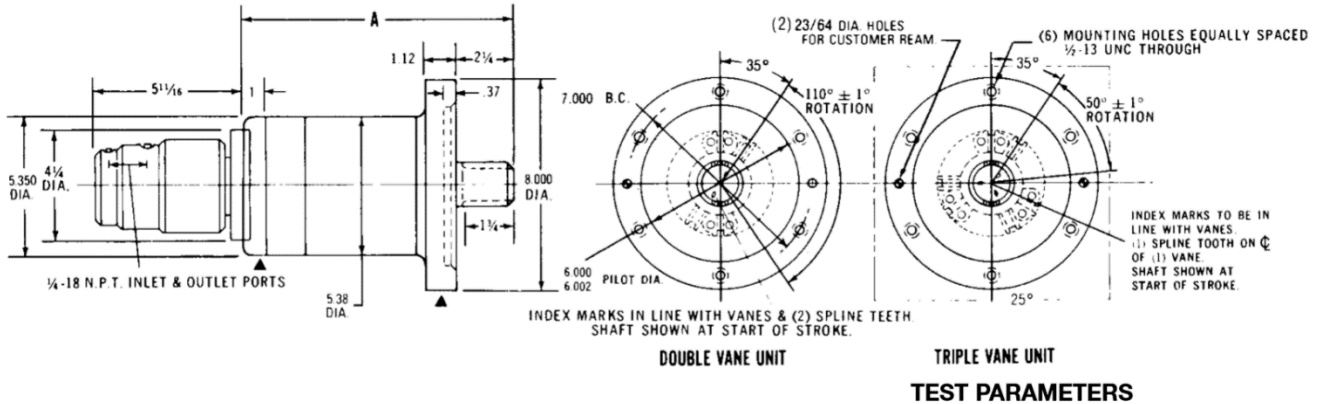


Rotac® Hyd-ro-ac® Products – Rotary Actuator: MS, ML, SL, & SS SPINNERS

ROTATING ACTUATORS SMALL



Spline Data:

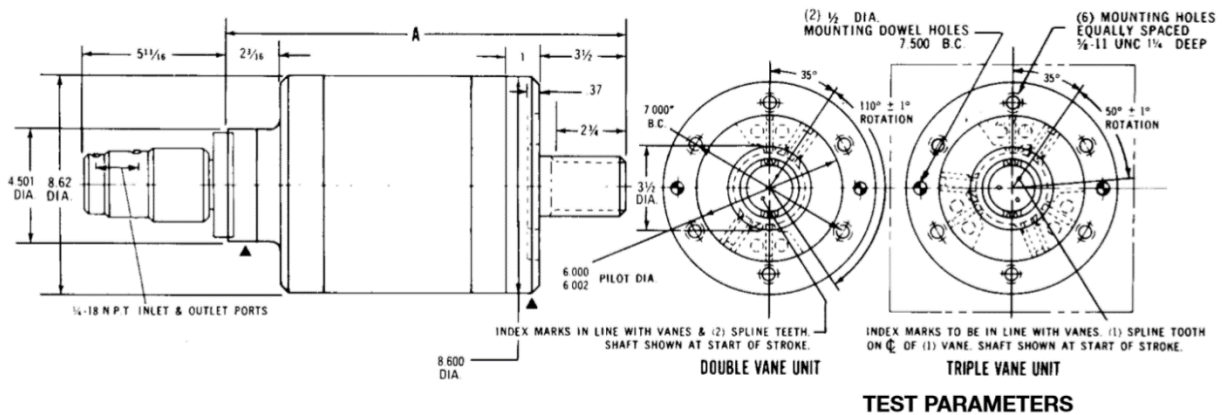
STD. S.A.E. External Flat Root.
 Side Fit Involute Splines
 Class 1 Fit Per S.A.E. J498b — 1969
 26 Teeth — 20/40 Pitch — P.A. 30°
 1.3360/1.3310 Major Dia.
 1.3000 Pitch Dia. (Ref.)

