

Fisher® 1078 Declutchable Manual Actuator

Fisher 1078 manual actuators are declutchable actuators for manual operation of control valves and equipment that use power actuators. The 1078 manual actuator mounts directly to Fisher 1052 size 70; 1061 sizes 30, 40, 60, 68, 80, and 100; and to all sizes of 2052 actuators.

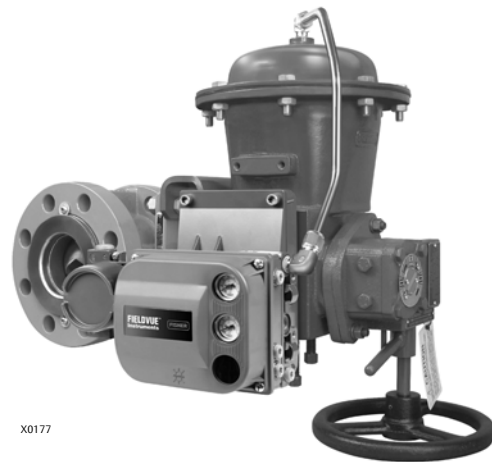
Features

- **Direct Attachment to the Power Actuator** — Direct mounting to the actuator housing simplifies installation and eliminates the need for yokes and other brackets.
- **Engage Manual Actuator At Any Point of Rotation** — A lever-operated eccentric bearing support on the input shaft allows engagement of the worm gear with the sector at any point of rotation. Because the travel indicator components are mounted on a through shaft, accurate travel indication is maintained during manual actuator disengagement or engagement.
- **Positive Operation** — The disengagement lever is locked in both the engaged and disengaged positions by a detent mechanism, which must be released before the lever can be moved. This provision reduces the possibility of inadvertent or accidental operation. In addition, stop-pins at the fully engaged and fully disengaged positions provide positive limits for lever travel. (Note that stop pins are not available on 1078 size II-FA actuators.)



X0178

FISHER 1078 DECLUTCHABLE MANUAL ACTUATOR
MOUNTED ON A 2052 SIZE 1 ACTUATOR



X0177

FISHER 1078 DECLUTCHABLE MANUAL ACTUATOR
MOUNTED ON A 2052 SIZE 1 ACTUATOR AND V300 VALVE
WITH FIELDVUE™ DVC6200 DIGITAL VALVE CONTROLLER



Table 1. Specifications

<p>Available Configurations</p> <p>Direct and reverse acting; see Handwheel Rotation and the Ordering Information section, (Standard construction is with the handwheel shaft pointing down away from the power actuator as shown in the figure on page 1)</p> <p>Manual Actuator Sizes</p> <p>See tables 1, 2, and 3 See figures 1 and 2 for dimensions</p> <p>Coupling Shaft Diameters</p> <p>See tables 1, 2, and 3</p> <p>Power Actuator Compatibility</p> <p>See tables 1, 2, and 3</p> <p>Maximum Torque Output</p> <p>See tables 1, 2, and 3</p> <p>Wheel-Rim Force</p> <p>See tables 1, 2, and 3</p> <p>Handwheel Rotation</p> <p>Clockwise handwheel rotation closes the valve. Direct-acting units produce output rotation matching input rotation; reverse-acting units produce output rotation opposite input rotation.</p> <p>Construction Materials</p> <p>Housing and Cover: Cast iron Drive Sleeve/Gear (Sector): Aluminum/bronze</p>	<p>Worm Gear: Heat-treated steel Input Shaft and Eccentric: Low-carbon steel Pin Detent: 300 Series stainless steel Handwheel or Input Shaft Bearings: Bronze</p> <p>Standard Mounting Positions</p> <ul style="list-style-type: none"> ■ 1052 (size 70)⁽¹⁾: Handwheel down (std) or handwheel right-hand or left-hand mount (optional) ■ 1061 (sizes 30, 40, 60, 68, 80, and 100)⁽¹⁾: Handwheel down (std) or handwheel right-hand or left-hand mount (optional) ■ 2052 (sizes 1, 2, and 3)⁽¹⁾: Handwheel down (standard) or handwheel right-hand or left-hand mount (optional) <p>Approximate Weight Without Handwheel</p> <p>Size AAA: 2.7 kg (6 pounds) Size AA: 6.8 kg (15 pounds) Size A: 9.5 kg (21 pounds) Size 2A: 13.6 kg (30 pounds) Size 1A: 15.9 kg (35 pounds) Size B: 23.1 kg (51 pounds) Size C: 29.9 kg (66 pounds) Size D: 63.5 kg (140 pounds) Size II-FA: 81.6 kg (180 pounds)</p> <p>Handwheel Weight</p> <p>6-inch: 1.8 kg (4 pounds) 8-inch: 2.3 kg (5 pounds) 12-inch: 3.2 kg (7 pounds) 16-inch: 6.8 kg (15 pounds) 24-inch: 5.4 kg (12 pounds) 30-inch: 6.4 kg (14 pounds) 36-inch: 7.3 kg (16 pounds)</p>
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1. If a positioner is used, the right-hand or left-hand mounting option will be limited to the side away from the positioner.

