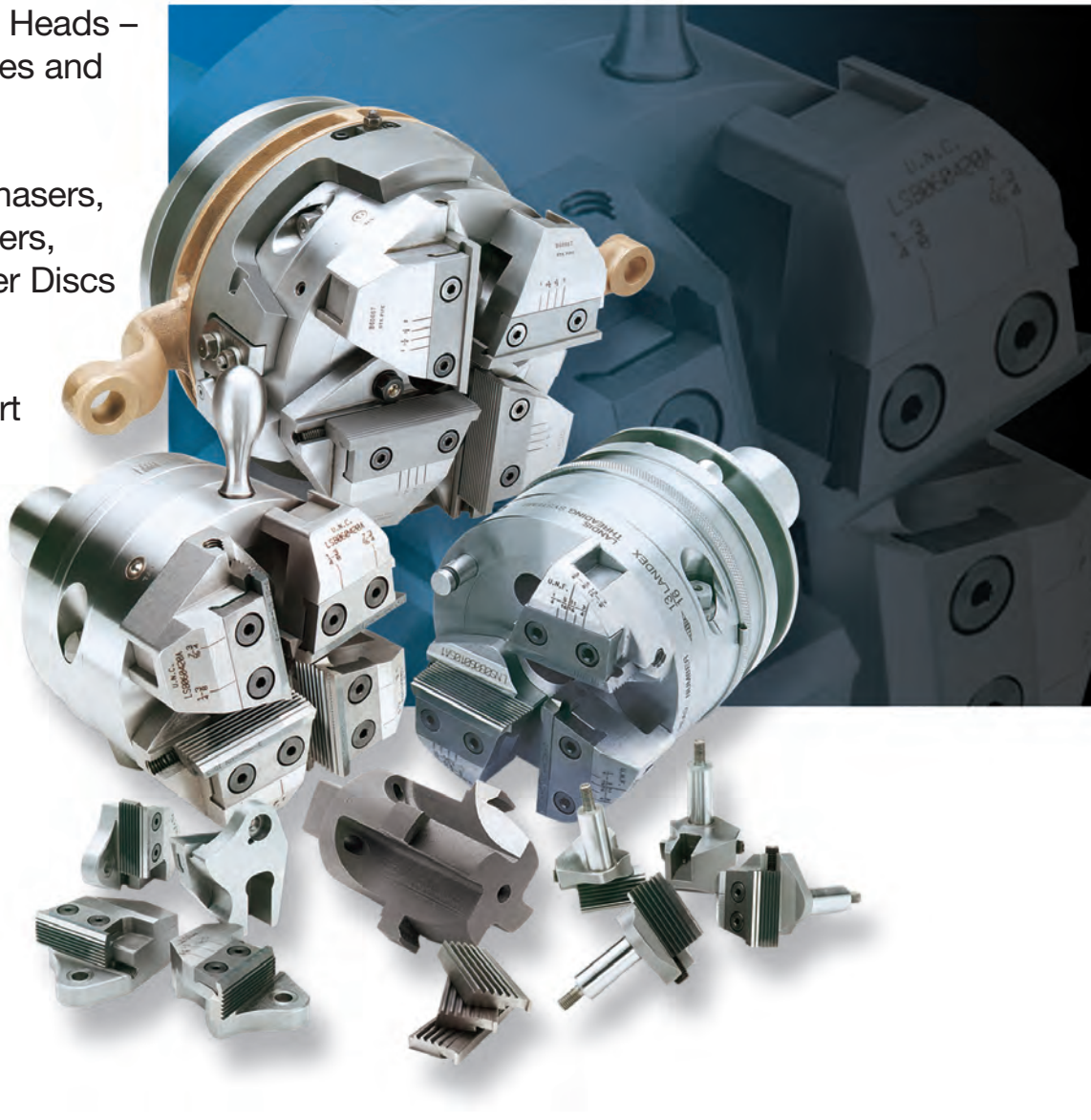
Thread Cutting

Thread Cutting Die Heads – Applications, Ranges and Dimensions

- Chaser Holders, Chasers, Hollow Milling Cutters, Reamers and Cutter Discs
- Technical and Operational Support Information



For over a century, Landis has been providing ThreadMaking Answers™ by setting global standards for excellence in high volume thread cutting and thread rolling applications.

This product catalog highlights a broad range of threading rolling solutions. Landis® Threading offers a complete range of thread-making solutions including the following product lines:

- Thread Cutting
- Thread and Form Rolling Products
- Collapsible & Solid Adjustable Taps
- Oster Program
- Reamer Products
- Replacement Dies
- Hollow Milling Program
- Cutter Discs
- Machine Grips

Your on-site application and customer service support will be addressed by our techincal sales engineers who additionally are backed by an experienced customer service team.

Rely on Landis to achieve "Best in Class" threading solutions for your high performance applications.

Please contact us for additional information on any of the products illustrated in this catalog or any other part of Landis' comprehensive threading program.

CUSTOMER SERVICE

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"Nobody knows more about threading than Landis"

If you are producing threads, then you already know LANDIS.

What you may not know, is that LANDIS THREADING SYSTEMS is a newly revised company offering a greatly expanded product line, improved customer service, and technical support both internally and in the field to ensure that customers receive the best possible advice and service.

While still offering the time proven Landis thread cutting die and rolling heads, collapsible and solid adjustable taps, new products include Landex® indexable and Lancut™ replaceable insert drilling systems, thread milling and indexable carbide threading and replacement thread rolls for the more popular makes of cylindrical die type thread rolling machines.

For information or assistance on any new or existing Landis product, please call us.

Inquiries lines: Toll-free phone 1.888.565.0386 or 717.762.3151

Customer Services: Toll-free phone 1.800.358.3500

Toll-free fax 1.888.718.2922

In Canada: Toll-free phone 1.888.828.6340

Our office hours are 8:00 A.M. to 5:00 P.M. Monday thru Friday, EST. or ESTD.

Intent of This Publication

This publication is to help those using or considering using thread cutting die heads and chasers.

Data provided includes features, ranges, dimensions, and application of die heads, identification and ordering information on chaser holders and chasers.

Technical support includes how to manage the use of die heads and chasers, identifying and correcting threading problems, how to use hollow milling cutters, and the consideration involved to cut Acme thread forms.

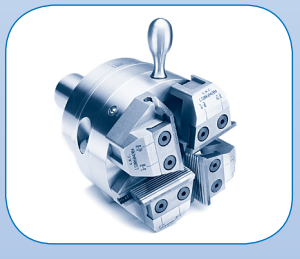
Trade In Policy

Landis has a trade in policy that allows 10% if you trade in a Landis or competitive thread cutting or rolling head or collapsible tap.

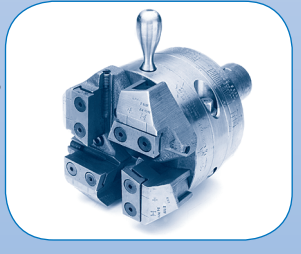
All equipment must have standard shanks and be complete.

Factory Rebuilding Service

Landis offers factory rebuilding service for die heads.



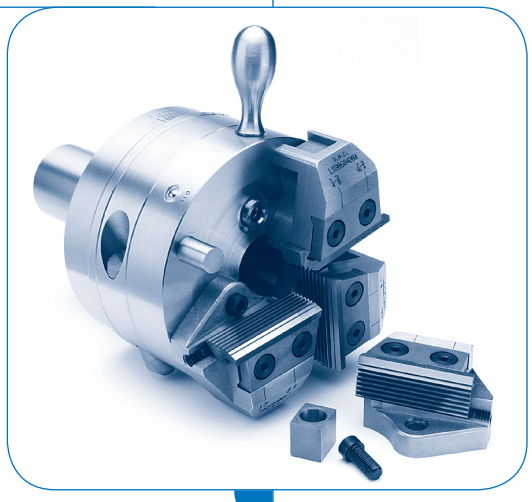
Heads are inspected and, if rebuildable, the customer is informed what the total cost will be.

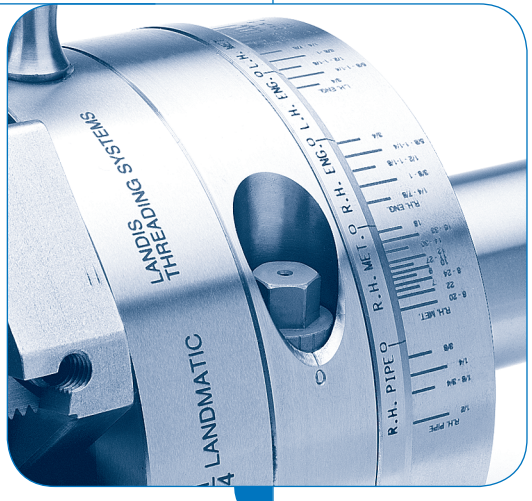


Heads that are rebuilt are placed in like new, first class condition. Rebuilt equipment, like new heads, carry a six month warranty which covers parts and labor.

A charge is made to inspect the head. This charge is waived if the customer either authorizes that the head be rebuilt, or if not rebuildable, scrapped and replaced with a new one.

Landis® Thread Cutting Die Heads

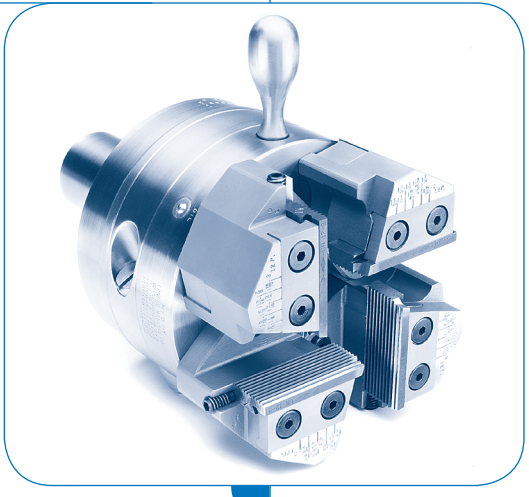




- Excellent for producing UN, BSF, Whitworth and Metric straight threads, NPT, NPTF, NPSM, BSTP, BSPP and API pipe threads.
- Unequalled for producing Acme and similar coarse pitch threads requiring heavy metal removal.
- Face mounted chaser holder sets provide wide range and oversize capacities. Special chaser holders are required to thread special diameter and pitch combinations, to cut Acme and similar threads or when close tolerances must be held.
- Heads are locked in the closed position by hardened pins engaged in hardened bushings.
- Self-opening action or yoke movement, depending upon model of die head used, withdraws pins from bushings to effect opening.
- When the pins withdraw from the bushings, the closing ring rotates snapping the chaser holders radially outward to clear the chasers from finished thread. Pins and bushings are replaceable when worn.
- A worm screw mechanism maintains size while allowing infinite adjustment for any diameter within the range of the head.
- Chasers are securely held in the cutting position by dovetailed clamps and backed-up with an abutting screw. They are easily set by loosening the clamps and turning the abutting screw with a hex wrench until the appropriate size graduation lines on the setting gage and chaser holder agree.
- Chasers are adjustable and can be nominally moved "ahead" or "back" of center changing tool clearance until best performance is obtained.

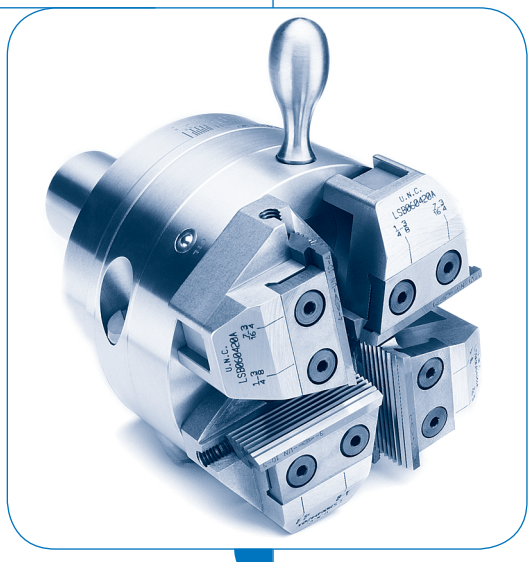
Landis® Thread Cutting Die Heads

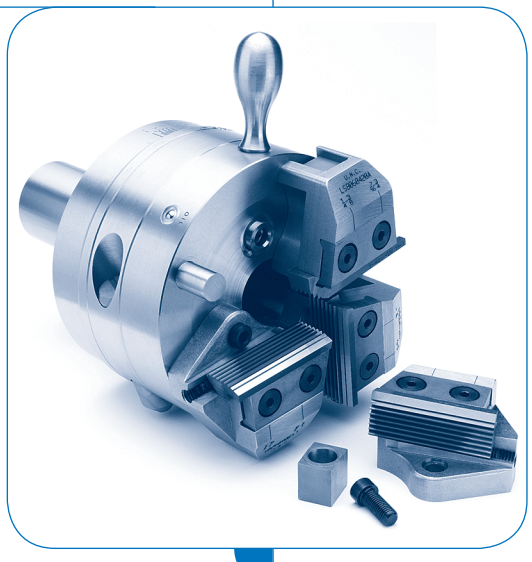
- Excluding the 5/8" 5DE Landmatic®, all standard Landis heads can be used to thread right- or left-hand threads when equipped with suitable R.H. and L.H. holder sets.
- Self-opening F and A Landmatic heads can be fitted with an internal trip bar to allow uniform, repetitive thread length regardless of variation in workpiece length or gripping position.
- Can be equipped with hollow milling holders and cutters to turn, form, and face. See section on Hollow Milling.
- Only Landis Offers the Unique Cost Saving, Replaceable Chaser Holder System.
- Standard chaser holder sets a vailable to thread UNC, UNF, BSF, Whitworth, Metric coarse and fine (of unlimited length), NPT, NPSM, BSTP, and BSPP taper and straight pipe threads within minimum to maximum O.D. capability of the head.
- Oversize holder sets, which can more than double the standard O.D. range of the head, allow large diameter, short length threading.
- Special holders, with helix angle dedicated to a specific diameter and pitch combination can be furnished for work requiring especially close tolerances.
- Face mounted holders are supported between pivoting trunnions and sliding blocks.
- Clearance between back face of holder and front face of head provides float assuring proper tracking of all chasers in the cut. Holders are rotated radially outward or inward around the pivoting trunnion to establish threading size.
- Fastened by a single screw, holder change-over is quick and easy. Face mounting makes chasers readily accessible for setting and replacement and provides ample chip clearance.
- Clamped chasers extend a minimum distance out from holder and always are securely supported regardless of diameter being worked.
- The chaser seating surface of the holder is machined at an angle that presents the chaser to the work at a suitable helix angle. This provides numerous application advantages:



- (1) Allows Landis chasers to be used with suitable chaser holders to produce that pitch on any diameter within a specific die head's range, or with any die head that uses the same physical size chaser. Separate chaser sets are not required for each diameter and pitch combination.
- (2) Offers simple chaser setting and grinding. Precision fixture grinding is not required, chasers can be ground by hand and do not need to be ground in sets.
- (3) Can be interchanged to the extent that a new individual chaser or one from a set on hand can be substituted without replacing the whole set. Also allows chasers of varying length to be used within a set.
- Separate chaser holder sets are supplied to "jam cut" tapered pipe threads. Landmatic heads in 1/2", 5/8", and 7/8" sizes, and 1/2" and 13/16" Landex heads, use chaser holders with integral trunnion and use chasers with built in taper. Most other heads have separate holders and trunnions and use parallel chasers. The 12S, 20S, and 48S Receding Chaser die heads, which use tapered chasers, are exceptions.
- Heads can be equipped with hollow milling holders and cutters to turn, form, and face.
- See section on "Hollow Milling".

Features *and* Applications





F and A Landmatic - self-opening, manually closed, stationary, non-revolving heads are for threading #4 to 6-1/2", 3 to 165 mm straight and 1/8" to 4" tapered pipe threads on turret lathes, chuckers, automatics, and other similar machines.

5/8" 5DE Landmatic - convertible, push-off, pull-off, manual or cam closed tool produces #4 to 1-1/4", 3 to 32 mm straight and 1/8" to 1/4" tapered pipe threads on small vertical turret screw machines.

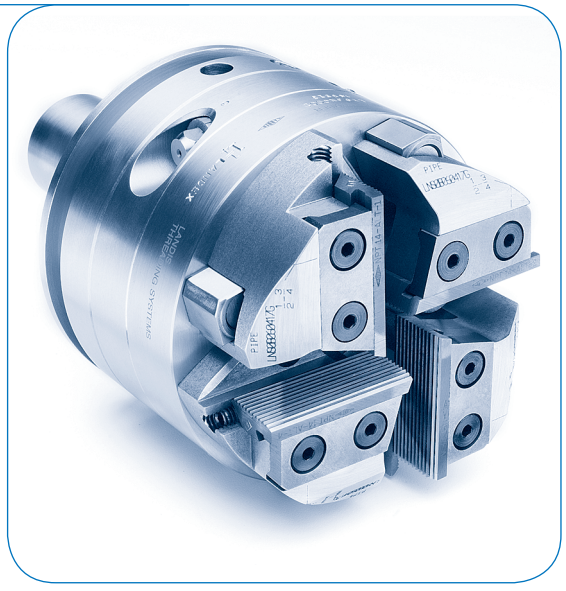
JN Landex® - yoke opened and closed, revolving head produces #4 to 2", 3 to 52 mm straight and 1/8" to 2" tapered threads on automatic screw and other live spindle machines.

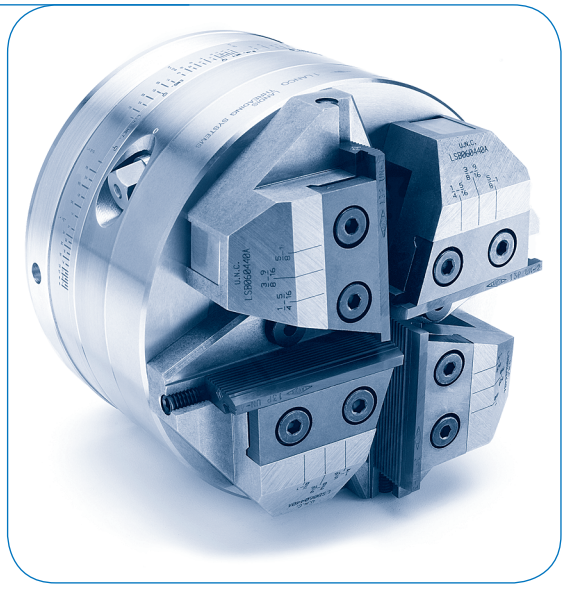
2" 16JNK Landex - internally tripped revolving head for cutting 1/8" to 2" NPT, NPSM, BSTP, and BSPP tapered and straight pipe threads on 16DEN double end and 16-20B threading machines.

Lanco revolving tools for hand, semi-automatic, and automatic threading machines. Models available to thread 1/4" to 9-1/4", 6 to 235 mm straight and 1/8" to 6" pipe threads.

R type Lanco heads for straight thread and jam cut taper threads.

RX type Lanco six chaser head for producing large diameter, fine pitch, short length threads. Also well suited for threading work pieces that require an interrupted cut such as pipe wrench jaws.





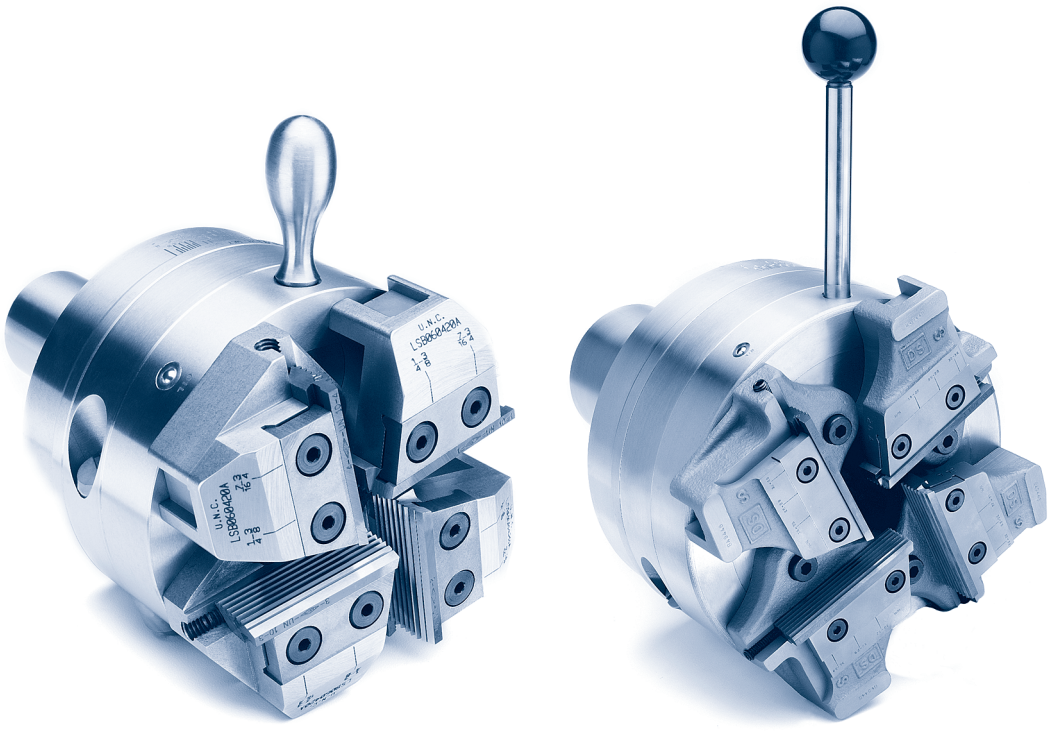
S type LANCO receding chaser heads for longer length, precision tapered threads, such as API, and to hollow mill long tapers. Optional cams are available to allow straight and special taper threads to be produced.

T type LANCO internal trip heads to simultaneously thread, ream, and chamfer NPT, NPSM, BSTP and BSPP on pipe and nipples. For application details, thread ranges, dimensions, and chaser holder information:

The highest Helix Angles that can be produced, the width of chasers used by the various models of Die Heads & recommended threading speeds can be found in the tables of the chart section. "Refer to chart section" of the table of contents for page numbers.

Specifications
"F" & "A" Landmatic®

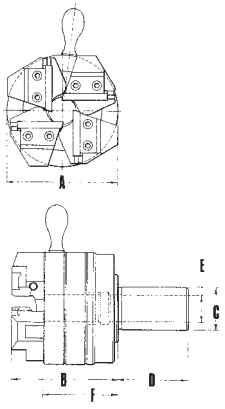
- For applications where the part rotates and the threading tool is stationary
- For straight threading, large diameter, and tapered thread applications from #4 to 6-1/2″ maximum oversize (3 to 165 mm)
- Self-opening, manually, or cam closed operations available
- Generally applied to turret lathes, automatics, hand screw, and similar machines
- Manually closed, but can be optionally equipped with an over-travel feature allowing use with machines having a cam or automatic closing device



Specifications

	5/8″ 5F	7/8″ 7F	1-1/4″ 10F	2″ 16F	3″ 24A	4″ 32A
Range—Inches	#4 to 5/8	#4 to 7/8	1/4 to 1-1/4	3/8 to 2	3/4 to 3	1 to 4
Range—mm	3 to 16	3 to 22	6 to 33**	9 to 52**	18 to 76	24 to 100
Range—Pipe Sizes	1/8 and 1/4	1/8 to 1/2	1/8 to 3/4	1/4 to 2	1/2 to 3	1 to 4
Coarsest Pitch-Thds. per in.*	11	9	7	4-1/2	4	4
Coarsest Pitch—mm*	2.0	2.5	3.5	5.0	6.0	6.0
Maximum Thread Length—						
In. (With Solid Shank)	2-3/4	3-3/8	4-1/2	5-1/8	6-13/16	7-19/32
Maximum Thread Length—						
mm (With Solid Shank)	69.8	85.7	114.3	130.2	173.1	193.1
Weight—Lbs.	4-3/4	10-1/2	23-1/2	51-1/4	137	252
Weight—Kgms.	2.15	4.76	10.66	23.25	62.14	114.31

*Coarser pitch threads can be produced dependent on thread form, materials, etc. Write for details enclosing print of workpiece.
**On the 1-1/4″ and 2″ F Heads, there is approximately 1/64″ clearance between the I.D. of the bore and the largest Metric size O.D. listed.



Dimensions

	5/8″ 5F		7/8″ 7F		1-1/4″ 10F		2″ 16F		3″ 24A		4″ 32A	
Dimensions	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm	Inches	mm
A	2-15/16	74.6	3-15/16	100	5-1/8	130	6-15/16	176.2	10-1/4	260.3	13-1/4	336.5
B*	3-11/64	80.6	3-3/4	95.2	4-57/64	124.2	6-1/8	155.6	8-11/64	207.6	9-5/16	236.6
C Std. Hollow	1	25.4	1-1/2	38.1	1-3/4	44.4	2-3/4	69.8	4-1/4	107.9	4-1/4	107.9
C Std. Solid	5/8	15.9	1	25.4	1-1/2	38.1	1-3/4	44.4	–	–	–	–
†C Min. Hollow	7/8	22.2	1-1/4	31.8	1-3/4	44.4	2-5/8	66.7	3-3/4	95.2	4-1/4	107.9
†C Min. Solid	1/2	12.7	5/8	15.9	1-1/4	31.8	1-1/2	38.1	2	50.8	2-3/4	69.8
D	2	50.8	2-1/2	63.5	3-1/4	82.5	3-1/2	88.9	6	152.4	6	152.4
E	21/32	16.7	15/16	23.8	1-5/16	33.3	2-1/16	52.4	3-1/16	77.8	3-1/16**	77.8**
F	2-3/16	55.6	2-5/8	66.7	3-3/8	87.7	4-3/16	106.4	5-55/64	148.8	6-15/16	175.3

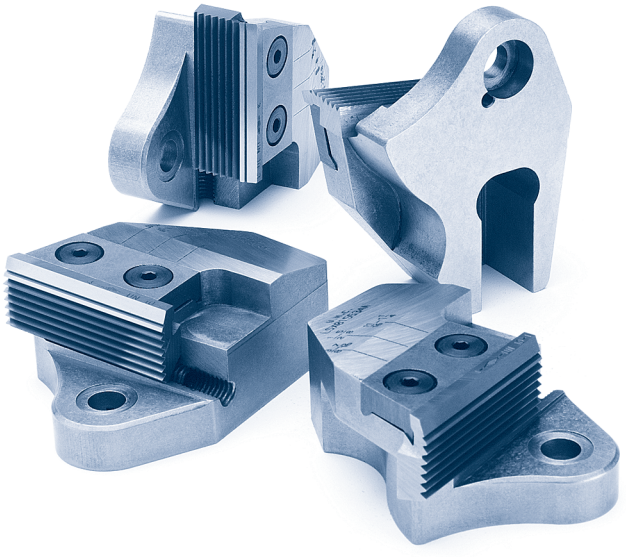
†Special shanks furnished upon order.

**The bore of the 4″ LANDMATIC Head is 4-13/16″ (122.2 mm) which allows a maximum workpiece O.D. of 4-3/4″ (120.6 mm) to be threaded 7-3/4″ (196.8 mm) in length. Longer length workpieces can be threaded if their O.D. is within the 3-1/6″ I.D. (77.8 mm) of the hollow shank.

*″B″ Dimension based upon the use of standard, maximum range U.N.C. Chaser Holders. For correct dimension when using oversize or other holders, please contact Landis Engineering Department.

