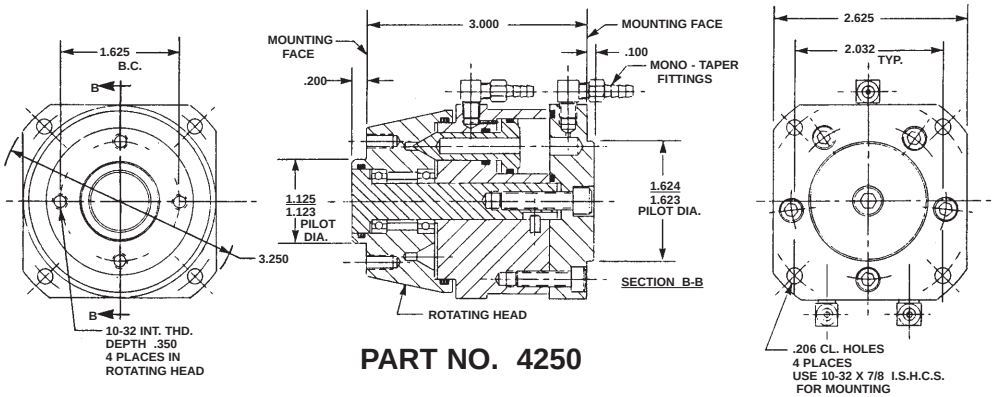
B•A•S•E® ROTARY INDEXER



PART NO. 4250

APPLICATION

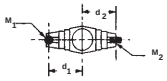
THE B•A•S•E® ROTARY INDEXER INDEXES A ROTATING HEAD IN EITHER DIRECTION AT NOMINAL STEPPING RATES OF 250msec. PER 10° INCREMENTS WITH 8 INCH POUND TORQUE.

SPECIFICATIONS

MATERIAL: HIGH STRENGTH ALUMINUM ALLOY & STAINLESS STL.
SEALING ELEMENTS: STANDARD "O" RINGS
MAXIMUM OPERATING PRESSURE: 150 PSI
OPERATING TEMPERATURE RANGE: -40° F. TO 250° F.
EXTERNAL FINISH : SATIN
INTERNAL LUBRICANT: LO-PRO LUBE
GREASE FITTING FOR LUBRICATING THE DRIVEN SECTION
STEPPING INCREMENT: 10° PER PULSE
NOM. STEPPING RATE: 250 msec. PER PULSE
INCREMENTER WEIGHT: 1-1/2 LB.
RATED TORQUE: 8 IN. LB. (SEE SAMPLE CALCULATIONS)

SAMPLE CALCULATIONS

When mounted with gravity acting perpendicular to the plane of rotation, the following torque calculations apply:



d_1 d_2 d_3..... designate respective distances (inches) between centerline of rotation and the center of gravity of a gripper plus it's load.

M_1 M_2 M_3 ..... designate respective weights (lbs) for a gripper plus load.

EQUATION: Summation of moments= $M_1d_1 + M_2d_2 + M_3d_3$ .....= 8 inch pounds. (rated torque)

EXAMPLE 1: Assume a two station turret, where M_1=1.1 lb. and M_2=0.7 lb. with d_1=3.0 inches and d_2=3.5 inches.

QUESTION: Does the summation of moments fall within the rated torque?

Summation of moments=(1.1) (3) + (0.7) (3.5) = 5.75 in.lb.

EXAMPLE 2: Assume a six station, radial turret with an average distance of 2.6 inches from the centerline of rotation to the C.G. of each gripper plus load.

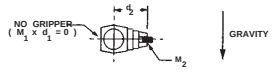
QUESTION: What is the useful load for each station when allowances are made for the tare weight of grippers?

Summation of moments= (6) (M) (2.6) = 8 in. lb. (RATED)
15.6M=8
M = .51 lb. (gross wt. at each of six stations)

GROSS WT. LESS GRIPPER WT. = USEFUL WT.
.51 LB. - .25 LB. = .26 LB. (25 lb. =.26 lb. (useful wt. at each of six stations)

When mounted with gravity acting in the plane of rotation, minimize any overhanging moment by adding opposite moment. Total moment should not exceed the rated moment of 8 inch pounds.

IN EXAMPLE 1 ABOVE, assume only one gripper plus load is being incremented.



Moment M_1 X d_1 is zero (no gripper with load) and moment M_2 X d_2 is the same as above at M_2= 0.7 lb. and d_2 = 3.5 inches.

THEREFORE: an overhanging moment exists of M_2 times d_2 of 2.45 inch lb.

A small weight added to the opposite side counterbalances an overhanging moment. IN THIS CASE: (weight) X (3 in.) = 2.45 in. lb.
weight = 0.8 lb. at d_1 = 3 inches.

