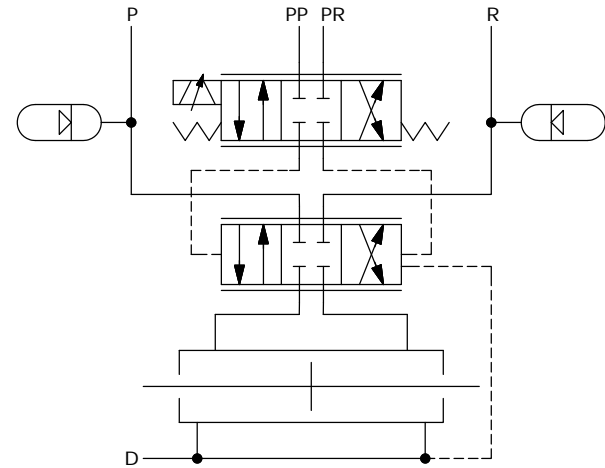
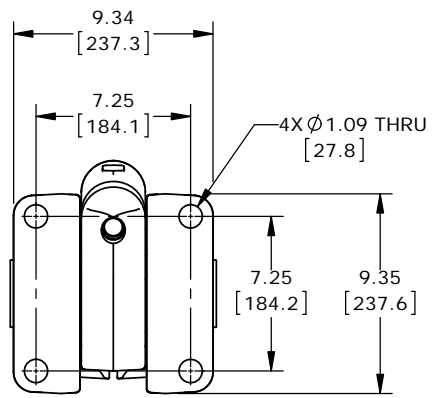
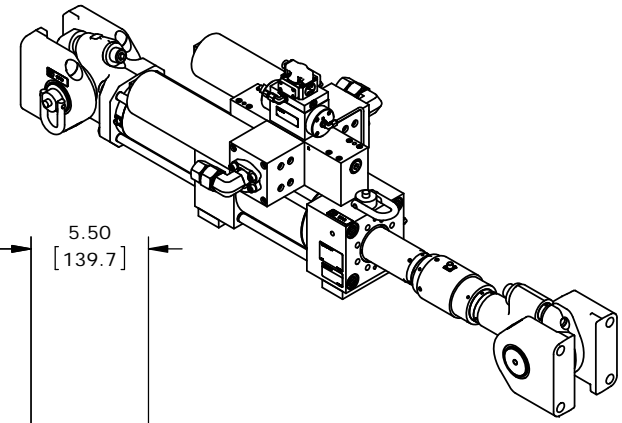
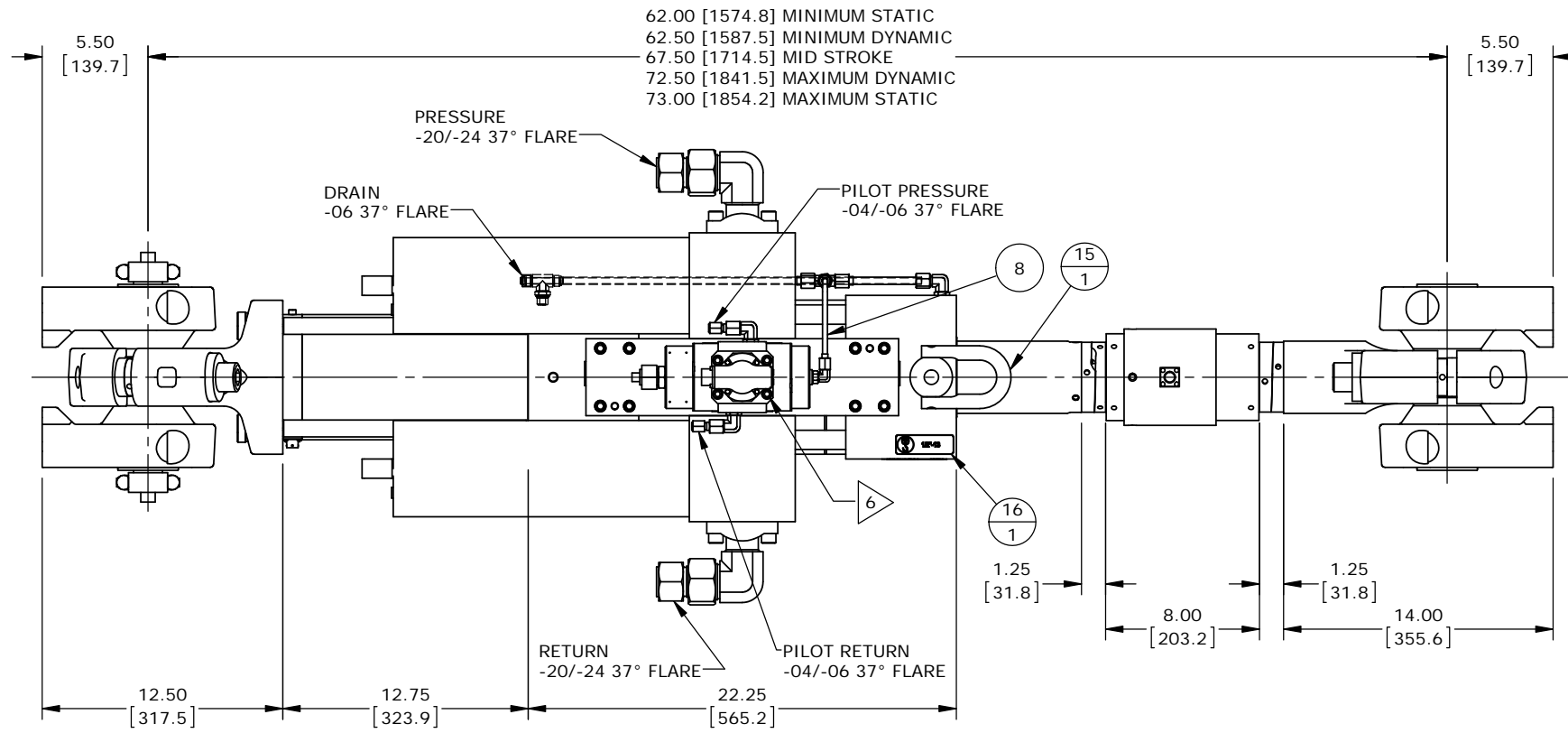


