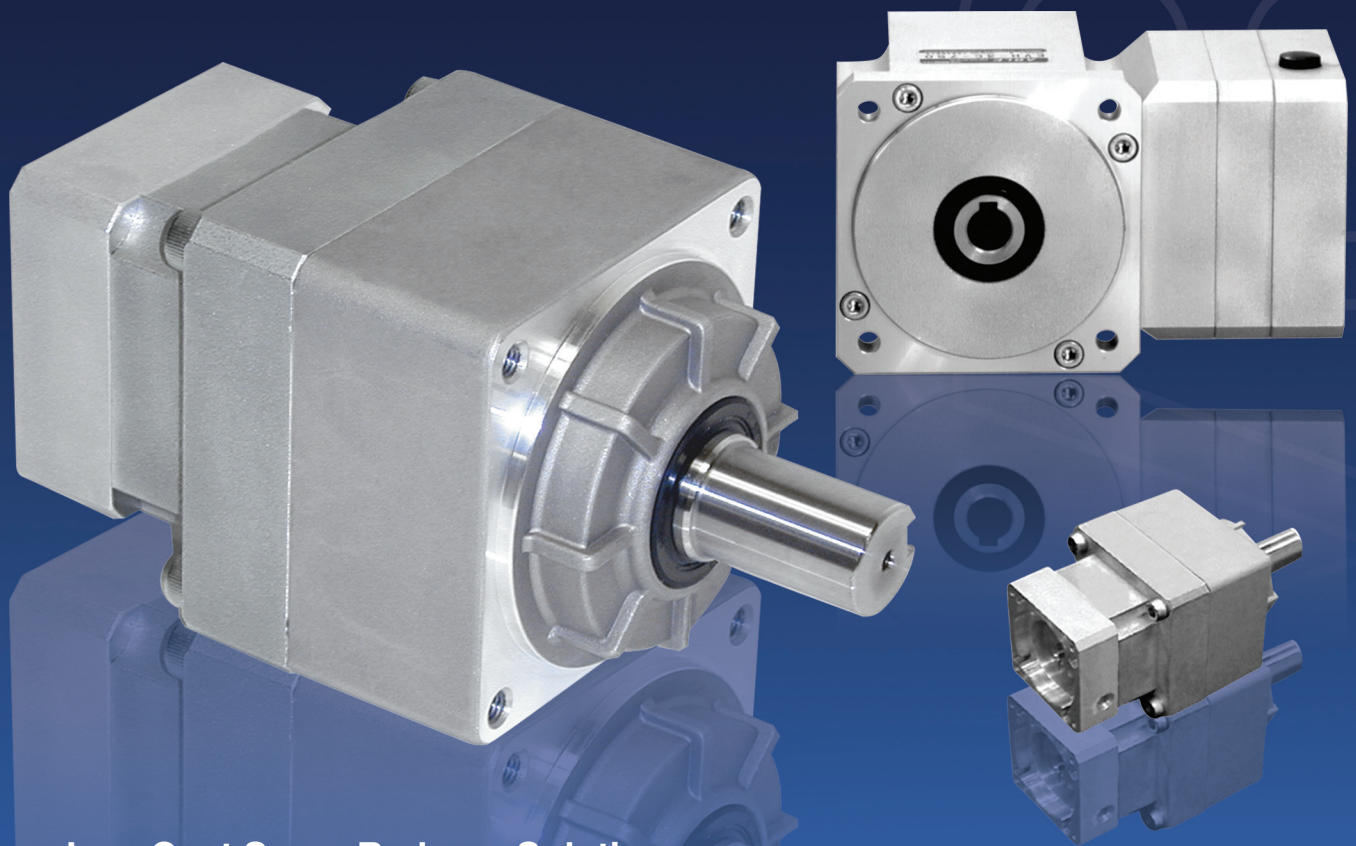


# SHIMPO

## VRAF-Series

# ABLE

## Planetary Servo Reducers



**Your Low Cost Servo Reducer Solution**

3 Backlash Levels, as low as 3 arc-min

IP65 environment protection

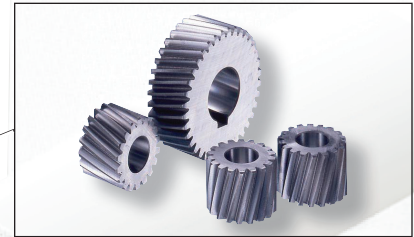
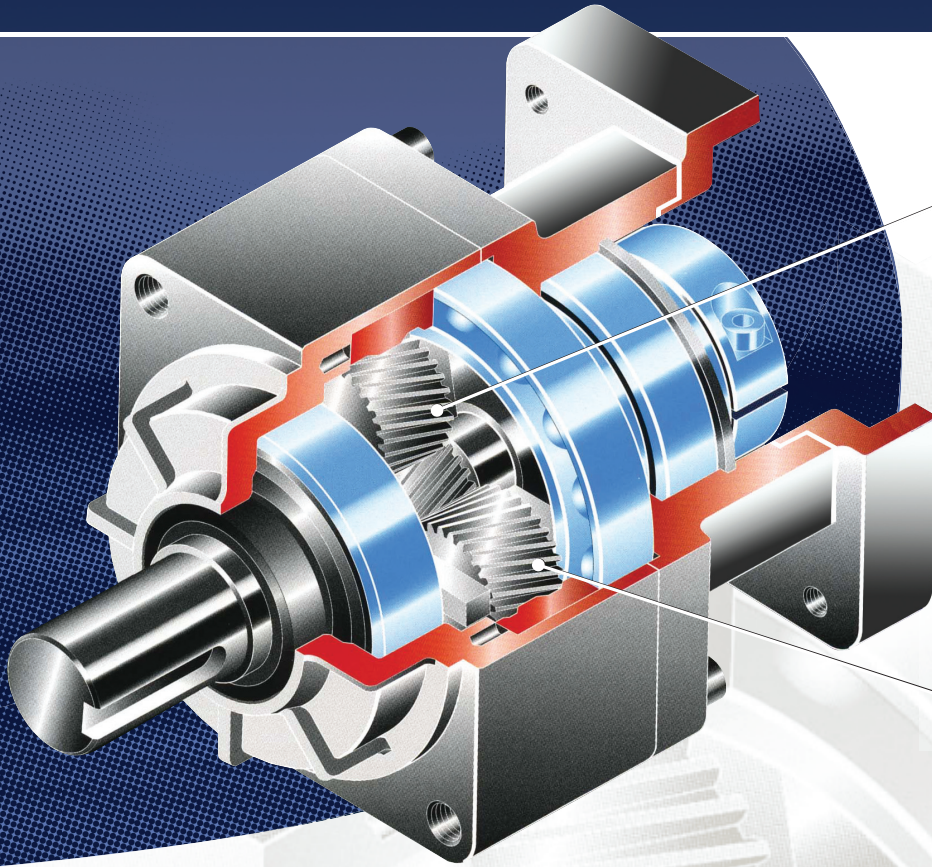
Motor adaptors for any servo motor, 50w through 5kW

Most units ship in less than 48 hours

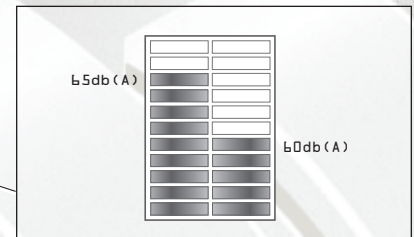
**SHIMPO**  
All for dreams



# Hear the difference **Helical Gears** make...



Helical gears have slanted teeth compared to spur gears with straight cut teeth, producing a smoother gear mesh, yielding significantly lower noise **levels**.



Typical sound level difference between spur gearing (left) and helical cut gearing. The db(A) scale is logarithmic. An increase of 3db doubles the apparent volume.

## Features & Benefits

### Case carburized and hard-cut helical gears (right angle has spiral bevel gear)

- Smooth, quiet operation
- Input speeds up to 6000 RPM

### O-Ring in piloted adaptor flange (Patent Pending)

- Absorbs clearance between motor and adaptor eliminating misalignment and minimizing vibration
- Provides additional seal to keep contaminants out

### Modular adaptor flange and keyless compressible bushings

- Easily adapts to any manufacturer's servo motor
- 2 day shipping

### Grease lubrication

- Allows mounting in any position without modifications
- 20,000 hour maintenance free operation

### Contact lip seals and sealed input shaft bearing (IP64 rating)

- Excellent protection against lubricant leakage and external contamination
- Can be easily modified for an IP65 rating (optional epoxy or Steel-It® paint available)

### ACCULOK keyless locking hub

- Provides tight fit with motor shaft (key is not required) without adding backlash

### Oversized bearings

- Exceptional output shaft overhung and thrust load capabilities

### Standard, low, and precision backlash available in the same housing design

- Choose only the level of precision you need for your application without having to modify your design
- Housing style matches shape of servo motor

### Optional output flanges

- Versatility in mounting

# Model Number Chart

	A	F										
Model	Input		Frame	Ratio	Backlash	Motor Attachment		Bushings		Modifications		
										1	2	3
										(See Notes Below)		

### Model

Ordering Code

VR	Concentric
NEV	Right Angle

### Frame Size

Ordering Code

A	A Frame
B	B Frame
C	C Frame
D	D Frame
E	E Frame

### Backlash

Ordering Code

O	Standard
L	Low
P	Precision

### Adaptor Flange Re-Threaded Hole

(with T Code)

Standard	T
M3	M4
M4	M5
M5	M6
M6	M8
M8	M10
M10	M12

### Ratio

Ordering Code VRAF/VRSF

03	Single Reduction	3:1
05		5:1
09		9:1
15	Double Reduction	15:1
20		20:1
25		25:1
35		35:1
45		45:1
81		81:1

### Ordering Code

NEVAF/NEVSF

03	Single Reduction	3:1
05	Double Reduction	5:1
09		9:1
15		15:1
27		27:1
45		45:1
75		75:1
IH		105:1

### Motor Attachment (Bolt Circle of motor in mm)

Ordering Code

044	43.80 (NEMA 17)
045	45
046	46
060	60
063	63
067	66.68 (NEMA 23)
070	70
075	75
090	90
095	95
098	98.43 (NEMA 34)
100	100
115	115
126	125.73 (NEMA 42)
130	130
145	145
149	149.23 (NEMA 56)
165	165
200	200

### Input

Ordering Code

A	Adaptor Flange
K	Dedicated w/Key
S	Dedicated w/clamp hub

### Bushing

Ordering Code

0000	No Bushing Required OD(mm) ID(mm)	
00__	Non-catalog dedicated bore in mm- specify	
0801	8	6
0802	8	6.350
0803	8	5
1401	14	6
1402	14	8
1403	14	11
1404	14	6.350
1405	14	9.525
1406	14	12.700
1407	14	12
1408	14	10
1409	14	9
1410	14	5
1901	19	11
1902	19	14
1903	19	16
1904	19	9.525
1905	19	12.700
1906	19	15.875
1907	19	12
1908	19	10
1909	19	9
1910	19	8
2401	24	14
2402	24	16
2403	24	19
2404	24	12.700
2405	24	15.875
2406	24	22
2407	24	19.050

### Modifications/Motor Attachment Threaded Hole

Ordering Code

000	Standard
1	VR - w/metric output flange
N	VR - w/NEMA output flange
5	Keyless output shaft
6	NEV - solid shaft
7	NEV - hollow shaft
I	IP65 - no paint - standard grease
F	Food grade grease - no paint - IP65
G	Food grade grease - Steel-It paint - IP65
S	Steel-It paint - standard grease - IP65
W	White epoxy paint - standard grease - IP65
X	Food grade grease - white epoxy paint - IP65
T	Re-tap motor attachment flange one size larger
H	Through hole on motor attachment flange
L	Larger through hole on motor attachment flange
B	Pilot diameter reduced
R	Deeper motor attachment flange/add spacer plate
A_	Special

Notes:

1, N, 6, or 7 is always in position 1 of the modification section. 5 is in position one unless 1 or N is present.

B or R is always in position 3 of the modification section. If position 1 is not taken by 1, N, 5, 6, or 7, list first modification in position 1. If there is more than one modification, list in alphabetical order.

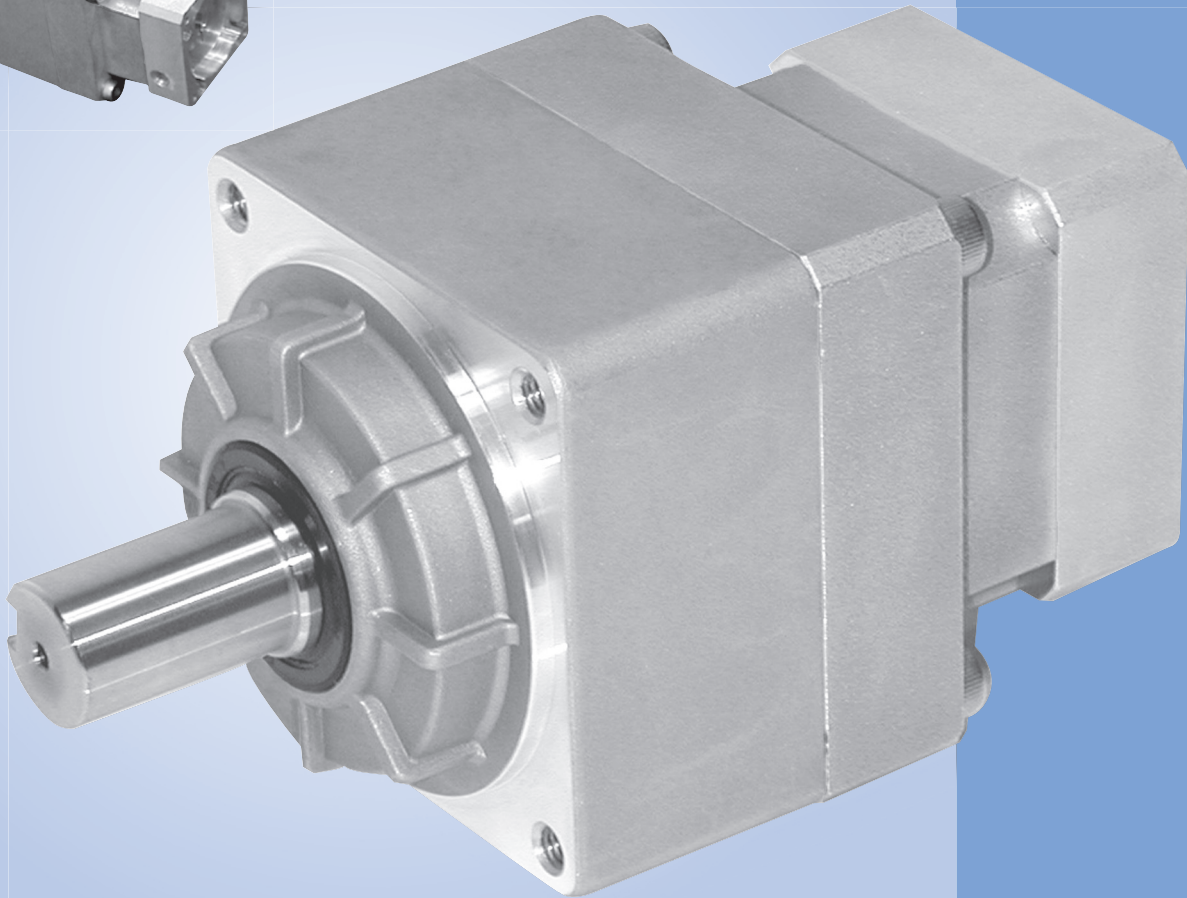
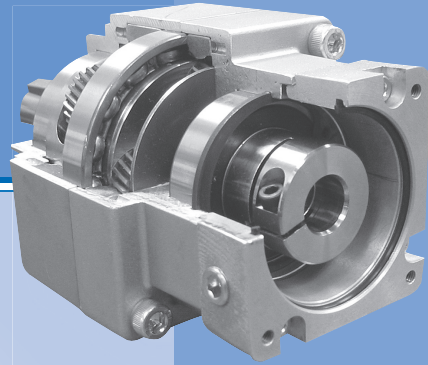
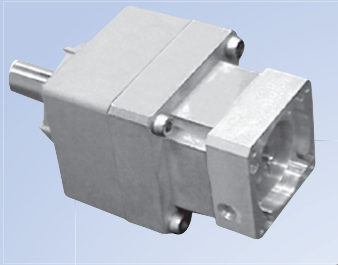
Use 0's (zeros) in any position not taken by a modification.

## Options & Modifications Available

- ➔ Custom motor attachment dimensions
- ➔ Food grade grease (needed when unit is placed above the food line)
- ➔ Stainless steel output shaft
- ➔ Custom ratios
- ➔ Custom outputs
- ➔ Output shaft drilled and tapped



# VR CONCENTRIC Shaft Series



Sizes from 50W to 5000W

Ratios from 3:1 to 81:1

Backlash from 3 arc-min

Input speeds up to 6000 RPM



# VRAF/VRSF Concentric Shaft Series Selection Table

Based on 3000 RPM Input

Motor Rated Output (W)	Ratio								
	3:1	5:1	9:1	15:1	20:1	25:1	35:1	45:1	81:1
50								C	
100	B							C	
200				C				D	
400								E	
500	C				D				
600									
750	D				E				
1000									
1200	D				E				
1500									
2000									
2500	E								
3000									
3500	E				See VRAS Catalog				
4000									
4500									
5000									

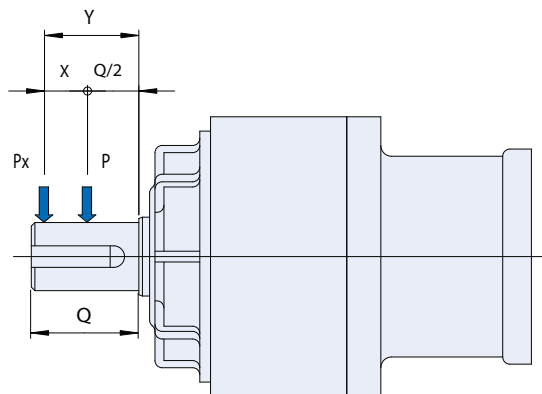
3:1, 5:1, & 9:1 are single reduction, 15:1, 20:1, 25:1, 35:1, 45:1, & 81:1 are double reduction.  
Other sizes and ratios available. Contact Shimpo Drives Customer Service for additional information.