5/8" 5F LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
No. 4 to No. 12	UNC	4-1/4°	5/8 x 1-1/8	LNS0B051962A	L0D051855	LNS0B051963A	LNS0D051857
3/16 to 5/8	UNC	3-1/2°	5/8 x 1-1/8	LSB060069A	L0C060052	LNS0B060070A	L0C060053
No. 4 to No. 12	UNF	3-1/2°	5/8 x 1-1/8	LNS0B060069B	L0D051855	LNS0B060070B	LNS0D051857
1/4 to 5/8	UNF	2-1/3°	5/8 x 1-1/8	LSB060071B	L0C060052	LNS0B060072B	L0C060053
1-8 to 7/32	WHIT	4-1/4°	5/8 x 1-1/8	LNS0B051962C	L0D051855	LNS0B051963C	LNS0D051857
3/16 to 5/8	WHIT	3-1/2°	5/8 x 1-1/8	LNS0B060069C	L0C060052	LNS0B060070C	L0C060053
1/4 to 5/8	BSF	2-3/4°	5/8 x 1-1/8	LNS0B060073D	L0C060052	LNS0B060074D	LNS0C060053
4 to 16 mm	METRIC COARSE	3-1/2°	5/8 x 1-1/8	LNS0B060069E	L0C060054	LNS0B060070E	LNS0C060055
4 to 16 mm	METRIC FINE	2°	5/8 x 1-1/8	LNS0B060075F	L0C060054	LNSB060154F	LNS0C060055
1/8 to 1/4	PIPE	2°	5/8 x 1-1/8	LNS0B060075I	L0C060056	LNS0B060154I	LNS0C060057



7/8" 7F LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
No. 4 to No. 12	UNC	4-1/4°	3/4 x 1-5/8	LNS0B090842A	L0D060118	LNS0B090915A	L0D060119
1/4 to 7/8	UNC	3-1/4°	3/4 x 1-5/8	LSB060124A	L0D060118	LNS0B060125A	L0D060119
No. 4 to No. 12	UNF	3-1/2°	3/4 x 1-5/8	LNS0B090839B	L0D060118	LNS0B090912B	L0D060119
1/4 to 7/8	UNF	2-1/4°	3/4 x 1-5/8	LSB060126B	L0D060118	LNS0B060127B	L0D060119
1/8 to 7/32	WHIT	4-1/4°	3/4 x 1-5/8	LNS0B090842C	L0D060118	LNS0B090915C	L0D060119
1/4 to 7/8	WHIT	3-1/4°	3/4 x 1-5/8	LNS0B060124C	L0D060118	LNS0B060125C	L0D060119
1/4 to 7/8	BSF	2-1/2°	3/4 x 1-5/8	LNS0B060128D	L0D060118	LNS0B060129D	L0D060119
6 to 22 mm	METRIC COARSE	3-1/4°	3/4 x 1-5/8	LNS0B060124E	L0D060120	LNS0B060125E	LNS0D060121
6 to 22 mm	METRIC FINE	1-3/4°	3/4 x 1-5/8	LNS0B060130F	L0D060120	LNS0B060131F	LNS0D060121
1/8 to 1/2	PIPE	1-3/4°	3/4 x 1-5/8	LSB060130I	L0D060122	LNS0BO60131I	LNS0D060123

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

1-1/4" 10F LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 3/4	UNC	3-1/4°	15/16 x 2-1/8	LSB060420A	L0C060179	LNS0B060421A	L0C060180
13/16 to 1-1/4	UNC	2-1/2°	15/16 x 2-1/8	LSB060422A	L0C060179	LNS0B060423A	L0C060180
1/4 to 7/16	UNF	2-1/2°	15/16 x 2-1/8	LNS0B060424B	L0C060179	LNS0B060425B	L0C060180
1/2 to 3/4	UNF	1-3/4°	15/16 x 2-1/8	LSB060426B	L0C060179	LNS0B060427B	L0C060180
7/8 to 1-1/4	UNF	1-1/2°	15/16 x 2-1/8	LSB60428B	L0C060179	LNS0B060429B	L0C060180
1/4 to 3/4	WHIT	3-1/4°	15/16 x 2-1/8	LNS0B060420C	L0C060179	LNS0B060421C	L0C060180
13/16 to 1-1/4	WHIT	2-1/2°	15/16 x 2-1/8	LNS0B060422C	L0C060179	LNS0B060423C	L0C060180
1/4 to 3/4	BSF	2-1/2°	15/16 x 2-1/8	LNS0B060424D	L0C060179	LNS0B060425D	L0C060180
13/16 to 1-1/4	BSF	2°	15/16 x 2-1/8	LNS0B060430D	L0C060179	LNS0B060431D	L0C060180
6 to 18 mm	METRIC COARSE	3-1/4°	15/16 x 2-1/8	LNS0B060420E	L0C060181	LNS0B060421E	LNS0C060182
20 to 33 mm	METRIC COARSE	2-1/2°	15/16 x 2-1/8	LNS0B060422E	L0C060181	LNS0B060423E	LNS0C060182
6 to 18 mm	METRIC FINE	2°	15/16 x 2-1/8	LNS0B060435F	L0C060181	LNS0B060439F	LNS0C060182
20 to 33 mm	METRIC FINE	1-1/2°	15/16 x 2-1/8	LNS0B060428F	L0C060181	LNS0B060429F	LNS0C060182
1/8 to 3/8	TAPER PIPE	2°	15/16 x 2-1/8	LSB060432G	L0C060185	LNS0B060433G	LNS0C060186
1/8 to 1/2	TAPER PIPE	2°	15/16 x 2-1/8	LNS0B060432G1	L0C060185	–	–
1/2 to 3/4	TAPER PIPE	1-1/4°	15/16 x 2-1/8	LSB060434G	L0C060185	LNS0B060438G	LNS0C060186
1/8 to 3/8	STR. PIPE	2°	15/16 x 2-1/8	LNS0B060435H	L0C060183	LNS0B060439H	LNS0C060184
1/2 to 3/4	STR. PIPE	1-1/4°	15/16 x 2-1/8	LNS0B060436H	L0C060183	LNS0B060437H	LNS0C060184

2" 16F LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
3/8 to 1-1/4	UNC	2-3/4°	15/16 x 2-1/8	LSX015534A	L015658	LNS105984A	L016105
1/4 to 1-1/4*	UNC	2-3/4°	15/16 x 2-1/8	LNS015534A*	L015658	–	–
1-3/8 to 2	UNC	2-1/4°	1-1/4 x 2-3/4	LSX015905A	L015659	LNS015970A	LNS016106
1/2 to 5/8	UNF	2°	15/16 x 2-1/8	LNS016903B	L015658	LNS019141B	L016105
3/4 to 1-1/4	UNF	1-1/2°	15/16 x 2-1/8	LSX016904B	L015658	LNS019226B	L016105
1-3/8 to 1-1/2	UNF	1-1/4°	15/16 x 2-1/8	LSX016905B	L016095	LNS019707B	LNS016096
3/8 to 1-1/4	WHIT	2-3/4°	15/16 x 2-1/8	LNS015534C	L015658	LNS015984C	L016105
1-3/8 to 2	WHIT	2-1/4°	1-1/4 x 2-3/4	LNS015905C	L015658	LNS015970C	L016106
1/2 to 5/8	BSF	2-1/4°	15/16 x 2-1/8	LNS017077D	L015658	LNS017078D	L016105
3/4 to 1-1/4	BSF	2°	15/16 x 2-1/8	LNS016903D	L015658	LNS019141D	L016105
1-3/8 to 2	BSF	1-3/4°	15/16 x 2-1/8	LNS019250D	L016095	LNS050704D	LNS016096
9 to 33 mm	METRIC COARSE	2-3/4°	15/16 x 2-1/8	LNS015534E	L016301	LNS015984E	LNS016302
36 to 52 mm	METRIC COARSE	2-1/4°	1-1/4 x 2-3/4	LNS015905E	L0D015484	LNS015970E	LNS016304
9 to 14 mm	METRIC FINE	2°	15/16 x 2-1/8	LNS016903F	L016301	LNS019141F	LNS016302
16 to 33 mm	METRIC FINE	1-1/2°	15/16 x 2-1/8	LNS016904F	L016301	LNS019226F	LNS016302
36 to 52 mm	METRIC FINE	3/4°	15/16 x 2-1/8	LNS015535F	LNS017582	LNS015474F	LNS0C003762
1/8 to 3/4	TAPER PIPE	1-3/4°	15/16 x 2-1/8	LNS015579G1	L016099	–	–
1/2 to 3/4	TAPER PIPE	1-3/4°	15/16 x 2-1/8	LNS015579G	L016099	–	–
1/4 to 3/4	TAPER PIPE	1-3/4°	15/16 x 2-1/8	LSX015579G	L016099	LNS019728G	LNS019729
1 to 2	TAPER PIPE	1°	1-1/4 x 2-3/4	LSX015580G	L016100	LNS019102G	LNS019103
1/8 to 3/4	STR. PIPE	1-3/4°	15/16 x 2-1/8	LNS019737H1	L0D007109	–	–
1/2 to 3/4	STR. PIPE	1-3/4°	15/16 x 2-1/8	LNS019737H2	L0D007109	–	–
1/4 to 3/4	STR. PIPE	1-3/4°	15/16 x 2-1/8	LNS019737H	L0D007109	LNS019760H	LNS0D007110
1 to 2	STR. PIPE	1°	15/16 x 2-1/8	LSB091657H	L0D013394	LNS0C091826H	LNS0D069344

*For 16 JNB Die Head

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

3" 24A LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
3/4 to 1-1/2	UNC	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049448A	L0C048412	LNS0B050707A	LNS0C050231
1-5/8 to 3	UNC	2°	1-1/2 x 4	LNS0B055782A	L0C048846	LNS0B055914A	LNS0C050218
3-1/4 to 1-1/4	UNF	1-1/2°	1-3/64 x 4	LNS0B053530B	L0C048412	LNS0B053534B	LNS0C050231
1-3/8 to 1-1/2	UNF	1-1/4°	1-3/64 x 4	LNS0B053531B	L0C048412	LNS0B053535B	LNS0C050231
3/4 to 1-1/2	WHIT	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049448C	L0C048412	LNS0B050707C	LNS0C050231
1-5/8 to 3	WHIT	2°	1-1/2 x 4	LNS0B055782C	L0C048846	LNS0B055914C	LNS0C050218
3/4 to 1-1/2	BSF	1-3/4°	1-3/64 x 4	LNS0B053532D	L0C048412	–	–
1-5/8 to 2-3/4	BSF	1-1/4°	1-3/64 or 1-7/64 x 4	LNS0B53533D	L0C048846	–	–
18 to 39 mm	METRIC COARSE	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049498E	LNS0C050236	LNS0B050707E	LNS0C050237
42 to 76 mm	METRIC COARSE	2°	1-1/2 x 4	LNS0B055782E	LNS0C050238	LNS0B055914E	LNS0C050239
1/2 to 3-1/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LNS0B050705G	LNS0C058402	LNS0B050709G	LNS0C050224
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LNS0B050706G	LNS0C058401	LNS0B050710G	LNS0C050232
2-1/2 to 3	TAPER PIPE	3/4°	1-7/8 x 4	LNS0B049447G	LNS0C048848	LNS0B050711G	LNS0C050233
1/2 to 3/4	STR Pipe	1-3/4°	1-3/64 x 4	LNS0B053532H	LNS0C052240	–	–
1 to 2	STR Pipe	1°	1-3/64 x 4	LNS0B054076H	LNS0C050062	–	–
2-1/2 to 3	STR Pipe	3/4°	1-3/64 x 4	LNS0B054077H	LNS0C051010	–	–

4" 32A LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1 to 1-1/2	UNC	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049446A	L0C048413	LNS0B050802A	LNS0C050217
1-5/8 to 3	UNC	2°	1-1/2 x 4	LNS0B055780A	L0C050094	LNS0B055915A	LNS0C050219
3-1/4 to 4	UNC	1-1/4°	1-1/2 x 4	LNS0B055781A	L0C051022	LNS0B055916A	LNS0C051917
1 to 1-1/2	UNF	1-1/4°	1-3/64 x 4	LNS0B093197B	L0C048413	–	–
1 to 1-1/2	WHIT	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049446C	L0C048413	LNS0B050802C	LNS0C050217
1-5/8 to 3	WHIT	2°	1-1/2 x 4	LNS0B055780C	L0C050094	LNS0B055915C	LNS0C050219
3-1/4 to 4	WHIT	1-3/4°	1-7/8 x 4	LNS0B050721C	LNS0C048851	LNS0B050804C	LNS0C050099
1 to 1-1/2	BSF	1-3/4°	1-3/64 x 4	LNS0B093199D	L0C048413	–	–
1-5/8 to 2-3/4	BSF	1-1/4°	1-3/64 or 1-7/64 x 4	LNS0B050795D	L0C050094	–	–
3 to 4	BSF	1-1/4°	1-1/2 x 4	LNS0B055781D	L0C051022	–	–
25 to 38 mm	METRIC COARSE	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B049446E	LNS0C050240	LNS0B050802E	LNS0C050241
42 to 76 mm	METRIC COARSE	2°	1-1/2 x 4	LNS0B055780E	LNS0C050242	LNS0B055915E	LNS0C050243
1/2 TO 3/4	TAPER PIPE	1-3/4°	1-3/64 X 4	LNS0B050789G	LNS0C048844	LNS0B050228G	LNS0C050224
1 TO 2	TAPER PIPE	1°	1-1/4 X 4	LNS0B050790G	LNS0C050095	LNS0B050806G	LNS0C050096
2-1/2 TO 4	TAPER PIPE	1/2°	1-7/8 X 4	LNS0B050791G	LNS0C048853	LNS0B050807G	LNS0C050225
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B052237H	LNS0C052243	–	–
2-1/2 to 4	STR. PIPE	3/4°	1-3/64 x 4	LNS0B052238H	LNS0C052244	–	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Oversize Chaser Holders††Ω

Range Inch – (mm)	Chaser Size	Coarsest Pitch Thrds. Per In.–(mm)	Maximum Thread Length** Inch – (mm)
5/8" – 5F			
3/4 to 1 – (18 to 24 mm)	5/8 x 1-1/8	14 – (1.75 mm)	7/8 – (22 mm)
1 to 1-1/4 – (24 to 34 mm)	5/8 x 1-1/8	14 – (1.75 mm)	1-5/16 – (33 mm)
7/8" – 7F			
15/16 to1-1/2 – (24 to 39 mm)	3/4 x 1-5/8	14 – (1.75 mm)	1-1/8 – (28 mm)
1-9/16 to 2 – (42 to 52 mm)	3/4 x 1-5/8	14 – (1.75 mm)	2* - (51 mm*)
1-1/4" – 10F			
1-5/16 to2 – (33 to 52 mm)	15/16 x 2-1/8	12 – (2 mm)	1-3/16 or 2-7/8* - (30 or 73 mm*)
2-1/8 to 2-3/4 – (52 to 72 mm)	15/16 x 2-1/8	8 – (3 mm)	1-3/16 or 2-5/8* - (30 or 67 mm*)
2" - 16F			
2-1/8 to 3 – (54 to 76 mm)	15/16 x 2-1/8	8 – (3 mm)	1-5/16 or 2-1/8* (33 or 81 mm*†)
3-1/8 to 3-3/4 – (80 to 96 m)	15/16 x 2-1/8	8 – (3 mm)	1-5/16 or 2-3/16* (33 or 56 mm*†)
3" – 24A			
3-1/8 to 4-1/4 – (78 to 108 mm)	1-3/64 or 1-7/64 x 4" 1-1/4 x 4 or 1-1/2 x 4	6 – (4 mm) 6 – (4 mm)	1-1/2 or 3-1/16* - (38 or 78 mm*)
4-3/8 to 5-1/2 – (112 to 140 mm)	1-3/64 or 1-7/64 x 4	6 – (4 mm)	1-7/8 (48 mm)
4" – 32A			
4-1/8 to 4-3/4* – (104 to 121 mm)	1-3/64 or 1-7/64 x 4	6 – (4 mm)	2-5/16 – (59 mm)
5 to 6-1/2 – (125 to 165 mm)	1-3/64 or 1-7/64 x 4 or 1-1/4 x 4	6 – (4 mm) 6 – (4 mm)	1-7/8 or 4-1/4* - (48 or 108 mm*)

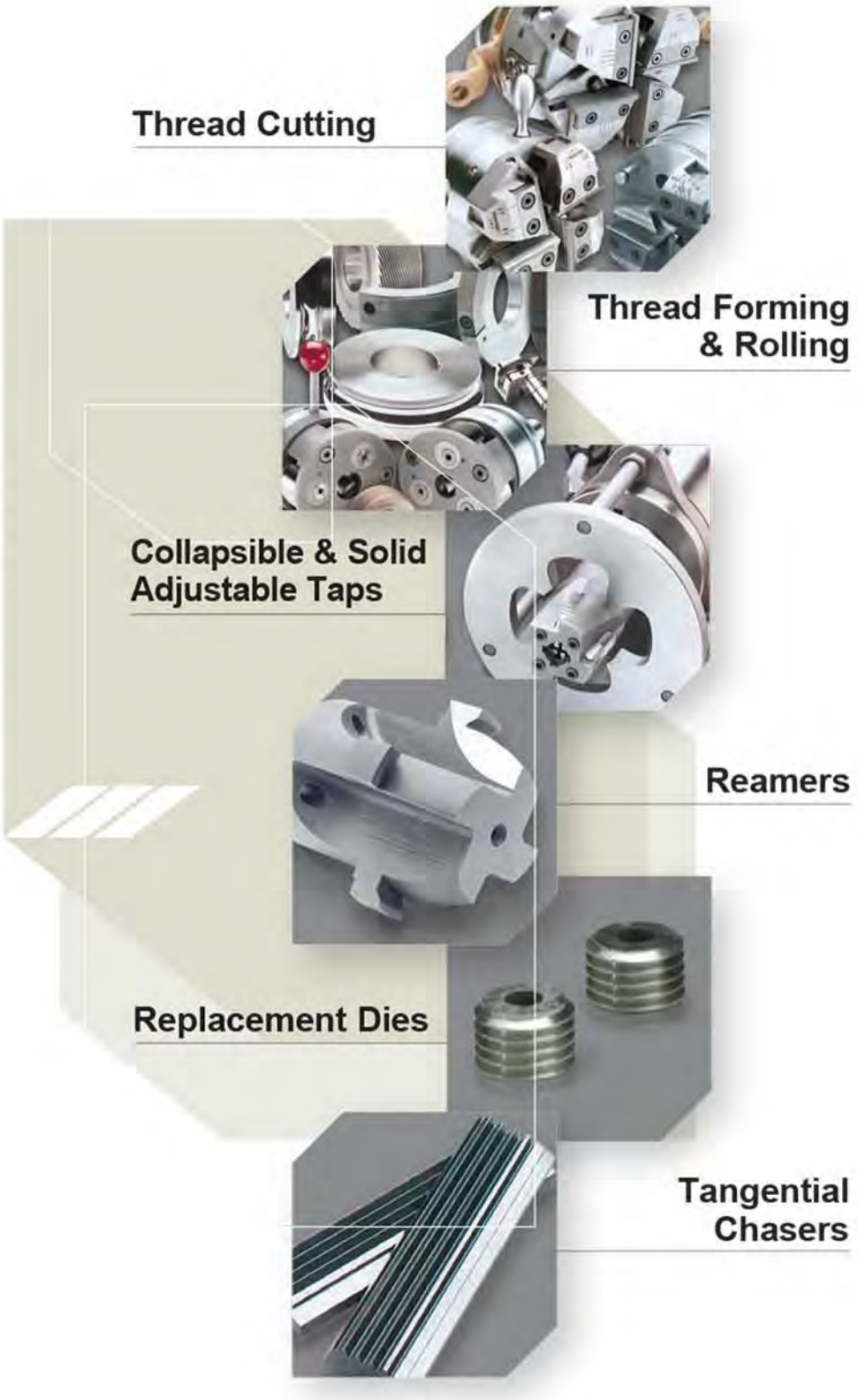
*Requires Special Built-Up Holders.

**Important—Total thread length allowing 1/8″ clearance.

†2-3/16″ (56 mm) on 2-1/8″ to 2-3/4″diameters and 1-15/16″ (49 mm) on 2-7/8″ and 3″ diameters.

††Note: Oversized chaser holders are furnished against order to thread specific diameter and pitch combinations. Often, more than one diameter and pitch combination can be threaded with a particular set of oversize chaser holders depending upon the helix angles involved. Also, the thread must be within the coarsest pitch and maximum thread length limitations of the chaser holders. Please refer complete information on diameter and pitch combinations for engineering review.

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items. Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.



Landis' comprehensive Threading Products are supported by a wealth of technical knowledge and development across all products.

CUSTOMER SERVICE

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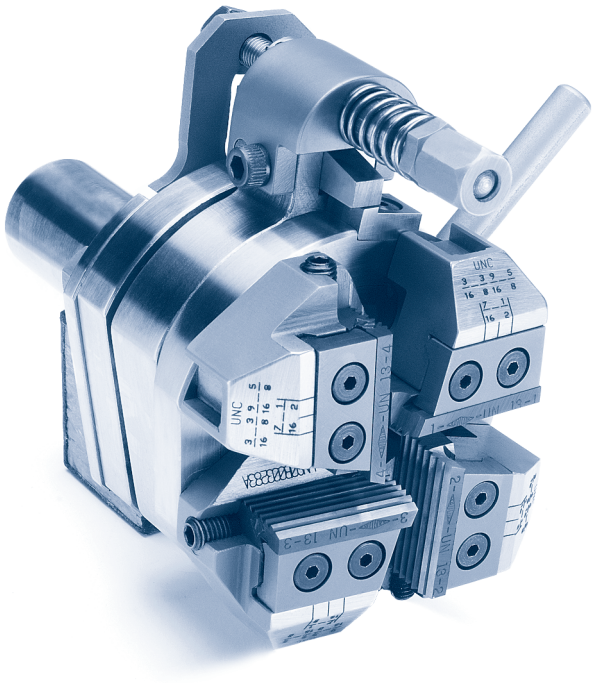
Specifications

DE Landmatic®

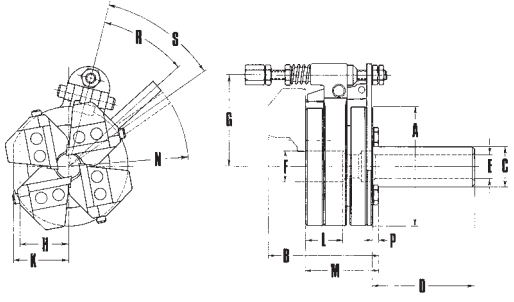
- For applications where the part rotates and the threading tool is stationary
- For straight threading, large diameter, and tapered thread applications from #4 to 1-1/4″ maximum oversize (3 to 32 mm)
- Push or pull-off opening, cam closed
- For application to automatic turret lathes, Swiss and Brown and Sharpe machines
- Feature radially adjustable shanks to allow correction for misalignment between workpiece and die head
- Cushioning spring mechanism compensates for differences between cam feed and thread lead and the correct starting pressure for the thread being cut
- External trip mechanism allows for "push-off" or "pull-off" as the application requires



Specifications

5/8″ 5DE	
Range—Inches*	#4 to 5/8
Range—mm	4 to 16
Range—Pipe Sizes	1/8 & 1/4
Coarsest Pitch—Thrds. per in.	11
Coarsest Pitch—mm	2.0
Weight—Lbs.	5-1/4
Weight—Kgms.	2.38

*Left- and Right-Hand Heads required.



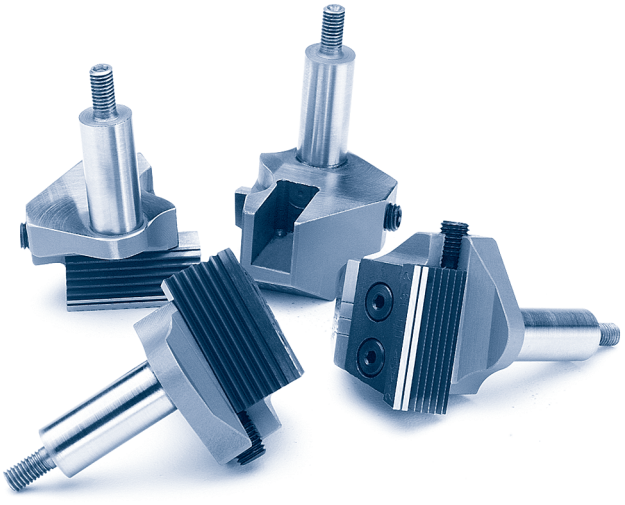
Dimensions

5/8″ 5DE			
Dimensions	Inches		mm
A	2-15/16		74.6
B*	2-25/32		69.8
C	1		25.4
D	2-1/2		63.5
E	19/32		15.1
F	47/64		18.7
G	2-1/4		57.2
H	1-7/32		31.0
K	1-3/8		34.9
L	15/16		23.8
M	1-55/64		46.4
N	2-31/32		75.4
P	5/32		3.9
R		48° Closed	
S		55° Opened	

*"B" Dimension based upon the use of standard, maximum range U.N.C. Chaser Holders. For correct dimension when using oversize or any other holder, please contact Landis Engineering Department.

5/8" 5DE LANDMATIC™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
No. 4 to No. 12	UNC	4-1/4°	5/8 x 1-1/8	LNS0B051854A	L0D051855	LNS0B051856A	LNS0D051857
3/16 to 5/8	UNC	3-1/2°	5/8 x 1-1/8	LNS0B003283A	L0C060052	LNS0B003435A	L0C0060053
No. 4 to No. 12	UNF	3-1/2°	5/8 x 1-1/8	LNS0B003283B	L0D051855	LNS0B003435B	LNS0D051857
1/4 to 5/8	UNF	2-1/3°	5/8 x 1-1/8	LNS50C003612B	L0C060052	LNS0B021839B	L0C060053
1/8 to 7/32	WHIT	4-1/4°	5/8 x 1-1/8	LNS0B051854C	L0D051855	LNS0B051856C	LNS0D051857
3/16 to 5/8	WHIT	3-1/2°	5/8 x 1-1/8	LNS0B003283C	L0C060052	LNS0B003435C	L0C060053
1/4 to 5/8	BSF	2-3/4°	5/8 x 1-1/8	LNS0C003341D	L0C060052	LNS0C003436D	L0C060053
4 to 16 mm	METRIC COARSE	3-1/2°	5/8 x 1-1/8	LNS0B003283E	L0C060054	LNS0B003435E	LNS0C060055
4 to 16 mm	METRIC FINE	2°	5/8 x 1-1/8	LNS0C011067F	L0C060054	LNS0B099874F	L0C060055
1/8 to 1/4	PIPE	2°	5/8 x 1-1/8	LNS0C011067I	L0C060056	LNS0B099874I	LNS0C060057



5/8" - 5DE LANDMATIC™ Oversize Chaser Holders†Ω

Range Inch – (mm)	Chaser Size	Coarsest Pitch Thrds. Per In. – (mm)	Maximum Thread Length Inch – (mm)
3/4 to 1 (18 to 24 mm)	5/8 x 1-1/8	14 – (1.75 mm)	7/8 – (22 mm)
1 to 1-1/4* (24 to 32 mm)	5/8 x 1-1/8	14 – (1.75 mm)	1-5/16* - (33 mm*)

* Up to and including the indicated diameter and thread length are obtainable, however, the larger diameters and longer thread lengths are subject to factory recommendations. Important—Total thread length allowing 1/8″clearance.

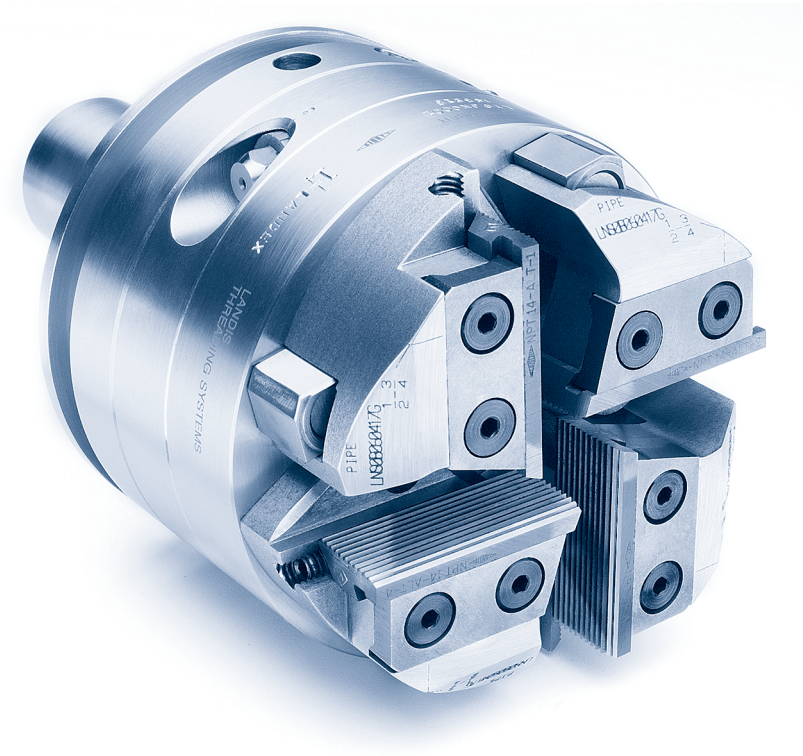
† Note: Oversized chaser holders are furnished against order to thread specific diameter and pitch combinations. Often, more than one diameter and pitch combination can be threaded with a particular set of oversize chaser holders depending upon the helix angles involved. Also, the thread must be within the coarsest pitch and maximum thread length limitations of the chaser holders. Please refer complete information on diameter and pitch combinations for engineering review.

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items. Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Specifications

"JN" Landex®

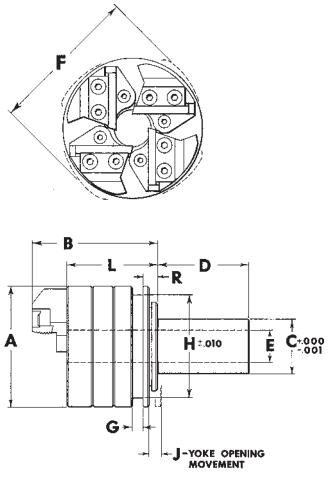
- Landex die heads are revolving tools for automatic screw and other machines that have "live spindles"
- Ideal for high production machines where die head space is limited
- Available in sizes 1/2″ to 2″ (12 to 15 mm)
- Opened and closed by a yoke
- For straight and tapered threading applications from #4 to 3-3/4" maximum oversize (3 to 96 mm)



Specifications

	1/2″ 4JN	13/16″ 13JN	1-1/4″ 10JN	2″ 16JN
Range—Inches	#4 to 1/2	#4 to 13/16	1/4 to 1-1/4	3/8 to 2
Range—mm	3 to 12	3 to 20	6 to 33**	9 to 52**
Range—Pipe Sizes	1/8 to 1/4	1/8 to 1/2	1/8 to 3/4	1/4 to 2
Coarsest Pitch—Thrds per in.*	12	9	7	4-1/2
Coarsest Pitch—mm*	2.0	2.5	3.5	5.0
Weight—Lbs.	4-1/2	10-3/4	26-1/4	60
Weight—Kgms.	2.04	4.88	11.91	27.22

*Coarser pitch threads can be produced dependent on thread form, material, etc. Write for details enclosing print of workpiece.
**On the 1-1/4″ and 2″ JN Landex Heads, there is approximately 1/64″ clearance between the I.D. of the bore and the largest Metric Size O.D. listed.