SPECIFICATIONS

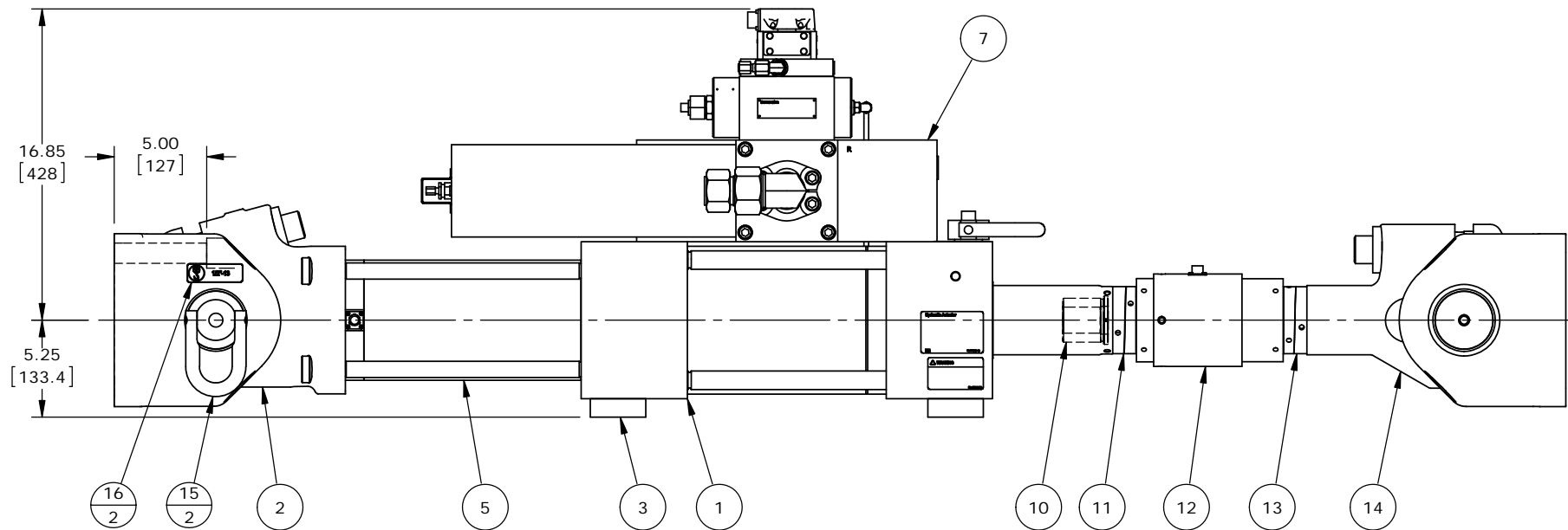
MODEL NUMBER: 244.31S
 PRESSURE RATING: 3000psi [207bar]
 FORCE RATING: 55kip [250kN]
 PISTON AREA: 19.63in² [126.7cm²]
 ROD DIAMETER: 3.75 [95.3]
 DYNAMIC STROKE: 10.00 [254.0]
 STATIC STROKE: 11.00 [279.4]
 CUSHION LENGTH: 0.50 [12.7] BOTH ENDS
 SERVOVALVE FLOW: 90gpm [341L/min]
 ESTIMATED WEIGHT: 1000lb [454kg]



