

Fisher™ 657 and 667 Size 30i - 76i Diaphragm Actuators

Fisher 657 and 667, size 30i to 76i, spring-opposed diaphragm actuators position the valve plug in the valve in response to varying controller or valve positioner pneumatic output signals applied to the actuator diaphragm. Zero setting of the actuator is determined by the compression of the actuator spring, and span is set by the actuator spring rate. The 657 actuator is direct-acting; the 667 is reverse-acting. These actuators are designed to provide dependable on-off or throttling operation of control valves.

Features

- **Improved Ease of Use--** Integral mounting pad for Fisher FIELDVUE™ DVC2000 and DVC6200 digital valve controllers eliminates the traditional mounting bracket and reduces the number of parts required to mount.
- **Integral Air Passage--** Fisher 667 size 30i through 76i actuators incorporate an integral air passage that eliminates the need for external tubing and fittings when paired with a DVC2000 or DVC6200.
- **Backwards Compatible--** Both 657 and 667 are compatible with instruments that utilize traditional bracket-based mounting kits. The 667 can be externally tubed for instruments or accessories when required.
- **Application Versatility--** Spring rates, travel stops, and manual operators are available for nearly any control valve application.
- **Excellent Linearity Between Loading Pressure and Travel--** A molded diaphragm travels in a deep diaphragm casing, minimizing area change throughout the travel.
- **High Degree of Dynamic Stability and Frequency Response--** A shallow casing on the pressure side means reduced volume on that side, thereby minimizing response time.
- **High Thrust Capability--** The molded diaphragm allows maximum thrust for given diaphragm size.
- **Long Service Life--** Rugged thick-walled cast iron and steel construction provides increased stability and corrosion protection.



Fisher 657 and 667 Size 30i - 76i Actuators
Mounted on easy-e™ Valves

Product Bulletin

61.1:657 Size i
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657 and 667 Size 30i - 76i

D104018X012

Specifications

Standard Operating Pressure Range⁽¹⁾

657 and 667: ■ 0.2 to 1.0 bar (3 to 15 psig) or ■ 0.4 to 2.0 bar (6 to 30 psig)
657-4 and 667-4: 0.2 to 1.9 bar (3 to 27 psig)
667 Size 76i: ■ 0.4 to 2.0 bar (6 to 30 psig) or ■ 0 to 3.1 bar (0 to 45 psig)

Maximum Travel

See table 2

Output Indication

Stainless steel disk or pointer and graduated scale

Stroking Speed

Dependent on actuator size, travel, spring rate, initial spring compression, and supply pressure. If stroking speed is critical, consult your [Emerson Process Management sales office](#).

Maximum Allowable Thrust⁽²⁾

See table 2



Operating Temperature Range⁽¹⁾

Standard Construction (Nitrile Elastomers): -40 to 82°C (-40 to 180°F)
Optional Construction (Silicone Diaphragm) and Ethylene Propylene (EPDM) or Fluorocarbon (FKM) O-rings): -40 to 149°C (-40 to 300°F)
Optional Cold Service Construction: -60 to 82°C (-72 to 180°F)
This construction is suitable for cold climate regions per GOST 15150. Note that current SIL certification is only relevant for standard temperature construction. Contact your [Emerson Process Management sales office](#) for details.
Maximum Valve Packing Box Temperature: 427°C (800°F) with cast iron yoke

Volumetric Displacement

See table 1

Signal Connections

Sizes 30i - 60i and 667 Size 76i: 1/4 NPT internal
Size 70i: 1/2 NPT internal.
Oversize signal connections available

Effective Diaphragm Area

See table 2

Construction Materials (refer to figure 1)

Diaphragm Casing

Sizes 30i - 76i: Steel

Diaphragm

Sizes 30i - 76i: ■ Nitrile on nylon, ■ Silicone on polyester, ■ EPDM on aramid, ■ FKM on aramid

Diaphragm Plate

657 Sizes 30i- 60i: ■ Cast aluminum

657 Size 70i: ■ Cast iron or ■ steel

667 Sizes 30i- 60i and 76i: ■ Cast aluminum

667 Size 70i: ■ Cast iron or ■ steel

Actuator Spring: Steel

Spring Adjustor: Steel

Spring Seat: ■ Cast iron or ■ steel

Actuator Stem: Steel

Travel Indicator: Stainless steel

O-Rings: , ■ Nitrile, ■ EPDM, or ■ FKM

Seal Bushing

667 Sizes 30i- 60i: ■ Brass

667 Sizes 70i - 76i: ■ Glass-filled PTFE or ■ Brass

Stem Connector: Zinc-plated steel

Yoke

Sizes 30i - 76i: Cast iron only

Stem and Yoke Boss Diameters

See table 2

Approximate Weight

See table 3

1. The pressure and temperature limits in this bulletin and in any applicable standard or code limitation should not be exceeded.
2. Do not exceed the thrust limits in this bulletin.

