	25.7	41.4360	37.6	134.2820	61.3
	2:1	1	0.4370	3.4	1.8370	6.7	7.1990	17.3	17.1270	25.7	27.6150	37.6	96.2560	61.3
	3:1	1	0.3570	3.4	1.4040	6.7	5.3040	17.3	11.7690	25.7	18.3360	37.6	59.2020	61.3
	4:1	1	-	-	1.2412	6.7	4.6470	17.3	9.9490	25.7	15.6040	37.6	45.2780	61.3
	5:1	1	-	-	1.1630	6.7	4.2942	17.3	9.4120	25.7	14.4560	37.6	41.8570	61.3
	6:1	1	-	-	1.1130	6.7	4.0894	17.3	9.0070	25.7	13.4030	37.6	38.1180	61.3
	7:1	2	-	-	1.05	7.3	3.7466	17.8	4.1972	23.8	-	-	-	-
	10:1	2	-	-	0.9692	7.3	3.2698	17.8	3.4906	23.8	-	-	-	-
	15:1	2	-	-	1.0944	7.3	4.178	17.8	4.3814	23.8	-	-	-	-
	20:1	2	-	-	0.9451	7.3	3.1539	17.8	3.2302	23.8	-	-	-	-
	25:1	2	-	-	1.0666	7.3	4.0951	17.8	4.1432	23.8	-	-	-	-
	30:1	2	-	-	0.9411	7.3	3.132	17.8	3.1828	23.8	-	-	-	-
	40:1	2	-	-	0.935	7.3	3.1178	17.8	3.1288	23.8	-	-	-	-
	50:1	2	-	-	0.9342	7.3	3.1113	17.8	3.1233	23.8	-	-	-	-
	70:1	3	-	-	0.9308	8.1	3.1035	19.9	3.108	25.9	-	-	-	-
	100:1	3	-	-	0.9306	8.1	3.1022	19.9	3.1052	25.9	-	-	-	-
K	1:1	1	0.5200	3.4	3.5654	6.5	16.8600	17.0	36.8340	25.0	39.8840	37.0	212.2100	60.0
	1.5:1	1	0.3710	3.4	2.7440	6.5	8.7992	17.0	21.2590	25.0	38.6400	37.0	124.9400	60.0
	2:1	1	0.3110	3.4	1.6690	6.5	6.7520	17.0	15.5260	25.0	26.0420	37.0	91.0000	60.0
	3:1	1	0.2320	3.4	1.3294	6.5	5.1051	17.0	11.0570	25.0	17.6370	37.0	56.8660	60.0
	4:1	1	-	-	1.1992	6.5	4.5352	17.0	9.5490	25.0	15.2110	37.0	43.9640	60.0
	5:1	1	-	-	1.1360	6.5	4.2230	17.0	9.1560	25.0	14.2040	37.0	41.0160	60.0
	6:1	1	-	-	1.0940	6.5	4.0400	17.0	8.8300	25.0	13.2290	37.0	37.5350	60.0
	7:1	2	-	-	1.0363	7.5	3.7101	18.1	4.0666	24.5	-	-	-	-
	10:1	2	-	-	0.9625	7.5	3.2519	18.1	3.4266	24.5	-	-	-	-
	15:1	2	-	-	1.0914	7.5	4.17	18.1	4.3529	24.5	-	-	-	-
	20:1	2	-	-	0.9434	7.5	3.1495	18.1	3.2142	24.5	-	-	-	-
	25:1	2	-	-	1.0656	7.5	4.0922	18.1	4.133	24.5	-	-	-	-
	30:1	2	-	-	0.9404	7.5	3.13	18.1	3.1757	24.5	-	-	-	-
	40:1	2	-	-	0.9345	7.5	3.1167	18.1	3.1248	24.5	-	-	-	-
	50:1	2	-	-	0.9339	7.5	3.1106	18.1	3.1207	24.5	-	-	-	-
	70:1	3	-	-	0.9307	8.3	3.1031	20.2	3.1067	26.6	-	-	-	-
	100:1	3	-	-	0.9305	8.3	3.102	20.2	3.1046	26.6	-	-	-	-