HYDRAULIC SCHEMATIC



SWIVEL MOUNTING PATTERN
TYPICAL BOTH ENDS



NOTES:

- REVIEW ALL SUB-ASSEMBLY DOCUMENTS FOR ADDITIONAL INSTRUCTIONS, TORQUE VALUES, AND TEST PROCEDURES.
- ALL DIMENSIONS ARE FOR REFERENCE ONLY.
- UNITS ARE "INCHES [MILLIMETERS]" UNLESS OTHERWISE SPECIFIED.
- TORQUE ALL FASTENERS PER MTS DOCUMENT 700-005-727 TO VALUES PER MTS DOCUMENT 700-005-602.
- TORQUE ALL FITTINGS PER MTS DOCUMENT 700-005-727 TO VALUES PER MTS DOCUMENT 700-006-723.
- LUBE AND TORQUE 5/16-18 TO 19 LB-FT [26 N-m].

REVISIONS

DESCRIPTION			LETTER	ECN NO
DRAWN	ENGR	DATE		

SOURCE/REF DRAWING -
PROPRIETARY DATA
 THE INFORMATION AND DESIGN(S) DISCLOSED HEREIN ARE CONFIDENTIAL AND THE PROPERTY OF MTS SYSTEMS CORPORATION AND MAY NOT BE USED, REPRODUCED OR DISCLOSED IN ANY FORM EXCEPT AS GRANTED IN WRITING BY MTS SYSTEMS CORPORATION. THIS RESTRICTION EXCLUDES INFORMATION THAT IS IN THE PUBLIC DOMAIN OR WAS LEGITIMATELY IN THE PRIOR POSSESSION OF THE RECIPIENT.

UNLESS OTHERWISE SPECIFIED				
MATERIAL DESCRIPTION SEE BOM	XXX HOLE SIZE TOLERANCE		DRAWN CDB	CHECK -
MATERIAL SIZE ----	0.000 TO .750 +.010/-.002	OVER .750 TO 1.500 +.015/-.003	DATE 10-27-14	ENGR FRM
FINISH ----	MASK X/Y	ANGLE ±2° ±1/4	TITLE ACT ASSY-244.31, 2502MM, 256.09 RBA CE	MFG -
• THREAD DEPTHS ARE TO MIN FULL THDS • DRILL DEPTHS ARE TO FULL DIA • REMOVE BURRS AND SHARP EDGES • DO NOT SCALE PRINT	SCALE NONE	GENERAL TOLERANCES MACHINED SURFACES 180V	NEXT LEVEL ----	DATE 10-14
MTS MTS SYSTEMS CORPORATION EDEN PRAIRIE, MINNESOTA U.S.A. ○	THIRD ANGLE PROJ	PRODUCT CODE 244.31	SIZE D	NUMBER 100-300-488
			REV A	SHEET 1 OF 1

Model 244 Hydraulic Actuators

Series 244 Hydraulic Actuators are our most popular linear, high performance actuator for servohydraulic control applications. This actuator is fatigue rated and designed for years of trouble free operation. MTS engineers use proprietary materials and processes to minimize friction while maximizing reliability and wear resistance.



Typical Applications

- Highly dynamic fatigue testing of components.
- Structural fatigue tests.
- Vehicle durability tests.

