

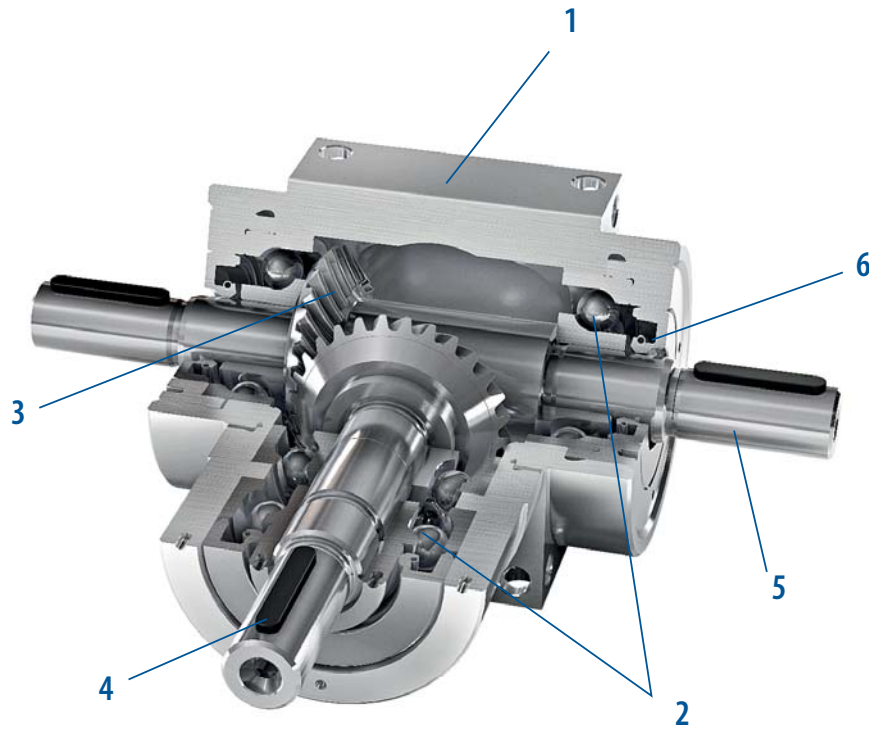


# ▶ PERFORMANCE PLUS: SPIRAL BEVEL SERIES

## GAM Performance Plus Miniature Spiral Bevel Gearboxes

The VP Series Performance Plus Miniature Bevel Gearboxes pack high performance in a small package with the highest torque density, range of ratios, and torque capacity on the market.

- Highest torque density for the size
- Sizes 27, 33, and 45 mm
- More ratios for the size: 1:1 to 4:1
- High Efficiency 98%
- Nominal Torque capacity of 1.3 to 16 Nm
- Hollow shaft output option (33 & 45 mm)
- High Strength aluminum housing
- Sealed and lubricated for life with synthetic oil
- VPC Series with integrated motor mount



### 1. Housing

Lightweight, high-strength aluminum - all 6 sides can be used for mounting

### 2. Bearings

Deep groove ball bearings handle axial and radial loading

### 3. Spiral Bevel Gearing

Case-hardened

### 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 hollow shaft with shrink disc

### 6. Seals

Protected with high quality NBR seals and lubricated for life with synthetic oil

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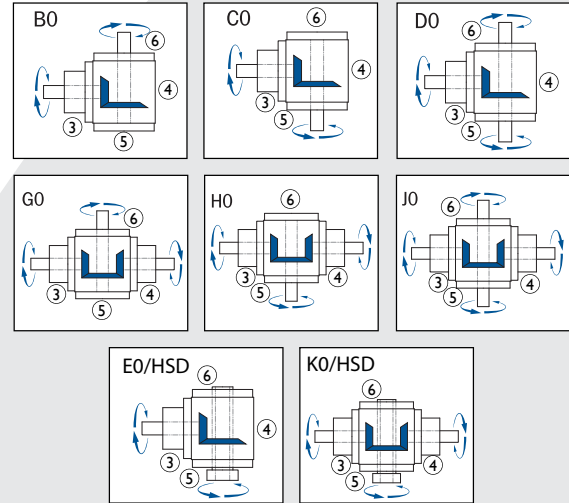
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### VP Series with Shaft Input



