Low Cost Precision Planetary Gearheads

32 mm (1.26 inch) Diameter

TYPICAL APPLICATIONS

- Conveyor systems
- Medical pumps
- Packaging equipment
- Machine tools
- Factory automation
- Any application requiring:
  - Speed reduction
  - Torque multiplication

FEATURES

- Fits C13 brush-type motors
- Fits BN12 brushless motors
- Precision manufactured in accordance with DIN EN ISO 9001 Standards
- Compact design
- High efficiency
- Suitable for continuous, reversing and intermittent operation
- Can be installed in any attitude
- Life-time lubricant for maintenance-free operation
- Available in either sintered or ball bearing versions
- Non-metallic input gear

BENEFITS

- Coaxial arrangement of input and output
- Compact design
- High efficiency
- Low moments-of-inertia
- Can be installed in any attitude
- Suitable for continuous, reversing and intermittent operation
- Low sensitivity to impact load
- Large range of ratios available

Quiet Precision Gearheads

Moog Components Group precision gearheads, when coupled to our line of brush-type and brushless motors, provide the user with a quiet and powerful precision gearmotor. Available in a wide range of ratios and output torques, these gearmotors will meet the requirements of a vast number of applications. Life-time lubrication ensures long life and maintenance-free operation.

Our engineering department is available for consultation to help you tailor a gearmotor for your specific application.

Note: *This catalog contains basic marketing information and general part descriptions of Moog Components Group product lines. With respect to the U.S. export regulations, the products described herein are controlled by the U.S. Commerce Department or the U.S. State Department. Contact Moog Components Group for additional detail on the export controls that are applicable to your part.*

32 MM SPECIFICATIONS

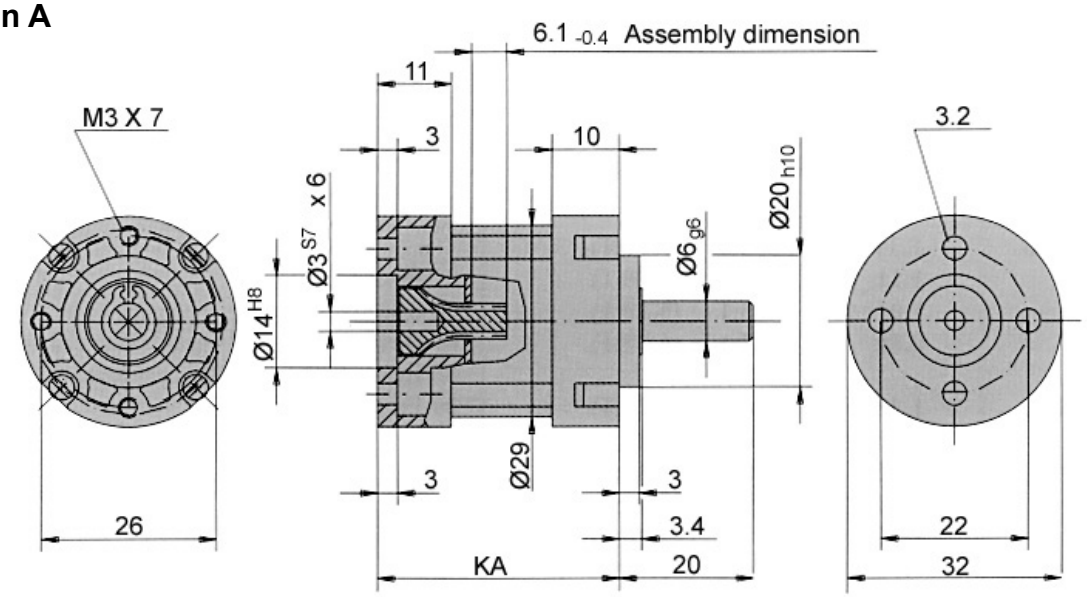
Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	0.40 Nm (56.6 oz - in)	1.35
4:1 (4.28:1)	One	0.40 Nm (56.6 oz - in)	1.11
5:1 (5.18:1)	One	0.40 Nm (56.6 oz - in)	1.01
7:1 (6.75:1)	One	0.40 Nm (56.6 oz - in)	0.89
14:1 (13.73:1)	Two	1.0 Nm (141.6 oz - in)	1.38
16:1 (15.88:1)	Two	1.0 Nm (141.6 oz - in)	1.13
18:1 (18.36:1)	Two	1.0 Nm (141.6 oz - in)	1.12
19:1 (19.20:1)	Two	1.0 Nm (141.6 oz - in)	1.03
22:1 (22.20:1)	Two	1.0 Nm (141.6 oz - in)	1.02
25:1 (25.01:1)	Two	1.0 Nm (141.6 oz - in)	0.90
27:1 (26.85:1)	Two	1.0 Nm (141.6 oz - in)	1.01
29:1 (28.93:1)	Two	1.0 Nm (141.6 oz - in)	0.89
35:1 (34.97:1)	Two	1.0 Nm (141.6 oz - in)	0.89
46:1 (45.56:1)	Two	1.0 Nm (141.6 oz - in)	0.89
51:1 (50.89:1)	Three	2.0 Nm (283.2 oz - in)	1.38
59:1 (58.85:1)	Three	2.0 Nm (283.2 oz - in)	1.13
68:1 (68.06:1)	Three	2.0 Nm (283.2 oz - in)	1.12
71:1 (71.16:1)	Three	2.0 Nm (283.2 oz - in)	1.03
79:1 (78.71:1)	Three	2.0 Nm (283.2 oz - in)	1.12
93:1 (92.70:1)	Three	2.0 Nm (283.2 oz - in)	0.90
95:1 (95.17:1)	Three	2.0 Nm (283.2 oz - in)	1.02
100:1 (99.50:1)	Three	2.0 Nm (283.2 oz - in)	1.01
107:1 (107.20:1)	Three	2.0 Nm (283.2 oz - in)	0.89
115:1 (115.07:1)	Three	2.0 Nm (283.2 oz - in)	1.01
124:1 (123.97:1)	Three	2.0 Nm (283.2 oz - in)	0.89
130:1 (129.62:1)	Three	2.0 Nm (283.2 oz - in)	0.89
139:1 (139.13:1)	Three	2.0 Nm (283.2 oz - in)	1.01
150:1 (149.90:1)	Three	2.0 Nm (283.2 oz - in)	0.89
169:1 (168.84:1)	Three	2.0 Nm (283.2 oz - in)	0.89
181:1 (181.24:1)	Three	2.0 Nm (283.2 oz - in)	0.89
195:1 (195.26:1)	Three	2.0 Nm (283.2 oz - in)	0.89
236:1 (236.09:1)	Three	2.0 Nm (283.2 oz - in)	0.89
308:1 (307.54:1)	Three	2.0 Nm (283.2 oz - in)	0.89