Standard Features

- Fatigue rated design for years of reliable service in demanding applications.
- Double ended, one piece piston-rod design combines balanced dynamic performance with higher side-loading capacity.
- PTFE high pressure seals are used for low friction and exceptional life in high frequency, small displacement applications. A low pressure wiper provides a secondary seal and minimizes contamination of the bearing and seals by scraping the rod.
- Bonded polymer bearings resist rod and bearing wear during high velocity operation.
- Internal LVDT provides the displacement signal for position feedback in a closed loop servocontrol application.

- Hydraulic cushions protect the end caps during full stroke, high velocity operation.

244 Actuator Options

Stroke Lengths – The 244 Actuator is available in standard stroke lengths of 150mm (6 in.) and 250mm (10 in.). Other non-standard strokes are also available.

Mounting – The 244 Actuator is most commonly configured with the optional 249 Swivel Base (see actuator accessory section).

The 244 can also be configured with a pedestal base for rigid mounting to a frame or reaction floor. It is important to determine the possible effects of side loading of the actuator when using this mounting option.

Other non-standard options include:

- Hydrostatic bearings for continuous high speed operation with high side load conditions.
- Trunnion and gimbal mounting fixtures for applications requiring a restricted range of motion.

244 Actuator Specifications

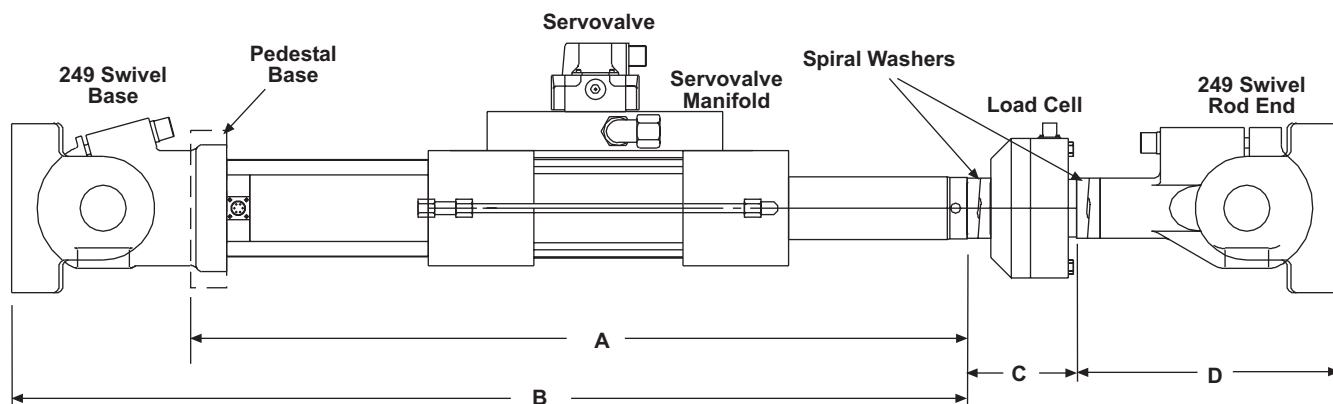
Model	Force Rating		Stroke		Rod Threads		Hydraulic Connection
	KN	lbs	mm	inches	Metric	English	
244.11	15	3,300	150 250	6 10	M12x1.25	1/2"-20	Pressure & Return – Pressure and return line connections depend on the servovalve. Configurations with Series 252 Servovalve Manifolds have SAE -16 fittings. Series 256 Servovalve Manifolds have SAE -20 fittings. Drain – All 244 Actuators have a SAE -6 drain connection.
244.12	25	5,500	150 250	6 10	M12x1.25	1/2"-20	
244.21	50	11,000	150 250	6 10	M27x2	1"-14	
244.22	100	22,000	150 250	6 10	M27x2	1"-14	
244.23	150	35,000	150 250	6 10	M27x2	1"-14	
244.31	250	55,000	150 250	6 10	M36x2	1 1/2"-12	
244.41	500	110,000	150 250	6 10	M52x2	2"-12	
244.51	1000	220,000	150 250	6 10	M76x2	3"-12	

Specifications subject to change without notice. Please contact MTS for specifications critical to your application.