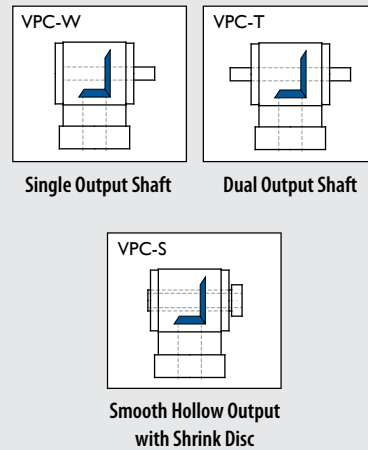
#### Available Models



### VPC Series with Integrated Motor Mount Input



#### Available Models



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# ▶ VP & VPC SERIES

VP & VPC Series		027		033		045	
Ratios Available		1, 1.5, 2, 3, 4:1					
Ratio	Input Speed (RPM)	Output Torque (Nm)	Power (kW)	Output Torque (Nm)	Power (kW)	Output Torque (Nm)	Power (kW)
1:1	10	3.5	0.004	5.0	0.005	16.0	0.017
	50	3.5	0.019	5.0	0.027	16.0	0.085
	100	3.5	0.037	4.9	0.052	15.9	0.170
	200	3.3	0.071	4.8	0.103	15.1	0.323
	500	3	0.160	4.6	0.246	14.6	0.780
	750	3	0.240	4.2	0.337	13.6	1.09
	1000	2.9	0.310	4.1	0.438	13.2	1.41
	1500	2.9	0.465	4	0.641	12.8	2.05
	2000	2.8	0.598	3.9	0.833	12.4	2.65
	2500	2.7	0.721	3.8	1.02	12.0	3.21
	3000	2.6	0.833	3.7	1.19	11.8	3.78
4000	2.5	1.07	3.6	1.54	11.2	4.79	
1.5:1	10	2.2	0.002	3.2	0.002	11.0	0.008
	50	2.2	0.008	3.2	0.011	11.0	0.039
	100	2.2	0.016	3.2	0.023	10.9	0.078
	200	2.1	0.030	3.1	0.044	10.7	0.152
	500	2.1	0.075	3.0	0.107	10.3	0.367
	750	2	0.107	2.9	0.155	9.9	0.529
	1000	1.9	0.135	2.8	0.199	9.6	0.684
	1500	1.9	0.203	2.7	0.288	9.4	1.00
	2000	1.8	0.256	2.6	0.370	8.9	1.27
	2500	1.7	0.303	2.5	0.445	8.7	1.55
	3000	1.7	0.363	2.4	0.513	8.4	1.80
4000	1.6	0.456	2.3	0.655	8.0	2.28	
2:1	10	-	-	2.3	0.001	8.5	0.005
	50	-	-	2.3	0.006	8.5	0.023
	100	-	-	2.3	0.012	8.4	0.045
	200	-	-	2.2	0.024	8.3	0.089
	500	-	-	2.2	0.059	8.0	0.214
	750	-	-	2.1	0.084	7.7	0.309
	1000	-	-	2.0	0.107	7.4	0.395
	1500	-	-	2.0	0.160	7.2	0.577
	2000	-	-	1.9	0.203	6.9	0.737
	2500	-	-	1.8	0.240	6.7	0.895
	3000	-	-	1.8	0.288	6.5	1.04
4000	-	-	1.7	0.363	6.2	1.32	
3:1	10	-	-	1.5	0.001	6.5	0.002
	50	-	-	1.5	0.003	6.5	0.012
	100	-	-	1.5	0.005	6.4	0.023
	200	-	-	1.5	0.011	6.3	0.045
	500	-	-	1.4	0.025	6.1	0.109
	750	-	-	1.4	0.037	5.9	0.158
	1000	-	-	1.3	0.046	5.7	0.203
	1500	-	-	1.3	0.069	5.5	0.294
	2000	-	-	1.2	0.085	5.3	0.378
	2500	-	-	1.2	0.107	5.1	0.454
	3000	-	-	1.1	0.118	5.0	0.534
4000	-	-	1.1	0.157	4.7	0.670	
4:1	10	-	-	1.3	0.000	5.0	0.001
	50	-	-	1.3	0.002	5.0	0.007
	100	-	-	1.3	0.003	4.9	0.013
	200	-	-	1.3	0.007	4.9	0.026
	500	-	-	1.2	0.016	4.7	0.063
	750	-	-	1.2	0.024	4.5	0.090
	1000	-	-	1.1	0.029	4.4	0.118
	1500	-	-	1.1	0.044	4.3	0.172
	2000	-	-	1.1	0.059	4.1	0.219
	2500	-	-	1.0	0.067	3.9	0.260
	3000	-	-	1.0	0.080	3.8	0.305
4000	-	-	0.9	0.096	3.6	0.385	