Contents

| | |
|---------------------------|----|
| Features | 1 |
| Specifications | 2 |
| Available Configurations | 3 |
| Integral Instrument Mount | 3 |
| Accessories | 3 |
| Ordering Information | 11 |

Tables

| | |
|--|----|
| Additional Specifications | 6 |
| Volumetric Casing Displacement | 5 |
| Approximate Actuator Weights (w/o handwheel) | 6 |
| Thrust Capabilities | 7 |
| Handwheel Specifications | 9 |
| Adjustable Travel Stop Styles | 9 |
| Dimensions | 11 |

Available Configurations

Direct Action

All 657 actuators are direct acting. Applying air pressure to the upper diaphragm casing forces the actuator stem downward. When this pressure is reduced, the opposing spring force moves the actuator stem upward. Should the loading pressure fail, the spring forces the stem to the extreme upward position. This provides fail-open action for push-down-to-close valves and fail-closed action for push-down-to-open valves.

657—A direct-acting actuator used on sliding-stem valves. Available in sizes 30i through 70i. See figure 1.

657-4—A 657 actuator in size 70i, designed with 102 mm (4-inch) travel.

Reverse Action

All 667 actuators are reverse acting. Applying air pressure to the lower diaphragm casing forces the actuator stem upward against the opposing spring force. When this loading pressure is reduced, the spring moves the actuator stem downward. Should the loading pressure fail, the spring forces the stem to the extreme downward position. These actuators provide fail-closed action for push-down-to-close valves and fail-open action for push-down-to-open valves.

667—A reverse-acting actuator used on sliding-stem valves. Available in sizes 30i through 76i. See figure 1.

667-4—A 667 actuator in size 70i, designed with 102 mm (4-inch) travel.

Integral Instrument Mount

Fisher 657 and 667 size 30i through 76i actuators feature an integral mounting pad for the DVC2000 and DVC6200 (see figure 1). Only a few parts are required to mount these FIELDVUE instruments to the size i, resulting in a fast and simple mounting procedure.

Fisher 667 size 30i through 76i actuators feature an integral air passage that eliminates the need for tubing and fittings when paired with a DVC2000 or DVC6200.

The 667 retains an external air connection for applications and instruments or accessories that require external tubing.

Accessories

Handwheels

Handwheels for diaphragm actuators are often used as adjustable travel stops. They also provide a ready means of positioning the control valve in an emergency. The specifications in tables 6 and 7 apply to handwheels on both 657 and 667 actuators. For repeated or daily manual operation, the unit should be equipped with a side-mounted handwheel.

Top-Mounted Handwheels—Typical 657 and 667 actuators with handwheels mounted on the diaphragm casing are shown in figure 5. On the 657 actuator, the handwheel can be set to limit the travel in the upward direction; on the 667 actuator, travel in the downward direction can be restricted. A P-2 travel stop (figure 5) is available for a 667 actuator, sizes 45i-60i to limit travel in either the upward or downward directions. An actuator with a P-2 travel stop is limited to a maximum travel of 19mm (0.75 inch).

Clockwise rotation of the handwheel on the 657 actuator moves the actuator stem downward, compressing the spring. Spring action returns the stem as the handwheel is turned counterclockwise. With the 667 actuator, counterclockwise rotation moves the stem upward, and spring action returns the stem on clockwise rotation.

Side-Mounted Handwheels—Figure 3 shows the side-mounted handwheels (designated by the letters MO) available in sizes 34i through 60i on 657 and 667 actuators. Size 30i actuators do not have a side-mounted handwheel available.

All side-mounted handwheels can be used to stroke the valve in either direction at any point in the actuator stem travel. Unlike the top-mounted handwheel, the side-mounted handwheel can be positioned to limit travel in either direction, but not both at the same time. With the handwheel in the neutral position, automatic operation is possible throughout full valve travel. In any other position, valve travel will be restricted. The handwheel is furnished with a spring-loaded ball detent which prevents vibration from changing the setting.

