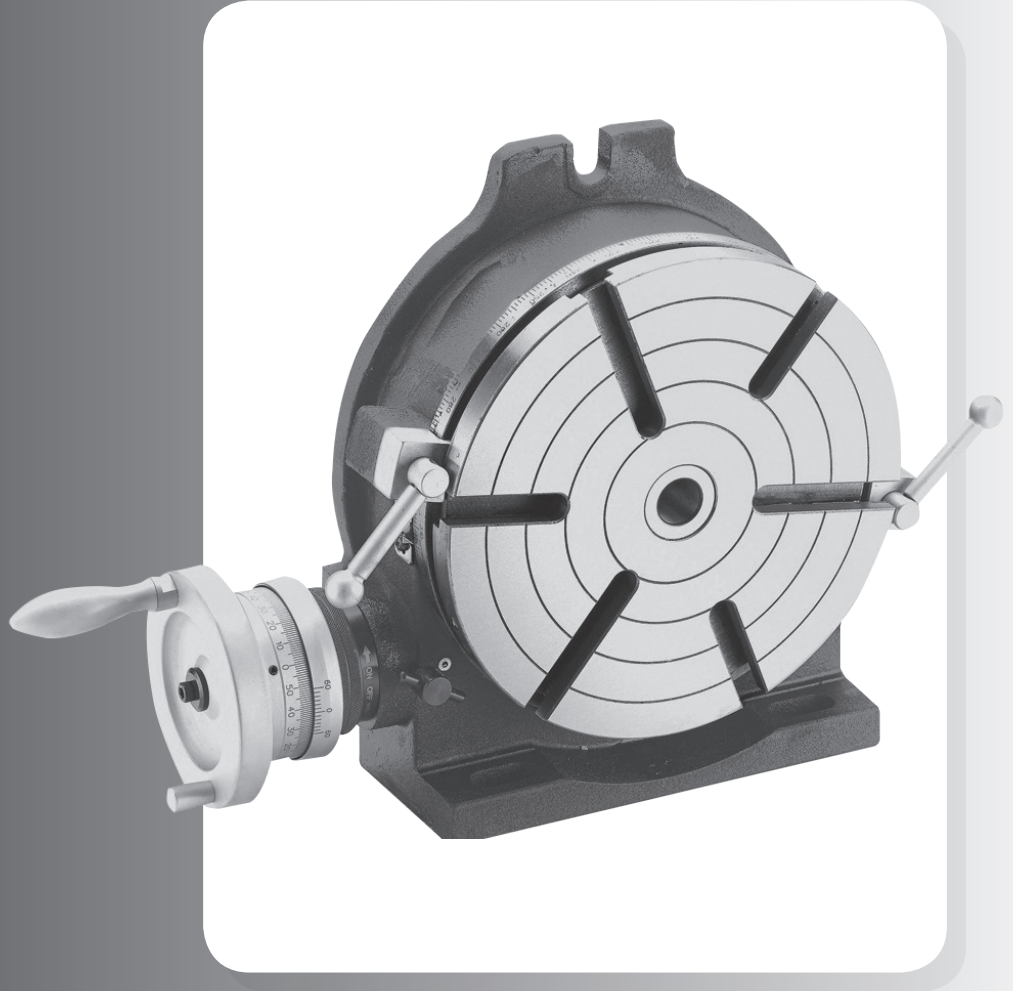


PALMGREN[®]
a CH Hanson brand



6" Rotary Table

Model 9634116

PALMGREN[®]
a CH Hanson brand

**PLEASE READ AND SAVE
THESE INSTRUCTIONS.
READ CAREFULLY
BEFORE ATTEMPTING
TO ASSEMBLE, INSTALL,
OPERATE OR MAINTAIN THE
PRODUCT DESCRIBED.**

**PROTECT YOURSELF AND
OTHERS BY OBSERVING ALL
SAFETY INFORMATION. FAILURE
TO COMPLY WITH INSTRUCTIONS
COULD RESULT IN PERSONAL
INJURY AND/OR PROPERTY
DAMAGE! RETAIN INSTRUCTIONS
FOR FUTURE REFERENCE.**

**PLEASE REFER TO BACK COVER
FOR INFORMATION REGARDING
PALMGREN'S WARRANTY
AND OTHER IMPORTANT
INFORMATION.**

Model #: _____

Serial #: _____

Purch. Date: _____

GETTING STARTED

Save this manual

Thank you for purchasing the Model 9634116 - 6" Rotary Table. Please read this manual carefully before using this product. You will need this manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagrams. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep this manual and invoice in a safe and dry place for future reference.