## VR Overhung Load

When a radial load is being applied to the shaft in a position other than the center, calculate the overhung load using the following equation:

$$P_x = [K / K + (Y - Q / 2)] \times P$$

- P:** Allowable radial load (N or lbs from specification table)
- K:** Constant (from table below)
- Y:** Position of radial load
- P<sub>x</sub>:** Actual overhung load
- Q:** Output shaft length



Frame Size	Constant (K)		Q	
	mm	in	mm	in
B	46	1.81	20	0.79
C	70	2.76	30	1.18
D	79.5	3.13	40	1.57
E	105	4.13	55	2.17

# VRAF/VRSF Concentric Shaft Series Specifications

Frame Size	Ratio	Nominal Output Torque (1)		Maximum Acceleration Output Torque		Emergency Stop Output Torque (2)		Moment of Inertia		Torsional Stiffness		Maximum Input Speed
		Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	kgfcm <sup>2</sup>	lb-in-sec <sup>2</sup>	Nm/ arc-min	in-lbs/ arc-min	RPM
B	3:1	3.9	35	10	88	17	150	0.197	0.000174	0.8	7	6000
	5:1	5.6	50	13	115	17	150	0.170	0.000150			
	9:1	4.9	43	12	106	17	150	0.162	0.000143			
	15:1	4.8	42	12	106	17	150	0.041	0.000036			
	20:1	4.8	42	12	106	17	150	0.041	0.000036			
	25:1	6.4	57	13	115	17	150	0.040	0.000035			
	35:1	6.4	57	13	115	17	150	0.020	0.000018			
	45:1	6.4	57	13	115	17	150	0.004	0.000004			
81:1	6.4	57	13	115	17	150	0.004	0.000004				
C	3:1	21	186	47	416	93	823	1.182	0.001046	3	27	6000
	5:1	21	186	47	416	93	823	0.902	0.000798			
	9:1	21	186	47	416	93	823	0.821	0.000726			
	15:1	26	230	47	416	93	823	0.331	0.000293			
	20:1	26	230	47	416	93	823	0.331	0.000293			
	25:1	26	230	47	416	93	823	0.319	0.000282			
	35:1	26	230	47	416	93	823	0.160	0.000141			
	45:1	26	230	47	416	93	823	0.035	0.000031			
81:1	26	230	47	416	93	823	0.035	0.000031				
D	3:1	30	265	74	655	131	1159	3.203	0.002834	6	53	5100
	5:1	33	292	81	717	131	1159	2.478	0.002193			
	9:1	38	336	93	823	131	1159	2.217	0.001962			
	15:1	45	398	104	920	131	1159	0.906	0.000802			
	20:1	45	398	104	920	131	1159	0.906	0.000802			
	25:1	54	478	104	920	131	1159	0.876	0.000775			
	35:1	54	478	104	920	131	1159	0.440	0.000390			
	45:1	54	478	104	920	131	1159	0.031	0.000027			
81:1	49	434	104	920	131	1159	0.036	0.000027				
E	3:1	87	770	158	1398	316	2815	5.780	0.005104	20	177	5000
	5:1	87	770	158	1398	316	2815	3.750	0.003311			
	9:1	87	770	158	1398	316	2815	2.809	0.002480			
	15:1	108	956	197	1744	393	3478	2.800	0.002472			
	20:1	108	956	197	1744	393	3478	2.800	0.002472			
	25:1	108	956	197	1744	393	3478	2.800	0.002379			
	35:1	108	956	197	1744	393	3478	2.800	0.001202			
	45:1	108	956	197	1744	393	3478	0.245	0.000216			
81:1	108	956	197	1744	393	3478	0.240	0.000212				

3:1, 5:1, & 9:1 are single reduction, 15:1, 20:1 25:1, 35:1 45:1, and 81:1 are double reduction.

- (1) Based on B10 bearing life of 10000 hours and 3000 RPM input.
- (2) Based on 1000 cycles.
- (3) Measured at a distance of 1 meter at 3000 RPM input at no load.
- (4) Actual efficiency will vary depending on ratio, input speed, and load.

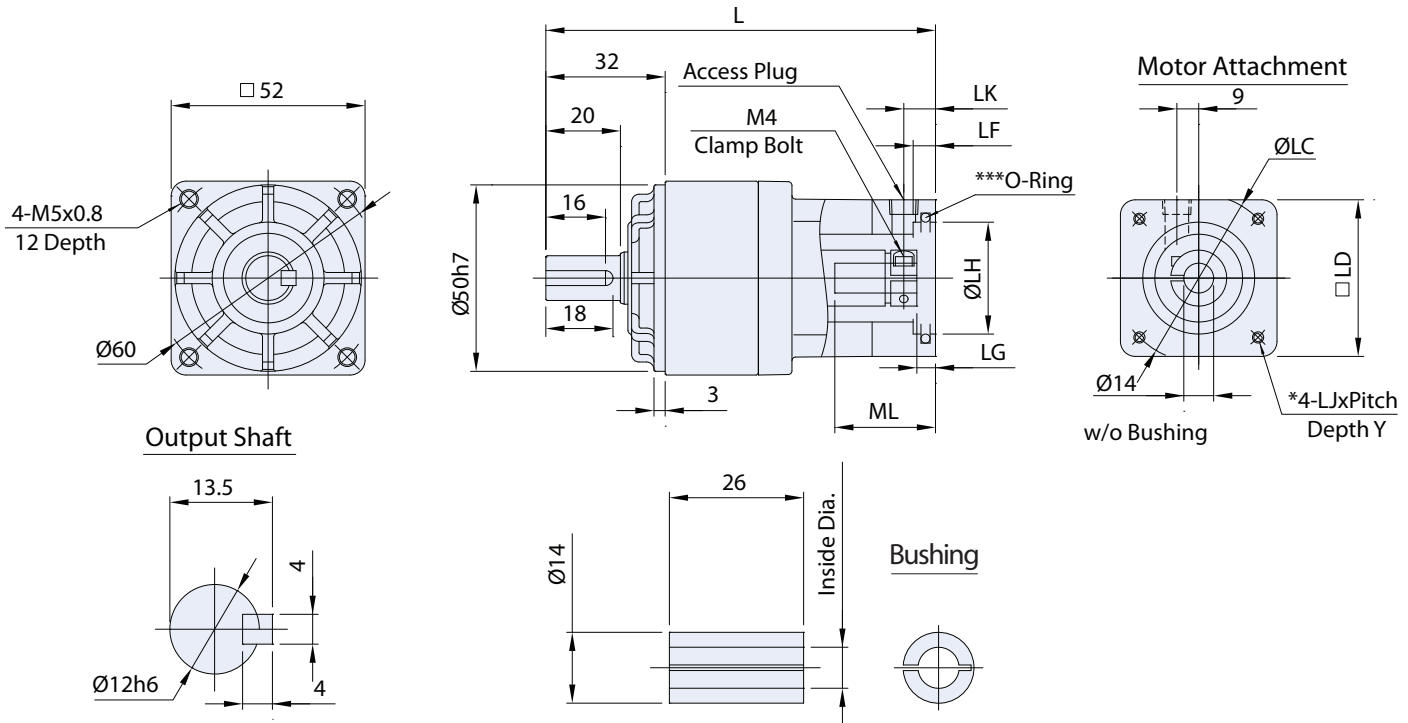


# VRAF/VRSF Concentric Shaft Series Specifications

Frame Size	Ratio	Output Shaft Radial Load		Output Shaft Thrust Load		Noise Level (3) dB(A)	Backlash			Efficiency (4) %	Weight	
		N	lbs	N	lbs		Standard arc-min	Low arc-min	Precision arc-min		kg	lbs
B	3:1	370	83	185	42	≤72	≤15	≤10	≤3	95	0.6	1.2
	5:1	450	101	225	51	≤65						
	9:1	570	128	285	64	≤65						
	15:1	700	157	350	79	≤65				92	0.7	1.6
	20:1	700	157	350	79	≤65						
	25:1	860	193	430	97	≤65						
	35:1	860	193	430	97	≤65						
	45:1	860	193	430	97	≤65						
81:1	860	193	430	97	≤65							
C	3:1	840	189	420	94	≤72	≤15	≤5	≤3	95	1.7	3.7
	5:1	980	220	490	110	≤65						
	9:1	1180	265	590	133	≤65						
	15:1	1450	326	725	163	≤65				92	2.1	4.6
	20:1	1450	326	725	163	≤65						
	25:1	1670	375	835	188	≤65						
	35:1	1670	375	835	188	≤65						
	45:1	1670	375	835	188	≤65						
81:1	1670	375	835	188	≤65							
D	3:1	1100	247	550	124	≤72	≤15	≤5	≤3	95	3.2	7.0
	5:1	1300	292	650	146	≤65						
	9:1	1600	360	800	180	≤65						
	15:1	1900	427	950	214	≤65				92	3.9	8.6
	20:1	1900	427	950	214	≤65						
	25:1	2200	494	1100	247	≤65						
	35:1	2200	494	1100	247	≤65						
	45:1	2200	494	1100	247	≤65						
81:1	2200	494	1100	247	≤65							
E	3:1	3530	794	1765	397	≤75	≤15	≤5	≤3	95	12	25.4
	5:1	3530	794	1765	397	≤75						
	9:1	3530	794	1765	397	≤75						
	15:1	3530	794	1765	397	≤75				92	13	28
	20:1	3530	794	1765	397	≤75						
	25:1	3530	794	1765	397	≤75						
	35:1	3530	794	1765	397	≤75						
	45:1	3530	794	1765	397	≤75						
81:1	3530	794	1765	397	≤75							

# B Frame VRAF Series Dimensions

Ratios: 3:1, 5:1, 9:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth		
										LF	LG	ML
045	SB01	mm	45	30	42	M3x0.5	8	104.5	10	6	5	32
		in	1.772	1.181	1.65	-	0.31	4.114	0.39	0.24	0.20	1.26
046	SB02	mm	46	30	42	M4X0.7	10	104.5	10	6	5	32
		in	1.811	1.181	1.65	-	0.39	4.114	0.39	0.24	0.20	1.26
046R	SB02R	mm	46	30	42	M4X0.7	10	107.5	13	6	8	35
		in	1.811	1.181	1.65	-	0.39	4.232	0.51	0.24	0.31	1.38
060	SB03	mm	60	50	60	M4X0.7	10	104.5	10	4	5	32
		in	2.362	1.969	2.36	-	0.39	4.114	0.39	0.16	0.20	1.26
070	SB04	mm	70	50	60	M4X0.7	10	104.5	10	4	5	32
		in	2.756	1.969	2.36	-	0.39	4.114	0.39	0.16	0.20	1.26
070R	SB04R	mm	70	50	60	M5X0.8	20	109.5	15	9	10	37
		in	2.756	1.969	2.36	-	0.79	4.311	0.59	0.35	0.39	1.46
067 (NEMA23)	SB05	mm	66.68	38.100	58	M4X0.7	10	104.5	10	4	5	32
		in	2.625	1.500	2.28	-	0.39	4.114	0.39	0.16	0.20	1.26
067R (NEMA23)	SB05R	mm	66.68	38.100	60	M5X0.8	-	112.5	18	3	13	40
		in	2.625	1.500	2.36	-	-	4.429	0.71	0.12	0.51	1.57
090	SB06	mm	90	70	80	M5X0.8	12	104.5	10	4	5	32
		in	3.543	2.756	3.15	-	0.47	4.114	0.39	0.16	0.20	1.26
044 (NEMA17)	SB07	mm	43.80	22	42	2-3.3 dia.	-	106.5	12	4	7	34
		in	1.724	0.866	1.65	2-0.13 dia.	-	4.193	0.47	0.16	0.28	1.34
063	SB10	mm	63	40	58	M4X0.7	10	104.5	10	4	5	32
		in	2.480	1.575	2.28	-	0.39	4.114	0.39	0.16	0.20	1.26

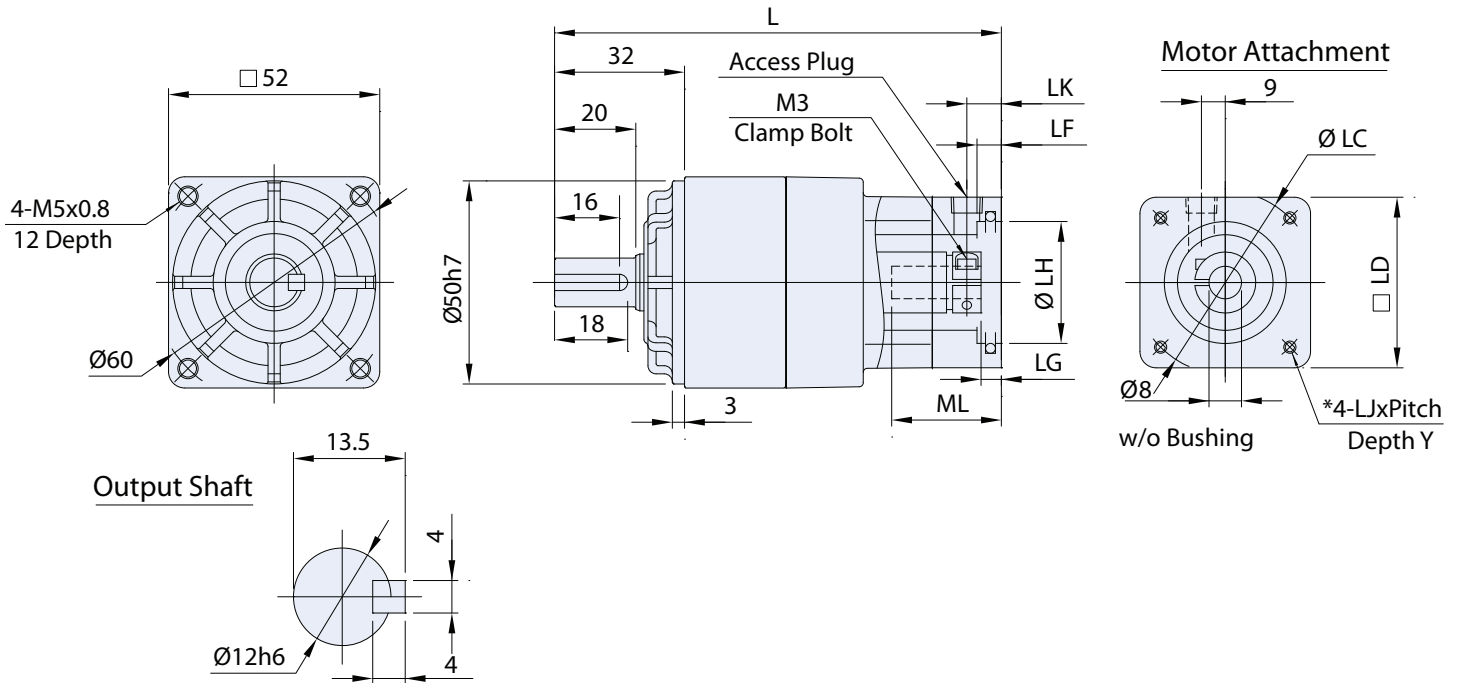
## Bushings

Bushing Ordering Code	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354



# B Frame VRAF Series Dimensions

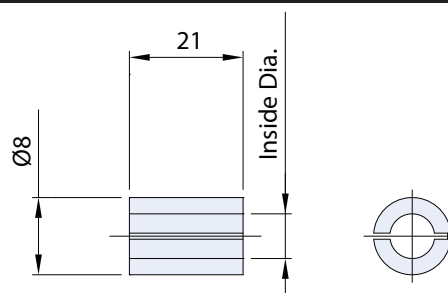
Ratios: 15:1, 20:1, 25:1, 35:1, 45:1, 81:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth		
										LF	LG	ML
045	DB01	mm	45	30	42	M3x0.5	8	110	10	6	5	27
		in	1.772	1.181	1.65	-	0.31	4.331	0.39	0.24	0.20	1.06
046	DB02	mm	46	30	42	M4X0.7	10	110	10	6	5	27
		in	1.811	1.181	1.65	-	0.39	4.331	0.39	0.24	0.20	1.06
046R	DB02R	mm	46	30	42	M4X0.7	10	113	13	6	8	30
		in	1.811	1.181	1.65	-	0.39	4.449	0.51	0.24	0.31	1.18
060	DB03	mm	60	50	60	M4X0.7	10	110	10	4	5	27
		in	2.362	1.969	2.36	-	0.39	4.331	0.39	0.16	0.20	1.06
070	DB04	mm	70	50	60	M4X0.7	10	110	10	4	5	27
		in	2.756	1.969	2.36	-	0.39	4.331	0.39	0.16	0.20	1.06
070R	DB04R	mm	70	50	60	M5X0.8	20	115	15	9	10	32
		in	2.756	1.969	2.36	-	0.79	4.528	0.59	0.35	0.39	1.26
067 (NEMA23)	DB05	mm	66.68	38.100	58	M4X0.7	10	110	10	4	5	27
		in	2.625	1.500	2.28	-	0.39	4.331	0.39	0.16	0.20	1.06
067R (NEMA23)	DB5R	mm	66.68	38.100	60	M5X0.8	-	118	18	3	13	40
		in	2.625	1.500	2.36	-	-	4.646	0.71	0.12	0.51	1.57
090	DB06	mm	90	70	80	M5X0.8	12	110	10	4	5	27
		in	3.543	2.756	3.15	-	0.47	4.331	0.39	0.16	0.20	1.06
044 (NEMA17)	DB07	mm	43.80	22	42	2-3.3 dia.	-	112	12	4	7	29
		in	1.724	0.866	1.65	2-0.13 dia.	-	4.409	0.47	0.16	0.28	1.14
063	DB10	mm	63	40	58	M4X0.7	10	110	10	4	5	27
		in	2.480	1.575	2.28	-	0.39	4.331	0.39	0.16	0.20	1.06