Table 1. Fisher 2052 Actuator Size Selection and Specifications for Sizes AAA, A, and C

MANUAL ACTUATOR SIZE	SHAFT SIZE		POWER ACTUATOR		STANDARD HANDWHEEL DIAMETER		MAXIMUM TORQUE		WHEEL-RIM-FORCE				HANDWHEEL TURNS FOR ROTATION	
									For Maximum Torque		For Less Than Maximum Torque		Degrees	
	mm	Inch	Type	Size	mm	Inch	N•m	Lbf•in	N	Pounds	N	Pounds	60	90
AAA (2400 in•lbs)	12.7	1/2	2052	1	203	8	131	1156	144	32	Divide N•m req'd by 0.91	Divide lbf•in req'd by 36	4	6
	14.2x15.9 15.9	9/16x5/8 5/8					211	1866	232	52				
	19.1	3/4					271	2400	298	67				
A (8000 in•lbs)	14.3x15.9 15.9	9/16x5/8 5/8	2052	2	406	16	489	4326	204	45	Divide N•m req'd by 2.4	Divide lbf•in req'd by 96	5.3	8
	19.1	3/4					590	5221	246	54				
	22.2 25.4	7/8 1					818	7241	341	75				
	28.6x31.8 31.8	1-1/8x1-1/4 1-1/4					904	8000	377	83				
C (18000 in•lbs)	19.1	3/4	2052	3	610	24	1338	11842	279	61	Divide N•m req'd by 4.8	Divide lbf•in req'd by 194	9	13.5
	22.2 25.4	7/8 1					1566	13862	326	71				
	28.6x31.8 31.8	1-1/8x1-1/4 1-1/4					2034	18000	424	93				
	38.1	1-1/2												
	39.7x44.5 44.5 50.8	1-9/16x1-3/4 1-3/4 2												

Table 2. Fisher 1052 Actuator Size Selection and Specifications for Sizes 1A, B, and C