NOTE: Uses 26R-2 Couplings

Model	Internal Size	Displacement Per Stroke	Displacement Per Radian	Rotation Of Vane	Est. Weight	A
SS-2V	3.75 x 2	8.64 cu. in.	4.50 cu. in.	110°	26.9 lb.	8 1/4
SS-3V	3.75 x 2	5.89 cu. in.	6.75 cu. in.	50°	27.1 lb.	8 1/4
SL-2V	3.75 x 4	17.28 cu. in.	9.00 cu. in.	110°	32.1 lb.	10 1/4
SL-3V	3.75 x 4	11.78 cu. in.	13.50 cu. in.	50°	32.5 lb.	10 1/4

Model	Break-Away in PSI	OIL				AIR			
		Leakage Cubic in. Per Min. at 1000 psi		Leakage Cubic cm. Per Min. at 1000 psi		Leakage Cubic ft. Per Min. at 100 psi		Leakage Cubic cm. Per Min. at 100 psi	
		2V	3V	2V	3V	2V	3V	2V	3V
SS	30	3.0	3.5	49.2	57.4	20	25	30	7080 8496
SL	30	3.2	3.7	52.5	60.6	20	25	30	7080 8496

ROTATING ACTUATORS MEDIUM



Spline Data:

STD. S.A.E. External Flat Root.
 Side Fit Involute Splines
 Class 1 Fit Per S.A.E. J498b — 1969
 26 Teeth — 12/24 Pitch — P.A. 30°
 2.2293/2.2243 Major Dia.
 2.1667 Pitch Dia. (Ref.)

NOTE: Uses 26R-10 Couplings

Model	Internal Size	Displacement Per Stroke	Displacement Per Radian	Rotation Of Vane	Est. Weight	A
MS-2V	6 x 3	38.9 cu. in.	20.26 cu. in.	110°	72 Lb	10 3/16
MS-3V	6 x 3	26.5 cu. in.	30.37 cu. in.	50°	76 Lb	10 3/16
ML-2V	6 x 6	77.8 cu. in.	40.53 cu. in.	110°	98 Lb	16 3/16
ML-3V	6 x 6	53 cu. in.	60.74 cu. in.	50°	104 Lb	16 3/16

Model	Break-Away in PSI	OIL				AIR			
		Leakage Cubic in. Per Min. at 1000 psi		Leakage Cubic cm Per Min. at 1000 psi		Leakage Cubic ft. Per Min. at 100 psi		Leakage Cubic cm. Per Min. at 100 psi	
		2V	3V	2V	3V	2V	3V	2V	3V
MS	30	5.6	6.4	91.8	104.9	20	25	30	7080 8496
ML	30	5.8	6.6	95.1	108.2	20	30	35	8496 9912

IMPORTANT NOTES TO AVOID ACTUATOR DAMAGE AND VOIDED WARRANTY:

1. Design considerations should be made to limit the axial and radial loading applied to the actuator. Contact factory if axial and/or radial loading must be applied to the actuator. Unapproved axial and/or radial loading will void the actuator's warranty.
2. External stops must be used to limit shaft rotation for most applications. Using the actuators internal components as rotational stops will cause damage and void the actuators warranty.
3. It is critical that the hydraulic system have pressure relief located in close proximity to the actuator to prevent pressure spikes from damaging the actuator. Hydraulic pressure spikes will rapidly cause damage and void the actuator's warranty.
4. It is recommended the hydraulic fluid be filtered to 5 microns or less (maximum of 10 microns).

The Rotating actuator is a new innovation of reciprocating torque actuators. Its interior design and construction are similar to standard lines of stationary actuators, but the Rotating actuator, unlike the stationary models, revolves in application. Also, its applications are entirely different.



It consists of an aluminum alloy body with a precision machined cylindrical chamber, a central splined-end shaft on which vanes are fixed, and barriers or shoes that provide positive internal stops for the vanes. The number of vanes and shoes within the unit limit the arc of vane travel and effect the torque output capacities.

Power is derived from either hydraulic or pneumatic pressure directed against the vanes which, in turn, rotate the splined shaft. Although the shoes limit the movement of the vanes to a precise maximum degree, any required arc of movement can be controlled by valves and external positive stops. Infinitely variable, increasing and decreasing, and sudden loads can be applied.

Reciprocating torque actuators, like most power outputs, are usually mounted to a stationary base. But the Rotating actuator revolves in application as an integral part of a functioning device: the body, vanes, and shaft rotate in unison, maintaining their relationship until fluid pressure changes the position of the vanes.

APPLICATIONS

DRAWING A. Centrifugal, bending, and torque testing of couplings, fatigue specimens, and universal joints is done in this typical arrangement. The Rotating Rotac actuator supplies the torque load, stress, or shock the items.

DRAWING B. Two automotive differentials are tested in this arrangement. The Rotating Rotac actuator's reciprocal capabilities impose continuous forward, reverse and variable action plus shock loading on the specimens.

DRAWING C. In chucking lathe applications, the Rotating Rotac actuator actuates the jaws of the chuck, and shifts the locations of the work for eccentric turning during the machining cycle.

DRAWING D. In a gear testing arrangement, an electric motor drives the entire assembly, including the Rotating Rotac actuator. Hydraulic power input to the Rotac actuator imposes load or shock to the gear train.

