

# Turn-Act® (TA) Series

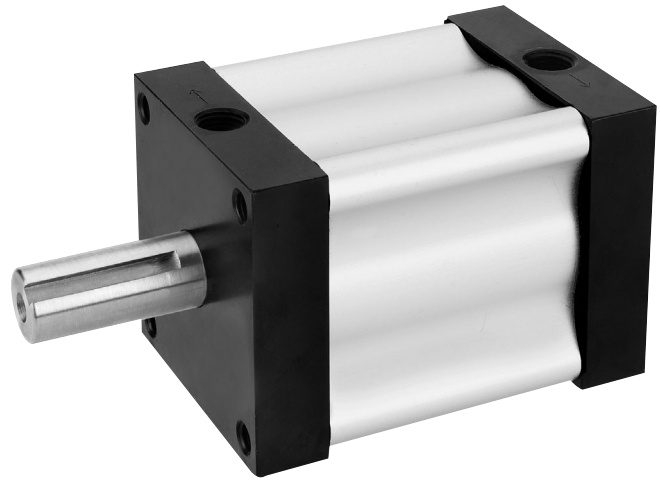
## ROTARY VANE ACTUATORS:

- 16 base models with torque outputs from 87 in.lbs to 1000 in.lbs.
- Rotations 45, 90, 180 & 270 degrees.

As compared to other rotary devices...Turn-Act vane actuators have:

- One moving part providing:
  - ZERO Backlash.
  - No loss of motion.
  - Smooth Rotation.
  - Precise Repeatability.
  - Continuous full torque throughout the rotation.
- Patented Urethane seals for:
  - Long cycle life and Non-lube service.
  - Actual applications with 25 million cycles and more.
- 100s of standard options and modifications.

Just imagine...How TURN-ACT Answer Engineering can work for you!



TURN-ACT ACTUATOR  
NO OPTIONS SELECTED

| Torque Chart (IN. LBS.)              |                    |        |        |
|--------------------------------------|--------------------|--------|--------|
| 180° and 270° Rotations <sup>2</sup> |                    |        |        |
| Actuator Model                       | Actuator Torque at |        |        |
|                                      | 100 PSI            | 80 PSI | 60 PSI |
| 111                                  | 87                 | 70     | 52     |
| 113                                  |                    |        |        |
| 121                                  | 175                | 140    | 105    |
| 123                                  |                    |        |        |
| 131                                  | 350                | 280    | 210    |
| 133                                  |                    |        |        |
| 141                                  | 500                | 400    | 300    |
| 143                                  |                    |        |        |

| Torque Chart (IN. LBS.)            |                    |        |        |
|------------------------------------|--------------------|--------|--------|
| 45° AND 90° Rotations <sup>2</sup> |                    |        |        |
| Actuator Model                     | Actuator Torque at |        |        |
|                                    | 100 PSI            | 80 PSI | 60 PSI |
| 112                                | 175                | 140    | 105    |
| 114                                |                    |        |        |
| 122                                | 350                | 280    | 210    |
| 124                                |                    |        |        |
| 132                                | 700                | 560    | 420    |
| 134                                |                    |        |        |
| 142                                | 1000               | 800    | 600    |
| 144                                |                    |        |        |

## SPECIFICATIONS

### Unit Materials

Stator/Rotor Seals...Urethane  
 Shaft/Tube Seals.....Buna<sup>1</sup>  
 Shaft .....1144 Steel  
 Body .....Anodized Alum.  
 Bearings...Full Comp.Needle

### Miscellaneous

Inlets .....1/4 NPT  
 Min. Pressure .....35psi  
 Max. Pressure .....200 psi<sup>4</sup>  
 Cylinder Bore.....2-1/2"

### Shaft Load Capacities

Max. Side Load.....500 lbs.  
 Max. End Load.....25 lbs.

### Temperature Range

-20°F to 180°F. Consult factory for higher temperature.