Adjustable Travel Stops

Top-mounted adjustable travel stops are available for 657 and 667 actuators. They are used to limit travel in

Product Bulletin

61.1:657 Size i
March 2016

657 and 667 Size 30i - 76i

D104018X012

the up, down, or up and down directions. Figure 7 illustrates the different constructions. Table 5 defines availability of the different style constructions with actuator type and use.

transmitters, air relays, volume boosters, switching valves, lockup valves, limit switches, and solenoid valves are also available for actuator mounting. They are described in separate publications. Contact your [Emerson Process Management sales office](#) for details.

Other

Accessories such as transducers, positioners, position

Figure 1. Typical 657 and 667 Actuators

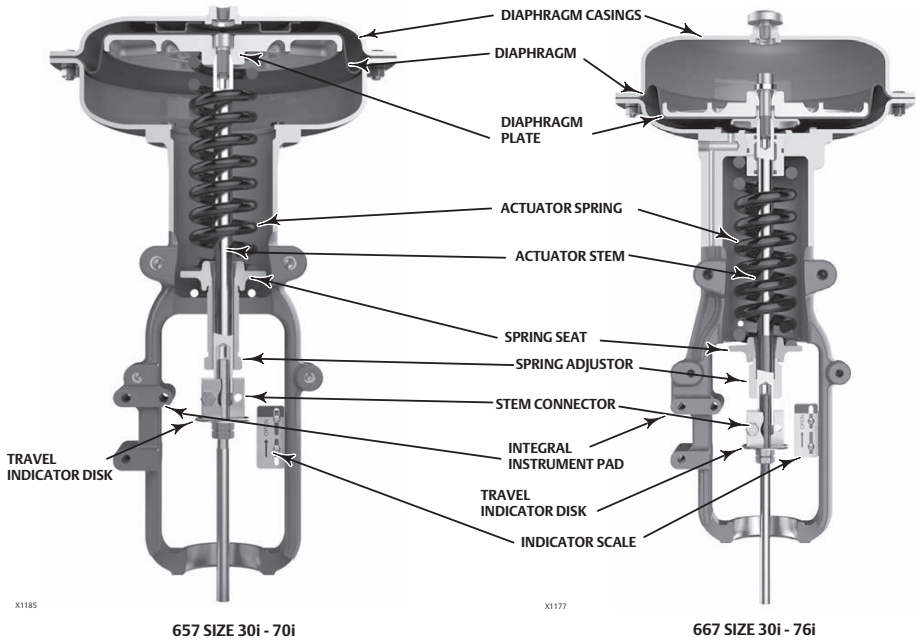


Figure 2. Fisher 657 with Integral-Mounted DVC6200



Table 1. Volumetric Casing Displacement for Fisher 657 and 667 Actuators

| ACTUATOR SIZE | CLEARANCE VOLUME ⁽¹⁾ | TRAVEL, mm | | | | | | | | |
|----------------------------------|---------------------------------|--|-------|------|-------|------|-------|-------|-------|--|
| | | 11 | 16 | 19 | 29 | 38 | 51 | 76 | 102 | |
| | cm ³ | Casing Volume ⁽²⁾ , cm ³ | | | | | | | | |
| 30i | 540 | 918 | 1080 | 1180 | --- | --- | --- | --- | --- | |
| 34i and 40i | 934 | 1470 | 1700 | 1850 | 2330 | 2790 | --- | --- | --- | |
| 45i and 50i | 1560 | --- | 2790 | 3000 | 3720 | 4420 | 5410 | --- | --- | |
| 46i, 60i, and 76i ⁽³⁾ | 2180 | --- | 3880 | 4210 | 5280 | 6340 | 7740 | --- | --- | |
| 70i | 3490 | 5240 | 5950 | 6420 | 7830 | 9240 | 11110 | 14880 | 18570 | |
| | Inch ³ | TRAVEL, INCH | | | | | | | | |
| | | 0.4375 | 0.625 | 0.75 | 1.125 | 1.5 | 2 | 3 | 4 | |
| | | Casing Volume ⁽²⁾ , Inch ³ | | | | | | | | |
| 30i | 33 | 56 | 66 | 72 | --- | --- | --- | --- | --- | |
| 34i and 40i | 57 | 90 | 104 | 113 | 142 | 170 | --- | --- | --- | |
| 45i and 50i | 95 | --- | 170 | 183 | 227 | 270 | 330 | --- | --- | |
| 46i, 60i, and 76i ⁽³⁾ | 133 | --- | 237 | 257 | 322 | 387 | 472 | --- | --- | |
| 70i | 213 | 320 | 363 | 392 | 478 | 564 | 678 | 980 | 1133 | |