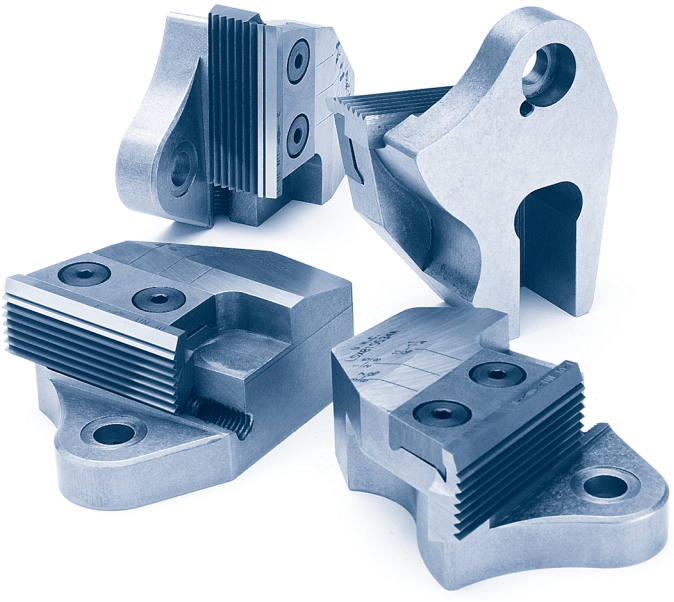
Dimensions

	1/2″ 4JN		13/16″ 13JN		1-1/4″ 10JN		2″ 16JN	
Dimensions	Inches	mm	Inches	mm	Inches	mm	Inches	mm
A	2-15/16	74.6	3-15/16	100.0	5-1/8	130.2	6-15/16	176.2
††B	3-3/4	95.3	4-11/32	110.3	5-17/64	133.8	6-27/32	173.8
C*	1	25.4	1-1/2	38.1	1-3/4	44.4	2-3/4	69.8
C**	7/8	22.2	1-1/4	31.8	1-3/4	44.4	2-5/8	66.7
C***	1/2	12.7	5/8	15.9	1-1/4	31.8	1-1/2	38.1
C****	5/8	15.9	–	–	1-1/2	38.1	2	50.8
D	2	50.8	2-1/2	63.5	3-1/4	82.5	3-1/2	88.9
E	21/32	16.7	15/16	23.8	1-5/16	33.3	2-1/16	52.4
††F†	2-15/16	74.6	4	101.6	5-1/8	130.2	7-3/16	182.6
G	3/8	9.5	1/2	12.7	7/16	11.1	5/8	15.9
H	2-1/16	52.4	2-15/16	74.6	4-3/8	111.1	5-15/16	150.8
J	5/16	7.9	21/64	8.3	15/32	11.9	17/32	13.5
L	2-11/16	68.3	3-15/64	82.2	3-3/4	95.3	4-29/32	124.6
R	1/2	12.7	1/2	12.7	17/32	13.5	25/32	13.5

* Std. hollow. ** Min. hollow. *** Min. Solid. **** Std. Solid.
† Max. diameter with holders open cutting largest dia.
†† "B" and "F" are based on using std. max. range U.N.C. Holders. For correct dimension when using oversize or any other holder, please contact Landis Engineering Dept.

1/2 4JN LANDEX™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
No. 4 to No. 12	UNC	4-1/4°	5/8 x 1-1/8	LNS0B116218A	L0D051855	–	–
3/16 to 1/2	UNC	3-1/2°	5/8 x 1-1/8	LNS0B060037A	L0C060052	LNS0B060038A	L0C060053
No. 4 to No. 12	UNF	3-1/2°	5/8 x 1-1/8	LNS0B060037B	L0C051855	–	–
1/4 to 5/8	UNF	2-1/3°	5/8 x 1-1/8	LNS0B060039B	L0C060052	LNS0B060040B	L0C060053
3/16 to 1/2	WHIT	3-1/2°	5/8 x 1-1/8	LNS0B060037C	L0C060052	LNS0B060038C	L0C060053
1/4 to 5/8	BSF	2-3/4°	5/8 x 1-1/8	LNS0B060041D	L0C060052	LNS0B060042D	L0C060053
4 to 12 mm	METRIC COARSE	3-1/2°	5/8 x 1-1/8	LNS0B060037E	L0C060054	LNS0B060038E	LNS0C060055
4 to 12 mm	METRIC FINE	2°	5/8 x 1-1/8	LNS0B060043F	L0C060054	LNS0B116221F	L0C060055
1/8 to 1/4	PIPE	2°	5/8 x 1-1/8	LNS0B060043I	L0C060056	LNS0B116221I	LNS0C060057



13/16 JN LANDEX™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
No. 4 to No. 12	UNC	3-1/4°	3/4 x 1-5/8	LNS0B116230A	L0D060118	–	–
1/4 to 13/16	UNC	3-1/4°	3/4 x 1-5/8	LNS0B060105A	L0D060118	LNS0B060106A	L0D060119
No. 4 to No. 12	UNF	3-1/2°	3/4 x 1-5/8	LNS0B116264B	L0D060118	–	–
1/4 to 7/8	UNF	2-1/4°	3/4 x 1-5/8	LNS0B060107B	L0D060118	LNS0B060108B	L0D060119
1/4 to 13/16	WHIT	3-1/4°	3/4 x 1-5/8	LNS0B060105C	L0D060118	LNS0B060106C	L0D060119
1/4 to 7/8	BSF	2-1/2°	3/4 x 1-5/8	LNS0B060109D	L0D060118	LNS0B060110D	L0D060119
6 to 22 mm	METRIC COARSE	3-1/4°	3/4 x 1-5/8	LNS0B060105E	L0D060120	LNS0B060106E	LNS0D060121
6 to 22 mm	METRIC FINE	1-3/4°	3/4 x 1-5/8	LNS0B060111F	L0D060120	LNS0B060112F	LNS0D060121
1/8 to 1/2	PIPE	1-3/4°	3/4 x 1-5/8	LNS0B060111I	L0D060122	LNS0B060112I	LNS0D060123

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

1-1/4 10JN LANDEX™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 3/4	UNC	3-1/4°	15/16 x 2-1/8	LNS0B060404A	L0C060179	LNS0B060405A	L0C060180
13/16 to 1-1/4	UNC	2-1/2°	15/16 x 2-1/8	LNS0B060406A	L0C060179	LNS0B060407A	L0C060180
1/4 to 7/16	UNF	2-1/2°	15/16 x 2-1/8	LNS0B060408B	L0C060179	LNS0B060409B	L0C060180
1/2 to 3/4	UNF	1-3/4°	15/16 x 2-1/8	LNS0B060410B	L0C060179	LNS0B060411B	L0C060180
7/8 to 1-1/4	UNF	1-1/2°	15/16 x 2-1/8	LNS0B060412B	L0C060179	LNLS0B060413B	L0C060180
1/4 to 3/4	WHIT	3-1/4°	15/16 x 2-1/8	LNS0B060404C	L0C060179	LNS0B060405C	L0C060180
13/16 to 1-1/4	WHIT	2-1/2°	15/16 x 2-1/8	LNS0B060406C	L0C060179	LNS0B060407C	L0C060180
1/4 to 3/4	BSF	2-1/2°	15/16 x 2-1/8	LNS0B060408D	L0C060179	LNS0B060409D	L0C060180
13/16 to 1-1/4	BSF	2°	15/16 x 2-1/8	LNS0B060414D	L0C060179	LNS0B060415D	L0C060180
6 to 18 mm	METRIC COARSE	3-1/4°	15/16 x 2-1/8	LNS0B060404E	L0C060181	LNS0B060405E	LNS0C060182
20 to 33 mm	METRIC COARSE	2-1/2°	15/16 x 2-1/8	LNS0B060406E	L0C060181	LNS0B060407E	LNS0C060182
6 to 18 mm	METRIC FINE	2°	15/16 x 2-1/8	LNS0B060418F	L0C060181	LNS0B060495F	LNS0C060182
20 to 33 mm	METRIC FINE	1-1/2°	15/16 x 2-1/8	LNS0B060412F	L0C060181	LNS0B060413F	LNS0C060182
1/8 to 3/8	TAPER PIPE	2°	15/16 x 2-1/8	LNS0B060416G	L0C060185	LNS0B060513G	LNS0C060186
1/2 to 3/4	TAPER PIPE	1-1/4°	15/16 x 2-1/8	LNS0B060417G	L0C060185	–	–
1/8 to 3/8	STR. PIPE	2°	15/16 x 2-1/8	LNS0B060418H	L0C060183	LNS0B060495H	LNS0C060184
1/2 to 3/4	STR. PIPE	1-1/4°	15/16 x 2-1/8	LNS0B060419H	L0C060183	LNS0B060496H	LNS0C060184

2" 16JN LANDEX™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
3/8 to 1-1/4	UNC	2-3/4°	15/16 x 2-1/8	LNS050634A	L015658	LNS0C022173A	L016105
1-3/8 to 2	UNC	2-1/4°	1-1/4 x 2-3/4	LNS050635A	L015659	LNS0C022174A	LNS16106
1/2 to 5/8	UNF	2°	15/16 x 2-1/8	LNS0C003626B	L015658	LNS0C069520B	L016105
3/4 to 1-1/4	UNF	1-1/2°	15/16 x 2-1/8	LNS0C009770B	L015658	LNS0C030263B	L016105
1-3/8 to 1-1/2	UNF	1-1/4°	15/16 x 2-1/8	LNS0C003051B	L016095	LNS0C039514B	LNS016096
3/8 to 1-1/4	WHIT	2-3/4°	15/16 x 2-1/8	LNS050634C	L015658	LNS0C022173C	L016105
1-3/8 to 2	WHIT	2-1/4°	1-1/4 x 2-3/4	LNS050635C	L015659	LNS0C022174C	LNS016106
1/2 to 11/16	BSF	2-1/4°	15/16 x 2-1/8	LNS0C003625D	L015658	–	–
3/4 to 1-1/4	BSF	2°	15/16 x 2-1/8	LNS0C003626D	L015658	–	–
1-3/8 to 2	BSF	1-3/4	15/16 x 2-1/8	LNS0C003627D	L016095	–	–
9 to 33 mm	METRIC COARSE	2-3/4°	15/16 x 2-1/8	LNS050634E	L016301	LNS0C022173E	LNS016302
36 to 52 mm	METRIC COARSE	2-1/4°	1-1/4 x 2-3/4	LNS050635E	L0D015484	LNS0C022174E	LNS016304
9 to 14 mm	METRIC FINE	2°	15/16 x 2-1/8	LNS0C003626F	L016301	–	–
16 to 33 mm	METRIC FINE	1-1/2°	15/16 x 2-1/8	LNS0C009770F	L016301	–	–
36 to 52 mm	METRIC FINE	3/4°	15/16 x 2-1/8	LNS0C111947F	LNS017582	–	–
1/4 to 3/4	TAPER PIPE	1-3/4°	15/16 x 2-1/8	LNS019826G	L016099	–	–
1 to 2"**	TAPER PIPE	1°	1-1/4 x 2-3/4	LNS019827G	L016100	–	–
1 to 1-1/4*†	TAPER PIPE	1°	1-1/4 x 2-3/4	LNS019827G1	L016100	–	–
1-1/2 to 2*†	TAPER PIPE	1°	1-1/4 x 2-3/4	LNS019827G2	L016100	–	–
1/4 to 3/4	STR. PIPE	1-3/4°	15/16 x 2-1/8	LNS0C009063H	L0D007109	–	–
1 to 2	STR. PIPE	1°	15/16 x 2-1/8	LNS0C098476H	L0D013394	–	–

* Except where noted, chaser holders normally are turned to 7-3/16" diameter based on the maximum threading diameter of the holders in the open position. Holders can be turned to 6-15/16" diameter (the O.D. of the head) if required. However, this can affect capacity and could possibly require two sets of holders to allow full range to be obtained.

** When these holders are turned to the 6-15/16" diameter of the head, two sets are required: One for 1" to 1-1/4" pipe and one for 1-1/2" to 2" pipe

† Holders turned to 6-15/16" diameter based on the maximum threading diameter of holders in the open position.

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items. Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Oversize Chaser Holders†

Range Inch – (mm)	Chaser Size	Thrds Per In. – (mm)	Maximum Thread Length** Inch – (mm)
1/2" – 4JN			
3/4 to 1 – (20 to 24 mm)	5/8 x 1-1/8	14 – (1.75 mm)	7/8 – (22 mm)
1 to 1-1/4" (24 to 31 mm)	5/8 x 1-1/8	14 – (1.75 mm)	1-5/16 – (33 mm)
13/16 – 13JN			
15/16 to 1-1/2 – (24 to 39 mm)	3/4 x 1-5/8	14 – (1.75 mm)	1-1/8 – (28 mm)
1-9/16 to 2 – (42 to 52 mm)	3/4 x 1-5/8	14 – (1.75 mm)	2* - (51 mm*)
1-1/4 – 10JN			
1-5/16 to 2 – (33 to 52 mm)	15/16 x 2-1/8	12 – (2 mm)	1-3/16 or 2-7/8* - (30 or 73 mm*)
2-1/8 to 2-3/4 (56 to 72 mm)	15/16 x 2-1/8	12 – (2.5 mm)	1-3/16 or 2-5/8* - (30 or 67 mm*)
2 – 16JN			
2-1/8 to 3 (54 to 76 mm)	15/16 x 2-1/8	8 – (3 mm)	1-5/16 to 2-1/8* - (33 or 54 mm*††)
3-1/8 to 3-3/4 (80 to 96 mm)	15/16 x 2-1/8	8 – (3 mm)	1-5/16 to 2-3/16* - (33 or 56* mm)

* Requires special built-up chaser holders.

**Important—Total thread length allowing 1/8" clearance.

† Note: Oversized chaser holders are furnished against order to thread specific diameter and pitch combinations. Often, more than one diameter and pitch combination can be threaded with a particular set of oversize chaser holders depending upon the helix angles involved. Also, the thread must be within the coarsest pitch and maximum thread length limitations of the chaser holders. Please refer complete information on diameter and pitch combinations for engineering review.

†† 2-1/8" (54 mm) on 2-1/8" to 2-3/4" diameter and 1-15/16" (49 mm) on 2-7/8" and 3" diameters.

Specifications

16JNK Landex®

Internally Tripped Die Head

The 16JNK Internally Tripped Die Head simultaneously threads, reams, and chamfers pipe.

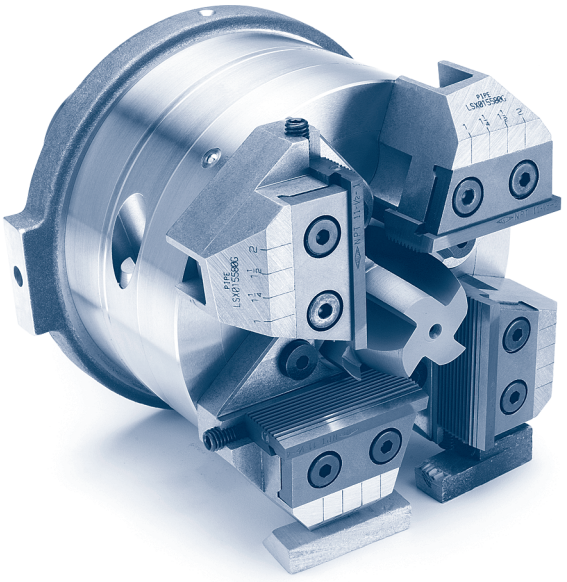
A reaming attachment, operating internally and connected to the head trip spyder, can be adjusted to obtain the desired thread length.

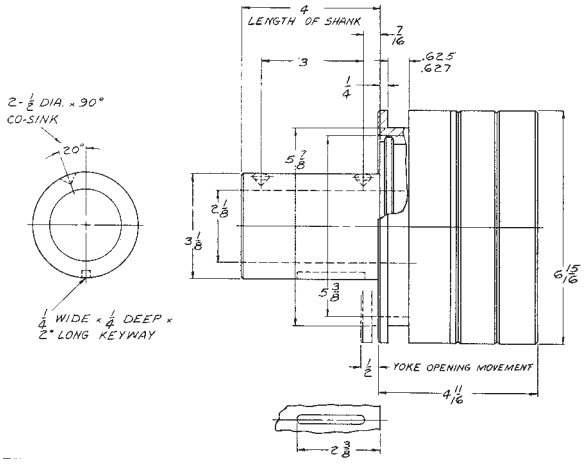
The reamer acts as a stop bar for the internal trip mechanism and assures that constant repetitive thread length is produced regardless of the nipple length or gripping position.

Similar in design to the T Type Lanco Internally Tripped Head, the 16JNK is primarily for application to Landis 16DEN double end and 16-20B threading machines.

The head can also be adapted to 582A and 792A Oster threaders.

Range: 1/8" to 2" NPT, NPSM, BSTP and BSPP pipe threads.





1/2 JN LANDEX™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/8 to 3/4	Taper Pipe	1-3/4°	15/16 x 2-1/8	LNS015579G1	L016099	–	–
1/2 to 3/4	Taper Pipe	1-3/4°	15/16 x 2-1/8	LNS015579G	L016099	–	–
1/4 to 3/4	Taper Pipe	1-3/4°	15/16 x 2-1/8	LSX015579G	L016099	LNS019728G	LNS019729
1 to 2	Taper Pipe	1°	1-1/4 x 2-3/4	LSX015580G	L016100	LNS019102G	LNS019103
1/8 to 3/4	STR Pipe	1-3/4º	15/16 x 2-1/8	LNS019737H1	L0D007109	–	–
1/2 to 3/4	STR Pipe	1-3/4º	15/16 x 2-1/8	LNS019737H2	L0D007109	–	–
1/4 to 3/4	STR Pipe	1-3/4º	15/16 x 2-1/8	LNS019737H	L0D007109	LNS019760H	LNS0D007110
1 to 2	STR Pipe	1º	15/16 x 2-1/8	LNB091657H	L0D013394	LNS0C091826H	LNS0D069344

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Specifications

1/2" 4JNQ & 13/16" 13 JNQ Landex®

"Quick Change" Die Heads

Revolving tools for the same automatic screw and other live spindle machine applications as standard 1/2" JN and 13/16" JN Landex heads.

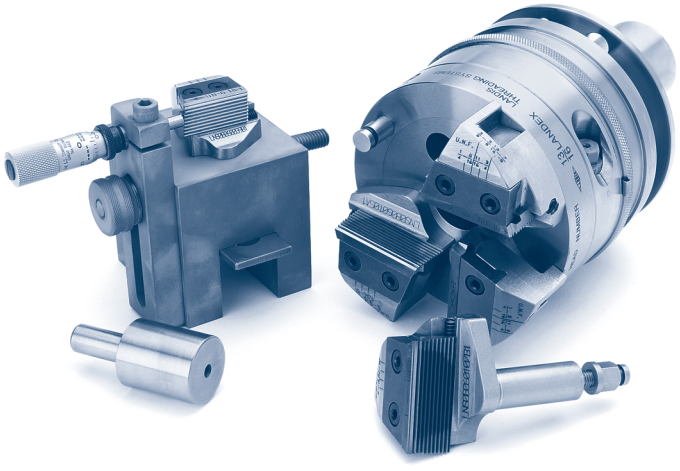
Quick change chaser holders give the best of all worlds – the unequalled performance of the Landis chaser with minimum downtime for tool replacement or thread size changes.

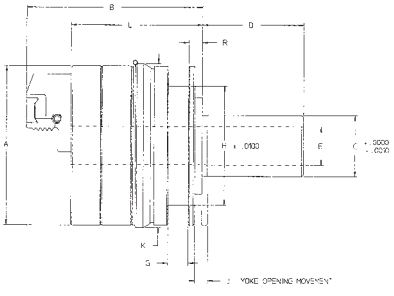
Feature the same diametrical range and thread capacity as regular 1/2" 4JN and 13/16" 13JN heads.

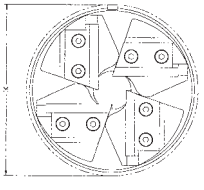
Rotating the knurled locking ring allows "quick change" holders to be immediately removed from head.

Companion micrometer setting gage enhances quick change feature allowing:

- Back-up holders to be available with preset chasers for the same diameter and pitch being threaded.
- Additional holders can be maintained with chasers preset for different diameter and pitch combinations.
- Chasers to be precisely set to the specific cutting position that experience has shown gives the very best thread accuracy and quality and tool performance.







Dimensions

	1/2" JNQ		13/16" JNQ	
Dimensions	Inches	mm	Inches	mm
A†	2-15/16	74.6	3-15/16	100.0
††B				
C*	1	25.4	1-1/2	38.1
C**	7/8	22.2	1-1/4	31.8
C***	1/2	12.7	5/8	15.9
C****	5/8	15.9	–	–
D	2	50.8	2-1/2	63.5
E	21/32	16.7	15/16	23.8
G	3/8	9.5	1/2	12.7
H	2-1/16	52.4	2-15/16	74.6
J	5/16	7.9	21/64	8.3
K	3-1/16	77.8	4-1/16	103.2
L	2-23/32	69.1	3-17/64	82.9
M†††	3-1/4	82.6	4-1/4	108.0
R	23/64	9.1	11/32	8.7

*Std. Hollow. **Min. hollow. ***Min. Solid. ****Std. Solid.
†Max. diameter with holders open cutting largest dia.
††"B" is based on using std. max. range N.C. Holders. For correct dimension when using oversize or any other holder, please contact our Engineering Dept.
†††Dimension over locking spring.

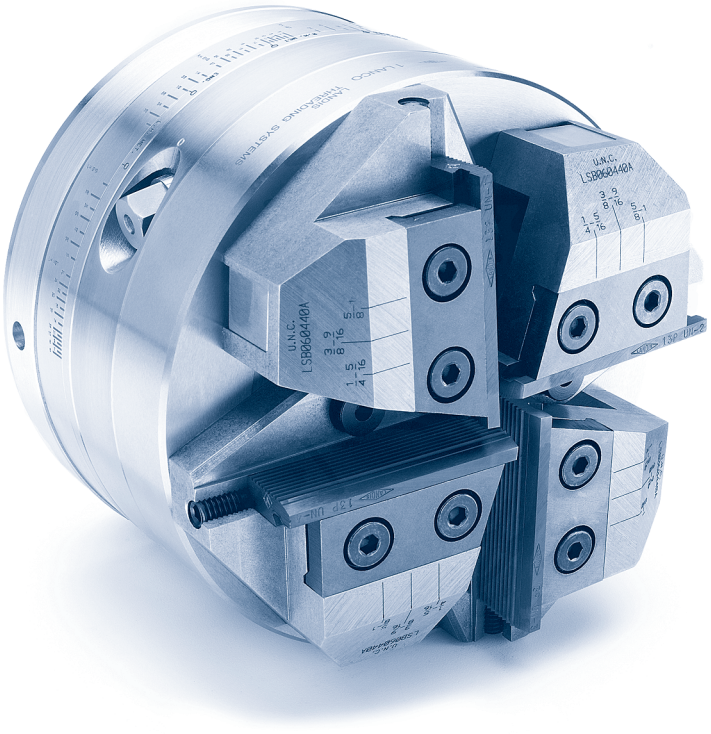
1/2" 4JNQ and 13/16" 13JNQ LANDEX™ "Quick Change" Die Heads

	1/2" JNQ	13/16" JNQ
Range—Inches	#4 to 1/2	#4 to 13/16
Range—M/M	3 to 12	3 to 20
Range—Pipe Sizes**	1/8 to 1/4	1/8 to 1/2
Coarsest Pitch—Thrds. per in.*	12	9
Coarsest Pitch—M/M	2.0	2.5
Weight—Lbs.	5.0	11-1/8

*Coarser pitch threads can be produced dependent on thread form, material, etc. Write for details enclosing print of workpiece.
** Taper and straight pipe.

Specifications
"R" & "RX" Lanco®

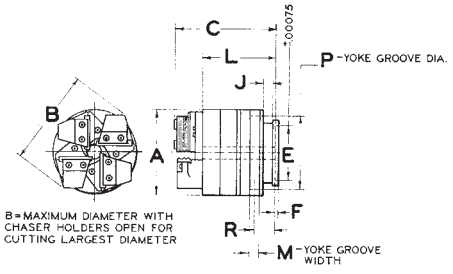
- Lanco die heads are revolving tools designed for hand-operated, semi-automatic, and automatic threading machines
- Wide range coverage for threading diameters 1/4″ to 9-1/4″ (6 to 235 mm)
- Heads available for standard, heavy-duty and large diameter applications and will thread up to and including Class 3 tolerances
- R Lanco Heads are for producing straight threads and "jam cutting" shorter length taper threads like NPT and BSTP
- Seven sizes to thread from 1/4″ to 6″, 6 to 152 mm, 1/8″ to 6″ nominal pipe. Oversize capacities available
- RX Lanco Heads are used to generate straight threads of relatively fine pitch and short length on large diameters
- Incorporates six chasers with a range of 1-7/8″ to 9-1/4″ maximum oversize range



Specifications

	3/4″ R	1″ R	1-1/2″ R	2-1/2″ R
Range—Inches	1/4 to 3/4	1/4 to 1	3/8 to 1-1/2	1/2 to 2-1/2
Range—mm	6 to 20	6 to 24	9 to 39	12 to 64
Range—Pipe Sizes	1/8 to 3/4	1/8 to 1	1/8 to 1-1/2	1/4 to 2-1/2
Coarsest Pitch-Thds. per in.*	10	8	6	4
Coarsest Pitch—mm*	2.5	3.0	4.0	6.0
Weight—Lbs.	24-1/2	58	113-1/2	172
Weight—Kgms.	11.11	26.3	51.48	78.02

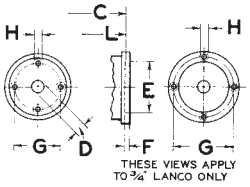
*Coarser pitch threads can be produced dependent on thread form, material, etc.
Write for details enclosing print of workpiece.



Dimensions

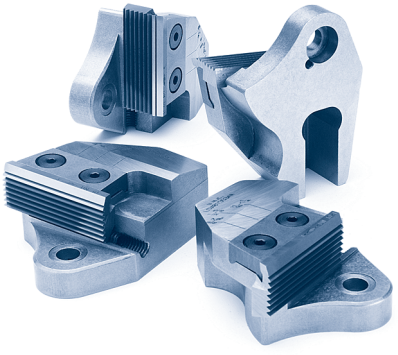
	3/4″ R		1″ R		1-1/2″ R		2-1/2″ R	
Dimensions	Inches	mm	Inches	mm	Inches	mm	Inches	mm
A	5-1/8	130.2	7-3/8	187.3	9-1/8	231.8	10-7/8	276.2
B*	6-1/16	154.0	8-1/8	206.4	10-3/16	258.8	12-1/16	306.4
C*	6-3/64	153.6	6-59/64	175.8	8-19/64	210.7	9-19/32	243.7
D	7/8	22.2	1-3/8	34.9	1-15/16	49.2	2-5/8	66.7
E	3.3125	84.1	5.500	139.7	7.000	177.8	8.750	222.2
F	.505	12.8	9/32	7.1	3/8	9.5	3/8	9.5
G	3-3/4	95.2	4-3/4	120.6	5-7/8	149.2	7-1/4	184.1
H	5/16 U.N.C.		7/16 U.N.C		9/16 U.N.C.		5/8 U.N.C.	
J	7/16	11.1	19/32	15.1	5/8	15.9	25/32	19.8
L	4-17/32	115.1	5.179	131.5	6.460	164.1	7.281	184.9
M	5/8	15.9	13/16	20.6	1.0	25.4	1-3/32	27.8
P	4-9/32	108.8	6-5/64	154.4	7-21/32	194.5	9-1/4	234.9
R	29/32	23.0	1-3/4	44.4	1-3/4	44.4	1-63/64	50.4

*"B" and "C" Dimensions are based upon the use of standard, maximum range U.N.C. Chaser Holders.
For correct dimension when using oversize or any other holder set, please contact Landis Engineering Department.



