

HercuLine[®] Actuator Series 10260A Specifications *Non-Contact Position Sensing!*

62-86-03-10 August 2005



Overview

To operate with maximum efficiency and improve process uptime, state-of-the-art control systems require accurate, responsive, and repeatable actuation of final control devices. Actuators are often overlooked when considering maintenance and ancillary support costs, yet they play an important role in system performance and can directly impact your company's bottom line.

Honeywell's 10260A medium torque industrially rated rotary actuator is engineered for exceptional reliability, accurate positioning, and low maintenance. Designed for very precise positioning of dampers and quarter turn valves, the 10260A performs especially well in extremely demanding environments requiring continuous-duty, high reliability, and low maintenance. Typical applications include furnace pressure dampers, fuel/air ratio valves, windbox dampers, coal mill dampers, scoop tubes, and Fluid Gyrois.



Actuator Operation

Spur gears and a single reduction worm/worm gear combine with a synchronous induction AC motor for accurate and repeatable positioning of final control elements.

The worm/worm gear combination also functions as a brake, capable of holding greater than two times the output torque in a back-driving condition.

Control options are available to interface with a modulating 4-20 mA input signal or position proportional (3 wire/PAT) and 4-20 mA customer feedback. Internal balance, customer feedback, and patented slidewire emulation is provided by a non-contacting position sensor.

Features

- **Accurate Positioning**
Motor/gear train provides accurate positioning with instantaneous start/stop characteristics
- **Enclosure**
Rugged, industrial grade enclosure
- **Non-Contact Position Sensing**
Non-contacting sensing lowers maintenance costs and improves performance.
- **Low Maintenance**
Simple-proven design means high reliability/low maintenance.
- **Duty Cycle**
100 % duty cycle motor.
- **Torque**
High torque capability in small package (10 to 300 lb-ft of torque)

- **Control Signals**
4-20 mA, 1-5 Vdc, Position proportional (PAT), Open/close (contact closure)
- **Output Signals**
0/4-20 mA, 0/1-5 Vdc (0-16 Vdc), and slidewire emulation.
- **Power Requirements**
Low power consumption 120/240 Vac, 50/60 Hz, single phase ≤ 1 amp.
- **Full Travel Speed**
Full stroke travel speeds from 10 to 60 seconds (90 degree travel, 60 Hz supply)
- **Manual Operation**
All 10260A series actuators are supplied with a manual handwheel to operate the actuator when power is not available.
- **Auto-Manual** electric handswitch with auxiliary contacts indicating an "Out-of-Auto" position is available for local electric control.
- **Output Shaft Hardware**
All 10260A series actuators are supplied with an adjustable radius and adjustable position crank arm. Optional 12" crank arm, linkage kits, and direct coupling hardware are available.
- **Limit Switches**
All 10260A series actuators are supplied with two end-of-travel electric limit switches. Up to 4 additional SPDT auxiliary switches are available.

- **Warranty**
Exceptional warranty – 18 months from shipment date
- **Certification**
CSA, UL and CE available

Non-Contact Position Sensing

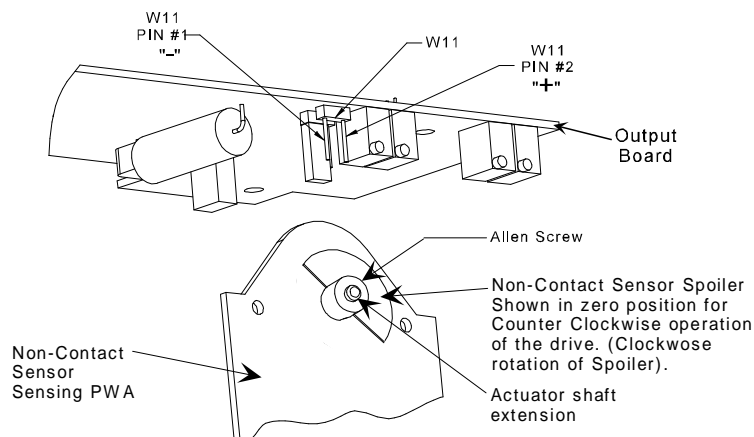
The Honeywell 10260A series actuators implement a variable inductance, non-contact position sensor mounted directly to the actuator output shaft providing precision position sensing from 0 to 90 degrees. This technology eliminates maintenance items such as wipers, bearings, as well as static friction, hysteresis and electrical noise over a wide range of demanding environmental conditions.