1. Clearance volume indicates casing volume at zero travel.
2. Includes clearance volume.
3. For 667i only.

Table 2. Additional Specifications for Fisher 657 and 667 Actuators

| ACTUATOR SIZE | EFFECTIVE DIAPHRAGM AREA | YOKE BOSS DIAMETER | STEM DIAMETER | MAXIMUM TRAVEL | MAXIMUM ALLOWABLE THRUST ⁽¹⁾ |
|---------------|--------------------------|--------------------|---------------|--------------------|---|
| | cm ² | | mm | | N |
| 30i | 297 | 54 | 9.5 | 19 | 10231 |
| 34i | 445 | 54 | 9.5 | 29 | 10231 |
| 40i | 445 | 71 | 12.7 | 38 | 12010 |
| 45i | 677 | 71 | 12.7 | 51 | 25132 |
| 46i | 1006 | 71 | 12.7 | 51 | 33584 |
| 50i | 677 | 90 | 19.1 | 51 | 25131 |
| 60i | 1006 | 90 | 19.1 | 51 | 30246 |
| 70i | 1419 | 90 | 19.1 | 76 | 39142 |
| | | | | 102 ⁽²⁾ | |
| 76i (667) | 1006 | 90 | 19.1 | 51 | 30246 |
| | Inch ² | | Inch | | Lb |
| 30i | 46 | 2-1/8 | 3/8 | 0.75 | 2300 |
| 34i | 69 | 2-1/8 | 3/8 | 1.125 | 2300 |
| 40i | 69 | 2-13/16 | 1/2 | 1.5 | 2700 |
| 45i | 105 | 2-13/16 | 1/2 | 2 | 5650 |
| 46i | 156 | 2-13/16 | 1/2 | 2 | 7550 |
| 50i | 105 | 3-9/16 | 3/4 | 2 | 5650 |
| 60i | 156 | 3-9/16 | 3/4 | 2 | 6800 |
| 70i | 220 | 3-9/16 | 3/4 | 3 | 8800 |
| | | | | 4 ⁽²⁾ | |
| 76i (667) | 156 | 3-9/16 | 3/4 | 2 | 6800 |

1. These values are based on material limitations such as yoke, stem connection, diaphragm plate, and travel stop strengths.
2. For 657-4 and 667-4 actuator constructions.

Table 3. Approximate Actuator Weights (without handwheel)

| ACTUATOR SIZE | ACTUATOR | | | |
|---------------|----------|-----|-----|-----|
| | 657 | 667 | 657 | 667 |
| | Kg | | Lb | |
| 30i | 17 | 17 | 38 | 37 |
| 34i | 25 | 26 | 54 | 58 |
| 40i | 25 | 26 | 56 | 56 |
| 45i | 40 | 44 | 89 | 98 |
| 46i | 52 | 59 | 114 | 129 |
| 50i | 45 | 48 | 99 | 105 |
| 60i | 56 | 60 | 123 | 133 |
| 70i | 109 | 118 | 240 | 260 |
| 76i | --- | 89 | --- | 196 |

