

247 Series Hydraulic Actuators

BENEFITS

High Strength And Durability

- ▶ Single-ended, fatigue-rated actuators with proprietary MTS seal and bearing design for unmatched strength and durability.

Protections During High Velocity Operation

- ▶ Hydraulic cushions help prevent the piston rod from accidentally hitting the end cap during high velocity operation.

Maximum Heat Dissipation During High Frequency Use

- ▶ MTS exclusive direct-bonded polymer bearings reduce friction and ensure maximum heat dissipation during high frequency operation.

Accepts Wide Variety Of Optional Accessories

- ▶ These units are designed to accept a wide variety of options and accessories including force transducers, pedestal bases, swivel rod ends, and swivel bases.

Reduced Friction

- ▶ A reinforced, high-pressure seal provides a positive seal and reduces friction.

MTS Series 247 Hydraulic Actuators are heavy-duty, single-ended, fatigue-resistant, force generating actuators typically used in structural testing applications where a long stroke is required. They feature a proprietary seal and bearing design for unmatched strength and durability.

The Series 247 Hydraulic Actuators include hydraulic cushions to prevent the piston rod from accidentally hitting the end cap during high velocity operation and feature MTS' exclusive direct-bonded polymer bearings to reduce friction and ensure maximum heat dissipation during high frequency operation.

MTS actuators are manufactured to precise tolerances to ensure reliability, long life and complete part interchangeability (within the same model). Each actuator is equipped with a double-acting, single-ended piston rod that features unequal piston areas which allow it to develop higher forces in compression than

in tension. The piston rod is hollow to allow for installation and accurate alignment of a displacement transducer and includes an internal thread to mount load cells, swivels or interface fixtures.

These actuators also feature a low-pressure/wiper seal which ensures the proper flow of fluid through the unit. The inner part of the low-pressure seal wipes hydraulic fluid passed by the high-pressure seal from the piston rod and guides the fluid into the drainback port. The outer part of the low-pressure seal functions as a scraper ring to minimize external contamination of the seals and bearings.

MTS Series 247 Hydraulic Actuators are available in standard tension force ratings from 3.5 kip (15.5 kN) to 56.8 kip (252.7 kN) and compression force ratings from 10.4 kip (46.2 kN) to 88.8 kip (395.0 kN).



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SPECIFICATIONS

Actuator Model	Force Rating ¹ Tension kip/kN	Force Rating ¹ Compression kip/kN	Rod Diameter in/mm	Piston Area Tension in ² /cm ²	Piston Area Compression in ² /cm ²
247.11	3.3 (15.0)	10.4 (46.2)	1.75 (44.5)	1.17 (7.50)	3.60 (23.23)
247.12	5.5 (25.0)	13.0 (57.8)	1.75 (44.5)	2.10 (13.50)	4.49 (28.97)
247.21	11.0 (50.0)	28.4 (126.3)	2.75 (69.9)	3.90 (25.16)	9.82 (63.36)
247.22	22.0 (100.0)	39.1 (174.0)	2.75 (69.9)	7.57 (48.84)	13.49 (87.02)
247.23	35.0 (150.0)	54.0 (240.2)	2.75 (69.9)	12.73 (82.13)	18.64 (120.23)
247.31	55.0 (250.0)	88.8 (395)	3.75 (95.3)	19.63 (126.65)	30.64 (197.68)

Notes:

1. Nominal force achieved with 3000 psi (21 MPa) hydraulic pressure.

OPTIONS

Custom Force Rating

► Actuators are available in custom tension force ratings up to 246 kip (1094.2 kN) and compression force ratings up to 328 kip (1459 kN).

Special Porting

► The standard 247 Actuators can accept servovalves with flow ratings up to 90 gpm (340 l/min). Optional porting can be provided to accommodate flow requirements greater than 90 gpm.

Stroke Lengths

► The standard stroke length is 10 inches (254 mm), but optional stroke lengths for a variety of configurations are also available.

Transducers

► A linear variable differential transformer (LVDT) can be ordered to provide a piston rod displacement feedback signal to the electronics. The LVDT is internally mounted in the hollow piston rod. If your actuator has a longer than average stroke length, then a compatible LVDT option must be ordered.

Pedestal Bases, Swivels, Swivel Rod Ends, Swivel Bases

► Use these accessories to expand your testing capabilities.

Actuator Model	A		B	C	D
	Stroke Length < 30 in	Stroke Length = / > 30 in	Cushion Length	Thread Size	Thread Depth
247.11	9.63 in (244.6 mm)	14.63 in (371.6 mm)	0.6 in (15.2 mm)	1–14 in (M27x2 mm)	1.75 in (44.5 mm)
247.12	9.63 in (244.6 mm)	14.63 in (371.6 mm)	0.6 in (15.2 mm)	1–14 in (M27x2 mm)	1.75 in (44.5 mm)
247.21	10.95 in (278.1 mm)	15.95 in (405.1 mm)	0.4 in (10.2 mm)	1–14 in (M27x2 mm)	1.75 in (44.5 mm)
247.22	10.95 in (278.1 mm)	15.95 in (405.1 mm)	0.3 in (7.6 mm)	1–14 in (M27x2 mm)	1.75 in (44.5 mm)
247.23	10.95 in (278.1 mm)	15.95 in (405.1 mm)	0.25 in (6.4 mm)	1–14 in (M27x2 mm)	1.75 in (44.5 mm)
247.31	11.85 in (301 mm)	16.85 in (428 mm)	0.2 in (5.1 mm)	2–12 in (M36x2 mm)	2.00 in (50.8 mm)

Actuator Model	E	F	G	H	I
	247.11	4.00	4	$\frac{3}{8}$ –16	0.75
247.12	4.00	4	$\frac{3}{8}$ –16	0.75	3.20
247.21	500	8	$\frac{1}{2}$ –13	0.75	4.10
247.22	6.00	8	$\frac{1}{2}$ –13	0.75	4.10
247.23	6.50	8	$\frac{1}{2}$ –13	0.75	4.10
247.31	8.50	8	$\frac{5}{8}$ –11	1.00	5.50