DESCRIPTION

OPERATION COMBINES THE SIMPLICITY OF NON-SERVO PROGRAMMING WITH THE RELIABILITY OF PNEUMATICS AND FEATURES EXTREME ACCURACY THROUGH THE USE OF "SHORT PINS" FOR BOTH DRIVING FORCE AND FOR HOLDING POSITION.

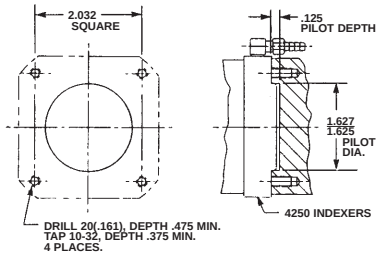
THE USER HAS AN OPTION OF MOUNTING HIS OWN DEVICE OR SELECTING ONE OF NINE STANDARD TURRETS LISTED BELOW. SEE DATA SHEET ON TURRETS.

B•A•S•E® ROTARY INDEXERS ARE RATED FOR THE FOLLOWING TURRETS USING B•A•S•E® SERIES 2 GRIPPERS.

AXIAL		RADIAL		CANTED	
3460	2 STATION	3469	2 STATION	3478	2 STATION
3463	4 STATION	3472	4 STATION	3481	4 STATION
3466	6 STATION	3475	6 STATION	3484	6 STATION

THE USER HAS A FURTHER OPTION OF MOUNTING SMALL DEVICES OF HIS OWN DESIGN TO TURRETS WITH BLANK PADS.

MOUNTING



FITTINGS

TWO PIECE MONO-TAPER™ ELBOWS ARE SUPPLIED.
MONO -TAPER™ FITTINGS ARE RUGGED, MINIATURE FITTINGS BASED ON S.A.E. 1/14-28 LT STANDARDS WHERE ALL THE TAPER IS INCORPORATED INTO THE FITTING. PORTS ARE 1/4-28 INTERNAL STRAIGHT THREADS.

Two Piece Elbows for 1/8" I.D. Plastic Tubing Are Supplied Unless One Of The Options Below Is Specified.

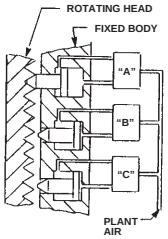
To dress Control Lines Radially Outward, Disassemble Elbows & Install Only The Barbed Section.

An Optional Elbow For 1/16" I.D. Plastic Tubing. If required, Add -1/16 As A Suffix To The BASIC PART NO.
EXAMPLE: 4250-1/16
There is no added cost.

To Dress 1/16" I.D. Plastic Tubing Radially Outward, Disassemble Two Piece Elbow & Install Only The Barbed Section.

10-32 Straight Threaded Optional Ports. If Required, Add - 1032 As a Suffix To The BASIC PART NO.
EXAMPLE: 4250-1032
There is No Added Cost & Fittings Are Not Supplied.

CONTROL



NOTE:

PITCH CIRCLE IS UNROLLED TO SHOW DETAIL IN TWO DIMENSIONS.

A, B & C DESIGNATE TYPICAL FOUR-WAY SOLENOID OPERATED AIR VALVES.

OPERATION:
ROTATING HEAD MOVES CLOCKWISE WITH A-B-C-A-B-C PULSES AND COUNTERCLOCKWISE WITH A-C-B-A-C-B PULSES, MAINTAINING PRESSURE IN THE EXTENDED POSITION, LOCKS THE ROTATING HEAD WITH "SHOT PIN" ACCURACY. USE SIMPLE NON-SERVO COMMANDS FROM A TIMING DEVICE. A PROGRAMMABLE CONTROLLER OR A COMPUTER. SEE SAMPLE PROGRAM BELOW.

TYPICAL CONTROL PROGRAM:

STEP NO.	STEP RATE (msec)	SHOT PIN A	B	C
1	250	1	0	0
2	250	0	1	0
3	250	0	0	1
4	250	1	0	0
5	250	0	1	0
6	2000	0	0	1
7	250	0	1	0
8	250	1	0	0
9	250	0	0	1
10	250	0	1	0
11	250	1	0	0
12	2000	0	0	1

(1) INDICATES EXTENDING SHOT PIN.
(0) INDICATES RETRACTING SHOT PIN.

THIS PROGRAM INDEXES THE ROTATING HEAD 60° CLOCKWISE IN 1-1/4 SECONDS AND RETURNS THE ROTATING HEAD COUNTERCLOCKWISE TO STEP NUMBER ONE IN 1-1/4 SECONDS. THERE IS A DWELL OF TWO SECONDS AT STEP NUMBER SIX.

COMPONENT SELECTION