It Works Like This:

In applications such as machining, the Rotating actuator is mounted to the spindle and rotates at the same speed. When fluid pressure is applied, it either advances or reverses the relative position of the vanes — therefore the shaft — to supply the necessary movement, or torque, as the job requires. In test and fatigue applications, the Rotating actuator is mounted remote of the power source but as an integral unit of entire driving assembly. Its function is to impose torque circulating within the driven assembly but independent of the rotating power source. Controlled fluid

pressure on the vanes within the actuator apply load, or shock as the test may require, on the driven specimens.

In applications and illustrations shown in this brochure, the Rotating actuator is equipped with a hydraulic union for pressure input. Similar devices can be used to accommodate pneumatic pressure.

Rotating actuators are designed in "small" and "medium" models with two and three vanes to provide torque outputs for many applications. The following drawings, specifications lists, and charts will help to pinpoint the exact model to suit a given purpose. In addition to this information engineering service is available through your field representative, or through the factory for application assistance and special designs.

Engineering Data

Standard rotating actuators use Deublin Rotating Hyd. Deu-Plex unions with special features

Max. R.P.M. — 5,000 @ 750 PSI Max.

Max. Air Pressure 150 PSI

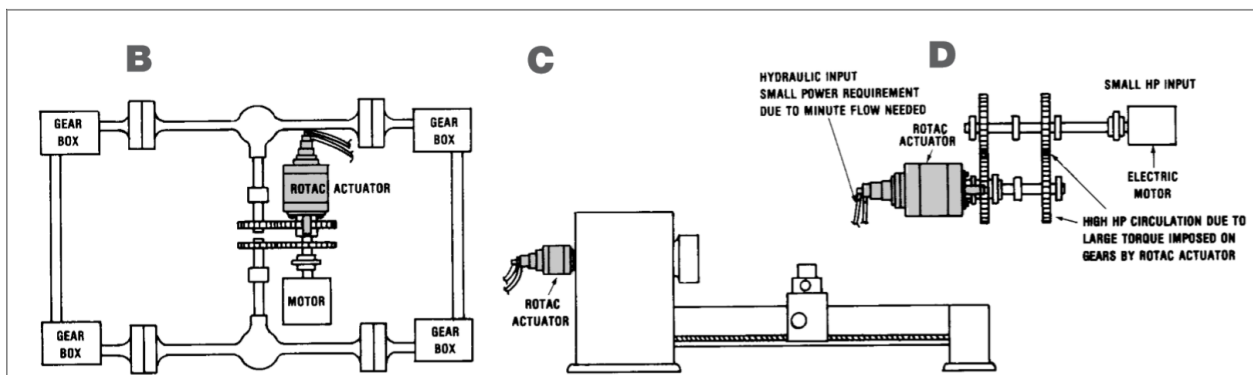
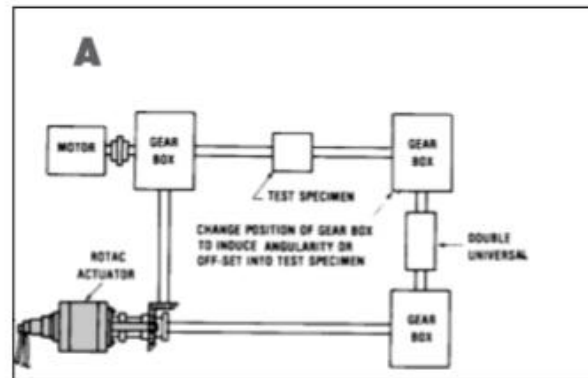
NOTE: Lubricated air is required for pneumatic operation.

NOTE: Splined couplings are available.

