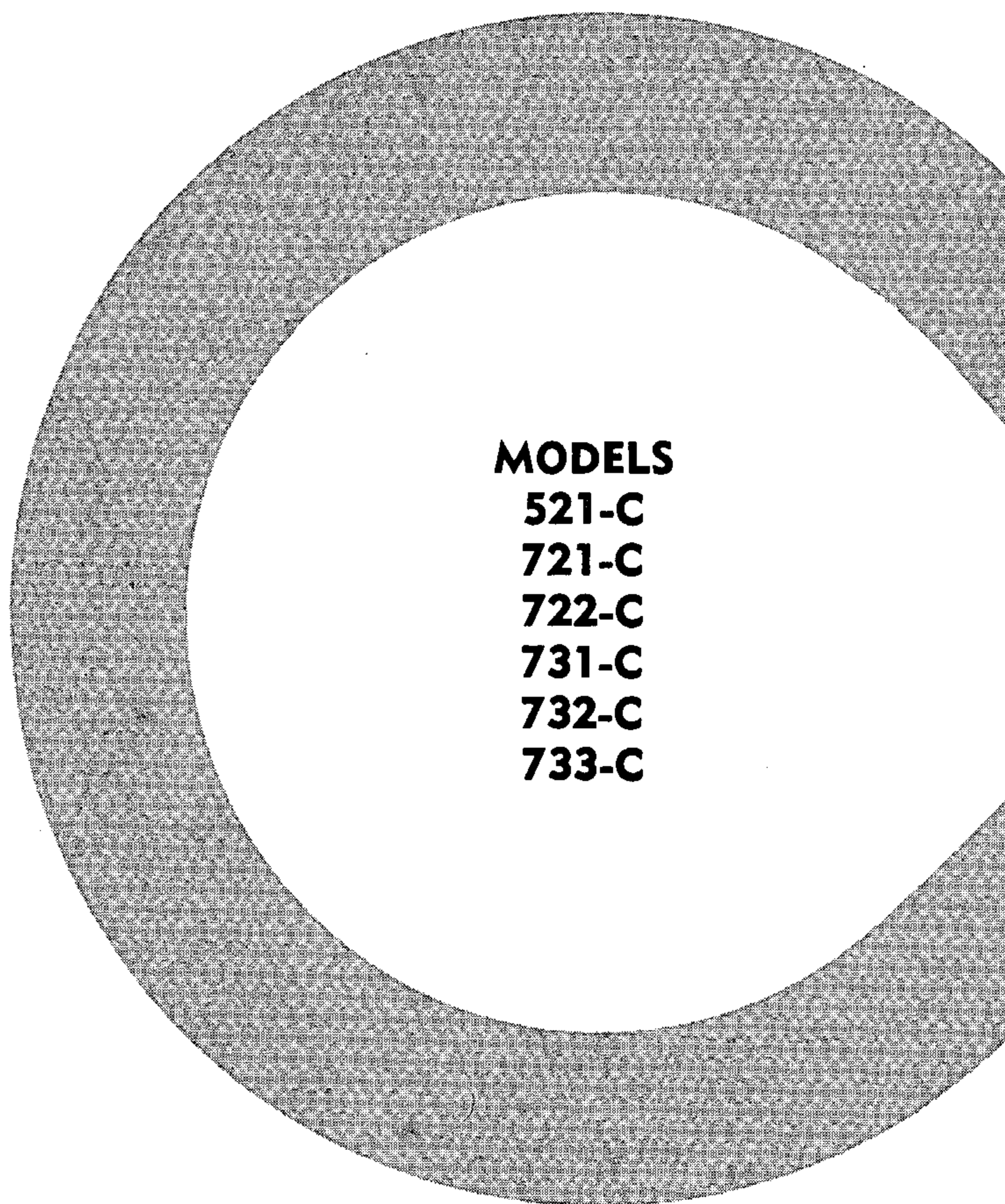


# **BETTIS**

## **ROTARY VALVE ACTUATORS**

**MODEL "C"**  
**DOUBLE ACTING**





Bettis Corporation continues to set the pace as the leader in the field of pneumatic and hydraulic rotary valve actuators. The key to Bettis' success is dedicated research and development where existing products are constantly updated . . . engineering concepts are explored . . . designs are innovated . . . to meet the rapidly changing and expanding requirements of the Industries which Bettis is proud to serve.