32 mm Low Cost Technical Data

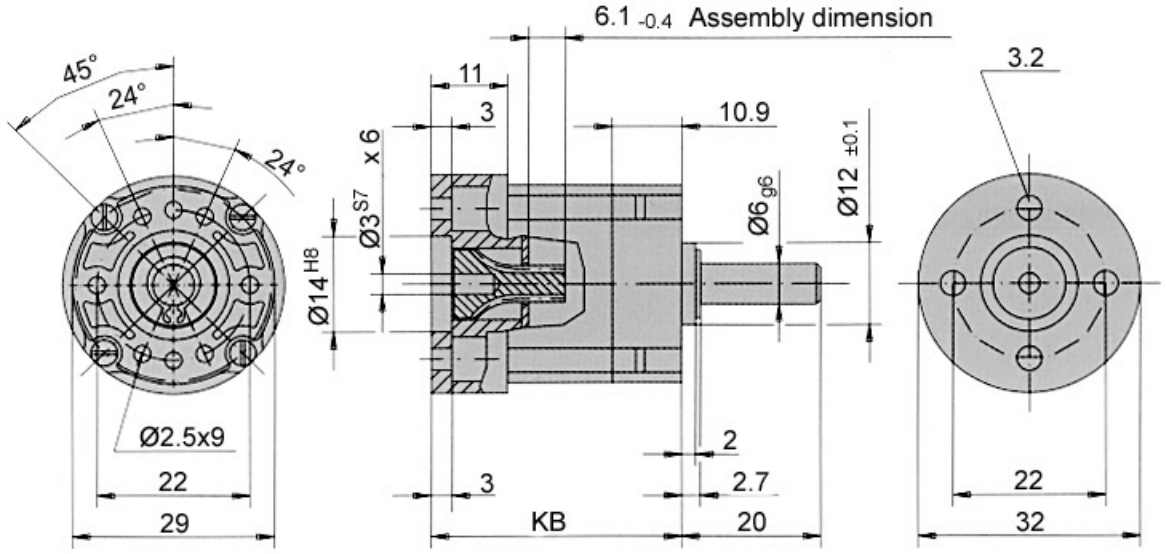
Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	75	70	65
Approx. Backlash(no-load, input locked)	DMS°	2.5	3.0	3.5
Sintered Bearing	-	-	-	-
Radial Load	N	15	30	45
Axial Load	N	5	10	15
Weight	g	100	115	130
Max Permitted Fitting Pressure	N	150	150	150
Dimension (diameter x length)	mm	32 x 56	32 x 65.5	32 x 84.5
Ball Bearing	-	-	-	-
Radial Load	N	40	70	100
Axial Load	N	10	20	30
Weight	g	120	135	150
Max Permitted Fitting Pressure	N	120	120	120
Dimension (diameter x length)	mm	32 x 52	32 x 61.5	32 x 80.5
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +65° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

Version A



Version B



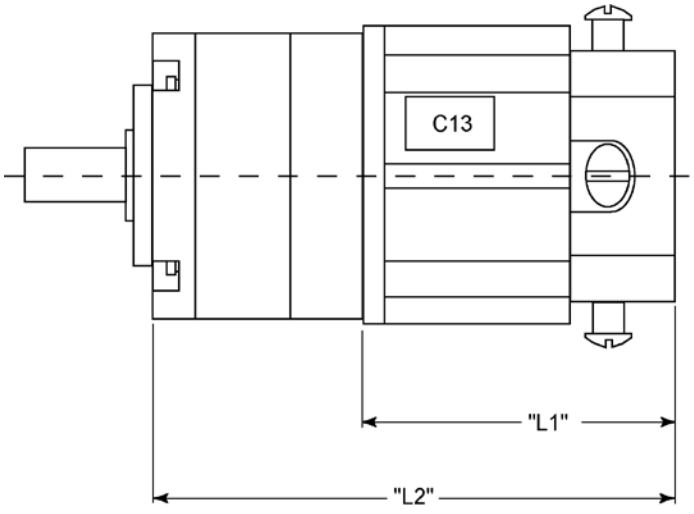
Gear Unit Length		1-Stage	2-Stage	3-Stage
KA	Bearing flange of plastic, sintered bearing on output	36	45.5	55
KA	Bearing flange of die-cast zinc, ball bearing on output	32	41.5	51

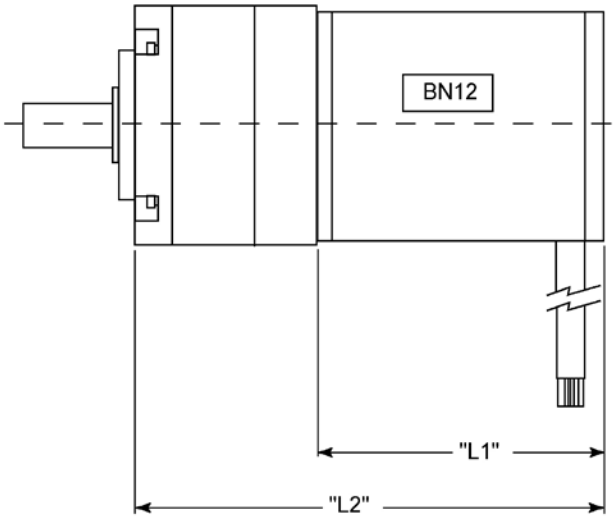
Gear Unit Length		1-Stage	2-Stage	3-Stage
KB	Bearing flange of plastic, sintered bearing on output	37	46.5	56

Preferred series Version A. We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

32 mm Dimensional Drawings





*Motor + Gearhead Dimensions**

Sintered Bearing Version	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C13-L19	1.90 in (48.3 mm)	3.317 in (84.3 mm)	3.691 in (93.8 mm)	4.065 in (103.3 mm)
C13-L25	2.45 in (62.2 mm)	3.867 in 98.2 mm)	4.241 in (107.7 mm)	4.615 in (117.2 mm)
C13-L28	2.78 in (70.6 mm)	4.197 in (106.6 mm)	4.571 in (116.1 mm)	4.945 in (125.6 mm)
BN12-15	1.50 in (38.1 mm)	3.350 in (85.1 mm)	3.724 in (94.6 mm)	4.098 in (104.1 mm
BN12-20	2.00 in (50.8 mm)	3.850 in (97.8 mm)	4.224 in (107.3 mm)	4.598 in (116.8 mm)
BN12-25	2.50 in (63.5 mm)	4.350 in (110.5 mm)	4.724 in (120 mm)	5.098 in (129.5 mm)
BN12-30	3.00 in (76.2 mm)	4.850 in (123.2 mm)	5.224 in (132.7 mm)	5.598 in (142.2 mm)
Ball Bearing Version	**L1 Max**	**L2 Max (1-Stage)**	**L2 Max (2-Stage)**	**L2 Max (3-Stage)**
C13-L19	1.90 in (48.3 mm)	3.160 in (80.3 mm)	3.534 in (89.8 mm)	3.908 in (99.3 mm)
C13-L25	2.45 in (62.2 mm)	3.710 in (94.2 mm)	4.084 in (103.7 mm)	4.458 in (113.2 mm)
C13-L28	2.78 in (70.6 mm)	4.040 in (102.6 mm)	4.414 in (112.1 mm)	4.788 in (121.6 mm)
BN12-15	1.50 in (38.1 mm)	3.193 in (81.1 mm)	3.567 in (90.6 mm)	3.941 in (100.1 mm)
BN12-20	2.00 in (50.8 mm)	3.693 in (93.8 mm)	4.067 in (103.3 mm)	4.441 in (112.8 mm)
BN12-25	2.50 in (63.5 mm)	4.193 in (106.5 mm)	4.567 in (116 mm)	4.941 in (125.5 mm)
BN12-30	3.00 in (76.2 mm)	4.693 in (119.2 mm)	5.067 in (128.7 mm)	5.441 in (138.2 mm)

**All dimensions are reference dimensions*

Ordering Information - Examples

32-SB-46:1 – 32 mm gearhead, 46:1 ratio, sintered bearing
32-BB-308:1 – 32 mm gearhead, 308:1 ratio, ball bearing

Precision Planetary Gearheads

32, 52, 62, 81 and 120 mm (1.26 - 4.72 inch) Diameter

TYPICAL APPLICATIONS

- Conveyor systems
- Medical pumps
- Packaging equipment
- Machine tools
- Factory automation
- Any application requiring:
  - Speed reduction
  - Torque multiplication

FEATURES

- Fits our brush and brushless motors
- Precision manufactured in accordance with DIN EN ISO 9001 Standards
- Compact design
- High efficiency
- Suitable for continuous, reversing and intermittent operation
- Can be installed in any attitude
- Life-time lubricant for maintenance-free operation

BENEFITS

- Coaxial arrangement of input and output
- Compact design
- High efficiency
- Low moments-of-inertia
- Can be installed in any attitude
- Suitable for continuous, reversing and intermittent operation
- Low sensitivity to impact load
- Large range of ratios available

Quiet Precision Gearheads

Moog Components Group precision gearheads, when coupled to our line of brush-type and brushless motors, provide the user with a quiet and powerful precision gearmotor. Available in a wide range of ratios and output torques, these gearmotors will meet the requirements of a vast number of applications. Life-time lubrication ensures long life and maintenance-free operation.

