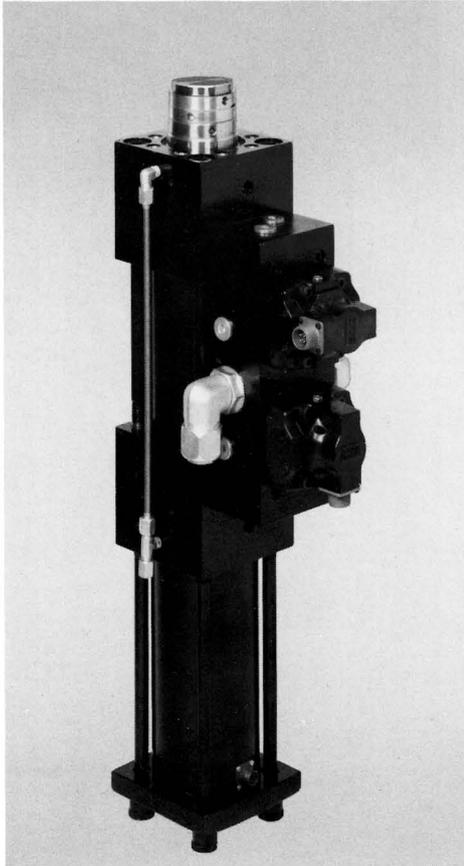


Series 244 and 204 Linear Actuators and Accessories



Typical applications:

- Static testing.
- Cyclic tension-compression fatigue testing.

Series 244 and 204 Linear Actuators are heavy-duty, fatigue-resistant, force-generating actuators that operate under precise servovalve control in MTS closed-loop test systems. They can also be used in systems that require reliable precision force generation or accurate control of piston rod displacement. When equipped with the appropriate options and accessories, these actuators can be configured for testing materials, mechanical structures and components.

Features

All MTS actuators are carefully manufactured to close tolerances to ensure reliability, performance, long life, and complete part interchangeability (within a given actuator model). These features are common to all 244 and 204 actuators.

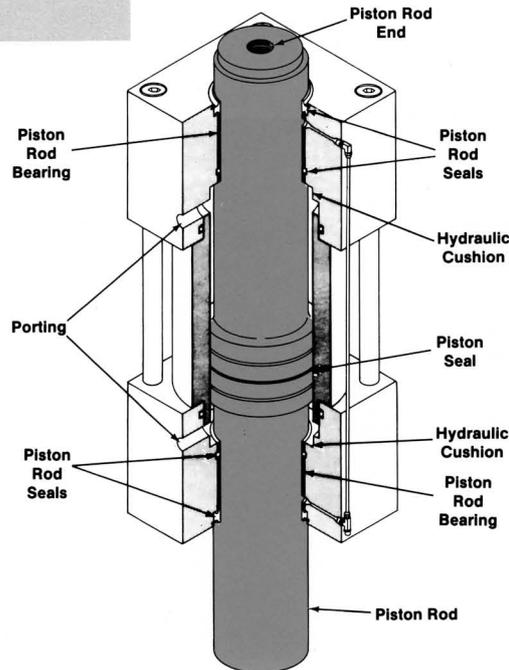
Piston Rod End - Fixture attachment end of rod has a hardened, steel-threaded insert that provides an internal thread for mounting load cells, grips, or swivel bearings. (204.08, 204.09 and 244.51 have no inserts; instead, internal threads are machined directly into piston rod end.)

Porting - Large ports accommodate servovalves with flow ratings up to 90 gpm for high piston rod velocity. Inner oil-distributing channels minimize oil flow restrictions. Higher flow ports are available.

Piston Rod - Large-diameter, doubled-ended piston has equal areas on both sides for balanced performance. Machined from a single piece of heat-treated alloy steel, hard-chrome-plated, and ground to an 8 RMS finish to increase seal and bearing life. Because it's hollow, it's easy to install and permits accurate axial alignment of displacement transducers.

Hydraulic Cushions - Protect actuators from effects of high-speed and high-mass loads. (244.41 and 244.51 are not equipped with hydraulic cushions.)

Piston Seals - Reinforced Teflon piston seal is configured to provide long life and low friction. (For high-speed cyclic testing applications, seal can be omitted.) Grooves on piston ensure adequate lubrication of surface during short-stroke, side-loaded tests. Close tolerance fit provides effective viscous seal (does not apply to 204 actuator).



Piston Rod Bearing - High-capacity nonmetallic bearings are bonded directly to piston rod end caps. Higher side-load tolerance and resistance to failure from galling, seizure, etc. (not standard with 204 actuators).

Piston Rod - High-pressure seal and low-pressure/wiper seal in both front and rear end caps on piston rod.

High-pressure seal made of reinforced Teflon for long life and low friction. Hydraulic fluid leaks past high-pressure seal for continuous bearing lubrication, and is then returned to the system hydraulic power supply via drainback ports.

Low pressure/wiper seal provides two functions: Lower part wipes hydraulic fluid (passed by high-pressure seal) from piston rod and guides fluid into drainback port; Upper part works as a scraper ring to minimize external contamination of seals and bearing.