VC Series Dimensions: Ratios 1:1 to 6:1

	mm (in)	035	045	65	90	120	140	160	200
D1 min	motor shaft diameter	3 (0.118)	3 (0.118)	5 (0.197)	8 (0.315)	13 (0.512)	19 (0.748)	19 (0.748)	24 (0.945)
D1 max	motor shaft diameter	11 (0.433)	11 (0.433)	16 (0.630)	20 (0.787)	28 (1.102)	38.1 (1.500)	38.1 (1.500)	45 (1.772)
D2 j6	output shaft diameter	6 (0.236)	10 (0.393)	12 (0.472)	18 (0.709)	25 (0.984)	32 (1.260)	35 (1.378)	42 (1.654)
	output shaft key size	2 x 2 x 10	3 x 3 x 18	4 x 4 x 20	6 x 6 x 28	8 x 7 x 36	10 x 8 x 45	10 x 8 x 50	12 x 8 x 70
D3	mounting bolt circle 1	29 (1.142)	39 (1.535)	54 (2.126)	75 (2.953)	100 (3.937)	115 (4.528)	135 (5.315)	175 (6.890)
D4 f7	pilot diameter 1	22 (0.866)	32 (1.260)	44 (1.732)	60 (2.362)	80 (3.150)	90 (3.543)	110 (4.331)	120 (4.724)
D5 f7	pilot diameter 2	35 (1.378)	45 (1.772)	64 (2.520)	89 (3.504)	119 (4.685)	135 (5.315)	159 (6.260)	199 (7.835)
D6	shoulder diameter	10 (0.394)	15 (0.591)	17 (0.669)	30 (1.181)	35 (1.378)	50 (1.969)	40 (1.575)	55 (2.165)
D7 H6*	smooth hollow diameter 1	-	-	12 (0.472)	18 (0.709)	25 (0.984)	32 (1.260)	35 (1.378)	42 (1.654)
D8	opened up ID	-	-	13 (0.512)	19 (0.748)	26 (1.024)	33 (1.299)	36 (1.417)	43 (1.693)
D9 H7**	smooth hollow diameter 2	-	-	14 (0.551)	20 (0.787)	27 (1.063)	34 (1.339)	37 (1.457)	44 (1.732)
D10	shrink disc OD	-	-	38 (1.496)	50 (1.969)	60 (2.362)	80 (3.150)	80 (3.150)	100 (3.937)
D11 H7***	keyed hollow diameter	6 (0.236)	10 (0.393)	12 (0.472)	18 (0.709)	25 (0.984)	32 (1.260)	35 (1.378)	42 (1.654)
	hollow shaft key size	2 x 2	3 x 3	4 x 4	6 x 6	8 x 7	10 x 8	10 x 8	12 x 8
L1	housing size	35 (1.378)	45 (1.772)	65 (2.559)	90 (3.543)	120 (4.724)	140 (5.512)	160 (6.299)	200 (7.874)
L2	mounting bolt location 2	25 (0.984)	30 (1.181)	45 (1.772)	70 (2.756)	100 (3.937)	110 (4.331)	120 (4.724)	160 (6.299)
L3	output shaft to centerline	40 (1.575)	57.5 (2.264)	72 (2.835)	95 (3.740)	122 (4.803)	137 (5.394)	160 (6.299)	203 (7.992)
L4****	overall length	Contact GAM		134 (5.276)	185 (7.283)	230 (9.055)	266 (10.47)	295 (11.61)	362 (14.25)
L5	shoulder thickness	0.5 (0.020)	2 (0.079)	2 (0.079)	2 (0.079)	2 (0.079)	2 (0.079)	2 (0.079)	2 (0.079)
L6	output pilot height 2	5.5 (0.217)	8 (0.315)	9.5 (0.374)	10 (0.393)	12 (0.472)	12 (0.472)	15 (0.591)	17 (0.669)
L7	output pilot height 1	1.5 (0.059)	2 (0.079)	2 (0.079)	2 (0.079)	3 (0.118)	3 (0.118)	3 (0.118)	3 (0.118)
L8	output shaft length	15 (0.591)	23 (0.906)	26 (1.024)	35 (1.378)	45 (1.772)	50 (1.969)	60 (2.362)	80 (3.150)
L9	key length	10 (0.393)	18 (0.709)	20 (0.787)	28 (1.102)	36 (1.417)	45 (1.772)	50 (1.969)	70 (2.756)
L10	key width	2 (0.079)	3 (0.118)	4 (0.157)	6 (0.236)	8 (0.315)	10 (0.393)	10 (0.393)	12 (0.472)
L11	shaft height with key	6.8 (0.268)	11.1 (0.437)	13.5 (0.531)	20.5 (0.807)	28 (1.102)	35 (1.378)	38 (1.496)	45 (1.772)
L12	stub shaft length	-	-	17 (0.669)	25 (0.984)	27 (1.063)	32 (1.260)	32 (1.260)	37 (1.457)
L13	diameter 2 length	-	-	15 (0.591)	18 (0.709)	22 (0.866)	25 (0.984)	25 (0.984)	35 (1.378)
L14	hollow shaft to centerline	-	-	46 (1.811)	62 (2.441)	80 (3.150)	90 (3.543)	103 (4.055)	125 (4.921)
L15	shrink disc to centerline	-	-	63 (2.480)	87 (3.425)	107 (4.213)	122 (4.803)	135 (5.315)	162 (6.378)
L16	hollow key width	2 (0.079)	3 (0.118)	4 (0.157)	6 (0.236)	8 (0.315)	10 (0.393)	10 (0.393)	12 (0.472)
L17	hollow height with keyway	7 (0.276)	11.4 (0.449)	13.8 (0.543)	20.8 (0.819)	28.3 (1.114)	35.3 (1.390)	38.3 (1.508)	45.3 (1.783)
L18	hollow shaft to centerline	27 (1.063)	36.5 (1.437)	46 (1.811)	62 (2.441)	80 (3.150)	90 (3.543)	103 (4.055)	125 (4.921)
f1	mounting holes 1	M3 x 5	M4 x 8	M6 x 12	M8 x 14	M10 x 16	M10 x 20	M12 x 24	M12 x 24
f2	mounting holes 2	M3 x 5	M4 x 8	M6 x 9.5	M8 x 10	M10 x 12	M10 x 12	M12 x 15	M12 x 17
f3	shaft thread DIN 332	M3	M3	M4	M6	M10	M12	M12	M16