UNPACKING

Open the shipping and product carton. After unpacking the Rotary Table, inspect it carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. If any damage or loss has occurred, a claim must be filed with the carrier immediately. Check for completeness. Immediately report missing parts to dealer.

Inspect:



- All tools should be visually inspected before use, in addition to regular periodic maintenance inspections.



- See General Safety Instructions, Cautions and Warnings as shown.

IMPORTANT: Many unpainted steel surfaces have been coated with a protectant. To ensure proper fit and operation, remove coating. Coating can be easily removed with mild solvents, such as mineral spirits, and a soft cloth. Avoid getting solution on paint or any of the rubber/plastic parts. Solvents may deteriorate these finishes. Use soap and water on paint, plastic or rubber components. After cleaning, cover all exposed surfaces with a light coating of oil.

CAUTION Never use highly volatile solvents. Non-flammable solvents are recommended to avoid possible fire hazard.

Model 9634116 - 6" Rotary Table optional parts

The following parts add functionality and are available, but not included with your Rotary Table. They may be ordered from your Palmgren distributor. See page 7.

- 3-Set dividing plates (part no. 9634314)
- Tail stock (part no. 9634214)

DESCRIPTION

The Palmgren 6" Rotary Table is used for indexing, circular cutting, angle setting, boring, and spot facing operations. It can be set for use in both horizontal or vertical planes.

The Table has been designed to be used where a precision work positioning device is required. It allows the operator to mill or drill components at exact intervals around a fixed axis.

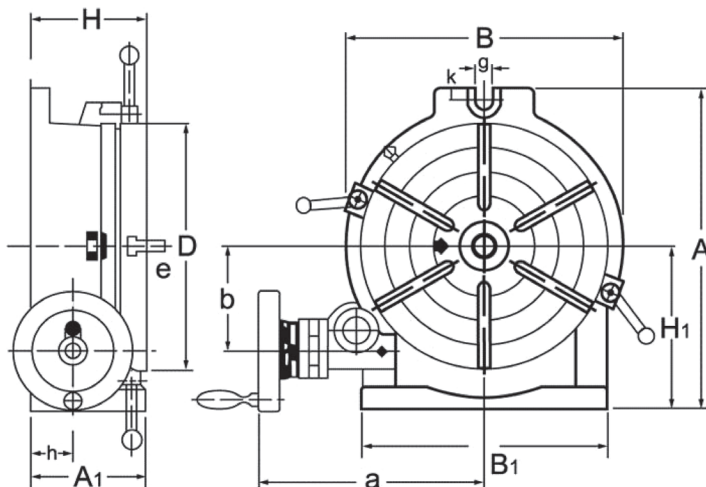
The Meehanite cast iron tables are precision machined and are produced with a Morse taper 3 center hole. The table is designed to rotate accurately, freely and smoothly.

The table is graduated with a 360° scale. A micro collar graduated to one minute with a ten second accuracy vernier scale is provided. The Rotary Table features include lock-down handles and crank disengagement mechanism. The Model 9634116 Rotary Table has the following features:

- Critical wear parts are hand finished for ultra precision tolerances
- All tables are tested for accuracy using 'Heidenhain' electronic equipment to ensure complete quality
- The worm gear is hardened and precision ground, with a ratio of 90:1
- The table is graduated to a full 360° so one turn of the handle moves the table 42° or 4"
- The collar on the handle is graduated with a vernier scale, readings down to 10 seconds are possible

Additional dividing plates can be purchased to allow the Rotary Table to be used as a Dividing Head (see page 7).

DIMENSIONS



MODEL 9634116 – 6" Rotary Table

Size	6"	H1	3.937"
A	8.00"	b	2.30"
A1	3.070"	e	0.433"
B	6.299"	g	0.591"
B1	6.00"	h	1.00"
D	6.00"	k	0.35"
H	3.149"		
Number of T-Slots			3
T-Slot Size (mm)			0.433"
Taper In Centre (MT)			2MT
Worm Gear Ratio			90:1
Net Weight			31 lbs

SAFETY RULES

▲ WARNING *For your own safety, read all of the instructions and precautions before operating tool.*

▲ WARNING *Always wear safety goggles complying with United States ANSI Z87.1. before commencing milling or drilling operation.*



PROPOSITION 65 WARNING: Some dust created by using power tools contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks and cement and other masonry products.
- Arsenic and chromium from chemically-treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: work in a well ventilated area and work with approved safety equipment. Always wear **OSHA/NIOSH** approved, properly fitting face mask or respirator when using such tools.