657 and 667 Size 30i - 76i
D104018X012

Table 4. Thrust Capabilities⁽¹⁾ by Input Signal Range

| TRAVEL | ACTUATOR SIZE | PRESSURE RANGE TO ACTUATOR DIAPHRAGM ⁽²⁾ | THRUST CAPABILITIES | | |
|--------|---------------|---|---------------------|-------|-------|
| | | | 657 | 667 | |
| | | | N | | |
| | | | Bar | | |
| 19 | 30i | 0.2-1 | 2250 | 1840 | |
| | | 0.4-2 | 3890 | 3270 | |
| | 34i | 0.2-1 | 3380 | 3380 | |
| | | 0.4-2 | 5830 | 5530 | |
| | 29 | 40i | 0.2-1 | 3380 | 2760 |
| | | | 0.4-2 | 5530 | 3680 |
| 45i | | 0.2-1 | 4670 | 4670 | |
| | | 0.4-2 | 8410 | 8870 | |
| 46i | | 0.2-1 | 6940 | 6250 | |
| | | 0.4-2 | 13190 | 11800 | |
| 38 | 50i | 0.2-1 | 5140 | 3740 | |
| | | 0.4-2 | 8410 | 7010 | |
| | 60i | 0.2-1 | 6940 | 4860 | |
| | | 0.4-2 | 13190 | 8330 | |
| | 51 | 70i | 0.2-1 | 7830 | 7830 |
| | | | 0.4-2 | 18590 | 13700 |
| | | | Lb | | |
| | | | Psig | | |
| 0.75 | 30i | 3-15 | 506 | 414 | |
| | | 6-30 | 874 | 736 | |
| | 34i | 3-15 | 759 | 759 | |
| | | 6-30 | 1311 | 1242 | |
| | 1.125 | 40i | 3-15 | 759 | 621 |
| | | | 6-30 | 1242 | 828 |
| 45i | | 3-15 | 1050 | 1050 | |
| | | 6-30 | 1890 | 1995 | |
| 46i | | 3-15 | 1560 | 1404 | |
| | | 6-30 | 2964 | 2652 | |
| 1.5 | 50i | 3-15 | 1155 | 840 | |
| | | 6-30 | 1890 | 1575 | |
| | 60i | 3-15 | 1560 | 1092 | |
| | | 6-30 | 2964 | 1872 | |
| | 2 | 70i | 3-15 | 1760 | 1760 |
| | | | 6-30 | 4180 | 3080 |

1. For size 76i 667 actuators, contact your Emerson Process Management sales office.
2. Consult Fisher 657 and 667 instruction manuals (D100306X012, D100307X012, D100310X012, and D100311X012) for additional information on maximum pressure limitations.

Figure 3. Typical Side-Mounted Handwheel



Figure 4. Typical Side-Mounted Handwheel for Fisher 657 and 667 Actuators



667 SIZES 34i THROUGH 60i

Figure 5. Typical Top-Mounted Handwheels

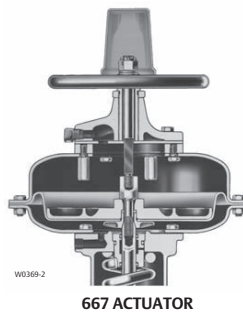
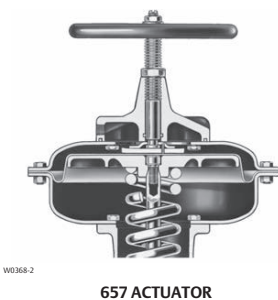
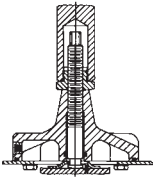


Figure 6. Fisher 667 Size 40i with Integral-Mounted DVC6200

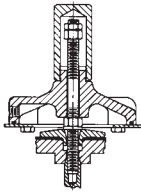


667 SIZE 40i

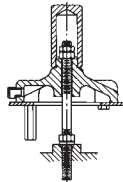
Figure 7. Adjustable Travel Stops



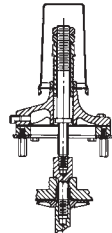
STYLE 1
657 AND 657-4
UP STOP



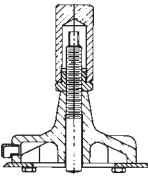
STYLE 2
657 AND 657-4
DOWN STOP



STYLE 10
667 DOWN STOP

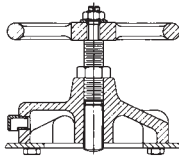


STYLE 11
667 UP
AND DOWN STOP

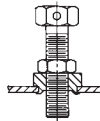


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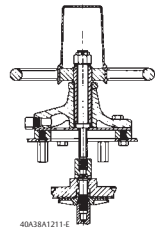
STYLE 12
667 UP STOP



STYLE 13
667 UP STOP



STYLE 14
667 UP STOP



40A38A1211-E

STYLE P2
667 UP AND
DOWN STOP

Table 5. Adjustable Travel Stop Styles ⁽¹⁾

| Actuator Size | 30i | 34i | 40i | 45i | 46i | 50i | 60i | 70i | 667 Size 76i |
|----------------------|----------------------------|----------------------------|----------------------------|---------------------------------------|---------------------------------------|---------------------------------------|---------------------------------------|-----|---------------------------------------|
| 657 Up Stop | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 657 Down Stop | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 667 Up Stop | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12, 13 ⁽³⁾ , 14 | 12 | 12, 13 ⁽³⁾ , 14 |
| 667 Down Stop | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| 667 Up and Down Stop | --- | 11 | 11 | 11 ⁽⁴⁾ , p2 ⁽⁵⁾ | 11 ⁽⁴⁾ , p2 ⁽⁵⁾ | 11 ⁽⁴⁾ , p2 ⁽⁵⁾ | 11 ⁽⁴⁾ , p2 ⁽⁵⁾ | --- | 11 ⁽⁴⁾ , p2 ⁽⁵⁾ |