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# ▶ VP & VPC SERIES

VP & VPC Series		027	033	045	
Stock Ratios		1, 1.5, 2, 3, 4			
Nominal Output Torque ( $T_{2n}$ )	Nm (lb-in)	1:1	3.5 (31)	5 (44)	16 (142)
		1.5:1	2.2 (19)	3.2 (28)	11 (97)
		2:1	- -	2.3 (20)	8.5 (75)
		3:1	- -	1.5 (13)	6.5 (58)
		4:1	- -	1.3 (12)	5 (44)
Max Acceleration Output Torque* ( $T_{2b}$ )	Nm (lb-in)	1:1	5 (44)	7.5 (66)	25 (221)
		1.5:1	3.3 (29)	4.8 (42)	16.5 (146)
		2:1	- -	3.5 (31)	13 (115)
		3:1	- -	2 (18)	10 (89)
		4:1	- -	2 (18)	7.5 (66)
Emergency Output Torque** ( $T_{2not}$ )	Nm (lb-in)	1:1	7 (62)	10 (89)	32 (283)
		1.5:1	4.4 (39)	6.4 (57)	22 (195)
		2:1	- -	4.6 (41)	17 (150)
		3:1	- -	3 (27)	13 (115)
		4:1	- -	2.6 (23)	10 (89)
Max Speed ( $n_{1max}$ )	RPM	-	7500	7500	7500
Output Backlash (j)	arcmin	-	≤15	≤15	≤15
Allowable Radial Load ( $F_{rad}$ )***	N (lbs)	Input	120 (27)	160 (36)	320 (72)
		Output	150 (34)	200 (45)	400 (90)
Allowable Axial Load ( $F_{axial}$ )***	N (lbs)	Input	60 (13)	80 (18)	160 (36)
		Output	75 (17)	100 (22)	200 (45)
Weight (m)	kg (lbs)	VP	0.16 (0.35)	0.22 (0.49)	0.55 (1.2)
		VPC	0.31 (0.68)	0.37 (0.82)	0.93 (2.1)
Noise Level ( $L_{PA}$ )	dB(A)	-	≤70	≤70	≤70
Mass Moment of Inertia ( $J_1$ )	kg cm <sup>2</sup> (lb-in <sup>2</sup> )	1:1	Contact GAM	Contact GAM	Contact GAM
		1.5:1	Contact GAM	Contact GAM	Contact GAM
		2:1	Contact GAM	Contact GAM	Contact GAM
		3:1	Contact GAM	Contact GAM	Contact GAM
		4:1	Contact GAM	Contact GAM	Contact GAM
Efficiency at Load		>98%			
Service Life		> 15,000 hours			
Lubrication		Synthetic Oil, ISO VG 150			
Protection Rating		IP 64			
Operating Temperature Range		≤80°C			

\* At 1000 rpm maximum \*\* Permissible 1000 times maximum during service \*\*\* Load applied at center of output shaft @400 RPM