3/4" LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 3/4	UNC	3-1/4°	15/16 x 2-1/8	LSB060420A	L0C060179	LNS0B060421A	L0C060180
13/16 to 1-1/4	UNC	2-1/2°	15/16 x 2-1/8	LSB060422A	L0C060179	LNS0B060423A	L0C060180
1/4 to 7/16	UNF	2-1/2°	15/16 x 2-1/8	LNS0B060424B	L0C060179	LNS0B060425B	L0C060180
1/2 to 3/4	UNF	1-3/4°	15/16 x 2-1/8	LSB060426B	L0C060179	LNS0B060427B	L0C060180
7/8 to 1-1/4	UNF	1-1/2°	15/16 x 2-1/8	LSB060428B	L0C060179	LNS0B060429B	L0C060180
1/4 to 3/4	WHIT	3-1/4°	15/16 x 2-1/8	LNS0B060420C	L0C060179	LNS0B060421C	L0C060180
13/16 to 1-1/4	WHIT	2-1/2°	15/16 x 2-1/8	LNS0B060422C	L0C060179	LNS0B060423C	L0C060180
1/4 to 3/4	BSF	2-1/2°	15/16 x 2-1/8	LNS0B060424D	L0C060179	LNS0B060425D	L0C060180
13/16 to 1-1/4	BSF	2°	15/16 x 2-1/8	LNS0B060430D	L0C060179	LNS0B060431D	L0C060180
6 to 18 mm	METRIC COARSE	3-1/4°	15/16 x 2-1/8	LNS0B060420E	L0C060181	LNS0B060421E	LNS0C060182
20 to 33 mm	METRIC COARSE	2-1/2°	15/16 x 2-1/8	LNS0B060422E	L0C060181	LNS0B060423E	LNS0C060182
6 to 18 mm	METRIC FINE	2°	15/16 x 2-1/8	LNS0B060435F	L0C060181	LNS0B060439F	LNS0C060182
20 to 33 mm	METRIC FINE	1-1/2°	15/16 x 2-1/8	LNS0B060428F	L0C00060181	LNS0B060429F	LNS0C060182
1/8 to 3/8	TAPER PIPE	2°	15/16 x 2-1/8	LSB60432G	L0C060185	LNS0B060433G	LNS0C060186
1/8 to 1/2	TAPER PIPE	2°	15/16 x 2-1/8	LNS0B060432G	L0C060185	–	–
1/2 to 3/4	TAPER PIPE	1-1/4°	15/16 x 2-1/8	LSB060434G	L0C060185	LNS0B060438G	LNS0C060186
1/8 to 3/8	STR. PIPE	2°	15/16 x 2-1/8	LNS0B060435H	L0C060183	LNS0B060439H	LNS0C060184
1/2 to 3/4	STR. PIPE	1-1/4°	15/16 x 2-1/8	LNS0B060436H	L0C060183	LNS0B060437H	LNS0C060184



1" 8R LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 1	UNC	3°	1-3/64 x 3	LSB060440A	L0C060306	LNS0B060441A	L0C060307
1/4 to 1/2	UNF	2-1/2°	1-3/64 x 3	LNS0B060442B	L0C060306	LNS0B060443B	L0C060307
9/16 to 1	UNF	1-3/4°	1-3/64 x 3	LNS0B060444B	L0C060306	LNS0B060445B	L0C060307
1/4 to 1	WHIT	3°	1-3/64 x 3	LNS0B060440C	L0C060306	LNS0B060441C	L0C060307
1/4 to 1/2	BSF	2-3/4°	1-3/64 x 3	LNS0B060446D	L0C060306	LNS0B060447D	L0C060307
9/16 to 1	BSF	2-1/4°	1-3/64 x 3	LNS0B060448D	L0C060306	LNS0B060449D	L0C060307
6 to 27 mm	METRIC COARSE	3°	1-3/64 x 3	LNS0B060440E	L0C060308	LNS0B060441E	LNS0C060309
6 to 27 mm	METRIC FINE	1-3/4°	1-3/64 x 3	LNS0B060444F	L0C060308	LNS0B060445F	LNS0C060309
1/8 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 3	LNS0B060450G	L0C060312	LNS0B060451G	LNS0C060313
1	TAPER PIPE	1°	1-1/4 x 2-3/4	LNS014884G	L0C060312	LNS019844G	LNS0C060313
1/8 to 3/4	STR. PIPE	1-3/4°	1-3/64 x 3	LNS0B060444H	LNS0C060310	LNS0B060445H	LNS0C060311
2	STR. PIPE	1°	1-3/64 x 3	LNS0B094331H	LNS0C109608	–	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

1-1/2" 12R LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
3/8 to 1-1/2	UNC	2-3/4°	1-3/64 or 1-7/16 x 4	LSB060452A	L0C060345	LNS0B060453A	L0C060346
3/8 to 1/2	UNF	2-1/4°	1-3/64 x 4	LNS0B060454B	L0C060345	LNS0B060455B	L0C060346
9/16 to 1	UNF	1-3/4°	1-3/64 x 4	LSB060456B	L0C060345	LNS0B060457B	L0C060346
1-1/8 to 1-1/2	UNF	1-1/4°	1-3/64 x 4	LNS0B060458B	L0C060345	LNS0B060459B	L0C060346
3/8 to 1-1/2	WHIT	2-3/4°	1-3/64 or 1-7/64 x 4	LNS0B060452C	L0C060345	LNS0B060453C	L0C060346
3/8 to 7/8	BSF	2-1/2°	1-3/64 x 4	LNS0B060460D	L0C060345	LNS0B060461D	L0C060346
1 to 1-1/2	BSF	1-3/4°	1-3/64 x 4	LNS0B060456D	L0C060345	LNS0B060457D	L0C060346
6 to 39 mm	METRIC COARSE	2-3/4°	1-3/64 or 1-7/64 x 4	LNS0B060452E	L0C060347	LNS0B060453E	L0C060348
9 to 14 mm	METRIC FINE	1-3/4°	1-3/64 x 4	LNS0B060456F	L0C060347	LNS0B060457F	L0C060348
16 to 39 mm	METRIC FINE	1-1/4°	1-3/64 x 4	LNS0B060458F	L0C060347	LNS0B060459F	L0C060348
1/8 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LSB060462G	L0C060351	LNS0B060463G	LNS0C060352
1/2 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LNS0B060462G	L0C060351	–	–
1 to 1-1/2	TAPER PIPE	1°	1-1/4 x 4	LSB060465G	L0C060351	LNS0B060466G	LNS0C060352
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LNS0B060465G2	L0C060351	–	–
1/8 to 3/4	STR. PIPE	1-3/4°	1-3/64 x 4	LNS0B060456H	L0C060349	LNS0B060457H	LNS0C060350
1 to 1-1/2	STR. PIPE	1°	1-3/64 x 4	LNS0B094821H	L0C060349	LNS0B096662H	LNS0C060350
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B094821H2	L0C060349	–	–

2-1/2" 20R LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/2 to 1-1/2	UNC	2-1/2°	1-3/64 or 1-7/64 x 4	LSB060469A	L0C060377	LNS0B060470A	L0C060378
1-5/8 to 2-1/2	UNC	2°	1-1/2 x 5	LSB060532A	L0C060377	LNS0B060533A	L0C060378
1/2	UNF	2°	1-3/64 x 4	LNS0B060471B	L0C060377	LNS0B060472B	L0C060378
9/16 to 1	UNF	1-3/4°	1-3/64 x 4	LNS0B060473B	L0C060377	LNS0B060474B	L0C060378
1-1/8 to 1-1/2	UNF	1-1/4°	1-3/64 x 4	LNS0B060475B	L0C060377	LNS0B060476B	L0C060378
1/2 to 1-1/2	WHIT	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B060469C	L0C060377	LNS0B060470C	L0C060378
1-5/8 to 2-1/2	WHIT	2°	1-1/2 x 5	LNS0B060532C	L0C060377	LNS0BO60533C	L0C060378
1/2 to 7/8	BSF	2-1/4°	1-3/64 x 4	LNS0B060477D	L0C060377	LNS0B060478D	L0C060378
1 to 1-1/2	BSF	1-3/4°	1-3/64 x 4	LNS0B060473D	L0C060377	LNS0B060474D	L0C060378
1-5/8 x 2-1/2	BSF	1-1/2°	1-3/64 or 1-7/64 x 4	LNS0B060479D	L0C060377	LNS0B060480D	L0C060378
6 to 39 mm	METRIC COARSE	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B060469E	L0C060379	LNS0B060470E	LNS0C060380
42 to 64 mm	METRIC COARSE	2°	1-1/2 x 5	LNS0B060532E	L0C060379	LNS0B060533E	LNS0C060380
12 to 16 mm	METRIC FINE	2-1/4°	1-3/64 x 4	LNS0B060477F	L0C060379	LNS0B060478F	LNS0C060380
18 to 39 mm	METRIC FINE	1-1/4°	1-3/64 x 4	LNLS0B060475F	L0C060379	LNS0B060476F	LNS0C060380
42 to 64 mm	METRIC FINE	1-1/4°	1-3/64 or 1-7/64 x 4	LNS0B060544F	L0C060379	LNS0B060545F	LNS0C060380
1/4 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LSB060481G	L0C060382	LNS0B060482G	LNS0C060383
1/2 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LNS0B060481G	L0C060382	–	–
1 to 2	TAPER PIPE	1°	1-1/4 x 5	LSB060483G	L0C060382	LNS0B060484G	LNS0C060383
2-1/2	TAPER PIPE	3/4°	1-1/2 x 5	LNS019268G	L0C060382	–	–
2-1/2 to 3	TAPER PIPE	3/4°	1-1/2 x 5	LNS019268G2	L0C060382	–	–
1/4 to 3/4	STR. PIPE	1-3/4°	1-3/64 x 4	LNS0B060473H	L0C060534	LNS0B060474H	LNS0C060381
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B096389H	L0C060534	LNS0B095693H	LNS0C060381
2-1/2 to 3	STR. PIPE	3/4°	1-3/64 x 4	LNS0B095030H	L0D034698	–	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Specifications

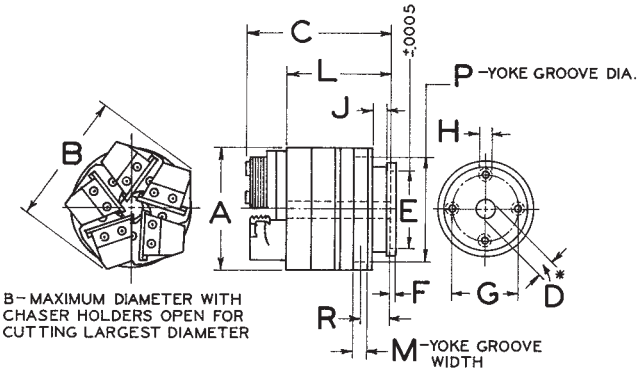
	4" R	6" R
Range—Inches	1 to 4	2-1/2 to 6
Range—mm	24 to 102	64 to 153
Range—Pipe Sizes	1 to 4	2-1/2 to 6
Coarsest Pitch-Thds. per in.*	3	3
Coarsest Pitch—mm*	7.5	7.5
Weight—Lbs.	465-3/4	505
Weight—Kgms.	211.26	228.07

*Coarser pitch threads can be produced dependent on thread form, material, etc. Write for details enclosing print of workpiece.

Dimensions

	4" R		6" R	
Dimensions	Inches	mm	Inches	mm
A	15-1/2	393.7	16-1/2	419.1
B*	18-5/16	456.2	17-9/16	446.1
C*	12-15/32	316.7	12-7/32	310.3
D	4-13/16	122.24	7	177.8
E	11	279.4	11	279.4
F	3/8	9.52	3/8	9.52
G	9-3/4	247.65	9-3/4	247.65
H	5/8 U.NC.	15.88	5/8 U.N.C.	15.88
J	15/16	23.8	31/32	24.6
L	9-19/32	243.7	9-17/32	242.1
M	1-1/2	38.1	1-1/2	38.1
P	12-7/8	327.0	14-3/8	365.1
R	2-19/32	65.9	2-17/32	64.3

*"B" and "C" Dimensions are based upon the use of standard, maximum range U.N.C. Chaser Holders.
For correct dimension when using oversize or any other holder set, please contact Landis Engineering Department.



4" 32R LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1 to 1-1/2	UNC	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B042378A	L0C042384	LNS0B048614A	LNS0C048615
1-5/8 to 2-1/2	UNC	2°	1-1/2 x 5	LNS0B042381A	L0C042385	LNS0B047679A	L0C047681
2-5/8 to 4	UNC	1-1/2°	1-1/2 x 5	LNS0B042382A	L0C042385	LNS0B047680A	L0C047681
1/2	UNF	2°	1-3/64 x 4	LNS0B052352B	L0C042384	LNS0B052355B	LNS0C048615
9/16 to 1	UNF	1-3/4°	1-3/64 x 4	LNS0B052353B	L0C042384	LNS0B052356B	LNS0C048615
1-1/8 to 1-1/2	UNF	1-1/4°	1-3/64 x 4	LNS0B052354B	L0C042384	LNS0B052357B	LNS0C048615
1 to 1-1/2	WHIT	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B042378C	L0C042384	LNS0B048614C	LNS0C048615
1-5/8 to 3-1/2	WHIT	2°	1-1/2 x 5	LNS0B042381C	L0C042385	LNS0B047679C	L0C047681
3-3/4 to 4	WHIT	1-3/4°	2-1/4 x 5	LNS0B123020C	LNS0C123014	LNS0B060700C	LNS0C061586
1 to 1-1/2	BSF	1-3/4°	1-3/64 x 4	LNS0B052353D	L0C042384	LNS0B052356D	LNS0C048615
1-5/8 to 2-3/4	BSF	1-1/2°	1-3/64 or 1-7/64 x 4	LNS0B106566D	LNS0C067844	LNS0B096022D	LNS0C067845
3 to 4	BSF	1-1/4°	1-1/2 x 5	LNS0B095788D	L0C042385	LNS0B096002D	L0C047681
24 to 39 mm	METRIC COARSE	2-1/2°	1-3/64 or 1-7/64 x 4	LNS0B042378E	LNS0C050026	LNS0B048614E	LNS0C055899
42 to 64 mm	METRIC COARSE	2°	1-1/2 x 5	LNS0B042381E	LNS0C050027	LNS0B047679E	LNS0C051606
68 to 100 mm	METRIC COARSE	1-1/2°	1-1/2 x 5	LNS0B042382E	LNS0C061965	LNS0B047680E	LNS0C051606
1/2 to 3/4	TAPER PIPE	1-1/2°	1-3/64 x 4	LNS0B111969G	LNS0E055880	–	–
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LNS0B042380G	L0C052276	–	–
2-1/2 to 4	TAPER PIPE	2/3°	2-1/4 x 5	LNS0B042383G	L0C042387		
1/2 to 3/4	STR. PIPE	1-1/2°	1-3/64 x 4	LNS0B106566H	LNS0C106567	LNS0B096022H	–
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B052221H	LNS0C042386	LNS0B105886H	LNS0C105887
2-1/2 to 4	STR. PIPE NPSM	3/4°	3/4° 1-3/64 x 4	LNS0B052222H	L0C052223	LNS0B096058H	–
2-1/2 to 4	STR. PIPE BSPP	1/2°	1-3/64 x 4	LNS0B042379H	L0C052223	LNS0B052837H	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

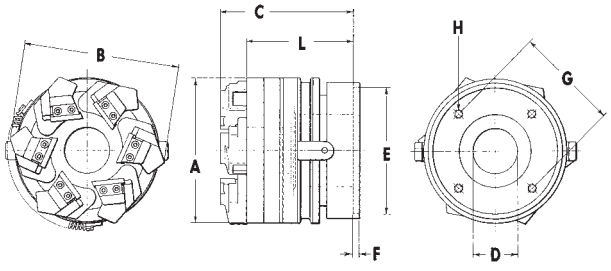
6" 48R LANCO™ Standard Chaser Holders — Six Chasers Per SetΩ

RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	RIGHT-HAND HOLDER PART NO.	RIGHT-HAND GAGE PART NO.	LEFT-HAND HOLDER PART NO.	LEFT-HAND GAGE PART NO.
2-1/2 to 2-3/4	UNC	1-3/4°	1-1/2 x 5	LNS0B042006A	LNS0C041119	LNS0B050301A	LNS0C050300
2-7/8 to 4	UNC	1-1/2°	1-1/2 x 5	LNS0B039793A	LNS0C039795	LNS0B040931A	LNS0C040942
2-1/2 to 3-1/2	WHIT	2°	1-1/2 x 5	LNS0B052500C	LNS0C041119	LNS0B054066C	LNS0C050300
3-3/4 to 4	WHIT	1-3/4°	2-1/4 x 5	LNS0B044049C	LNS0C044050	LNS0B054005C	LNS0C053607
64 to 104 mm	METRIC COARSE	1-1/2°	1-1/2 x 5	LNS0B039793E	LNS0C062977	LNS0B040931E	LNS0C063309
105 to 133 mm	METRIC COARSE	1°	1-1/2 x 5	LNS0B039791E	LNS0C054178	LNS0B040932E	LNS0C063307
136 to 168 mm	METRIC COARSE	3/4°	1-1/2 x 5	LNS0B039792E	LNS0C054179	LNS0B053753E	LNS0C063306
2-1/2 to 3	TAPER PIPE	3/4°	2-1/4 x 5	LNS0B039484G	L0C039499	–	–
3-1/2 to 4	TAPER PIPE	1/2°	2-1/4 x 5	LNS0B039482G	L0C039499	–	–
4-1/2 to 6	TAPER PIPE	1/2°	2-1/4 x 5	LNS0B039481G	L0C039499	–	–
2-1/2 to 3	STR. PIPE	3/4°	1-3/64 x 4	LNS0B052498H	LNS0C052294	–	–
3-1/2 to 4	STR. PIPE	1/2°	1-3/64 x 4	LNS0B052496H	LNS0C052232	–	–
4-1/2 to 6	STR. PIPE	1/2°	1-3/64 x 4	LNS0B052497H	LNS0C052293	–	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

40 RX LANCO™ Specifications

Weight—Lbs.	133
Weight—Kgms.	60.3



40 RX LANCO™ Dimensions

Dimensions	Inches	mm
A	10	254.0
B†	–	–
C**	9-11/16	246.1
D-Standard*	3-1/8	79.4
E	8.750	222.2
F	7/16	11.1
G	7-1/4	184.1
H	5/8 U.NC.	–
L	7-7/16	188.9

** "C" Dimension based upon the use of standard, maximum range Chaser Holders. For correct dimension when using oversize or any other, please contact Landis Engineering Department.
* Maximum bore - 5-1/8"
† "B" Dimension depends on application of Chaser Holders, For exact dimension, specify holders used and contact the Landis Engineering Department.

40 RX LANCO™ Chaser Holders†

Range Inch – (mm)	Chaser Size	Coarsest Pitch Thrds. Per In. – (mm)	Maximum Thread Length Inch – (mm)
1-7/8 to 2-1/2 – (47 to 64 mm)	15/16 x 2-1/8	8 – (3 mm)	7-1/2 – (190.5 mm)
2-1/2 to 3-1/2 – (64 to 89 mm)	15/16 x 2-1/8	8 – (3 mm)	7-1/2 – (190.5 mm)
3-9/16 to 4-1/2 – (90 to 114 mm)	15/16 x 2-1/8	8 – (3 mm)	7-1/2 – (190.5 mm)
4-9/16 to 5-1/2*** – (116 to 128 mm)	15/16 x 2-1/8	8 – (3 mm)	7-7/8 – (200 mm)
5 to 6 – (128 to 152 mm)	15/16 x 2-1/8 or 1-1/4 x 2-3/4	8 – (3 mm)	2-1/8 to 4-1/2* – (54 to 114 mm*)
6 to 7** – (153 to 178 mm**)	15/16 x 2-1/8	8 – (3 mm)	1 to 4-1/2* – (25.4 or 114 mm*)
7-1/8 to 7-3/4** – (181 to 197 mm**)	15/16 x 2-1/8	8 – (3 mm)	1-3/8 to 3* – (35 to 76 mm*)
7-5/8 to 8-1/4** – (194 to 209 mm**)	15/16 x 2-1/8	8 – (3 mm)	1-3/8 to 3-1/4* – (38 or 83 mm*)
8-1/8 to 8-5/8** – (206 to 219 mm**)	15/16 x 2-1/8	8 – (3 mm)	1-1/2 to 3-1/16* – (38 to 78 mm*)
8-3/4 to 9-1/4** – (222 to 235 mm**)	15/16 x 2-1/8	8 – (3 mm)	1-3/8 to 2-5/8* – (35 or 67 mm*)
13/16 to 9/16†† – (11 to 14 mm††)	1-1/2 x 4	6 – (4 mm)	
5/8 to 2-1/4†† – (16 to 179 mm††)	1-1/2 x 4	5 – (5 mm)	

* Requires special built-up chaser holders.

** Recommended for non-ferrous materials only.

*** 5-1/2" diameter limited to 1-3/8" maximum thread length.

† Note – 40 RX chaser holders are furnished against order to thread specific diameter and pitch combinations within these limitations. Often, more than one diameter and pitch combination can be threaded with a particular set of holders depending upon the helix angles involved. Please refer complete information on diameter and pitch combinations for engineering review.

†† Special holders for pipe wrench jaw threading.

R LANCO™ Oversize Chaser Holders†

Range Inch – (mm)	Chaser Size	Coarsest Pitch Thrds. Per In. – (mm)	Maximum Thread Length Inch – (mm)
3/4 – 6R			
13/16 to 1-1/4 – (20 to 33 mm)	15/16 x 2-1/8	10 – (2.5 mm)	1-3/8 – (33 mm)
1-5/16 to 2 – (33 to 52 mm)	15/16 x 2-1/8	12 – (2.0 mm)	1-3/16 to 2-7/8* - (30 to 73 mm*)
2-1/8 to 2-3/4 – (52 to 72 mm)	15/16 x 2-1/8	12 – (2.0 mm)	1-3/16 to 2-5/8* - (30 to 67 mm*)
1" – 8R			
1-1/8 to 2-1/8 – (28 to 54 mm)	1-3/64 x 3	8 – (3 mm)	1-7/16 to 2-3/16* - (36 to 55 mm*)
2-1/4 to 3 – (58 to 76 mm)	1-3/64 x 3	8 – (3 mm)	2-3/8* - (60 mm*)
1-1/2" – 12R			
1-5/8 to 2-5/8 – (42 to 68 mm)	1-3/64 x 4	7 – (3.5 mm)	1-5/8 to 4-1/8* - (41 to 104 mm*)
2-3/4 to 3-3/4 – (72 to 96 mm)	1-3/64 x 4	7 – (3.5 mm)	1-1/2 to 2-5/16 – (38 to 59 mm*)
2-1/2" – 20R			
2-1/8 to 3-1/8 – (56 to 80 mm)	1-3/64 x 4	7 – (3.5 mm)	1-7/8 or 3-1/4* - (47 or 82 mm*)
3-1/4 to 4-1/4 – (82 to 108 mm)	1-3/64 x 4	7 – (3.5 mm)	2 or 2-3/4* - (51 or 70 mm*)
4" – 32R*			
6" – 48R*			

* Requires special built-up chaser holders.

** Contact Landis Engineering Department for information.

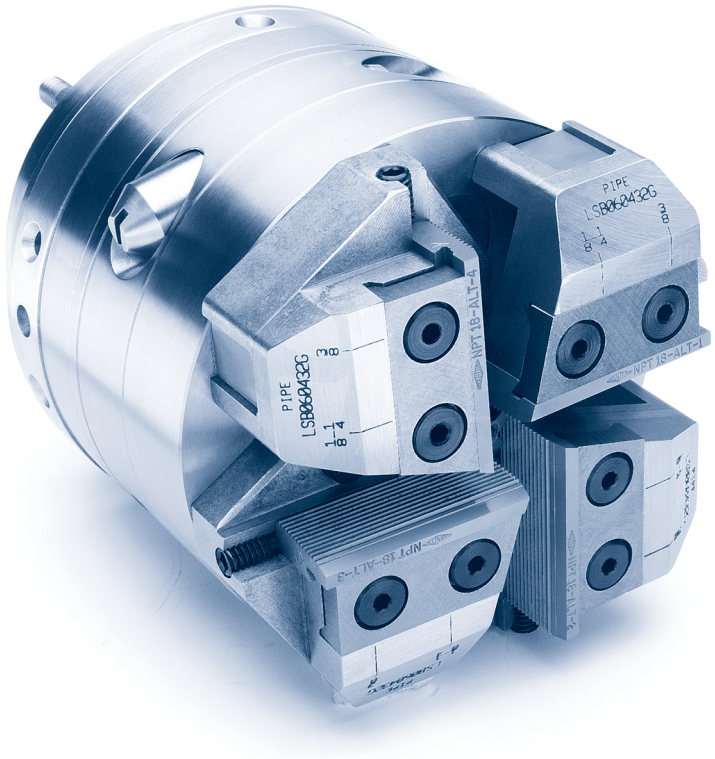
† Note – Oversize chaser holders are furnished against order to thread specific diameter and pitch combinations. Often more than one diameter and pitch combination can be threaded with a particular set of oversize chaser holders depending upon the helix angles involved. Also, the thread must be within the coarsest pitch and maximum thread length limitations of the chaser holders. Please refer complete information on diameter and pitch combinations for engineering review.

Specifications

"T" Lanco®

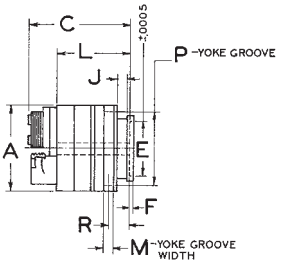
Internally Tripped Die Head

- Lanco Die Heads are revolving tools for hand-operated, semi-automatic, and automatic threading machines
- T Lanco heads to simultaneously thread ream and chamfer 1/8 to 6" pipe
- The reamer acts as a stop bar for the internal trip mechanism and assures that constant, repetitive thread length is produced regardless of the nipple's length or gripping position



Specifications

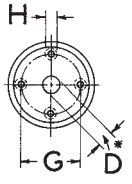
	3/4" 6T	1-1/4" 10T	2" 16T	4" 32T	6" 48T
Range—Inches	1/4 to 3/4	3/8 to 1-1/2	1/2 to 2	1 to 4	2-1/2 to 6
Range—Pipe Sizes	1/8 to 3/4	1/8 to 1-1/4	1/4 to 2	1 to 4	2-1/2 to 6
Coarsest Pitch	11-1/2	11-1/2	8	8	8
Weight—Lbs.	24-3/4	106-3/4	165-1/4	460	485
Weight—Kgms.	11.2	47.42	74.96	208.65	219.99



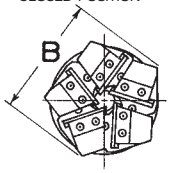
Dimensions

Dimensions	3/4" T Inches	mm	1-1/4" T Inches	mm	2" T Inches	mm	4" T Inches	mm	6" T Inches	mm
A	5-1/8	130.2	9-1/8	231.8	10-7/8	276.2	15-1/2	393.7	16-1/2	419.1
*B	5-5/8	142.9	9-3/4	247.7	11-15/64	303.2	17-1/2	444.5	18-5/8	473.0
*C	6-3/4	153.6	8-1/2	216	9-11/32	237.3	12-27/32	326.2	13-1/16	331.7
D	7/8	22.22	1-15/16	49.2	2-5/8	66.7	4-13/16	122.24	7	177.8
E	3-5/16	84.14	7	177.8	8.750	222.2	11	279.4	11	279.4
F	.505	12.8	3/8	9.5	3/8	9.5	3/8	9.52	3/8	9.52
G	3-3/4	95.2	5-7/8	149.2	7-1/4	184.1	9-3/4	247.65	9-3/4	247.6
H	5/16 U.N.C.			9/16 U.N.C.		5/8 U.N.C.		5/8 U.N.C.		5/8 U.N.C.
J	7/16	11.1	5/8	15.9	25/32	19.8	15/16	23.8	31/32	24.6
L	4-17/32	115.1	6-15/32	164.3	7-9/32	184.9	9-19/32	243.7	9-17/32	242.1
M	5/8	15.9	1	25.4	1-3/32	27.8	1-1/2	38.1	1-1/2	38.1
P	4-9/32	108.8	7-21/32	194.5	9-1/4	234.9	12-7/8	327.0	14-3/8	365.1
R	29/32	23.0	1-3/4	44.4	1-63/64	50.4	2-19/32	65.9	2-17/32	64.3

*"B" and "C" Dimensions based upon the use of standard, maximum range Pipe Chaser Holders.
For correct dimension when using oversize or any other holder set, please contact Landis Engineering Department.



J - YOKE OPENING MOV.
R - FROM YOKE PIVOT SCREW TO SPINDLE NOSE IN CLOSED POSITION



B - MAXIMUM DIAMETER WITH CHASER HOLDERS OPEN FOR CUTTING LARGEST DIAMETER

3/4" 6T Internal Trip LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/8 to 3/8	TAPER PIPE	2°	15/16 x 2-1/8	LSB060432G	L0C060185	–	--
1/8 to 1/2	TAPER PIPE	2°	15/16 x 2-1/8	LNS0B060432G1	L0C060185–	–	
1/2 to 3/4	TAPER PIPE	1-1/4°	15/16 x 2-1/8	LSB060434G	L0C060185	–	–
1 to 1-1/2*	TAPER PIPE	1°	1-1/4 x 2-1/4	LNS0B4073G	L0C016208	–	–
1/8 to 3/8	STR. PIPE	2°	15/16 x 2-1/8	LNS0B060435H	L0C060183	–	–
1/2 to 3/4	STR. PIPE	1-1/4°	15/16 x 2-1/8	LNS0B060436H	L0C060183	–	–

*Oversize Holders. Can only ream and chamfer 1" pipe.