MANUAL ACTUATOR SIZE (max output torque)	SHAFT SIZE		POWER ACTUATOR ⁽¹⁾		STANDARD HANDWHEEL DIAMETER		MAXIMUM TORQUE ⁽²⁾		WHEEL-RIM-FORCE				HANDWHEEL TURNS FOR ROTATION	
									For Maximum Torque		For Less Than Maximum Torque		Degrees	
	mm	Inch	Type	Size	mm	Inch	N•m	Lbf•in	N	Pounds	N	Pounds	60	90
1A (8200 in.lbs)	31.8, 28.6x 31/8	1-1/4, 1-1/8x 1-1/4	1052	70 ⁽³⁾	610	24	929	8200	378	85	Divide N•m req'd by 2.4	Divide lbf•in req'd by 96	5.3	8
	38.1 31.8x 38.1	1-1/2, 1-1/4x 1-1/2												
	(44.4, 50.8), 39.7 x44.5	(1-3/4, 2), 1-9/16 x1-3/4												
B (12,000 in.lbs)	31.8	3/4 7/8-1 1-1/4	1052	70	610	24	1356	12,000	369	83	Divide N•m req'd by 3.6	Divide lbf•in req'd by 144	6.7	10
	38.1, (44.4, 50.8)	1-1/2, (1-3/4, 2)												
C (18,000 in.lbs)	31.8	1-1/4	1052	70	610	24	1735	15,355	361	79	Divide N•m req'd by 4.8	Divide lbf•in req'd by 194	9	13.5
	(44.4, 50.8)	(1-3/4, 2)					1839	16,275	383	84				
							2034	18,000	414	93				
						2034	18,000	414	93					

1. Field conversion of actuators for F and G mounting adaptations requires installation of new parts.
2. Compare table value with torque requirements of the valve plus the torque required to compress the power actuator spring (from Fisher Catalog 14). Note that dynamic torque of the valve may have a positive or negative effect on total torque required.
3. If mounted on the 1052 size 70, the travel is for only 60 Degrees.

Table 3. Fisher 1061 Actuator Size Selection and Specifications for Sizes 2A, 1A, B, C, D, and II-FA