* Mating shaft should have j6 tolerance ** Mating shaft should have h6 tolerance *** Mating shaft should have g6 tolerance **** Depending on motor, length may change



VC Series Dimensions: Ratios 7:1 to 100:1

mm (in)		90	120	140
D1 min	motor shaft diameter	3 (0.118)	3 (0.118)	3 (0.118)
D1 max standard	motor shaft diameter	19 (0.748)	24 (0.945)	24 (0.945)
D1 max available	motor shaft diameter	24 (0.945)	32 (1.181)	32 (1.181)
D2 j6	output shaft diameter	18 (0.709)	25 (0.984)	32 (1.260)
	output shaft key size	6 x 6 x 28	8 x 7 x 36	10 x 8 x 45
D3	mounting bolt circle 1	75 (2.953)	100 (3.937)	115 (4.528)
D4 f7	pilot diameter 1	60 (2.362)	80 (3.150)	90 (3.543)
D5 f7	pilot diameter 2	89 (3.504)	119 (4.685)	135 (5.315)
D6	shoulder diameter	30 (1.181)	35 (1.378)	50 (1.969)
D7 H6*	smooth hollow diameter 1	18 (0.709)	25 (0.984)	32 (1.260)
D8	opened up ID	19 (0.748)	26 (1.024)	33 (1.299)
D9 H7**	smooth hollow diameter 2	20 (0.787)	27 (1.063)	34 (1.339)
D10	shrink disc OD	50 (1.969)	60 (2.362)	80 (3.150)
D11 H7***	keyed hollow diameter	18 (0.709)	25 (0.984)	32 (1.260)
	hollow shaft key size	6 x 6	8 x 7	10 x 8
L1	housing size	90 (3.543)	120 (4.724)	140 (5.512)
L2	mounting bolt location 2	70 (2.756)	100 (3.937)	110 (4.331)
L3	output shaft to centerline	95 (3.740)	122 (4.803)	137 (5.394)
L4****	overall length	Ratios 7:1 - 50:1	230 (9.055)	283 (11.142)
		Ratios 70:1 - 100:1	263 (10.354)	323.5 (12.736)
L5	shoulder thickness	2 (0.079)	2 (0.079)	2 (0.079)
L6	output pilot height 2	10 (0.393)	12 (0.472)	12 (0.472)
L7	output pilot height 1	2 (0.079)	3 (0.118)	3 (0.118)
L8	output shaft length	35 (1.378)	45 (1.772)	50 (1.969)
L9	key length	28 (1.102)	36 (1.417)	45 (1.772)
L10	key width	6 (0.236)	8 (0.315)	10 (0.393)
L11	shaft height with key	20.5 (0.807)	28 (1.102)	35 (1.378)
L12	stub shaft length	25 (0.984)	27 (1.063)	32 (1.260)
L13	diameter 2 length	18 (0.709)	22 (0.866)	25 (0.984)
L14	hollow shaft to centerline	62 (2.441)	80 (3.150)	90 (3.543)
L15	shrink disc to centerline	87 (3.425)	107 (4.213)	122 (4.803)
L16	hollow key width	6 (0.236)	8 (0.315)	10 (0.393)
L17	hollow height with keyway	20.8 (0.819)	28.3 (1.114)	35.3 (1.390)
L18	hollow shaft to centerline	62 (2.441)	80 (3.150)	90 (3.543)
f1	mounting holes 1	M8 x 14	M10 x 16	M10 x 20
f2	mounting holes 2	M8 x 10	M10 x 12	M10 x 12
f3	shaft thread DIN 332	M6	M10	M12