1-1/4" 10T Internal Trip LANCO™ Standard Chaser Holders*Ω

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/8 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LSB060462G	L0C060351	–	–
1/2 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LNS0B060462G	L0C060351	–	–
1 to 1-1/4	TAPER PIPE	1°	1-1/4 x 4	LNS0B060465G1	L0C060351	–	–
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LNS0B060465G2	L0C060351	–	–
1/8 to 3/4	STR. PIPE	1-3/4°	1-3/64 x 4	LNS0B060456H	L0C060349	–	–
1 to 1-1/4	STR. PIPE	1°	1-3/64 x 4	LNS0B094821H1	L0C060349	–	–
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B094821H3	L0C060349	–	–

2" 16T Internal Trip LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 3/4	TAPER PIPE	1-3/4°	1-3/64 x 4	LSB060481G	L0C060382	–	–
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LSB060483G	L0C060382	–	–
2-1/2	TAPER PIPE	3/4°	1-1/2 x 5	LNS019268G1	L0C060382–	–	
2-1/2 to 3*	TAPER PIPE	3/4°	1-1/2 x 5	LNS019268G2	L0C060382	–	–
1/4 to 3/4	STR. PIPE	1-3/4°	1-3/64 x 4	LNS0B060473H	L0C060534	–	–
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B095389H	L0C128830	–	–
2-1/2 to 3*	STR. PIPE	3/4°	1-3/64 x 4	LNS0B095030H	L0D034698	–	–

*Suitable to Ream 2-1/2" Only

4" 32T Internal Trip LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1 to 2	TAPER PIPE	1°	1-1/4 x 4	LNS0B042380G	L0C052276	–	–
2-1/2 to 4	TAPER PIPE	2/3°	2-1/4 x 5	LNS0B042383G	L0C042387	–	–
1/2 to 3/4	STR. PIPE	1-1/2°	1-3/64 x 4	LNS0B106566H	LNS0C106567	–	–
1 to 2	STR. PIPE	1°	1-3/64 x 4	LNS0B052221H	LNS0C042386	–	–
2-1/2 to 4	STR. PIPE NPSM	3/4°	1-3/64 x 4	LNS0B052222H	L0C052223	–	–
2-1/2 to 4	STR. PIPE BSPP	1/2°	1-3/64 x 4	LNS0B042379H	L0C052223	–	–

6" 48T Internal Trip LANCO™ Standard Chaser Holders Six Chasers Per SetΩ

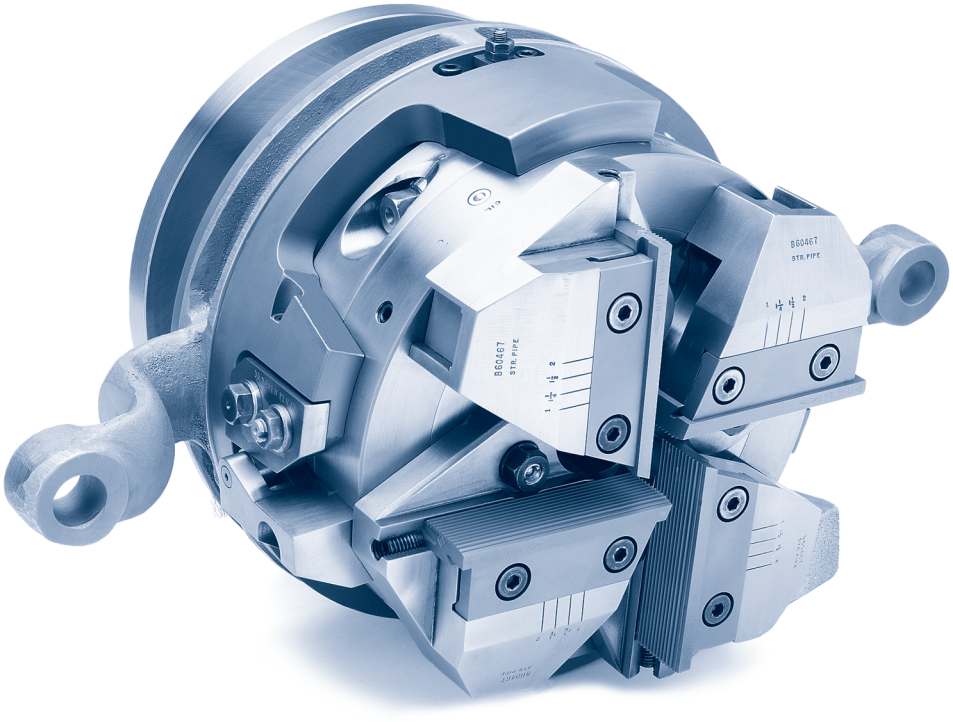
				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
2-1/2 to 3	TAPER PIPE	3/4°	2-1/4 x 5	LNS0B039484G	L0C039499	–	–
3-1/2 to 4	TAPER PIPE	1/2°	2-1/4 x 5	LNS0B039482G	L0C039499	–	–
4-1/2 to 6	TAPER PIPE	1/2°	2-1/4 x 5	LNS0B039481G	L0C039499	–	–
2-1/2 to 3	STR. PIPE	3/4°	1-3/64 x 4	LNS0B052498H	LNS0C052294	–	–
3-1/2 to 4	STR. PIPE	1/2°	1-3/64 x 4	LNS0B052496H	LNS0C052232		
4-1/2 to 6	STR. PIPE	1/2°	1-3/64 x 4	LNS0B052497H	LNS0C052293	–	–

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Specifications

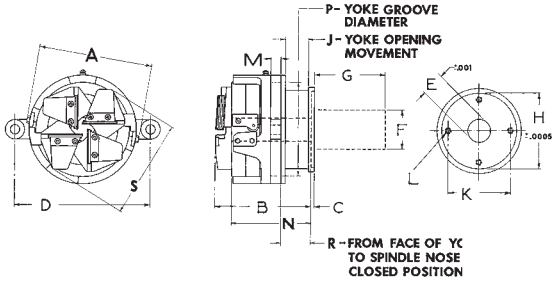
"S" Lanco®

- S Lanco heads are recommended where taper threads of maximum accuracy and longer length, such as API, must be produced.
- Four sizes to thread 1/8" to 6" pipe.
- Threads are produced by a receding cam mechanism which expands the chasers on diameter to produce a thread taper which corresponds to that required on the workpiece being produced.
- Chaser cuts only on the throat and first full thread and with the receding motion produces a truly conical thread without chaser leave-off marks.
- Can be applied to Landmaco™ machines or automatic, double-end high production tube mill units equipped with leadscrew or power feed.
- Can be equipped with optional cams to produce straight and special taper threads.



Specifications

	3/4″ 6S	1-1/2″ 12S	2-1/2″ 20S	6″ 48S
Range—Pipe Sizes	1/8 to 3/4	1/4 to 1-1/2	1/2 to 2-1/2	1-1/4 to 6
Coarsest Pitch-Thds. per inch	11-1/2	8	8	8
Maximum Taper—Inches per foot	3/4	2	2	2
Maximum Thread Length—Inches	1-1/4	2-1/4	2-1/4	3-3/8
Maximum Thread Length—mm	32	57	57	85.9
Weight—Lbs.	37	169-1/2	247-1/2	634-3/4
Weight—Kgms.	16.78	76.88	112.26	287.92



Dimensions

	3/4″ 6S	1-1/2″ 12S	2-1/2″ 20S	6″ 48S
Dimensions	Inches	Inches	Inches	Inches
A	6-7/16	11-5/8	14-1/8	18-7/8
**B-1	6-41/64	10-5/16	†11-63/64	14-55/64
**B-2	7-1/16	10-5/16	‡12-63/64	14-55/64
C	1/2	3/8	3/8	3/8
D	–	16-7/8	17-1/4	21-3/4
E	1-5/16	1-15/16	2-5/8	7
F	*	–	–	–
G	*	–	–	–
H	3-5/16	7	8-3/4	11
J	1-23/32	2-15/16	2-3/4	4-13/32
K	3-3/4	5-7/8	7-1/4	9-3/4
L	5/16 U.N.C.	9/16 U.N.C.	5/8 U.N.C.	5/8 U.N.C.
M	1/2	–	–	–
N	5-1/8	8-1/2	9-1/4	12-5/8
P	5	8-7/8	11-1/4	15-7/8
R	2-1/32	3-17/32	3-1/2	5-9/32
S	5-7/8	10-5/8	12-13/16	17-15/16

*Shanks will be supplied upon order. **B-1 Dimension based upon the use of standard range Pipe Chaser Holders. **B-2 Dimension based upon the use of maximum range oversize Chaser Holders.
†When using wedge type chaser, dimension is 11-7/8″. ‡When using wedge type chaser, dimension is 13″.

3/4" 6S Receding Chaser LANCO™ Standard Chaser HoldersΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/8 to 3/8	TAPER PIPE	2°	15/16 x 2-1/8	LSB060432G	L0C060183	LNS0B060433G	LNS0C060186
1/2 to 3/4	TAPER PIPE	1-1/4°	15/16 x 2-1/8	LSB060434G	L0C060183	LNS0B060438G	LNS0C060186
1 to 2*	TAPER PIPE	1°	15/16 x 2-1/8	LNS0B054499G	L0D024969	–	–

*Oversize Holders

1-1/2" 12S Receding Chaser LANCO™ Standard Chaser Holders*Ω

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/8 to 3/4	PIPE†	1-3/4°	1-3/64 x 4	LNS0B060456I	L0C109157	–	–
1 to 2	PIPE†	1°	1-3/64 x 4	LNS0B094821I	L0C109158	–	–
2-1/2*	PIPE†	3/4°	1-3/64 x 4	LNS0B094599I	L0C109158	–	–

*Straight Holders Using Tapered Chasers

**Oversize Built-Up Holders

†Optional cams required to produce straight pipe threads

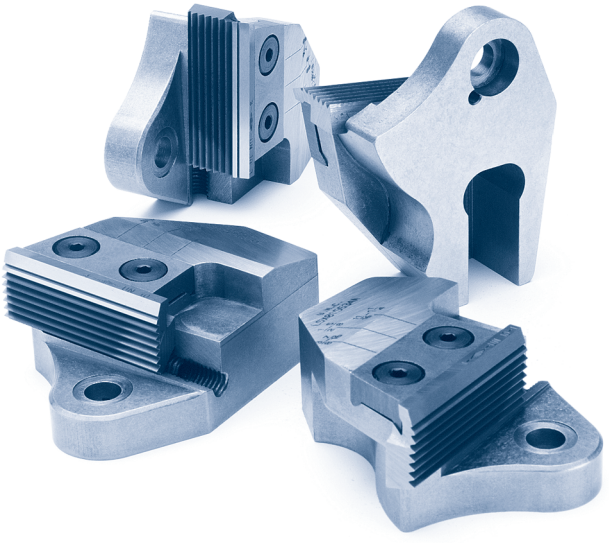
2-1/2" 20S Receding Chaser LANCO™ Standard Chaser Holders*Ω

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1/4 to 3/4	PIPE†	1-3/4°	1-3/64 x 4	LNS0B060473I	L0C0109160	–	–
1/2 to 3/4	PIPE†	1-3/4°	1-3/64 x 4	LNS0B060473I1	L0C109160		
1 to 2	PIPE†	1°	1-3/64 x 4	LNS0B095389I	L0C069869	–	–
2-1/2	PIPE†	3/4°	1-3/64 x 4	LNS0B095030I	L0C069844	–	–
3 to 4**	PIPE†	3/4°	1-3/64 x 4	LNS0B095043I	L0C109161	–	–

*Straight Holders Using Tapered Chasers

**Oversize Built-Up Holders

†Optional cams required to produce straight pipe threads



6" 48S Receding Chaser LANCO™ Standard Chaser Holders* 6 Chasers Per SetΩ

				RIGHT-HAND		LEFT-HAND	
RANGE	THREAD FORM	HELIX ANGLE	CHASER SIZE	HOLDER PART NO.	GAGE PART NO.	HOLDER PART NO.	GAGE PART NO.
1-1/4 to 2	NPT PIPE**	1°	1-3/64 x 4	LNS0B066866I	L0C066867	–	–
2-1/2 to 3-1/2	NPT PIPE**	3/4°	1-3/64 x 4	LNS0B056746I	L0C056749	–	–
4 to 4-1/2	NPT & NPSM PIPE**	1/2°	1-3/64 x 4	LNS0B056747I	L0C056750	–	–
5 to 6	NPT PIPE**	1/2°	1-3/64 x 4	LNS0B056748I	L0C056751	–	–
1-1/4 to 2	BSTP PIPE**	1°	1-3/64 x 4	LNS0B066866I	L0C066867	–	–
2-1/2 to 3	BSTP PIPE**	1/2°	1-3/64 x 4	LNS0B)39790I	LNS0C109113	–	–
3-1/2 to 4	BSTP PIPE**	1/2°	1-3/64 x 4	LNS0B039788I	LNS0C109114	–	–
4-1/2 to 6	BSTP PIPE**	1/4°	1-3/64 x 4	LNS0B039789I	LNS0C109115	–	–

*Straight Holders Using Tapered Chasers

**Optional cams required to produce NPSM and BSPP straight pipe threads.

Ω Chaser holder and chaser setting gage numbers that have the "L" prefix indicates that they are stocked items. Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Form 1

"Quik-Quote" Fax Form

Landis Solutions LLC
360 South Church Street
Waynesboro, PA 17268-2610
Toll Free:
USA: +1.800.358.3500
Fax: +1.888.718.2922
Canada: +1.888.828.6340
e-mail: info@Landis-Solutions.com

THREAD CUTTING HEADS & CHASER HOLDERS

Customer Quotation/Order Data Sheet

When Requesting A Quotation Or Placing An Order, Please Complete And Return This Sheet With All Applicable Information.

Date: ____/____/____ Customer Contact Name:_____

Customer Name:_____

Customer Address:_____

City: _____ State: _____ Zip: _____

Customer Contact Phone Number: 1-_____-_____-_____ ext.: _____

Customer Contact Fax Number: 1-_____-_____-_____

Purchase Order Number_____

WORKPIECE SPECIFICATIONS

(A) Thread Size , Pitch & Form:_____

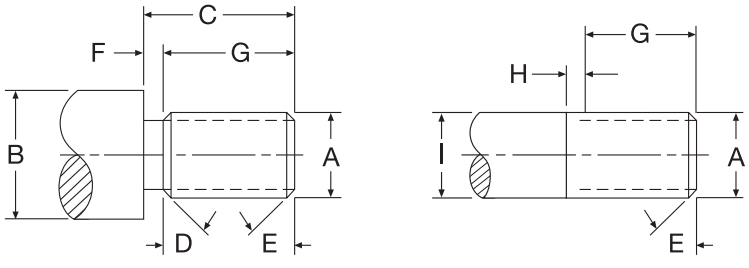
Class of Thread: _____ Number of Starts: _____ R.H.: _____ or L.H.: _____

(B) Shoulder: _____ (C) Length of Blank _____

(D) Chamfer Angle _____ (E) Chamfer Angle _____ (F) Width of Relief _____

(G) Full Thread _____ (H) Imperfect Thread _____

(I) Stock Diameter: _____ Material & Hardness: _____



THREAD CUTTING HEAD & CHASER HOLDER INFORMATION

Head Type: _____ Head Size: _____ Head Serial Number: _____

Shank Type & Size: _____

Chaser Holder Number: _____ Chaser Holder Range: _____

Chaser Holder Helix Angle: _____

Chaser Holders Need To Be Turned Off? Yes ____ or No ____

If Yes, What Diametrical Clearance is Available? _____

Machine: _____ Feed: Posititve or Manual

Rotation of the Threading Spindle Reverses During the Threading Cycle? Yes ____ or No ____

If a Landis Machine, What is the Serial Number? _____

Rpm: _____ SFM: _____ Production Required: _____

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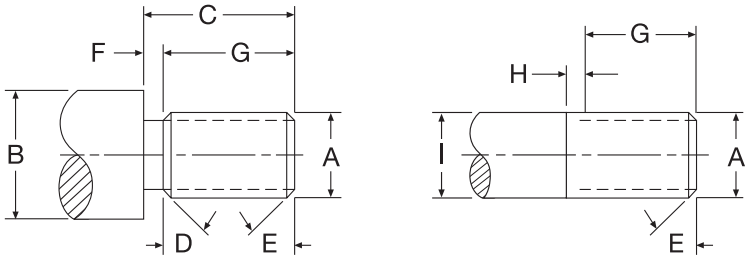
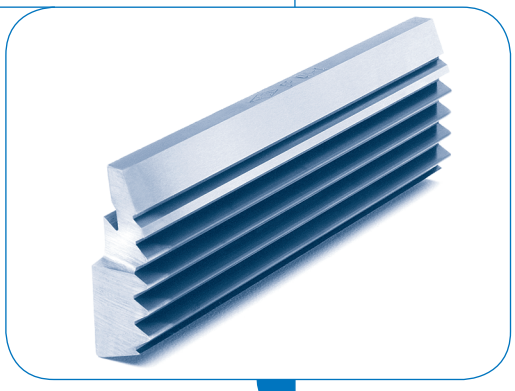


Landis® Tangential Chasers

TANGENTIAL positioning with line contact at workpiece centerline gives natural cutting clearance and best tool performance.

Dovetail clamping with back-up screw provides rigidity required to cut Acme and similar forms requiring heavy metal removal.



Long length (from 1" on smaller to 6-1/2" on larger heads) allows repeated regrinds with attendant long tool life.

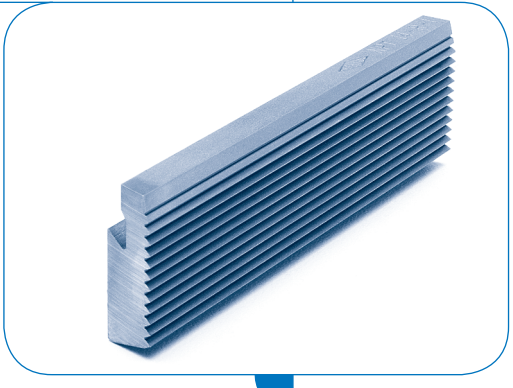
Not necessary to regrind all chasers of set in equal amounts. Metal removed at regrind dependent upon condition of each chaser.

Chaser damaged beyond use can be replaced in set with single tool (used or unused) from user stock or new from factory.

A few thousandths metal removal at regrinding, usually .030" or less depending upon tool condition, restores the cutting edge.

Chasers can be used to cut threads with any die head whose chaser holders are of the proper form and which accept that same size tool. Using proper holders, 15/16" wide x 2-1/8" long - 16 pitch chasers could be used to produce 3/4-16P UNF, 3/8-16P UNC, or other size threads in the 16P UN series. Tool inventory is reduced since individual chaser sets do not need to be stocked for every diameter and pitch combination.

Same chasers can be used to thread right- and left-hand by grinding cutting angles on opposite ends. Right-and left-hand holder sets required.



Special chaser holders and chasers are required for Acme, Modified Square, and similar forms.

Chart 1

Landis® Tangential Chaser System Versus Radial Heads and Chasers...

A Comparison In Performance, Productivity, Costs, and Threading Efficiency!

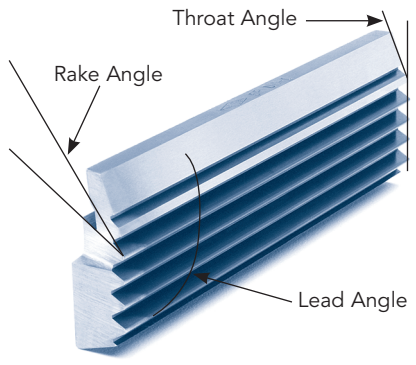
Capabilities Performance	Landis System	Radials	
Oversize capacity	YES	NO	Radial die heads have a standard range but no oversize capacity. A 1-1/4" radial head has a maximum O.D. capacity of 1-1/4". A 1-1/4" 10F Landmatic, by comparison, has a nominal standard range (unlimited thread length) of 1/4" to 1-1/4" O.D. Using oversize chaser holders extends the head's range to 2-5/8" O.D. (maximum thread length is restricted).
Interchangeable chasers	YES	NO	Using chasers which incorporate a specific built-in helix angle limits the performance and versatility of the radial head. Interchangeable chaser holders give the Landis head far more versatility and tool economy. The same physical size chaser set can be used to cut threads not only on standard, special, and oversize diameter and pitch combinations of a particular head, but it can often be used with other size and models of Landis heads. This can greatly reduce chaser inventory because a single Landis head can frequently do what two or more competitive heads do, and the same chaser set can be used to cut more than one diameter, or can be used in more than one head.
Cut same pitch on different diameters with same head and chasers	YES	NO	Radial chasers can only be used to thread one diameter and pitch combination because the helix angle is contained in the chaser. With the Landis system, the helix angle is built into the holder. The same chaser set, with suitable chaser holders, will cut the same pitch on different diameters. The same set of chasers could be used to cut 1/4"-20P UNC and 1/2"-20P UNF.
Adjust forward/backward from workpiece centerline to obtain best cutting performance	YES	NO	No adjustment of the radial chaser, in relation to the cutting edge to the workpiece centerline is possible. With its tangential mounting and varying of the cutting position possible, the Landis chaser better absorbs cutting forces and the cutting edge can be moved toward or away from the centerline. This permits the cutting edge to be moved until the very best tool life and thread geometry are obtained.
Cut left- and right-hand threads with same chasers	YES	NO	Separate chaser sets are required to cut right- and left-hand threads with radial heads. With suitable chaser holders, both ends of any Landis chaser can be ground and used to cut threads of either hand.
Cut different materials with same chasers by frequently altering rake angle of chasers	YES	NO	Different radial chaser sets can be required to cut different materials. Varying the rake angle allows the Landis chaser to cut a wide variety of materials. Changing the rake does not change the chaser positioning relative to the work centerline, and it can be changed as often as desired.
Regrind chasers individually… replace chasers individually	YES	NO	Radial chasers must be fixture ground in sets. Landis chasers can be hand ground, individually reground, or, when needed, individually replaced within a set.
Regrind up to 80% of original chaser length	YES	NO	The narrow width of the radial chaser offers a very limited regrindable life, and there is no provision to move the cutting edge to compensate for material lost through regrinding. Landis chasers, which range from 1" to 5" or more in length, are regrindable for approximately 80% of original length.
Features that are permanent for life of the tool	YES	NO	The basic geometry of Landis chasers is permanent for the life of the tool. However, the physical geometry of radial chasers can be altered by regrinding which can affect performance. Regardless of whether standard or incorporating special features, like roughing and finishing form for cutting coarse pitches in one pass or centering throats to assure concentricity, the throat and special feature remain permanent for the life of the tool and relief and thread run-out amounts are never affected.

Landis® Tangential Chasers

Cutting Angles

The cutting end grind is a composite of three angles, the throat, lead, and rake.

Figure **1**



Throat Angle

Permanent for life of the tool and never requires regrinding, the throat angle forms the thread and can remove excess material on the diameter.

Chasers are generally furnished with either a 20° standard long throat starting below thread root, to remove excess material. Standard 20° and 30° short throats start at thread root.

Throats longer or shorter than above are available for special needs.

THROAT ANGLE	CHIP THICKNESS	NO. OF THDS. IN THROAT
45°	.0177	0.7
30°	.0125	1.2
20°	.0086	1.9
15°	.0065	2.6
12°	.0052	3.2
10°	.0043	3.9

When unusual amounts of metal are to be removed, such as when Acme, Modified Square, or similar forms are involved, throats longer than 20° are furnished. Throats of 10° or 12°, Figure 2, are frequently recommended in those instances.

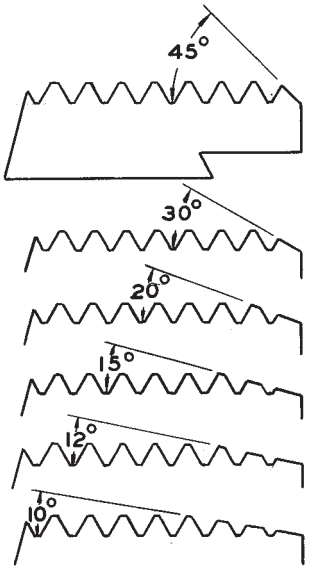
Using the longest possible throat is always recommended. The lower the throat angle, the more imperfect throat threads, the lighter the chip load, the better the finish and the longer the tool life.

When shoulder engagement is required, the width of the relief (A in Figure 3) will dictate the degree of chaser throat angle that can be used. To allow the finished thread to be completely formed, the relief width must be sufficient to allow the entry of the throat plus the first full thread of the chaser. Figure 4 shows the widths that would be required using the same chaser with four different throats.

If possible, design or change the relief of shoulder engagement on parts to provide a relief that will allow the use of the longest possible throat.

Refer to the 17th or earlier editions of the Landis Threading and Forming / Thread Data Handbook for relief dimensions required when threading inch and metric threads.

Figure 2



Lead Angle

The lead angle, Figure 1, is the angle made by the end of the chaser and its stamped edge.

Based on the helix angle at which the chaser is used, type of die head and feed involved, the degree of lead angle determined allows the cutting edge to fall on the workpiece centerline.

Rake Angle

The rake angle, which establishes the chaser cutting edge and its action causes the thread form of the chaser to be reproduced on the workpiece, is varied to suit the machineability of the material.

Beginning with a recommended "starting" angle for a given material, the user may need to try a higher or lower rake angle until the best result is obtained.

Unless information is given to the contrary, chasers are furnished with a 22° positive rake suitable for threading mild steel. When the user specifies that chasers will be used for other materials, they will be processed with rake angles and heat treatment suitable for that material.

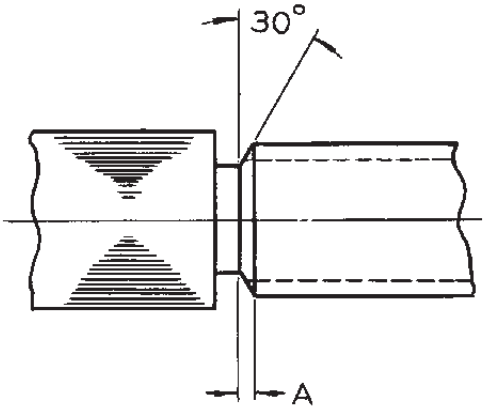
Recommended starting rake angles are given in the 17th and earlier editions of the Landis Threading and Forming / Thread Data Handbook.

Chaser Grinds

Grinds generally used are "lip-rake," "straight thread leadscrew," and "taper pipe."

More detailed information on these, other types of end grinds, and specific grinding instructions can be found in the Landis Threading and Forming / Thread Data Handbook.

Figure 3

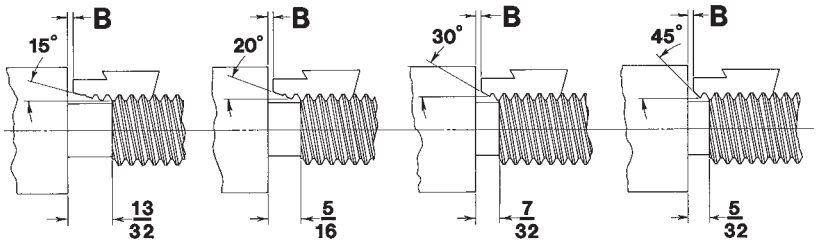


Lip Rake

Excluding Lanco heads used with leadscrew feed, chasers used with both pull-off, self-opening and yoke operated heads are ground with a lip rake as shown in Figure 5.

The lip-rake grind geometry results in the rear threads of the chaser extending over the workpiece centerline when the chasers are mounted in the chaser holders.

Figure 4

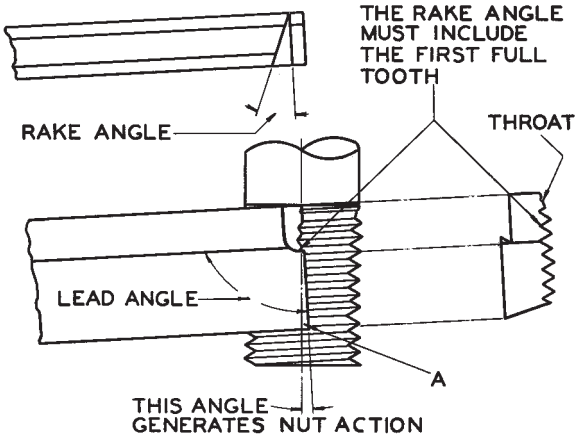


This results in the extended rear threads forming a self-leading, nut action with the workpiece threads that have been produced.

With Landmatic stationary and J Landex pull-off heads, it facilitates automatic self-opening. With JN and Landex yoke-operated heads, it stabilizes lead. With Lanco heads that are hand fed, it improves lead-on action and serves to maintain proper lead.

The actual lip-rake section of the chaser, which falls on the workpiece centerline when the chaser is mounted, extends from the stamped edge back to include the first or second full thread, depending on the pitch of chaser.

Figure 5



Leadscrew Grind

Chasers used by yoke operated Lanco heads fed by leadscrew are ground as in Figure 6.

This is a combination grind with the lead and rake angles ground in a single pass. The rake angle is dictated by the material to be worked while the lead is based on 90° minus the helix angle of the chaser holders in which the chasers are to be mounted.

The cutting edge of tools ground in this manner falls directly on the centerline of the workpiece.

No self-leading action between the chasers is present to interfere with the feed generated by the leadscrew.

Figure 6

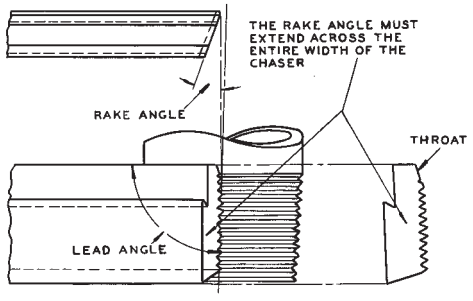


Figure 7

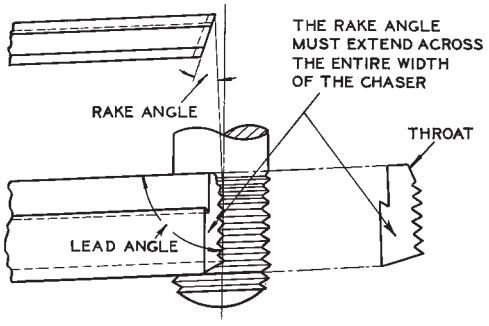
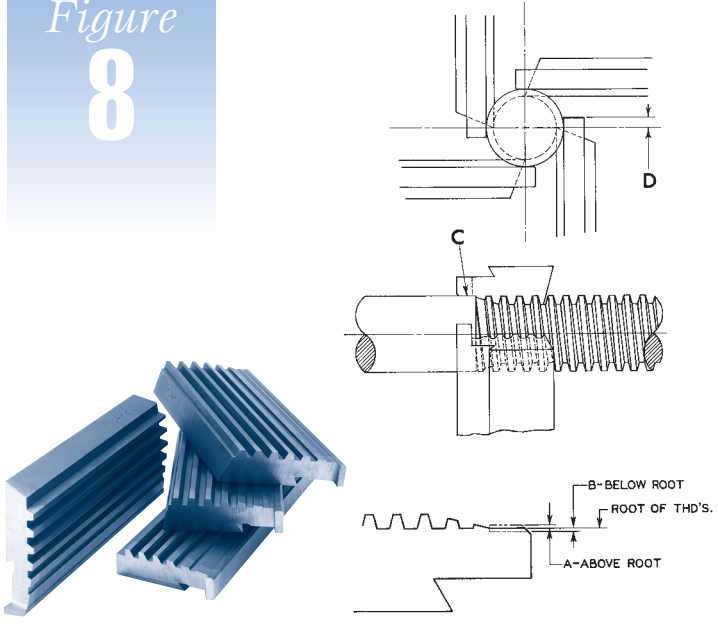


Figure 8



Taper Pipe Grind

Standard Landis die heads, those which do not incorporate a receding or taper attachment mechanism, produce standard pipe threads by "jam-cutting."

Chasers used to jam-cut, cut across their full width and are ground as in Figure 7.

Extending across the entire width of the chaser, this combination grind is essentially the same as a lead-screw grind.

The rake is usually 22° for mild steel pipe, the lead is 90° minus the helix angle of the chaser holders to be used.