### Filtration

Air .....25-50 microns  
 Hydraulic.....10-25 microns

### Cycle Rates

Max. non-lubed rate:  
 Double Vane .....40cpm  
 Single Vane .....20cpm

Max. lubed rate:  
 Consult Factory

### Rotary Motion Backlash

All models .....0 degree

### Leak Rates

Air .....4 cfm or less@100psi  
 Hydraulic ....0.5 cfm@500psi

### Hydraulic Service

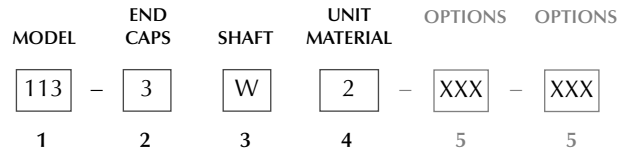
Use of paraffin based hydraulic oil is recommended. DO NOT USE skydrol, brake fluid, water based fluid, S or F type automatic transmission fluid.

- 1 Viton Optional
- 2 All rotations are nominal +/-0 actual
- 3 Cycle = Start position to end of rotation and returning to the start position.  
Stroke = 1/2 cycle
- 4 Pressure Rating for 11X and 12X is 500psi max.

| Capacity per Stroke <sup>3</sup> (IN <sup>3</sup> ) |       |                           |       |
|---|-------|---------------------------|-------|
| 270° Rotation <sup>2</sup>                          |       | 90° Rotation <sup>2</sup> |       |
| 111   | 4.52  | 112                       | 2.75  |
| 121   | 8.50  | 122                       | 5.50  |
| 131   | 17.00 | 132                       | 11.00 |
| 141   | 27.50 | 142                       | 16.70 |

| Weights (LBS)              |     |                           |     |
|----------------------------|-----|---------------------------|-----|
| 270° Rotation <sup>2</sup> |     | 90° Rotation <sup>2</sup> |     |
| 111                        | 2.5 | 112                       | 2.5 |
| 121                        | 3.3 | 122                       | 3.3 |
| 131                        | 6.0 | 132                       | 6.0 |
| 141                        | 9.3 | 142                       | 9.3 |

# How to Order: Turn-Act® (TA)



1

| Model |        |        |          |
|-------|--------|--------|----------|
| Model | Series | Torque | Rotation |
| 111   | TA     | - 87   | - 270    |
| 112   | TA     | - 175  | - 90     |
| 113   | TA     | - 87   | - 180    |
| 114   | TA     | - 175  | - 45     |
| 121   | TA     | - 175  | - 270    |
| 122   | TA     | - 350  | - 90     |
| 123   | TA     | - 175  | - 180    |
| 124   | TA     | - 350  | - 45     |
| 131   | TA     | - 350  | - 270    |
| 132   | TA     | - 700  | - 90     |
| 133   | TA     | - 350  | - 180    |
| 134   | TA     | - 700  | - 45     |
| 141*  | TA     | - 500  | - 270    |
| 142*  | TA     | - 1000 | - 90     |
| 143*  | TA     | - 500  | - 180    |
| 144*  | TA     | - 1000 | - 45     |

\* These models require '2' or '5' for the selection in block #4 "Unit Materials".

2

| End Caps  |                             |
|---|-----------------------------|
| To Specify other modifications; Consult Factory |                             |
| 1   | Pneumatic                   |
| 2   | Pneumatic - Low Profile     |
| 3   | Pneumatic - w/ Drain Ports  |
| 4   | Pneumatic - w/ Vacuum Ports |

3

| Shaft   |                                    |
|---|------------------------------------|
| To Specify other modifications; Consult Factory |                                    |
| Y   | Single End - No Keyway             |
| M   | Double End - No Keyway Each End    |
| W   | Single End - Woodruff Key          |
| V   | Double End - Woodruff Key Each End |
| U   | Single End - Shaft Flat            |
| T   | Double End - Shaft Flat Each End   |
| S   | Single End - Keyway                |
| R   | Double End - Keyway Each End       |