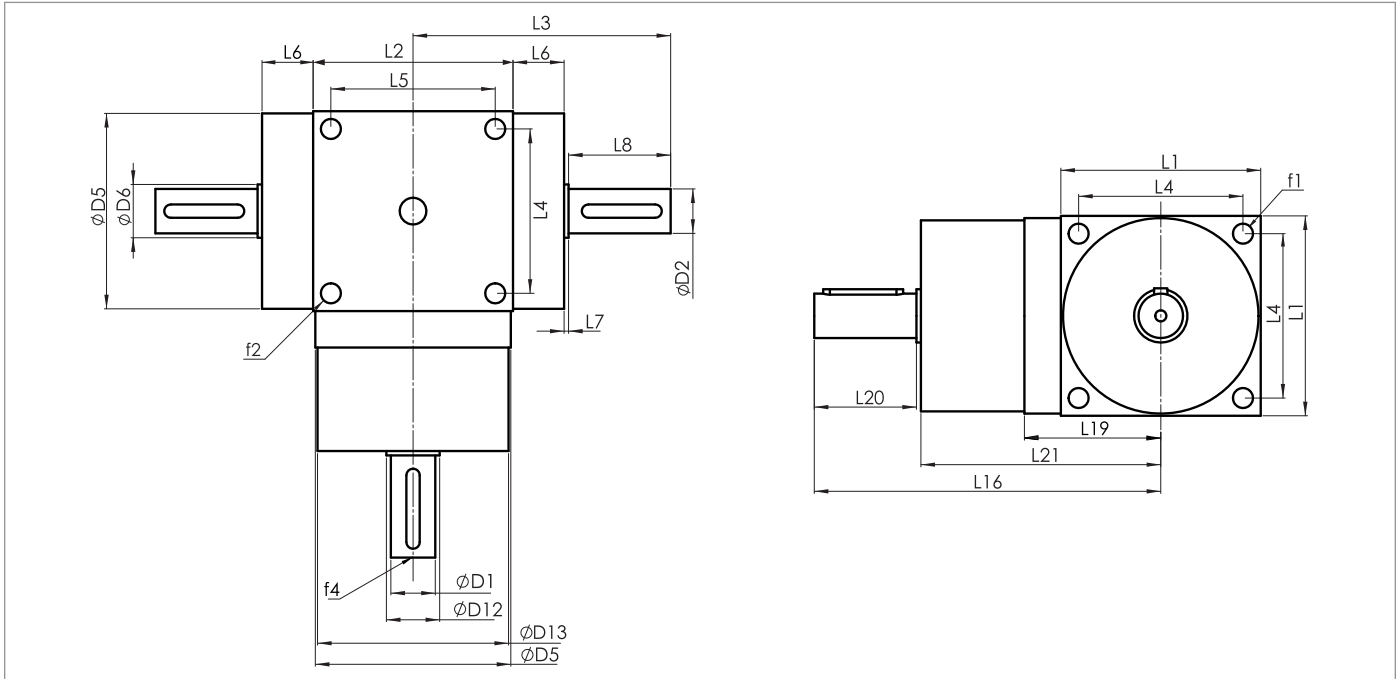
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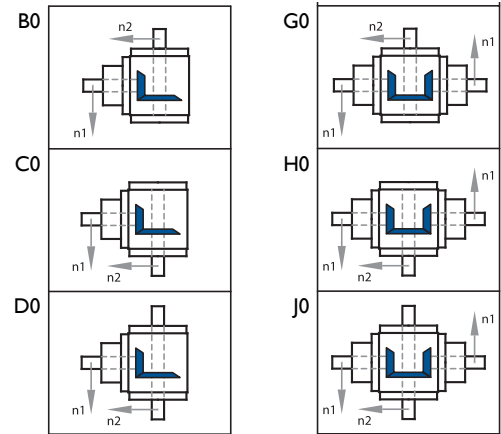
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# VP SERIES