Slidewire Emulation

Honeywell Slidewire Emulation provides backward compatibility for three-wire position proportional control schemes while eliminating maintenance and control problems associated with slidewire wear.

The Slidewire Emulation Circuit (SEC) emulates the proportional voltage output of a typical slidewire through a high impedance circuit. The voltage output is proportional to the supply voltage and shaft position. A non-contact position sensor is used to determine shaft position in place of the slidewire.

This high impedance slidewire emulation circuit accepts supply voltages up to 18 Vdc and emulates voltage outputs typical of slidewires up to 1000 ohms



NCS Assembly

Specifications—General

| Physical | | | | |
|--|---|--|-----|--|
| Weight | 40 lb. (18 kg) net | | | |
| Enclosure | Precision-machined Aluminum alloy casting, finished in light gray powder coat epoxy. | | | |
| Gear train | Alloy steel, high efficiency steel spur gear primary train with safety fused idler gear. Precision ground, self-locking/ self-releasing worm gear final mesh. | | | |
| Mechanical stops | To prevent over-travel | | | |
| Operating Temperature | -30 °C to +85 °C (-20 °F to +185 °F) | | | |
| Storage Temperature | -40 °C to +93 °C (-40 °C to +200 °F) | | | |
| Relative Humidity | Fully operable over the range of 0-99 % R.H. non-condensing | | | |
| Scale | 0 % to 100 % corresponding to full crank arm travel. | | | |
| Crank Arm | Adjustable radii (1-7/16" to a maximum of 5"). Position adjustable through 360° rotation. Optional 12" crank arm adjustable 0-12" radii. | | | |
| Output Shaft | 1" diameter, 1-1/2" long is standard on 10261A, 10262A, 10264A, 10266A, 10267A, 10268A. 1" diameter, 2" long is standard on 10263A, 10265A and 10269A optional on other models. | | | |
| Rotation | 90° degrees between 0 % and 100 % on scale, limited by mechanical stops. | | | |
| Direction of Rotation | Field selectable via switch and jumper. Default = CCW (determined looking into the shaft) | | | |
| Manual Handwheel | Provides a means of positioning the actuator in the event of a power failure or set-up. | | | |
| Lubrication | Texaco Starplex 2 EP Grease | | | |
| Fuses | <i>Bussmann GDB1.6</i> : 1.6 Amp Fast <i>Littlefuse 312001</i> : 1.0 Amp Fast | | | |
| Output Torque/Full Travel Stroking Time | Model # | Torque Lb-ft N-M | | Output Shaft Speed sec/90° @60Hz @50Hz |
| | 10261A | 10 | 15 | 10 12 |
| | 10262A | 20 | 27 | 20 24 |
| | 10264A | 40 | 55 | 40 48 |
| | 10266A | 60 | 80 | 60 72 |
| | 10267A | 40 | 55 | 20 24 |
| | 10268A | 80 | 110 | 40 48 |
| | 10269A | 150 | 200 | 60 72 |
| | 10263A | 200 | 270 | 40 48 |
| | 10265A | 300 | 400 | 60 72 |

| Electrical | | | |
|---------------------------------|---|------------------------|------------------------|
| Power Input | 120 Vac single phase, 50 or 60 Hz 240 Vac single phase, 50 or 60 Hz | | |
| Motor | Instant start/stop, non-coasting, non-burnout, continuous duty permanent magnet synchronous induction motor. Can be stalled up to 100 hours without damage. | | |
| Motor Current | = No load = full load = locked rotor | | |
| | Model No. | 120 V, 50/60 Hz | 240 V, 50/60 Hz |
| | 10261A, 62A, 64A, 66A | 0.4 A (48 VA) | 0.3 A (72 VA) |
| | 10263A, 10265A | 1.0 A (120 VA) | 0.5 A (120 VA) |
| | 10267A, 68A, 69A | 0.8 A (96 VA) | 0.3 A (72 VA) |
| Loss of Power | Stays in place | | |
| Local Auto/Manual Switch | Optional – allows local and automatic operation of the actuator. | | |

