

**SERIES 90/91  
ES-20177**

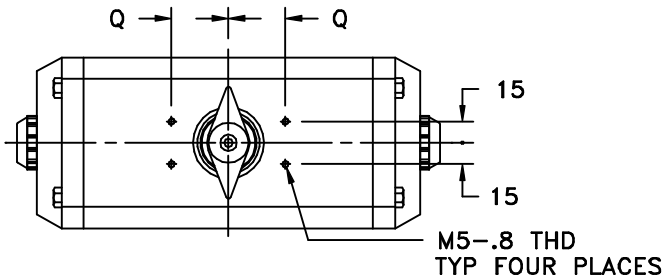
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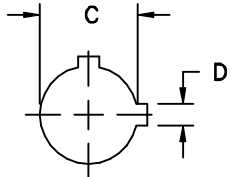
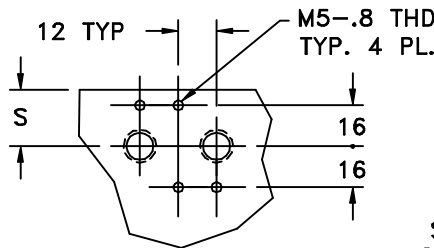
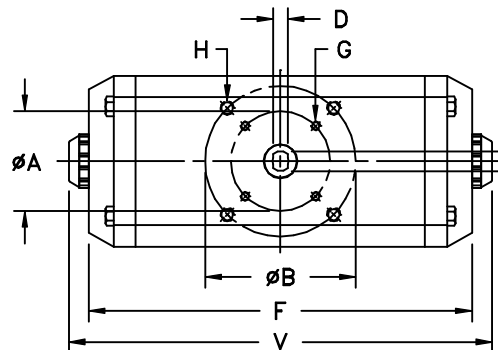
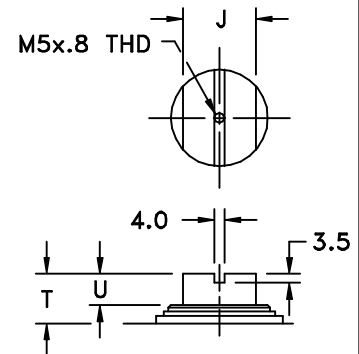
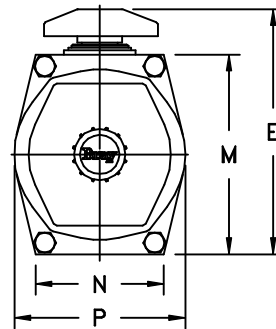
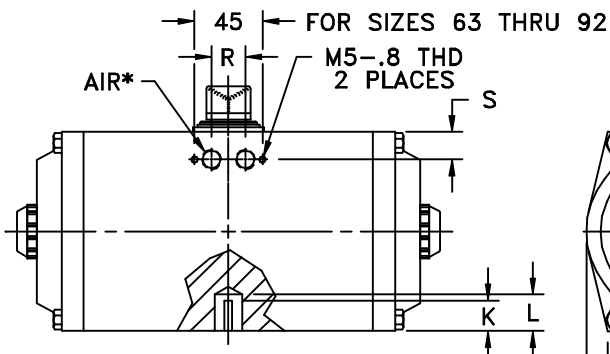
**Date: November 1994**

Act Size	AIR*	A	B	C	D	E	F	G	H	J	K	L	M	N	P
63	1/8	50	70	14	10	109	133	M6-1	M8-1.25	9.5	-	35	88	60	70
83	1/8	50	70	19	13	132	178	M6-1	M8-1.25	12.7	-	35	108	65	91
92	1/8	50	70	19	13	141	204	M6-1	M8-1.25	12.7	-	35	117	70	100
118	1/4	70	125	30	22	176	285	M8-1.25	M12-1.75	28.6	-	53	140	105	120
127	1/4	70	125	30	22	196	291	M8-1.25	M12-1.75	28.6	-	53	160	103	137
160A	1/4	-	125	30	22	238	370	-	M12-1.75	28.6	-	53	198	110	172
160B	1/4	-	125	35	10	238	370	-	M12-1.75	28.6	51	60	198	110	172
210	1/4	125	165	50	12	295	452	M12-1.75	M16-2	28.6	70	120	255	135	224
255A	1/4	165	120 x 200	64	16	342	678	M16-2	M16-2	28.6	110	170	302	160	273
255B	1/4	165	120 x 200	76	19	342	678	M16-2	M16-2	28.6	110	170	302	160	273

\* AIR CONNECTION THREADS ARE ISO/R7 PARALLEL



Act Size	Q	R	S	T	U	V
63	40	22	14	14	10	152
83	40	22	15	14	9	200
92	40	22	14	14	9	226
118	40	24	19	14	7	307
127	40	24	21	14	7	313
160	65	24	21	33	22	392
160	65	24	21	33	22	392
210	65	24	26	33	22	480
255A	65	24	27	33	22	-
255B	65	24	27	33	22	-



STEM BORE DETAIL  
SIZES 160 thru 255

NAMUR MOUNTING  
SIZES 118 THRU 255

**NOTES:** SERIES 90 ACTUATORS (DOUBLE ACTING)  
AND SERIES 91 (SINGLE ACTING) ARE  
DIMENSIONALLY THE SAME.



**BRAY VALVE & CONTROLS**  
A Division of BRAY INTERNATIONAL, Inc.

**Bray**

Customer/Project \_\_\_\_\_  
Inq./P.O. No. \_\_\_\_\_  
Bray Order No. \_\_\_\_\_  
Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

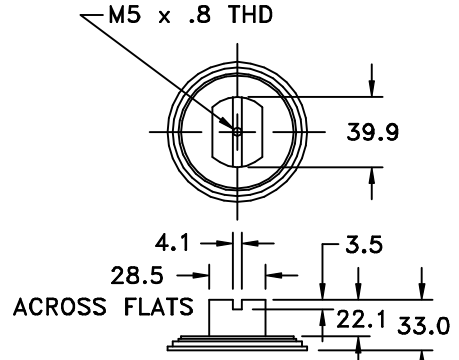
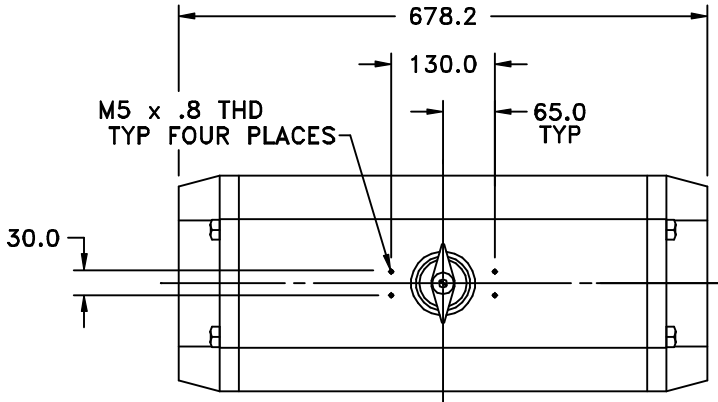
DIMENSIONS (Metric) PNEUMATIC ACTUATOR, SERIES 90/91 SIZES 63 - 255				
Series	Size	Part No.	Material Trim Code	Drawing No.
				ES-20177