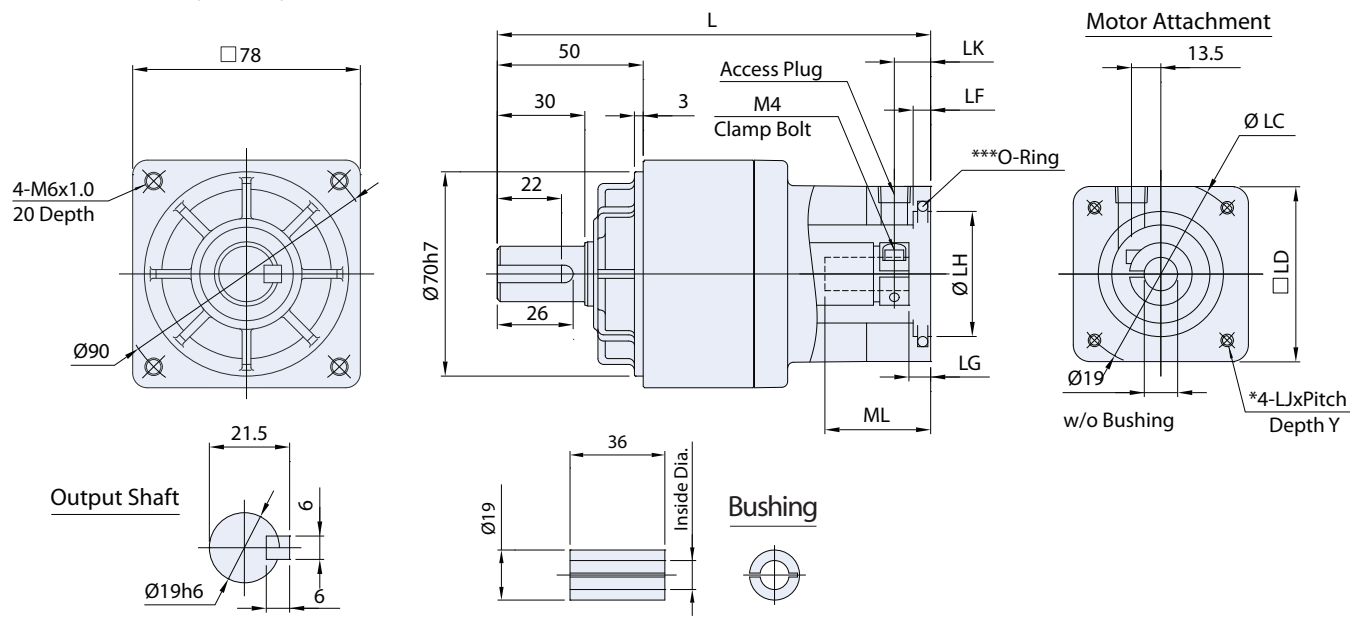
## Bushings

Bushing Ordering Code		0801	0802	0803
Inside Diameter	mm	6	6.350	5
	in	0.236	0.250	0.197



# C Frame VRAF Series Dimensions

Ratios: 3:1, 5:1, 9:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth		
										LF	LG	ML
060	SC00	mm	60	50	60	M4x0.7	10	148.5	11	4	5	42
		in	2.362	1.969	2.36	-	0.39	5.846	0.43	0.16	0.20	1.65
070	SC01	mm	70	50	60	M4x0.7	10	148.5	11	4	5	42
		in	2.756	1.969	2.36	-	0.39	5.846	0.43	0.16	0.20	1.65
070R	SC01R	mm	70	50	60	M5x0.8	12	152.5	15	6	9	46
		in	2.756	1.969	2.36	-	0.47	6.004	0.59	0.24	0.35	1.81
090	SC02	mm	90	70	80	M5X0.8	12	148.5	11	4	5	42
		in	3.543	2.756	3.15	-	0.47	5.846	0.43	0.16	0.20	1.65
090R	SC02R	mm	90	70	80	M6X1.0	21	153.5	16	9	10	47
		in	3.543	2.756	3.15	-	0.83	6.043	0.63	0.35	0.39	1.85
100	SC03	mm	100	80	86	M6X1.0	16	148.5	11	4	5	42
		in	3.937	3.150	3.39	-	0.63	5.846	0.43	0.16	0.20	1.65
098 (NEMA34)	SC04	mm	98.43	73.025	83	M5X0.8	12	148.5	11	4	5	42
		in	3.875	2.875	3.27	-	0.47	5.846	0.43	0.16	0.20	1.65
098R (NEMA34)	SC04R	mm	98.43	73.025	83	M5X0.8	12	156.5	19	3	13	50
		in	3.875	2.875	3.27	-	0.47	6.161	0.75	0.12	0.51	1.97
095	SC05	mm	75	60	67	M5X0.8	12	148.5	11	4	5	42
		in	2.953	2.362	2.64	-	0.47	5.846	0.43	0.16	0.20	1.65
115	SC06	mm	115	95	100	M6X1.0	16	148.5	11	4	5	42
		in	4.528	3.740	3.94	-	0.63	5.846	0.43	0.16	0.20	1.65
067 (NEMA23)	SC09	mm	66.68	38.100	60	M4X0.7	10	148.5	11	4	5	42
		in	2.625	1.500	2.36	-	0.39	5.846	0.43	0.16	0.20	1.65
063	SC10	mm	63	40	60	M4x0.7	10	148.5	11	4	5	42
		in	2.480	1.575	2.36	-	0.39	5.846	0.43	0.16	0.20	1.65
095	SC11	mm	95	80	86	M6X1.0	-	148.5	11	4	5	42
		in	3.740	3.150	3.39	-	-	5.846	0.43	0.16	0.20	1.65
046	SC12	mm	46	30	60	M4X0.7	10	148.5	11	4	6	33
		in	1.811	1.181	2.36	-	0.39	5.846	0.43	0.16	0.24	1.30

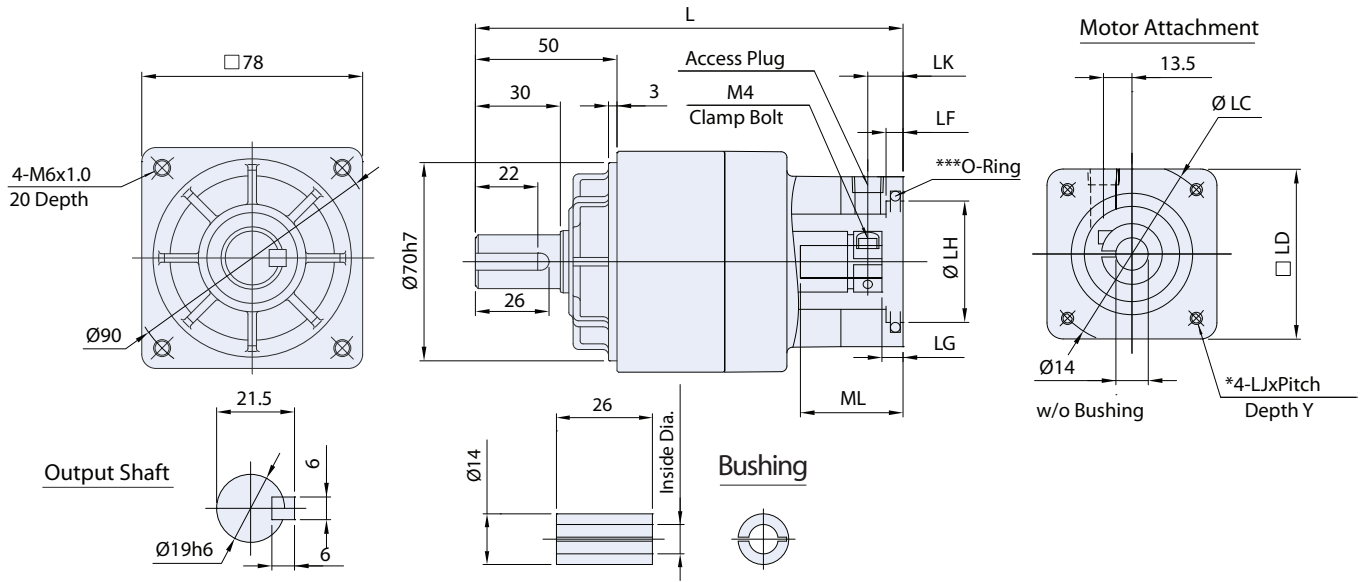
## Bushings

Bushing Ordering Code		1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315



# C Frame VRAF Series Dimensions

Ratios: 15:1, 20:1, 25:1, 35:1, 45:1, 81:1



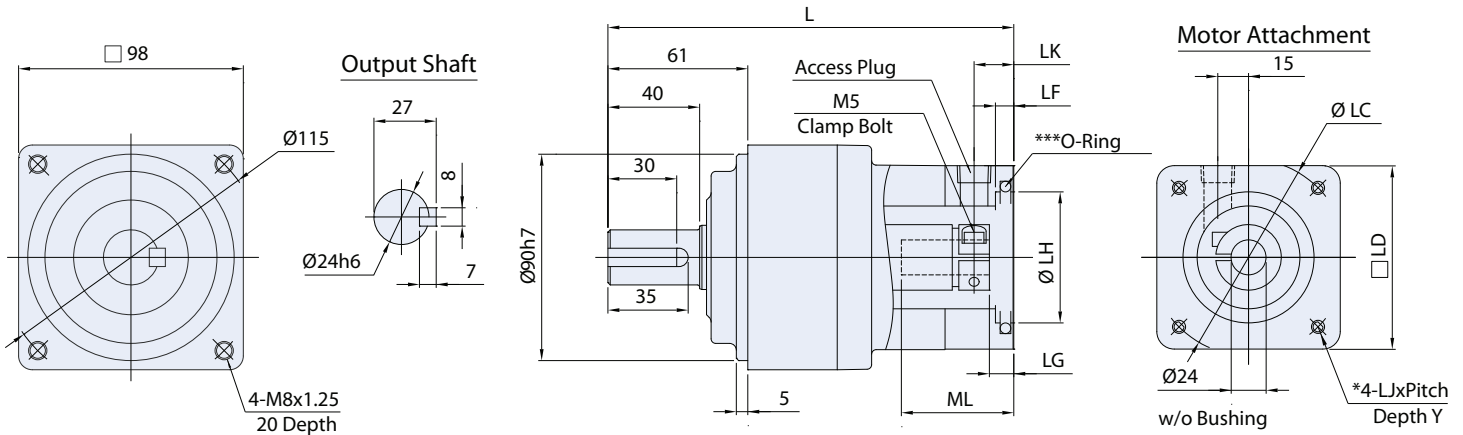
Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth		
										LF	LG	ML
060	DC00	mm	60	50	60	M4x0.7	10	151	11	4	6	33
		in	2.362	1.969	2.36	-	0.39	5.945	0.43	0.16	0.24	1.30
070	DC01	mm	70	50	60	M4x0.7	10	151	11	4	6	33
		in	2.756	1.969	2.36	-	0.39	5.945	0.43	0.16	0.24	1.30
070R	DC01R	mm	70	50	60	M5x0.8	12	155	15	6	9	37
		in	2.756	1.969	2.36	-	0.47	6.102	0.59	0.24	0.35	1.46
090	DC02	mm	90	70	80	M5X0.8	12	151	11	4	6	33
		in	3.543	2.756	3.15	-	0.47	5.945	0.43	0.16	0.24	1.30
090R	DC02R	mm	90	70	80	M6X1.0	21	156	16	9	10	38
		in	3.543	2.756	3.15	-	0.83	6.142	0.63	0.35	0.39	1.50
100	DC03	mm	100	80	86	M6X1.0	16	151	11	4	6	33
		in	3.937	3.150	3.39	-	0.63	5.945	0.43	0.16	0.24	1.30
098 (NEMA34)	DC04	mm	98.43	73.025	83	M5X0.8	12	151	11	4	6	33
		in	3.875	2.875	3.27	-	0.47	5.945	0.43	0.16	0.24	1.30
075	DC05	mm	75	60	67	M5X0.8	12	151	11	4	6	33
		in	2.953	2.362	2.64	-	0.47	5.945	0.43	0.16	0.24	1.30
115	DC06	mm	115	95	100	M6X1.0	16	151	11	4	6	33
		in	4.528	3.740	3.94	-	0.63	5.945	0.43	0.16	0.24	1.30
067	DC09	mm	66.68	38.100	60	M4X0.7	10	151	11	4	6	33
		in	2.625	1.500	2.36	-	0.39	5.945	0.43	0.16	0.24	1.30
067R (NEMA23)	DC09R	mm	66.68	38.100	60	M5X0.8	-	159	19	3	14	41
		in	2.625	1.500	2.36	-	-	6.260	0.75	0.12	0.55	1.61
063	DC10	mm	63	40	60	M4x0.7	10	151	11	4	6	33
		in	2.480	1.575	2.36	-	0.39	5.945	0.43	0.16	0.24	1.30
095	DC11	mm	95	80	86	M6X1.0	-	151	11	4	6	33
		in	3.740	3.150	3.39	-	-	5.945	0.43	0.16	0.24	1.30
046	DC12	mm	46	30	60	M4X0.7	10	151	11	4	6	33
		in	1.811	1.181	2.36	-	0.39	5.945	0.43	0.16	0.24	1.30

## Bushings

Bushing Ordering Code		1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.535	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.393	0.354	0.196

# D Frame VRAF Series Dimensions

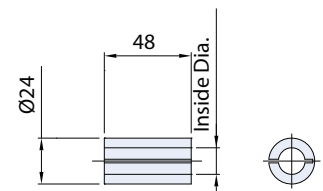
Ratios: 3:1, 5:1, 9:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth		
										LF	LG	ML
115	SD01	mm	115	95	100	M6x1.0	15	177	15	4	7	57
		in	4.528	3.740	3.94	-	0.59	6.969	0.59	0.16	0.28	2.24
090	SD02	mm	90	70	80	M5X0.8	12	177	14	4	7	57
		in	3.543	2.756	3.15	-	0.47	6.969	0.55	0.16	0.28	2.24
090R	SD02R	mm	90	70	80	M6X1.0	15	180	17	6	10	60
		in	3.543	2.756	3.15	-	0.59	7.087	0.67	0.24	0.39	2.36
100	SD03	mm	100	80	90	M6X1.0	15	177	14	4	7	57
		in	3.937	3.150	3.54	-	0.59	6.969	0.55	0.16	0.28	2.24
126 (NEMA42)	SD04	mm	125.73	55.563	108	M6X1.0	15	177	15	5	7	57
		in	4.950	2.188	4.25	-	0.59	6.969	0.59	0.20	0.28	2.24
145	SD05	mm	145	110	130	M8X1.25	16	180	18	6	10	60
		in	5.709	4.331	5.12	-	0.63	7.087	0.71	0.24	0.39	2.36
145R	SD05R	mm	145	110	130	M8X1.25	16	193	31	8	23	73
		in	5.709	4.331	5.12	-	0.63	7.598	1.22	0.31	0.91	2.87
130	SD06	mm	130	110	115	M8X1.25	16	177	15	6	7	57
		in	5.118	4.331	4.53	-	0.63	6.969	0.59	0.24	0.28	2.24
095	SD08	mm	95	80	90	M6X1.0	15	177	14	4	7	44
		in	3.740	3.150	3.54	-	0.59	6.969	0.55	0.16	0.28	1.73
098 (NEMA34)	SD11	mm	98.43	73.025	90	M5X0.8	12	177	14	6	7	57
		in	3.875	2.875	3.54	-	0.47	6.969	0.55	0.24	0.28	2.24
098R + Spacer (NEMA34)	SD11R	mm	98.43	73.025	83	M5X0.8	12	185	22	3	15	52
		in	3.875	2.875	3.27	-	0.47	7.283	0.87	0.12	0.59	2.05
149 (NEMA56)	SD12	mm	149.23	114.300	130	-	-	180	18	6	10	60
		in	5.875	4.500	5.12	3/8UNC-16	-	7.087	0.71	0.24	0.39	2.36
067 (NEMA23)	SD13	mm	66.7	38.1	80	M4X0.7	10	177	14	4	7	57
		in	2.626	1.500	3.15	-	0.39	6.969	0.55	0.16	0.28	2.24
070	SD14	mm	70	50	80	M4X0.7	10	177	14	4	7	57
		in	2.756	1.969	3.15	-	0.39	6.969	0.55	0.16	0.28	2.24
075	SD15	mm	75	60	80	M5X0.8	12	177	14	4	7	57
		in	2.953	2.362	3.15	-	0.47	6.969	0.55	0.16	0.28	2.24