| Electrical | |
|---------------------------|---|
| Limit Switches | Standard – Two SPDT end of travel limits |
| Auxiliary Switches | Optional – Up to 4 additional SPDT switches rated (10 A at 125 Vac, 5 A at 250 Vac) |
| Certifications | |
| Approvals | CE Compliance/CSA/UL |

| Torque Settings of Crank Arm Bolts | |
|------------------------------------|---|
| Clamp Bolt | <i>Standard Arm</i> (Part Number 087449) (1-7/16-5 in. adjustment): 85 lb-ft. <i>Optional Long Arm</i> (Part Number 154007) (0-12 in. adjustment): 85 lb-ft. |
| Rod End Bolt | <i>Standard and long arms</i> : 30-35 lb./ft |

Specification – Actuator with Motor Positioner Board

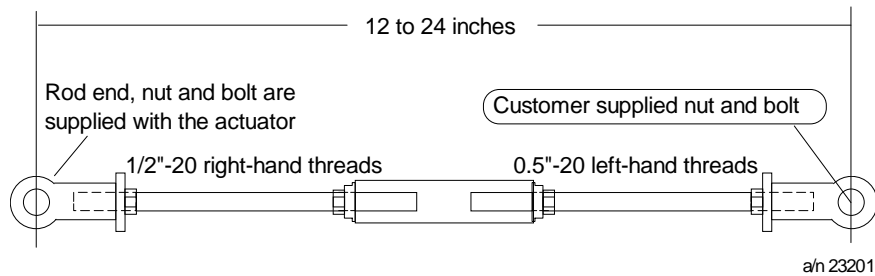
| Electrical | | |
|----------------------------------|---|--|
| Input Signals | Input: 4-20 mA 1 Vdc to 5 Vdc with appropriate shunt resistor for current range (Resistor: 250 ohms \pm 0.1 % Part Number: 070756) | |
| Input Impedance | Input 4-20 mA 1-5 V with fail-safe Jumper W2 1-5 V without fail-safe Jumper W2 | Input Impedance 250 ohms 10 K ohms 10 M ohms |
| Sensitivity | 0.20 % to 5 % span adjustable. Shipped at approximately 0.5 % span | |
| Hysteresis | Less than 0.4 % of full scale | |
| Linearity | \pm 0.25 % of span | |
| Repeatability | 0.2 % span | |
| Voltage/ Supply Stability | 0.25 % of span with +10/–15 % voltage change | |
| Temperature Coefficient | Less than \pm 0.03 % of span per degree C for 0 °C to 50 °C Less than \pm 0.05 % of span per degree C for –30 °C to 85 °C | |
| Zero Suppression | 100 % of span | |
| Input Filter | Adjustable to smooth input signal | |
| Maximum Input Voltage | 5 Vdc | |
| Output | Two triac switches for raise-or-lower motor operation. | |
| Fail-safe operation | If input signal falls below 2% of span, there are four choices selected by a movable jumper: stop, go full upscale, go full downscale, or go to a selected (adjustable) position. | |
| Isolation | Input is isolated from power | |

Specification – Actuator with Output Board

| Electrical | |
|----------------------------|--|
| Feedback signals | 0-20 mA 4-20 mA 1-5 Vdc with 250 ohm resistor 0-16 Vdc with 800 ohm resistor |
| Slidewire Emulation | Provides output voltage ratiometric to shaft position and potentiometric to supply voltage (1-18 Vdc) without a slidewire. Emulates a 100 ohm to 1000 ohm slidewire. 10 mA output maximum. |
| Isolation | Output is isolated from power and input signal |
| Load Requirement | Current Out — 0-1000 ohms |

Turnbuckle Linkage Kits (Table V, Option E)