**SERIES 90/91  
ES12A-0140**

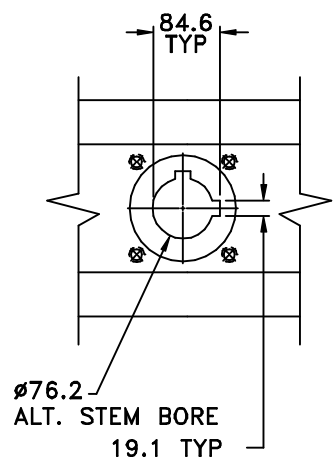
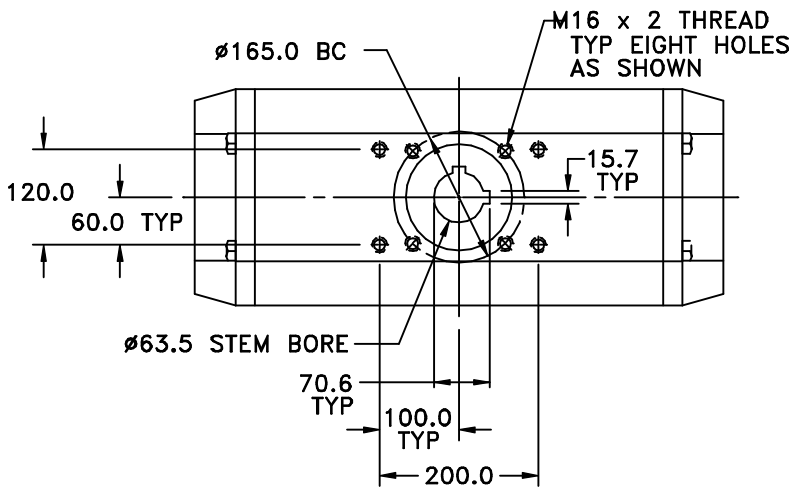
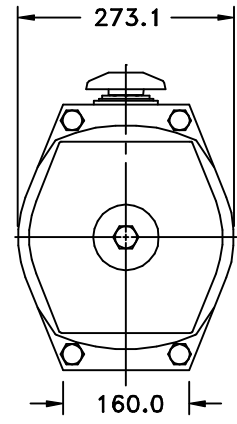
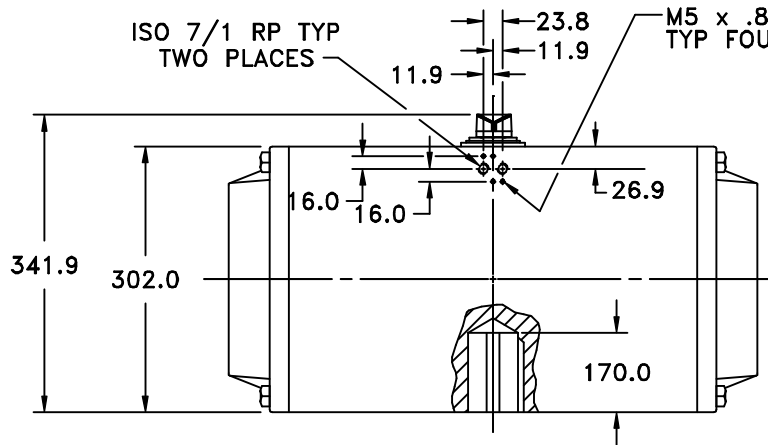
**Date: December 1996**

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**DETAIL  
UPPER PINION WITHOUT POINTER**



Valve Size \_\_\_\_\_ Flg. Drilling \_\_\_\_\_  
 Pressure Rating \_\_\_\_\_  
 Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

**The High Performance Company**  
**BRAY VALVE & CONTROLS**  
 A Subsidiary of BRAY INTERNATIONAL, Inc.

**DIMENSIONAL OUTLINE (MILLIMETERS)  
 PNEUMATIC ACTUATOR, SERIES 90/91  
 SIZE 255**

Series	Size	Part No.	Material Trim Code	Drawing No.
				ES12A-0140



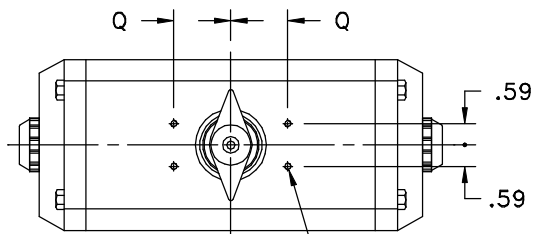
**SERIES 90/91  
ES11A-0177**

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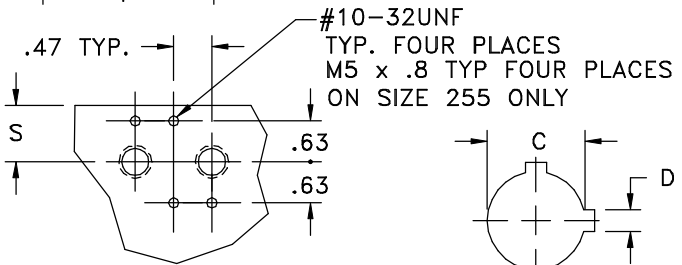
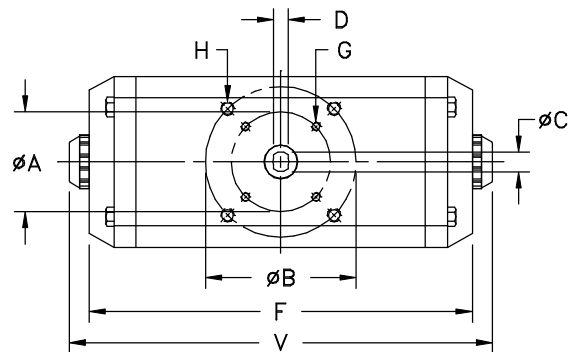
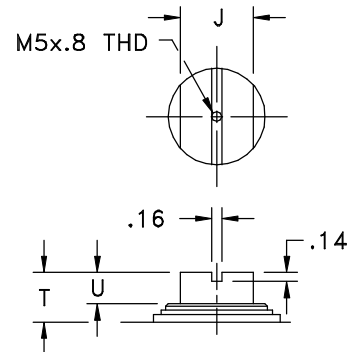
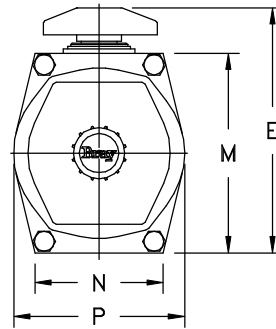
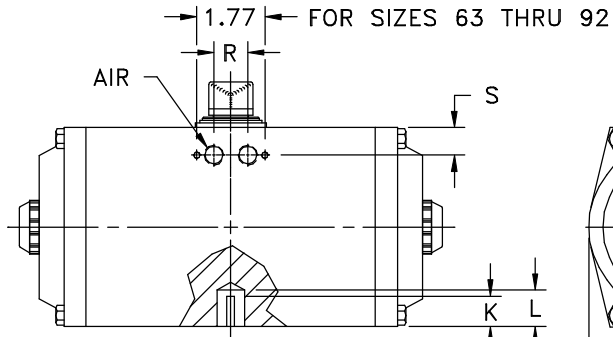
**Date: December 1996**