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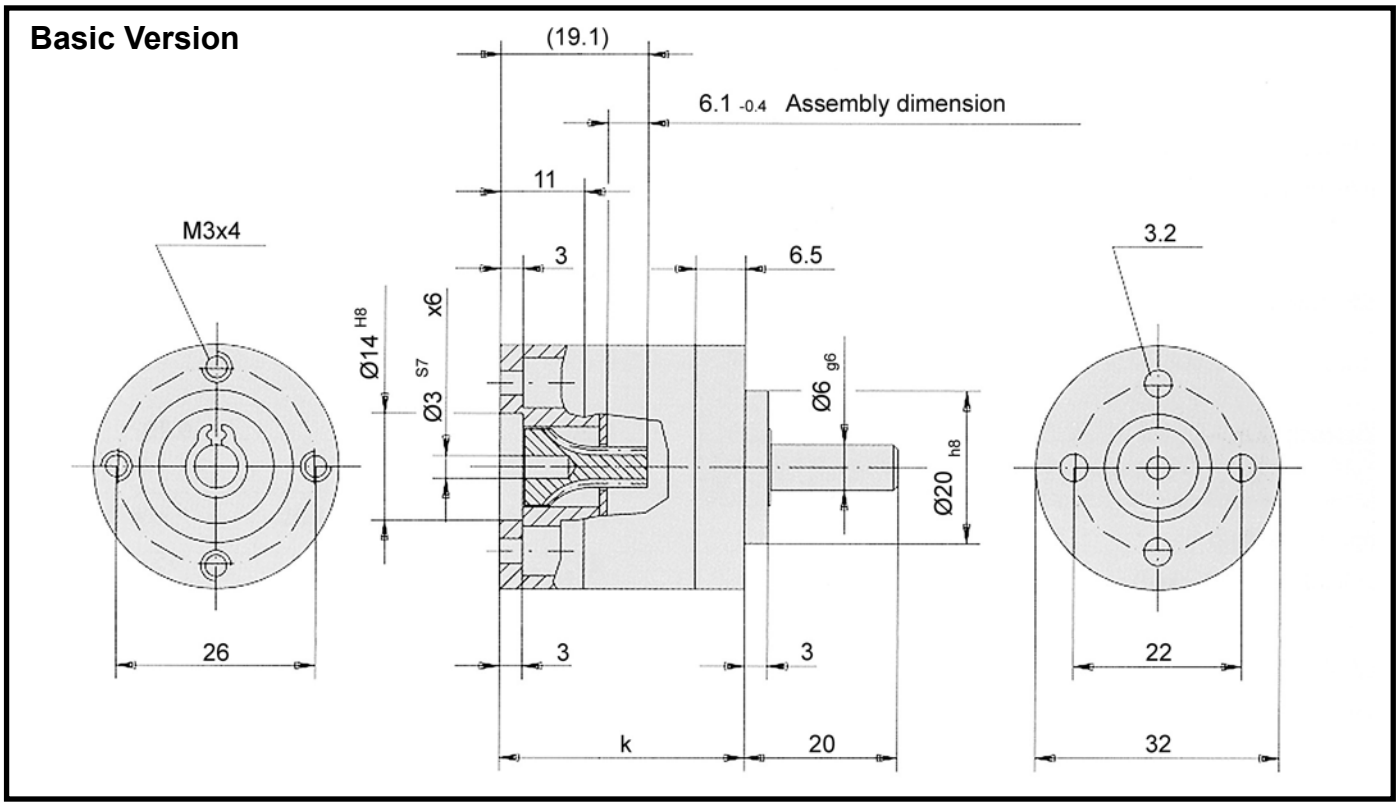
32 MM (1.26 INCH) DIAMETER SPECIFICATIONS

Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	0.75 Nm (106.2 oz - in)	1.54
4:1 (4.28:1)	One	0.75 Nm (106.2 oz - in)	1.29
5:1 (5.18:1)	One	0.75 Nm (106.2 oz - in)	1.14
7:1 (6.75:1)	One	0.75 Nm (106.2 oz - in)	0.89
14:1 (13.73:1)	Two	2.5 Nm (318.6 oz - in)	1.49
16:1 (15.88:1)	Two	2.5 Nm (318.6 oz - in)	1.25
18:1 (18.36:1)	Two	2.5 Nm (318.6 oz - in)	1.26
19:1 (19.20:1)	Two	2.5 Nm (318.6 oz - in)	1.12
22:1 (22.20:1)	Two	2.5 Nm (318.6 oz - in)	1.12
25:1 (25.01:1)	Two	2.5 Nm (318.6 oz - in)	0.96
27:1 (26.85:1)	Two	2.5 Nm (318.6 oz - in)	1.13
29:1 (28.93:1)	Two	2.5 Nm (318.6 oz - in)	0.96
35:1 (34.97:1)	Two	2.5 Nm (318.6 oz - in)	0.97
46:1 (45.56:1)	Two	2.5 Nm (318.6 oz - in)	0.98
51:1 (50.89:1)	Three	4.5 Nm (637.3 oz - in)	1.49
59:1 (58.85:1)	Three	4.5 Nm (637.3 oz - in)	1.25
68:1 (68.06:1)	Three	4.5 Nm (637.3 oz - in)	1.26
71:1 (71.16:1)	Three	4.5 Nm (637.3 oz - in)	1.12
79:1 (78.71:1)	Three	4.5 Nm (637.3 oz - in)	1.26
93:1 (92.70:1)	Three	4.5 Nm (637.3 oz - in)	0.96
95:1 (95.17:1)	Three	4.5 Nm (637.3 oz - in)	1.12
100:1 (99.50:1)	Three	4.5 Nm (637.3 oz - in)	1.13
107:1 (107.20:1)	Three	4.5 Nm (637.3 oz - in)	0.96
115:1 (115.07:1)	Three	4.5 Nm (637.3 oz - in)	1.13
124:1 (123.97:1)	Three	4.5 Nm (637.3 oz - in)	0.96
130:1 (129.62:1)	Three	4.5 Nm (637.3 oz - in)	0.97
139:1 (139.13:1)	Three	4.5 Nm (637.3 oz - in)	1.13
150:1 (149.90:1)	Three	4.5 Nm (637.3 oz - in)	0.97
169:1 (168.84:1)	Three	4.5 Nm (637.3 oz - in)	0.96
181:1 (181.24:1)	Three	4.5 Nm (637.3 oz - in)	0.97
195:1 (195.26:1)	Three	4.5 Nm (637.3 oz - in)	0.96
236:1 (236.09:1)	Three	4.5 Nm (637.3 oz - in)	0.96
308:1 (307.54:1)	Three	4.5 Nm (637.3 oz - in)	0.96

32 mm Technical Data

Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	80	75	70
Approx. Backlash (no-load, input locked)	DMS°	1.5	2.0	2.5
Radial Load	N	40	70	100
Axial Load	N	10	20	30
Max Permitted Fitting Pressure	N	120	120	120
Weight	g	160	210	260
Dimension (diameter x length)	mm	32 x 52	32 x 61.5	32 x 71
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +80° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