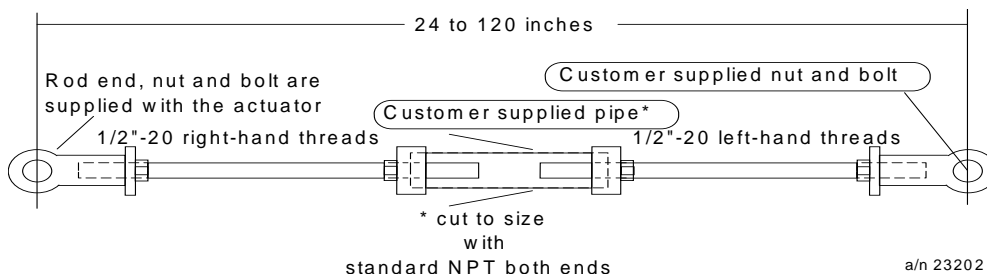
These kits are to be used where short lengths are required. These lengths range from 12 inches to 24 inches and refer to the rod end center-to-center distance. All turnbuckle kits include the turnbuckle, load rod end (left-hand thread), connecting rods and locking nuts. The nut and bolt used to connect the rod end to the load are supplied by the Customer. The actuator rod end (right-hand thread), nut and bolt are supplied with the actuator.



Turnbuckle Linkage Kit

Pipe Linkage Kits (Table V, Option E)

These kits are used for linkage lengths from 24 to 120 inches. All pipe linkage kits include the mechanical pipe couplings, load rod end (left-hand thread), connecting rods and locking nuts. The Customer must supply a piece of schedule 40 pipe* (Both ends with right-hand NP threads) and a nut and bolt to connect the rod end to the load. The actuator rod end (right-hand thread), nut and bolt are supplied with the actuator.



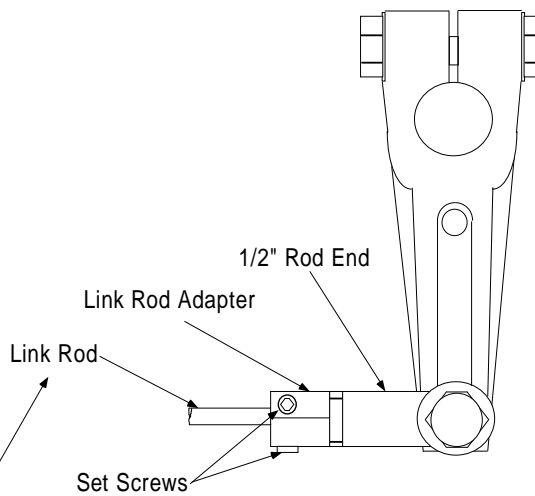
Pipe Linkage Kit

*Pipe length = Overall linkage length minus (-) 17 inches

Actuator Crank Arms

The 10260A Series Actuator comes standard with a 6” crank arm and there is an optional 12” crank arm that is adjustable from 0 to 12”.

The 10260A Series Actuator crank arm uses a standard ½” rod end to compliment the turnbuckle and pipe linkage kits. The crank arm connects the link rod using a ½” rod end and a hex link rod adapter. For applications which use a link rod, a link rod adapter is available as an option in the MSG.

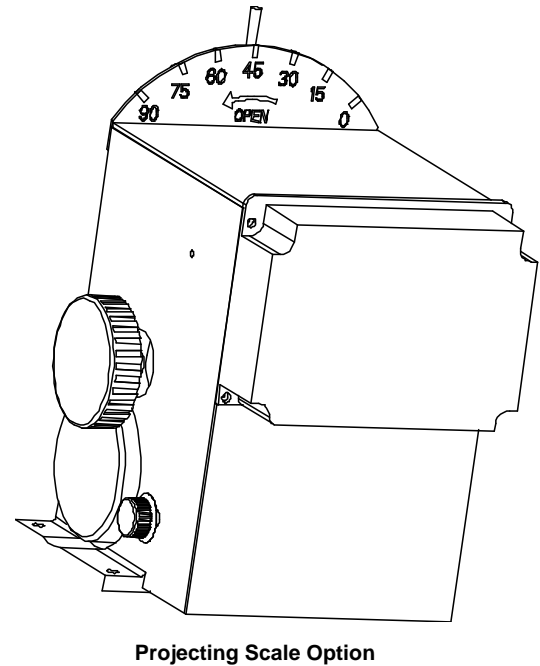


Insert the Link Rod Completely into the Link rod Adapter and tighten the (2) set screws with sufficient force to hold the link rod.

Standard 6” Crank Arm

Projecting Scale Option (Table V, Option B)

The projecting scale option is available for customers whose actuators are direct coupled or positioned such that it would be impossible to read the standard scale on the actuator. The projecting scale sits above the actuator and can be read at a distance from the front side of the actuator as well as the normal shaft side of the actuator.



