

Rotary Table & Indexer Products



VH Series 4th axis rotary tables



VH-400



VH-320



VH-250



VH-210



VH-160

VH series of 4th axis rotary tables

The VH series of 4th axis rotary tables are ideal for holding medium to large sized parts or fixtures in either a vertical or horizontal position. Sealed motors using O-rings and epoxy sealed wiring harnesses prevent coolant leaks, which are a common source of rotary table failure.

Accuracy and Rigidity

Available in sizes from 160 to 400 mm, the VH series is designed for rigidity, speed, and repeatability using heavy duty bearings and a double-lead worm gear. A hardened and ground steel worm is mounted on a high precision combined radial-axial bearing. The worm gear is mounted on an axial support system allowing adjustment and suppression of any backlash between the worm and worm-wheel.

Sleeve Type Clamping

A sleeve type clamping system is used to apply pressure to the outer circumference of the turn table. With the sleeve positioned closest to the work piece, table clamping forces are increased. This is advantageous not only for heavy duty cutting, but also helps to improve the accuracy of the rotary table and extends the service life as well.

Servo Control

The VH series of rotary tables can be specified with original OEM motors for use with most CNC's for superior 4th axis performance. These include Fanuc, Fadal, Mitsubishi and others. Both AC and DC servo motors options are available. The VH rotary tables can also be driven by a stand-alone Calmotion indexer that can be coordinated with a CNC with the use of M-functions for semi-4th axis performance.

	VH-160	VH-210	VH 250	VH-320	VH-400
Table diameter	160 mm	210 mm	250 mm	320 mm	400 mm
Gear ratio	90:1	90:1	180:1	180:1	180:1
Center height	135 mm	160 mm	160 mm	210 mm	255 mm
Max load					
(w/o tailstock)	165 lbs	220 lbs	220 lbs	330 lbs	440 lbs
T-slot size	12 H7	12 H7	12 H7	14 H7	14 H7
Clamp method	Pneumatic	Pneumatic	Hydraulic	Hydraulic	Hydraulic
Indexing Accuracy					
in arc-sec	+/- 15	+/- 15	+/- 15	+/- 15	+/- 15
Repeatability					
in arc-sec	4	4	4	4	4
Resolution degrees	.001	.001	.001	.001	.001
Weight	130 lbs	165 lbs	255 lbs	492 lbs	595 lb

TR Tilt Rotary Series 4th/5th axis & TRT Series 4th/5th axis

TR Tilt Rotary Series 4th/5th axis

The Calmotion TR series of rotary tables are designed to hold a variety of small to large parts and fixtures. Available in sizes from 125 mm to 320 mm, the TR series of tilt rotary tables eliminate extra set-ups by positioning parts to just about any angle for machining. Users can machine up to five sides of a part and reach compound angles easily. Using these tilting rotary tables with 5 axis capable controls allows machining of complex geometries such as impellers and turbine blades.

All TR series rotary tables are driven with a highly efficient dual lead worm with greater tooth depth compared to other brands of tilt rotary tables. Both pneumatic and hydraulic brake versions come equipped with heavy-duty precision cross roller bearings. Each TR series rotary table comes pre-wired with a servo motor compatible with a customer's CNC machine. These include Fanuc, Fadal, Mitsubishi, Siemens and more. Stand-alone operation can be achieved with a Calmotion USB indexer for semi-4th/5th axis functionality.

Looking for a 5 axis solution for your 3 axis mill? The TR tilting rotary tables are a sure bet to increase the productivity of your machining center

	TR-125	TR-170	TR-210	TR-255	TR-320
Table diameter	125 mm	170 mm	255 mm	255 mm	320 mm
Gear ratio (rotary / tilt)	90:1 / 90:1	90:1 / 90:1	90:1 / 120:1	90:1 / 120:1	90:1 / 120:1
Max load lbs (rotary / tilt)	110 / 88	110 / 88	165 / 110	220 / 165	440 / 330
Clamp method	Pneumatic	Pneumatic	Pneumatic	Hydraulic	Hydraulic
Tilt angle range	+40 / - 120°	+30 / - 120°	+30 / - 120°	+30 / - 120°	+30 / - 120°
Height of Center (vertical)	160 mm	190 mm	225 mm	225 mm	225 mm
Indexing Accuracy	Rotary +/-20" Tilt +/- 30"	Rotary +/-10" Tilt +/- 30"	Rotary +/-10" Tilt +/- 25"	Rotary +/-8" Tilt +/- 25"	Rotary +/-8" Tilt +/- 25"
Repeatability (rotary/tilt)	4" / 8"	4" / 8"	4" / 8"	4" / 8"	4" / 8"
Weight	~ 250 lbs	~ 400 lbs	~ 660 lbs	~ 815 lbs	~ 1,300 lbs