General Safety

- Read and follow all operating instructions before operating rotary table.
- Understand and obey all safety instructions supplied with mill or other machines on which the rotary table is used.
- Always secure rotary table to work surface or machine.
- Always secure workpiece to rotary table clamping surface if used.
- Always secure face plate to rotary table clamping surface if used.
- Always secure rotary table clamping surface with lock-down handles when possible.
- Maintain and lubricate the tool properly.
- Some materials such as magnesium, titanium and aluminum have flammable properties. Consult with the supplier of these materials for safe drilling and milling operations.

Preparing for your job

- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are not safety glasses.
- Wear an ANSI approved ear protection if drilling or milling operations extend for long periods of time.
- Wear proper apparel when drilling or milling. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught up in moving parts of the machine.
- Be alert and think clearly. Never work when tired, intoxicated or when taking medications that cause drowsiness.

Preparing the work area for your job

- Keep your work area clean. Cluttered work areas invite accidents.
- Your work area should be properly lit.
- Keep visitors at a safe distance from work area.
- Keep children out of the workplace. Make your workshop childproof. Use padlocks, master switches or remove switch keys to prevent any unintentional use of your power tools.

Maintaining your tool

- Consult this manual for specific maintenance and adjustment procedures.
- Keep the tool clean for safest operation.

INSTALLATION

1. Mount rotary table securely to machine work surface.
2. Use slots provided on table and be sure that table is rigidly and safely secured.
3. Table can be mounted horizontally or vertically with the slots provided.

OPERATION



Before operation you must fill base with premium circulating oil. There are two oil ports - one located on the tool housing inside of the handwheel. The other is located in a T-slot on top of the table.

Table operation

Refer to the parts listing on page 7 for part (#) numbers.

1. Always rotate handwheel (#15) clockwise. This will eliminate any backlash in the worm gear. If handwheel is rotated past desired position, rotate handwheel one full turn counterclockwise and then rotate handwheel clockwise to desired position.
2. The worm shaft (#6) can be disengaged from the table (#02) so that operator can rotate table by hand. Loosen set screw handle (#11) by turning it counterclockwise and turn vernier collar clockwise until it is snug. Table can now be rotated by hand. To engage worm shaft, turn back vernier collar. Secure handle the set screw handle (#11).
3. Table is locked into position by rotating the clamp handles (#19) clockwise until snug. Turn handles counterclockwise to free table.
4. The table is provided with a scale to indicate the angle of rotation. The indicator can be used to verify the angle of rotation on scale. The indicator can be adjusted by loosening the screws and moving the indicator along the slot. Secure the screws after completing adjustment.
5. The center sleeve has been ground for a Morse Taper No. 3. Centers with a 3MT shank can be mounted to the rotary table for precision centering and measuring operations.

- The gear ratio of the rotary table is 1:90 so that 90 rotations of the handwheel will rotate the table exactly one full rotation. One rotation of the handwheel is equal to 4° rotation of the table. The micro collar is graduated into one minute increments.
- A vernier scale (#12) is provided on the vernier collar for measurement of angle rotation to an accuracy of ten seconds.
- Read the degrees and minutes from the micro collar and use the vernier collar scale to read to ten seconds.

Optional dividing plate accessory

The dividing plate accessory is used to divide one 360° table rotation into 2-66 and all divisible by 2, 3, and 5 from 67-132 equal divisions. The gear ratio of the rotary table is 1:90 so 90 rotations of the handwheel rotate table one full rotation. Therefore, for one full rotation of the table, the number of handwheel rotations per divisions “N” times the number of

divisions “T” is equal to 90 rotations of the handwheel. So $N \times T = 90$ or $N = 90 \div T$. The dividing chart (Page 6) was developed using this relationship. For example if 17 divisions are required, then $T = 17$, so $N = 90/17 = 5\frac{5}{17} = 5\frac{10}{34}$.