4

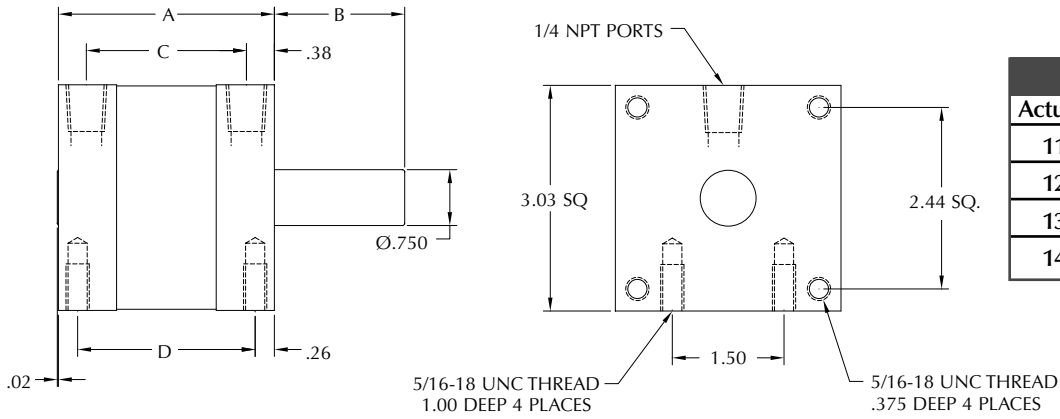
| Unit Materials      |  |
|---------------------|--|
| Shaft - Body - Trim |  |
| 1                   | 1144 Carbon Steel - Anodized<br>Aluminum - Carbon Steel        |
| 2                   | Hardened Carbon Steel - Anodized<br>Aluminum - Carbon Steel    |
| 3                   | 303 Stainless Steel - Anodized<br>Aluminum - Stainless Steel   |
| 4                   | 303 Stainless Steel - 303 Stainless<br>Steel - Stainless Steel |
| 5                   | Hardened 440 SS Steel - Anodized<br>Aluminum - Stainless Steel |
| 6                   | 316 Stainless Steel - 316 Stainless<br>Steel - Stainless Steel |

5

| Options   |  |
|---|--|
| Additional options available on pg. 30            |  |
| 000   | No Options   |
| 100   | Flange Mount - Rod End   |
| 101   | Flange Mount - Cap End   |
| 200   | Side Angle Mounting Brackets<br>- Mounting Surface 3 & 7   |
| 300   | Extended Tie Rods - Rod End  |
| 301   | Extended Tie Rods - Cap End  |
| 320   | Extended Tie Rods - Both Ends  |
| 400   | Adjustable Stroke Control<br>- Cap End, Pos.5  |
| 401   | Adjustable Stroke Control<br>- Rod End, Pos.1  |
| 500   | Electrical Position Indicator<br>- Cap End, Pos. 5   |
| 704   | Teflon Impregnated Hard Anodized   |
| 801   | Side Mounts - Positions 2 & 6  |
| 803   | Side Mounts - Positions 4 & 8  |
| 804   | Side Mounts - Positions 2, 4, 6 & 8  |
| 900   | Thrust Protection - Cap End, Pos.1   |
| 901   | Thrust Protection - Rod End, Pos.1   |
| B00   | Urethane Bumpers   |
| T01   | 3/4" Trantorque® Shaft Coupler<br>- Carbon Steel   |
| T02   | 3/4" Trantorque® Shaft Coupler<br>- Stainless Steel<br>Stainless Shaft Coupler has 1/3 the<br>Transmissible Torque as T01 (see pg. 36, 37) |
| <b>Switch Systems</b>                             |  |
| Additional switch options available on pg. 26     |  |
| All Axx Switch Options are Single End Only        |  |
| A00   | Switch System -No Switches   |
| A02   | Switch System -2 Reed Switches   |
| A05   | Switch System -2 Sourcing Switches   |
| A08   | Switch System -2 Sinking Switches  |
| Double end switch options available on pgs. 27-28 |  |