* Mating shaft should have j6 tolerance ** Mating shaft should have h6 tolerance *** Mating shaft should have g6 tolerance **** Depending on motor, length may change



▶ VC SERIES TYPE CODE

TYPE CODES FOR VC SERIES

Example: VC - W - 090 - 002 S - M0000 - H0000 - C0000

Gearbox Series

VC - Spiral Bevel
Series (size 035-200)

Gearbox Style

K = Keyed hollow shaft
W = Single output shaft
T = Dual output shaft
S = Smooth hollow output
shaft with shrink disc
(not available in VC-35 & 45)

Gearbox Size

035, 045, 065, 090,
120, 140, 160, 200

Configuration Code

Assigned by GAM

Output Code

Assigned by GAM

Motor Code

Assigned by GAM

Backlash

S = Standard Backlash
R = Reduced Backlash

Ratio

1 = 001, 1.5 = 1.5, 50 = 050, etc.
1, 1.5, 2, 3, 4, 5, 6
7, 10, 15, 20, 25, 30, 40, 50, 70, 100
See Table 1 for available ratios

Table 1: Available Ratios

Ratio	Ratio for Type Code	Frame Size							
		035	045	065	090	120	140	160	200
1:1	001	x	x	x	x	x	x	x	x
1.5:1	1.5			x	x	x	x	x	x
2:1	002		x	x		x	x	x	x
3:1	003		x	x		x	x	x	x
4:1	004		x			x	x	x	x
5:1	005					x	x	x	x
6:1	006					x	x	x	x
7, 10, 15, 20, 30, 40, 50, 70, 100:1	007, 010, 015, 020, 030, 040, 050, 070, 100				x	x	x		

Table 2: Nominal Input Speed Limits

A breather may be required for applications with nominal input speeds (n1) greater than those listed in this table. If a breather is required, please specify the mounting configuration (see Table 3) and the breather location (see Table 4).

Duty Cycle	Speed (RPM)	Ratios	Frame Size							
			035*	045*	065*	090	120	140	160	200
S1	Breather may be required for Nominal Input Speed	1:1 to 6:1				>1500	>1100	>900	>800	>600
		7:1 to 100:1				Not required at any speed				
S5	Breather may be required for Nominal Input Speed	1:1 to 6:1				>2200	>1700	>1400	>1200	>900
		7:1 to 100:1				Not required at any speed				

* VC-035, 045, and 065 do not require a breather at any speed.