The Model "C" Actuators described in this bulletin are dimensionally identical to the "B" Models which they replace. However, the use of higher strength materials for internal parts permits the extension of torque values shown in the table on page 6.

THE MOUNTING DIMENSIONS OF THE "C"  
MODELS ARE IDENTICAL TO THE "B" MODELS

**CONSTRUCTION:** Bettis Actuators are designed to standards to give maximum assurance of dependable performance under the most demanding operating conditions.

**BODY:** One piece integral construction minimizes the possibility of bearing misalignment and eliminates possible leakage if lubricant is used. Dis-Assembly and assembly is simplified when servicing is required.

**PISTON RODS:** Are ground, polished alloy steel dry film lubricated. Rods are oversized to minimize deflection resulting in higher operating efficiencies.

**BEARINGS:** Are oversized bronze as standard. Ductile iron bushings are available if service conditions preclude the use of aluminum or bronze.

**YOKE PIN & YOKE PIN ROLLERS:** Are hard surfaced, hi-strength material.

**FASTENERS:** All internal load carrying cap screws are heat treated alloy steel.

**PERMANENT LUBRICATION:** All bearing surfaces, including piston rods, rollers, yoke, and yoke pin are dry film lubricated with a heat cured molybdenum disulfide and resin system. The cylinder wall is also coated with molybdenum disulfide to minimize friction, extend seal life, and to provide resistance to corrosion. Under most operating conditions the dry film lubricant is all that is required. But, if . . .

**OIL BATH LUBRICATION:** Is preferred, Model "C" Actuators are equipped with improved double yoke seals that will more effectively retain the lubricant in the body cavity. Additional cover and cap screw seals are required when the actuator is installed in either a vertical or inverted position. These positions must be specified when ordering.

**TORQUE, PRESSURE AND TEMPERATURE RANGES:** Standard Bettis Actuators described in this brochure have an operating pressure range from 40 psi to 250 psi depending on the model. The static pressure limitation is up to twice the working pressure or 300 psig, whichever is less.

Standard units may be operated in ambient temperatures ranging from -20°F to +200°F. Special trims are available for temperatures beyond these limits. Special trims are also available for hostile environments.

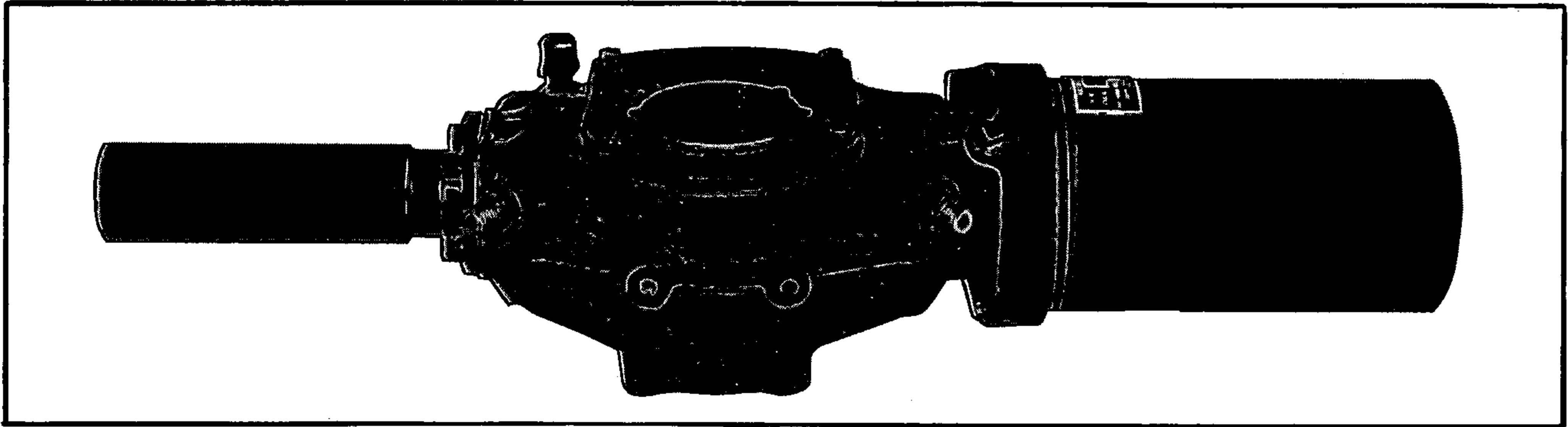
**MANUAL OPERATORS FOR "C" MODEL ACTUATORS**