SPECIAL DESIGNS

Centering Throats

Centering Throat chasers will produce threads with a high degree of concentricity with the O.D. when threading long length workpieces where lack of rigidity would normally be experienced.

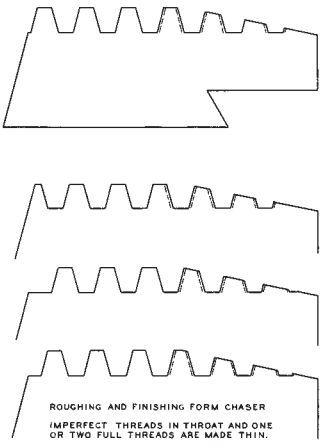
With its pad extending over center, the cutting edge of the chaser can be set slightly back of center for freest cutting action without experiencing out-of-roundness.

Centering Throats can only be used where the O.D. of the work is held uniform. Uniformity is required since the throat section, C in Figure 8, bears on the workpiece as it extends over center, illustrated by D, to provide a steadying action.

Centering Throats can also be useful when keyways or other interrupted cuts must be dealt with.

The throat projection bridges the cut preventing digging in and possible tool chipping.

Figure **9**



Roughing Form Throat and Roughing and Finishing Form Chasers

Roughing and Finishing Form chasers are used to give the best finish possible on Acmes, Modified Square, and similar forms that require large amounts of metal to be removed.

With this form, the profile of the imperfect throat threads and one or two full threads are reduced and made thinner as in figure 10. Each modified tooth progressively removes a few thousandths until the thread is finished by the first or second full thread.

Roughing form throat chasers give the same type of cutting action as roughing and finishing form.

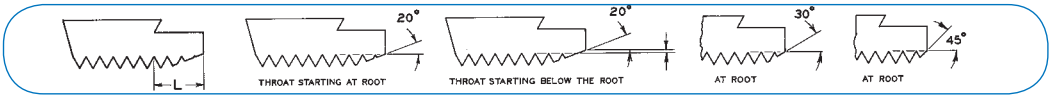
The reduced profile, however, is confined to the imperfect threads of the throat section and these chasers are therefore used to thread into a relief on shoulder work or where the length of imperfect thread is restricted.

Standard Stock & Non Stock Chasers

THE throat of 20° standard "long" throat chasers, normally furnished for use with Lanco heads, starts below the root and are used to trim away scale or nominally excess material on the O.D.

The throat of 20° standard "short" throat chasers start at the root and are supplied for use with Landmatic and Landex heads where the blank is usually prepared to the proper size.

Unless otherwise specified, all "bolt" chasers are supplied with a 22° lip-rake grind suitable threading mild steel. Chasers for threading pipe are furnished with a 22° straight rake grind 30° and 45° throats are furnished only where the relief or thread run-out is restricted.



5/8 x 1-1/8 — Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
12	UN	4	LNS96001331	LNS96001332	LNS96001335	LNS96001337
13	UN	4	LNS96001431	L96001432	LNS96001435	LNS96001437
16	UN	4	LNS96001631	L96001632	LNS96001652	LNS96001637
18	UN	4	LNS96001731	L96001732	LNSl96001735	LNS96001737
20	UN	4	LNS96001831	L96001832	LNS96001835	LNS96001837
24	UN	4	LNS96001931	L96001932	LNS96001935	LNS96001937
28	UN	4	LNS96002131	L96002132	LNS96002135	LNS96002137
32	UN	4	LNS96002231	LNS96002232	LNS96002235	LNS96002237
1.00	mm	4	LNS96207931	LNS207935	LNS96207932	LNS96207936
1.25	mm	4	LNS96157938	LNS96157931	LNS96157932	LNS96157936
1.50	mm	4	LNS96158038	LNS96158031	LNS96158034	LNS96158035
1.75	mm	4	LNS96158139	LNS96158131	LNS96158136	LNS96158133
2.00	mm	4	LNS96229837	LNS96229833	LNS96229834	LNS96229832

3/4 x 1-5/8 — Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
9	UN	4	LNS96002631	LNS96002632	LNS96002635	LNS96002638
10	UN	4	LNS96002731	LNS96002732	LNS96002735	LNS96002738
11	UN	4	LNS96002831	LNS96002832	LNS96002835	LNS96002838
12	UN	4	LNS96003031	LNS96003032	LNS96003035	LNS96003038
13	UN	4	LNS96003131	L96003132	LNS96003135	LNS96003138
14	UN	4	LNS596003231	LNS96003232	LNS596003235	LNS596003238
16	UN	4	LNS96003331	L96003332	LNS96003335	LNS96003338
18	UN	4	LNS96003431	L96003432	LNS96003435	LNS96003438
20	UN	4	LNS96003531	LNS96003332	LNS96003556	LNS96003538
24	UN	4	LNS96003731	LNS96003732	LNS96003757	LNS96003738
28	UN	4	LNS96004031	LNS96004032	LNS96004035	LNS96004038
32	UN	4	LNS96004131	LNS96004132	LNS96004135	LNS96004138
1.00	mm	4	LNS96183034	LNS96183031	LNS96183032	LNS96183033
1.25	mm	4	LNS596219834	LNS96219832	LNS96219833	LNS96219831
1.50	mm	4	LNS96183136	LNS96183131	LNS96183133	LNS96183134
1.75	mm	4	LNS96256038	LNS96256032	LNS96256035	LNS96256031
2.00	mm	4	LNS96257337	LNS96257331	LNS96257334	LNS96257336
2.50	mm	4	LNS96257435	LNS96257431	LNS96257433	LNS96257434

* Chaser code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

15/16 x 2-1/8

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
7	UN	4	L96004831	L96004832	LNS96004836	LNS96004841
8	UN	4	L96004931	L96004932	LNS96004942	LNS96004944
9	UN	4	L96005031	L96005032	LNS96005036	LNS96005041
10	UN	4	L96005131	L96005132	LNS96005142	LNS96005141
11	UN	4	L96005231	L96005232	LNS96005270	LNS96005241
11-1/2	UN	4	LNS96005331	LNS96005332	LNS96005336	LNS96005341
12	UN	4	L96005431	L96005432	LNS96005444	LNS96005443
13	UN	4	L96005531	L96005532	LNS96005536	LNS96005541
14	UN	4	L96005631	L96005632	LNS96005642	LNS96005641
16	UN	4	L96005731	L96005732	LNS96005765	LNS96005742
18	UN	4	L96005831	L96005832	LNS96005836	LNS96005842
20	UN	4	L96005931	L96005932	LNS96005945	LNS96005943
24	UN	4	L96006131	L96006132	LNS96006136	LNS96006142
28	UN	4	LNS96006431	LNS96006432	LNS96006436	LNS96006442
32	UN	4	LNS96006631	LNS96006632	LNS96006636	LNS96006641
11-1/2	NPT	4	LNS96079932	LNS96079931	LNS96079937	LNS96079944
14	NPT	4	L96080132	L96080131	LNS96080157	LNS96080147
14	NPT-Rel	4	L96286631	L96286632	–	–
18	NPT	4	L96080332	L96080331	LNS96080348	LNS96080335
18	NPT-Rel	4	L96230831	L96230832	–	–
27	NPT	4	L96080632	L96080631	LNS96080652	LNS96080634
1.00	mm	4	LNS96159234	LNS96159231	LNS96159233	LNS96159237
1.25	mm	4	LNS96173236	LNS96173231	LNS96173232	LNS396173233
1.50	mm	4	LNS96173332	LNS96173331	LNS96173334	LNS96173335
1.75	mm	4	LNS96224335	LNS96224332	LNS96224331	LNS96224334
2.00	mm	4	LNS96204237	LNS96204232	LNS96204231	LNS96204235
2.50	mm	4	LNS96204333	LNS96204332	LNS96204331	LNS96204335
3.00	mm	4	LNS96230632	LNS96230631	LNS96230635	LNS96230633
3.50	mm	4	LNS96196131	LNS96196132	LNS96196133	LNS96196139

1-3/64 x 3

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
8	UN	4	L96012831	LNS96012832	LNS96012836	LNS96012840
9	UN	4	L96012931	LNS96012932	LNS96012936	LNS96012940
10	UN	4	L96013031	LNS96013032	LNS96013036	LNS96013040
11	UN	4	L96013131	LNS96013132	LNS96013136	LNS96013140
12	UN	4	LNS96013231	LNS96013232	LNS96013236	LNS96013240
13	UN	4	L96013331	LNS96013332	LNS96013336	LNS96013340
14	UN	4	LNS96013431	LNS96013432	LNS96013436	LNS96013440
16	UN	4	L96013531	LNS96013532	LNS96013536	LNS96013540
18	UN	4	LNS96013631	LNS96013632	LNS96013636	LNS96013640
20	UN	4	LNS96013731	LNS96013732	LNS96013736	LNS96013740
24	UN	4	LNS96013831	LNS96013832	LNS96013836	LNS96013840
1.00	mm	4	LNS96285631	LNS96285632	–	LNS96285633
1.25	mm	4	LNS96092331	LNS96092332	LNS96092333	–
1.50	mm	4	LNS96298031	LNS96298033	LNS96298032	–
1.75	mm	4	LNS96298131	LNS96298136	LNS96298137	LNS96298134
2.00	mm	4	LNS96153634	LNS96153638	LNS96153633	LNS96153632

* Chaser code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Standard Stock & Non Stock Chasers

1-3/64 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
8	UN	4	L96006931	L96006932	LNS96006936	LNS96006940
9	UN	4	L96007031	LNS96007032	LNS96007036	LNS96007040
10	UN	4	L96007131	L96007132	LNS96007136	LNS96007140
11	UN	4	L96007231	L96007232	LNS96007236	LNS96007240
11-1/2	UN	4	LNS96007331	LNS96007332	LNS96007336	LNS96007340
12	UN	4	L96007431	LNS96007432	LNS96007436	LNS96007440
13	UN	4	L96007531	L96007532	LNS96007544	LNS96007540
14	UN	4	L96007631	LNS96007632	LNS96007636	LNS96007640
16	UN	4	L96007731	LNS96007732	LNS96007761	LNS96007740
18	UN	4	L96007831	LNS96007832	LNS96007836	LNS96007840
20	UN	4	L96007931	LNS96007932	LNS96007936	LNS96007940
24	UN	4	LNS96008031	LNS96008032	LNS96008036	LNS96008040
28	UN	4	LNS96008331	LNS96008332	LNS96008336	LNS96008340

1-3/64 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
14	NPT	4	L96081431	L96081432	LNS96041443	LNS96081444
14	NPT-Rel	4	L96847631	L96847632	–	–

1-3/64 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
1.00	mm	4	LNS96195532	LNS96195531	LNS96195335	LNS96195537
1.25	mm	4	LNS96195632	LNS96195632	LNS96195635	–
1.50	mm	4	LNS96195734	LNS96195731	LNS96195737	LNS96195763
1.75	mm	4	LNS96183433	LNS96183432	LNS96183437	LNS96183446
2.00	mm	4	LNS96192334	LNS96192332	LNS96192341	LNS96182336
2.50	mm	4	LNS96162534	LNS96162533	LNS96162541	LNS96162531
3.00	mm	4	LNS96177131	LNS96177133	LNS96177135	LNS96177134

1-7/64 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
6	UN	4	L96008531	LNS96008532	LNS96008536	LNS96008557
7	UN	4	L96008631	L96008632	LNS96008636	LNS96008640
3.5	mm	4	LNS96163134	LNS96163133	LNS96163140	–
4.0	mm	4	LNS96176932	LNS96176933	LNS96176940	LNS96176945

1-1/4 x 2-3/4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
4-1/2	UN	4	LNS96008731	LNS96008732	LNS96008736	LNS96008741
5	UN	4	LNS96008831	LNs96008832	LNS96008836	LNS96008841
5-1/2	UN	4	LNS96008931	LNS96008932	LNS96008936	LNS96008941
6	UN	4	LNS96009031	LNS96009032	LNS96009036	LNS96009041

1-1/4 x 2-3/4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
11-1/2	NPT	4	L96082131	L96082132	LNS96082142	LNS96082134

* Chaser code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

1-1/4 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
11-1/2	NPT	4	L96082431	L96082432	LNS96082446	LNS96082440
11-1/2	NPT-Rel	4	L96846831	L96846832	–	–

1-1/2 x 5

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
4	UN	4	L96009731	LNS96009732	LNS96009736	LNS96009741
4-1/2	UN	4	L96009831	LNS96009832	LNS96009836	LNS96009841
5	UN	4	L96009931	LNS96009932	LNS96009936	LNS96009941
5-1/2	UN	4	LNS96010031	LNS96010032	LNS96010036	LNS96010041
4.50	mm	4	LNS96227434	LNS96227437	–	–
5.00	mm	4	LNS96227535	LNS96227539	–	–
5.50	mm	4	LNS96212434	LNS96212442	–	–
6.00	mm	4	LNS96180735	LNS96180742	–	–

1-7/8 x 3

Throat Angle*

Pitch	Form	No. Set	15° Long	15° Short	30° Spec. Short	45° No Throat
8	NPT	6	L96146331	LNS96146334	LNS96146344	–

1-7/8 x 4

Throat Angle*

Pitch	Form	No. Set	20° Long	20° Short	30° Spec. Short	45° No Throat
8	NPT	4	LNSl96083331	LNS96083332	LNS96083335	LNS96083344

2-1/4 x 3

Throat Angle*

Pitch	Form	No. Set	15° Long	15° Short	30° Spec. Short	45° No Throat
8	NPT	6	L96122331	LNS96122336	–	–

2-1/4 x 5

Throat Angle*

Pitch	Form	No. Set	15° Long	15° Short	30° Spec. Short	45° No Throat
8	NPT	4	L96083931	L96083932	LNS96083934	–
8	NPT-Rel	4	L96227131	L96227132	–	–
8	NPT	6	L96124931	L96124932	–	–
8	NPT-Rel	6	L96848231	L96848232	–	–

2-3/4 x 4

Throat Angle*

Pitch	Form	No. Set	15° Long	15° Short	30° Spec. Short	45° No Throat
8	NPT	6	L96146531	–	–	–
8	NPT	8	L96127931	–	–	–

* Chaser code numbers that have the “L” prefix indicates that they are stocked items.
Numbers that are preceded by the “LNS” prefix indicates that they are non-stock items.

Form 1

"Quik-Quote" Fax Form

Landis Solutions LLC
360 South Church Street
Waynesboro, PA 17268-2610
Toll Free:
USA: +1.800.358.3500
Fax: +1.888.718.2922
Canada: +1.888.828.6340
e-mail: info@Landis-Solutions.com

THREAD CUTTING TANGENTIAL DIE HEAD CHASERS

Customer Quotation/Order Data Sheet

When Requesting A Quotation Or Placing An Order, Please Complete And Return This Sheet With All Applicable Information.

Date: _____/_____/_____ Customer Contact Name:_____

Customer Name:_____

Customer Address:_____

City: _____ State: _____ Zip: _____

Customer Contact Phone Number: 1-_____-_____-_____ Ext.: _____

Customer Contact Fax Number: 1-_____-_____-_____

Purchase Order Number _____

Chaser Number (L96 or LNS96 NO.), If Available: _____

Chaser Size, If Known: _____

WORKPIECE SPECIFICATIONS

(A) Thread Size , Pitch & Form: _____

Class of Thread: _____ Number of Starts: _____ R.H.: ____ or L.H.: ____

If Thread Is Special or Modified, Provide Tolerances For:

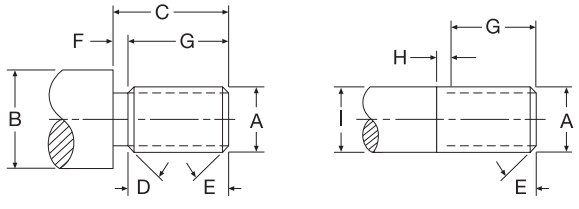
Major DIA.: _____ Pitch DIA.: _____ Minor DIA.: _____

(B) Shoulder: _____ (C) Length of Blank: _____

(D) Chamfer Angle: _____ (E) Chamfer Angle: _____ (F) Width of Relief: _____

(G) Full Thread: _____ (H) Imperfect Thread: _____

(I) Stock Diameter: _____ Material & Hardness: _____



THREAD CUTTING HEAD & CHASER HOLDER INFORMATION

Head Type: _____ Head Size: _____ Head Serial Number: _____

Chaser Holder Number: _____ Chaser Holder Range: _____

Chaser Holder Helix Angle: _____

Machine: _____ Feed: Posititve or Manual

If a Landis Machine, What is the Serial Number? _____

Production Required: _____

Chaser Grinding Fixture

FOR use on surface, universal tool, and cutter grinders, the No.15 and No. 20 fixtures are used to grind the cutting angles on Landis die head chasers.

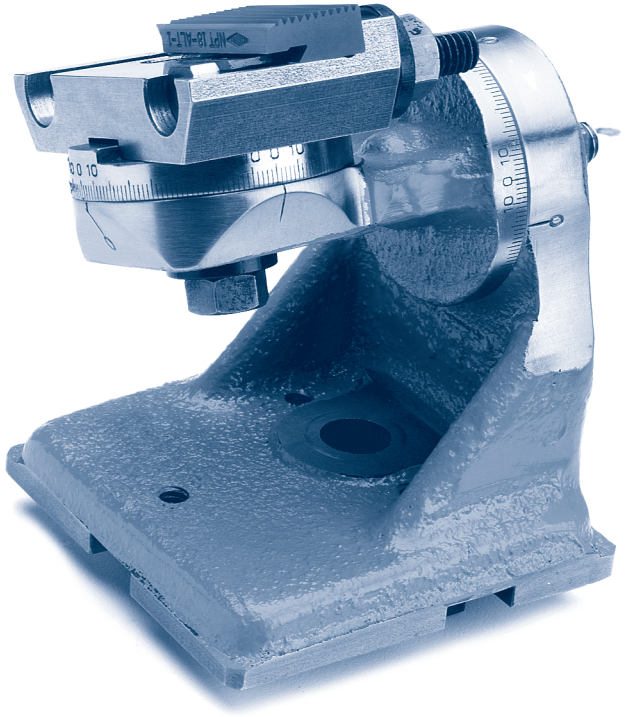
The No.15 die head chaser fixture and No.15T tap chaser fixture use a common base which allows the same fixture, when appropriate auxiliary equipment is added, to grind both types of chasers.

Capacity:

No.15 – 1/2" to 1-1/4" wide die head chasers

No. 20 – 7/8" to 4-3/8" wide die head chasers

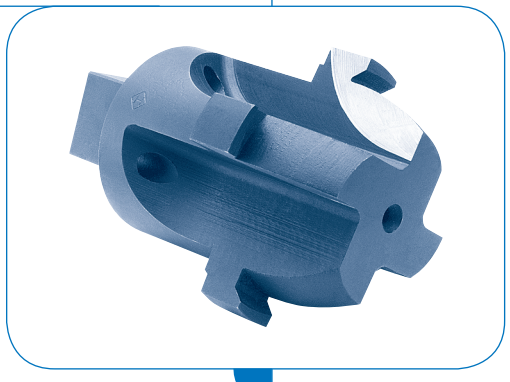
No.15T – tap chasers for 1" to 12" size tap heads



Reamers

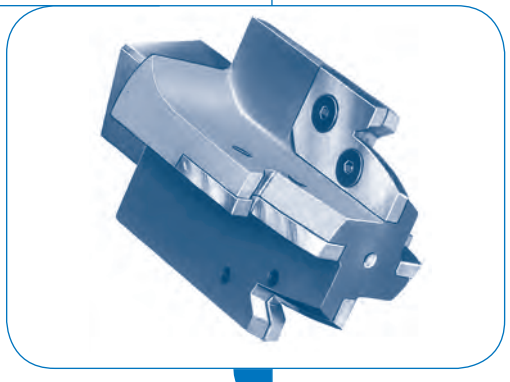
REAMERS for reaming, chamfering, and facing are offered in four basic styles – solid, detachable blade, insert blade, and composite. The style supplied will depend upon the operation to be performed and the type of Landis die head in which it will be used.

Solid



Solid reamers, which are four fluted, can be used for all T type Lanco internal trip heads from the 3/4"6T to the 4" 32T, the 16TXX Lanco head and the 2" 16JNK internally tripped Landex heads.

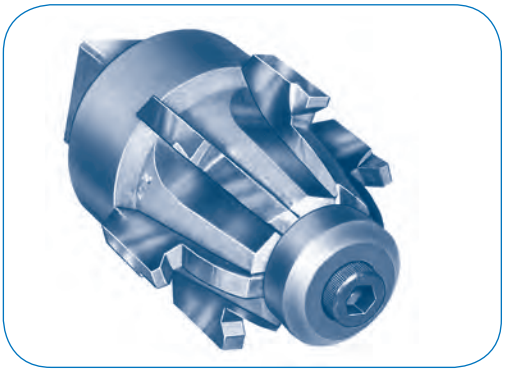
Detachable Blade



This four fluted reamer uses replaceable blades which are attached to a reamer body with screws. It is supplied only for the 4" 32T Lanco head for 2-1/2" to 4" pipe.

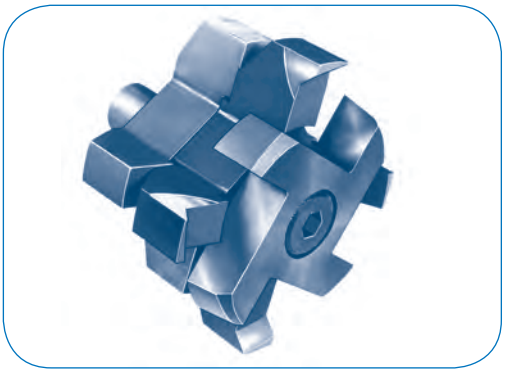
Insert Blade

The six fluted insert blade is only supplied for the full range of the 6" 48T



head. Its replaceable blades are secured in the reamer body by an abutting ring and clamping plate.

Composite



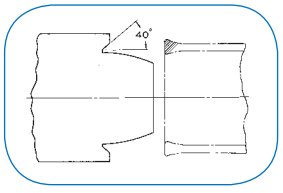
Composite reamers consist of an auxiliary reamer driver, chamfering body, reamer nose, spacer, and shoulder screw. It is used only with the 16TXX die head for 2-1/2" to 4" pipe sizes.

Reamer Configurations

Various configurations of the four basic reamer styles are supplied depending upon pipe material, cut-off method, and the die head which they are used with.

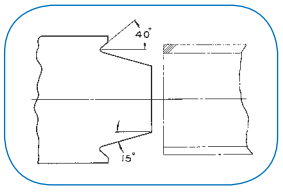
The two most popular reamers furnished are the radius nose chamfering and the mill type chamfering.

Radius Nose



The radius nose chamfering reamer is used on pipe and conduit that has a flare left from being roller cut.

Mill Type



The mill type chamfering reamer is usually used for pipe that has been saw cut. It is also extensively used on conduit pipe which requires a larger radius. See "R" in Figure 1. Therefore, when ordering new mill type reamers, it will be necessary to indicate that it be used for conduit and what wall thickness is involved.

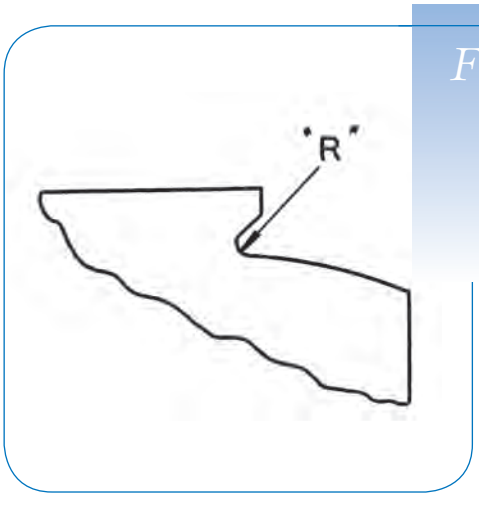


Figure 1

New / Special Reamers

When special or new reamers are ordered that cannot be identified as a reorder or by a known symbol number, it will be necessary to give the following information:

1. The I.D., O.D., and material of the pipe.
2. The size, type, and serial number of the die head in which the reamer will be used.
3. The type of cut-off operation that will be employed.

Reamer Identification

All reamers that have been supplied can be identified by symbol number. These numbers are stamped or etched on one of the flutes of the solid and composite reamers and on each of the blades of detachable and insert blade-type reamers. These numbers can be used to reorder identical products.

Figure 2

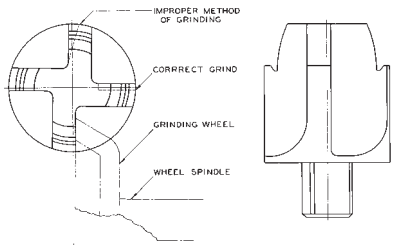


Figure 3

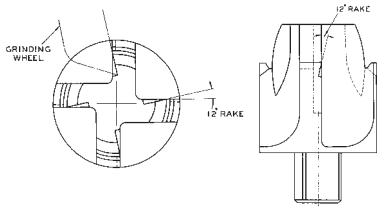


Figure 4

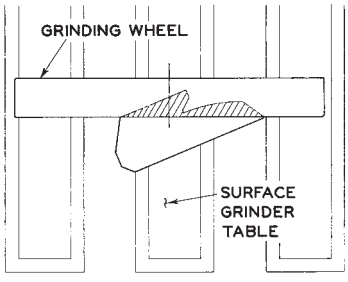
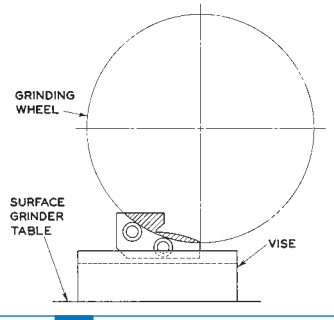


Figure 5



Reamer Grinding

To realize ultimate tool life, reamers should be resharpened before becoming excessively dull. Keeping reamers sharp through periodic regrinding also maintains product quality. When the ream of the pipe start to deteriorate, that normally indicates it is time to sharpen the reamer. Figure 2 illustrates the standard grind used on a solid type reamer.

Soft steel pipe and aluminum conduit require a grind that allows the reamer to cut more freely. A 12° lip rake, known as a "Toncan" grind, Figure 3 will give the best results. This grind must be specified when ordering.

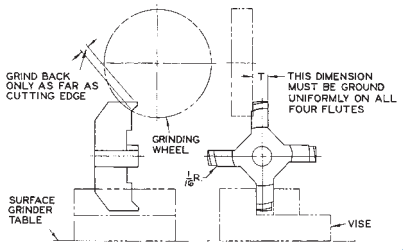
Surface or tool grinders can be used to grind reamers. It is very important that the same equal amount of metal be removed from each flute.

Detachable and insert blades can be ground in either of two ways on a surface grinder. The blade can be laid flat as shown by Figure 4 or clamped on edge as shown by Figure 5.

Two parts of the composite reamer need to be ground: the chamfering body, Figure 6, and the nose which is ground as illustrated in Figure 7.

Excluding the nose on 1" and 2" sizes, both parts of the composite reamer can be resharpened on a surface grinder. Although the nose on the 1" and 2" reamer can be ground acceptably on a surface grinder, better results will be obtained using a tool and cutter grinder.

Figure 6



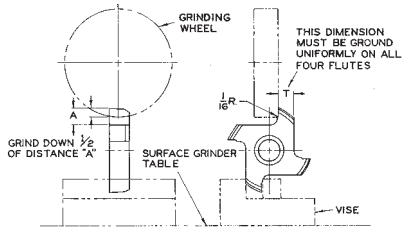
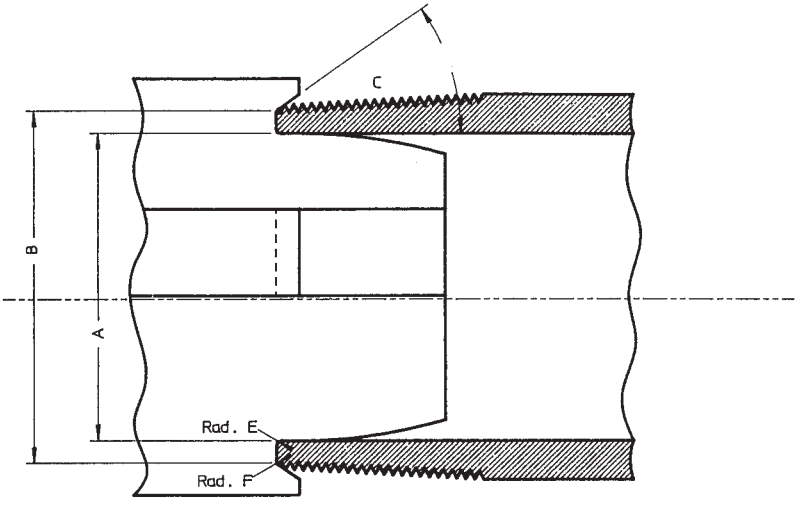


Figure 7

Chart 1



Standard Internal Trip Radius Nose Chamfering Reamers†

NOMINAL	40° - "C"			30° - "C"			25° - "C"		
PIPE SIZE	Number	A	B	Number	A	B	Number	A	B
1/8	L0D026418C	.270	.330	–	–	–	LNS0D050616D	.270	.338
1/4	L013315C	.364	.430	L0C132696C	.350	.430	LNS0C050617D	.364	.432
3/8	L013316C	.494	.565	L0C132697C	.494	.565	LNS0C050618D	.493	.567
1/2	L0C033479C	.622	.720	L0C132698C	.644	.718	LNS0C050619D	.622	.700
3/4	L0C033478C	.824	.930	L0C132699C	.846	.921	LNS0C050555D	.824	.910
3/4*	L017133C	.824	.930	–	–	–	–	–	–
1	L0C033480C	1.048	1.164	L0C132686C	1.079	1.154	LNS0C050556D	1.048	1.143
1*	L0C050060S	1.048	1.120	–	–	–	–	–	–
1-1/4	L019773C	1.380	1.464	L0C132700C	1.420	1.500	LNS0C050557D	1.380	1.486
1-1/2	L013312C	1.610	1.704	–	–	–	LNS0C050558D	1.610	1.726
1-1/2**	L015960C	1.610	1.704	L0C132701C	1.642	1.736	–	–	–
2	L013313C	2.067	2.177	L0C132702C	2.086	2.164	LNS0C050559D	2.067	2.199
2**	L0C057073C	2.067	2.177	–	–	–	–	–	–
2-1/2	L014117C	2.463	2.591	–	–	–	LNS0C050621D	2.463	2.618
3	L014118C	3.062	3.213	–	–	–	LNS0C050622D	3.062	3.240
3-1/2	L014119C	3.543	3.710	–	–	–	LNS019929D	3.543	3.710
4	L014120C	4.021	4.206	–	–	–	LNS0C050623D	4.021	4.233

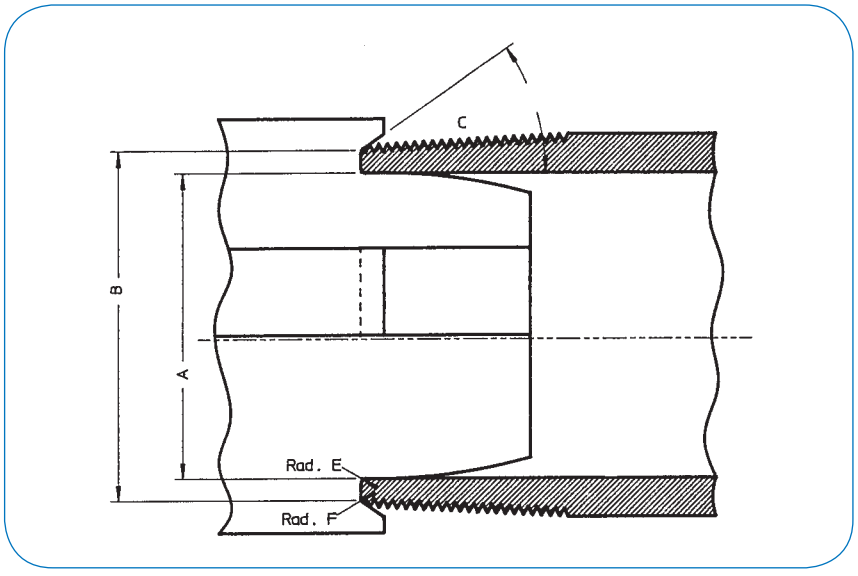
* For use with 1/2 4T and 3/4 6T LANCO Heads only.

