

S-Series Gearboxes

Planetary Gearbox

Manual



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Revision History:

- 1.00: First revision
- 1.01: Updated frame sizes
- 1.02: Added 2-stage information

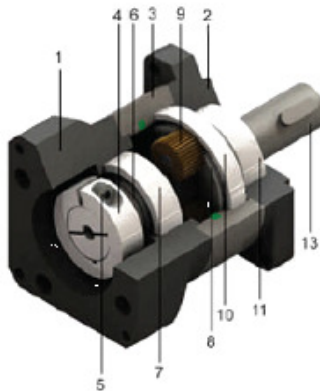
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1. Introduction

Specifications

- True planetary design
 - o Extends gear head and motor life
 - o Reduces noise
 - o Increases transmission efficiency
- NEMA mounting standards for quick installation
- 6 arc-minute backlash
- 5:1, 10:1 and 100:1 options
- Square output flange
- Hardened high strength steel made components
- Grease-filled



- ① ② ● :Hard anodized aluminum alloy made Housings reduce weight and prevent corrosion.
- ③ ● ● :Patented Internal Gear designed for durability and low noise.
- ④ ● ● :Motor Shaft & Gear Box connection with compression coupling, ensuring a slip free and non-wearing power transmission.
- ⑤ ● ● :Lock Bolt for fastening the Motor Shaft.
- ⑥ ● ● :Harden steel made Inlet Bushing with high flexibility by using proven input coupling system.
- ⑦ ⑩ ⑪ :Sealed deep groove ball bearings provide high radial load carrying capacity.
- ⑧ ● ● :Hardened End Plate ensures smooth operation of planet gear unit.
- ⑨ ● ● :Hardened steel gears provide superior wear resistance and increase backlash integrity.
- ⑫ ● ● :Heat resistant mechanical seal prevent leakage.
- ⑬ ● ● :Hardened steel Output Shaft for high torsional rigidity and acceleration torques permitted due to robust design and optimized gearing geometry.

Model Numbers

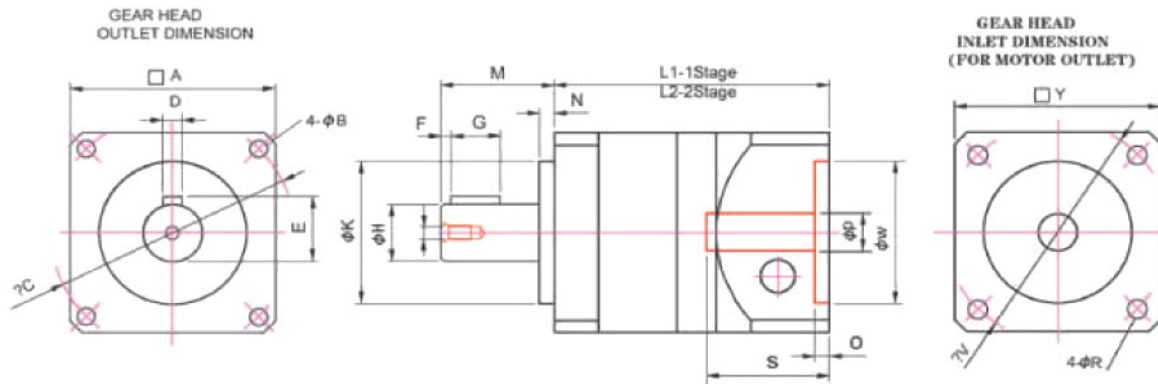
Model	NEMA Compatibility	Ratio	Type
S040-05	NEMA 17	5:1	Planetary Gearbox
S040-10	NEMA 17	10:1	Planetary Gearbox
S040-100	NEMA 17	100:1	Planetary Gearbox
S060-05	NEMA 23/24	5:1	Planetary Gearbox
S060-10	NEMA 23/24	10:1	Planetary Gearbox
S060-100	NEMA 23/24	100:1	Planetary Gearbox
S090-05	NEMA 34	5:1	Planetary Gearbox
S090-10	NEMA 34	10:1	Planetary Gearbox
S090-100	NEMA 34	100:1	Planetary Gearbox

Contacting Support

For technical support contact: support@arcus-technology.com.