MODEL NUMBER	WRENCH	JACK SCREW	SPUR GEAR	SSM3 BALL SCREW	HYDRAULIC
521-C	X	X	X		
721-C	X	X	X		
722-C	X	X	X		X
731-C	X	X		X	
732-C	X	X		X	X
733-C	X	X		X	X

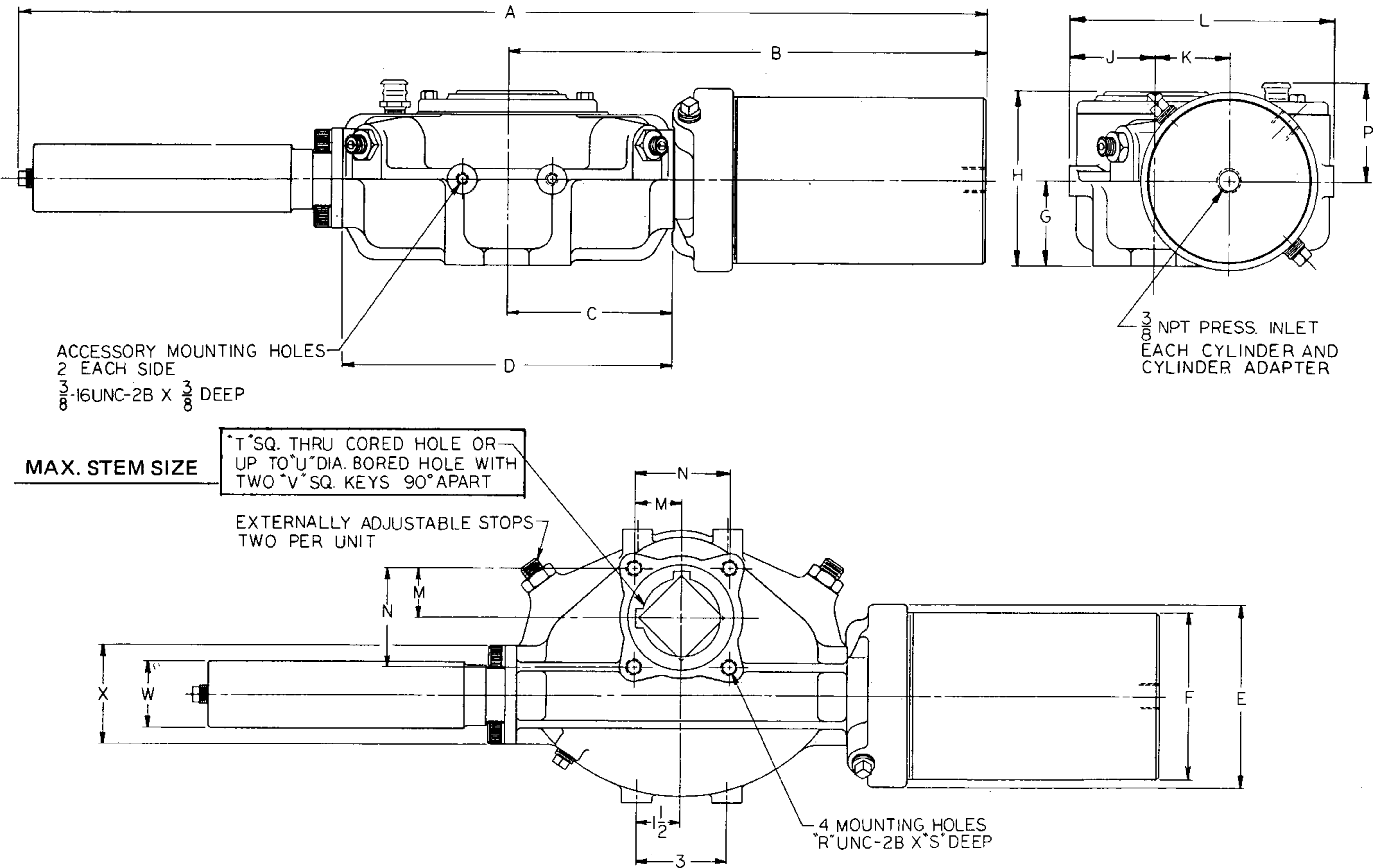
Note: X Recommended Operator



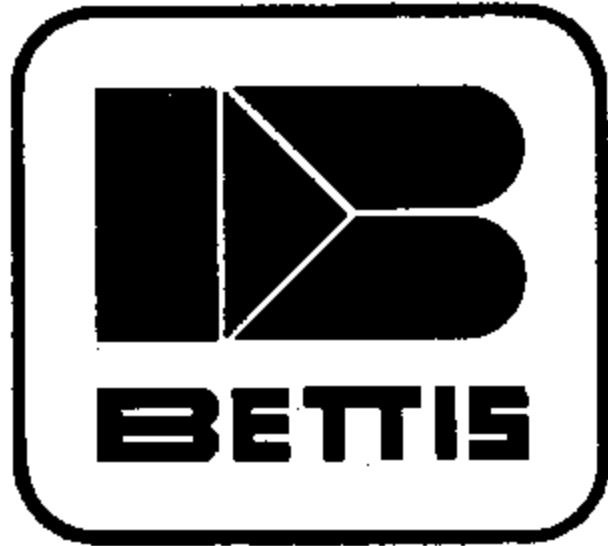