Act Size	AIR	A	B	C	D	E	F	G (UNC-2B)	H (UNC-2B)	J	K	L	M	N	P
63	1/8	1.97	2.76	.55	.40	4.29	5.24	1/4-20UNC	5/16-18UNC	.38	-	1.38	3.46	2.36	2.76
83	1/8	1.97	2.76	.75	.51	5.20	7.01	1/4-20UNC	5/16-18UNC	.50	-	1.38	4.27	2.57	3.58
92	1/8	1.97	2.76	.75	.51	5.54	8.03	1/4-20UNC	5/16-18UNC	.50	-	1.38	4.61	2.76	3.94
118	1/4	2.76	4.92	1.18	.87	6.93	11.22	5/16-18UNC	1/2-13UNC	1.12	-	2.11	5.52	4.15	4.72
127	1/4	2.76	4.92	1.18	.87	7.73	11.46	5/16-18UNC	1/2-13UNC	1.12	-	2.11	6.32	4.07	5.39
160A	1/4	-	4.92	1.18	.87	9.37	14.57	-	1/2-13UNC	1.12	-	2.11	7.80	4.33	6.77
160B	1/4	-	4.92	1.38	.39	9.37	14.57	-	1/2-13UNC	1.12	2.00	2.38	7.80	4.33	6.77
210	1/4	4.92	6.50	1.97	.47	11.61	17.80	1/2-13UNC	5/8-11UNC	1.12	2.76	4.72	10.04	5.32	8.83
255A	ISO 7/1 RP	6.50	4.72 x7.87	2.50	.62	13.46	26.70	M16 x 2	M16 X 2	1.12	4.25	6.75	11.89	6.30	10.75
255B	ISO 7/1 RP	6.50	4.72 x7.87	3.00	.75	13.46	26.70	M16 x 2	M16 X 2	1.12	4.25	6.75	11.89	6.30	10.75



M5 x .8 THREAD TYP FOUR PLACES ON SIZE 255 ONLY  
#10-32UNF TYP FOUR PLACES

Act Size	Q	R	S	T	U	V
63	1.58	.87	.57	.55	.35	6.00
83	1.58	.87	.58	.55	.35	7.89
92	1.58	.87	.56	.55	.35	8.91
118	1.58	.94	.76	.55	.28	12.10
127	1.58	.94	.84	.55	.28	12.34
160	2.56	.94	.84	1.30	.87	15.45
160	2.56	.94	.84	1.30	.87	15.45
210	2.56	.94	1.04	1.30	.87	18.92
255A	2.56	.94	1.06	1.30	.87	-
255B	2.56	.94	1.06	1.30	.87	-



NAMUR MOUNTING SIZES 118 THRU 255

STEM BORE DETAIL SIZES 160 thru 255

**NOTES:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SINGLE ACTING) ARE DIMENSIONALLY THE SAME.



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Customer/Project \_\_\_\_\_  
Inq./P.O. No. \_\_\_\_\_  
Bray Order No. \_\_\_\_\_  
Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

DIMENSIONS (Inches) PNEUMATIC ACTUATOR, SERIES 90/91 SIZES 63 - 255				
Series	Size	Part No.	Material Trim Code	Drawing No.
				ES11A-0177



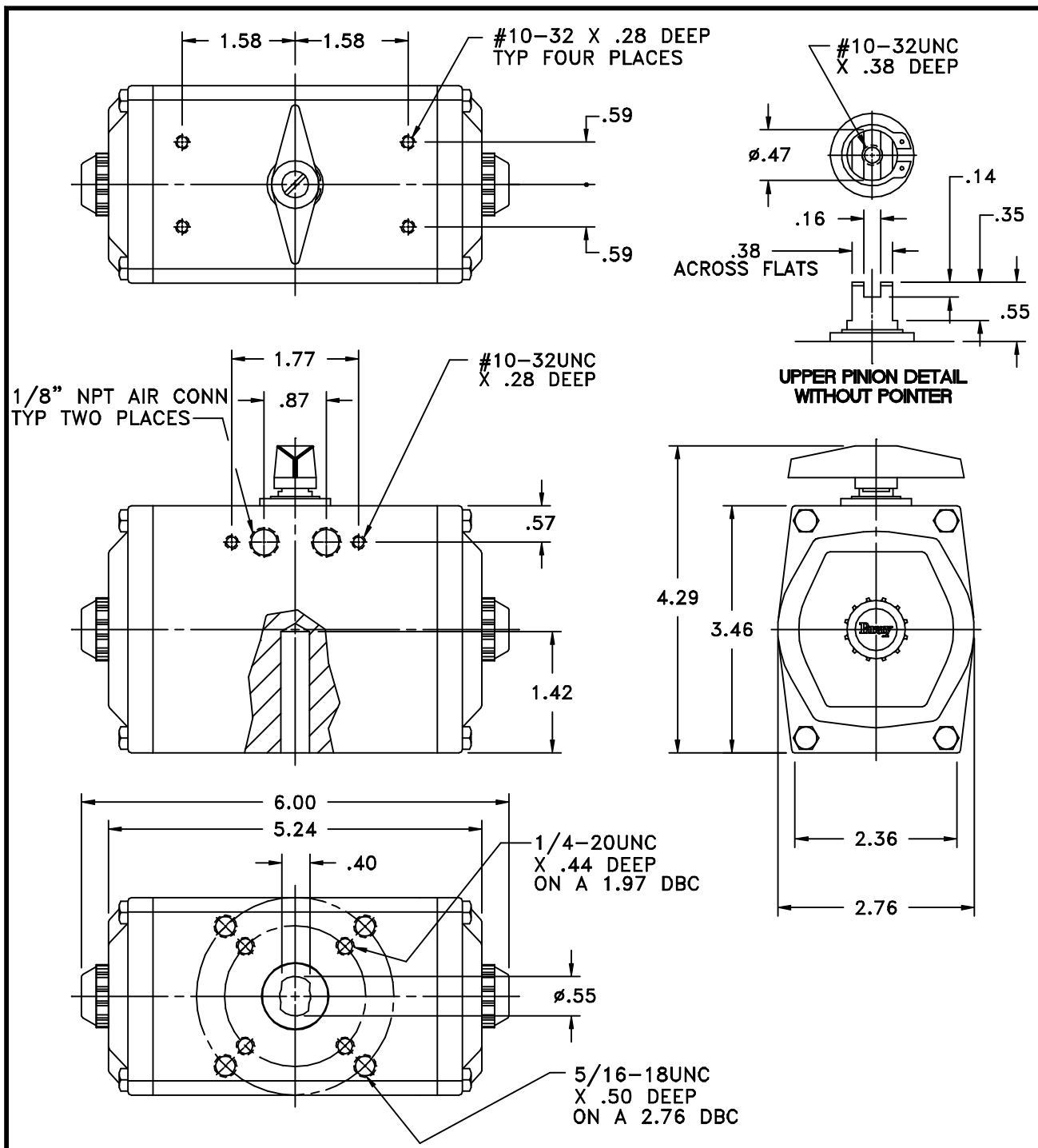
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**SERIES 90**