1. See figure 7.
2. Top-mounted handwheel, see figure 5.
3. Adjustable handwheel up stop.
4. 38 mm (1.5 inch) maximum travel.
5. Adjustable handwheel up and down stop, 19 mm (0.75 inch) maximum travel.

Table 6. Fisher 657 Handwheel Specifications

| 657 ACTUATOR SIZE | TOP-MOUNTED HANDWHEEL | | | | SIDE-MOUNTED HANDWHEEL | | | |
|--------------------|-----------------------|-----------------------|--------------------------|----------------------------|------------------------|-----------------------|--------------------------|---|
| | Handwheel Diameter | Turns Per mm Travel | Rim Force ⁽¹⁾ | Max Handwheel Output Force | Handwheel Diameter | Turns Per mm Travel | Rim Force ⁽¹⁾ | Max Handwheel Output Force ⁽²⁾ |
| | | | N | N | | | N | N |
| 30i | 171 | 0.3 | 190 | 6670 | --- | --- | --- | --- |
| 34i and 40i | 222 | 0.3 | 210 | 10010 | 304 | 0.2 | 230 | 10010 |
| 45i and 50i | 222 | 0.3 | 420 | 15080 | 355 | 0.3 | 360 | 15080 |
| 46i and 60i | 222 | 0.3 | 490 | 22690 | 355 | 0.3 | 540 | 22690 |
| 70i ⁽³⁾ | 355 | 0.3 | 590 | 29360 | --- | | | |
| | Inch | Turns Per Inch Travel | Lb | Lb | Inch | Turns Per Inch Travel | Lb | Lb |
| 30i | 6.75 | 8 | 42 | 1500 | --- | --- | --- | --- |
| 34i and 40i | 8.75 | 8 | 48 | 2250 | 12 | 5.14 | 52 | 2250 |
| 45i and 50i | 8.75 | 8 | 95 | 3390 | 14 | 6.65 | 81 | 3390 |
| 46i and 60i | 8.75 | 8 | 110 | 5100 | 14 | 6.65 | 122 | 5100 |
| 70i ⁽³⁾ | 14 | 8 | 132 | 6600 | --- | | | |

1. Tangential handwheel force required to produce the handwheel output force shown. (Proportional to handwheel output force).
2. Maximum force available to compress the actuator spring and close the valve.
3. 657 size 70i is not available with a side-mounted handwheel. Utilize 657 size 70 for side-mounted handwheel.

Table 7. Fisher 667 Handwheel Specifications

| 667 ACTUATOR SIZE | TOP-MOUNTED HANDWHEEL | | | | SIDE-MOUNTED HANDWHEEL | | | |
|----------------------------------|-----------------------|-----------------------|--------------------------|---|------------------------|-----------------------|--------------------------|---|
| | Handwheel Diameter | Turns Per mm Travel | Rim Force ⁽¹⁾ | Maximum Handwheel Output Force ⁽²⁾ | Handwheel Diameter | Turns Per mm Travel | Rim Force ⁽¹⁾ | Maximum Handwheel Output Force ⁽²⁾ |
| | | | N | N | | | N | N |
| 30i | 171 | 0.3 | 200 | 6670 | --- | --- | --- | --- |
| 34i and 40i | 222 | 0.3 | 230 | 10010 | 304 | 0.2 | 230 | 10010 |
| 45i and 50i | 222 | 0.2 | 460 | 17790 | 355 | 0.3 | 360 | 15080 |
| | 355 | 0.2 | 430 | 26690 | | | | |
| 46i, 60i, and 76i ⁽³⁾ | 222 | 0.2 | 460 | 17790 | 355 | 0.3 | 540 | 22690 |
| | 355 | 0.2 | 430 | 26690 | | | | |
| 70i ⁽³⁾ | 355 | 0.2 | 520 | 26690 | --- | | | |
| | 762 mm Bar | 0.2 | 410 | 44480 | | | | |
| | Inch | Turns Per Inch Travel | Lb | Lb | Inch | Turns Per Inch Travel | Lb | Lb |
| 30i | 6.75 | 8 | 45 | 1500 | --- | --- | --- | --- |
| 34i and 40i | 8.75 | 8 | 51 | 2250 | 12 | 5.14 | 52 | 2250 |
| 45i and 50i | 8.75 | 6 | 103 | 4000 | 14 | 6.65 | 81 | 3390 |
| | 14 | 6 | 97 | 6000 | | | | |
| 46i, 60i, and 76i ⁽³⁾ | 8.75 | 6 | 103 | 4000 | 14 | 6.65 | 122 | 5100 |
| | 14 | 6 | 97 | 6000 | | | | |
| 70i ⁽³⁾ | 14 | 6 | 118 | 6000 | --- | | | |
| | 30 Inch Bar | 6 | 92 | 10000 | | | | |