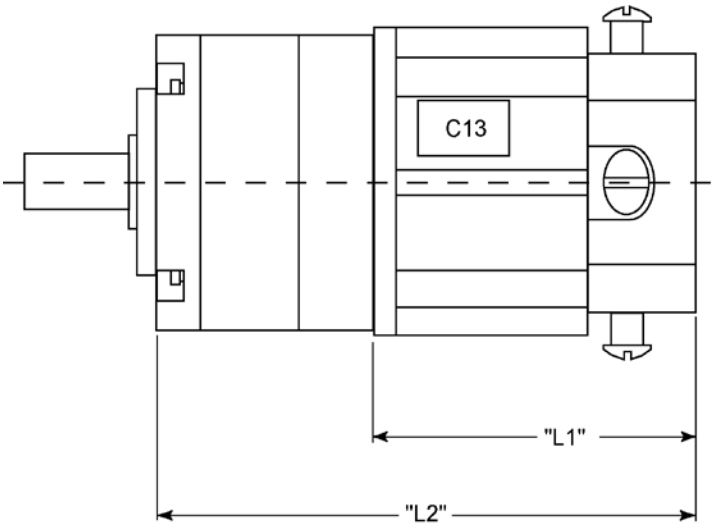


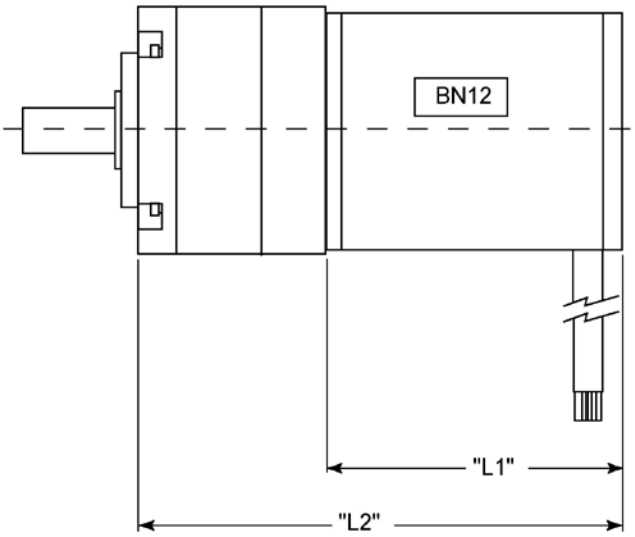
Gear Unit Length			1-Stage	2-Stage	3-Stage	4-Stage
K			32	41.5	51	60.5

We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

32 mm Dimensional Drawings





*Motor + Gearhead Dimensions**

	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C13-L19	1.90 in (48.3 mm)	3.160 in (80.3 mm)	3.534 in (89.8 mm)	3.908 in (99.3 mm)
C13-L25	2.45 in (62.2 mm)	3.710 in (94.2 mm)	4.084 in (103.7 mm)	4.458 in (113.2 mm)
C13-L28	2.78 in (70.6 mm)	4.040 in (102.6 mm)	4.414 in (112.1 mm)	4.788 in (121.6 mm)
BN12-13	1.30 in (33.02 mm)	3.193 in (81.1 mm)	3.567 in (90.6 mm)	3.941 in (100.1 mm)
BN12-18	1.80 in (45.72 mm)	3.693 in (93.8 mm)	4.067 in (103.3 mm)	4.441 in (112.8 mm)
BN12-23	2.30 in (58.42 mm)	4.193 in (106.5 mm)	4.567 in (116 mm)	4.941 in (125.5 mm)
BN12-28	2.80 in (71.12 mm)	4.693 in (119.2 mm)	5.067 in (128.7 mm)	5.441 in (138.2 mm)

**All dimensions are reference dimensions*

Ordering Information - Examples

32-46:1 – 32 mm gearhead, 46:1 ratio
32-308:1 – 32 mm gearhead, 308:1 ratio

52 MM (2.05 INCH) DIAMETER SPECIFICATIONS

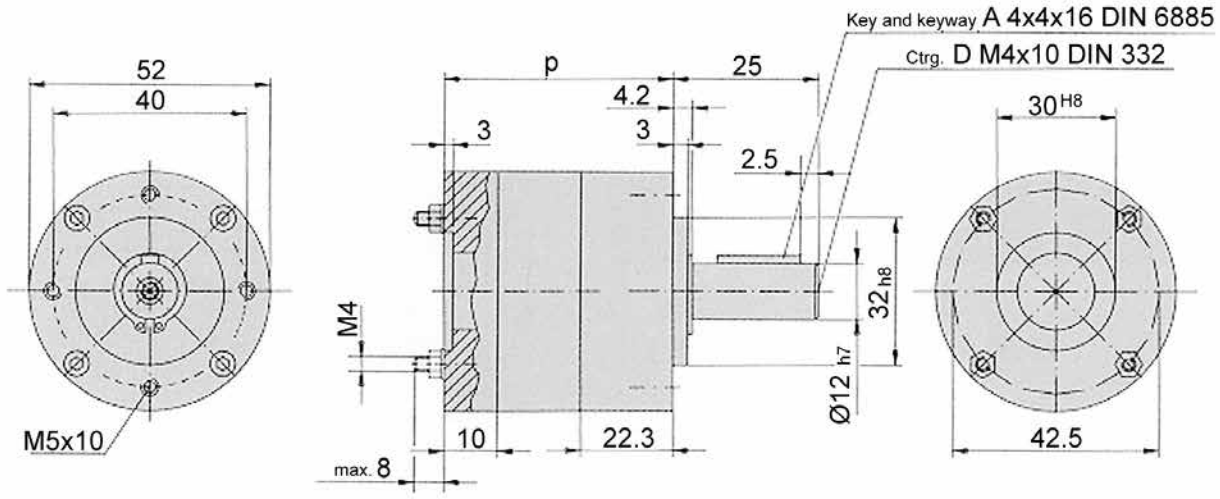
Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	4.0 Nm (2.95 ft - lbs)	16.57
7:1 (6.75:1)	One	4.0 Nm (2.95 ft - lbs)	9.52
14:1 (13.73:1)	Two	12.0 Nm (8.85 ft - lbs)	16.49
25:1 (25.01:1)	Two	12.0 Nm (8.85 ft - lbs)	9.33
46:1 (45.56:1)	Two	12.0 Nm (8.85 ft - lbs)	9.21
51:1 (50.89:1)	Three	25.0 Nm (18.4 ft - lbs)	16.49
93:1 (92.70:1)	Three	25.0 Nm (18.4 ft - lbs)	9.32
169:1 (168.84:1)	Three	25.0 Nm (18.4 ft - lbs)	9.21
308:1 (307.54:1)	Three	25.0 Nm (18.4 ft - lbs)	9.21

52 mm Technical Data

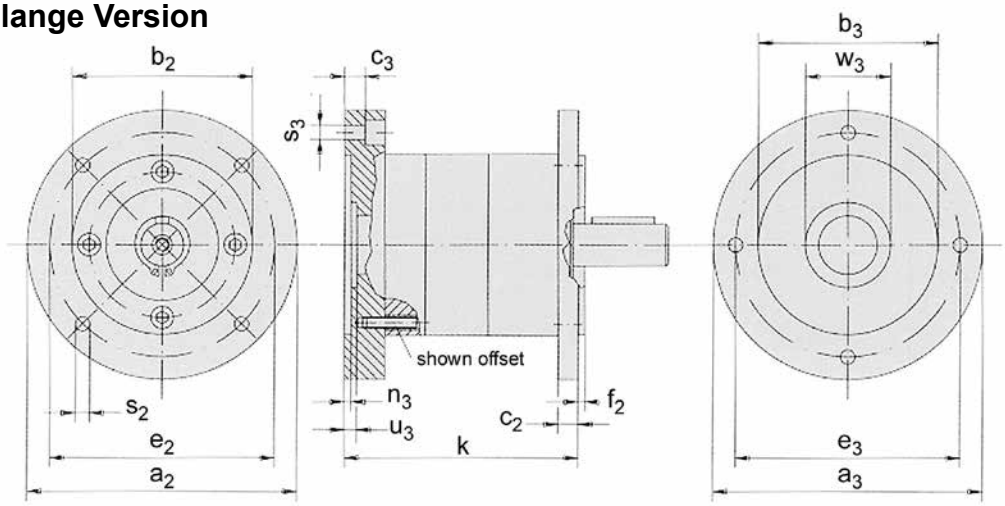
Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	80	75	70
Approx. Backlash(no-load, input locked)	Minutes	45	45	45
Radial Load	N	200	320	450
Axial Load	N	60	100	150
Max Permitted Fitting Pressure	N	500	500	500
Weight	kg	0.7	0.9	1.1
Dimension (diameter x length)	mm	52 x 81	52 x 95	52 x 109
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +80° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