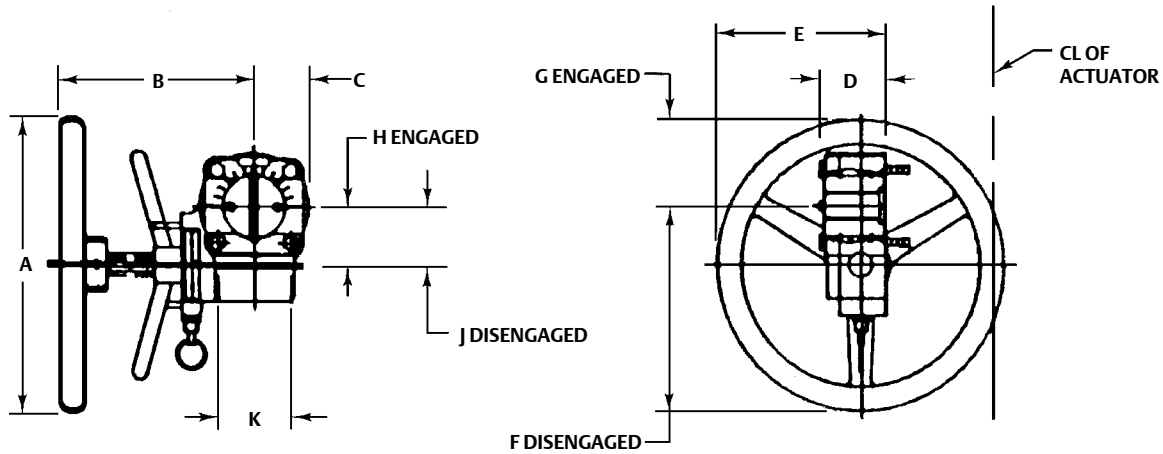
MANUAL ACTUATOR SIZE (max output torque)	SHAFT SIZE		POWER ACTUATOR		STANDARD HANDWHEEL DIAMETER		MAXIMUM TORQUE ⁽¹⁾		WHEEL-RIM-FORCE				HANDWHEEL TURNS FOR ROTATION			
									For Maximum Torque		For Less Than Maximum Torque		Degrees			
	mm	Inch	Type	Size	mm	Inch	N•m	Lbf•in	N	Pounds	N	Pounds	60	90		
2A (4800 in.lbs)	12.7	1/2	1061	30	152	6	58	515	89	20	Divide N•m req'd by 0.66	Divide lbf•in req'd by 26	5.7	8.5		
	15.9, 14.3x 9.5	5/8, 9/16x 5/8					138	1225	214	48						
	19.1	3/4 ⁽³⁾					203	8	239	2120	276	62			Divide N•m req'd by 0.86	Divide lbf•in req'd by 34
	(22.2, 25.4)	(7/8,1)					305	12	467 ⁽⁴⁾	4140 ⁽⁴⁾	360	81			Divide N•m req'd by 1.3	Divide lbf•in req'd by 51
	31.8	1-1/4							541	4800	416	94				
1A (8200 in.lbs)	19.1	3/4	1061	40, 60, 68	305	12	239	2120	276	62	Divide N•m req'd by 1.2	Divide lbf•in req'd by 48	5.3	8		
	(22.2, 25.4)	(7/8,1)	1061	40, 60, 68			467	4140	382	86						
	31.8, 28.6x 31/8	1-1/4, 1-1/8x 1-1/4	1061	40, 60, 68	610	24	929	8200	378	85	Divide N•m req'd by 2.4	Divide lbf•in req'd by 96	5.3	8		
	38.1 31.8x 38.1	1-1/2, 1-1/4x 1-1/2														
	(44.4, 50.8), 39.7 x44.5	(1-3/4, 2), 1-9/16 x1-3/4														
B (12,000 in.lbs)	19.1	3/4	1061	40, 60, 68	610	24	239	2120	66	15	Divide N•m req'd by 3.6	Divide lbf•in req'd by 144	6.7	10		
	22.2, 25.4	7/8,1					468	4140	130	29						
	31.8	1-1/4	1061				1109	9815	308	68						
	38.1, (44.4, 50.8)	1-1/2, (1-3/4, 2)					1356	12,000	377	83						
C (18,000 in.lbs)	31.8	1-1/4	1061	40, 60, 68	610	24	1109	9815	231	51	Divide N•m req'd by 4.8	Divide lbf•in req'd by 194	9	13.5		
	(44.4, 50.8)	(1-3/4, 2)					2034	18,000	424	93						
D (30,000 in.lbs)	(44.4, 50.8)	(1-3/4, 2)	1061	80, 100	762	30	2658	23,524	369	82	Divide N•m req'd by 7.2	Divide lbf•in req'd by 287	10.7	16		
	54, 63.5 57.2x 63.5	2-1/8, 2-1/2, 2-1/4x 2-1/2					914	36	3390	30,000	394	87			Divide N•m req'd by 8.6	Divide lbf•in req'd by 345
	76x 63.5, 101.6x 63.5	3x2 1/2,4x 2 1/2	1061													
II-FA ⁽²⁾ (60,000 in.lbs)	76x 63.5, 101.6x 63.5	3x2 1/2,4x 2 1/2	1061	80, 100	406	16	6301	55,762	400	90	Divide N•m req'd by 15.7	Divide lbf•in req'd by 619	48	72		

1. Compare table value with torque requirements of the valve (from Fisher Catalog 14). Note that dynamic torque of the valve may have a positive or negative effect on total torque required.
 2. Has spur gear.
 3. 2A 3/4 inch shaft will also mount on the 1061 size 40, 60, and 68.
 4. Maximum torque of connection between power and manual actuator.

Table 4. Dimensions for Actuator Sizes AAA, AA, and A

1078 Size	A	B	C	D	E	F	G	H	J	Square Bolt Pattern	Circular Bolt Pattern
mm											
AAA	305	184	40	67	178	204	106	46	51	57.1 SQ	---
AA	305	203	56	70	181	216	94	59	64	76.2 SQ	---
A	610	381	68	83	337	378	238	67	73	88.9 SQ	---
Inches											
AAA	12.00	7.25	1.56	2.62	7.00	8.02	4.18	1.82	2.02	2.25 SQ	---
AA	12.00	8.00	2.19	2.75	7.12	8.50	3.69	2.31	2.50	3.00 SQ	---
A	24.00	15.00	2.69	3.25	13.25	14.88	9.38	2.63	2.88	3.50 SQ	---