** For use with 2" 16 JNK LANDEX Internal Trip Head on 16-20B Machines and 1-1/4" 10T LANCO Internal Trip Heads.

Reamer code numbers that have the "L" prefix indicates that they are stocked items.

Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Chart
2



Standard Internal Trip Radius Nose Chamfering Reamers For Medium, Schedule #10 And Extra Heavy Pipe****

NOMINAL	40° - "C" Medium Pipe			40° - "C" Schedule #10			40° - "C" Extra Heavy Pipe		
PIPE SIZE	Number	A	B	Number	A	B	Number	A	B
1/8†	L0C067485C†	.238	.318	–	–	–	L0C031244D	.216	.330
1/4	L0C031554C	.350	.430	–	–	–	L015846C	.302	.417
3/8	L013316C	.494	.565	–	–	–	L015847C	.423	.552
1/2	L0C067771C*	.644	.718	–	–	–	L015848C	.546	.681
1/2	L0C059677C**	.644	.718	–	–	–	–	–	–
3/4	L0C067759C*	.846	.921	–	–	–	L050549C	.742	.891
3/4	L0C059678C**	.846	.921	–	–	–	L050505C*	.742	.891
1	LNS0C068195S*	1.079	1.154	LNS0C098138D	1.097	1.133	L019931C	.957	1.120
1	L0C059679C**	1.079	1.154	–	–	–	–	–	–
1-1/4	L0C059680C	1.420	1.500	LNS0C098139S	1.442	1.484	L0199932C	1.278	1.464
1-1/2	L0C59681C***	1.642	1.736	L0C098140S	1.682	1.729	L015852D	1.500	1.704
1-1/2	L0C068289D††	1.642	1.736	–	–	–	L0D024964D††	1.500	1.704
2	L0C066592C	2.086	2.164	L0C098141S	2.157	2.212	L015853C	1.939	2.177
2	LNS0C068290D††	2.086	2.164	–	–	–	L0C054342D††	1.937	2.177
2-1/2	LNS0C064283S	2.703	2.773	–	–	–	L015854C	2.323	2.591
2-1/2	LNS0C116367D†	2.703	2.773	–	–	–	LNS0C010222S††††	2.323	2.591
3	LNS0C116368D	3.176	3.265	–	–	–	LNS015955C	2.900	3.213
3-1/2	–	3.670	3.751	–	–	–	LNS015956C	3.364	3.710
4	LNS0C116369D	4.140	4.243	–	–	–	LNS015957C	3.826	4.206

†Plain reamer

*.466 square — 4/6T LANCO

**.865 square — 10/16T LANCO

***16T LANCO

††10T LANCO/16 JNK LANDEX

†††16T LANCO

††††32T LANCO

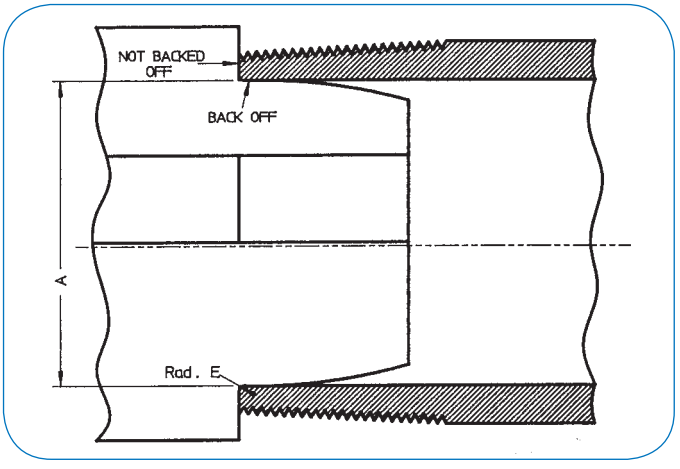
****Reamer code numbers that have the "L" prefix indicates that they are stocked items.

Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Standard Internal Trip Radius Nose Plain Chamfer Reamers†

NOMINAL PIPE SIZE	Number	A
1/8	L013314C	.270
1/4	LNS0C034365D	.364
3/8	LNS0C034367D	.494
1/2	LNS0C034369D	.623
3/4	LNS0C034371D	.824
1	LNS0C034373D	1.048
1-1/4	LNS0C034375D	1.380
1-1/2	LNS0C034377D	1.610
2	LNS0C034379D	2.067

†Reamer code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.



Standard Internal Trip Mill Type Chamfering Reamers For Schedule 40 Standard Weight Pipe And Lanhydro Double End Machines†

NOMINAL	40° - "C" Standard			40° - "C" Standard-LANHYDRO		
PIPE SIZE	Number	A	B	Number	A	B
1/8*	LNS0C008285D*	290	--	--	--	--
1/4	LNS0D001842D	.381	.433	--	--	--
3/8	LNS0D001930D	.511	.568	--	--	--
1/2	L0D001165C	.650	.737	L0D013899C	.685	.772
3/4	L0D001166C	.855	.950	L0D013900C	.890	.985
1	L0D001167C	1.088	1.222	L0D013871C	1.118	1.252
1-1/4	L0D000833C	1.420	1.565	L0D013872C	1.450	1.595
1-1/2	L0D000834C	1.650	1.797	L0D013873C	1.680	1.827
2	L0D000835C	2.107	2.270	L0D013874C	2.137	2.300
2-1/2	LNS0D000836C	2.548	2.730	--	--	--
3	LNS0C000837C	3.147	3.353	--	--	--
3-1/2	LNS0C001200C	3.598	3.820	--	--	--
4	LNS0C001201C	4.076	4.316	--	--	--

†Reamer code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.
*Plain reamer.

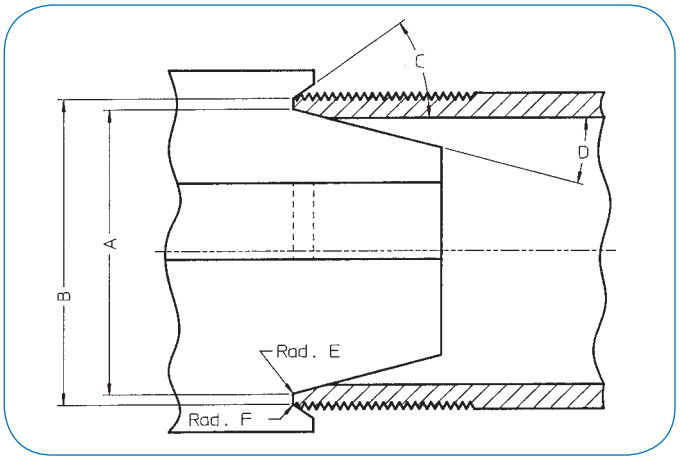
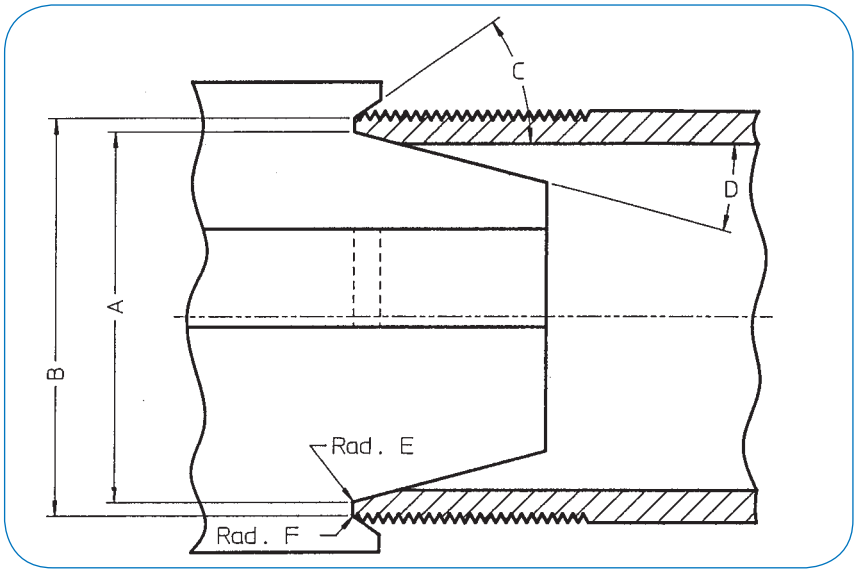


Chart
5

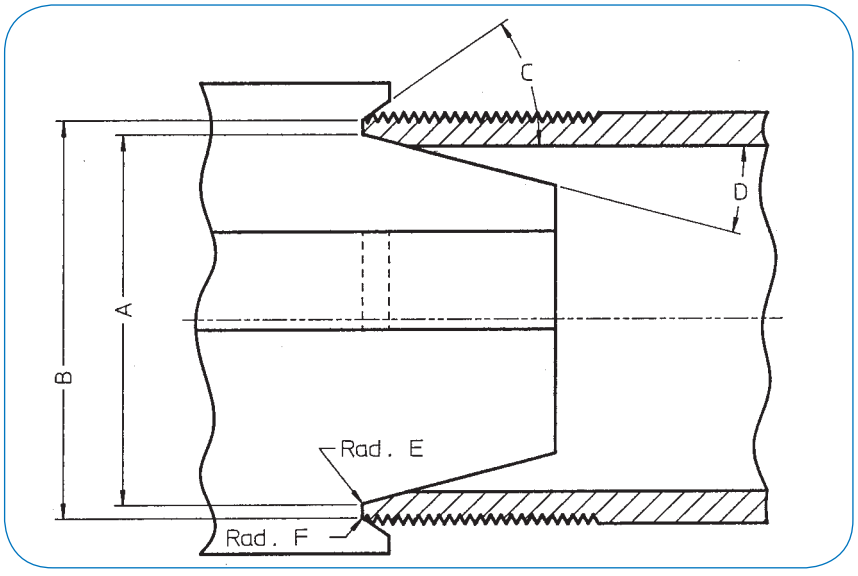


Standard Internal Trip Mill Type Chamfering Reamers For IMC Conduit And XI Pipe†

NOMINAL	35° - "C" IMC CONDUIT				40° - "C" XL PIPE		
PIPE SIZE	Number	A	B		Number	A	B
1/2	L0D119462C	.697	.745		–	–	–
3/4	L0D119463C	.911	.959		–	–	–
3/4	LNS0C120970D*	.911	.959		–	–	–
1	L0D119464C	1.148	1.202		LNS0C129807D	1.144	1.197
1-1/4	L0D119465C	1.496	1.552		LNS0C129808D	1.492	1.543
1-1/2	L0D119466C**	1.733	1.793		LNS0C129809D	1.727	1.780
1-1/2	LNS0D134620D	1.733	1.793		–	–	–
2	L0D119467C	2.202	2.266		LNS0C131981D	2.198	2.258
2-1/2	L0D119688C	2.641	2.727		LNS0C133736D	2.614	2.684
3	LNS0C119689C	3.260	3.346		LNS0C133735D	3.235	3.321
3-1/2	LNS0C119690C	3.755	3.841		–	–	–
4	LNS0C119691C	4.250	4.336		–	–	–

†Reamer code numbers that have the "L" prefix indicates that they are stocked items.
Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Chart
6



Standard Internal Trip Mill Type Chamfering Reamers For Extra Heavy, Double Extra Heavy and Schedule #160 Pipe†

NOMINAL	40° - "C" EXTRA HEAVY			40° - "C" DOUBLE EXTRA HEAVY			40° "C" SCHEDULE #160		
PIPE SIZE	Number	A	B	Number	A	B	Number	A	B
1/4	LNS0D003009D	.319	.433	–	–	–	–	–	–
3/8	LNS0D003010D	.440	.568	–	–	–	–	–	–
1/2	LNS0D003011D	.573	.737	L0D048494D	.340	.680	L0D061500D	.494	.691
3/4	LNS0D003012D	.773	.950	L0D049746D	.465	.891	L0D061501D	.645	.901
1	LNS0D003013D	.997	1.1222	L0D049747D	.639	1.120	L0D061502D	.855	1.120
1-1/4	LNS0D003014D	1.318	1.565	LNS0D049748D	.936	1.464	L0D061503D	1.200	1.464
1-1/2	LNS0D001475D	1.540	1.797	LNS0D049749D	1.140	1.704	L0D061504D	1.378	1.704
2	LNS0D001476D	1.979	2.270	LNS0D049750D	1.543	2.177	L0D061505D	1.729	2.177
2-1/2	LNS0D002182D	2.403	2.730	35° - "C" Double Ex-Heavy	–	–	–	–	–
2-1/2	–	–	–	LNS0D032803D	1.821	2.619	–	–	–
2-1/2	–	–	–	LNS0D034059D*	1.821	2.619	–	–	–
3	LNS0C002183D	2.980	3.353	LNS0C026197D	2.360	3.241	–	–	–
3-1/2	LNS0C003015D	3.414	3.820	–	–	–	–	–	–
4	LNS0C003016D	3.876	4.316	LNS0C026198D	3.212	4.234	–	–	–

*3/32" "E" Radius. All other Extra Heavy, Double Extra Heavy and Schedule #160 have .010" E Radius.

†Reamer code numbers that have the "L" prefix indicates that they are stocked items.

Numbers that are preceded by the "LNS" prefix indicates that they are non-stock items.

Form 1

"Quik-Quote" Fax Form

Landis Solutions LLC
360 South Church Street
Waynesboro, PA 17268-2610
Toll Free:
USA: +1.800.358.3500
Fax: +1.888.718.2922
Canada: +1.888.828.6340
e-mail: info@Landis-Solutions.com

THREAD CUTTING TANGENTIAL DIE HEAD REAMERS

Customer Quotation/Order Data Sheet

When Requesting A Quotation Or Placing An Order, Please Complete And Return This Sheet With All Applicable Information.

Date: _____/_____/_____ Customer Contact Name:_____

Customer Name:_____

Customer Address:_____

City: _____ State: _____ Zip: _____

Customer Contact Phone Number: 1-_____-_____-_____ Ext.: _____

Customer Contact Fax Number: 1-_____-_____-_____

Purchase Order Number _____

Reamer Number, If Available: _____

PIPE SPECIFICATIONS

Pipe Type: _____ Pipe Size: _____ Pipe Material_____

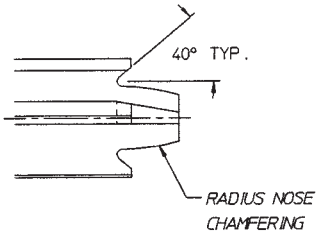
Pipe Schedule: _____ Pipe O.D.: _____ Pipe I.D.: _____

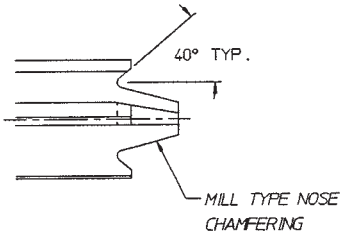
Wall Thickness: _____ O.D. Chamfer Angle: _____

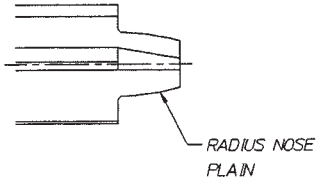
How is Pipe Cut-Off? Saw Cut _____ Roller Cut _____ Other _____

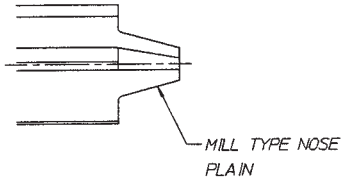
REAMER TYPES

Specify Type: _____









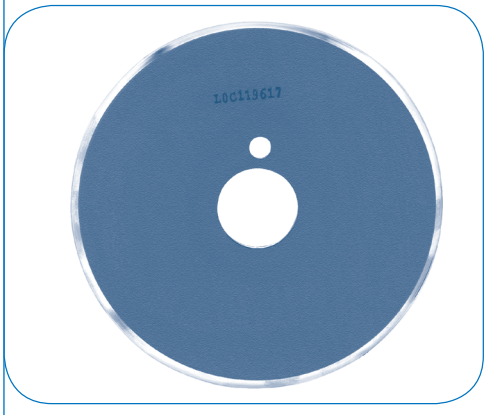
THREAD CUTTING HEAD INFORMATION

Head Type: _____ Head Size: _____ Head Serial Number: _____

Cutter Discs

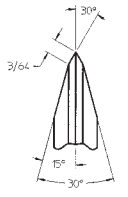
CUTTER Discs for No. 2, 2CA, No. 4, and No. 6 Roller Pipe Cutters.

Cutter discs for roller pipe cutters are available with either 1-1/2" or 1-3/4" I.D. mounting holes to suit the particular roller cutter being used.

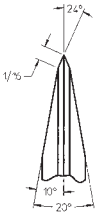


Discs are normally furnished for standard and extra heavy pipe with 30° (included angle, Type #1 grind. The part numbers given in the chart are for stock discs with the Type #1 grind.

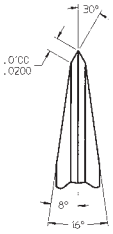
Discs are available with Type 2, 3, or 5 grinds, however, these are not stock items and must be quoted from the factory.



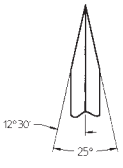
Type #1 – Std. & Extra Heavy Pipe



Type #2 – Stainless Steel, Brass & Aluminum



Type #3 – Thin Wall Steel



Type #5 – Thin Wall Brass & Aluminum

TYPE #1 Standard Stock Cutter Discs* For Standard and Extra Heavy Pipe

Machine Type	Dia.	Part No.	Thickness	Hole I.D.
No. 2	7"	L0C119617	1/8"	1-1/2"
	7"	L0C120242	3/16"	1-1/2"
2BA	7"	L0C119964	1/8"	1-3/4"
2CA	7"	L0C120243	3/16"	1-3/4"
No. 4	8"	L0C120150	1/8"	1-3/4"
&	8"	L0C119628	3/16"	1-3/4"
No. 6	8"	L0C120245	1/4"	1-3/4"

*The Type #1 discs for standard and extra heavy pipe have angles as shown by the illustration.
The Type #2, #3 and #5 are non-stock with delivery quoted from the factory.

Threading Heat Treated Materials

THREAD cutting generally is not recommended when material hardness is above 36 Rockwell C. Shown by the D area in the chart, tool life will decrease drastically in direct proportion to the increase in hardness.

It is possible to thread in the E area (32 to 36 Rc) but limited chaser life will be obtained. Super high-speed steel chasers can be supplied to thread in either range. These chasers can also be supplied for threading in the F area to improve chaser life.

Special heat treatment is given to chasers used to thread in the F range. The degree of heat treatment will vary depending upon the hardness of the material to be machined so it is necessary to specify the material and its hardness to allow correct heat treatment to be selected.

Chasers with standard heat treatment are used to thread in the G area. Being softer, these chasers will withstand more abuse and punishment and will give better results than harder tools.

Softer materials, especially those which are 170 Brinnell or lower, can be just as difficult to thread as harder materials. Softer materials tend to be gummy or stringy and will more readily break-off as opposed to shearing cleanly.

Using a higher lip rake on soft materials will give better shearing action. However, a higher rake has a thinner cutting edge which will dub quicker causing faster tool wear and/or chippage. Therefore, the user must compromise between tool life and finish.

The 1200 series steels will give best life and thread finish. Also, lead additives generally will improve the machineability factor of any given material by 10% to 25%.

Materials with silicon content are very abrasive, will result in rapid tool wear and are not conducive to a good threading operation.

Carbide tipped chasers are available for special applications. However, they require special manufacturing techniques which make them more expensive than regular chasers.

Chart 1

Threading Heat Treated Material

BRINELL (Steel Ball Only)			ROCKWELL					
Dia. In. M/M	Hardness Number 3000 Kg.	VICKERS Diamond Hardness 10 Kg	C Scale 150 Kg. Brale	B Scale 100 Kg. 1/16 Ball	A Scale 60 Kg. Brale	Approx. Tensile Strength in 1000 PSI	Approx. Tensile Strength in Kg./mm2	
3.10	388	410	42		71.5	195	137	
3.15	375	396	40		70.5	182	128	
3.20	363	383	39		70	177	125	D
3.25	352	372	38		69.5	171	120	
3.30	341	363	37		69	164	115	
3.35	331	353	35		68.5	162	114	
3.40	321	343	35		68	155	109	
3.45	311	334	34		67.5	153	107	E
3.50	302	319	32.5		66.5	144	101	
3.55	293	309	31		66	140	98	
3.60	285	301	30		65.5	136	95	
3.65	277	292	29		65	132	93	
3.70	269	284	28	104	64.5	128	90	F
3.75	262	271	26	102.5	63.5	124	87	
3.80	255	264	25	101.5	63	121	85	
3.85	248	258	24	101	62.5	117	82	
3.90	241	253	23	100	61.8	115	81	
3.95	235	247	21.7	99	61.5	111	78	
4.00	230	238	20.5	98	60.8	109	77	
4.05	223	223	18	97	59.5	108	76	
4.10	217	217	16	96	59	103	72	
4.15	212	210	14	95	58	101	71	
4.20	207	207		94	57.5	98	69	
4.25	201	201		93	57	96	67	
4.30	197	197		92	56.5	93	65	
4.35	192	192		91	56	91	64	
4.40	187	187		90	55.5	89	62	
4.45	183	183		89.5	55.2	88	62	
4.50	179	179		89	55	87	61	G
4.55	174	174		88	54	85	60	
4.60	170	170		86	53	81	57	
4.65	167	167		85	52.5	80	56	
4.70	163	163		84	52	78	55	
4.80	156	156		82	50.5	75	53	
4.90	149	149		80	49.5	72	51	
5.00	143	143		78	48.5	70	49	
5.10	137	137		75	46.5	67	47	
5.20	131	131		72	45	65	46	
5.30	126	126		71	44.5	63	44	
5.40	121	121		68	43	60	42	
5.50	116	116		65	42	58	41	
5.60	111	111		62	40.5	56	40	
5.70	107			60	39.5			
5.80	103			57	38			
5.90	99			55	37.5			

THREADING HEAT TREATED MATERIAL

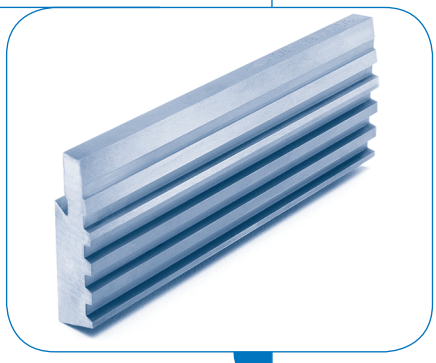
The D area of the chart represents the hardness range where threading can be done but at the expense of greatly reduced chaser life. Threading in section E, although somewhat easier than D, will still result in limited chaser life. Special, super high speed chasers can be supplied for threading in either range.

To supply maximum life, the chasers used for threading materials in section F receive a special heat treatment. This processing will vary according to material hardness. Therefore, always submit material specifications.

Chasers with standard processing will be provided if material specifications are not given. These chasers are for cutting in the low hardness range (section G) and will withstand more abuse than those receiving special heat treating.

Acme - The Transversal Motion Thread

ACME threads are used extensively on valve stems, feed screws, carriage-run screws, and similar applications because they are superior at generating power for motion.



Acmes are more difficult to machine than any of the 60° or 55° forms like UN, Whitworth, BSF, or ISO metric because the metal amount that must be removed or cold formed is much greater.

Figure **1**

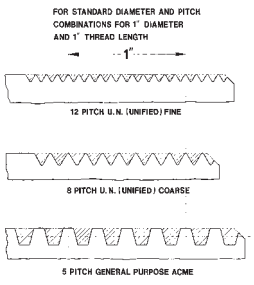


Figure 1 graphically illustrates thread cross sectional differences between Vee and Acme forms. Compared to 1" diameter, 12 or 8 pitch UN, the 5 pitch general purpose Acme is much coarser. This means wider crests and roots to contend with regardless of which method is used to produce it.

Multiple grinding or single point threading passes would be required to form an Acme compared to a Vee thread of comparable size.

The fastest method to produce Acmes is by rolling, however, that is not always possible due to workpiece design, material, or other considerations.

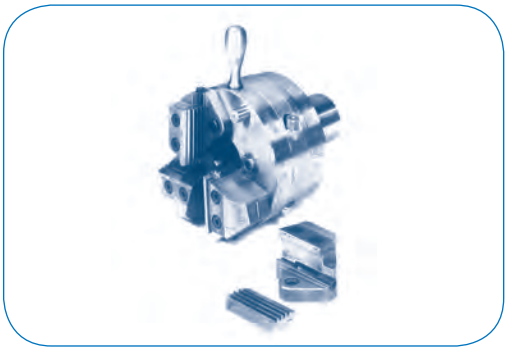
The next fastest method is to produce the Acme with a die head. Die heads that have suitable capacity and rigidity will allow an Acme to be cut in one pass, a decided advantage speed-wise over grinding or single pointing.

Where the Acme is near the top capacity of a particular tool, it may be necessary to use the next larger size die head to effectively cut it. Any disadvantage in that regard will still be offset by the production increase.

Die Head Selection

When a die head is to be used, a tangential chaser die head, such as a Landis head, is the most effective.

With Landis heads, the chaser is secured in a removable chaser holder mounted on the front face of the head. The helix angle is incorporated in the holder, not in the chaser. Chasers are securely clamped in dovetailed slots backed-up with abutting screws to absorb the cutting force. This design allows full use of the head's inherent rigidity.



The Landis System - An Unequalled Method To Cut Acmes

The Landis system offers several decided advantages.

It offers the greatest latitude in tool operation, is the best tool buy, and the surest method to cut an Acme. Since Landis Acme chasers do not have a built-in helix angle, they do not have to be fixture ground, in like amounts, in sets. Each chaser need only be reground by the amount required to restore a sharp cutting edge. Also, a chaser worn or damaged beyond regrinding can be individually replaced.

Equally important, as will be illustrated later, this design allows special features to be incorporated which assure threading success, particularly when coarse threads or ultimate thread finish is involved.

And the chaser geometry (even where special features are incorporated) is factory ground, permanent for the life of the tool and not affected by repeated cutting end regrinding.

Production Rates Possible

Production rates obviously are going to depend upon material specifications, thread length, and type of Acme being produced. Is the thread full depth or Stub Acme, single or multiple start? Is the material steel, brass, or bronze, etc.? Production rates will also depend upon the type, power, age, and condition of the equipment.

Thread Tolerance

If the thread is within the capacity of the die head, thread quality and tolerance will meet the Acme thread standards set forth by H-28, the Federal Screw Thread Standards publication. However, a die head is not capable of producing the tolerances to machine a precision feed screw. It could be used to rough cut the thread for eventual final finish by another method at a considerable overall time savings.

The Material Hardness Factor

To be able to use a die head requires considering material hardness, thread diameter, and pitch.

As hardness increases, die head chaser life, like any cutting tool, will proportionately decrease.

Chaser life will be good in the 25 to 32 RC range. While still possible to cut threads beyond 32 RC hardness, 40 RC is considered the extreme limit. Super high speed steel chasers with increased heat treatment can be supplied for cutting harder materials, but there will be a diminished level of tool life cutting over 32 RC.

Hardness is not always the deciding factor. Soft materials which are of an abrasive nature will often have a more adverse effect on tool life than harder steels. Steels having some degree of hardness will shear more cleanly. The problems associated with abrasive materials can often be solved by using harder chasers.