## Bushing

Bushing Ordering Code		2401	2402	2403	2404	2405	2406	2407
Inside Diameter	mm	14	16	19	12.700	15.875	22	19.050
	in	0.551	0.630	0.748	0.500	0.625	0.866	0.750

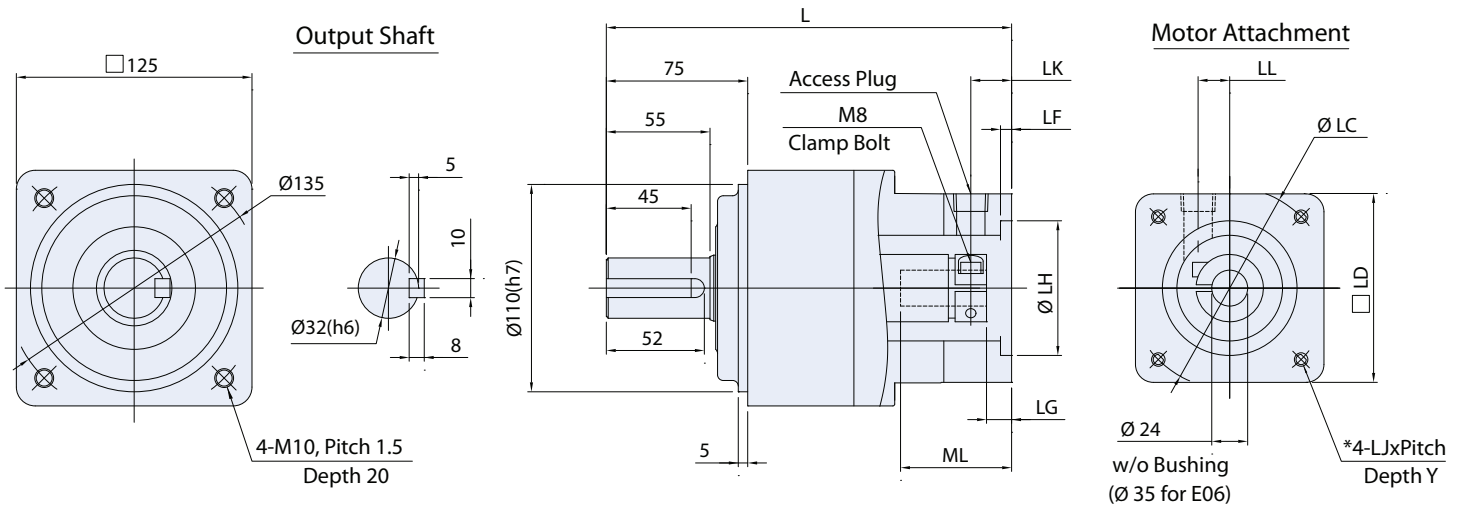






# E Frame VRAF Series Dimensions

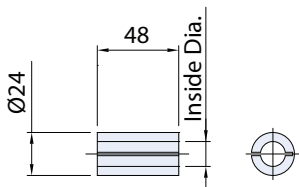
Ratios: 3:1, 5:1, 9:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth			Plug LL
										LF	LG	ML	
100	SE01	mm	100	80	90	M6x1.0	15	215	18	4	7	57	19
		in	3.937	3.150	3.54	-	0.59	8.465	0.71	0.16	0.28	2.24	0.75
115	SE02	mm	115	95	100	M6x1.0	15	215	18	4	7	57	19
		in	4.528	3.740	3.94	-	0.59	8.465	0.71	0.16	0.28	2.24	0.75
130	SE04	mm	130	110	120	M8X1.25	16	215	18	4	7	57	19
		in	5.118	4.331	4.72	-	0.63	8.465	0.71	0.16	0.28	2.24	0.75
145	SE05	mm	145	110	130	M8X1.25	16	215	18	4	7	57	19
		in	5.709	4.331	5.12	-	0.63	8.465	0.71	0.16	0.28	2.24	0.75
145	SE06	mm	145	110	130	M8X1.25	16	225	21	7	10	65	19
		in	5.709	4.331	5.12	-	0.63	8.858	0.83	0.28	0.39	2.56	0.75
165	SE09	mm	165	130	142	M10X1.5	20	215	18	5	7	57	19
		in	6.496	5.118	5.59	-	0.79	8.465	0.71	0.20	0.28	2.24	0.75
200	SE10	mm	200	114.3	174	M12X1.75	-	245	18	4	8	82	26.5
		in	7.874	4.500	6.85	-	-	9.646	0.71	0.16	0.31	3.23	1.04

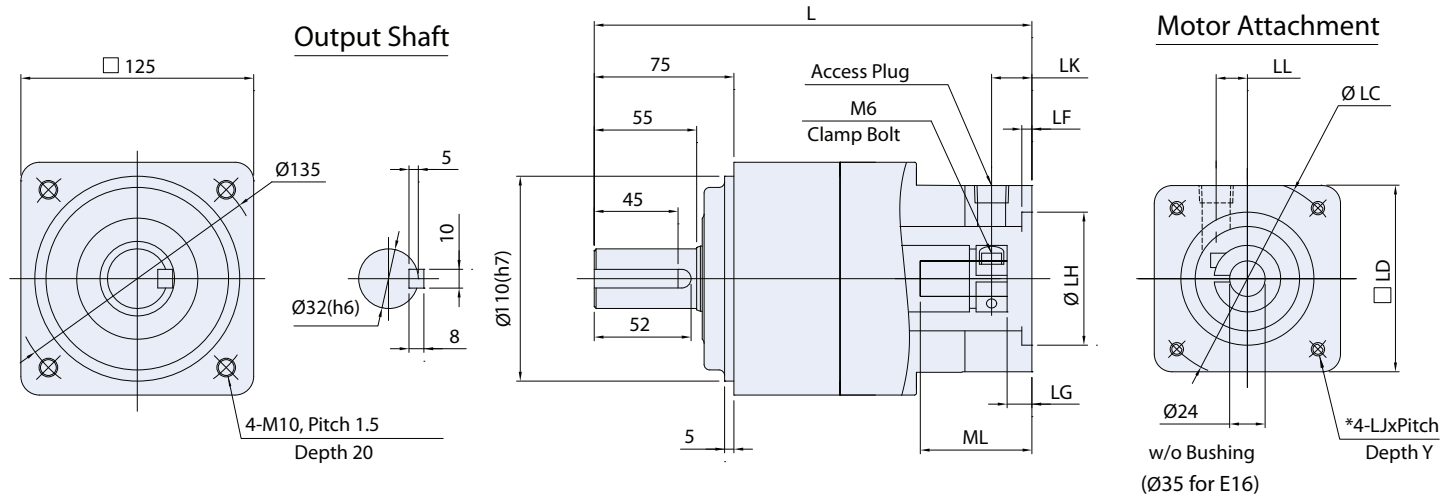
## Bushing

Bushing Ordering Code		2401	2402	2403	2404	2405	2406	2407
Inside Diameter	mm	14	16	19	12.700	15.875	22	19.050
	in	0.551	0.630	0.748	0.500	0.625	0.866	0.750



# E Frame VRAF Series Dimensions

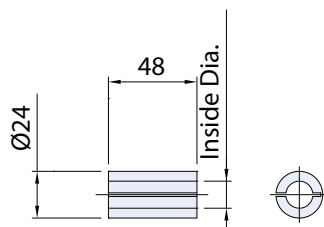
Ratios: 15:1, 20:1, 25:1, 35:1, 45:1



Adapter	CAD Download#	Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	Plug LK	Flange Depth			Plug LL
										LF	LG	ML	
100	DE01	mm	100	80	90	M6x1.0	15	235	18	4	7	57	18
		in	3.937	3.150	3.54	-	0.59	9.252	0.71	0.16	0.28	2.24	0.71
115	DE03	mm	115	95	100	M6x1.0	15	235	18	4	7	57	18
		in	4.528	3.740	3.94	-	0.59	9.252	0.71	0.16	0.28	2.24	0.71
130	DE04	mm	130	110	120	M8x1.25	16	233	18	4	5	55	19
		in	5.118	4.331	4.72	-	0.63	9.173	0.71	0.16	0.20	2.17	0.75
145	DE05	mm	145	110	130	M8x1.25	16	235	18	4	7	57	18
		in	5.709	4.331	5.12	-	0.63	9.252	0.71	0.16	0.28	2.24	0.71
165	DE09	mm	165	130	142	M10x1.5	20	233	18	5	7	57	19
		in	6.496	5.118	5.59	-	0.79	9.173	0.71	0.20	0.28	2.24	0.75
200	DE10	mm	200	114.300	174	M12x1.75	-	265	18	4	8	82	26.5
		in	7.874	4.500	6.85	-	-	10.433	0.71	0.16	0.31	3.23	1.04
149 (NEMA56)	DE12	mm	149.23	114.300	130	10.2 dia.	-	235	18	5.5	7	57	15
		in	5.875	4.500	5.12	-	-	9.252	0.71	0.22	0.28	2.24	0.59
090	DE18	mm	90	70	80	M6x1.0	15	235	18	4	7	57	18
		in	3.543	2.756	3.15	-	0.59	9.252	0.71	0.16	0.28	2.24	0.71

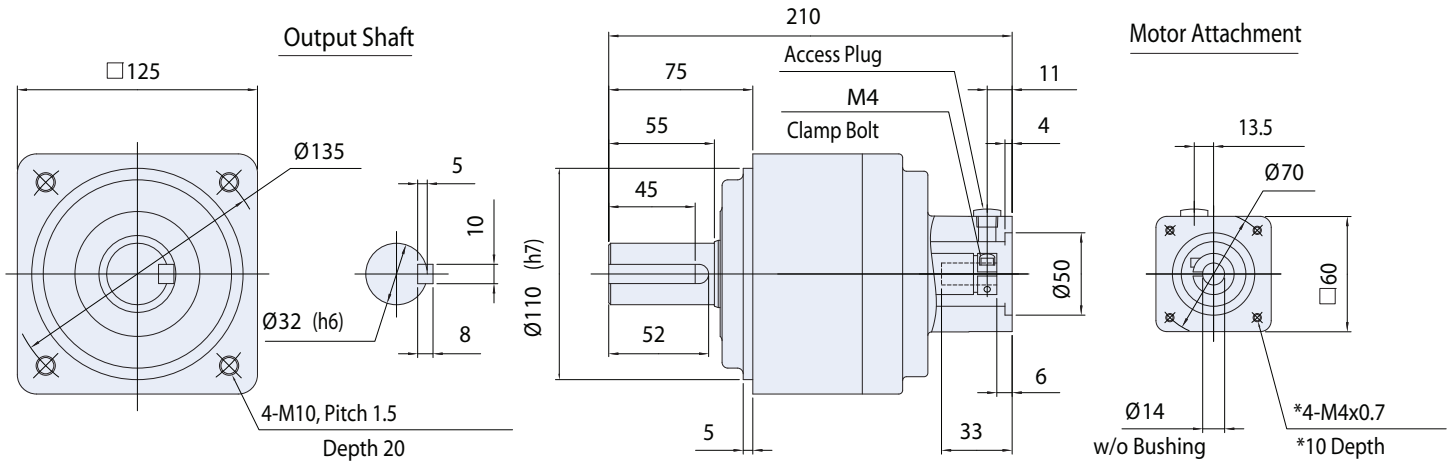
## Bushings

Bushing Ordering Code		2401	2402	2403	2404	2405	2406	2407
Inside Diameter	mm	14	16	19	12.700	15.875	22	19.050
	in	0.551	0.630	0.748	0.500	0.625	0.866	0.750



# E Frame VRSF Series Dimensions

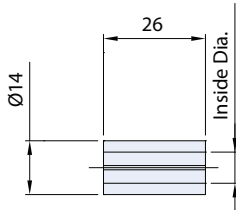
Ratios: 45, 81:1



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.  
 Smaller motor shaft sizes can be accommodated by use of a bushing. See table below.  
 Dimensions are subject to change without notice.  
 To download CAD drawings, visit our website: [www.shimpodrives.com](http://www.shimpodrives.com)

## Bushings

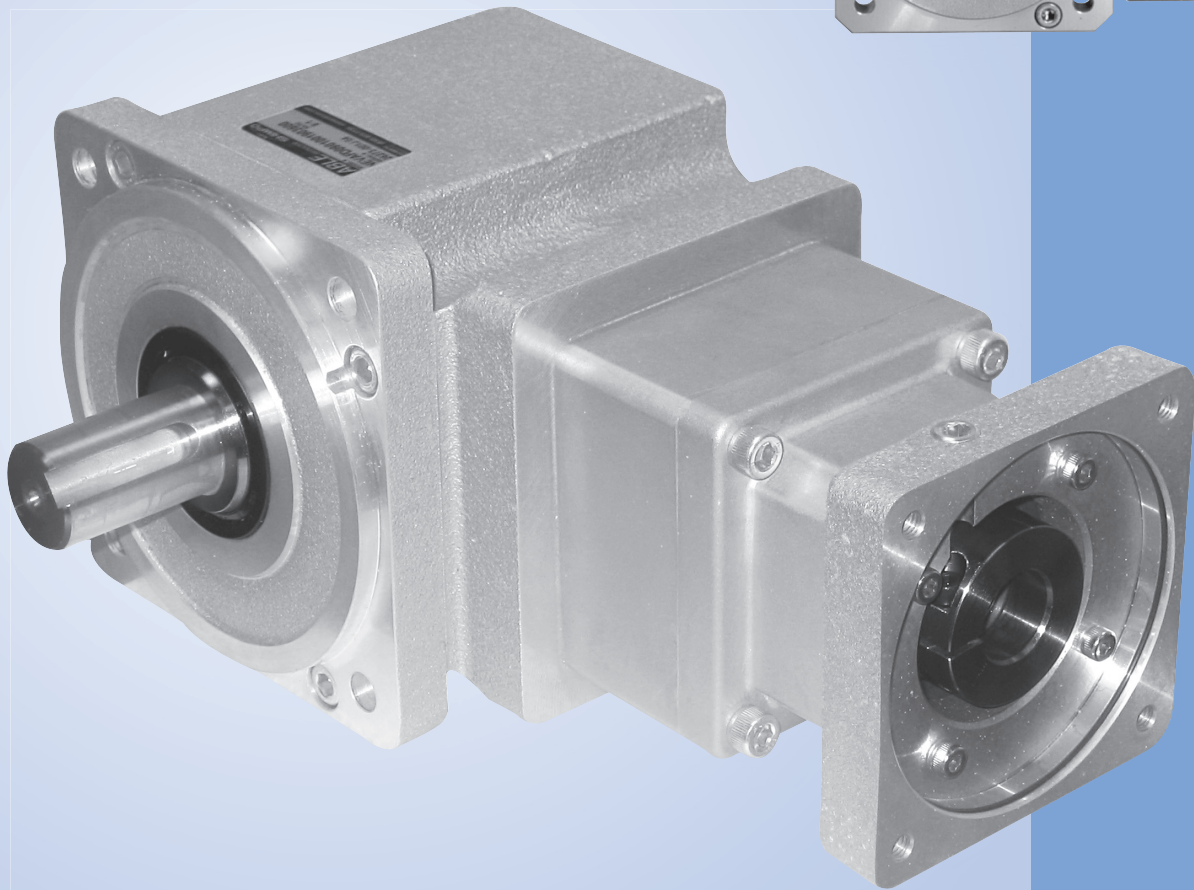
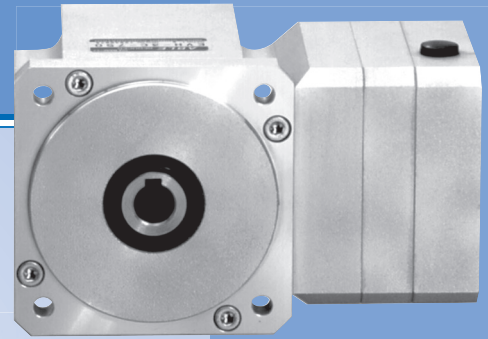
Bushing Ordering Code		1401	1402	1403	1404	1405	1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.535	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.393	0.354	0.196



See Page 37 for NEMA Outout Flange Dimensions



# NEV RIGHT ANGLE Shaft Series



Sizes from 50W to 4kw

Ratios from 3:1 to 105

Solid and hollow output shaft configurations

Input speeds up to 5000 RPM

# NEVAF/NEVSF Right Angle Shaft Series Selection Table

Based on 3000 RPM Input

MOTOR RATED OUTPUT (W)	RATIO							
	3:1	5:1	9:1	15:1	27:1	45:1	75:1	105:1
50								C
100						C		D
150		B			C	C		D
200				C		D		E
400			C			E		
500		C				E		
600		C	D					
750								
1000	C							
1500			E					
2000	D	E						
2500		E						
3000	E							
3500								
4000								

3:1 is single reduction, 5:1, 9:1, and 15:1 are double reduction, 45:1, 75:1, 105:1 are triple reduction.

Other sizes and ratios available. Contact Shimpo Drives Customer Service for additional information.