Basic Version



Standard Flange Version



Gear Unit Length				1-Stage	2-Stage	3-Stage
P				56	70	84
K				83	97	111

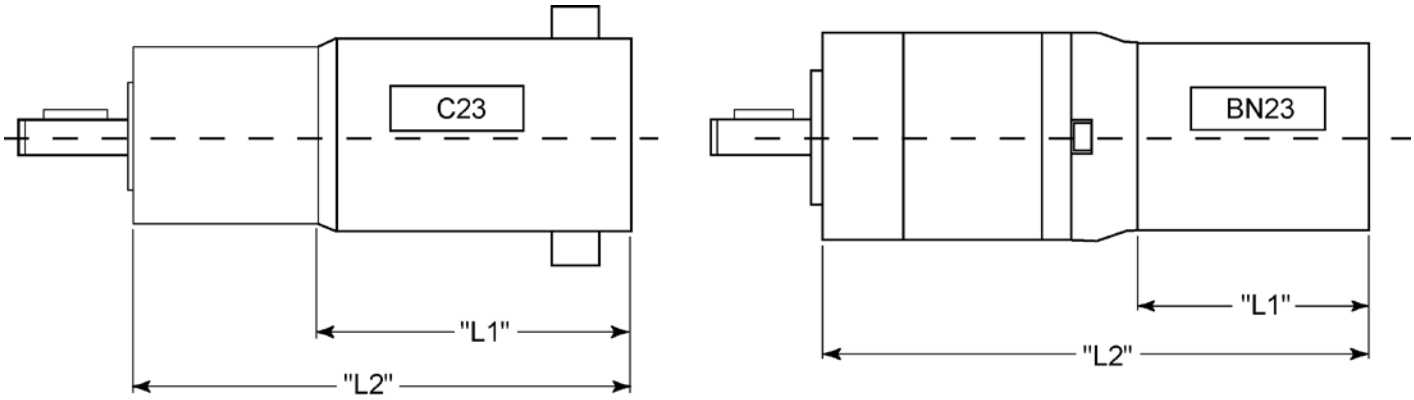
DIM of Motor Mounting Flange		a_3	b_3	u_3	c_3	e_3	n_3	w_3	s_3
Motor size 56	C 80	80	50 H7	38 H7	10.2	65	3	5.5	5.5
(B14, B3/B14)	C 105	105	70 H7	-	10.2	85	3	-	6.5

DIM of Gear Unit Output Flan	a_2	b_2	c_2	e_2	f_2	s_2
C 80	80	50 j7	9	65	2.5	5.5
C 90	90	60 j7	9	75	2.5	5.5
C 105	105	70 j7	9	85	2.5	6.5
C 120	120	80 j7	9	100	3.0	6.5

We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

52 mm Dimensional Drawings



*Motor + Gearhead Dimensions**

Unit Type	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C23-L33	3.30 in (83.8 mm)	5.986 in (152 mm)	6.538 in (166 mm)	7.089 in (180 mm)
C23-L40	4.00 in (101.6 mm)	6.686 in (169.8 mm)	7.238 in (183.8 mm)	*7.789 in (197.8 mm)
C23-L45	4.50 in (114.3 mm)	7.186 in (182.5 mm)	7.738 in (196.5 mm)	8.289 in (210.5 mm)
C23-L50	5.00 in (127 mm)	7.686 in (195.2 mm)	8.238 in (209.2 mm)	8.789 in (223.2 mm)
C23-L55	5.50 in (139.7 mm)	8.186 in (207.9 mm)	8.738 in (222 mm)	9.289 in (236 mm)
BN23-13	1.41 in (35.8 mm)	4.484 in (113.9 mm)	5.044 in (128.1 mm)	5.594 in (142 mm)
BN23-18	1.91 in (48.5 mm)	4.984 in (126.6 mm)	5.544 in (140.8 mm)	6.094 in (154.8 mm)
BN23-23	2.41 in (61.2 mm)	5.484 in (139.3 mm)	6.044 in (153.5 mm)	6.594 in (167.5 mm)
BN23-28	2.91 in (73.9 mm)	5.984 in (152 mm)	6.544 in (166.2 mm)	7.454 in (189.3 mm)

**All dimensions are reference dimensions*

Ordering Information - Examples

52-46:1 – 52 mm gearhead, 46:1 ratio
52-308:1 – 52 mm gearhead, 308:1 ratio

62 MM (2.44 INCH) DIAMETER SPECIFICATIONS

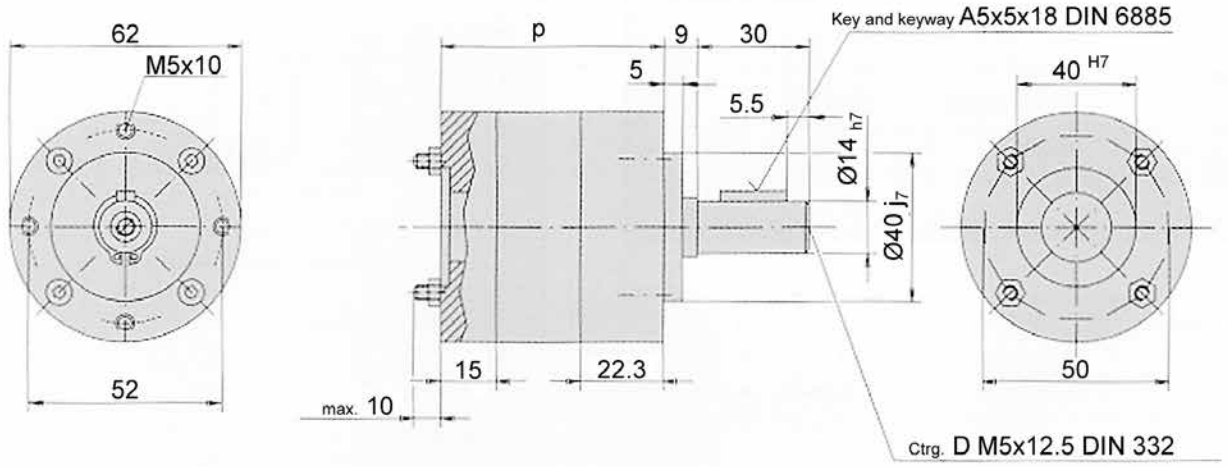
Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	8.0 Nm (5.90 ft - lbs)	0.037
4:1 (4.28:1)	One	8.0 Nm (5.90 ft - lbs)	0.029
5:1 (5.18:1)	One	8.0 Nm (5.90 ft - lbs)	0.023
7:1 (6.75:1)	One	8.0 Nm (5.90 ft - lbs)	0.017
14:1 (13.73:1)	Two	25.0 Nm (18.44 ft - lbs)	0.035
16:1 (15.88:1)	Two	25.0 Nm (18.44 ft - lbs)	0.028
18:1 (18.36:1)	Two	25.0 Nm (18.44 ft - lbs)	0.028
19:1 (19.20:1)	Two	25.0 Nm (18.44 ft - lbs)	0.022
22:1 (22.20:1)	Two	25.0 Nm (18.44 ft - lbs)	0.022
25:1 (25.01:1)	Two	25.0 Nm (18.44 ft - lbs)	0.017
27:1 (26.85:1)	Two	25.0 Nm (18.44 ft - lbs)	0.022
29:1 (28.93:1)	Two	25.0 Nm (18.44 ft - lbs)	0.017
35:1 (34.97:1)	Two	25.0 Nm (18.44 ft - lbs)	0.017
46:1 (45.56:1)	Two	25.0 Nm (18.44 ft - lbs)	0.017
51:1 (50.89:1)	Three	50.0 Nm (36.88 ft - lbs)	0.035
59:1 (58.85:1)	Three	50.0 Nm (36.88 ft - lbs)	0.028
68:1 (68.06:1)	Three	50.0 Nm (36.88 ft - lbs)	0.028
71:1 (71.16:1)	Three	50.0 Nm (36.88 ft - lbs)	0.021
79:1 (78.71:1)	Three	50.0 Nm (36.88 ft - lbs)	0.028
93:1 (92.70:1)	Three	50.0 Nm (36.88 ft - lbs)	0.016
95:1 (95.17:1)	Three	50.0 Nm (36.88 ft - lbs)	0.022
100:1 (99.50:1)	Three	50.0 Nm (36.88 ft - lbs)	0.022
107:1 (107.20:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
115:1 (115.07:1)	Three	50.0 Nm (36.88 ft - lbs)	0.022
124:1 (123.97:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
130:1 (129.62:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
139:1 (139.13:1)	Three	50.0 Nm (36.88 ft - lbs)	0.022
150:1 (149.90:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
169:1 (168.84:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
181:1 (181.24:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
195:1 (195.26:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
236:1 (236.09:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017
308:1 (307.54:1)	Three	50.0 Nm (36.88 ft - lbs)	0.017

