

# Brute (BR) Series

## ROTARY VANE ACTUATORS:

- 25 base models with torque outputs from 400 in.lbs to 5200 in.lbs.
- Standard rotations 90, 110, 180, 270, & 290 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!



BRUTE SERIES ACTUATOR WITH OPTIONAL ADJUSTABLE STROKE CONTROL

Torque Chart (IN. LBS.)			
180°, 270° and 290° Rotations <sup>2</sup>			
Actuator Model	Actuator Torque at		
	100 PSI	80 PSI	60 PSI
221			
223	400	320	240
225			
231			
233	750	600	450
235			
241			
243	1300	1040	780
245			
251			
253	1950	1560	1170
255			
261			
263	2600	2080	1560
265			

Torque Chart (IN. LBS.)			
90° and 110° Rotations <sup>2</sup>			
Actuator Model	Actuator Torque at		
	100 PSI	80 PSI	60 PSI
222			
226	800	640	480
232			
236	1500	1200	900
242			
246	2600	2080	1560
252			
256	3900	3120	2340
262			
266	5200	4160	3120

## SPECIFICATIONS

### Unit Materials

Stator/Rotor Seals ...Urethane  
 Shaft/Tube Seals.....Buna<sup>1</sup>  
 Shaft.....1144 Steel  
 Body ..... Anodized Alum.  
 Bearings ....Radial Ball Thrust

### Miscellaneous

Inlets.....3/8 NPT  
 Min. Pressure .....15psi  
 Max. Pressure.....200psi  
 Cylinder Bore .....5"

### Shaft Load Capacities

Max. Side Load .....2000 lbs.  
 Max. End Load.....1000 lbs.

### Temperature Range

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

### Filtration

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

### Leak Rates

Air ....less than 8 cfh@100psi

### Cycle Rates

Max. non-lubed rate:  
 Double Vane .....20cpm  
 Single Vane .....10cpm

Max. lubed rate:  
 Consult Factory

### Rotary Motion Backlash

All models .....0 degree

### Hydraulic Service

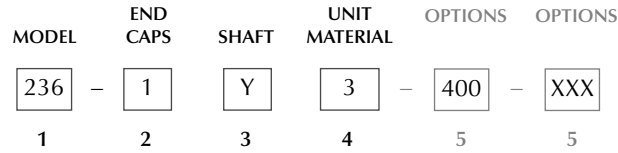
Use of paraffin based hydraulic oil is recommended. DO NOT USE skydrol, brake fluid, water based fluids, or F type automatic transmission fluid.

- 1 Viton Optional.
- 2 All rotations are nominal +4/-0 actual.
- 3 Cycle = Start position to end of rotation. and returning to the start position. Stroke = 1/2 cycle

Capacity per Stroke <sup>3</sup> (IN <sup>3</sup> )			
270° Rotation <sup>2</sup>		90° Rotation <sup>2</sup>	
221	23.9	222	19.3
231	17.8	232	38.5
241	82.0	242	66.0
251	123.0	252	100.0
261	164.0	262	132.0

Weights (LBS)			
270° Rotation <sup>2</sup>		90° Rotation <sup>2</sup>	
221	13	222	13
231	16	232	16
241	23	242	23
251	30	252	30
261	36	262	36

# How to Order: Brute (BR)



1

Model			
Model	Series	Torque	Rotation
221	BR	- 400	- 270
222	BR	- 800	- 90
223	BR	- 400	- 180
225	BR	- 400	- 290
226	BR	- 800	- 110
231	BR	- 750	- 270
232	BR	- 1500	- 90
233	BR	- 750	- 180
235	BR	- 750	- 290
236	BR	- 1500	- 110
241	BR	- 1300	- 270
242	BR	- 2600	- 90
243	BR	- 1300	- 180
245	BR	- 1300	- 290
246	BR	- 2600	- 110
251	BR	- 1950	- 270
252	BR	- 3900	- 90
253	BR	- 1950	- 180
255	BR	- 1950	- 290
256	BR	- 3900	- 110
261	BR	- 2600	- 270
262	BR	- 5200	- 90
263	BR	- 2600	- 180
265	BR	- 2600	- 290
266	BR	- 5200	- 110