Frame Size	Ratio	Nominal Output Torque (1)		Maximum Acceleration Output		Emergency Stop Output Torque (2)		Moment of Inertia		Torsional Stiffness		Maximum Input Speed rpm
		Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	kgcm <sup>2</sup>	ib-in-sec <sup>2</sup>	Nm/arm-min	in-lbs/arc-min	
B	3:1	6	53	20	177	35	310	0.439	0.000387	0.4	3.6	5000
	5:1	6	53	20	177	35	310	0.275	0.000243			
	9:1	6	53	20	177	40	354	0.110	0.000097			
	15:1	10	89	30	266	50	443	0.059	0.000052			
	27:1	10	89	30	266	50	443	0.146	0.000129			
	45:1	10	89	30	266	50	443	0.091	0.000080			
	75:1	15	133	30	266	50	443	0.083	0.000073			
105:1	15	133	30	266	50	443	0.078	0.000069				
C	3:1	10	89	30	266	50	443	1.363	0.001203	1.0	9.1	5000
	5:1	15	133	30	266	50	443	0.806	0.000711			
	9:1	20	177	35	310	60	531	0.744	0.000657			
	15:1	20	177	40	354	75	664	0.415	0.000366			
	27:1	30	266	40	354	75	664	0.585	0.000516			
	45:1	30	266	40	354	75	664	0.794	0.000701			
	75:1	30	266	40	354	75	664	0.690	0.000609			
105:1	30	266	40	354	75	664	0.590	0.000521				
D	3:1	25	221	70	620	100	885	4.974	0.004390	1.5	13.6	5000
	5:1	25	221	70	620	100	885	1.502	0.001326	1.2	10.9	
	9:1	25	221	75	664	140	1239	1.254	0.001107	1.5	13.6	
	15:1	25	221	75	664	140	1239	0.464	0.000410	1.5	13.6	
	27:1	40	354	80	708	180	1593	0.720	0.000635	1.5	13.6	
	45:1	45	398	80	708	180	1593	0.806	0.000711	1.5	13.6	
	75:1	50	443	80	708	180	1593	0.694	0.000613	1.5	13.6	
105:1	50	443	80	708	180	1593	0.648	0.000572	1.5	13.6		
E	3:1	35	310	110	974	200	1770	8.341	0.007362	4.0	36.2	5000
	5:1	50	443	110	974	250	2213	3.559	0.003141	3.2	29.0	
	9:1	50	443	140	1239	250	2213	2.940	0.002595	4.0	36.2	
	15:1	55	487	140	1239	250	2213	1.193	0.001053	4.0	36.2	
	27:1	60	531	180	1593	300	2655	2.044	0.001804	4.0	36.2	
	45:1	80	708	180	1593	300	2655	1.878	0.001658	4.0	36.2	
	75:1	90	797	180	1593	300	2655	1.303	0.001150	4.0	36.2	
105:1	90	797	180	1593	300	2655	1.184	0.001045	4.0	36.2		

See footnote on next page.

# NEVAF/NEVSF Right Angle Shaft Series Selection Table

## Based on 3000 RPM Input

Frame Size	Ratio	Output Shaft Overhung Load		Output Shaft Thrust Load		Noise Level (3)	Backlash	Efficiency (4)	Weight								
		N	lbs	N	lbs				dB(A)	arc-min	%	Solid Shaft		Hollow Shaft			
						kg	lbs	kg				lbs					
B	3:1	1800	405	900	202	≤73	≤30	90	2.8	6.2	2.5	5.5					
	5:1	1800	405	900	202	≤73		85	3.8	8.4	3.6	7.9					
	9:1	1800	405	900	202	≤67			81	3.8	8.4	3.6	7.9				
	15:1	1800	405	900	202	≤65				62	3.9	8.5	-	-			
	27:1	1800	405	900	202	≤65					49	3.9	8.5	-	-		
	45:1	1800	405	900	202	≤63						35	3.9	8.5	-	-	
	75:1	1800	405	900	202	≤63							90	3.2	7.1	3.1	6.8
	105:1	1800	405	900	202	≤63								≤30	85	4.1	9.0
C	3:1	1800	405	900	202	≤75	≤30	81	4.1	9.0	4.0	8.8					
	5:1	1800	405	900	202	≤73		72	4.3	9.5	4.2	9.3					
	9:1	1800	405	900	202	≤67			62	4.3	9.5	4.2	9.3				
	15:1	1800	405	900	202	≤65				49	4.3	9.5	4.2		9.3		
	27:1	1800	405	900	202	≤65					90	6.6	14.5		6.2	13.6	
	45:1	1800	405	900	202	≤65						85	7.1		15.7	6.7	14.8
	75:1	1800	405	900	202	≤63							85		7.1	15.7	6.7
	105:1	1800	405	900	202	≤63								≤30	80	7.3	16.1
D	3:1	2500	562	1250	281	≤76	≤30	80	7.3	16.1	6.9	15.2					
	5:1	2500	562	1250	281	≤73		80	7.3	16.1	6.9	15.2					
	9:1	2500	562	1250	281	≤72			80	7.3	16.1	6.9	15.2				
	15:1	2500	562	1250	281	≤69				80	7.3	16.1	6.9		15.2		
	27:1	2500	562	1250	281	≤69					90	10.5	23.1		9.5	20.9	
	45:1	2500	562	1250	281	≤67						85	11.0		24.3	10.0	22.1
	75:1	2500	562	1250	281	≤67							85		11.0	24.3	10.0
	105:1	2500	562	1250	281	≤67								≤30	85	11.0	24.3
E	3:1	4000	899	2000	450	≤77	≤30	85	11.0	24.3	10.0	22.1					
	5:1	4000	899	2000	450	≤74		85	11.0	24.3	10.0	22.1					
	9:1	4000	899	2000	450	≤73			85	11.0	24.3	10.0	22.1				
	15:1	4000	899	2000	450	≤71				85	11.0	24.3	10.0		22.1		
	27:1	4000	899	2000	450	≤71					80	11.4	25.1		10.4	22.9	
	45:1	4000	899	2000	450	≤69						80	11.4		25.1	10.4	22.9
	75:1	4000	899	2000	450	≤69							80		11.4	25.1	10.4
	105:1	4000	899	2000	450	≤69								80	11.4	25.1	10.4

Notes:

3:1 is single reduction, 5:1, 9:1, 15:1 and 27:1 are double reduction, 45:1, 75:1 and 105:1 are triple reduction.

(1) Based on B10 bearing life of 10000 hours and 3000 RPM input.

(2) Based on 1000 cycles.

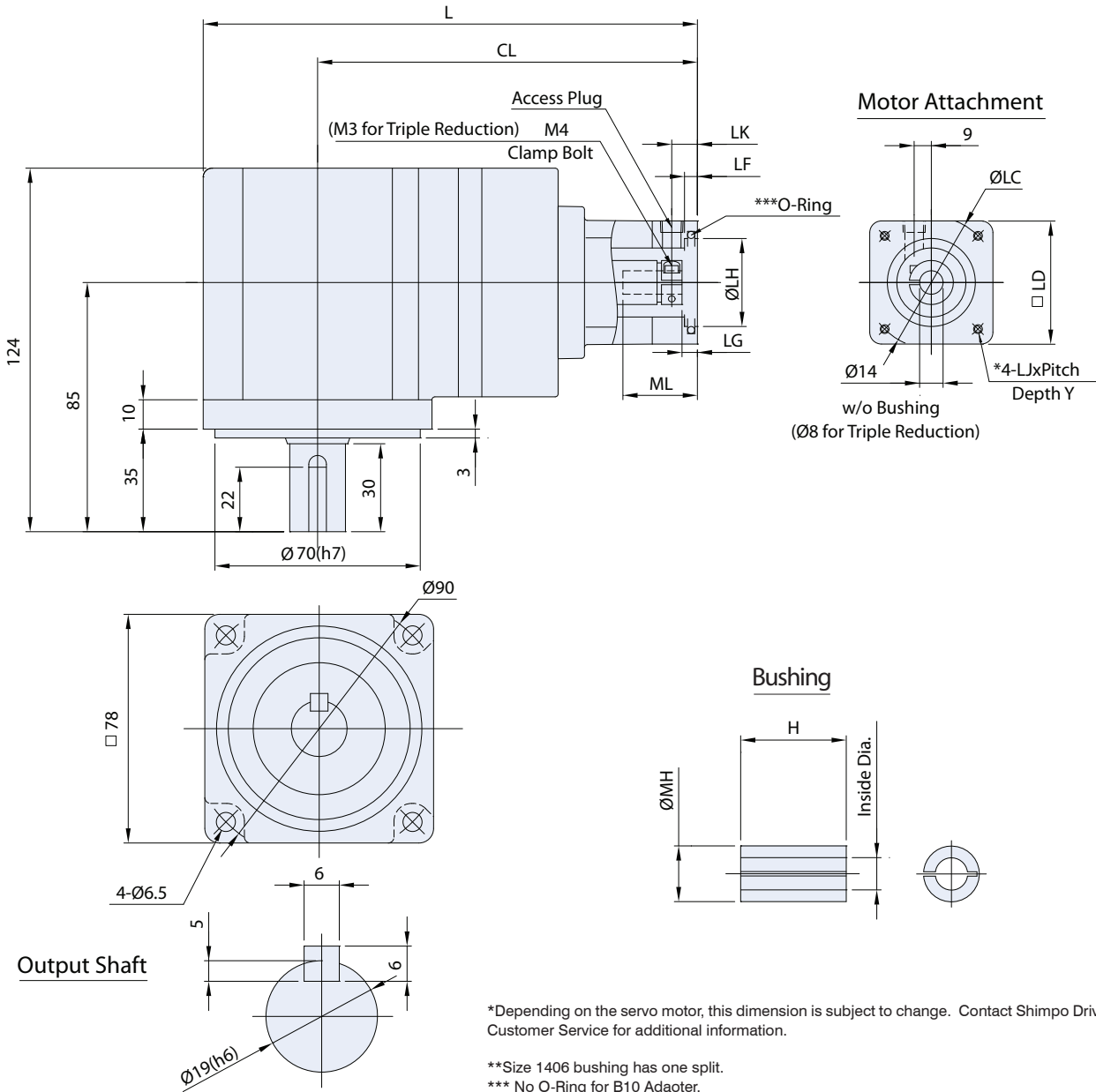
(3) Measured at a distance of 1 meter at 3000 RPM input at no load.

(4) Actual efficiency will vary depending on ratio, input speed, and load.

(5) Please ask Shimpo Drives customer service for other ratios and large capacity.

# B Frame (78mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



## Double Reduction Bushings

Bushing Ordering Code	1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410	
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

## Triple Reduction Bushings

Bushing Ordering Code	0801	0802	0803	
Inside Diameter	mm	6	6.350	5
	in	0.236	0.250	0.197



# B Frame (78mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

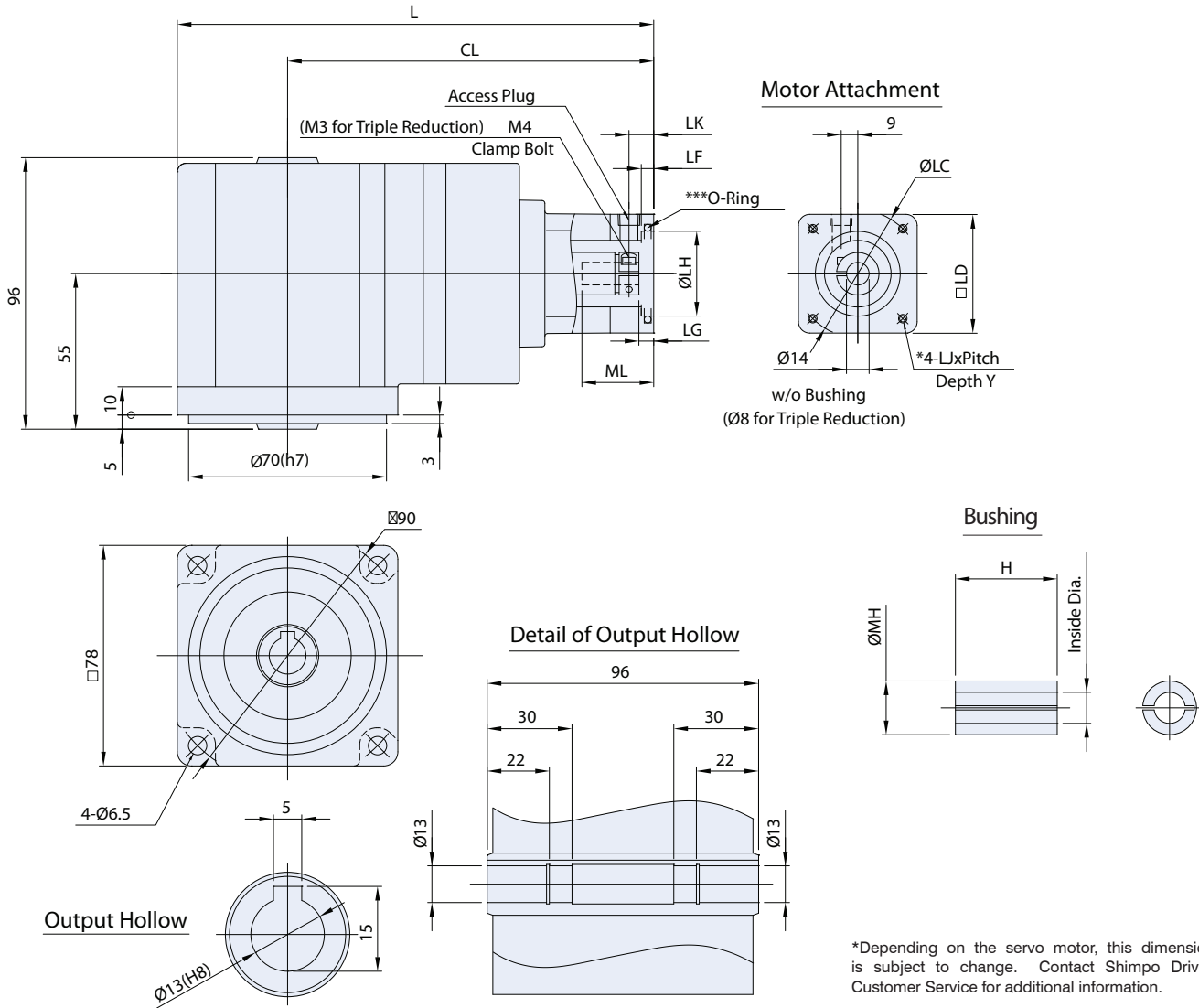
Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
045	B01	TB01	mm	45	30	42	M3x0.5	8	168.5	174
			in	1.772	1.181	1.65	-	0.31	6.634	6.850
046	B02	TB02	mm	46	30	42	M4X0.7	10	168.5	174
			in	1.811	1.181	1.65	-	0.39	6.634	6.850
046R	B02R	TB02R	mm	46	30	42	M4X0.7	10	171.5	177
			in	1.811	1.181	1.65	-	0.39	6.752	6.969
060	B03	TB03	mm	60	50	60	M4X0.7	10	168.5	174
			in	2.362	1.969	2.36	-	0.39	6.634	6.850
070	B04	TB04	mm	70	50	60	M4X0.7	10	168.5	174
			in	2.756	1.969	2.36	-	0.39	6.634	6.850
070R	B04R	TB04R	mm	70	50	60	M5X0.8	20	173.5	179
			in	2.756	1.969	2.36	-	0.79	6.831	7.047
067 (NEMA23)	B05	TB05	mm	66.68	38.100	58	M4X0.7	10	168.5	174
			in	2.625	1.500	2.28	-	0.39	6.634	6.850
067R (NEMA23)	B05R	TB05R	mm	66.68	38.100	60	M5X0.8	-	176.5	182
			in	2.625	1.500	2.36	-	-	6.949	7.165
090	B06	TB06	mm	90	70	80	M5X0.8	12	168.5	174
			in	3.543	2.756	3.15	-	0.47	6.634	6.850
044 (NEMA17)	B07	TB07	mm	43.80	22	42	2-3.3 dia.	-	170.5	176
			in	1.724	0.866	1.65	2-0.13 dia.	-	6.713	6.929
063	B10	TB10	mm	63	40	58	M4X0.7	10	168.5	174
			in	2.480	1.575	2.28	-	0.39	6.634	6.850

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
045	B01	TB01	mm	129.5	135	10	6	5	32
			in	5.098	5.315	0.39	0.24	0.20	1.26
046	B02	TB02	mm	129.5	135	10	6	5	32
			in	5.098	5.315	0.39	0.24	0.20	1.26
046R	B02R	TB02R	mm	132.5	138	13	6	8	35
			in	5.217	5.433	0.51	0.24	0.31	1.38
060	B03	TB03	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
070	B04	TB04	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
070R	B04R	TB04R	mm	134.5	140	15	9	10	37
			in	5.295	5.512	0.59	0.35	0.39	1.46
067 (NEMA23)	B05	TB05	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
067R (NEMA23)	B05R	TB05R	mm	137.5	143	18	3	13	40
			in	5.413	5.630	0.71	0.12	0.51	1.57
090	B06	TB06	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
044 (NEMA17)	B07	TB07	mm	131.5	137	12	4	7	34
			in	5.177	5.394	0.47	0.16	0.28	1.34
063	B10	TB10	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

# B Frame (78mm) NEVAF Series Dimension, Single Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



## Double Reduction Bushings

Bushing Ordering Code	1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410	
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

## Triple Reduction Bushings

Bushing Ordering Code	0801	0802	0803	
Inside Diameter	mm	6	6.350	5
	in	0.236	0.250	0.197

\*\*Size 1406 bushing has one split.  
 \*\*\* No O-Ring for B10 Adaoter.