Dimension	Model Description	VP-Series B0, C0, D0, G0, H0, J0 configurations		
		027 mm	033 mm	045 mm
D1 k6	Input Shaft Diameter	6	7	10
D2 k6	Output Shaft Diameter	6	7	10
D5 h7	Pilot Diameter	26	32	44
D6	Output Step Diameter	8	10	12
D12	Input Step Diameter	8	10	12
D13	Input Hub Pilot Diameter	25	28	43
f1	Output Flange Thread	8xM3	8xM3	8xM4
f2	Housing Thread	16xM3	24xM3	24xM4
f3	Output Shaft Thread	M2	M3	M3
f4	Input Shaft Thread (DIN 332)	M2	M3	M3
L1	Housing Size	27	33	45
L2	Housing Size	37	33	45
L3	Output Shaft to Centerline	33.5	40	50
L4	Mounting Bolt Location	22	27	37
L5	Mounting Bolt Location	25	27	37
L6	Pilot Height	3	7.5	11.5
L7	Small Pilot Height	1	1	1
L8	Output Shaft Length	13	15	23
L16	Centerline to End of Input Shaft	51	58	78
L19	Centerline to Input Pilot	18	21	31
L20	Input Shaft Length	13	15	23
L21	Centerline to Input Hub	37	42	54



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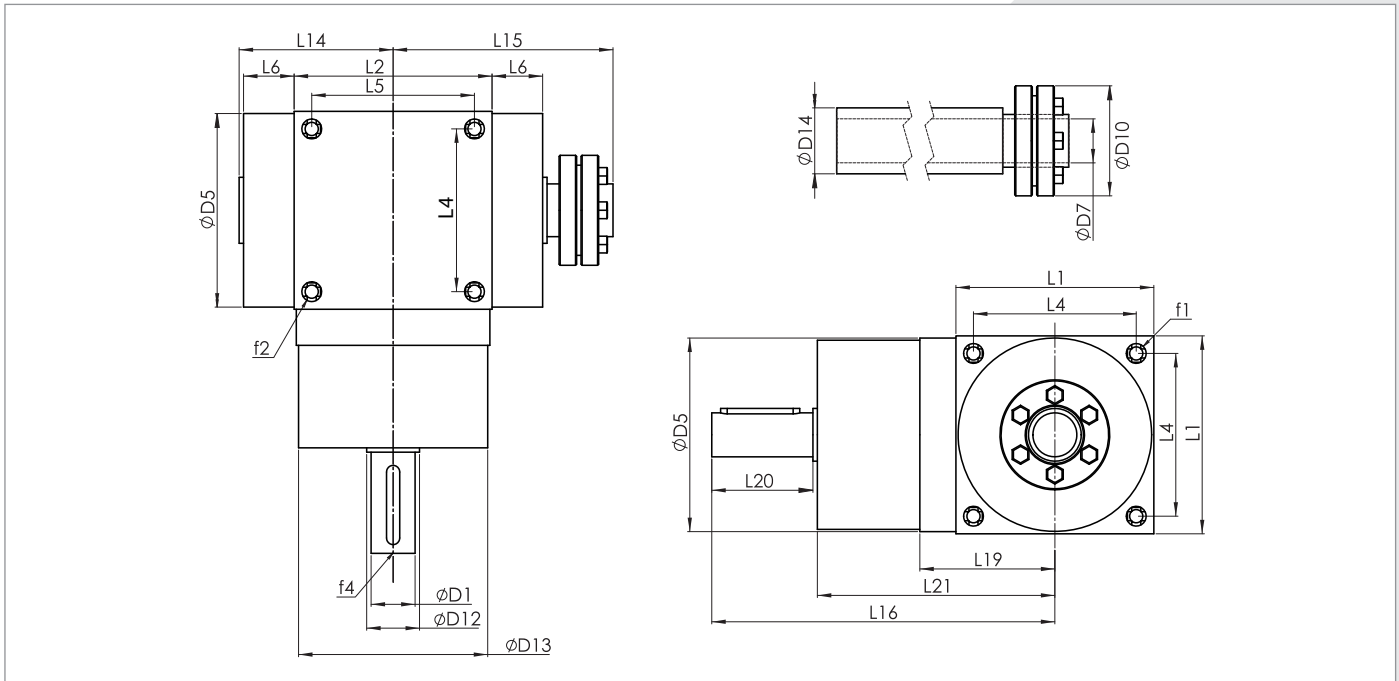
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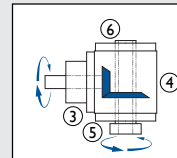
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# ▶ VP SERIES