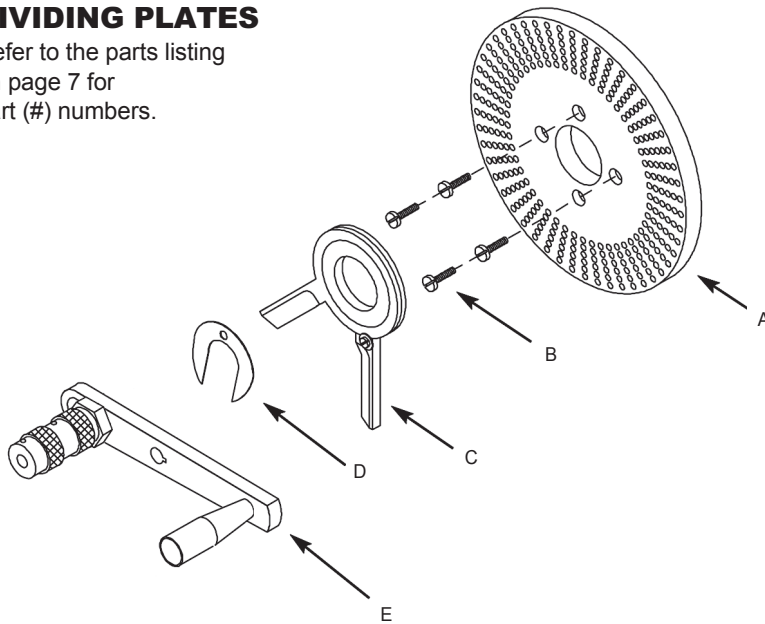
Each of the 17 divisions requires 5 full handwheel rotations and 10/34 of one handwheel rotation. The 10/34 of a handwheel rotation is obtained by using the optional dividing plates.

The dividing plates have annular holes permitting required number of divisions of one handwheel rotation.

There are 3 plates each with 2 faces for a total of 6 different faces each with different hole combinations. In the example, the plate with 34 holes drilled in a circle is required. To obtain 17 divisions, the handwheel is rotated 5 full rotations and 10 holes on the 34 hole circle for each division. The sector is used to make the 10 hole rotation quick and easy.

OPERATION - ASSEMBLING OPTIONAL DIVIDING PLATES

Refer to the parts listing on page 7 for part (#) numbers.



NOTE: 11 Holes between sector arms on 34-hole circle

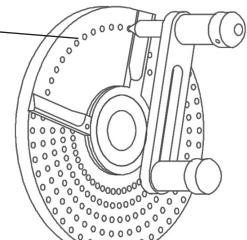


Fig. 2A

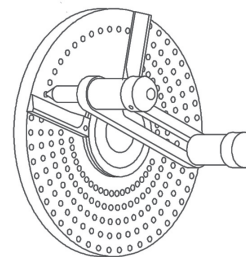


Fig. 2B

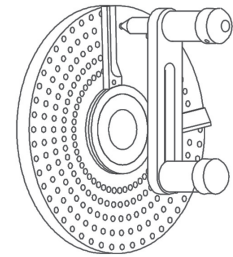


Fig. 2C

To assemble the dividing plate attachment (A) to the rotary table, remove handwheel (#15). Bolt the required plate to the collar using 4 screws (B). Slide the sector (C) over the worm shaft and eccentric sleeve with the sector screw exposed. Secure sector by sliding spring washer (D) against sector and into slot in eccentric sleeve.

Slide crank arm (E) over flats at end of worm shaft and secure with spacer and nut (#16).

Spread the sector arms so that exactly 11 holes on the 34 hole circle are between the arms (C).

Tighten the sector screw.

1. Rotate the sector so that the sector arm is against the plunger assembly as in Figure 2A.

2. Rotate the plunger assembly clockwise 5 full rotations and 10/34 of a rotation by placing the plunger assembly against the sector arms as in Figure 2B.
3. Rotate sector clockwise so that first arm is against plunger assembly as in Figure 2C.

Repeat steps 1, 2 and 3 for each division. The dividing chart page 6 shows that for 19 divisions, the plate with 38 holes is required and each division needs 4 full rotations plus 28/38 of a rotation. The dividing chart shows that for 53 divisions, each division requires 1 and 37/53 rotations, etc.