# MODELS 521-C, 721-C, 731-C



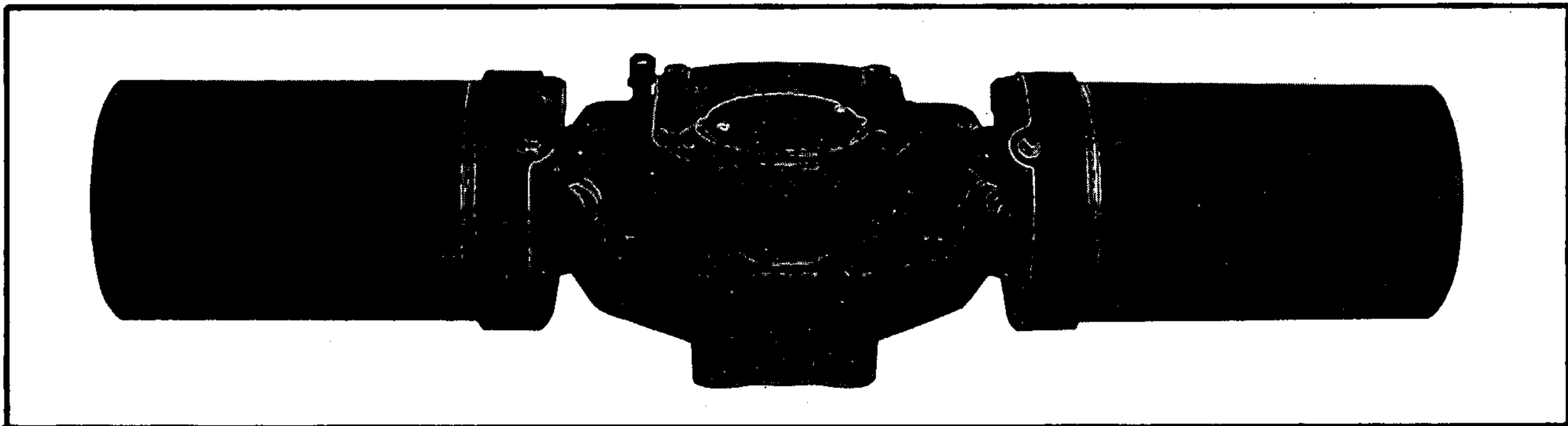
MODEL	DISPLACEMENT PER STROKE		OIL CAPACITY	
	CU. IN.	CU. FT.	HORIZONTAL POSITION	VERTICAL POSITION
521-C	100	0.058	2½ Pts.	2 Pts.
721-C	280	0.162	2½ Pts.	2 Pts.
731-C	340	0.197	4 Pts.	3 Pts.