Model Selection Guide

Reference 62-86-16-17

Instructions

- Select the desired key number. The arrow to the right marks the selection available.
- Make the desired selections from Tables I thru VII using the column below the arrow. A dot (•) denotes unrestricted availability.

Key Number I II III IV V VI VII

┌-----┐ - ┌-┐ - ┌-┐ - ┌-┐ - ┌-┐ - ┌-┐ - ┌-┐ - ┌-┐

| KEY NUMBER - Electronics | | | Selection | Availability |
|--------------------------------------|--|-------|-----------|--------------|
| Output Torque (lb. - ft.) (N - M) | Full Travel Stroking - Time in Seconds | | | |
| | 60 Hz | 50 Hz | | |
| 10 (15) | 10 | 12 | 10261A | ↓ |
| 20 (27) | 20 | 24 | 10262A | ↓ |
| 40 (55) | 40 | 48 | 10264A | ↓ |
| 60 (80) | 60 | 72 | 10266A | ↓ |
| 40 (55) | 20 | 24 | 10267A | ↓ |
| 80 (110) | 40 | 48 | 10268A | ↓ |
| 150 (200) | 60 | 72 | 10269A | ↓ |
| 200 (270) | 40 | 48 | 10263A | ↓ |
| 300 (400) | 60 | 72 | 10265A | ↓ |

TABLE I - POWER SUPPLY - SINGLE PHASE

| | | | |
|-------------------|-------------------------------------|---|---|
| 120 VAC 60 Hz | Single Phase 120 VAC 60Hz Motor | 1 | • |
| 120 VAC 50 Hz | Single Phase 120 VAC 50Hz Motor | 2 | • |
| 220/240 VAC 60 Hz | Single Phase 220/240 VAC 60Hz Motor | 3 | • |
| 220/240 VAC 50 Hz | Single Phase 220/240 VAC 50Hz Motor | 4 | • |

TABLE II - CONTROLS

| | | | |
|-------------------|--|---|---|
| Up/Dn | Drive Up/Dn | 0 | • |
| 4-20mAdc / 1-5Vdc | 4-20mAdc or 1-5Vdc (w/resistor change) | 1 | • |

TABLE III - CUSTOMER POSITION OUTPUTS

| | | | |
|------------------------|---|----|---|
| None | No position outputs provided | 00 | • |
| SEC (Note 1) | One slidewire emulation output (3-Wire Pos. Proportional) | 01 | • |
| Analog Output (Note 2) | 4-20mAdc, 0-20mAdc, 0-5Vdc, 1-5Vdc, or 0-1.25Vdc | 03 | • |
| Film Potentiometer | Dual 1000 ohm | 04 | d |
| (Note 3) | Single 1000 ohm | 05 | e |

TABLE IV - CONTACT OUTPUTS

| | | | |
|--------------------------|--|---|---|
| Limit Switches | 1 CW & 1 CCW Limit Switch | 0 | • |
| Limit/Auxiliary Switches | 1CW, 1CCW, & 2 Auxiliary SPDT Switches | 2 | • |
| Limit/Auxiliary Switches | 1CW, 1CCW, & 4 Auxiliary SPDT Switches | 4 | • |
| Limit/Auto-Manual | 1CW, 1CCW, Auto/Man Switch | 5 | • |
| Limit/Auto/Auxiliary | 1CW, 1CCW, Auto/Man Switch & 2 Aux | 7 | • |
| Limit/Auto/Auxiliary | 1CW, 1CCW, Auto/Man Switch & 4 Aux | 9 | • |

- Note 1:** Slidewire emulation output is a solid state emulation circuit providing a ratiometric voltage slidewire signal without utilizing an actual slidewire. Emulates slidewires using voltages up to 20.0Vdc.
- Note 2:** Analog output is factory set to 4-20mAdc. Additional listed outputs are customer selectable by jumper and/or output resistor selection.
- Note 3:** 135 ohm available with 158 ohm resistor supplied with actuator.
100 ohm available with 110 ohm resistor supplied with actuator.