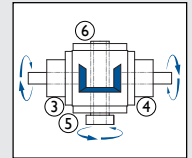


Dimension	Model Description	VP Series E0 and K0 Configuration*	
		033 mm	045 mm
D1 k6	Input Shaft Diameter	7	10
D5 h7	Pilot Diameter	32	44
D7 H7**	Hollow Shaft Diameter	6	10
D10	Shrink Disk OD	Consult GAM	Consult GAM
D12	Input Step Diameter	10	12
D13	Input Hub Pilot Diameter	28	43
D14 j6	Extended Shaft Diameter	8	12
f1	Output Flange Thread	8xM3	8xM4
f2	Housing Thread	24xM3	24xM4
f4	Input Shaft Thread (DIN 332)	M3	M3
L1	Housing Size	33	45
L2	Housing Size	33	45
L4	Mounting Bolt Location	27	37
L5	Mounting Bolt Location	27	37
L6	Pilot Height	7.5	11.5
L14	Hollow Shaft to Centerline	25	35
L15	Shrink Disk End to Centerline	35	50
L16	Centerline to End of Input Shaft	58	78
L20	Input Shaft Length	15	23
L21	Centerline to Input Hub	42	54

E0/HSD



K0/HSD



\* Size 027 Not available with hollow output shaft

\*\* Mating shaft should have j6 tolerance

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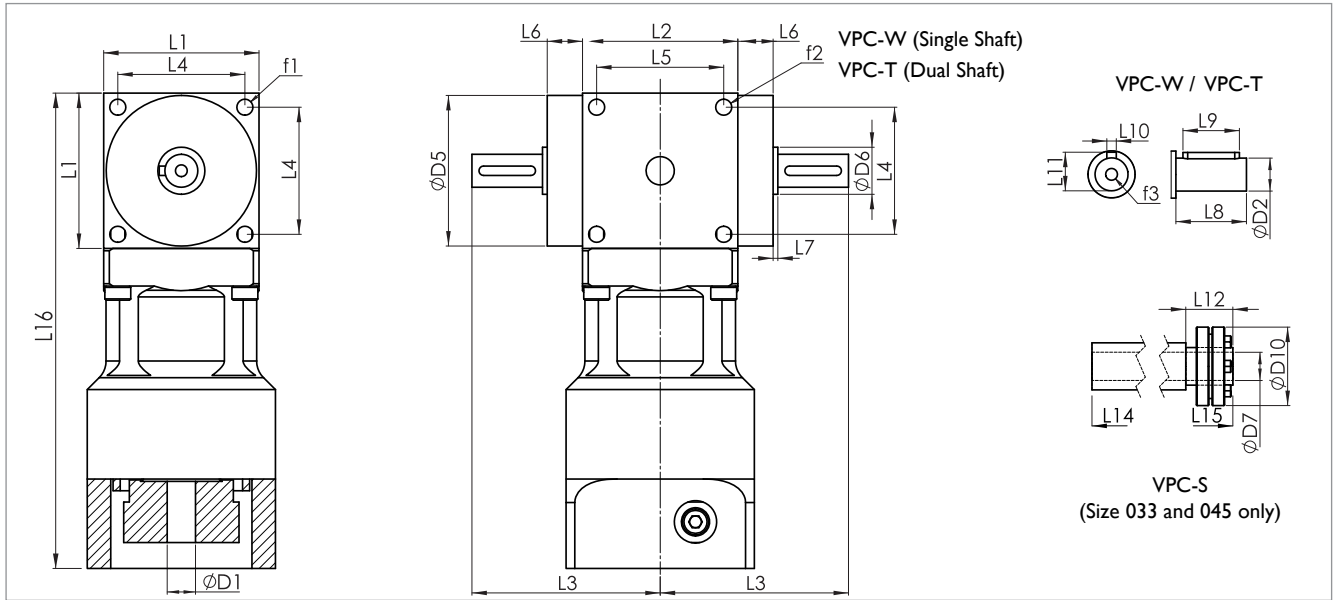
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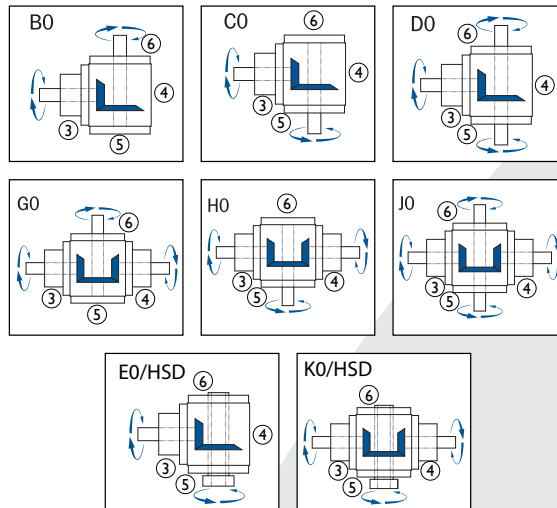
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Dimension	Model Description	VPC-Series: VPC-T, VPC-W, VPC-S		
		027	035	045
		mm	mm	mm
D1 min	Motor Shaft Diameter	6	6	6
D1 max		14	14	24
D2 k6	Output Shaft Diameter	6	7	10
D5 h7	Pilot Diameter	26	32	44
D6	Shoulder Diameter	8	10	12
D7 H7*	Smooth Hollow Diameter	-	6	10
D10	Shrink Disc OD	-	Consult GAM	Consult GAM
L1	Housing Size	27	33	45
L2	Housing Size	37	33	45
L3	Output Shaft To Centerline	33.5	40	50
L4	Mounting Bolt Location	22	27	37
L5	Mounting Bolt Location	25	27	37
L6	Output Pilot Height	3	7.5	11.5
L7	Small Pilot Height	1	1	1
L8	Output Shaft Length	13	15	23
L9	Key Length	10	12	18
L10	Key Width	2	2	3
L11	Shaft Height With Key	4	5	6
L12	Shaft Length	-	10	15
L14	Hollow Shaft To Centerline	-	25	35
L15	Shrink Disc End To Centerline	-	35	50
L16**	Overall Length	93	101	133
f1	Output Flange Mounting Holes	8xM3	8xM3	8xM4
f2	Housing Mounting Holes	16xM3	24xM3	24xM4
f3	Shaft Thread Din 332	M2	M3	M3