**ES-0169**

**Date: April 1993**



**NOTE:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SPRING RETURN) ARE DIMENSIONALLY THE SAME.

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 Bray Order No. \_\_\_\_\_  
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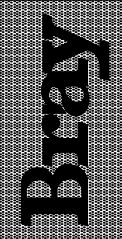
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**BRAY VALVE & CONTROLS**

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DIMENSIONS (Inches)  
 PNEUMATIC ACTUATOR, SERIES 90/91  
 SIZE 63

Series	Size	Part No.	Material Trim Code	Drawing No.
90	0630	21320		ES-0169



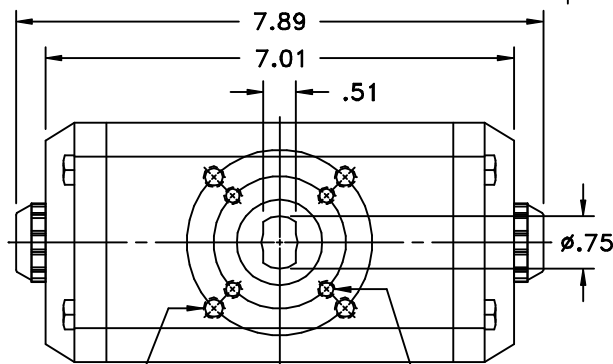
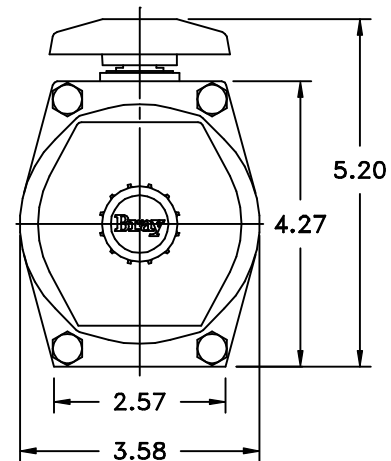
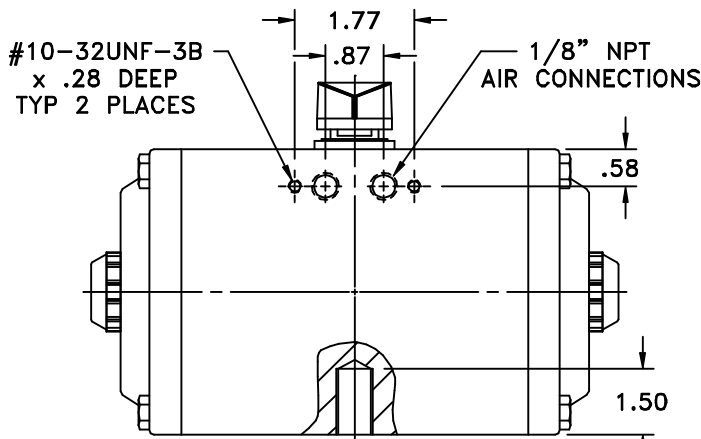
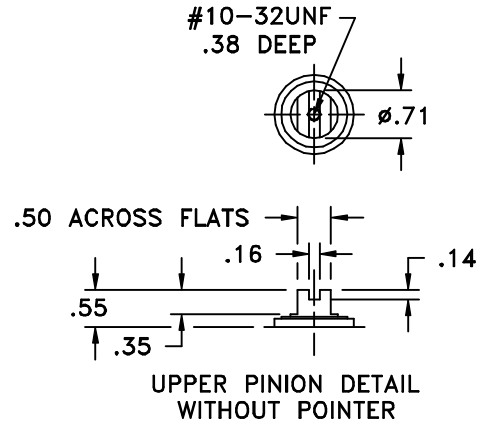
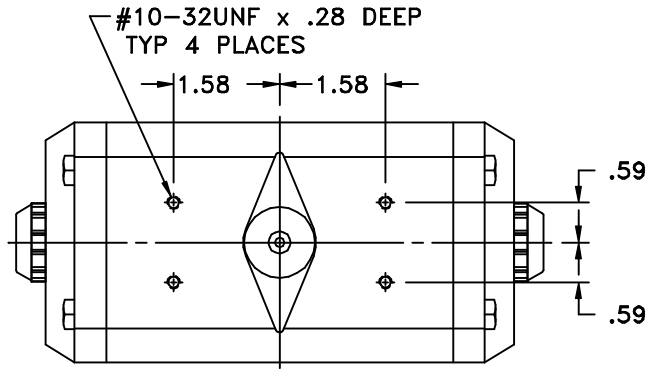
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**SERIES 90/91**

**ES-0170**

**Date: April 1993**



5/16-18UNC  
x .40 DEEP  
ON A ø2.76 B.C.

1/4-20UNC  
x .44 DEEP  
ON A ø1.97 B.C.

NOTE: SERIES 90 ACTUATORS (DOUBLE ACTING)  
AND SERIES 91 (SPRING RETURN) ARE  
DIMENSIONALLY THE SAME.

Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_



The  
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DIMENSIONS (Inches)  
PNEUMATIC ACTUATOR SERIES 90/91  
SIZE 83

