TNR42 Planetary Gearbox

For NEMA17 (42mm) Stepper & 40mm Servo Motors



PRODUCT OVERVIEW

The TNR42 is a compact planetary gearbox designed for precision motion control systems using NEMA17 stepper or 40mm servo motors.
It is available in single-stage (L1) and two-stage (L2) configurations.

KEY FEATURES

- Compatible with NEMA17 (42mm) stepper motors
- Compatible with 40mm servo motors
- 5mm stepper input / 8mm servo input
- Low backlash: ≤8arcmin (L1) / ≤12arcmin (L2)
- 10 ratios from 4:1 to 70:1; IP54 enclosure

TECHNICAL SPECIFICATIONS

Performance ratings and operating parameters

GENERAL SPECIFICATIONS

Parameter	L1 stage	L2 stage
Gearbox length	55mm	66mm
Rated output torque	3-9Nm	5-9Nm
Maximum output torque	6-18Nm	10-18Nm
Efficiency	≥96%	≥94%
Backlash	≤8arcmin	≤12arcmin

SPEED, LOAD & ENVIRONMENT

Parameter	Value
Rated input speed	3000rpm
Maximum input speed	6000rpm
Allowable radial load	300N
Allowable axial load	100N
Operating temperature	-20°C to +90°C
Noise level	55dB
Protection rating	IP54
Service life	20000h
Installation orientation	Any orientation
Lubrication	Permanent / lifetime lubrication

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GEAR RATIOS & OUTPUT TORQUE

Available reduction ratios by gearbox stage

REDUCTION RATIOS

Stage	Available ratios
L1 - Single stage	4:1, 5:1, 7:1, 10:1
L2 - Two stage	20:1, 25:1, 35:1, 40:1, 50:1, 70:1

RATIO-SPECIFIC TORQUE DATA

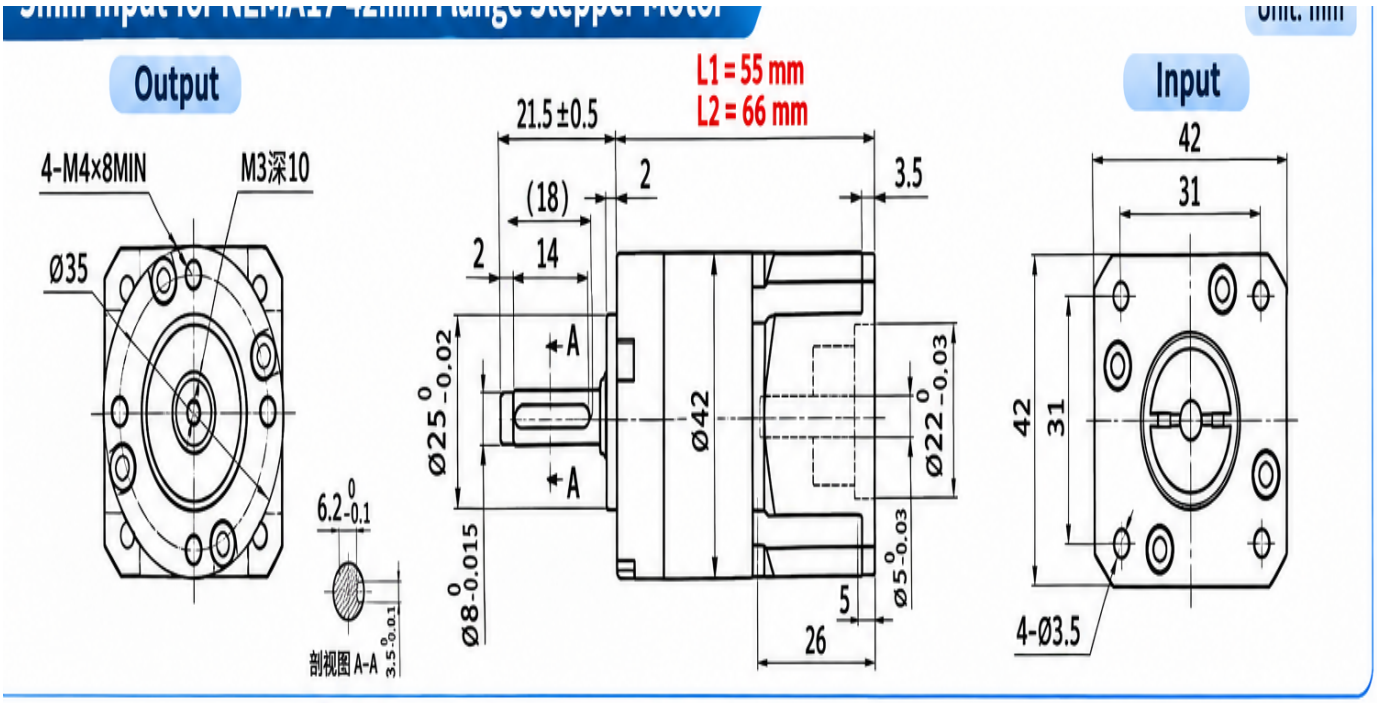
Ratio	Stage	Nominal torque	Fault-stop torque
4:1	L1	10Nm	20Nm
5:1	L1	12Nm	24Nm
7:1	L1	5Nm	10Nm
10:1	L1	5Nm	10Nm
20:1	L2	12Nm	24Nm
25:1	L2	12Nm	24Nm
35:1	L2	12Nm	24Nm
40:1	L2	9Nm	18Nm
50:1	L2	9Nm	18Nm
70:1	L2	5Nm	10Nm