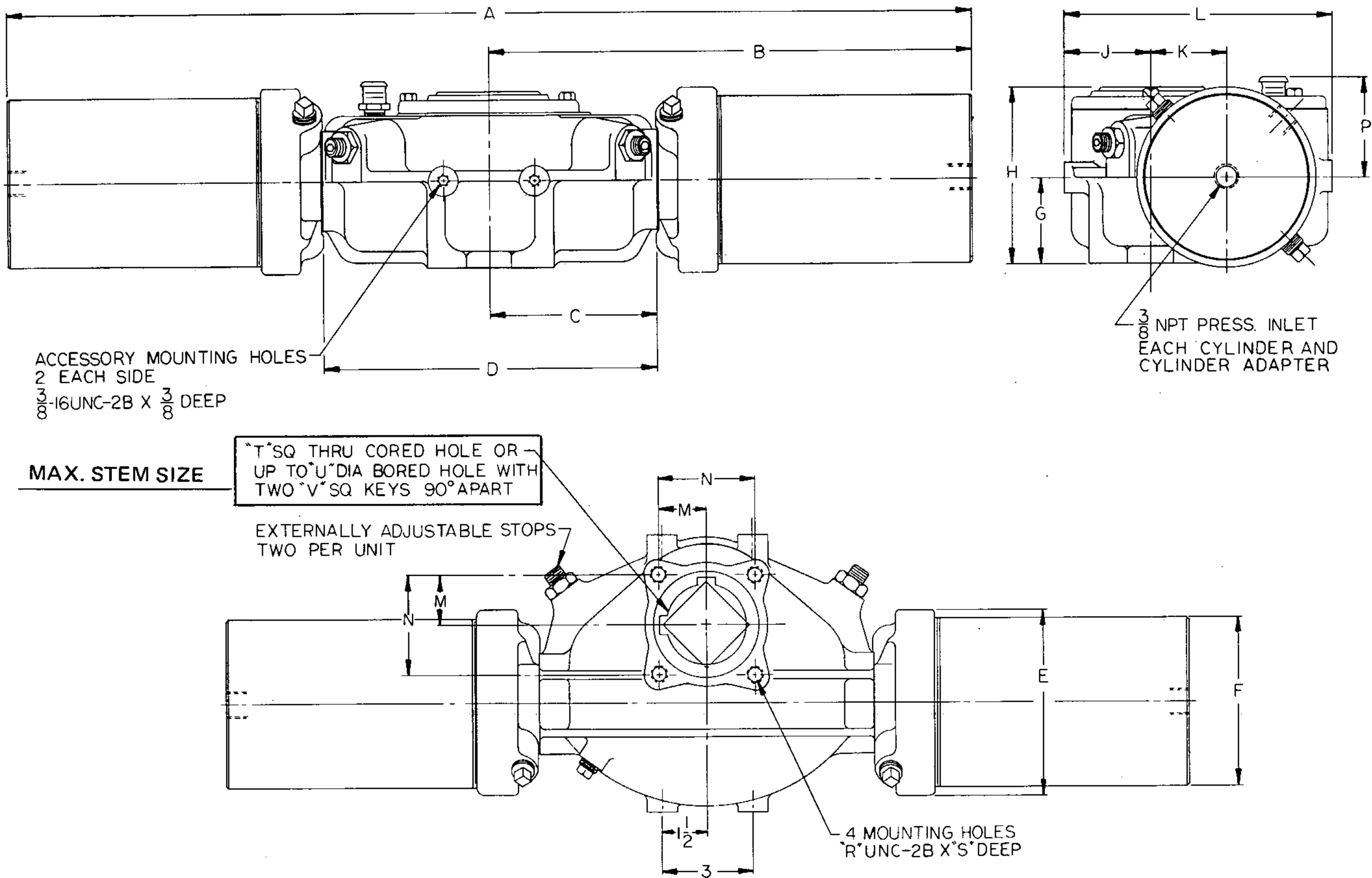
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V	W	X
521-C	31-13/16	16-13/16	5-9/16	11-1/8	5-15/16	5-3/8	2-13/16	5-5/8	2-7/8	2-1/2	8-29/32	1-19/32	3-3/16	3-19/32	1/2-13	3/4	2-1/32	2-1/2	5/8	2-1/4	3-3/4
721-C	31-7/16	16-7/16	5-9/16	11-1/8	7-1/2	8-1/8	2-13/16	5-5/8	2-7/8	2-1/2	8-29/32	1-19/32	3-3/16	3-19/32	1/2-13	3/4	2-1/32	2-1/2	5/8	2-1/4	3-3/4
731-C	38-1/2	21	6-13/16	13-5/8	7-1/2	8-1/8	3-9/16	7-5/16	3-1/2	3-3/8	10-15/16	2-1/32	4-1/16	4-5/16	3/4-10	1	2-17/32	3-1/4	3/4	2-7/8	5