For even divisions of 90 (2, 3, 4, 5, 6, 9, 10, 15, 18, 30 and 45) simply rotate the crank arm the required number of full turns using the same hole on any plate.

INDEX TABLE - MODEL 9834116 – 6” ROTARY TABLE

T	H	N	T	H	N	T	H	N	T	H	N	T	H	N
1			22	B-33	4 3/33	43	C-43	2 4/43	64			82	C - 41	1 4/41
2		45	23	B-23	3 21/23	44			65	C-39	1 15/39	83		
3		30	24	A-20	3 15/20	45		2	66	B-33	1 12/33	84		
4	A-20	22 10/20	25	A-20	3 12/20	46	B-23	1 22/23	67			85		
5		18	26	C-39	3 18/39	47	C-47	1 43/47	68			86	C - 43	1 2/43
6		15	27	A-18	3 6/18	48	A-16	1 14/16	69	B-23	1 7/23	87	B - 29	1 1/29
7	B-21	12 18/21	28			49	C-49	1 41/49	70	B-21	1 6/21	88		
8	A-20	11 5/20	29	B-29	3 3/29	50	A-20	1 16/20	71			89		
9		10	30		3	51			72	A-20	1 5/20	90		
10		9	31	B-31	2 28/31	52			73			91		
11	B-33	8 6/33	32	A-16	2 13/16	53			74	C-37	1 8/37	92		
12	A-20	7 10/20	33	B-33	2 24/33	54	A-18	1 12/18	75	A-20	1 4/20	93	B - 31	30/31
13	C-39	6 36/39	34	A- 17	2 11/17	55	B-33	1 21/33	76			94	C - 47	45/47
14	B-21	6 9/21	35	B-21	2 12/21	56			77			95	A - 19	18/19
15		6	36	A-20	2 10/20	57	A-19	1 11/19	78	C-39	1 6/39	96	A - 16	15/16
16	A-16	5 10/16	37	C-37	2 16/37	58	B-29	1 16/29	79			97		
17	A-17	5 5/17	38	A-19	2 7/19	59			80	A-16	1 2/16	98	C - 49	45/49
18		5	39	C-39	2 12/39	60	A-20	1 10/20	81	A-18	1 2/18	99	B - 33	30/33
19	A-19	4 14/19	40	A-20	2 5/20	61								
20	A-20	4 10/20	41	C-41	2 8/41	62	B-31	1 14/31						
21	B-21	4 6/21	42	B-21	2 3/21	63	B-21	1 9/21						

MAINTENANCE

Worm shaft adjustment

To adjust for wear in the worm shaft, the lock nut (#16) must be adjusted. Remove handwheel (#15) and micro-collar (#13). Tighten locknut until play is removed from engaged worm shaft and clamping surface. Do not overtighten locknut. Replace spacer and handwheel.

Eccentric sleeve limit screw adjustment

The nut (#07) regulates the rotation at eccentric sleeve. If the worm shaft does not engage table properly when vernier collar is rotated counterclockwise, then unscrew the nut (#07) and adjust the threaded pin until proper engagement is achieved.

Lubrication

Keep rotary table clean and free of dirt or chips. Prior to first use, fill base cavity with premium circulating oil. Check oil level frequently. Do not use rotary table without adequate oil.