Figure 1. Dimensions for Actuator Sizes AAA, AA, and A (also see table 4)



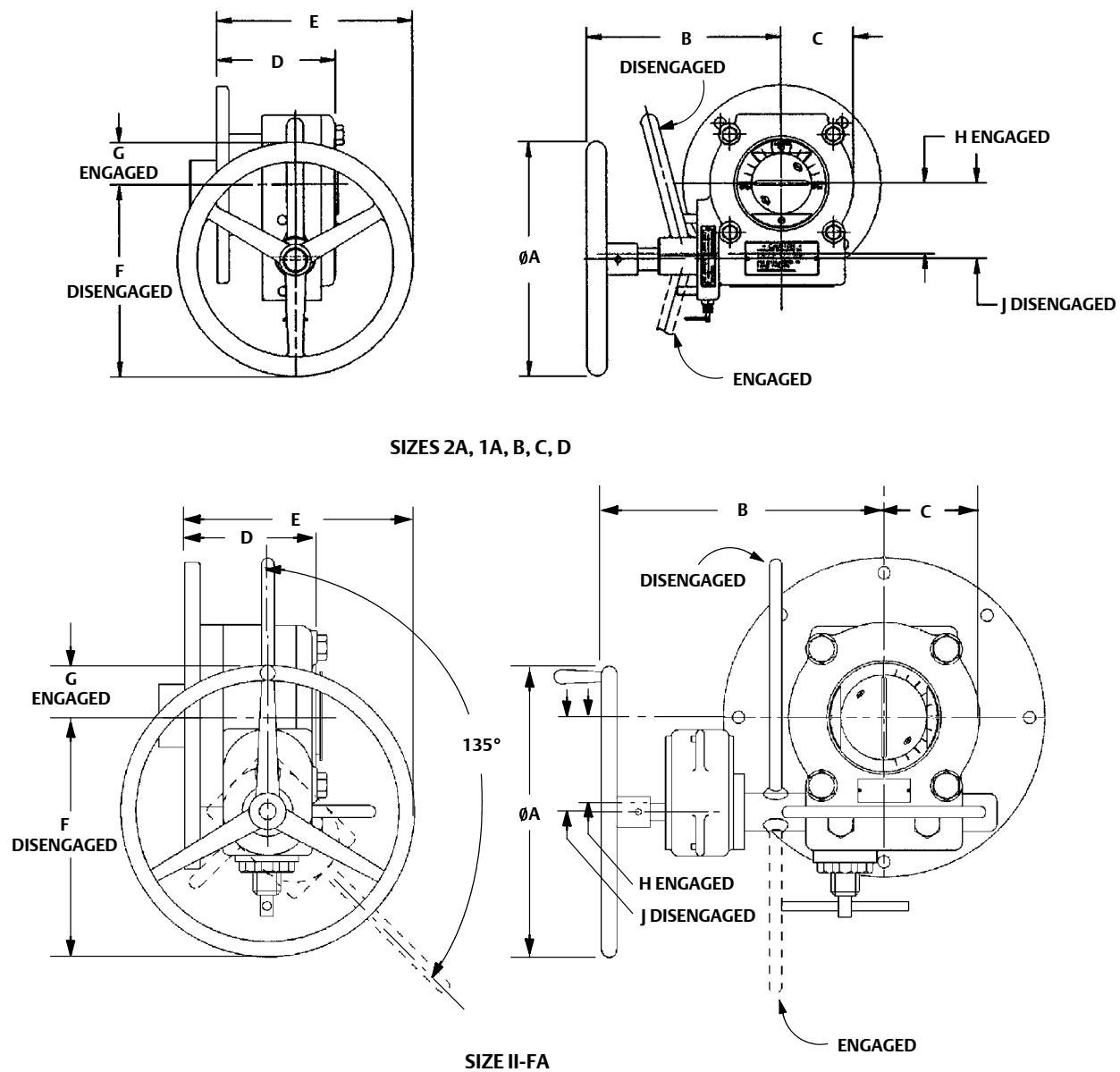
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A5431-1

Note: This drawing is a typical view only. For some valves, the handwheel is on the opposite side.