Model 244 Hydraulic Actuators

Typical Configurations for Component or Structural Testing Applications

Model	Servo valve	Load Cell	Swivel	Spiral Washers
244.11	252.2X (qty 1 or 2), 252.3X (qty 1)	661.19E/F-03	249.12	Optional
244.12	252.2X (qty 1 or 2), 252.3X (qty 1)	661.19E/F-04	249.12	Optional
244.21	252.2X (qty 1 or 2), 252.3X (qty 1)	661.20E/F-02	249.20	Optional
244.22	252.2X (qty 1 or 2), 252.3X (qty 1)	661.20E/F-03	249.23	601.11-11
244.23	252.2X (qty 1 or 2), 252.3X (qty 1)	661.22C/D-01	249.23	601.11-11
244.31	252.2X (qty 1 or 2), 252.3X (qty 1), 256 (qty 1)	661.22C/D-01	249.32	601.11-19
244.41	252.2X (qty 1 or 2), 252.3X (qty 1), 256 (qty 1)	661.23E/F-01	249.41	601.11-13
244.51	252.2X (qty 1 or 2), 252.3X (qty 1), 256 (qty 1)	661.31E/F-01	249.51	601.11-15



244 Actuator Assembly Dimensions

Model	Stroke		Length with Pedestal Base **(A)		Length with Swivel Base **(B)		Load Cell *** (C)		Rod End Swivel *** (D)	
	mm	in	mm	in	mm	in	mm	in	mm	in
244.11	150	6	779	30.66	868	34.16	66.5	2.62	120.7	4.75
	250	10	1033	40.66	1122	44.16	66.5	2.62	120.7	4.75
244.12	150	6	779	30.66	868	34.16	66.5	2.62	120.7	4.75
	250	10	1033	40.66	1122	44.16	66.5	2.62	120.7	4.75
244.21	150	6	777	30.61	914	35.98	95.3	3.75	196.9	7.75
	250	10	1031	40.61	1168	45.98	95.3	3.75	196.9	7.75
244.22	150	6	762	30.00	956	37.64	121.9	4.8	289.6	11.4
	250	10	1016	40.00	1210	47.64	121.9	4.8	289.6	11.4
244.23	150	6	761	29.96	955	37.59	229.4	9.03	289.6	11.4
	250	10	1015	39.96	1209	47.59	229.4	9.03	289.6	11.4
244.31	150	6	791	31.16	1045	41.16	235.0	9.25	387.4	15.25
	250	10	1045	41.16	1299	51.16	235.0	9.25	387.4	15.25
244.41	150	6	834	32.85	1177	46.35	235.0	9.25	504.7	19.87
	250	10	1088	42.85	1431	56.35	235.0	9.25	504.7	19.87
244.51	150	6	936	36.87	1406	55.37	350.5	13.8	699.8	27.55
	250	10	1190	46.87	1660	65.37	350.5	13.8	699.8	27.55

** Dimensions are lengths with the actuator positioned at mid-stroke.

*** Dimension includes spiral pre-load washers for actuators 100kN and larger.

Specifications subject to change without notice. Please contact MTS for specifications critical to your application.

Model 244 Hydraulic Actuators

244 Actuator Order Information

A complete servo-actuator assembly includes the actuator, servovalve, load cell, and swivels. The load cell and rod end swivel require attachment kits for connecting these components to the actuator. Servovalves, load cells, rod end swivels, and attachment kits for an actuator assembly are selected separately from other section of the catalog.

See [MTS Model 244 Product Specification](#) number 100-016-993 for more information.

244 Actuator

Capacity

- 244.11 15kN (3,300 lbs)
- 244.12 25 kN (5,500 lbs)
- 244.21 50 kN (11,000 lbs)
- 244.22 100 kN (22,000 lbs)
- 244.23 150 kN (35,000 lbs)
- 244.31 250 kN (55,000 lbs)
- 244.41 500 kN (110,000 lbs)
- 244.51 1000 kN (220,000 lbs)

Displacement

- 150 mm (6 in)
- 250 mm (10 in)
- 500 mm (20 in)

Rod Thread

- English
- Metric

Base

- 249 Swivel Base (Does not include the 249 Rod End Swivel)
- Pedestal Base

Servovalve Manifold

- 252.2X Two Stage Servovalve Manifold (Does not include the valve)
- 252.3X Two Stage Servovalve Manifold (Does not include the valve)
- 256.0X Three Stage Servovalve Manifold (Does not include the valve)