GETTING STARTED

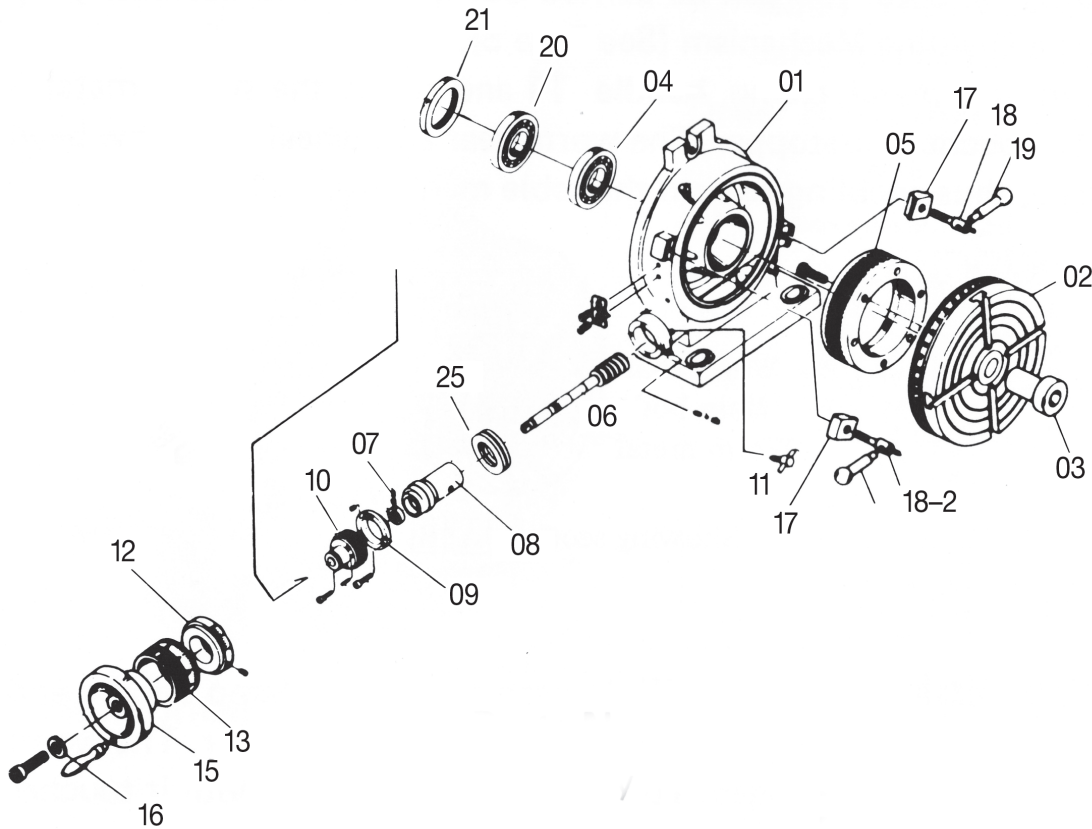
SAFETY / SPECIFICATIONS

ASSEMBLY / INSTALLATION

OPERATION

TROUBLESHOOTING

MAINTENANCE / REPAIR



REPAIR PARTS LIST FOR 9634116 – 6” ROTARY TABLE

Ref. No.	Description	Part No.	Qty.
1	Base Body	9643319.01	1
2	Table	9643320.01	1
3	Taper Sleeve	9643321.01	1
4	Table Nut	9643322.01	1
5	Worm Wheel	9643323.01	1
6	Worm Shaft	9643324.01	1
7	Nut	*	1
8	Eccentric Sleeve	9643325.01	1
9	Sleeve Ring	9643326.01	1
10	Sleeve	9643327.01	1
11	Set Screw Handle	9643328.01	1
12	Vernier Ring	9643329.01	1
13	Micro-collar	9643330.01	1

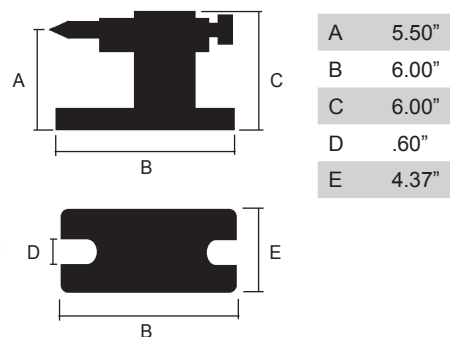
Ref. No.	Description	Part No.	Qty.
15	Handwheel	9643331.01	1
16	Nut	*	1
17	Clamp Piece	9643332.01	1
18	Clamp Bolt	9643333.01	2
19	Clamp Handle	9643334.01	1
20	Retaining Plate	9643335.01	1
21	Ring	9643336.01	1
25	Collar	9643339.01	1

OPTIONAL ACCESSORIES - 9634116 – 6” ROTARY TABLE

3-Set dividing plates - 9634314



Tail stock - 9634214



PALMGREN WARRANTY

C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which it was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

The Palmgren branded items carry the following warranties on parts:

All vises, clamps, positioning tables, tombstones, jack screws and vise accessories - LIFETIME.

All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, arbor presses, abrasive finishing machines and work stands - 3 YEARS.

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

Failure to follow these instructions will void the warranty.

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental, special or consequential damages including loss of profits in any way related to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.



Palmgren - a C.H. Hanson Company
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