Table 5. Dimensions for Actuator Sizes 2A, 1A, B, C, D, and II-FA

1078 Size	A	B	C	D	E	F	G	H	J
mm									
2A	152 203 305	230	55.4	116	155 181 232	140 165 216	17.5 42.9 93.7	58.7	63.5
1A	305 610	229	68.3	124	235 387	229 381	82.6 235	69.9	76.2
B	203 305 610	229	84.1	140	194 244 397	191 241 394	19.1 69.9 222	82.6	88.9
C	610	254	102	149	400	416	200	105	111
D	762 914	254	117	203	505 581	506 583	262 338	119	125
II-FA	406	356	117	203	337	328	84	119	125
Inches									
2A	6.00 8.00 12.00	8.00	2.18	4.56	6.12 7.12 9.12	5.5 6.5 8.5	0.69 1.69 3.69	2.31	2.50
1A	12.00 24.00	9.00	2.69	4.88	9.25 15.25	9.00 15.00	3.25 9.25	2.75	3.00
B	8.00 12.00 24.00	9.00	3.31	5.50	7.62 9.62 15.62	7.50 9.50 15.50	0.75 2.75 8.75	3.25	3.50
C	24.00	10.00	4.00	5.88	15.75	16.38	7.88	4.12	4.38
D	30.00 36.00	10.00	4.62	8.00	20.25 23.25	19.94 22.94	10.31 13.31	4.69	4.94
II-FA	16.00	14.00	4.62	8.00	13.25	12.94	3.31	4.69	4.94

Figure 2. Dimensions for Actuator Sizes 2A, 1A, B, C, D, and II-FA (also see table 5)



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Ordering Information

Whenever a power actuator is ordered with a 1078 manual actuator, all components are configured and mounted according to specifications of the order.

Size AAA, AA, and A

Field installation of the 1078 onto existing actuators with F or G mounting adaptations requires installation of new power actuator parts. (The F and G mounting adaptations are the mounting methods normally used to mount 1052 and 2052 (size 1 and 2) actuators on Fisher valves.) Installation of a valve to bypass cylinder or diaphragm pressure during manual operation is also recommended.

Size 2A, 1A, B, C, D, and II-FA

Field installation of the 1078 onto the following existing actuators with F or G mounting adaptations [1052 (size 70), 2052 (size 3), and 1061 (sizes 30, 40, 60, 68, 80, and 100)] requires additional parts in most cases. Remove the cover and hub and then replace with the 1078 actuator. Most assemblies require a new lever and splined adaptor.

Table 6. Handwheel/Valve Shaft Rotation

VALVE	1078 ACTUATOR ACTION		
	Actuator Mounting		
	Right-Hand	Left-Hand	Left-Hand (Optional) ⁽³⁾
8510, 8532, 8580, 8590, and 9500	Direct Acting ⁽¹⁾	Direct Acting	NA
V150, V200, and V300	Reverse Acting ⁽²⁾	Reverse Acting	Direct Acting
V250	Reverse Acting	Direct Acting	NA
V500 and CV500	Reverse Acting	Reverse Acting	NA

1. Direct acting is when the clockwise handwheel rotation produces clockwise valve shaft rotation to close the valve.
 2. Reverse acting is when the clockwise handwheel rotation produces counter clockwise valve shaft rotation to close the valve.
 3. A left hand ball will be required for the NPS 3 through 12 series B and the NPS 14 through 20, with or without an attenuator.

When ordering, specify:

1. Power actuator type and size, and valve shaft size.
2. Right or left hand mounting and desired mounting position.
3. Direct or reverse acting manual actuator construction. Refer to the mounting positions shown in the appropriate actuator bulletin and order according to the guidelines in table 6.

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