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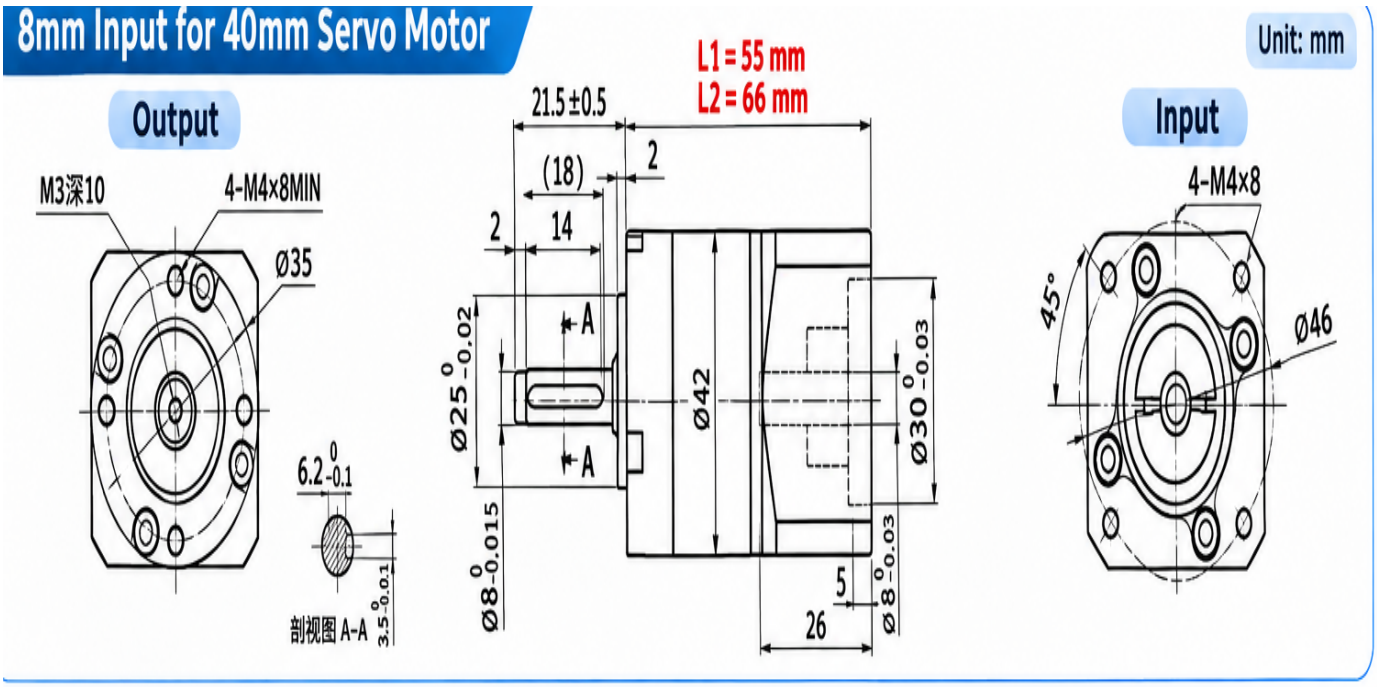
DIMENSIONS & MOTOR INTERFACES

Reference drawings | All dimensions in mm

5mm Input - NEMA17 (42mm) Stepper Motor



8mm Input - 40mm Servo Motor



INSTALLATION & OPERATION

Mounting, startup, inspection and maintenance

BEFORE INSTALLATION

1. Verify the motor type, input shaft diameter, reduction ratio and output connection.
2. Inspect the gearbox, flange, output shaft and mounting holes for damage.
3. Clean mating faces and remove debris from the motor shaft and gearbox input.
4. Verify alignment and secure the motor while supporting its weight.

MOUNTING PROCEDURE

1. Position the gearbox on a clean, stable mounting surface.
2. Align the motor shaft with the gearbox input coupling without forcing the joint.
3. Fasten the motor and gearbox using the applicable mounting-hole pattern.
4. Tighten all mounting fasteners uniformly to the fastener manufacturer’s specification.
5. Connect the driven mechanism and check that the output shaft rotates freely.

INITIAL STARTUP

1. Run the motor at low speed without load and check for smooth rotation.
2. Confirm the commanded output direction and actual gear reduction.
3. Increase speed and load progressively while monitoring vibration and noise.
4. Keep input speed and external shaft loads within the stated ratings.

INSPECTION & CARE

- Check for unusual noise, abnormal vibration, loose fasteners or lubricant leakage.
- Keep mounting surfaces and shaft connections clean.
- The gearbox is permanently lubricated; routine re-lubrication is not required.
- Disconnect drive power before adjusting or inspecting the transmission.