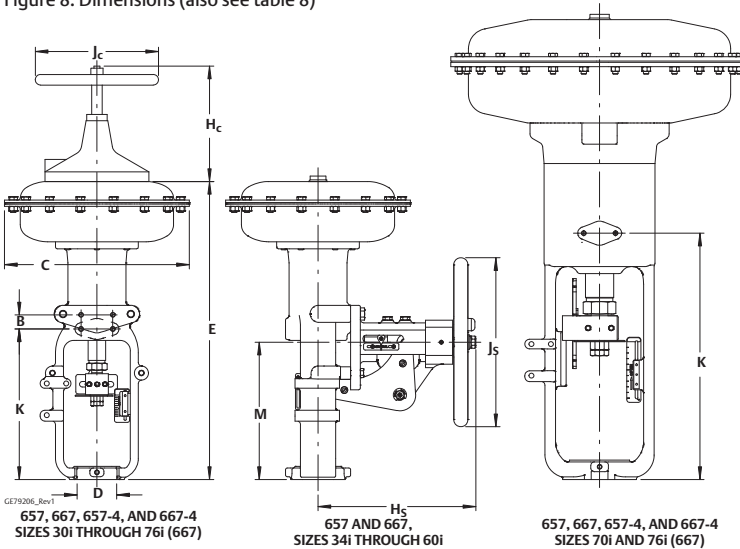
1. Tangential handwheel force required to produce the handwheel output force shown. (Proportional to handwheel output force).
2. Maximum force available to compress actuator spring.
3. 667 size 70i and 76i are not available with a side-mounted handwheel. Utilize 667 size 70 and 76 for side-mounted handwheel.