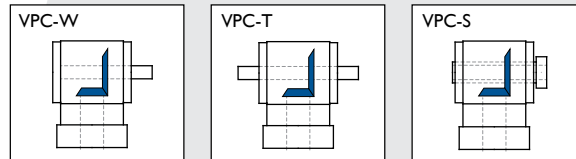
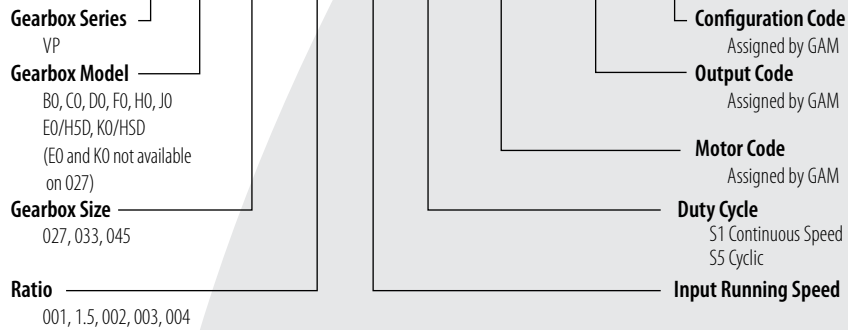
\* Mating shaft should have j6 tolerance \*\*Depending on motor, length may change

# ▶ VP & VPC SERIES



## TYPE CODES FOR VP SERIES

**Example: VP - C0 - 033 - 001 - 750 - S1 - M0000 - H0000 - C0000**



**Single Output Shaft      Dual Output Shaft      Smooth Hollow Output with Shrink Disc**

## TYPE CODES FOR VPC SERIES

**Example: VPC - W - 090 - 002 G - 750 - S1 - M0000 - H0000 - C0000**