1A, 2A, 3A, 4A, 5A
6A, 7A, 8A, 9A
1026__

TABLE V - OPTIONS

| | | Selection | ↓ |
|---------------------------|---|-----------|---|
| Shafts | Standard | 0 _ _ _ | • |
| | 5 Inch (127,0 mm) Extension | 1 _ _ _ | a |
| | 3 Inch (76,2 mm) Extension | 3 _ _ _ | a |
| Projecting Scale | None | _ 0 _ _ | • |
| | 3/4 Inch (19,05 mm) Shaft Coupling, CW | _ 1 _ _ | b |
| | 3/4 Inch (19,05 mm) Shaft Coupling, CCW to Open | _ 2 _ _ | b |
| | 1 Inch (25,4 mm) Shaft Coupling, CW | _ 3 _ _ | b |
| | 1 Inch (25,4 mm) Shaft Coupling, CCW to Open | _ 4 _ _ | b |
| | CW to Open, No Coupling | _ 5 _ _ | c |
| Crank Arm | 5 Inch (127,0 mm) Standard | _ _ 0 _ | • |
| | None | _ _ 1 _ | • |
| | 12 Inch (304,8 mm) | _ _ 2 _ | • |
| Rod Adapter | None | _ _ _ 0 _ | • |
| | 3/8 Inch (9,53 mm) | _ _ _ 1 _ | • |
| Linkage Kits | None | _ _ _ _ 0 | • |
| | 12 In. (30,5 cm) to 16 In. (40,6 cm) Turnbuckle Kit | _ _ _ _ 1 | • |
| | 16 In. (40,6 cm) to 20 In. (50,8 cm) Turnbuckle Kit | _ _ _ _ 2 | • |
| | 20 In. (50,8 cm) to 24 In. (60,9 cm) Turnbuckle Kit | _ _ _ _ 3 | • |
| | 1 Inch (25,4 mm) Pipe Kit | _ _ _ _ 4 | • |
| | 1.5 Inch (38,1 mm) Pipe Kit | _ _ _ _ 5 | • |
| 2 Inch (50,8 mm) Pipe Kit | _ _ _ _ 6 | • | |

TABLE VI - OPTIONS

| | | | |
|--------------|---------------------------------|-------|---|
| Weatherproof | Weatherproof | 0 _ _ | • |
| | NEMA 4/IP66 | 1 _ _ | • |
| Approvals | None | _ 0 _ | • |
| | CE | _ 1 _ | • |
| | CSA | _ 2 _ | • |
| | UL | _ 3 _ | • |
| Tagging | None | _ _ 0 | • |
| | Linen (Note 4) | _ _ 1 | • |
| | Stainless Steel (Note 4) | _ _ 2 | • |

TABLE VII - OPTIONS 2

| | | | |
|-----------------|---|-----|---|
| Special Manuals | No Special Options (US Manual Standard) | 0 _ | • |
| | English (European format) | 1 _ | • |
| | French (European format) | 2 _ | • |
| Other | None | _ 0 | • |
| | Certificate of Conformance | _ 2 | • |