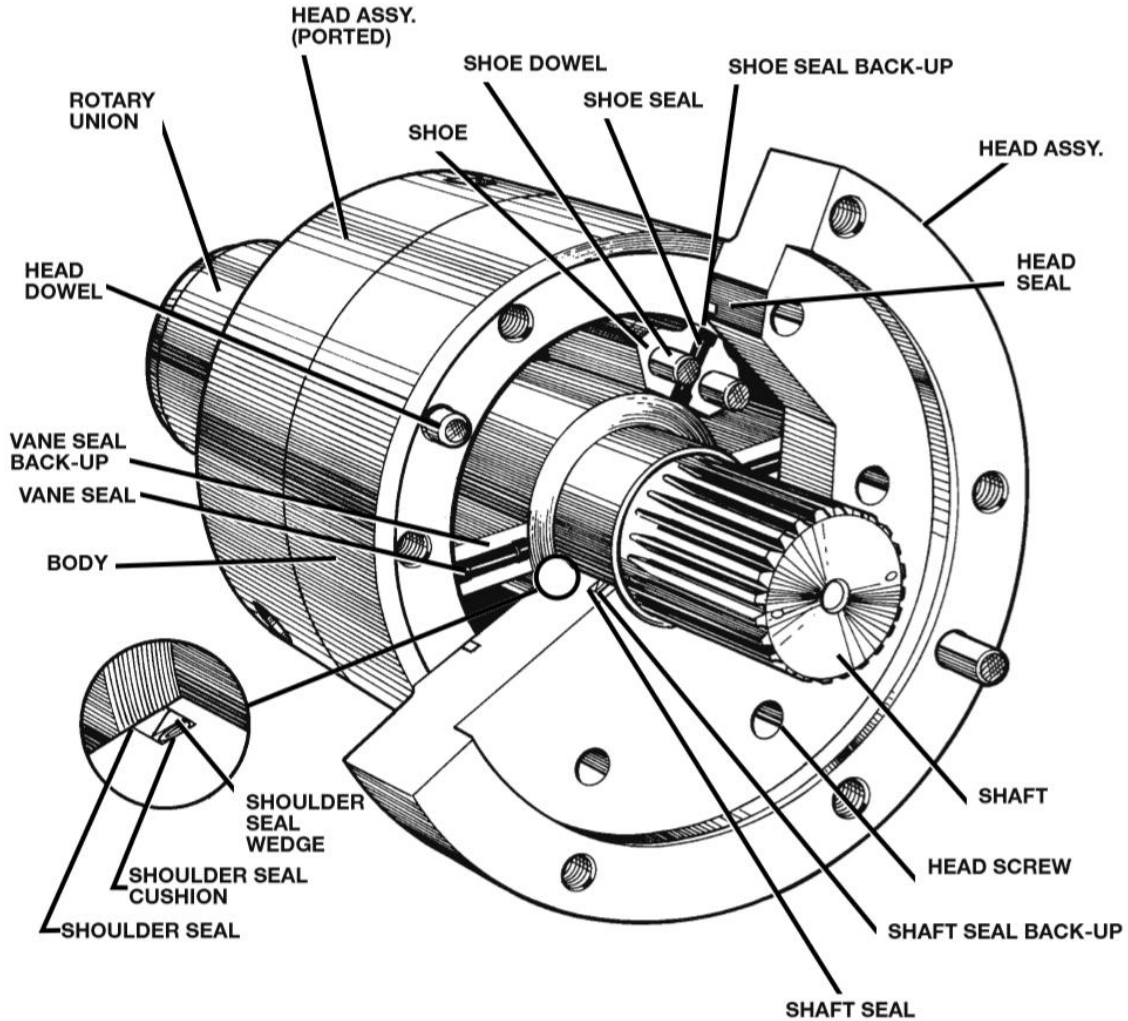
NOTE: Unless otherwise specified, units are dynamically balanced per ISO 1940 G 2.5 from diameters indicated with ▲

TORQUE RATINGS IN INCH-POUNDS P.S.I.

Model	100	200	400	500	600	750
SS-2V	400	850	1,700	2,100	2,550	3,100
SS-3V	600	1,350	2,650	3,300	3,950	4,900
SL-2V	850	1,700	3,400	4,200	5,000	6,250
SL-3V	1,300	2,650	5,300	6,600	7,900	9,850
MS-2V	2,000	3,550	7,500	9,250	11,000	13,600
MS-3V	3,000	6,000	11,500	14,500	17,500	21,550
ML-2V	3,750	7,500	15,000	18,500	22,000	27,650
ML-3V	6,000	12,000	23,500	29,500	35,000	43,150



HOW TO ORDER SPINNER



HOW TO ORDER

Please fill in ALL blocks in accordance with the KEY numbers and letters shown below.

EXAMPLE: **ML** - **6X6** - **3V** - **SE** - **IS** - **FLG** - **1**

- - - - - - -

BLOCK # **1** **2** **3** **4** **6** **7** **8**

Block 1 (MODEL)

ML
MS
SL
SS

Block 3 (VANES)

2V Double Vane
3V Triple Vane

Block 7 (MOUNTING)

E End
FLG Flange
Z Special

Block 2 (SIZE)

3.75X2
3.75X4
6X3
6X6

Block 4 (SHAFT EXTENSION)

SE Single Extension

Block 8 (PORTING)

1 NPT
Z Special

Block 6 (SHAFT TYPE)

IS 30° Involute Spline
Z Special

NOTES: 1. Block "5" isn't used for Spinner models

2. All "Z" (non-standard feature request) requires a "Request a Quote" to be filled out for Micromatic to review requirements