Series	Size	Part No.	Material Trim Code	Drawing No.
90	0830	21320		ES-0170

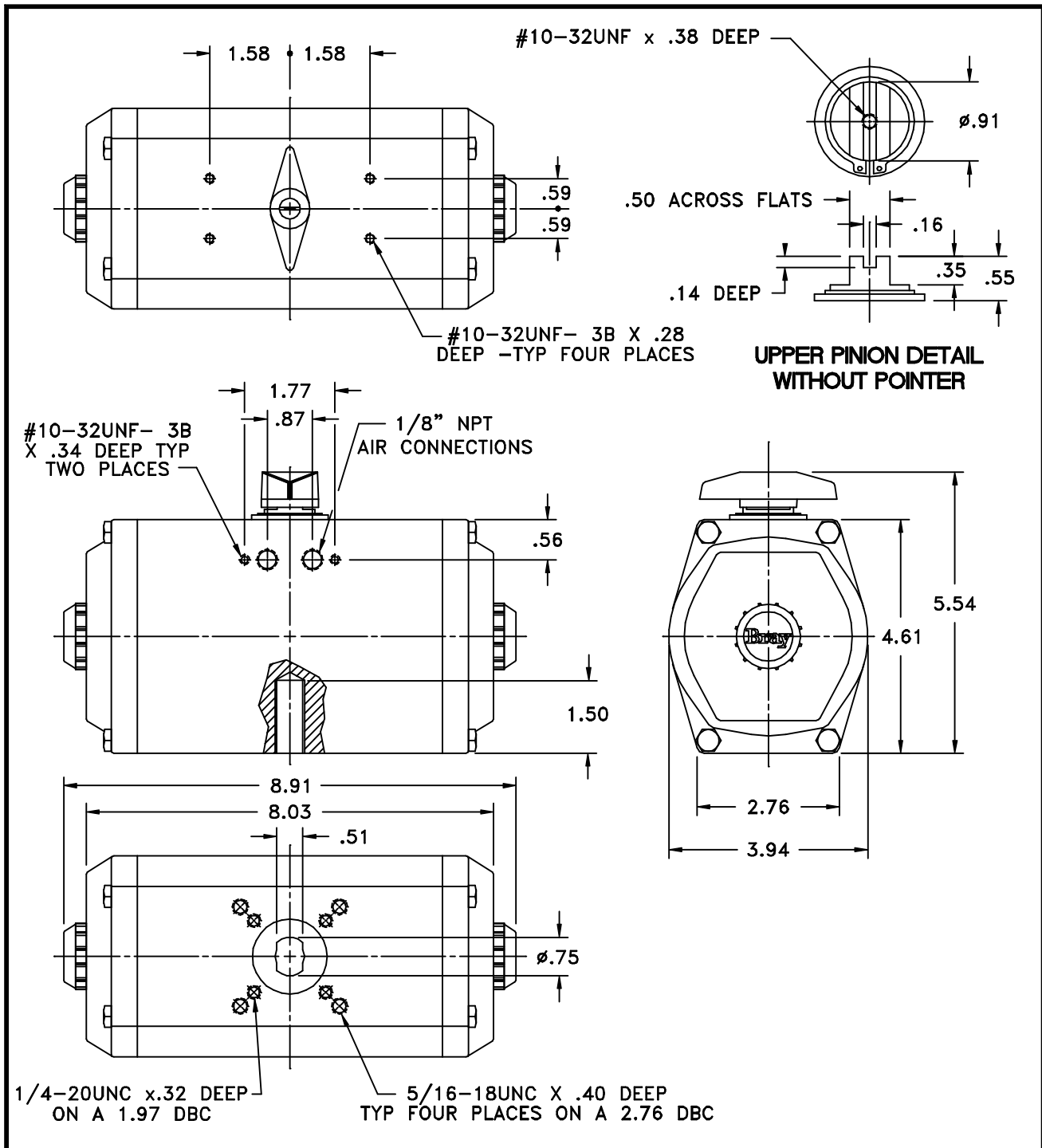
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**SERIES 90  
ES-0164**

**Date: April 1993**

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**NOTES:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SPRING RETURN) ARE DIMENSIONALLY THE SAME

Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_



The High Performance Company

**BRAY VALVE & CONTROLS**

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DIMENSIONS (Inches)  
 PNEUMATIC ACTUATOR, SERIES 90  
 SIZE 92

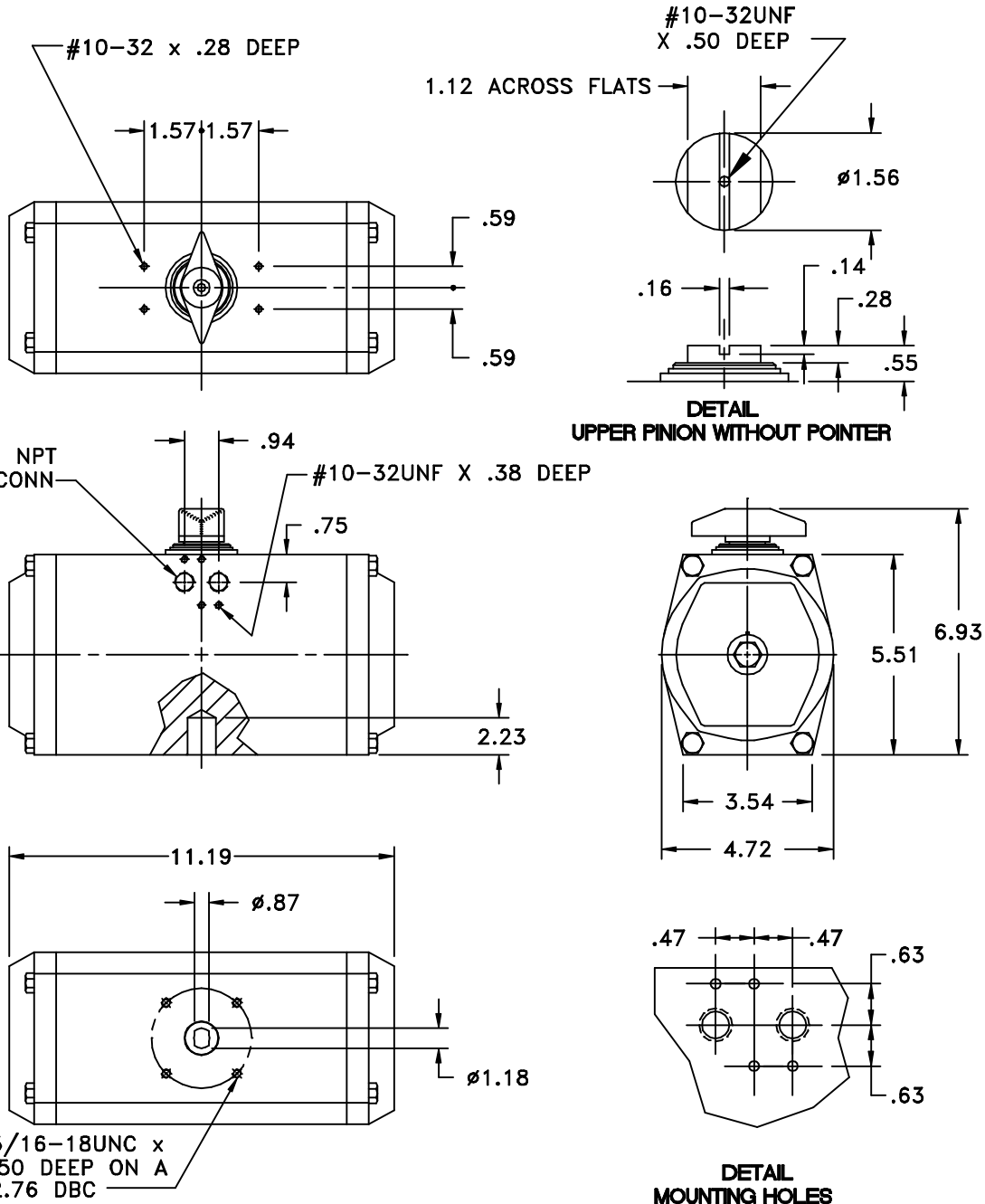
Series	Size	Part No.	Material Trim Code	Drawing No.
90	0920	21320		ES-0164

