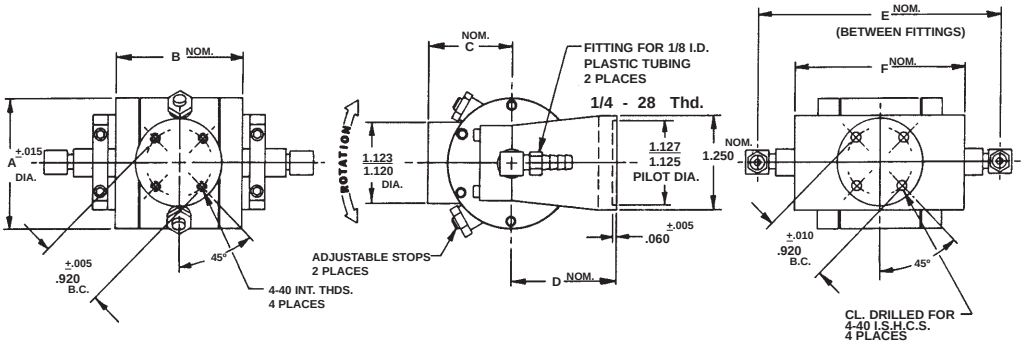
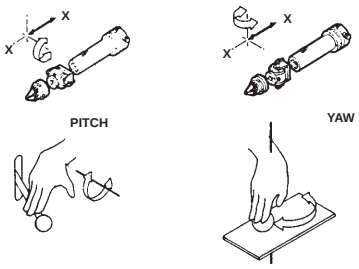
B•A•S•E® PITCH / YAW ROTATOR - SER. 2

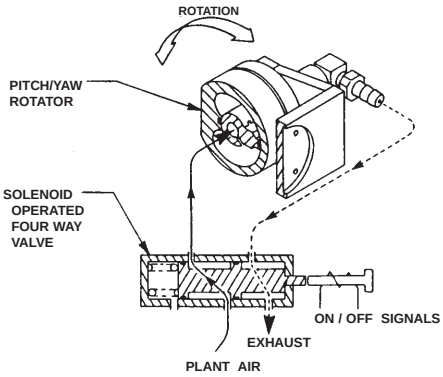


GRAPHICALLY



MODEL NO.	ANGULAR ROTATION (DEGREES)	RATED TORQUE @ 80 PSI (IN. LB.)	±.015 A DIA.	NOM. B	NOM. C	NOM. D	NOM. E	NOM. F	APPROX. WT. (OZ.)
3051	90°	4	1.740	1.700	1.140	1.300	3.300	2.300	11
3052	180°								
3053	90°	8	2.240	2.000	1.390	1.500	3.300	2.650	15
3054	180°								
3055	90°	12	2.490	2.000	1.515	1.650	3.500	2.700	19
3056	180°								

SCHEMATIC



SPECIFICATIONS

MATERIALS: ALUMINUM ALLOY, STAINLESS STEEL, & BEARING BRONZE
FLUID MEDIUM: PNEUMATICS (SHOP AIR)
MAXIMUM OPERATING PRESSURE: 150 PSI
MAXIMUM OPERATING TEMPERATURE: 250° F.
INTERNAL LUBRICATION: LO-PRO® LUBE
ROTATIONAL RANGE: 90° AND 180° (NON-SERVO MODE)
ANGULAR ADJUSTMENT: PRECISION MECHANICAL STOPS
LOW TORQUE DAMPING: INCORPORATED WITHIN THE UNIT
HIGH TORQUE DAMPING: EXTERNAL DAMPING MAY BE REQUIRED
CYCLE RATE: ONE CYCLE PER SECOND

APPLICATION

These units may be used for simple wrist motion or combined with other elements in the B•A•S•E® ROBOTIC SYSTEM for combinations of motions as required. A full six-component non-servo robot with gripper may be assembled with appropriate combinations of B•A•S•E® ROBOTIC COMPONENTS.

DESCRIPTION

B•A•S•E® PITCH/YAW ROTATORS are part of an integrated product line of BASIC AUTOMATION SYSTEMS ELEMENTS for a "Start Simple Approach" to small, bench top non-servo robots and other programmed automation devices.

Essentially, a PITCH/YAW ROTATOR is a precision vane-driven mechanism operated by pneumatic pressure for rotating small loads through wrist motions of 90° and 180°.

The "PITCH/YAW" nomenclature is assigned in order to differentiate between this product and other rotators offered under the same trademark.

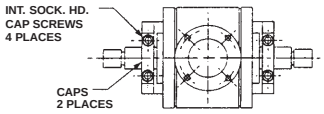
Mounting can be to any convenient structure and in any position. Mounting between a B•A•S•E® GRIPPER and a TRANSPORTER provides wrist motion for a simple robotic motion.

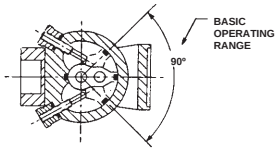
Special features include adjustable stops for accurately defining angular rotation together with a patented design to control internal leakage.

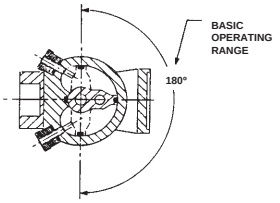
Operation is positive in either direction. Maximum operating pressure is 150 PSI. Totque is approximately proportional to inlet pressure. Most applications operate directly on plant air at 80 PSI using regular solenoid-operated four-way valves.

An electromechanical timer may be used for elementary sequence control, a programmable controller for intermediate levels of control and a computer may be used when these units are incorporated into sophisticated robot systems.

ADJUSTMENTS



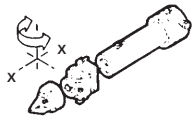




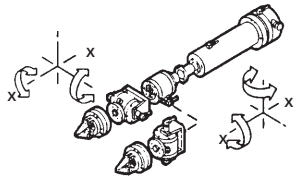
NOTE:
Nominal position for the "basic operating range" is properly set when both adj. screws are flush with locknuts.
Adj. screws are for fine tuning within ±10° of nominal.
To place the "basic operating range" in another quadrant--loosen both caps, rotate assem. and re-tighten.

COMPONENT SELECTION

GRIPPER IS MOUNTED IN-LINE WITH THE X-X AXIS. PITCH MOTION IS ABOUT THE NORMAL TO THE X-X AXIS AS SHOWN ABOVE.



GRIPPER IS MOUNTED IN-LINE WITH THE X-X AXIS. YAW MOTION IS ABOUT THE NORMAL TO THE X-X AXIS AS SHOWN ABOVE.



GRIPPER IS MOUNTED TO A PITCH/YAW ROTATOR WHICH IS MOUNTED TO ROLL ROTATOR. ROLL ROTATION ABOUT THE X-X AXIS OF 90° PROVIDES WRIST MOTION IN BOTH PITCH AND YAW.