2

End Caps	
To Specify other modifications; Consult Factory	
1	Pneumatic - Hard Black Anodized
3	Hydraulic- Hard Black Anodized - Drain Ports
4	Pneumatic - Hard Black Anodized - Vacuum Port

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
S	Single End - Keyway
R	Double End - Keyway Each End

4

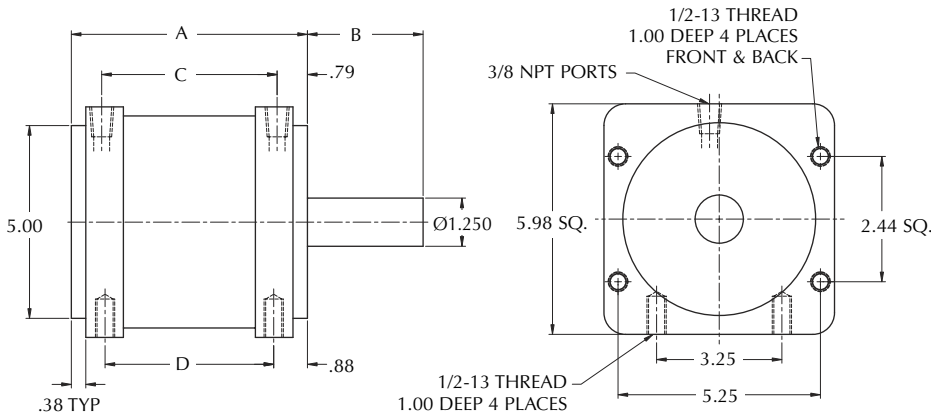
Unit Materials	
Shaft - Body - Trim	
1	1144 Carbon Steel - Anodized Aluminum - Carbon Steel
3	303 Stainless Steel - Anodized Aluminum - Stainless Steel
4	303 Stainless Steel - 303 Stainless Steel - Stainless Steel
6	316 Stainless Steel - 316 Stainless Steel - Stainless Steel

5

Options	
Additional options available on pg. 30	
000	No Options
100	Flange Mount - Rod End
101	Flange Mount - Cap End
300	Extended Tie Rods - Rod End
301	Extended Tie Rods - Cap End
401	Adjustable Stroke Control - Rod End, Pos. 1
501	Electrical Position Indicator - Rod End, Pos.1
704	Teflon Impregnated Hard Anodizing
801	Side Mounts - Positions 2 & 6
803	Side Mounts - Positions 4 & 8
804	Side Mounts - Positions 2,4,6 & 8
B00	Urethane Bumpers
T01	3/4" Trantorque® Shaft Coupler - Carbon Steel
T02	3/4" Trantorque® Shaft Coupler - Stainless Steel  Stainless Shaft Coupler has 1/3 the transmissible torque as T01 (see pg. 36, 37)
Switch Systems	
Additional switch options available on pg. 26	
All Axx Switch Options are Single End Only	
A00	Switch Package - No Switches
A02	Switch Pkg. - 2 Reed Switches
A05	Switch Pkg. - 2 Sourcing Switches
A08	Switch Pkg. - 2 Sinking Switches
Double end switch options available on pgs. 27-28	

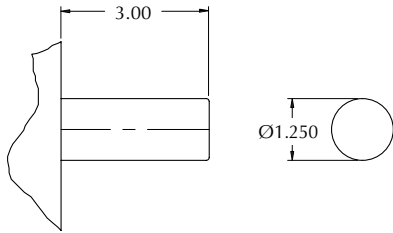
# Dimensional Data: Brute (BR) Series

## BRUTE (BR) Series

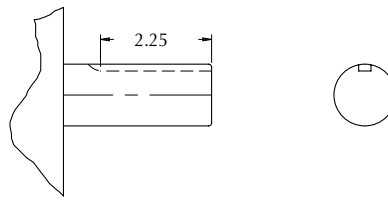


Dimensional Specifications				
Actuator	A	B	C	D
22X	4.37	3.00	2.80	2.62
23X	6.12	3.00	4.55	4.37
24X	8.62	3.00	7.05	6.87
25X	11.64	3.00	10.07	9.89
26X	14.64	3.00	13.07	12.89