# B Frame (78mm) NEVAF Series Dimension, Single Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

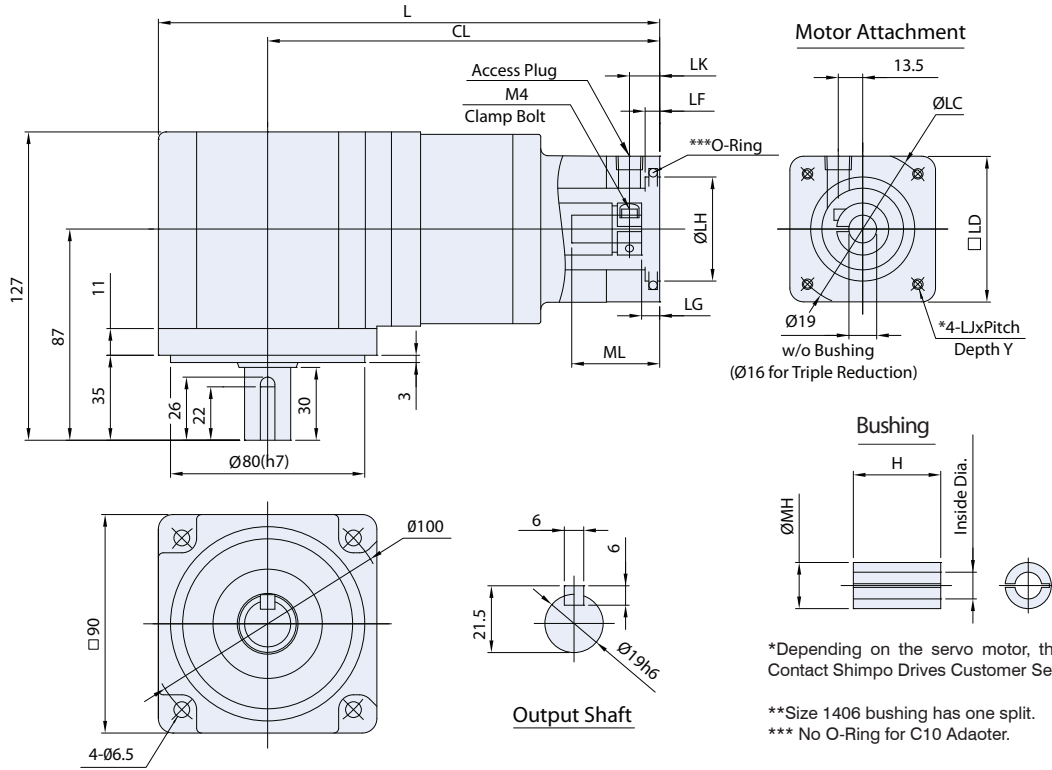
Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
045	B51	TB51	mm	45	30	42	M3x0.5	8	168.5	174
			in	1.772	1.181	1.65	-	0.31	6.634	6.850
046	B52	TB52	mm	46	30	42	M4X0.7	10	168.5	174
			in	1.811	1.181	1.65	-	0.39	6.634	6.850
046R	B52R	TB52R	mm	46	30	42	M4X0.7	10	171.5	177
			in	1.811	1.181	1.65	-	0.39	6.752	6.969
060	B53	TB53	mm	60	50	60	M4X0.7	10	168.5	174
			in	2.362	1.969	2.36	-	0.39	6.634	6.850
070	B54	TB54	mm	70	50	60	M4X0.7	10	168.5	174
			in	2.756	1.969	2.36	-	0.39	6.634	6.850
070R	B54R	TB54R	mm	70	50	60	M5X0.8	20	173.5	179
			in	2.756	1.969	2.36	-	0.79	6.831	7.047
067 (NEMA23)	B55	TB55	mm	66.68	38.100	58	M4X0.7	10	168.5	174
			in	2.625	1.500	2.28	-	0.39	6.634	6.850
067R (NEMA23)	B55R	TB55R	mm	66.68	38.100	60	M5X0.8	-	176.5	182
			in	2.625	1.500	2.36	-	-	6.949	7.165
090	B56	TB56	mm	90	70	80	M5X0.8	12	168.5	174
			in	3.543	2.756	3.15	-	0.47	6.634	6.850
044 (NEMA17)	B57	TB57	mm	43.80	22	42	2-3.3 dia.	-	170.5	176
			in	1.724	0.866	1.65	2-0.13 dia.	-	6.713	6.929
063	B60	TB60	mm	63	40	58	M4X0.7	10	168.5	174
			in	2.480	1.575	2.28	-	0.39	6.634	6.850

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
045	B51	TB51	mm	129.5	135	10	6	5	32
			in	5.098	5.315	0.39	0.24	0.20	1.26
046	B52	TB52	mm	129.5	135	10	6	5	32
			in	5.098	5.315	0.39	0.24	0.20	1.26
046R	B52R	TB52R	mm	132.5	138	13	6	8	35
			in	5.217	5.433	0.51	0.24	0.31	1.38
060	B53	TB53	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
070	B54	TB54	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
070R	B54R	TB54R	mm	134.5	140	15	9	10	37
			in	5.295	5.512	0.59	0.35	0.39	1.46
067 (NEMA23)	B55	TB55	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
067R (NEMA23)	B55R	TB55R	mm	137.5	143	18	3	13	40
			in	5.413	5.630	0.71	0.12	0.51	1.57
090	B56	TB56	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26
044 (NEMA17)	B57	TB57	mm	131.5	137	12	4	5	34
			in	5.177	5.394	0.47	0.16	0.20	1.34
063	B60	TB60	mm	129.5	135	10	4	5	32
			in	5.098	5.315	0.39	0.16	0.20	1.26

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

# C Frame (90mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.  
 \*\*Size 1406 bushing has one split.  
 \*\*\* No O-Ring for C10 Adapter.

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
060	C00	TC00	mm	60	50	60	M4x0.7	10	206.5	209
			in	2.362	1.969	2.36	-	0.39	8.130	8.228
070	C01	TC01	mm	70	50	60	M4x0.7	10	206.5	209
			in	2.756	1.969	2.36	-	0.39	8.130	8.228
070R	C01R	TC01R	mm	70	50	60	M5x0.8	12	210.5	213
			in	2.756	1.969	2.36	-	0.47	8.287	8.386
090	C02	TC02	mm	90	70	80	M5X0.8	12	206.5	209
			in	3.543	2.756	3.15	-	0.47	8.130	8.228
090R	C02R	TC02R	mm	90	70	80	M6X1.0	21	211.5	214
			in	3.543	2.756	3.15	-	0.83	8.327	8.425
100	C03	TC03	mm	100	80	86	M6X1.0	16	206.5	209
			in	3.937	3.150	3.39	-	0.63	8.130	8.228

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
060	C00	TC00	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
070	C01	TC01	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
070R	C01R	TC01R	mm	165.5	168	15	6	9	46
			in	6.516	6.614	0.59	0.24	0.35	1.81
090	C02	TC02	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
090R	C02R	TC02R	mm	166.5	169	16	9	10	47
			in	6.555	6.654	0.63	0.35	0.39	1.85
100	C03	TC03	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65



# C Frame (90mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
098 (NEMA34)	C04	TC04	mm	98.43	73.025	83	M5X0.8	12	206.5	209
			in	3.875	2.875	3.27	-	0.47	8.130	8.228
098R (NEMA34)	C04R	TC04R	mm	98.43	73.025	83	M5X0.8	12	214.5	217
			in	3.875	2.875	3.27	-	0.47	8.445	8.543
075	C05	TC05	mm	75	60	67	M5X0.8	12	206.5	209
			in	2.953	2.362	2.64	-	0.47	8.130	8.228
115	C06	TC06	mm	115	95	100	M6X1.0	16	206.5	209
			in	4.528	3.740	3.94	-	0.63	8.130	8.228
067 (NEMA23)	C07	TC07	mm	66.68	38.100	60	M4x0.7	10	206.5	209
			in	2.625	1.500	2.36	-	0.39	8.130	8.228
067R	C07R	TC07R	mm	66.68	38.100	60	M5x0.8	12	214.5	217
			in	2.625	1.500	2.36	-	0.47	8.445	8.543
063	C10	TC10	mm	63	40	60	M4x0.7	10	206.5	209
			in	2.480	1.575	2.36	-	0.39	8.130	8.228
095	C11	TC11	mm	95	80	86	M6x1.0	-	206.5	209
			in	3.740	3.150	3.39	-	-	8.130	8.228

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
098 (NEMA34)	C04	TC04	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
098R (NEMA34)	C04R	TC04R	mm	169.5	172	19	3	13	50
			in	6.673	6.772	0.75	0.12	0.51	1.97
075	C05	TC05	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
115	C06	TC06	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
067 (NEMA23)	C07	TC07	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
067R	C07R	TC07R	mm	169.5	172	18	11	13	50
			in	6.673	6.772	0.71	0.43	0.51	1.97
063	C10	TC10	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
095	C11	TC11	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

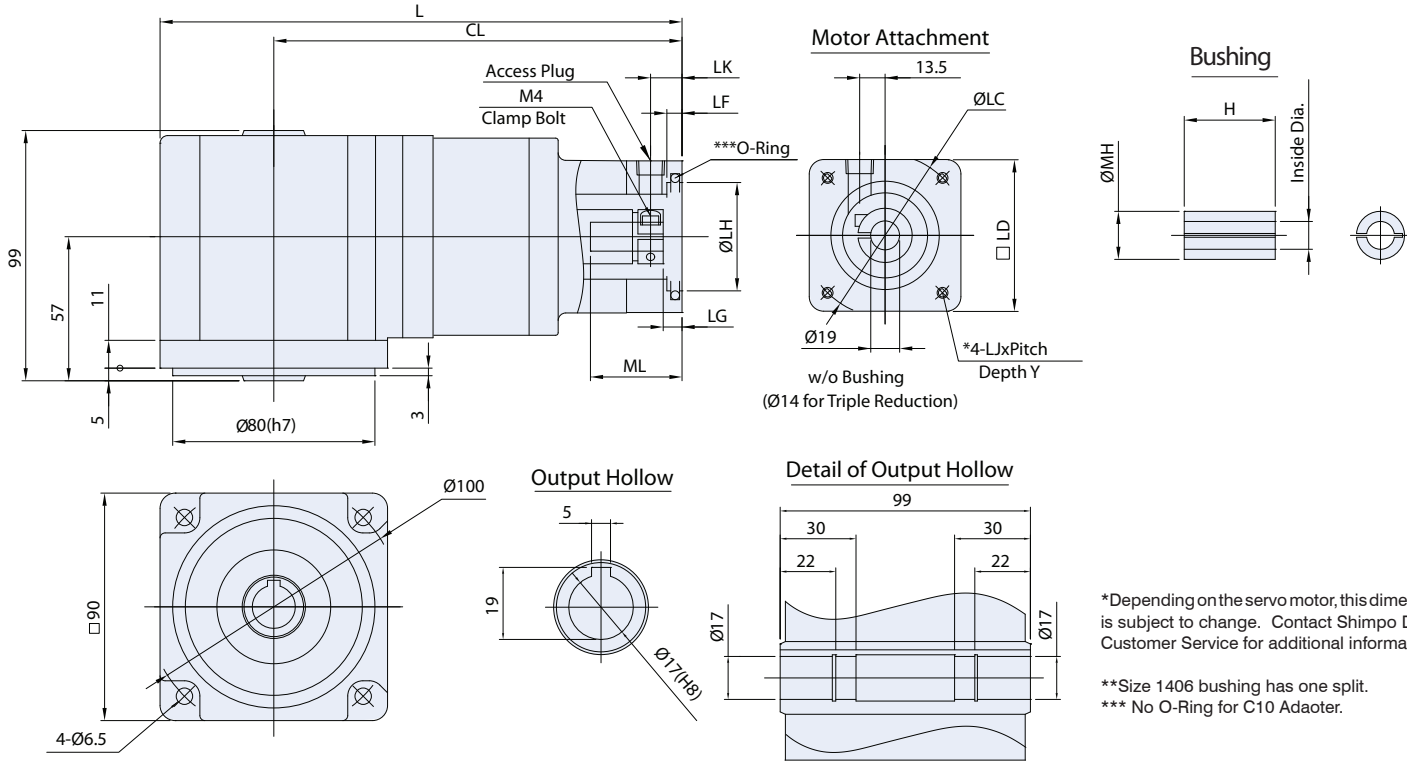
Bushing Ordering Code		1901	1902	1903	1904	1905	**1906	1907	1908	1909	1910
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

## Triple Reduction Bushings

Bushing Ordering Code		1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

# C Frame (90mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
060	C50	TC50	mm	60	50	60	M4x0.7	10	206.5	209
			in	2.362	1.969	2.36	-	0.39	8.130	8.228
070	C51	TC51	mm	70	50	60	M4x0.7	10	206.5	209
			in	2.756	1.969	2.36	-	0.39	8.130	8.228
070R	C51R	TC51R	mm	70	50	60	M5x08	12	210.5	213
			in	2.756	1.969	2.36	-	0.47	8.287	8.386
090	C52	TC52	mm	90	70	80	M5X0.8	12	206.5	209
			in	3.543	2.756	3.15	-	0.47	8.130	8.228
090R	C52R	TC52R	mm	90	70	80	M6X1.0	21	211.5	214
			in	3.543	2.756	3.15	-	0.83	8.327	8.425
100	C53	TC53	mm	100	80	86	M6X1.0	16	206.5	209
			in	3.937	3.150	3.39	-	0.63	8.130	8.228

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
060	C50	TC50	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
070	C51	TC51	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
070R	C51R	TC51R	mm	165.5	168	15	6	9	46
			in	6.516	6.614	0.59	0.24	0.35	1.81
090	C52	TC52	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
090R	C52R	TC52R	mm	166.5	169	16	9	10	47
			in	6.555	6.654	0.63	0.35	0.39	1.85
100	C53	TC53	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65

# C Frame (90mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
098 (NEMA34)	C54	TC54	mm	98.43	73.025	83	M5X0.8	12	206.5	209
			in	3.875	2.875	3.27	-	0.47	8.130	8.228
098R (NEMA34)	C54R	TC54R	mm	98.43	73.025	83	M5X0.8	12	214.5	217
			in	3.875	2.875	3.27	-	0.47	8.445	8.543
075	C55	TC55	mm	75	60	67	M5X0.8	12	206.5	209
			in	2.953	2.362	2.64	-	0.47	8.130	8.228
115	C56	TC56	mm	115	95	100	M6X1.0	16	206.5	209
			in	4.528	3.740	3.94	-	0.63	8.130	8.228
067 (NEMA23)	C57	TC57	mm	66.68	38.100	60	M4x0.7	10	206.5	209
			in	2.625	1.500	2.36	-	0.39	8.130	8.228
067R	C57R	TC57R	mm	66.68	38.100	60	M5x0.8	12	214.5	217
			in	2.625	1.500	2.36	-	0.47	8.445	8.543
063	C60	TC60	mm	63	40	60	M4x0.7	10	206.5	209
			in	2.480	1.575	2.36	-	0.39	8.130	8.228
095	C61	TC61	mm	95	80	86	M6x1.0	-	206.5	209
			in	3.740	3.150	3.39	-	-	8.130	8.228

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
098 (NEMA34)	C54	TC54	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
098R (NEMA34)	C54R	TC54R	mm	169.5	172	19	3	13	50
			in	6.673	6.772	0.75	0.12	0.51	1.97
075	C55	TC55	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
115	C56	TC56	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
067 (NEMA23)	C57	TC57	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
067R	C57R	TC57R	mm	169.5	172	18	11	13	50
			in	6.673	6.772	0.71	0.43	0.51	1.97
063	C60	TC60	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65
095	C61	TC61	mm	161.5	164	11	4	5	42
			in	6.358	6.457	0.43	0.16	0.20	1.65

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

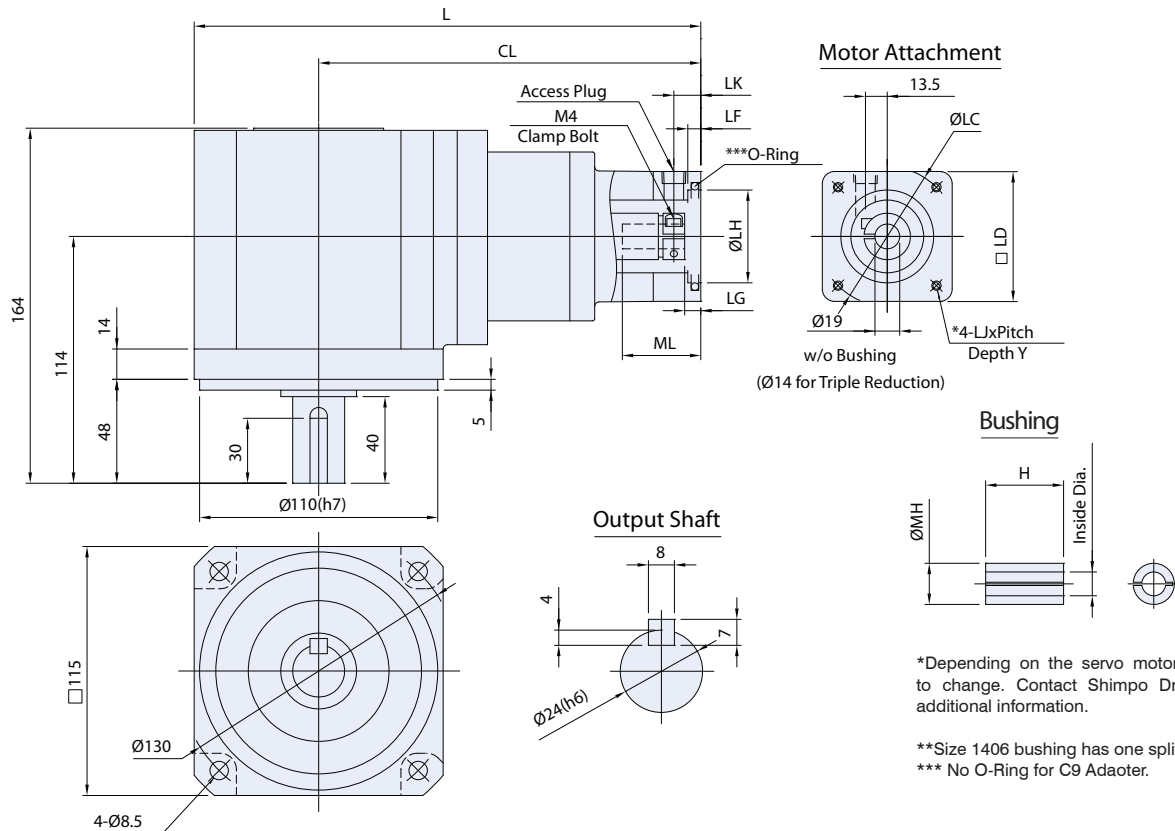
Bushing Ordering Code		1901	1902	1903	1904	1905	**1906	1907	1908	1909	1910
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

## Triple Reduction Bushings

Bushing Ordering Code		1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

# D Frame (115mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.

\*\*Size 1406 bushing has one split.  
\*\*\* No O-Ring for C9 Adaptor.