# MODELS 722-C, 732-C



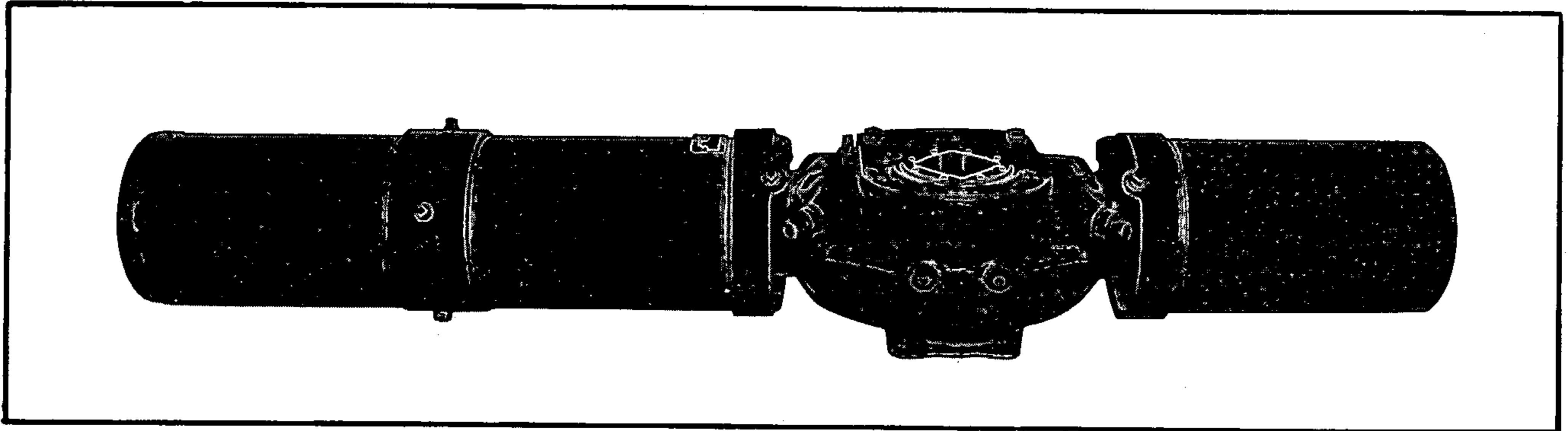
MODEL	DISPLACEMENT PER STROKE		OIL CAPACITY	
	CU. IN.	CU. FT.	HORIZONTAL POSITION	VERTICAL POSITION
722-C	560	0.324	2½ Pts.	2 Pts.
732-C	680	0.394	4 Pts.	3 Pts.



