

# NEMA Spur Gearheads

## NE Series NEMA Spur Gearheads

Parker's NEMA gearheads feature a high-efficiency spur-gear design, in a light, compact package. Designed to mount directly to the face of NEMA face stepper and servo motors, NEMA gearheads are ideal for applications requiring low weight and low starting torque.

- Ratios from 3:1 to 100:1
- Lightweight, aluminum housing and spur gearing
- Compact, short overall length and direct mounting to NEMA 23, 34 and 42 frame size motors
- Low friction, low running torque, ideal for stepper motors



Product Series	Gear Geometry	Configuration	Frame Size	Continuous Torque (Nm)	Ratios	Backlash arc-min	IP Rating
NE	Spur	In-Line	NEMA 23, 34, 42	50 – 350	3, 5, 8, 10, 15, 20, 30, 50, 100	10 – 30	IP54

### Direct Mount to NEMA Frame Motors

Gearheads attach directly to motors with NEMA mounting dimensions (see tables on following pages.) Parker's clamp-on-pinion and mounting hardware are included with gearheads, so your motor can be up and running in a matter of minutes.

### Adapter Mount to Non-NEMA Frame Motors

For motors with non-NEMA dimensions, Parker supplies a mounting kit including a clamp-on-pinion, adapter plate and all necessary hardware. When



ordering, simply provide the part number or outline drawing of your motor, and the gearhead will be shipped ready to mount.

## Performance Specifications

		Frame Size			
	Units	Ratio	NE23	NE34	NE42
<b>Nominal Output Torque</b> $T_{nom r}$	Nm (in-lb)	3	2 (16)	7 (64)	14 (123)
		5	3 (27)	12 (107)	23 (205)
		8-10	5 (40)	16 (142)	28 (250)
		15	5 (46)	19 (170)	34 (300)
		20 – 100	6 (50)	20 (180)	40 (350)
<b>Max. Acceleration Output Torque</b> $T_{acc r}$	Nm (in-lb)	3	3 (24)	11 (95)	21 (185)
		5	5 (40)	18 (160)	35 (307)
		8 – 10	7 (60)	24 (210)	42 (375)
		15	8 (70)	29 (255)	51 (450)
		20 – 100	9 (75)	31 (270)	59 (525)
<b>Nominal Input Speed</b> $N_{nom r}$	RPM	All	4000	4000	4000
<b>Max. Input Speed</b> $N_{max r}$	RPM	All	5500	5000	4500
<b>Standard Backlash</b> <sup>1)</sup>	arc-min	3, 5, 8, 10	30	25	25
		15 – 100	20	20	20
<b>Low Backlash</b> <sup>1)</sup>	arc-min	3, 5, 8, 10	15	15	15
		15 – 100	10	10	10
<b>Efficiency at Nominal Torque</b>	%	All	98%	98%	98%
<b>Moment of Inertia</b>	gm-cm-sec <sup>2</sup> (oz-in-sec <sup>2</sup> )	All	0.0051 (0.00007)	0.0408 (0.0005)	0.306 (0.004)
<b>Maximum Weight</b>	kg (lb)	All	0.5 (1.0)	1.4 (3.0)	3.0 (6.0)
<b>Radial Load</b> <sup>2)</sup>	N (lb)	All	90 (20)	350 (80)	890 (200)
<b>Axial Load</b>	N (lb)	All	45 (10)	135 (30)	265 (60)

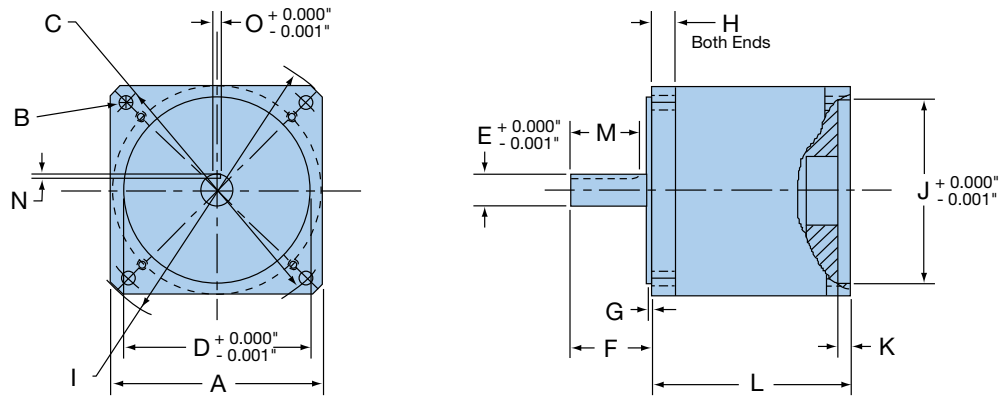
1) Measured at 2% of rated torque

2) Radial loads are measured at 12.7mm (0.5in) from the gearhead mounting surface. These ratings are based on gearhead making more than one revolution on output shaft.