▶ VC SERIES TYPE CODE

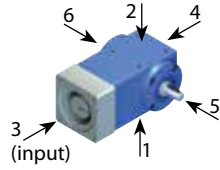
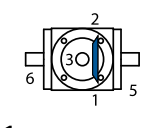
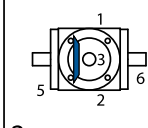
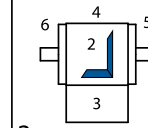
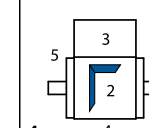
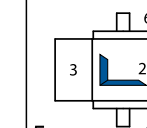
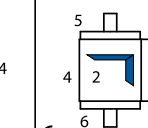


Table 3: Mounting Configuration

Gearbox supplied with universal mounting configuration, including tapped holes on all sides. If speeds exceed [maximum] per Table 2, the mounting configuration may be required. Contact GAM for assistance.

↑ UP (for all views)

Mounting 1: Side 1 Down	Mounting 2: Side 2 Down	Mounting 3: Side 3 Down	Mounting 4: Side 4 Down	Mounting 5: Side 5 Down	Mounting 6: Side 6 Down	Mounting 9: Any Side Down
						Universal Mounting
1	2	3	4	5	6	9

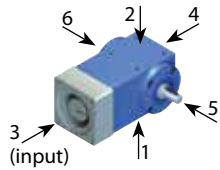
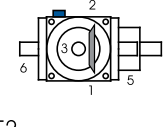
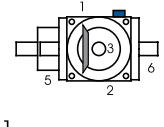
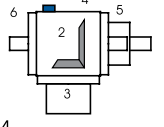
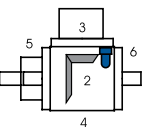
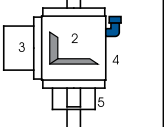
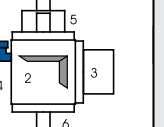
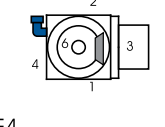
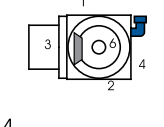
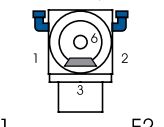
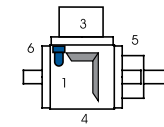
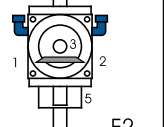
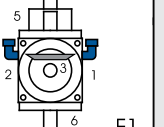
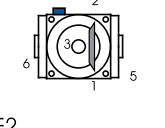
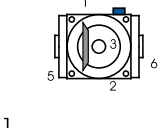
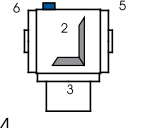
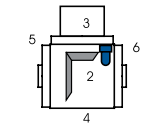
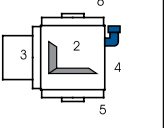
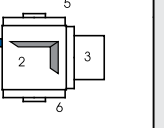
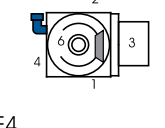
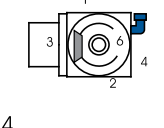
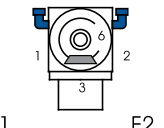
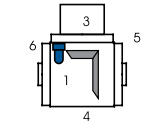
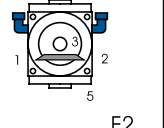
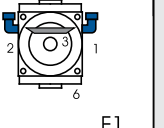


Table 4: Breather Location

Applications with input speeds greater than [maximum] speed per Table 1 may require a breather. Contact GAM for assistance.

↑ UP (for all views)

	Mounting 1: Side 1 Down	Mounting 2: Side 2 Down	Mounting 3: Side 3 Down	Mounting 4: Side 4 Down	Mounting 5: Side 5 Down	Mounting 6: Side 6 Down
Shaft Output						
	E2	E1	E4	E2	E4	E4
Hollow Output						
	E4	E4	E1	E1	E1	E2
Shaft Output						
	E2	E1	E4	E2	E4	E4
Hollow Output						
	E4	E4	E1	E1	E1	E2

Recommended Output Couplings for VC-W or VC-T

Recommended Output Coupling								
VC Series	035	045	065	090	120	140	160	200
bellows	KG-5 or KM-4	KG-10 or KM-12	KM-12 or 20	KLC-25 or 50	KLC-50 or 125	KLC-125 or KM-170	KM-170,270 or 400	KM-270,400 or 550
elastomer	EKC-5	EKM-8 or 15	EKC-5 or 25	EKC-35 or EKM-45	EKC-80 or 110	EKC-110 or EKM-200	EKM-200,300 or 400	EKM-300,500 or 700