Or, contact your local distributor for technical support.

2. Dimensions



Model	A	B	C	D	E	G	H	I	K	L1	L2	M	N
	Square Flange Size	Bolt Hole Diameter	Bolt Circle	Keyway Thickness	Keyway Height	Keyway Length (mm)	Shaft Diameter	Spindle thread	Pilot Diameter	Over Flange Length	Over Flange Length	Output Shaft Length	Pilot Thickness
S040	42	3.2	48	4	13.5	10	12	M3x6	35	56	72	23	3
S060	60	5.0	70	4	15.7	15	14	M5x13	50	78	102	28	3
S090	90	7.0	105	6	22.5	25	20	M6x20	80	95	126	45	5

*All dimensions in mm

3. Specifications

Descriptions	Stages	Ratio	S-040	S-060	S-090
Nominal Output Torque (Nm)	1,2	5	10	16	60
		10	6	12	40
		100	8	18	60
Max Output Torque (Nm)	1,2	5	20	32	120
		10	12	24	80
Nominal Input Speed (RPM)	1,2	5,10,100	4000	4000	3000
Max Input Speed (RPM)	1,2	5,10,100	6000	6000	5000
Input Shaft Moment of Inertia (kg-cm ²)	1,2	5	.02	.09	0.5
		10	.0016	.06	0.4
		100	.02	.08	.045
Maximum Radial Load (N)	1,2	5,10	200	500	1500
		100	300	600	2000
Maximum Axial Load (N)	1,2	5,10	200	500	1500
		100	300	600	2000
Torsional Stiffness (Nm/arc-min)	1,2	5,10,100	.5	1.5	5
Efficiency at Full Load (%)	1,2	5,10	95	95	95
		100	92	92	92
Service Life Average (hr)	1,2	3,10,100	10K	10K	10K
Custom Ratios	1	3-10	X	X	X
	2	12-100	X	X	X
Max Weight (Kg)	1,2	5,10	0.4	1.1	2.9
		100	0.6	1.6	4.1
Backlash (Arc-min)	1,2	5, 10	≤6	≤6	≤6
		100	≤10	≤10	≤10
Noise Level (dB) Distance 1M at 3K RPM Input	1,2	5,10,100	<70	<70	<70
IP Rating	1,2	5,10,100	IP64	IP64	IP64
Operating Temperature (C)	1,2	5,10,100	-20 to +100	-20 to +100	-20 to +100

4. Assembly

- 1) Rotate the collar until the head of the lock bolt is aligned with the access hole



- 2) Insert the supplied allen wrench through the access hole into the head of the lock bolt. This lock bolt should be loose. Don't tighten it yet.



- 3) For easy mounting, position the motor vertically with the shaft pointing upward. Insert the motor shaft into the gear head inlet bushing. Align the motor flange mounting holes on the gear head flange. Motor shaft should be cleaned and dried for best installation.



- 4) Use the 4 socket head screws and lock washers supplied to secure the gear head to the motor



- 5) With the gear head fully seated onto the motor flange, back off the 4 socket head cap screws one complete turn.
- 6) Refer to the torque requirements of the lock bolt below.

Description		S-040	S-060	S-090
Motor Shaft Diameter	inch	<1/2	<5/8	<1
	mm	<12	<16	<25
Lock Bolt Size (mm)		M3	M4	M6
Allen Wrench Size		2.5	3	5
Torque Required (Nm)		2	4.6	9.5

Note: Torques shown above are minimum tightening values. A safety margin of 25% is recommended. Optionally, Loctite can also be applied to the threads of the lock bolts. Use Loctite 242 for screw sizes greater than M6 and Loctite 222MS for screw sizes less than M6.

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