# NEMA Spur Gearheads

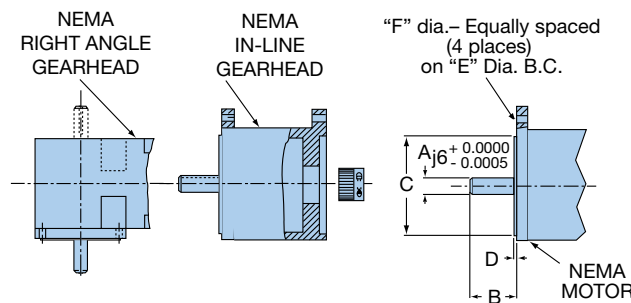
## Dimensions – NE NEMA Spur Gearhead

Free 3D Solid Models and drawings available at [parkermotion.com](http://parkermotion.com)



Frame Size	A		B		C		D		E		F		G		H	
	Square Flange		Bolt Hole		Bolt Circle		Pilot Diameter		Output Shaft Diameter		Output Shaft Length		Pilot Thickness		Flange Thickness	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
NE 23	58	2.27	5.0	0.195	66.7	2.625	38.1	1.500	9.5	0.375	25.4	1.00	1.6	0.062	5	0.19
NE 34	83	3.25	5.5	0.218	98.4	3.875	73.0	2.875	12.7	0.500	31.8	1.25	1.7	0.067	10	0.38
NE 42	107	4.20	7.1	0.281	125.7	4.950	55.5	2.187	15.9	0.625	38.1	1.50	2.4	0.093	13	0.50

Frame Size	I		J		K		L		M		N		O	
	Housing Diameter		Input Pilot Diameter		Input Pilot Depth		Housing Length		Keyway Length (Flat)		Keyway Depth (Flat)		Keyway Width	
	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
NE 23	3.00	76	1.501	38.13	0.125	3.2	2.30	58	0.75	19	0.015	0.4	—	—
NE 34	4.38	111	2.876	73.05	0.200	5.1	3.00	76	1.06	27	0.072	1.8	0.124	3.15
NE 42	5.63	143	2.188	55.58	0.187	4.7	3.75	95	1.13	29	0.108	2.7	0.187	4.75



### NEMA Motor Mounting Dimensions

Dimension	NE23		NE34		NE42		
	mm	in	mm	in	mm	in	
A	Motor Shaft Diameter	6.4	0.250	9.5/12.7	0.375/0.500	15.9	0.625
B	Motor Shaft Length	20.6	0.810	31.8	1.250	35.1	1.380
C	Pilot Diameter	38.1	1.500	73.0	2.875	55.5	2.186
D	Pilot Length	1.6	0.063	1.6	0.063	2.4	0.093
E	Mounting Bolt Circle	66.7	2.625	98.4	3.875	125.7	4.950
F	Bolt Hole Size	5.0	0.195	5.5	0.218	7.1	0.281

# NE Series NEMA Gearheads How to Order

Choose gearhead series, frame size, ratio, backlash and orientation from the chart below.

## Gearhead Ordering Information

<b>Order Example:</b>	①	②	③	④
	NE	34	- 010	- XXX - LB

①	②	③	④
Series	Frame Size	Ratio	Backlash
NE	23 34 42	003, 005, 008, 015, 020, 030, 050, 100	Blank = Standard LB = Low

## Recommended Parker Motor and Mounting Kit

Frame Size	Recommended Servo Motor			Recommended Stepper Motor		
	Motor	Mounting Kit	AD Dimension	Motor	Mounting Kit	AD Dimension
23	BE23	MM23-136	0.78 in	LV23 HV23	MM23-000	No adapter (pinion gear only)
34	BE34	MM34-016	No adapter (pinion gear only)	LV34 HV34	MM34-171	0.65 in

Parker MotionSizer sizing software available for free download at: [www.parkermotion.com](http://www.parkermotion.com)

**Sizing/Selection Design Assistance**

To properly size and select a gearhead for a specific application requires consideration of several interrelated parameters including: speed, continuous torque, repetitive peak torque or acceleration torque, emergency stop torque, duty cycle, ambient temperature and radial and axial shaft load.

The 9 step procedure on pages 72-73 provides a straightforward method of selecting the correct gearhead for your application.