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**SERIES 90  
 ES-0171  
 Date: April 1993**



THESE DIMENSIONS VALID ON ACTUATORS WITH BASE NUMBER 21320 ONLY

**NOTES:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SINGLE ACTING) ARE DIMENSIONALLY THE SAME.

Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

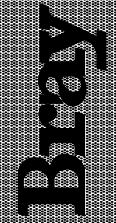


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DIMENSIONS (Inches)  
 PNEUMATIC ACTUATOR, SERIES 90/91  
 SIZE 118

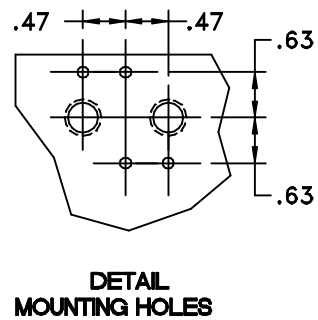
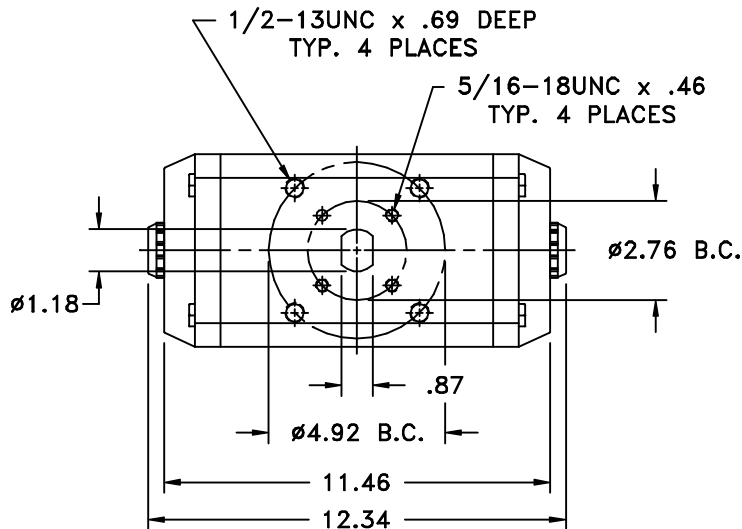
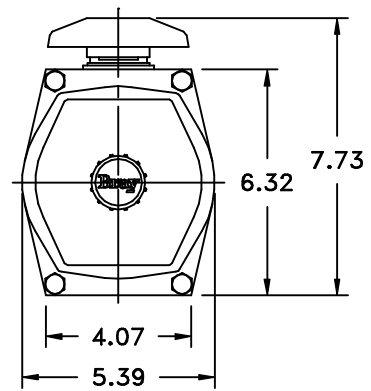
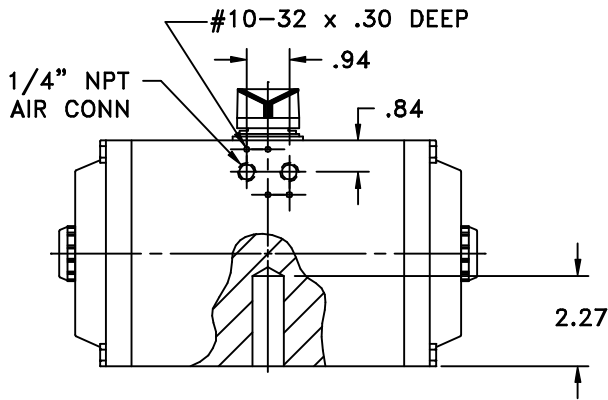
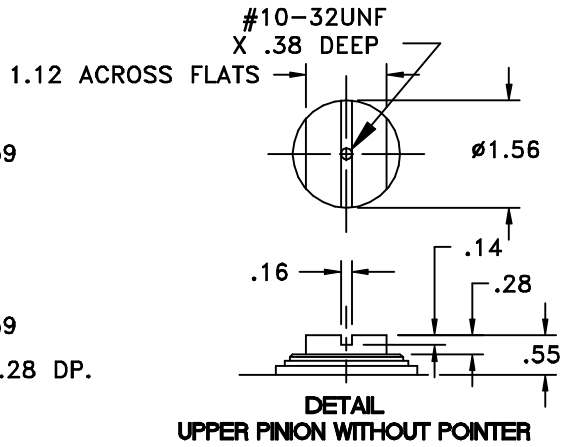
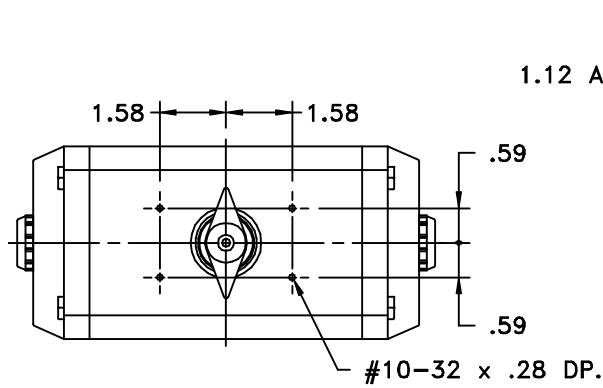
Series	Size	Part No.	Material Trim Code	Drawing No.
90	1180	21320		ES-0171



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**SERIES 90**  
**ES-0165**  
**Date: April 1993**



**NOTES:** SERIES 90 ACTUATORS (DOUBLE ACTING)  
 AND SERIES 91 (SPRING RETURN) ARE  
 DIMENSIONALLY THE SAME

Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_



The  
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**BRAY VALVE & CONTROLS**  
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DIMENSIONS ( INCHES )  
 PNEUMATIC ACTUATOR, SERIES 90/91  
 SIZE 127