62 mm Technical Data

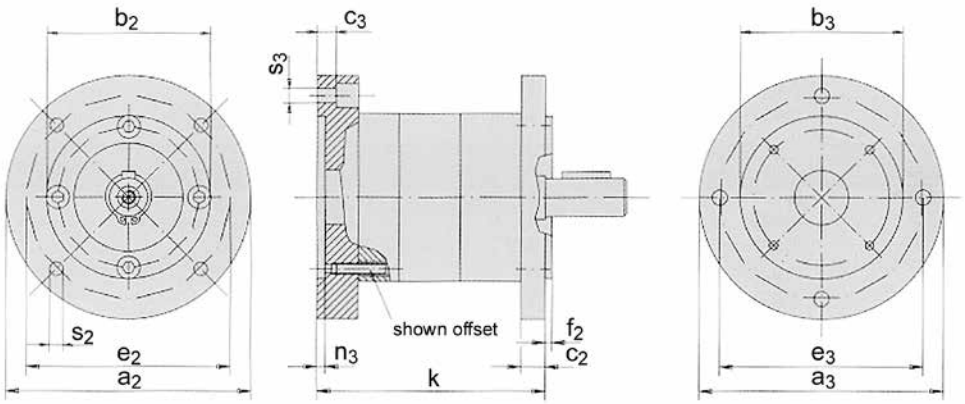
Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	80	75	70
Approx. Backlash (no-load, input locked)	DMS°	1.0	1.5	2.0
Radial Load	N	240	360	520
Axial Load	N	50	70	120
Max Permitted Fitting Pressure	N	1000	1000	1000
Weight	kg	0.8	1.2	1.6
Dimension (diameter x length)	mm	62 x 102	62 x 118	62 x 134
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +80° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

Basic Version



Standard Flange Version



Gear Unit Length				1-Stage	2-Stage	3-Stage
P				63	77	93
K				84	100	116

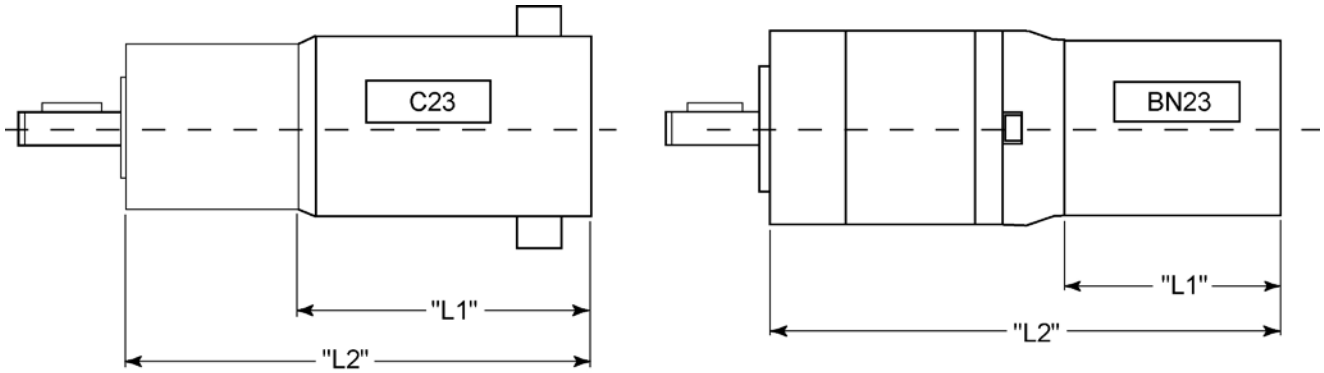
DIM of Motor Mounting Flange		a_3	b_3	c_3	e_3	n_3	s_3
Motor size 56	C 80	80	50 H7	7	65	3	5.5
(B14, B3/B14)	C 105	105	70 H7	7	85	3	6.5
Motor size 63	C 90	90	60 H7	7	75	3	5.5
(B14, B3/B14)	C 120	120	80 H7	7	100	3.5	6.5

DIM of Gear Unit Output Flange	a_2	b_2	c_2	e_2	f_2	s_2
C 80	80	50 J7	9	65	2.5	M5
C 90	90	60 J7	9	75	2.5	5.5
C 105	105	70 J7	9	85	2.5	6.5
C 120	120	80 J7	9	100	3.0	6.5

We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

62 mm Dimensional Drawings



Motor + Gearhead Dimensions*

Unit Type	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C23-L33	3.30 in (83.8 mm)	5.986 in (152 mm)	6.538 in (166 mm)	7.089 in (180 mm)
C23-L40	4.00 in (101.6 mm)	6.686 in (169.8 mm)	7.238 in (183.8 mm)	7.789 in (197.8 mm)
C23-L45	4.50 in (114.3 mm)	7.186 in (182.5 mm)	7.738 in (196.5 mm)	8.289 in (210.5 mm)
C23-L50	5.00 in (127 mm)	7.686 in (195.2 mm)	8.238 in (209.2 mm)	8.789 in (223.2 mm)
C23-L55	5.50 in (139.7 mm)	8.186 in (207.9 mm)	8.738 in (222 mm)	9.289 in (236 mm)
BN23-13	1.41 in (35.8 mm)	4.865 in (123.6 mm)	5.415 in (137.5 mm)	6.045 in (153.5 mm)
BN23-18	1.91 in (48.5 mm)	5.365 in (136.3 mm)	5.915 in (150.2 mm)	6.545 in (166.2 mm)
BN23-23	2.41 in (61.2 mm)	5.865 in (149.9 mm)	6.415 in (162.9 mm)	7.045 in (178.9 mm)
BN23-28	2.91 in (73.9 mm)	6.365 in (161.7 mm)	6.915 in (175.6 mm)	7.545 in (191.6 mm)