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
060	D00	TD00	mm	60	50	60	M4x0.7	10	234	236.5
			in	2.362	1.969	2.36	-	0.39	9.213	9.311
070	D01	TD01	mm	70	50	60	M4x0.7	10	234	236.5
			in	2.756	1.969	2.36	-	0.39	9.213	9.311
070R	D01R	TD01R	mm	70	50	60	M5x0.8	12	238	240.5
			in	2.756	1.969	2.36	-	0.47	9.370	9.469
090	D02	TD02	mm	90	70	80	M5X0.8	12	234	236.5
			in	3.543	2.756	3.15	-	0.47	9.213	9.311
090R	D02R	TD02R	mm	90	70	80	M6X1.0	21	239	241.5
			in	3.543	2.756	3.15	-	0.83	9.409	9.508
100	D03	TD03	mm	100	80	86	M6X1.0	16	234	236.5
			in	3.937	3.150	3.39	-	0.63	9.213	9.311

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
060	D00	TD00	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
070	D01	TD01	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
070R	D01R	TD01R	mm	180.5	183	15	6	9	46
			in	7.106	7.205	0.59	0.24	0.35	1.81
090	D02	TD02	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
090R	D02R	TD02R	mm	181.5	184	16	9	10	47
			in	7.146	7.244	0.63	0.35	0.39	1.85
100	D03	TD03	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65

# D Frame (115mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
098 (NEMA34)	D04	TD04	mm	98.43	73.025	83	M5X0.8	12	234	236.5
			in	3.875	2.875	3.27	-	0.47	9.213	9.311
098R (NEMA34)	D04R	TD04R	mm	98.43	73.025	83	M5X0.8	12	242	244.5
			in	3.875	2.875	3.27	-	0.47	9.528	9.626
075	D05	TD05	mm	75	60	67	M5X0.8	12	234	236.5
			in	2.953	2.362	2.64	-	0.47	9.213	9.311
115	D06	TD06	mm	115	95	100	M6X1.0	16	234	236.5
			in	4.528	3.740	3.94	-	0.63	9.213	9.311
067 (NEMA23)	D07	TD07	mm	66.68	38.100	60	M4X0.7	10	234	236.5
			in	2.625	1.500	2.36	-	0.39	9.213	9.311
067R	D07R	TD07R	mm	66.68	38.100	60	M5X0.8	12	242	244.5
			in	2.625	1.500	2.36	-	0.47	9.528	9.626
063	D10	TD10	mm	63	40	60	M4x0.7	10	234	236.5
			in	2.480	1.575	2.36	-	0.39	9.213	9.311
095	D11	TD11	mm	95	80	86	M6x1.0	16	234	236.5
			in	3.740	3.150	3.39	-	0.63	9.213	9.311

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
098 (NEMA34)	D04	TD04	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
098R (NEMA34)	D04R	TD04R	mm	184.5	187	19	3	13	50
			in	7.264	7.362	0.75	0.12	0.51	1.97
075	D05	TD05	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
115	D06	TD06	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
067 (NEMA23)	D07	TD07	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
067R	D07R	TD07R	mm	184.5	187	18	11	13	50
			in	7.264	7.362	0.71	0.43	0.51	1.97
063	D10	TD10	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
095	D11	TD11	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

Bushing Ordering Code	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

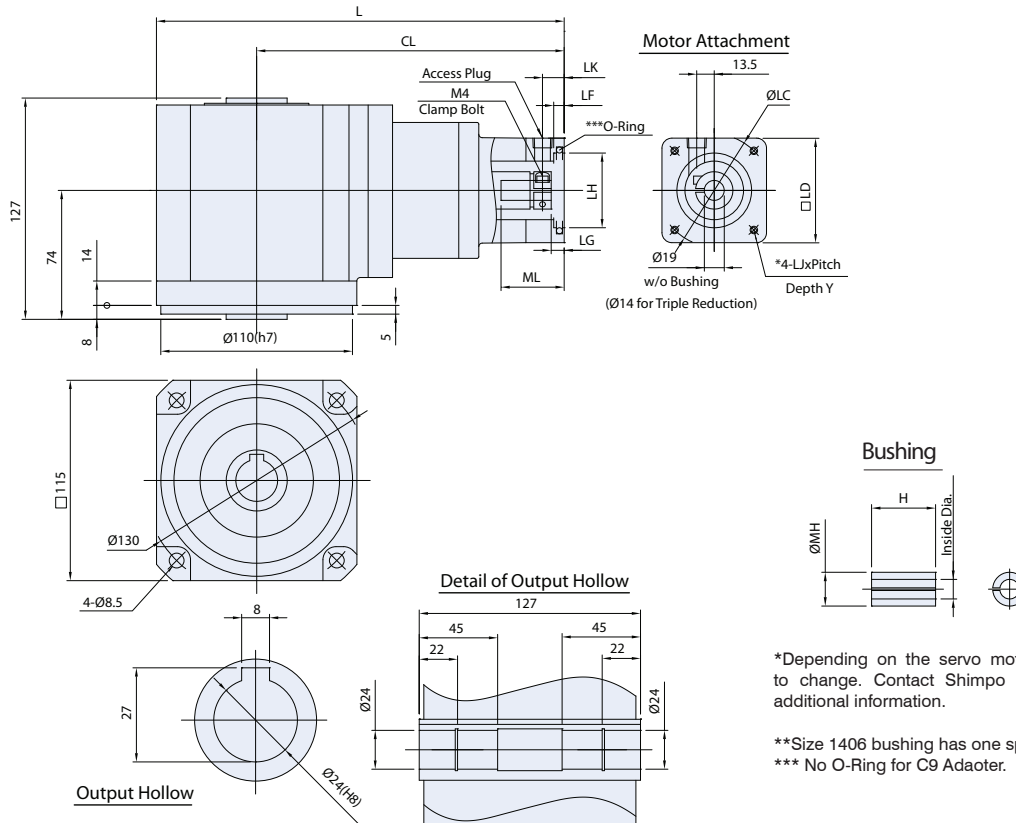
## Triple Reduction Bushings

Bushing Ordering Code	1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410	
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197



# D Frame (115mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.

\*\*Size 1406 bushing has one split.  
\*\*\* No O-Ring for C9 Adapter.

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
060	D50	TD50	mm	60	50	60	M4x0.7	10	234	236.5
			in	2.362	1.969	2.36	-	0.39	9.213	9.311
070	D51	TD51	mm	70	50	60	M4x0.7	10	234	236.5
			in	2.756	1.969	2.36	-	0.39	9.213	9.311
070R	D51R	TD51R	mm	70	50	60	M5x0.8	12	238	240.5
			in	2.756	1.969	2.36	-	0.47	9.370	9.469
090	D52	TD52	mm	90	70	80	M5X0.8	12	234	236.5
			in	3.543	2.756	3.15	-	0.47	9.213	9.311
090R	D52R	TD52R	mm	90	70	80	M6X1.0	21	239	241.5
			in	3.543	2.756	3.15	-	0.83	9.409	9.508
100	D53	TD53	mm	100	80	86	M6X1.0	16	234	236.5
			in	3.937	3.150	3.39	-	0.63	9.213	9.311

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
060	D50	TD50	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
070	D51	TD51	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
070R	D51R	TD51R	mm	180.5	183	15	6	9	46
			in	7.106	7.205	0.59	0.24	0.35	1.81
090	D52	TD52	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
090R	D52R	TD52R	mm	181.5	184	16	9	10	47
			in	7.146	7.244	0.63	0.35	0.39	1.85
100	D53	TD53	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65

# D Frame (115mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
098 (NEMA34)	D54	TD54	mm	98.43	73.025	83	M5X0.8	12	234	236.5
			in	3.875	2.875	3.27	-	0.47	9.213	9.311
098R (NEMA34)	D54R	TD54R	mm	98.43	73.025	83	M5X0.8	12	242	244.5
			in	3.875	2.875	3.27	-	0.47	9.528	9.626
075	D55	TD55	mm	75	60	67	M5X0.8	12	234	236.5
			in	2.953	2.362	2.64	-	0.47	9.213	9.311
115	D56	TD56	mm	115	95	100	M6X1.0	16	234	236.5
			in	4.528	3.740	3.94	-	0.63	9.213	9.311
067 (NEMA23)	D57	TD57	mm	66.68	38.100	60	M4X0.7	10	234	236.5
			in	2.625	1.500	2.36	-	0.39	9.213	9.311
067R	D57R	TD57R	mm	66.68	38.100	60	M5X0.8	12	242	244.5
			in	2.625	1.500	2.36	-	0.47	9.528	9.626
063	D60	TD60	mm	63	40	60	M4x0.7	10	234	236.5
			in	2.480	1.575	2.36	-	0.39	9.213	9.311
095	D61	TD61	mm	95	80	86	M6x1.0	16	234	236.5
			in	3.740	3.150	3.39	-	0.63	9.213	9.311

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
098 (NEMA34)	D54	TD54	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
098R (NEMA34)	D54R	TD54R	mm	184.5	187	19	3	13	50
			in	7.264	7.362	0.75	0.12	0.51	1.97
075	D55	TD55	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
115	D56	TD56	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
067 (NEMA23)	D57	TD57	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
067R	D57R	TD57R	mm	184.5	187	18	11	13	50
			in	7.264	7.362	0.71	0.43	0.51	1.97
063	D60	TD60	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65
095	D61	TD61	mm	176.5	179	11	4	5	42
			in	6.949	7.047	0.43	0.16	0.20	1.65

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

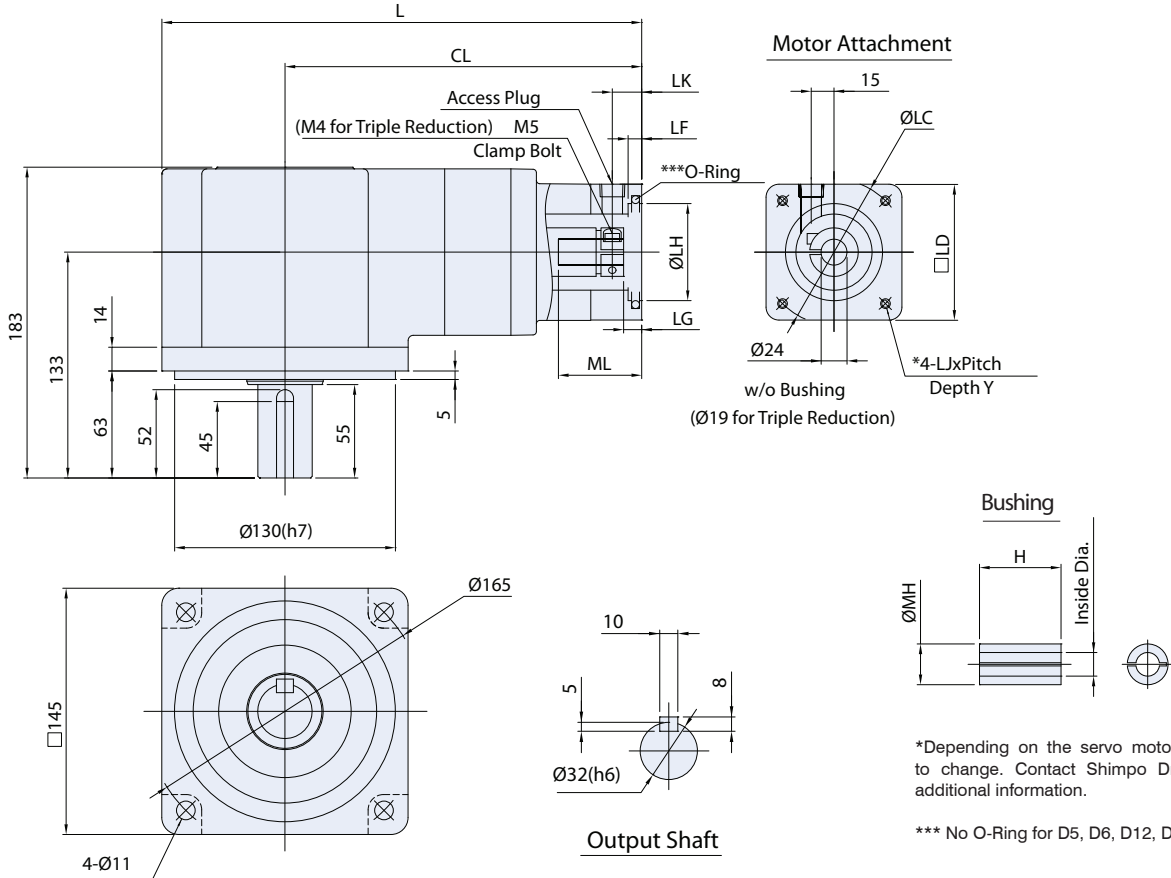
Bushing Ordering Code		1901	1902	1903	1904	1905	1906	1907	1908	1909	1910
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

## Triple Reduction Bushings

Bushing Ordering Code		1401	1402	1403	1404	1405	**1406	1407	1408	1409	1410
Inside Diameter	mm	6	8	11	6.350	9.525	12.700	12	10	9	5
	in	0.236	0.315	0.433	0.250	0.375	0.500	0.472	0.394	0.354	0.197

# E Frame (145mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.

\*\*\* No O-Ring for D5, D6, D12, D13, D14 Adapter.

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
115	E01	TE01	mm	115	95	100	M6x1.0	15	282.5	283.5
			in	4.528	3.740	3.94	-	0.59	11.122	11.161
090	E02	TE02	mm	90	70	80	M5x0.8	12	282.5	283.5
			in	3.543	2.756	3.15	-	0.47	11.122	11.161
090R	E02R	TE02R	mm	90	70	80	M6x1.0	15	285.5	286.5
			in	3.543	2.756	3.15	-	0.59	11.240	11.280
100	E03	TE03	mm	100	80	90	M6x1.0	15	282.5	283.5
			in	3.937	3.150	3.54	-	0.59	11.122	11.161
126 (NEMA42)	E04	TE04	mm	125.73	55.563	108	M6x1.0	15	282.5	283.5
			in	4.950	2.188	4.25	-	0.59	11.122	11.161

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
115	E01	TE01	mm	210	211	15	4	7	57
			in	8.268	8.307	0.59	0.16	0.28	2.24
090	E02	TE02	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
090R	E02R	TE02R	mm	213	214	17	6	10	60
			in	8.386	8.425	0.67	0.24	0.39	2.36
100	E03	TE03	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
126 (NEMA42)	E04	TE04	mm	210	211	15	5	7	57
			in	8.268	8.307	0.59	0.20	0.28	2.24

# E Frame (145mm) NEVAF Series Dimension, Double/Triple Reduction (Solid Type)

Ratios Double: 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
145	E05	TE05	mm	145	110	130	M8X1.25	16	285.5	286.5
			in	5.709	4.331	5.12	-	0.63	11.240	11.280
130	E06	TE06	mm	130	110	115	M8X1.25	16	282.5	283.5
			in	5.118	4.331	4.53	-	0.63	11.122	11.161
098 (NEMA34)	E07	TE07	mm	98.43	73.025	90	M5x0.8	12	282.5	283.5
			in	3.875	2.875	3.54	-	0.47	11.122	11.161
149 (NEMA56)	E08	TE08	mm	149.22	114.300	130	-	-	285.5	286.5
			in	5.875	4.500	5.12	3/8UNC-16	-	11.240	11.280
067 (NEMA23)	E13	TE13	mm	66.7	38.1	80	M4x0.7	10	282.5	283.5
			in	2.626	1.500	3.15	-	0.39	11.122	11.161
070	E14	TE14	mm	70	50	80	M4x0.7	10	282.5	283.5
			in	2.756	1.969	3.15	-	0.39	11.122	11.161
075	E15	TE15	mm	75	60	80	M5x0.8	12	282.5	283.5
			in	2.953	2.362	3.15	-	0.47	11.122	11.161

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
145	E05	TE05	mm	213	214	18	6	10	60
			in	8.386	8.425	0.71	0.24	0.39	2.36
130	E06	TE06	mm	210	211	15	6	7	60
			in	8.268	8.307	0.59	0.24	0.28	2.36
098 (NEMA34)	E07	TE07	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
149 (NEMA56)	E08	TE08	mm	213	214	18	6	10	60
			in	8.386	8.425	0.71	0.24	0.39	2.36
067 (NEMA23)	E13	TE13	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
070	E14	TE14	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
075	E15	TE15	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