Series	Size	Part No.	Material Trim Code	Drawing No.
90	1270	21320		ES-0165

**Bray**

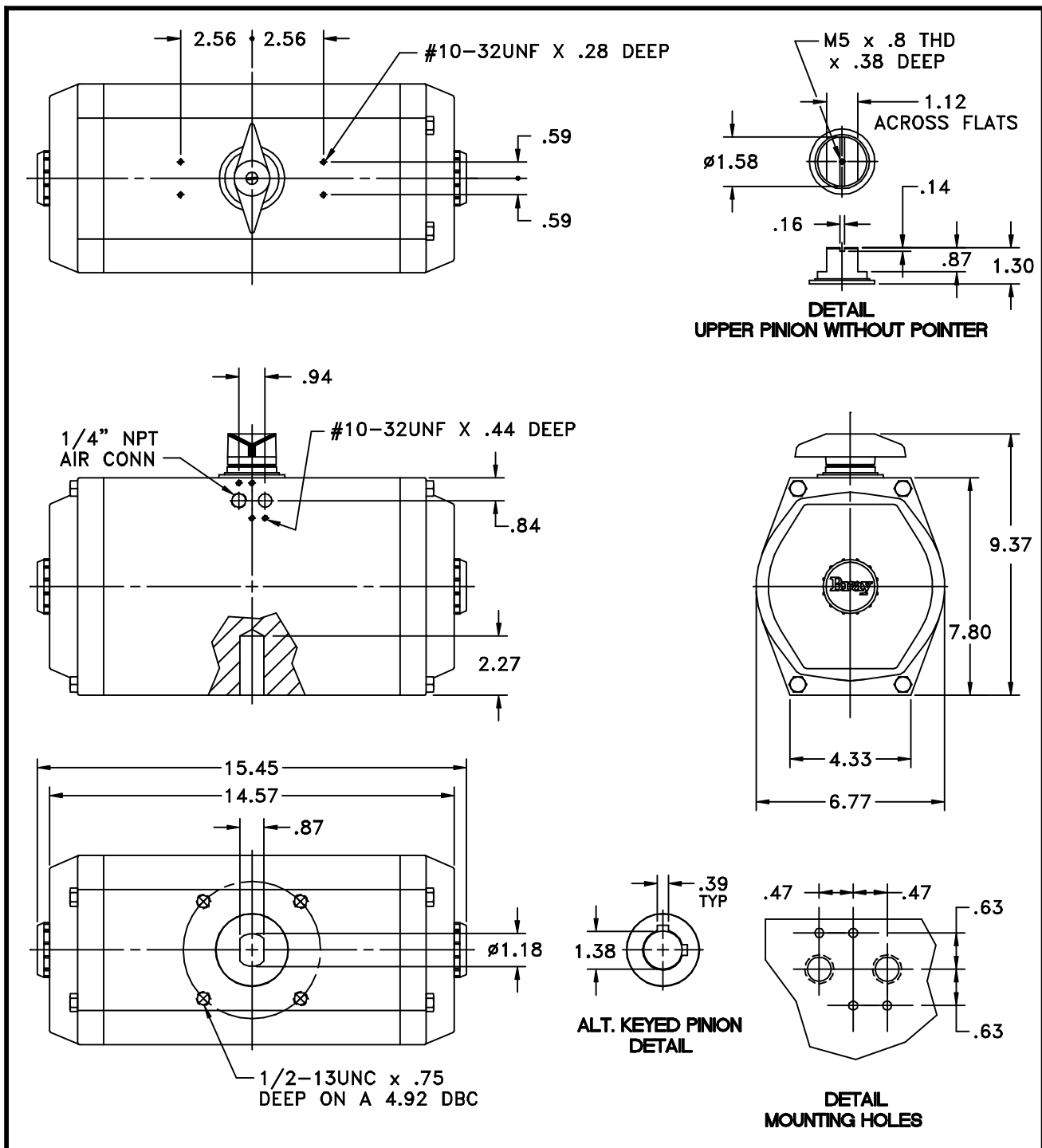
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**SERIES 90**

**ES-0172**

**Date: October 1994**



**NOTE:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SPRING RETURN) ARE DIMENSIONALLY THE SAME

Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_



The High Performance Company

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DIMENSIONS (Inches)  
 PNEUMATIC ACTUATOR, SERIES 90/91  
 SIZE 160

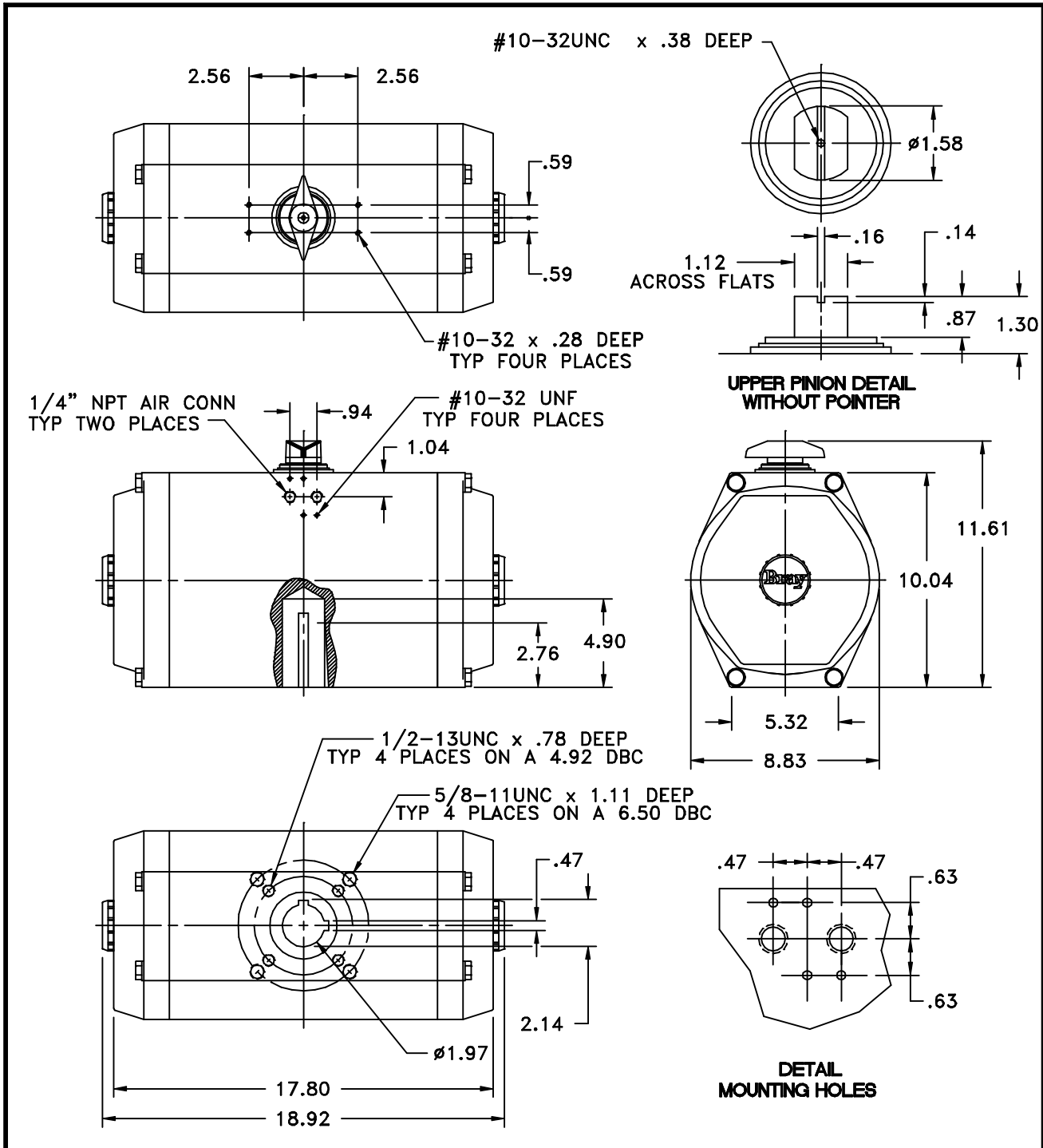
Series	Size	Part No.	Material Trim Code	Drawing No.
90	1600			ES-0172

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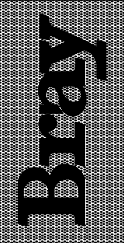
**SERIES 90**  
**ES- 0163**  
**Date: April 1993**



**NOTE:** SERIES 90 ACTUATORS (DOUBLE ACTING) AND SERIES 91 (SPRING RETURN) ARE DIMENSIONALLY THE SAME.



The High Performance **BRAY VALVE & CONTROLS** Company  
 A Subsidiary of BRAY INTERNATIONAL, Inc.



Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

DIMENSIONS (Inches)				
PNEUMATIC ACTUATOR, SERIES 90/91				
SIZE 210				
Series	Size	Part No.	Material Trim Code	Drawing No.
90	2100	21320		ES-0163

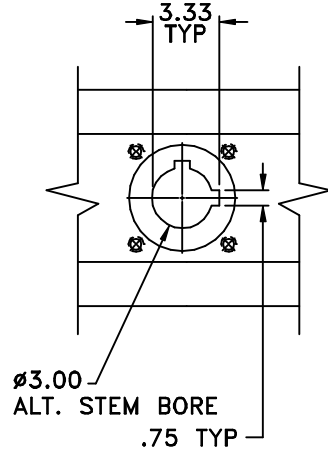
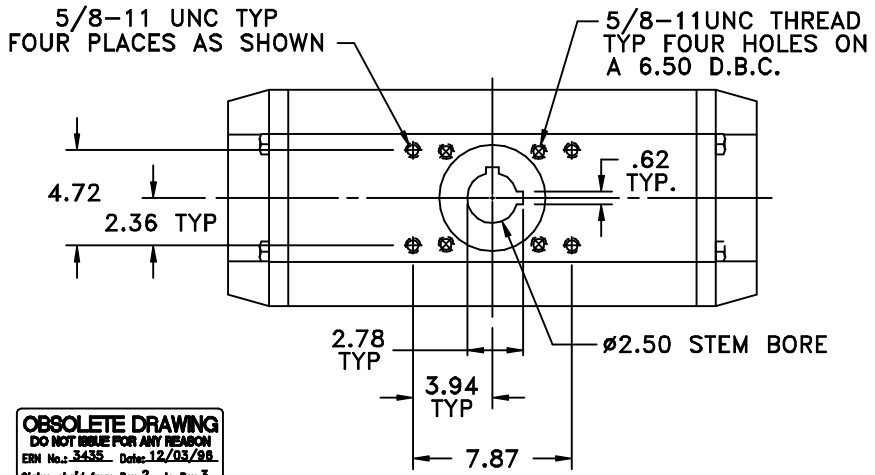
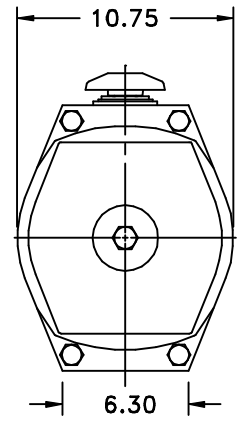
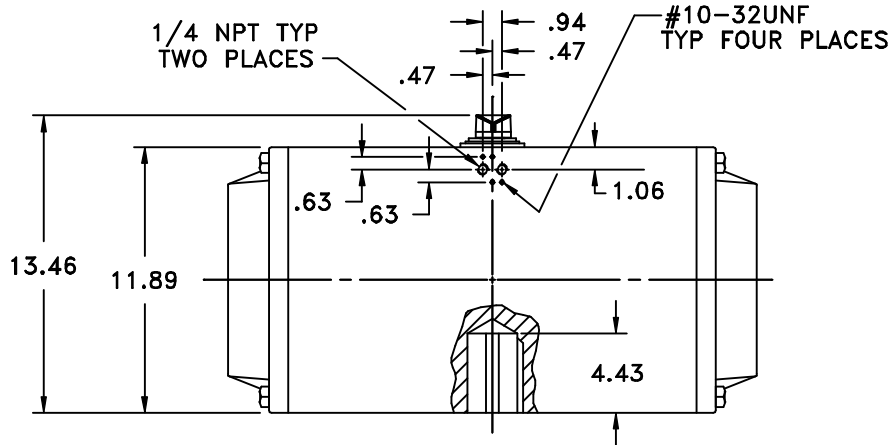
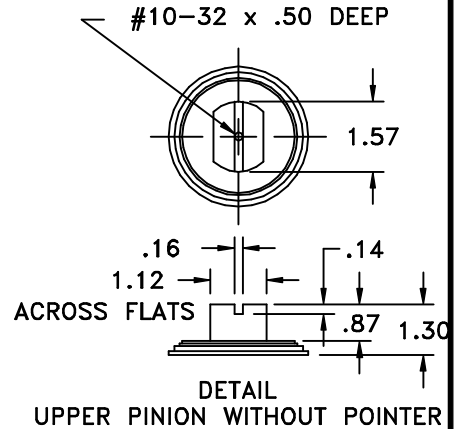
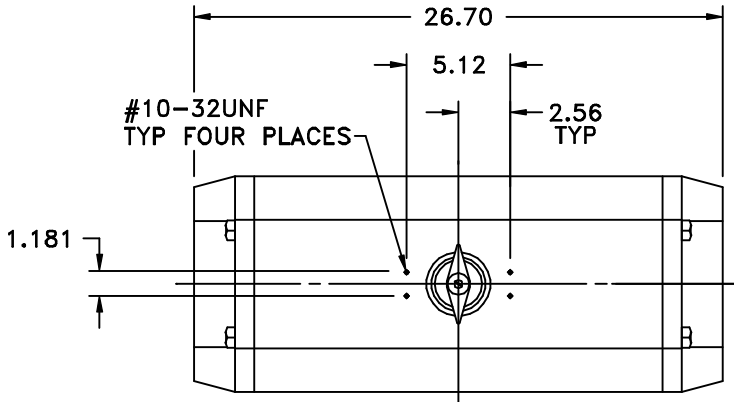
**\*ATTENTION\***

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**SERIES 90/91**

**ES-0140**

**Date: APRIL 1993**



**OBSELETE DRAWING**  
 DO NOT ISSUE FOR ANY REASON  
 ERN No.: 3435 Date: 12/03/98  
 Status chg'd from Rev. 2 to Rev. 3

Valve Size \_\_\_\_\_ Flg. Drilling \_\_\_\_\_  
 Pressure Rating \_\_\_\_\_  
 Customer/Project \_\_\_\_\_  
 Inq./P.O. No. \_\_\_\_\_  
 Bray Order No. \_\_\_\_\_  
 Certified Correct By \_\_\_\_\_ Date \_\_\_\_\_

**The High Performance Company**  
**BRAY VALVE & CONTROLS**  
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**DIMENSIONAL OUTLINE (INCHES)**  
**PNEUMATIC ACTUATOR, SERIES 90/91**  
**SIZE 255**

Series	Size	Part No.	Material Trim Code	Drawing No.
				ES-0140