**All dimensions are reference dimensions*

Ordering Information - Examples

62-46:1 – 62 mm gearhead, 46:1 ratio
62-308:1 – 62 mm gearhead, 308:1 ratio

81 MM (3.19 INCH) DIAMETER SPECIFICATIONS

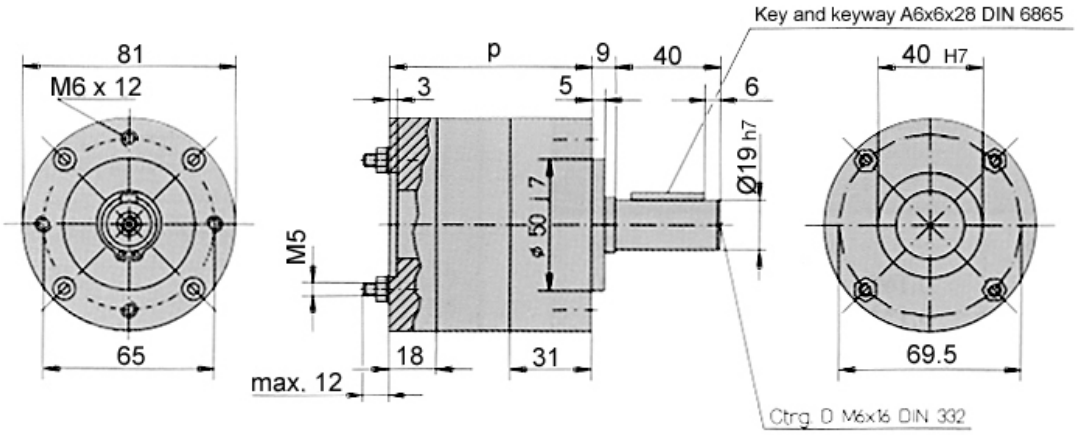
Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	20.0 Nm (14.75 ft - lbs)	0.165
4:1 (4.28:1)	One	20.0 Nm (14.75 ft - lbs)	0.134
5:1 (5.18:1)	One	20.0 Nm (14.75 ft - lbs)	0.109
7:1 (6.75:1)	One	20.0 Nm (14.75 ft - lbs)	0.091
14:1 (13.73:1)	Two	60.0 Nm (44.25 ft - lbs)	0.155
16:1 (15.88:1)	Two	60.0 Nm (44.25 ft - lbs)	0.127
18:1 (18.36:1)	Two	60.0 Nm (44.25 ft - lbs)	0.129
19:1 (19.20:1)	Two	60.0 Nm (44.25 ft - lbs)	0.100
22:1 (22.20:1)	Two	60.0 Nm (44.25 ft - lbs)	0.105
25:1 (25.01:1)	Two	60.0 Nm (44.25 ft - lbs)	0.125
27:1 (26.85:1)	Two	60.0 Nm (44.25 ft - lbs)	0.105
29:1 (28.93:1)	Two	60.0 Nm (44.25 ft - lbs)	0.088
35:1 (34.97:1)	Two	60.0 Nm (44.25 ft - lbs)	0.089
46:1 (45.56:1)	Two	60.0 Nm (18.44 ft - lbs)	0.089
51:1 (50.89:1)	Three	120.0 Nm (88.50 ft - lbs)	0.154
59:1 (58.85:1)	Three	120.0 Nm (88.50 ft - lbs)	0.126
68:1 (68.06:1)	Three	120.0 Nm (88.50 ft - lbs)	0.127
71:1 (71.16:1)	Three	120.0 Nm (88.50 ft - lbs)	0.104
79:1 (78.71:1)	Three	120.0 Nm (88.50 ft - lbs)	0.127
93:1 (92.70:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
95:1 (95.17:1)	Three	120.0 Nm (88.50 ft - lbs)	0.104
100:1 (99.50:1)	Three	120.0 Nm (88.50 ft - lbs)	0.105
107:1 (107.20:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
115:1 (115.07:1)	Three	120.0 Nm (88.50 ft - lbs)	0.105
124:1 (123.97:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
130:1 (129.62:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
139:1 (139.13:1)	Three	120.0 Nm (88.50 ft - lbs)	0.102
150:1 (149.90:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
169:1 (168.84:1)	Three	120.0 Nm (88.50 ft - lbs)	0.089
181:1 (181.24:1)	Three	120.0 Nm (88.50 ft - lbs)	0.088
195:1 (195.26:1)	Three	120.0 Nm (88.50 ft - lbs)	0.089
236:1 (236.09:1)	Three	120.0 Nm (88.50 ft - lbs)	0.089
308:1 (307.54:1)	Three	120.0 Nm (88.50 ft - lbs)	0.089

81 mm Technical Data

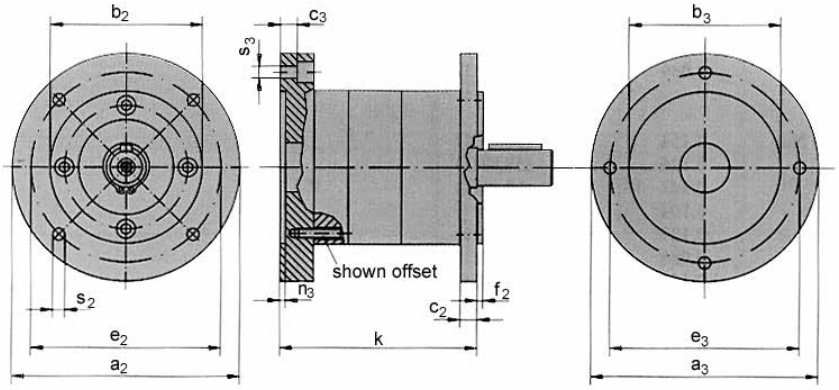
Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	80	75	70
Approx. Backlash (no-load, input locked)	DMS°	1.0	1.5	2.0
Radial Load	N	400	600	1000
Axial Load	N	80	120	200
Max Permitted Fitting Pressure	N	1500	1500	1500
Weight	kg	1.8	2.5	3.2
Dimension (diameter x length)	mm	81 x 126	81 x 148	81 x 170
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +80° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

Basic Version



Standard Flange Version



Gear Unit Length P81 / SP81		1-Stage	2-Stage	3-Stage
P		77	99	121
K		104	125	147

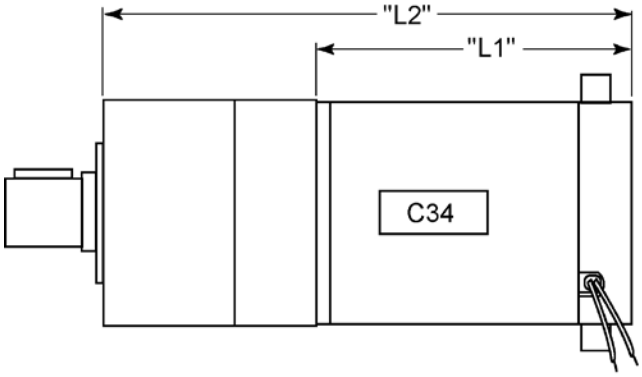
DIM of Motor Mounting Flange		a_3	b_3	c_3	e_3	n_3	s_3
Motor size 56	C 80	81	50 H7	9	65	3.0	5.3
(B14, B3/B14)	C 105	105	70 H7	9	85	3.0	6.3
Motor size 63	C 90	90	60 H7	9	75	3.0	5.3
(B14, B3/B14)	C 120	120	80 H7	9	100	3.5	6.3

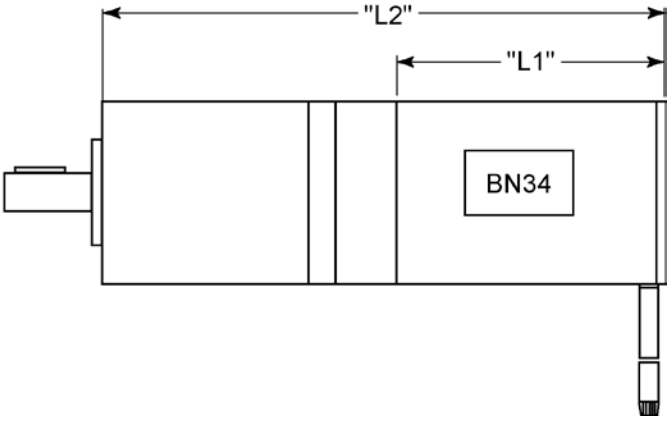
DIM of Gear Unit Output Flange	a_2	b_2	c_2	e_2	f_2	s_2
C 90	90	60 J7	9	75	2.5	M5
C 105	105	70 J7	9	85	2.5	M6
C 120	120	80 J7	9	100	3.0	6.5

We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

81 mm Dimensional Drawings





Motor + Gearhead Dimensions*

Unit Type	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C34-L60	6.00 in (152.4 mm)	9.781 in (248.4 mm)	10.647 in (270.4 mm)	11.514 in (292.5 mm)
C34-L70	7.00 in (177.8 mm)	10.781 in (273.8 mm)	11.647 in (295.8 mm)	12.514 in (317.9 mm)
C34-L80	8.00 in (203.2 mm)	11.781 in (299.2 mm)	12.647 in (321.2 mm)	13.514 in (343.3 mm)
BN34-25	2.50 in (63.5 mm)	6.281 in (159.5 mm)	7.147 in (181.5 mm)	8.014 in (203.6 mm)
BN34-35	3.50 in (88.9 mm)	7.281 in (184.9 mm)	8.147 in (213.8 mm)	9.014 in (229 mm)
BN34-45	4.50 in (114.3 mm)	8.281 in (210.3 mm)	9.147 in (232.3 mm)	10.014 in (254.4 mm)
BN34-55	5.50 in (139.7 mm)	9.281 in (235.7 mm)	10.147 in (257.7mm)	11.014 in (279.8 mm)