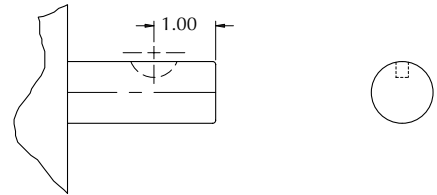
## SHAFT OPTIONS



Basic Shaft

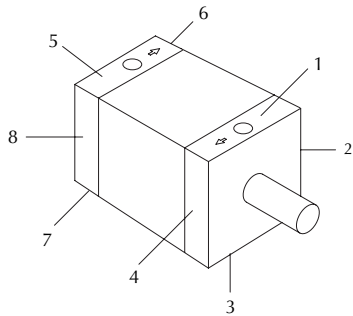


1/4" Square Keyway

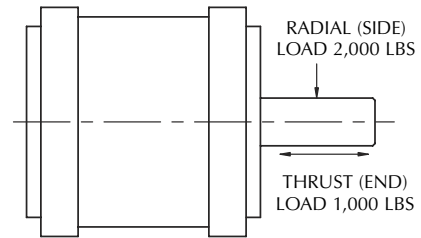


#808 Woodruff Key

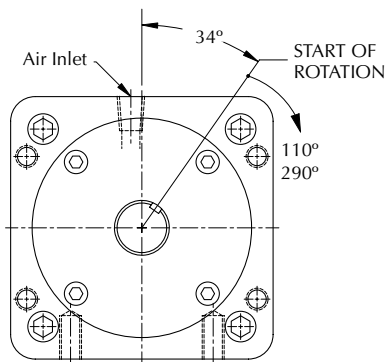
NOTE: Center drill omitted from shaft details for clarity.



Port & Mounting Position References

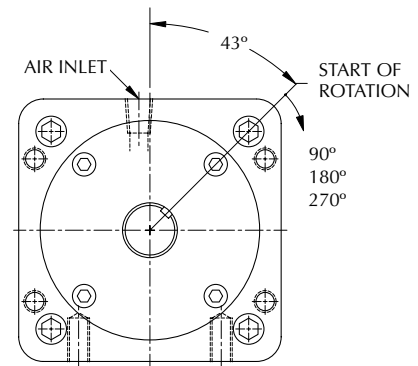


Shaft Load Capacity



Nominal Rotations (+/-0 actual)

Rod End Views



Nominal Rotations (+/-0 actual)

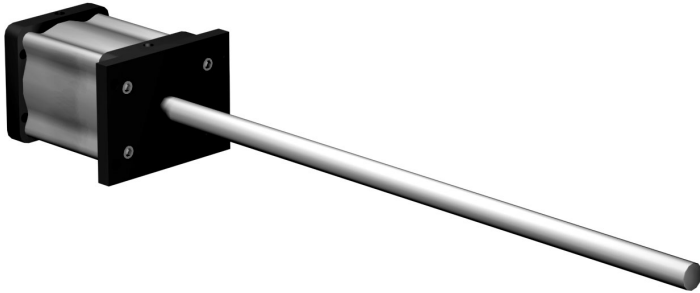
NOTE: The 34° and 43° start position are nominal. Tolerances are +/- 2 degrees

# 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.... Product Transfer Application

Consistent around the clock throughput is critical to a profitable plastics molding operation. Turn-act developed this SPECIAL Actuator to meet the needs of the high speed mold sweep application.

This unit consists of:

- 2600 in.lbs. 110° rotation
- Shaft modification:
  - 33" Extended length

Long cycle life, repeatability, and cost per cycle are the prime considerations of this modified actuator. The simple shaft extension allowed the elimination of a secondary shaft, shaft coupling, shaft bearing and brackets. Fewer component parts produced a more reliable and repeatable system while reducing the final installed cost.

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



### Imagine.... Food Process/Wash down Application

Food contact and caustic wash down are some of the parameters that must be addressed when designing machinery for the food industry. Turn-Act developed this Special Actuator for this type of manufacturing environment.

This unit consists of:

- 2600 in.lbs. 180° rotation
- Stainless shaft and fasteners
- Heads sealed for wash down
- Shaft modification included:
  - Double end, extended length with ground tolerances to run in an external bearing set.
- Teflon® impregnated hard anodizing for caustic washdown

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

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