TRT Series 4th/5th axis

Increase productivity and reduce setup time with the TRT two axis series of tilting rotary tables by eliminating second and third operations. In a single setup, achieve multi-sided machining capability as well as the ability to tackle tough complex shapes and difficult to reach angles. The TRT series of tilt rotary tables are available in sizes from 160 to 250 mm and feature a wide tilting range of +/- 120 degrees. The TRT tilting rotary tables can be driven in simultaneous 5 axis motion or used in conjunction with a Calmotion 2 axis USB indexer for use with almost any brand of machine tool to achieve semi-4th/5th axis functionality.

	TRT-160	TRT-210	TRT-250
Table diameter	160 mm	210 mm	250 mm
Gear ratio A	90:1	90:1	180:1
B	90:1	180:1	180:1
Tilt travel limit	+/-120°	+/-120°	+/-120°
Clamp method A	Pneumatic	Pneumatic	Hydraulic
B	Hydraulic	Hydraulic	Hydraulic
Accuracy Rotary in arc-sec	+/-15	+/-15	+/-15
Accuracy Tilt in arc-sec	+/-25	+/-15	+/-15
Repeatability in (A/B)	10	10	10
Resolution	.001°	.001°	.001°
Weight	400 lbs	520 lbs	795 lbs



TR-125



TR-170



TR-320



TRT-160



TRT-250

Indexer & 5C Series



Indexer & 5C



5C with air collet closer



TRT-5C with air collet closer



Optional tailstock

VH-5C

Torque	88 ft-lbs
Gear ratio	60:1
Center height	4.00" +/- .001
Collet size	Standard 5C 1/64 - 1 1/16"
Max run-out	.0004"
Nose thread	2 3/16 - 10"
Indexing resolution	.001°
Accuracy	+/- 25 arc-sec
Resolution	.001 degrees
Weight	50 lbs

The Calmotion 5C rotary table is a simple, yet effective way to increase the productivity of your VMC. This compact tool is an ideal choice for holding small parts and eliminating costly part set-up operations. The Calmotion 5C accommodates industry compatible standard 5C collets, step chucks and manual jaw chucks for a wide variety of tool holding options.

The 5C rotary comes standard with a manual collet closer. An air collet closer, featuring an impressive 3,000 lbs of thrust @ 100 PSI, is available as an option. This unique air collet closer design retains its holding force even with air pressure variations or a complete loss of air pressure.

The Calmotion 5C head is built from top-quality components and has been engineered to provide robust operation without sacrificing accuracy. Precision made in the USA.

- Compact casting design with removable handle for maximum spindle clearance.
- Motor and encoder wires are epoxy sealed on the motor end to protect against contamination and protect against leaks.
- All spindle bearing journals and collet taper are precision ground to a maximum .0002 (TIR).
- Gear sets feature a throated gear design for increased gear contact area. This reduces wear and helps to maximize gear life while helping to ensure that accuracy is maintained over a longer period of time.
- Both front and rear bearings incorporate tapered rollers to handle higher axial and radial loads.
- Precision gear mesh is accomplished using a double adjustment.

CNC Memory Expansion

The USB indexer, capable of driving a Calmotion 5C, VH-160 or VH-210, integrates the benefits of USB memory with the functionality of a digital indexing servo system. The USB indexer executes moves and automatically sends machine tool data via DNC. This eliminates the need to write and coordinate multiple programs between an indexer and a CNC. Indexer moves are recognized as A moves and generates M function contact closures automatically thus eliminating the complexity of coordinating multiple programs and writing M functions within a program.

USB Indexer Program (single program)

```

O0002
G00 G17 G40 G90 G98
T01 M06
A0.0 F50.0 G1 G90
G81 Z-.25 F4.R.01
A90.0
Y0
G80
G0 Z0 H0
M30
    
```



9909 Topanga Canyon Blvd. #322
 Chatsworth, CA 91311
 Phone 818-357-5826 Fax 818-286-1914
www.calmotion.com