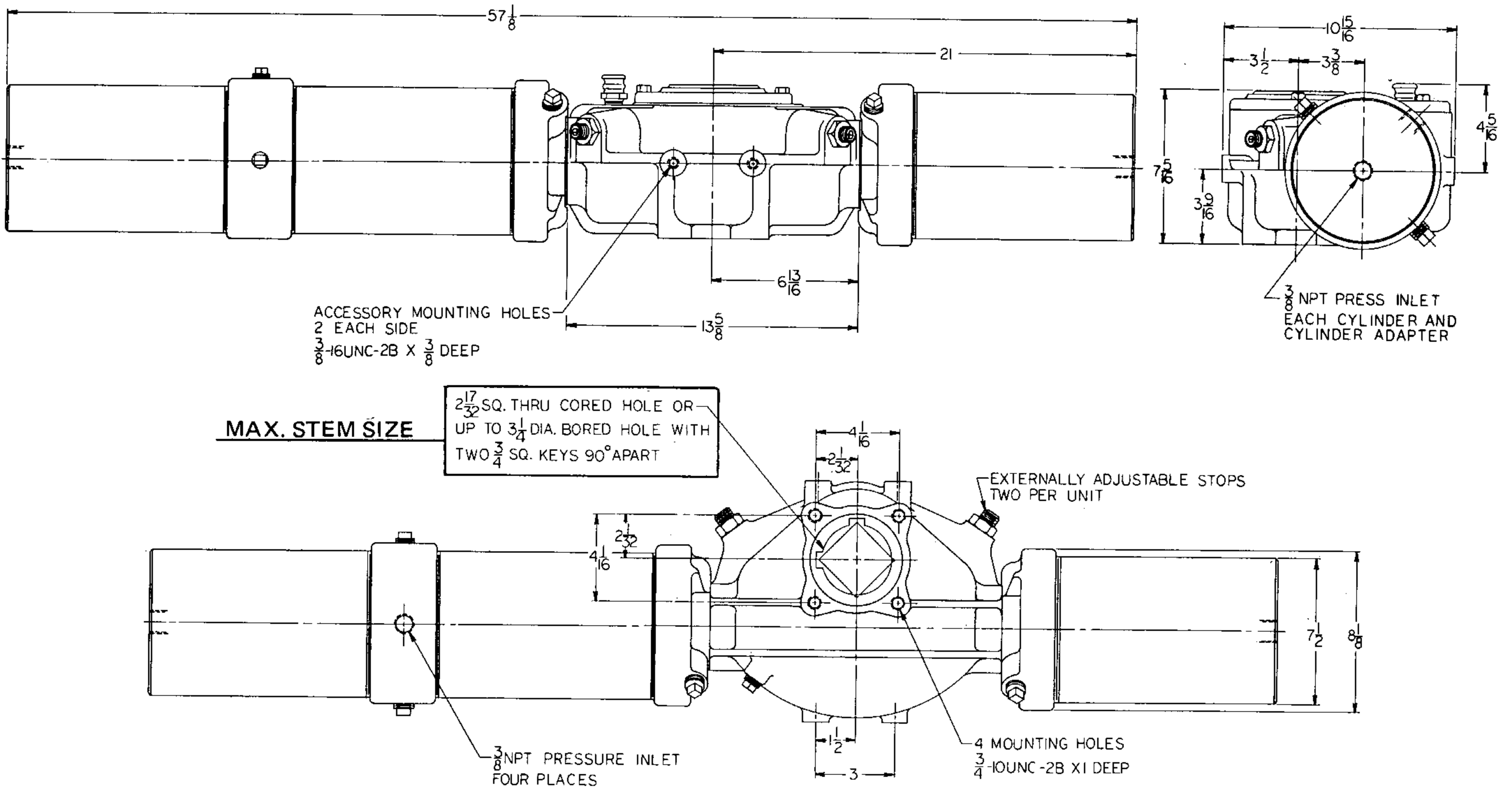
MODEL	A	B	C	D	E	F	G	H	J	K	L	M	N	P	R	S	T	U	V
722-C	32-7/8"	16-7/16"	5-9/16"	11-1/8"	7-1/2"	8-1/8"	2-13/16"	5-5/8"	2-7/8"	2-1/2"	8-29/32"	1-19/32"	3-3/16"	3-19/32"	1/2-13"	3/4"	2-1/32"	2-1/2"	5/8"
732-C	42"	21"	6-13/16"	13-5/8"	7-1/2"	8-1/8"	3-9/16"	7-5/16"	3-1/2"	3-3/8"	10-5/16"	2-1/32"	4-1/16"	4-5/16"	3/4-10"	1"	2-17/32"	3-1/4"	3/4"