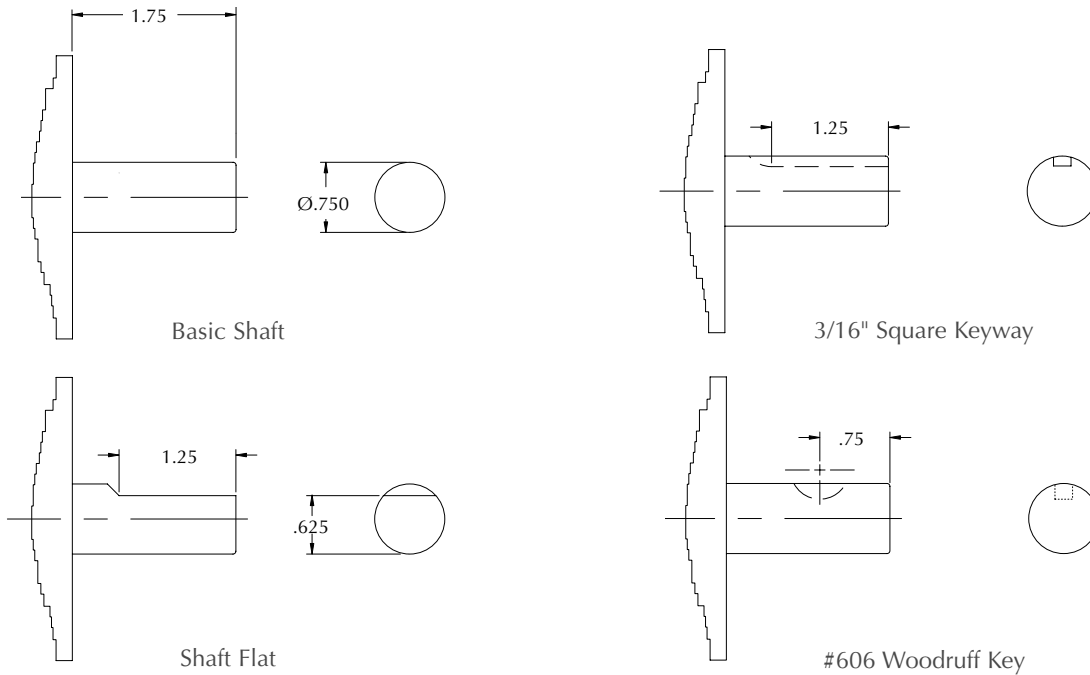
# Dimensional Data: Turn-Act® (TA)

## Basic Dimensions

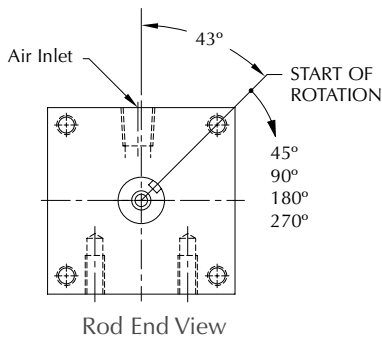


| Dimensional Specifications |       |      |      |      |
|----------------------------|-------|------|------|------|
| Actuator                   | A     | B    | C    | D    |
| 11X                        | 2.90  | 1.75 | 2.15 | 2.38 |
| 12X                        | 4.40  | 1.75 | 3.64 | 3.88 |
| 13X                        | 7.42  | 1.75 | 6.67 | 6.91 |
| 14X                        | 10.38 | 1.75 | 9.63 | 9.86 |

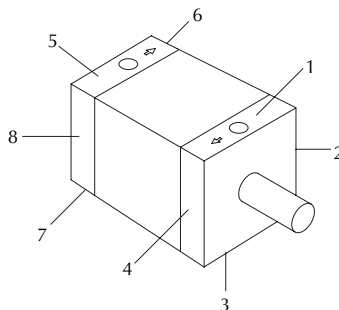
## Shaft Options



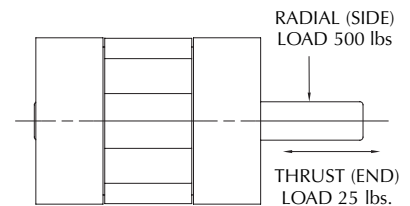
NOTE: Center drill omitted from shaft details for clarity.