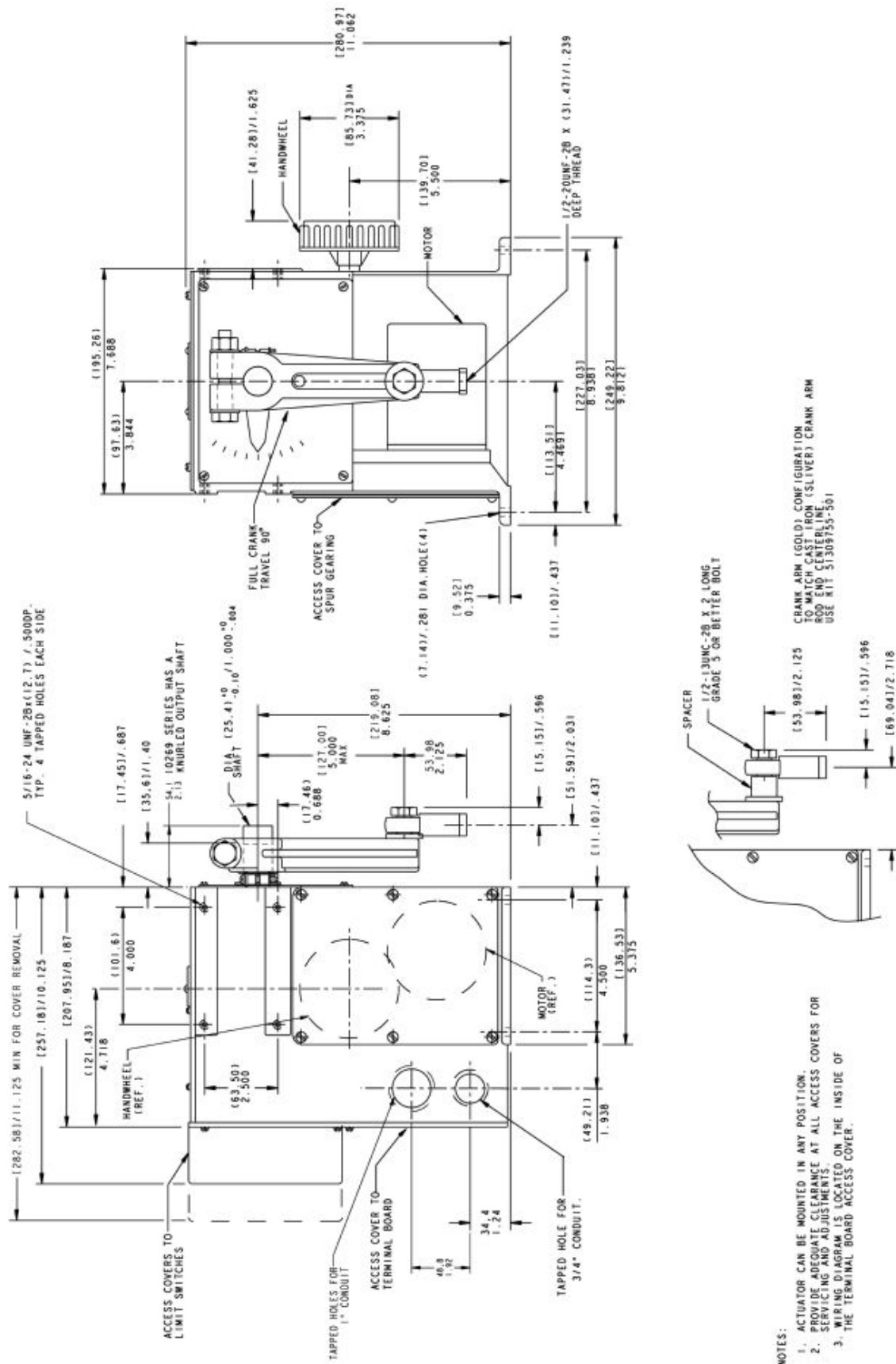
ACCESSORIES

| | Description | Part Number |
|--------------|----------------------------|--------------|
| Rod Adapters | 5/8 Inch (15,88 mm) | 083338 |
| | 7/16 Inch (11,11 mm) | 083336 |
| | 7/8 Inch (22,23 mm) | 083339 |
| Crank Arm | 5 Inch Standard (127,0 mm) | 51309967-501 |
| | 12 Inch (304,8 mm) | 51452160-501 |

RESTRICTIONS

| Restriction Letter | Available Only With | | Not Available With | |
|--------------------|---------------------|-----------|--------------------|------------------------|
| | Table | Selection | Table | Selection |
| a | V | X0XXX | Key Number | 10263A, 10265A, 10269A |
| b | V | 0X100 | Key Number | 10263A, 10265A, 10269A |
| c | V | 0XXXX | NA | NA |
| d | II | 0 | II | 1 |
| e | II | 1 | II | 0 |
| f | V | X0XXX | NA | NA |

Note 4: Customer must supply tagging information - Up to 3 lines, 22 characters per line.



Outline and Dimensions of 10261A, -62A, -64A, -66A, -67A -68A and -69A Actuators

Warranty/Remedy

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Contact your local sales office for warranty information. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace without charge those items it finds defective. The foregoing is Buyer's sole remedy and is **in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose.**

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

HercuLine® is a registered trademark of Honeywell

For More Information

Learn more about how Honeywell's HercuLine® 10260A Series Actuators operate at maximum efficiency with low maintenance, visit our website www.honeywell.com/ps/hfs or contact your Honeywell account manager.

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