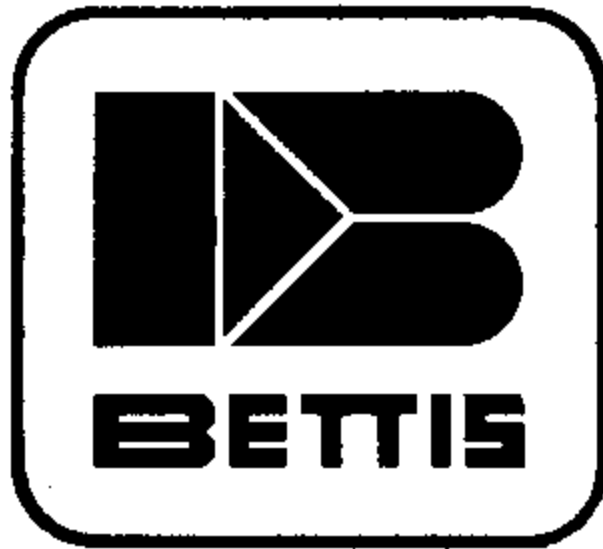


# MODEL 733-C



MODEL	DISPLACEMENT PER STROKE		OIL CAPACITY	
	CU. IN.	CU. FT.	HORIZONTAL POSITION	VERTICAL POSITION
733-C	840	0.478	4 Pts.	3 Pts.





**TORQUE OUTPUT\***  
**BETTIS VALVE ACTUATORS**  
**MODEL "C"**

ACTUATOR MODEL		OPERATING PRESSURE — PSI										
		40	50	60	70	80	90	100	125	150	200	250
521-C	BREAK	2200	3000	3700	4500	5400	6600	7000	9000	11000	15000	
	RUN	1600	2000	2400	2800	3200	3600	4000	5000	6000	8000	
721-C	BREAK	5400	7000	8600	10200	11800	13400	15000				
	RUN	3100	4000	4900	5800	6700	7600	8500				
722-C	BREAK	11000	14300									
	RUN	6300	8200									
731-C	BREAK	7500	9500	11400	13400	15400	17400	19400	24200	29000	39000	48300
	RUN	4300	5500	6600	7800	8900	10100	11500	14200	17000	23000	28800
732-C	BREAK	14800	19000	23000	28200	31200	35400	39500	49000	61000		
	RUN	8500	11000	13400	15900	18300	20800	23500	30000	36000		
733-C	BREAK	22200	28500	34500	42300	46800	53100	59200				
	RUN	12700	16500	20100	23800	27500	31200	35300				

\*CTO (Certified Torque Output)

All Model "C" Actuators listed in this Bulletin are designed and manufactured to rigid standards to insure maximum efficiency. Bettis Corporation certifies that the Torque Output Values published above represent true, tested and measured torque capabilities. When you purchase a Bettis Actuator you can be certain that your Actuator will develop the published torque. A properly maintained Actuator will continue to produce the advertised torques after a long service life.

**SIZING RECOMMENDATIONS — DOUBLE ACTING ACTUATORS**

1. Determine the Torque Requirement of the valve taking into consideration the service conditions. This information should be obtained from the Valve Manufacturer and should include the Valve Manufacturer's recommended Safety Factor for automation under the particular service conditions.
2. The Actuator selected should have a "Break" torque of 25% greater than the Valve Torque Requirement (including the Safety Factor).