Nominal Rotations (+4/-0 actual)



Port & Mounting Position References



Shaft Load Capacity

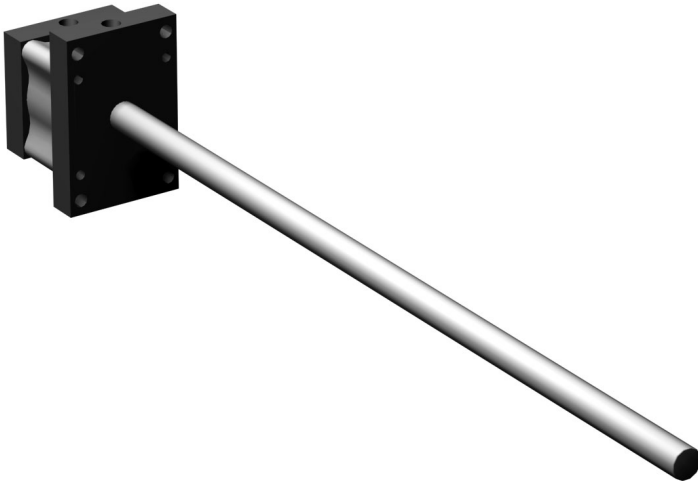
NOTE: The 43° start position is nominal. Tolerances are +/- 2 degrees

# Can You Imagine

## ANSWER ENGINEERING®

The ability to rapidly and accurately modify our products to better meet the requirements of your application.

Frequently, a simple modification; a shorter shaft, a relocated mounting hole or perhaps a change in port size, results in an actuator that will better fit your application. To modify most other manufacturers products is time consuming and expensive. Turn-Act's manufacturing processes are designed to address rapid, accurate, and cost effective production of custom modified rotary actuators.



### Imagine.... Vibratory Conveyor Diverter Application

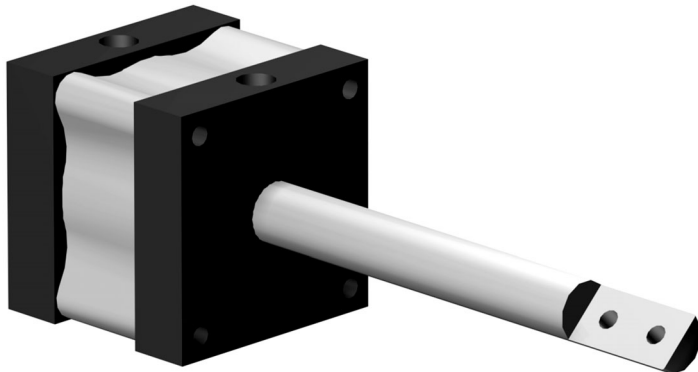
To meet the demanding requirements of a 24-hour 7-day a week vibrating conveyor application, Turn-Act developed this SPECIAL Actuator.

This assembly consists of:

- 175 in.lbs. 90° rotary actuator
- Combined rod head and flange mount with special port location
- Shaft modified to 32" overall length

Reduced cost was the primary goal of this modified actuator. The simple shaft extension allowed for the elimination of a secondary shaft, shaft coupling, shaft bearing, brackets and the labor associated with assembling and aligning these components. This system of fewer parts and connections results in a more reliable and cost effective system.

**THIS IS ...Turn-Act Answer Engineering®**



### Imagine.... Abrasive/High Particulate Environment

Some of the most abusive environments can be found in the paper, wood products, bakery, and foundry industries. Migrating particulates can be the cause of premature equipment failure in these applications.

To address these environmental issues, Turn-Act developed this SPECIAL Actuator.

This assembly consists of:

- 175 in.lbs. 90° rotary actuator
- Shaft modification included:
  - 6" Extended length with a 1.5" flat
  - Tapped holes for end effector attachment
- Rod Seal – modified for abusive environments
- Blind cap head

Improved actuator life and system cost reductions were the primary goals of this modified actuator. Overall, the design provided extended cycle life by limiting particulate entry points and reduced costs associated with assembling the components.

**THIS IS ...Turn-Act Answer Engineering®**