Table 8. Dimensions

| DIMENSION REFERENCE | ACTUATOR SIZE | | | | | | | | | | |
|---------------------|----------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------|------|
| | 30i | 34i | 40i | 45i | 46i | 50i | 60i | 70i | 76i | | |
| | mm | | | | | | | | | | |
| B | 657,-4 667,-4 | 0 38 | 25 38 | 25 38 | 38 38 | 38 38 | 38 38 | 38 38 | 38 38 | --- | 38 |
| C | | 289 | 333 | 333 | 406 | 473 | 406 | 473 | 536 | 473 | |
| D | | 54 | 54 | 71 | 71 | 71 | 90 | 90 | 90 | 90 | |
| E | 657 | 440 | 498 | 548 | 659 | 656 | 722 | 722 | 840 | --- | |
| | 657-4 | --- | --- | --- | --- | --- | --- | --- | 994 | --- | |
| | 657MO ⁽¹⁾ | 440 | 498 | 548 | 659 | 656 | 722 | 722 | --- | --- | |
| | 667 | 478 | 573 | 594 | 768 | 748 | 784 | 784 | 933 | 881 | |
| H _c | 667-4 | --- | --- | --- | --- | --- | --- | --- | 1070 | --- | |
| | 667MO ⁽¹⁾ | 478 | 573 | 594 | 768 | 748 | 784 | 784 | --- | --- | |
| | 657 | 121 | 164 | 164 | 202 | 202 | 202 | 202 | 313 | --- | |
| | 667 | 119 | 121 | 137 | 159 | 159 | 159 | 159 | 286 | 159 | |
| H _s | | --- | 284 | 286 | 375 | 375 | 378 | 378 | 292 | 222 | |
| J _c | | 171 | 222 | 222 | 222 | 222 | 222 | 222 | 356 | 356 | |
| J _s | | --- | 305 | 305 | 356 | 356 | 356 | 356 | 432 | 432 | |
| K | 657,-4 | 213 | 222 | 272 | 291 | 291 | 354 | 354 | 406 | --- | |
| | 667,-4 | 194 | 224 | 244 | 310 | 310 | 325 | 325 | 375 | 375 | |
| M | 657,-4 | --- | 226 | 248 | 306 | 306 | 370 | 370 | 446 | --- | |
| | 667,-4 | --- | 214 | 248 | 362 | 362 | 378 | 378 | 446 | 446 | |
| Inches | | | | | | | | | | | |
| B | 657,-4 667,-4 | 0.00 1.50 | 1.00 1.50 | 1.00 1.50 | 1.50 1.50 | 1.50 1.50 | 1.50 1.50 | 1.50 1.50 | 1.50 1.50 | --- | 1.50 |
| C | | 11.38 | 13.12 | 13.12 | 16.00 | 18.62 | 16.00 | 18.62 | 21.12 | 18.62 | |
| D | | 2.125 | 2.125 | 2.8125 | 2.8125 | 2.8125 | 3.5625 | 3.5625 | 3.5625 | 3.5625 | |
| E | 657 | 17.31 | 19.62 | 21.56 | 25.94 | 25.81 | 28.44 | 28.44 | 33.06 | --- | |
| | 657-4 | --- | --- | --- | --- | --- | --- | --- | 39.12 | --- | |
| | 657MO | 17.31 | 19.62 | 21.56 | 25.94 | 25.81 | 28.44 | 28.44 | --- | --- | |
| | 667 | 18.81 | 22.56 | 23.38 | 30.25 | 29.44 | 30.88 | 30.88 | 36.75 | 34.70 | |
| H _c | 667-4 | --- | --- | --- | --- | --- | --- | --- | 42.12 | --- | |
| | 667MO | 18.81 | 22.56 | 23.38 | 30.25 | 29.44 | 30.88 | 30.88 | --- | --- | |
| | 657 | 4.75 | 6.44 | 6.44 | 7.94 | 7.94 | 7.94 | 7.94 | 12.31 | --- | |
| | 667 | 4.69 | 4.75 | 5.38 | 6.25 | 6.25 | 6.25 | 6.25 | 11.25 | 6.25 | |
| H _s | | --- | 11.19 | 11.25 | 14.75 | 14.75 | 14.88 | 14.88 | 11.50 | 11.50 | |
| J _c | | 6.75 | 8.75 | 8.75 | 8.75 | 8.75 | 8.75 | 8.75 | 14.00 | 8.75 | |
| J _s | | --- | 12.00 | 12.00 | 14.00 | 14.00 | 14.00 | 14.00 | 17.00 | 17.00 | |
| K | 657,-4 | 8.38 | 8.75 | 10.69 | 11.44 | 11.44 | 13.94 | 13.94 | 16.00 | --- | |
| | 667,-4 | 7.62 | 8.83 | 9.62 | 12.19 | 12.19 | 12.81 | 12.81 | 14.75 | 14.75 | |
| M | 657,-4 | --- | 8.88 | 9.75 | 12.06 | 12.06 | 14.56 | 14.56 | 17.56 | --- | |
| | 667,-4 | --- | 8.44 | 9.75 | 14.25 | 14.25 | 14.88 | 14.88 | 17.56 | 17.56 | |

1. MO = Manual operator.

Figure 8. Dimensions (also see table 8)



Ordering Information

When ordering, specify:

Application

1. On-off or throttling service
2. Input signal range
3. Maximum supply pressure
4. Valve body type and size with which the actuator will be used
5. Valve plug travel
6. Actuator thrust required with actuator stem both fully retracted and fully extended
7. Stroking time requirements, if critical
8. Ambient temperature range

Actuator

Be sure to specify: actuator type number; whether a top-mounted handwheel is required; and whether an adjustable up or down travel stop is required. Refer to the Specifications section. Review the information under each specification and in the referenced tables and figures. Specify the desired choice wherever there is a selection to be made.

Valve Body, Instruments, and Accessories

Refer to the separate valve body bulletin, instrument bulletins, and bulletins covering accessories for ordering information.

Product Bulletin

61.1:657 Size i
March 2016

657 and 667 Size 30i - 76i

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