All dimensions are reference dimensions

Ordering Information - Examples

81-46:1 – 81 mm gearhead, 46:1 ratio
81-308:1 – 81 mm gearhead, 308:1 ratio

120 MM (4.72 INCH) DIAMETER SPECIFICATIONS

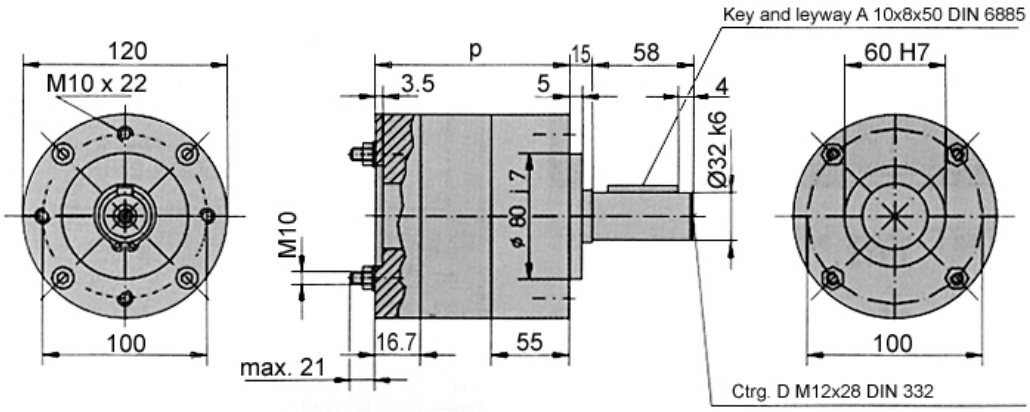
Available Ratios	# of Stages	Output Torque	Shaft Inertia (gcm^2)
4:1 (3.70:1)	One	50.0 Nm (36.88 ft - lbs)	1.112
7:1 (6.75:1)	One	50.0 Nm (36.88 ft - lbs)	0.557
14:1 (13.73:1)	Two	150.0 Nm (110.6 ft - lbs)	0.997
25:1 (25.01:1)	Two	150.0 Nm (110.6 ft - lbs)	0.515
46:1 (45.56:1)	Two	150.0 Nm (110.6 ft - lbs)	0.520
51:1 (50.89:1)	Three	300.0 Nm (221.3 ft - lbs)	0.967
93:1 (92.70:1)	Three	300.0 Nm (221.3 ft - lbs)	0.513
169:1 (168.84:1)	Three	300.0 Nm (221.3 ft - lbs)	0.519
308:1 (307.54:1)	Three	300.0 Nm (221.3 ft - lbs)	0.519

120 mm Technical Data

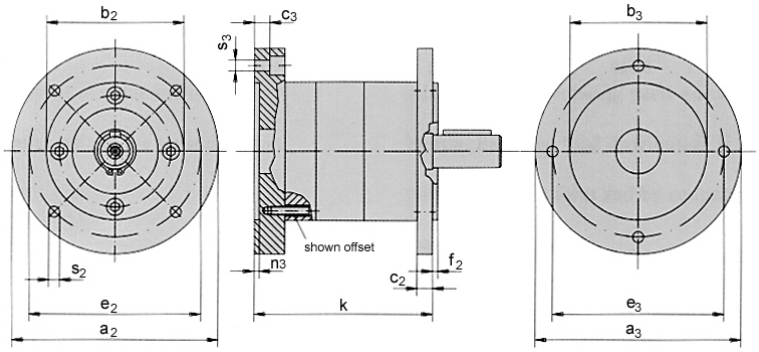
Parameter	Units	1-Stage	2-Stage	3-Stage
Max Input Speed	rpm	5000	5000	5000
Efficiency	%	80	75	70
Approx. Backlash (no-load, input locked)	DMS°	1.0	1.5	2.0
Radial Load	N	600	900	1500
Axial Load	N	120	180	300
Max Permitted Fitting Pressure	N	2500	2500	2500
Weight	kg	5.6	8.0	10.4
Dimension (diameter x length)	mm	120 x 180	120 x 214	120 x 248
Lubrication	Grease (life-time lubrication)			
Installation Attitude	Any			
Operating Temperature	-15 to +80° C			
Direction of Rotation	Same for input and output shaft			

Package Dimensions

Basic Version



Standard Flange Version



Gear Unit Length		1-Stage	2-Stage	3-Stage
P		107	141	175
Motor size 71 K		150	184	218
Motor size 80 K		160	194	228

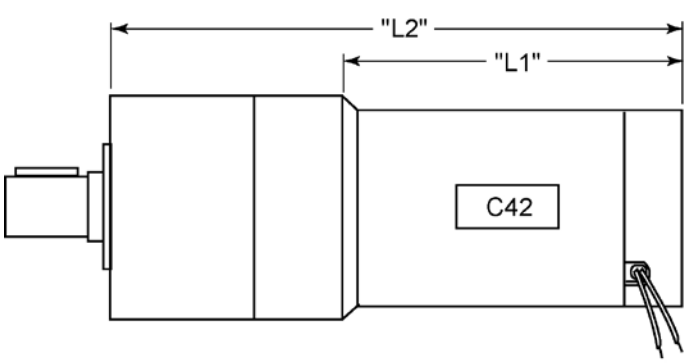
DIM of Motor Mounting Flange		a_3	b_3	c_3	e_3	n_3	s_3
Motor size 71	C 105	120	70 H7	15	85	3.0	6.4
(B14, B3/B14)	C 140	140	95 H7	15	115	3.5	8.4
Motor size 80	C 120	120	80 H7	15	100	3.5	6.4
(B14, B3/B14)	C 160	160	110 H7	15	130	4.0	8.4

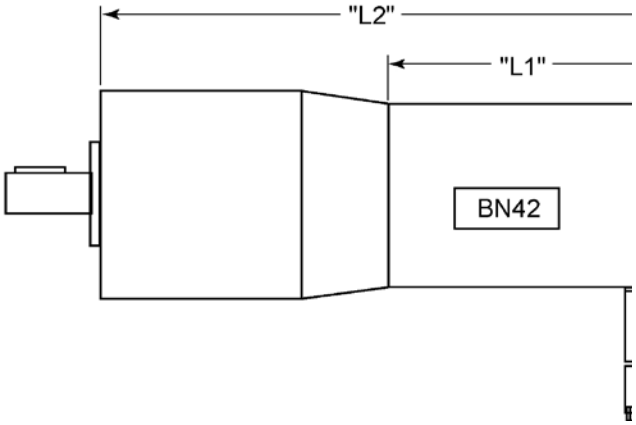
DIM of Gear Unit Output Flange	a_2	b_2	c_2	e_2	f_2	s_2
C 140	140	95 J7	15	115	3.0	M8
C 160	160	110 J7	15	130	3.5	M8

We reserve the right to make technical changes.

Note: All dimension on this page are in millimeters.

120 mm Dimensional Drawings





*Motor + Gearhead Dimensions**

Unit Type	L1 Max	L2 Max (1-Stage)	L2 Max (2-Stage)	L2 Max (3-Stage)
C42-L50	5.00 in (127 mm)	10.213 in (259.4 mm)	11.551 in (293.4 mm)	12.890 in (327.4 mm)
C42-L70	7.00 in (177.8 mm)	12.213 in (310.2 mm)	13.551 in (344.2 mm)	14.890 in (378.2 mm)
C42-L90	9.00 in (228.6 mm)	14.213 in (361 mm)	15.551 in (395 mm)	16.890 in (429 mm)
BN42-23	2.30 in (63.5 mm)	7.513 in (190.8 mm)	8.851 in (224.8 mm)	10.190 in (258.8 mm)
BN42-33	3.30 in (88.9 mm)	8.513 in (216.2 mm)	9.851 in (250.2 mm)	11.190 in (284.2 mm)
BN42-43	4.30 in (114.3 mm)	9.513 in (241.6 mm)	10.851 in (275.6 mm)	12.190 in (309.6 mm)
BN42-53	5.30 in (134.6 mm)	10.513 in (267 mm)	11.851 in (301 mm)	13.190 in (335 mm)

**All dimensions are reference dimensions*

Ordering Information - Examples

120-46:1 – 120 mm gearhead, 46:1 ratio
120-308:1 – 120 mm gearhead, 308:1 ratio