Internal LVDT - Displacement transducers (LVDT) provide stroke feedback signal to the system electronic

control console. Can be configured with open housing for load frame applications, or closed housing for attaching a swivel or pedestal base. (Most structural or component testing applications use a closed housing to accommodate pedestal or swivel ends.) Servovalve mounting manifold must be included to mount a hydraulic fluid-controlling servovalve to a Series 244 actuator (see "Servovalves"). (Series 204 and 242 actuators don't require mounting manifolds.)

Options

Series 244/204 actuators consist of a basic cylinder assembly to which options can be added to adapt them to a variety of testing requirements and configurations. Standard options are:

- Changing stroke length.
- Changing piston rod length.
- Special porting for flows greater than 90 gpm (340 l/m).

Standard stroke length is 4 inches for Series 204 actuators, and 6 and 10 inches for Series 244 actuators.

Accessories/Series 204

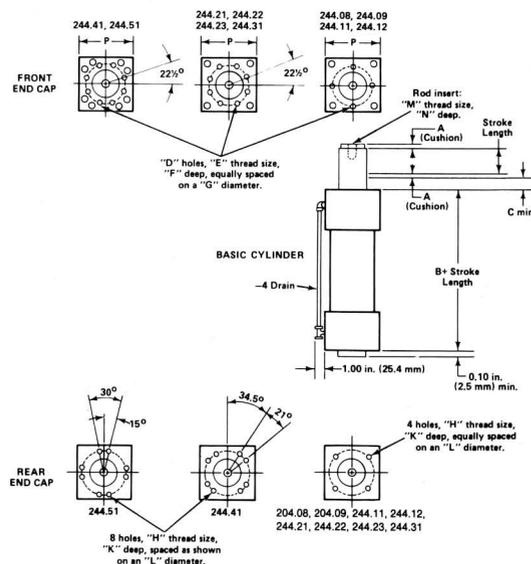
Accessories for the 204 actuator include a pedestal base, and a swivel head and base (same as that used for 242 actuator).

Dimensions of these accessories are included in the 242 Accessories dimension table.

Accessories/Series 244

Once the 244 actuator is configured with a basic cylinder assembly and options, other accessories for actuator or fixture mounting can be added.

Special piston rod end inserts provide compatible internal threads for connecting studs to mount load cells, swivel heads, interface fixtures, etc. Either U.S. customary or SI metric threads are available.



Specifications for Basic Cylinder Assembly 204 and 244 Series

Model Number	Standard Force Rating ^{Note 1}		Stroke Length ^{Note 2}		Rod Diameter		Effective Piston Area		Cushions A		B		C ³		M		N	
	kip	kN	in.	mm	in.	mm	in. ²	cm ²	in.	mm	in.	mm	in.	mm	U.S. Cust.	SI Metric	in.	mm
204.08	1.1	5	4	101.6	1.125	28.58	0.40	2.58	0.25	6.35	5.275	133.98	1.72	43.69	1/2 - 20	Note 4	Note 4	Note 4
204.09	2.2	10	4	101.6	1.125	28.58	0.78	5.03	0.25	6.35	5.275	133.98	1.72	43.69	1/2 - 20	Note 4	Note 4	Note 4
244.11	3.3	15	6, 10	152.4	1.75	44.45	1.17	7.50	0.60	15.24	9.38	238.25	1.00	25.4	1/2 - 20	M12 x 1.25 mm	1.75	44.45
244.12	5.5	25	6, 10	152.4	1.75	44.45	2.10	13.50	0.60	15.24	9.38	238.25	1.00	25.4	1/2 - 20	M12 x 1.25 mm	1.75	44.45
244.21	11	50	6, 10	152.4	2.75	69.85	3.90	25.16	0.40	10.16	9.7	246.38	1.00	25.4	1 - 14	M27 x 2 mm	2.25	57.15
244.22	22	100	6, 10	152.4	2.75	69.85	7.57	48.84	0.30	7.62	9.2	233.68	1.00	25.4	1 - 14	M27 x 2 mm	2.25	57.15
244.23	35	150	6, 10	152.4	2.75	69.85	12.73	82.13	0.25	6.35	9.2	233.68	1.00	25.4	1 - 14	M27 x 2 mm	2.25	57.15
244.31	55	250	6, 10	152.4	3.75	95.25	19.63	128.65	0.20	5.08	10.10	256.54	1.00	25.4	1 1/2 - 12	M36 x 2 mm	2.75	69.85
244.41	110	500	6, 10	152.4	5.25	133.35	38.48	248.28	None	None	12.27	316.58	1.12	28.4	2 - 12	M52 x 2 mm	2.75	69.85
244.51	220	1000	6, 10	152.4	6.00	152.40	75.60	487.70	None	None	13.49	342.6	1.50	38.1	3 - 12	M76 x 2 mm	4.50	114.3

¹ Nominal force achieved with 21.0 MPa (3000 psi) hydraulic pressure.
² Stroke length does not include actuator cushions (specification A).
³ This specification applies to standard length piston rod fully retracted.
⁴ 204 series do not have thread inserts; standard thread size is U.S. Custom 1/2-20.