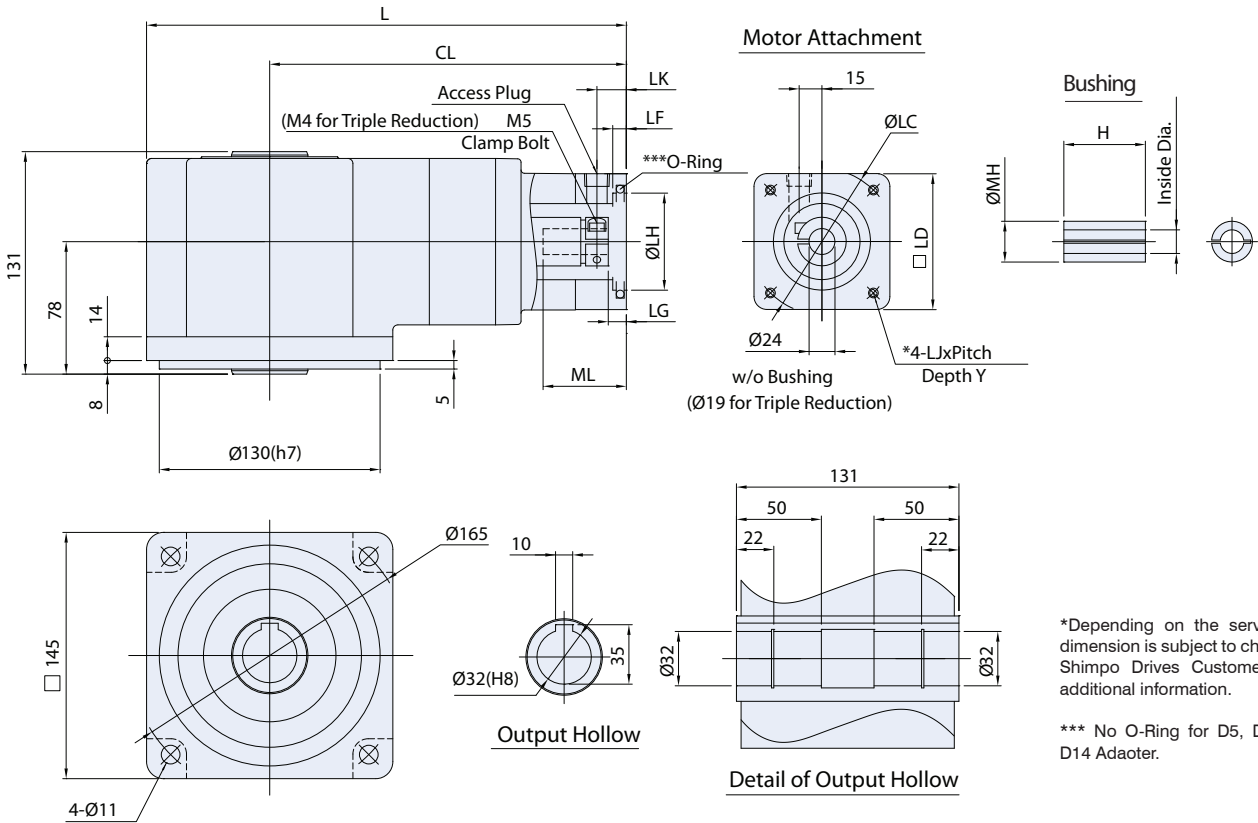
Bushing Ordering Code	2401	2402	2403	2404	2405	2406	2407	
Inside Diameter	mm	14	16	19	12.700	15.875	22	19.050
	in	0.551	0.630	0.748	0.500	0.625	0.866	0.750

## Triple Reduction Bushings

Bushing Ordering Code	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

# E Frame (145mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:3, 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105



\*Depending on the servo motor, this dimension is subject to change. Contact Shimpo Drives Customer Service for additional information.

\*\*\* No O-Ring for D5, D6, D12, D13, D14 Adapter.

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
115	E51	TE51	mm	115	95	100	M6x1.0	15	282.5	283.5
			in	4.528	3.740	3.94	-	0.59	11.122	11.161
090	E52	TE52	mm	90	70	80	M5x0.8	12	282.5	283.5
			in	3.543	2.756	3.15	-	0.47	11.122	11.161
090R	E52R	TE52R	mm	90	70	80	M6x1.0	15	285.5	286.5
			in	3.543	2.756	3.15	-	0.59	11.240	11.280
100	E53	TE53	mm	100	80	90	M6x1.0	15	282.5	283.5
			in	3.937	3.150	3.54	-	0.59	11.122	11.161
126 (NEMA42)	E54	TE54	mm	125.73	55.563	108	M6x1.0	15	282.5	283.5
			in	4.950	2.188	4.25	-	0.59	11.122	11.161

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
115	E51	TE51	mm	210	211	15	4	7	57
			in	8.268	8.307	0.59	0.16	0.28	2.24
090	E52	TE52	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
090R	E52R	TE52R	mm	213	214	17	6	10	60
			in	8.386	8.425	0.67	0.24	0.39	2.36
100	E53	TE53	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
126 (NEMA42)	E54	TE54	mm	210	211	15	5	7	57
			in	8.268	8.307	0.59	0.20	0.28	2.24

# E Frame (145mm) NEVAF Series Dimension, Double/Triple Reduction (Hollow Type)

Ratios Double: 1:3, 1:5, 1:9, 1:15, 1:27 - Ratios Triple: 1:45, 1:75, 1:105

Adapter	CAD Download #		Unit	Bolt Circle LC	Pilot LH	Square LD	Threaded Hole LJ	Depth Y	Length L	
	Double	Triple							Double	Triple
145	E55	TE55	mm	145	110	130	M8X1.25	16	285.5	286.5
			in	5.709	4.331	5.12	-	0.63	11.240	11.280
130	E56	TE56	mm	130	110	115	M8X1.25	16	282.5	283.5
			in	5.118	4.331	4.53	-	0.63	11.122	11.161
098 (NEMA34)	E57	TE57	mm	98.43	73.025	90	M5x0.8	12	282.5	283.5
			in	3.875	2.875	3.54	-	0.47	11.122	11.161
149 (NEMA56)	E58	TE58	mm	149.22	114.300	130	-	-	285.5	286.5
			in	5.875	4.500	5.12	3/8UNC-16	-	11.240	11.280
067	E63	TE63	mm	66.7	38.1	80	M4x0.7	10	282.5	283.5
			in	2.626	1.500	3.15	-	0.39	11.122	11.161
070	E64	TE64	mm	70	50	80	M4x0.7	10	282.5	283.5
			in	2.756	1.969	3.15	-	0.39	11.122	11.161
075	E65	TE65	mm	75	60	80	M5x0.8	12	282.5	283.5
			in	2.953	2.362	3.15	-	0.47	11.122	11.161

Adapter	CAD Download #		Unit	Length CL		Plug LK	Flange Depth		
	Double	Triple		Double	Triple		LF	LG	ML
145	E55	TE55	mm	213	214	18	6	10	60
			in	8.386	8.425	0.71	0.24	0.39	2.36
130	E56	TE56	mm	210	211	15	6	7	60
			in	8.268	8.307	0.59	0.24	0.28	2.36
098 (NEMA34)	E57	TE57	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
149 (NEMA56)	E58	TE58	mm	213	214	18	6	10	60
			in	8.386	8.425	0.71	0.24	0.39	2.36
067	E63	TE63	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
070	E64	TE64	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24
075	E65	TE65	mm	210	211	14	4	7	57
			in	8.268	8.307	0.55	0.16	0.28	2.24

\*Contact Shimpo Drives Customer Service for 3:1 Dimensions.

## Double Reduction Bushings

Bushing Ordering Code	2401	2402	2403	2404	2405	2406	2407	
Inside Diameter	mm	14	16	19	12.700	15.875	22	19.050
	in	0.551	0.630	0.748	0.500	0.625	0.866	0.750

## Triple Reduction Bushings

Bushing Ordering Code	1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	
Inside Diameter	mm	11	14	16	9.525	12.700	15.875	12	10	9	8
	in	0.433	0.551	0.630	0.375	0.500	0.625	0.472	0.394	0.354	0.315

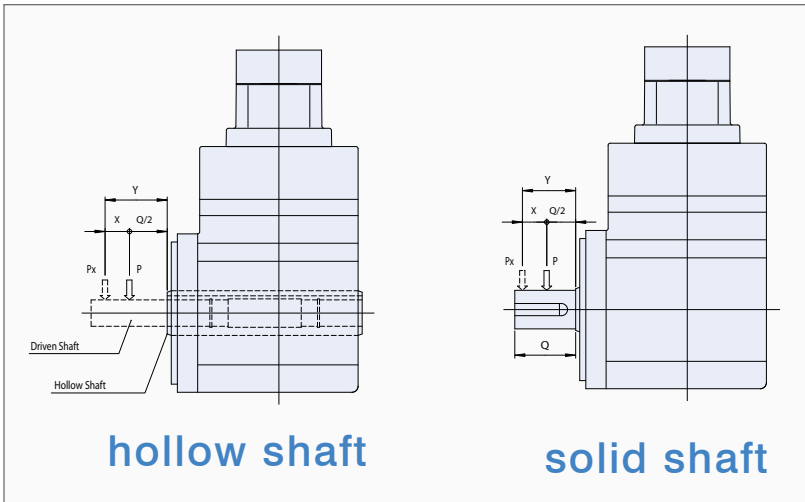


# NEV Overhung Load

When a radial load is being applied to the shaft in a position other than the center, calculate the overhung load using the following equation >

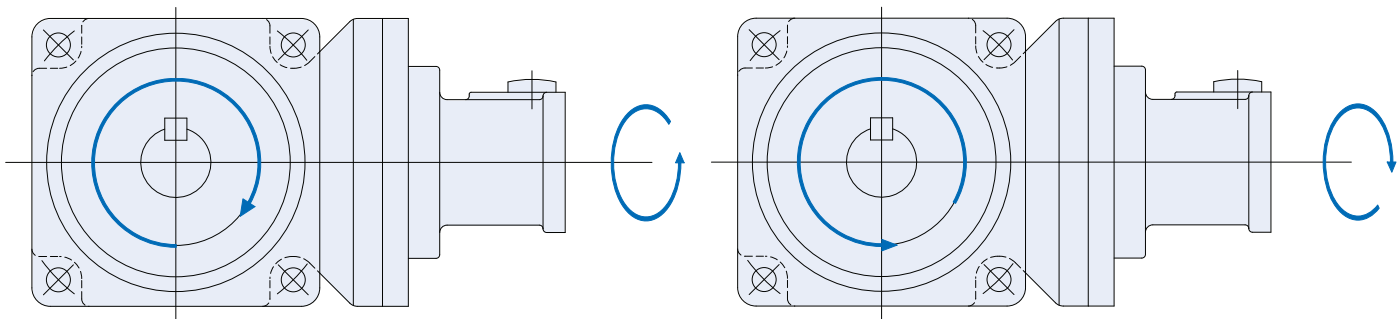
$$P_x = [K / K + (Y - Q / 2)] \times P$$

- P:** Allowable radial load  
(N or lbs from specification table)
- K:** Constant (from table below)
- Y:** Position of radial load
- P<sub>x</sub>:** Actual overhung load
- Q:** Output shaft length

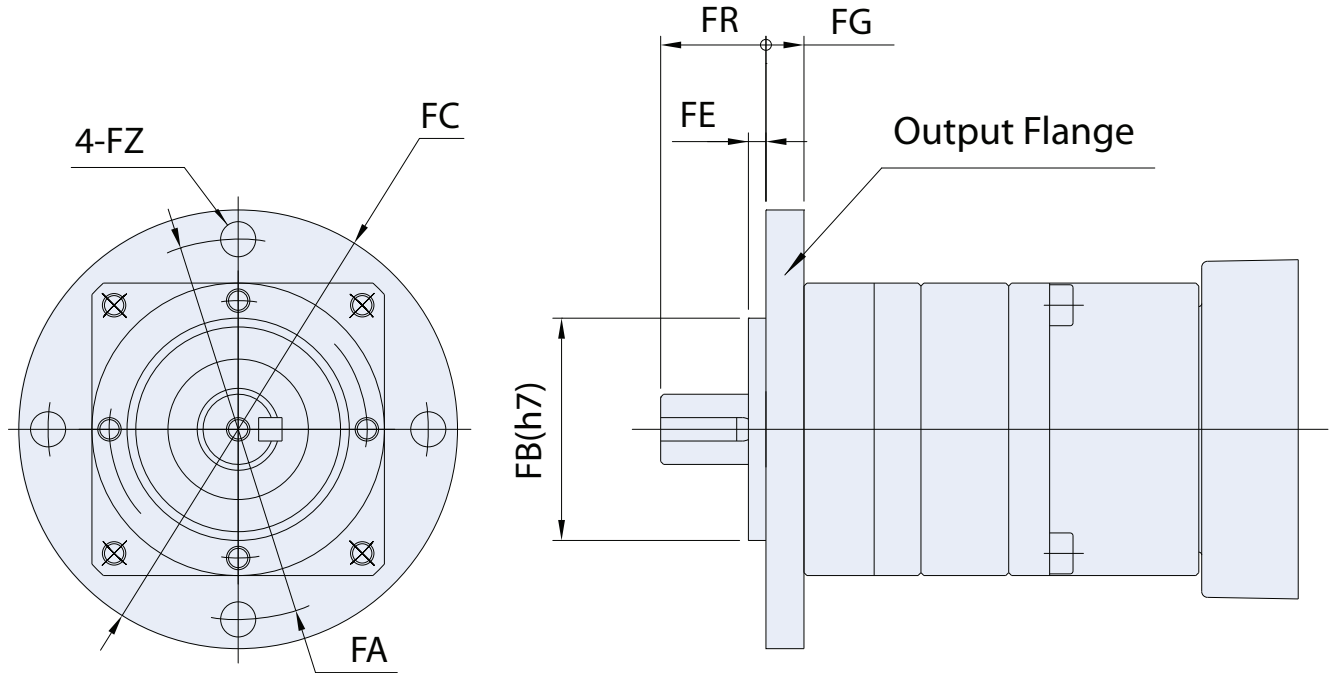


Frame Size	Constant (K)		Q	
	mm	in	mm	in
B	94.5	3.72	30	1.18
C	97.5	3.84	30	1.18
D	128	5.04	40	1.57
E	138.5	5.45	55	2.17

## Direction of Shaft Rotation



# VR Optional Metric or NEMA Output Flange



## Metric Flange

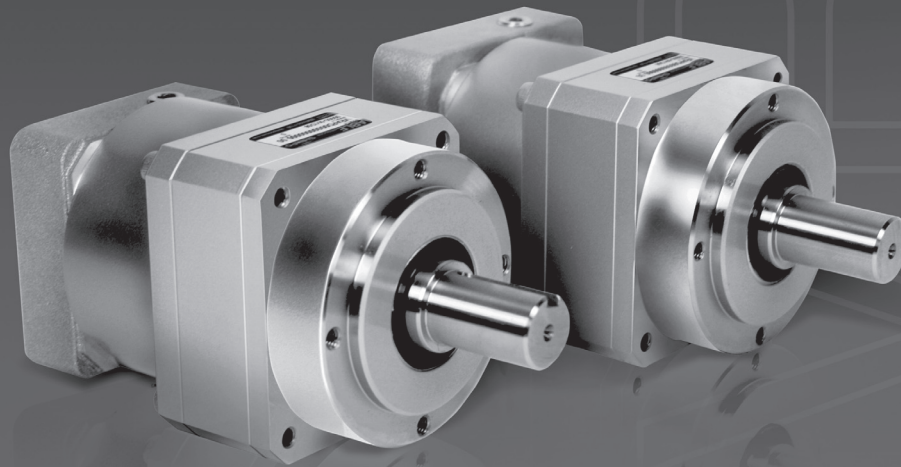
Frame Size		FG	FR	FE	FB	FC	FA	FZ
B	mm	8	24	3	50	75	65	6
	in	0.31	0.94	0.12	1.97	2.95	2.56	0.24
C	mm	12	34	3	72	110	95	7
	in	0.47	1.32	0.12	2.83	4.33	3.74	0.28
D	mm	13	48	5	90	134	115	8.8
	in	0.51	1.89	0.20	3.54	5.28	4.53	0.35

## NEMA Flange

Frame Size		FG	FR	FE	FB	FC	FA	FZ
B (NEMA 23)	mm	12	20	3	38.10	78	66.68	5.2
	in	0.47	0.79	0.12	1.500	3.07	2.625	0.20
C (NEMA 34)	mm	12	30	3	73.02	110	98.43	5.6
	in	0.47	1.18	0.12	2.875	4.33	3.875	0.22
D (NEMA 42)	mm	15	40	5	55.56	140	125.73	7.1
	in	0.59	1.57	0.20	2.188	5.51	4.950	0.28
E (NEMA 56)	mm	20	55	5	114.30	170	149.23	9.5
	in	0.79	2.17	0.20	4.500	6.69	5.875	0.38

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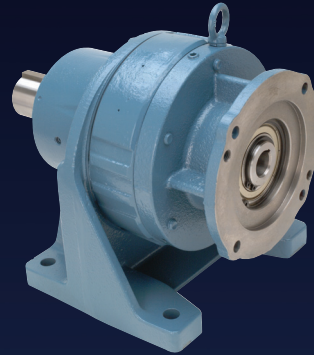
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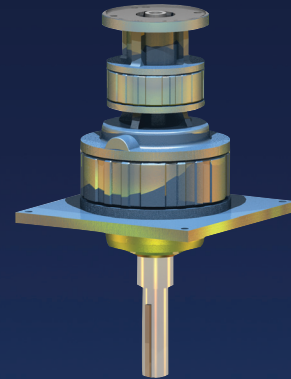
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