Workpiece Design Considerations

Always use a chaser having the lowest angle, longest throat possible, particularly when Acmes or other coarse forms are involved. Chasers with low angle, long throats produce the thinnest chip which results in the best tool life, longest running time, and highest thread quality. Conversely, chasers with higher angle, shorter throats will give diminished results.

Where possible, always design the part where the width of relief or run-out allowance permits using the lowest angle, longest throat possible.

Acme - The Transversal Motion Thread

To thread single start Acmes, 10° throat angles are recommended when using leadscrew or positive feed. For manual feed, the recommended throat angle is 12°. The 12° throat helps offset the tendency to side shave the initial starting threads before chaser self-leading action takes effect.

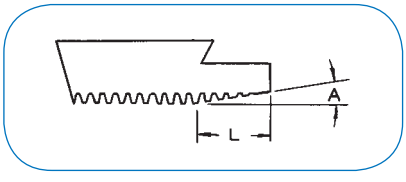
Multiple Start Threads

For double start threads, a 9° or 10° angle is recommended. Triple start Acmes require use of a 7° angle to evenly distribute the cut.

General Work

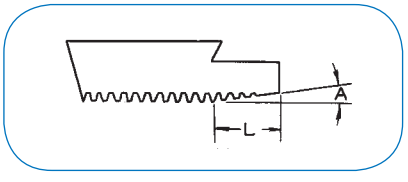
A throat angle starting slightly below the root of the chaser thread form is recommended for general work. When the chaser is required to remove a nominal amount of metal from the O.D., that portion of the chaser below the root will remove the excess.

Where the workpiece has been machined to correct size and clearance is limited, chasers with the throat starting at the root can be used where necessary. This provides the shortest throat and requires the least amount of clearance or relief.



THROAT STARTING AT ROOT OF THREAD

	A -- Angle of Throat			L -- Length of Throat			
Pitch	7°	9°	10°	12°	15°	20°	30°
16	.335	.260	.234	.174	.154	.113	.071
14	.372	.288	.259	.215	.170	.125	.079
12	.421	.326	.293	.243	.193	.142	.089
10	.488	.378	.340	.282	.223	.164	.103
9	.534	.414	.372	.308	.244	.180	.113
8	.590	.457	.411	.341	.270	.199	.125
7	.663	.514	.461	.382	.303	.223	.141
6	.759	.589	.529	.438	.348	.256	.161
5	.895	.694	.623	.517	.410	.302	.190
4	1.099	.852	.765	.635	.503	.370	.233
3-1/2	1.245	.965	.867	.719	.570	.420	.264
3	1.439	1.115	1.002	.831	.659	.485	.306
2-1/2	1.710	1.325	1.190	.988	.783	.577	.363
2	2.117	1.641	1.474	1.223	.970	.714	.450



THROAT STARTING AT .010" BELOW ROOT OF THREAD

	A -- Angle of Throat			L -- Length of Throat			
Pitch	7°	9°	10°	12°	15°	20°	30°
16	.417	.323	.290	.241	.191	.140	.088
14	.453	.351	.315	.262	.207	.153	.096
12	.502	.389	.350	.290	.230	.169	.106
10	.570	.442	.397	.329	.261	.192	.121
9	.615	.477	.428	.355	.282	2.07	.130
8	.671	.520	.467	.388	.307	.226	.142
7	.744	.577	.518	.430	.341	.251	.158
6	.841	.652	.585	.486	.385	.283	.179
5	.977	.757	.680	.564	.447	.329	.207
4	1.181	.915	.822	.682	.541	.398	.251
3-1/2	1.326	1.028	.923	.766	.607	.447	.282
3	1.520	1.178	1.058	.878	.696	.513	.323
2-1/2	1.791	1.389	1.247	1.035	.821	.604	.381
2	2.198	1.704	1.531	1.270	1.007	.741	.467

Often, part function prevents using sufficient relief or run-out to allow using low angle throat chasers. Everything being considered, never base the width of relief or run-out allowance on some arbitrary amount. Nor, should relief or allowances be based on past practices because it has always been done that way. Old applications should be reviewed and new parts designed to allow the use of the most efficient chaser.

Special Features

The width of the tangential chaser allows the incorporation of special features that have much to do with its success, especially when cutting Acme. These features include Roughing and Finishing Form, Roughing Form Throat, and Centering Throats.

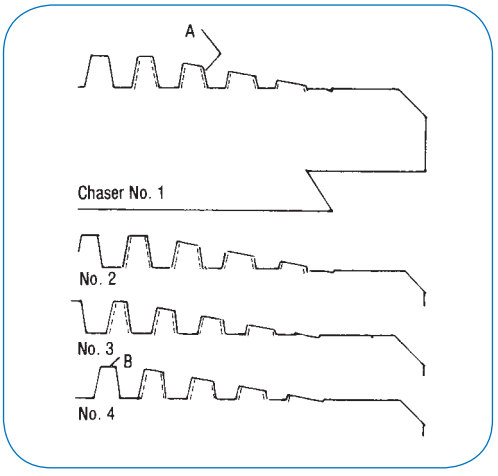
The Roughing and Finishing form is preferred since its geometry is spread over a longer width and gives more efficient results.

Roughing Form throat chasers are used where allowable thread run-out or the relief width does not allow using Roughing and Finishing Form.

Both features offer significant advantages. They allow roughing and finishing to be accomplished in one pass and give improved thread finish. Centering throat chasers are intended to provide rigidity and a high degree of thread concentricity with the O.D. on workpieces with long thread length.

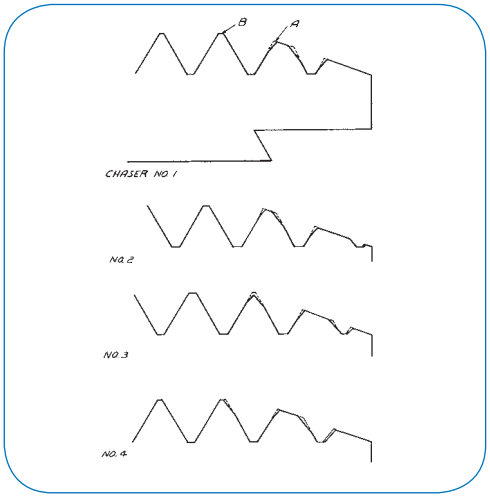
Roughing and Finishing Form

All of the teeth in the throat section of the Roughing and Finishing Form chaser are each reduced in profile by .004" to .008" on each flank side. And, the first and sometimes second full thread flanks are reduced by .0015" to .004". In the illustration, the broken line indicates the Roughing and Finishing feature. The solid lines are standard unmodified teeth.



Each modified tooth shaves an increment of a few thousandths from the thread flank. The first full tooth that follows trues out the thread to the final finished profile.

All chasers in the set are modified, which results in multiple chasers cutting action. The incremental removal of a few thousandths from the flank results not only in the Roughing and Finishing cut but also provides the shaving action that produces excellent finish.



Roughing Form Chaser

The Roughing Form chaser is very similar to a Roughing and Finishing Form chaser and produces the same result in a more limited way. With this feature, the modified teeth are confined to the throat section. This feature is used where the relief width or allowable run-out precludes using the Roughing and Finishing Form.

Centering Throat Chasers

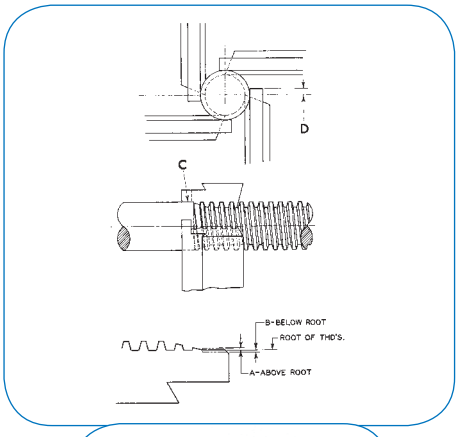
Centering Throats are used where a high degree of thread concentricity with the workpiece O.D. is required, where support is needed when cutting long thread length workpieces.

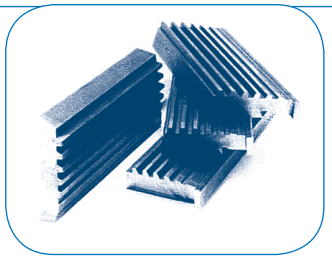
The use of Centering Throat chasers requires that the O.D. be uniform since the centering section or "pad" extends over the cutting edge and bears on the O.D. to provide a steadying effect. The O.D. must, therefore, be closely controlled. An increase in diameter will require removing material from throat surface "C" to maintain the desired pitch diameter.

The Centering Throat feature can be used with any thread form. However, threading close to the shoulder or into a relief is not possible due to the pad's projection.

Chasers, particularly those for Acme threading, are often furnished with both Centering Throats and Roughing and Finishing Form.

Another useful purpose of the Centering Throat is that it can be used for interrupted cuts, such as threading over keyways. The support provided by the projection prevents the cutting edge from "digging-in" which causes chipping.





Types of Acme Threads

ACME FORM BASIC DIMENSIONS

					Width of flat		45° chamfer, crest of centralizing screws			Fillet radius at minor diameter of centralizing screws	
Threads Per Inch.	Pitch P	Depth of thread (basic) h=p/2	Total depth of thread (all screws)	Thread thickness (basic,) t	Crest of nut (basic), FCN=0.307p	Root of nut[1] Frn=0.3707p-0.259x allowance[a]	Minimum depth 0.05p	Minimum width of flat 0.0707p	Maximum fillet radius root of centralizing tapped hole, 0.06p	Minimum classes 5 and 6 only, 0.07p	Maximum all classes 0.10p
1	2	3	4	5	6	7	8	9	10	11	12
	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
16	0.06250	0.03125	0.0362	0.03125	0.0232	0.0206	0.0031	0.0044	0.004	0.0044	0.0062
14	.07143	.03571	.0407	.03571	.0265	.0239	.0036	.005	.004	.0050	.0071
12	.08333	.04167	.0467	.04167	.0309	.0283	.0042	.006	.005	.0058	.0083
10	.10000	.05000	.0600	.05000	.0371	.0319	.0050	.007	.006	.0070	.0100
8	.12500	.06250	.0725	.06250	.0463	.0411	.0062	.009	.0075	.0088	.0125
6	.16667	.08333	.0933	.08333	.0618	.0566	.0083	.012	.010	.0177	.0167
5	.20000	.10000	.1100	.10000	.0741	.0689	.0100	.014	.012	.0140	.0200
4	.25000	.12500	.1350	.12500	.0927	.0875	.0125	.018	.015	.0175	.0250
3	.33333	.16667	.1767	.16667	.1236	.1184	.0167	.024	.020	.0233	.0333
2-1/2	.40000	.20000	.2100	.20000	.1483	.1431	.020	.028	.024	.0280	.0400
2	.50000	.25000	.2600	.2500	.1853	.1802	.025	.035	.030	.0350	.0500

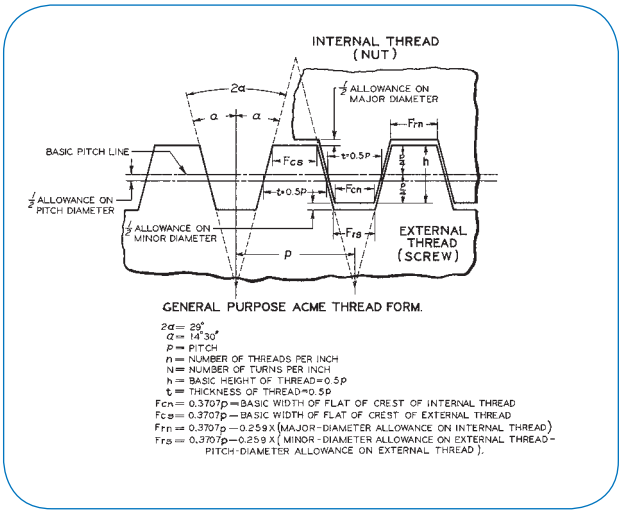
[1]Values tabulated in column 7 are for the general purpose nut only. The basic width of flat at the root screw. Frs is equal to value for Frn in column 7 minus .0259 times the pitch diameter allowance.

[a]For allowance see table XII. 4, column 3 in Screw Thread Standards For Federal Services, Handbook H-28 (1957) Part III.

General Purpose

With clearance on all diameters for free movement, general purpose Acmes are used for a wide variety of parts including all types of vise and jack screws where holding major diameter is not a critical consideration.

Three classes of thread fit tolerances are available: 2G, 3G and 4G. Basic Acme dimensions are given in accompanying tables.

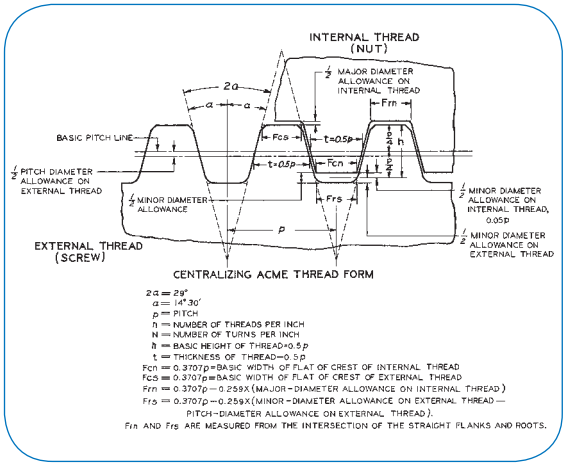


GENERAL PURPOSE ACME THREAD FORM.

$2\alpha = 29°$
$\alpha = 14°30'$
p = PITCH
n = NUMBER OF THREADS PER INCH
N = NUMBER OF TURNS PER INCH
h = BASIC HEIGHT OF THREAD = 0.5p
t = THICKNESS OF THREAD = 0.5p
$Fcn = 0.3707p$ = BASIC WIDTH OF FLAT OF CREST OF INTERNAL THREAD
$Fcs = 0.3707p$ = BASIC WIDTH OF FLAT OF CREST OF EXTERNAL THREAD
$Frn = 0.3707p - 0.259X$ (MAJOR-DIAMETER ALLOWANCE ON INTERNAL THREAD)
$Frs = 0.3707p - 0.259X$ (MINOR-DIAMETER ALLOWANCE ON EXTERNAL THREAD - PITCH-DIAMETER ALLOWANCE ON EXTERNAL THREAD).

GENERAL PURPOSE AND CENTRALIZING ACME TOLERANCES

Identification		Basic diameters: General purpose and centralizing classes 2,3, and 4			Centralizing, classes 5 and 6			Thread data			
Nominal sizes (all classes)	Threads Per Inch.	Major diameter,	Pitch diameter,	Minor diameter,	Major diameter,	Pitch diameter,	Minor diameter,	Pitch P	Thread thickness at pitch line, t	Basic depth of thread h=0.5p	Basic width of flat, F=0.3707p
1	2	3	4	5	6	7	8	9	10	11	12
Inch		Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
1/4	16	0.2500	0.2188	0.1875	--	--	--	0.06250	0.03152	0.03125	0.0232
5/16	14	.3125	.2768	.2411	--	--	--	.07143	.03571	.03571	.0265
3/8	12	.3750	.3333	.2917	--	--	--	.08333	.04167	.04167	.0309
7/16	12	.4375	.3958	.3542	--	--	--	.08333	.04167	.04167	.0309
1/2	10	.5000	.4500	.4000	.4823	.4323	.3823	.10000	.05000	.05000	.0371
5/8	8	.6250	.5265	.5000	.6052	.5427	.4802	.12500	.06250	.06250	.0463
3/4	6	.7500	.6667	.5833	.7284	.6451	.5617	.16667	.08333	.08333	.0618
7/8	6	.8750	.7917	.7083	.8516	.7683	.6849	.16667	.08333	.08333	.0618
1	5	1.0000	.9000	.8000	.9750	.8750	.7750	.20000	.10000	.10000	.0741
1-1/8	5	1.1250	1.0250	.9250	1.0985	.9985	.8985	.20000	.10000	.10000	.0741
1-1/4	5	1.2500	1.1500	1.0500	1.2220	1.2220	1.1200	.20000	.10000	.10000	.0741
1-3/8	4	1.3750	1.2500	1.1250	1.3457	1.2207	1.0957	.25000	.12500	.12500	.0927
1-1/2	4	1.5000	1.3750	1.2500	1.4694	1.3444	1.2194	.25000	.12500	.12500	.0927
1-3/4	4	1.7500	1.6250	1.5000	1.7169	1.5919	1.4669	.25000	.12500	.12500	.0927
2	4	2.0000	1.8750	1.7500	1.9646	1.8396	1.7146	.25000	.12500	.12500	.0927
2-1/4	3	2.2500	2.0833	1.9167	2.2125	2.0458	1.8792	.33333	.16667	.16667	.1236
2-1/2	3	2.5000	2.3333	2.1667	2.4605	2.2938	2.1272	.3333	.16667	.16667	.1236
2-3/4	3	2.7500	2.5833	2.4167	2.7085	2.5418	2.3752	.33333	.16667	.16667	.1236
3	2	3.0000	2.7500	2.5000	2.9567	2.7067	2.4567	.50000	.25000	.25000	.1853
4	2	4.0000	3.7500	3.5000	3.9500	3.7000	3.4500	.50000	.25000	.25000	.1853
5	2	5.000	4.7500	4.5000	4.9441	4.6941	4.4441	.50000	.25000	.25000	.1853



Centralizing

Centralizing Acmes have limited clearance at the major diameter of screw and nut and are used extensively for feed screws. The limited clearance enables a bearing at the major diameter to maintain alignment of the thread axis preventing wedging on the flanks and part sagging.

Five classes are used: 2C, 3C, 4C, 5C, and 6C. Classes 5C and 6C are designed to allow limited backlash, though some backlash will be experienced with any of these classes.

Differences between General Purpose and Centralizing threads are found by referring to the limiting dimensions and tolerances. For example, while a 1/2" diameter, 10 pitch Class 3 General Purpose thread has a .5000" maximum major diameter and .4950" minimum for a tolerance of .0050" - the similar Centralizing Acme has a .5000" major O.D. and a minimum major of .4989" for a major diameter tolerance of just .0011". Tolerances for the pitch and minor diameters are the same for both General Purpose and Centralizing Acmes of the same diameter and pitch.

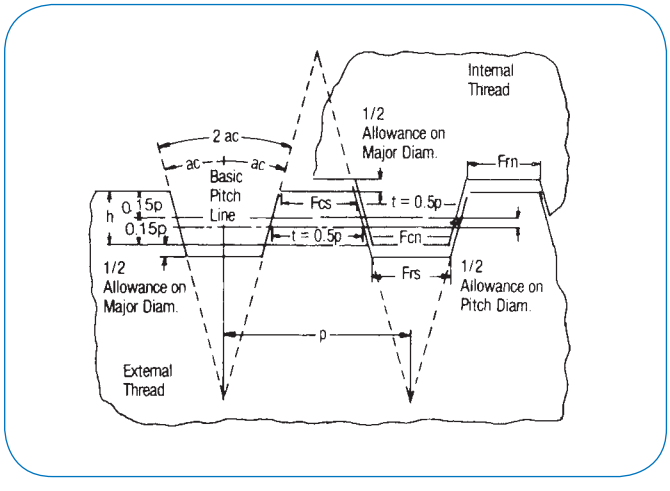
Designating General Purpose and Centralizing Acmes

The correct manner to describe these threads is:

(A) 1-1/2 - 4NA - 2G describes a 1-1/2" major diameter (1-1/2), 0.25 or 4 pitch (4), Acme thread (NA), Class 2 General Purpose type (2G).

(B) 2-1/2 - 3NA - 3C - LH describes a 2-1/2" major diameter (2-1/2), 3 or 0.3333 pitch (3), Acme thread (NA), Class 3 Centralizing type (3C), left hand (LH).

(C) 2 - 0.25 - 0.5L - 2NA - 3G. This describes a 2" major diameter (2), 1/4 or 0.25 pitch (4), 0.50 or 1/2 lead (0.5L), double Acme thread (2NA), Class 3 General Purpose type (3G).



"Stub" Acme

Originally derived from the General Purpose form, the Stub Acme is generally used for applications where a coarse pitch thread of shallow depth must be used due to mechanical or metallurgical considerations.

What would a typical Stub Acme be used for? A s tandard 1-1/2 - 5P Acme is planned for a part, but the amount of metal removal would reduce the minor diameter to the point where the torque would twist the part. The solution: use a 1-1/2", 5 pitch two start, or 1-1/2", 5 pitch Stub Acme.

Thread height for Standard Stub Acmes is equal to 0.3 times the pitch, while the height of a Standard Acme is 1/2 of the pitch. Otherwise, the forms are identical.

Here is how to correctly describe a Stub Acme: 1/2" - 10 Stub Acme - 2G corresponds to 1/2" nominal size, 10 pitch Stub Acme, Class 2G. (Class 2G is the same as for the General Purpose Acme.

Modified Stub Acme Threads

Recognizing that the Standard Stub Acme does not always provide an accepted thread for all applications, basic data for two other commonly used forms have been tabulated. These are designated Modified Forms 1 and 2. Always use the Standard Stub Acme form in preference to the Modified forms where it is practical.

Where a fit with less backlash is needed, the tolerances and allowances for General Purpose threads can be used to determine limiting dimensions for mating threads. For special designs, allowances and tolerances can be taken directly from the Standard Stub Acme threads.

Therefore, the major diameter and basic thread thickness at the pitch line for both external and internal threads will be the same as those for Standard Stub Acmes.

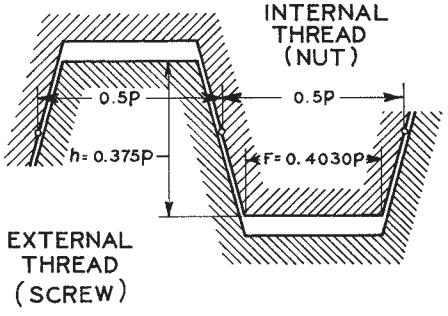
STANDARD STUB ACME THREAD FORM, BASIC DIMENSIONS

Threads Per Inch	Pitch, P	Height of thread (basic), h=0.3p	Total height Thread hs=ht (basic), t=p/2	Thread thickness (basic), t=p/2	Crest of internal thread (basic), F=0.4224p	Root of internal thread Frn=0.4224p-0.259 x allowance
1	2	3	4	5	6	7
16	.06250	0.01875	0.0238	0.03125	0.0264	0.0238
14	0.07143	0.02143	0.0264	0.3571	0.0302	0.0276
12	0.08333	0.02500	0.0300	0.04167	0.0352	0.0326
10	0.10000	0.03000	0.0400	0.05000	0.0422	0.0370
9	0.11111	0.03333	0.0433	0.05556	0.0469	0.0417
8	0.12500	0.03750	0.0475	0.06250	0.0528	0.0476
7	0.14286	0.04285	0.0529	0.07143	0.0603	0.0551
6	0.16667	0.05000	0.0600	0.08333	0.0704	0.0652
5	0.20000	0.06000	0.0700	0.10000	0.0845	0.0793
4	0.25000	0.07500	0.0850	0.12500	0.1056	0.1004
3-1/2	0.28571	0.08571	0.0957	0.14286	0.1207	0.1155
3	0.33333	0.10000	0.1100	0.16667	0.1408	0.1356
2-1/2	0.40000	0.12000	0.1300	0.20000	0.1690	0.1638
2	0.50000	0.15000	0.1600	0.25000	0.2112	0.2060
1-1/2	0.66667	0.20000	0.2100	0.33333	0.2816	0.2764
1-1/3	0.75000	0.22500	0.2350	0.37500	0.3168	0.3116
1	1.00000	0.300000	0.3100	0.50000	0.4224	0.4172

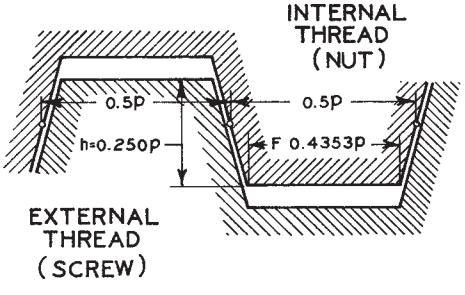
M1 AND M2 STUB ACME THREAD FORMS, BASIC DIMENSIONS

Threads Per Inch, n	Pitch, P	Height of thread (basic), h=0.375p	Total height of thread hs=h=1/2 allowancea	Thread thickness (basic), t=p/2	Width of flat at crest of internal thread (basic), Fcn=0.4030p	Threads per inch, n	Pitch P	Height of thread (basic), h=0.250p	Total height of thread hs=h+1/2 allowancea	Thread thickness (basic), t=p/2	Width of flat at crest of internal thread (basic), Fcn=0.4353p
Inch		Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch	Inch
16	0.06250	0.02344	0.0284	0.03125	0.0252	16	0.06250	0.01563	0.0206	0.03125	0.0272
14	0.07143	0.02679	0.0318	0.03572	0.0288	14	0.07143	0.01786	0.0229	0.03571	0.0311
12	0.08333	0.03125	0.0363	0.04167	0.0336	12	0.08333	0.02083	0.0258	0.04167	0.0363
10	0.10000	0.03750	0.0475	0.05000	0.0403	10	0.10000	0.02500	0.0350	0.5000	0.0435
9	0.11111	0.04167	0.0517	0.05556	0.0448	9	0.11111	0.02778	0.0378	0.05556	0.0484
8	0.12500	0.04688	0.0569	0.06250	0.0504	8	0.12500	0.03125	0.0413	0.06250	0.0544
7	0.14286	0.05357	0.0636	0.07143	0.0576	7	0.14286	0.03571	0.0457	0.07143	0.0622
6	0.16667	0.06250	0.0725	0.08333	0.0672	6	0.16667	0.04167	0.0517	0.8333	0.0726
5	0.20000	0.07500	0.0850	0.10000	0.0806	5	0.20000	0.05000	0.0600	0.10000	0.0871
4	0.025000	0.09375	0.1038	0.12500	0.1008	4	0.25000	0.06250	0.0725	0.12500	0.1088
3-1/2	0.28571	0.10714	0.1171	0.14286	0.1151	3-1/2	0.28571	0.7143	0.0814	0.14286	0.1244
3	0.33333	0.12500	0.1350	0.16667	0.1343	3	0.33333	0.08333	0.0933	0.16667	0.1451
2-1/2	0.40000	0.15000	0.1600	0.20000	0.1612	2-1/2	0.40000	0.10000	0.1100	0.20000	0.1741
2	0.50000	0.18750	0.1975	0.25000	0.2015	2	0.50000	0.12500	0.1350	0.25000	0.2177
1-1/2	0.66667	0.25000	0.2600	0.33333	0.2687	1-1/2	0.66667	0.16667	0.1767	0.33333	0.2902
1-1/3	0.75000	0.28125	0.2913	0.37500	0.3023	1-1/3	0.75000	0.18750	0.1975	0.37500	0.3265
1	1.00000	0.37500	0.3850	0.50000	0.4030	1	1.00000	0.25000	0.2600	0.50000	0.4353

*Allowance is shown in table XIII. 3, column 4 in Screw-Thread Standards for Federal Services, Handbook H-28, part III.



Modified Form 1 Stub Acme thread with basic height of 0.375 pitch.



Modified Form 2 Stub Acme thread with basic height of 0.25 pitch.

Pitch and minor diameters will vary from the data shown in Table IV for the following:

For Modified Form 1, (M1) - the pitch and minor diameters will be smaller than similar values for the standard form.

For Modified Form 2, (M2) - the pitch and minor diameters will be larger than the values for the standard form.

Modified Stub Acmes are designated as follows:

1/2" -20 Stub Acme M1 indicates a Modified Form 1 right hand thread.

Changing M1 to M2 changes the designation to a Modified Form 2 thread.

Adding LH after M1 or M2 (e.g. 1/2 - 20 Stub Acme - M1 - LH) changes the designation from a right to a left hand thread.

Special Diameter/Pitches

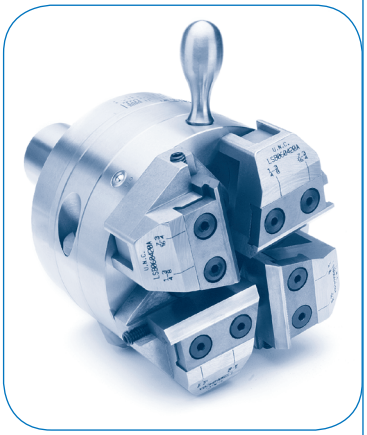
While standard series for Acme threads have been established, information on a wide range of special diameter and pitch combinations (with corresponding tolerances for special applications) is available from Landis Threading Systems.

Standard Acmes can be produced with a die head on diameters ranging from 1/2 to 4".

Acmes larger than 4" can also be threaded if finer pitches are involved.

Hollow Milling

An Efficient, Easy, and Economical Method to use a Landis Die Head to Turn, Groove, Form, Point, and Face



HOLLOW milling cutters are similar to chasers, except they have a cutting instead of a threading profile, and can be supplied for use with virtually any type of revolving or stationary head.

Benefits

1. They have the same mounting configuration and come in the same physical size as chasers.
2. Feed rates approximately equal to a single point tool, "multiplied by the number of hollow milling tools" can be realized. The number of cutters in a set will vary from four to eight depending upon style and model of the head. When using a LANDIS machine with leadscrew for hollow milling, 32 pitch gearing is generally used.
3. Allows one spindle to hollow mill to a given diameter, the second spindle to thread it.
4. Offers the same tool efficiency and economy as a LANDIS chaser. Cutters are usable for 80% of their original length and only the rake angle requires regrinding.
5. Tools can be uniformly advanced or retracted relative to the workpiece centerline to determine the cutting clearance that gives best machining results.

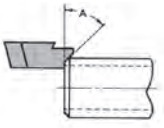
Profile Possibilities

Some of the types of operations that are possible include:

Full points can be produced on bar or partial points on sheared stock.

Turn and chamfer with a step cutter. Turn forgings to correct size for threading or turn bar stock or forgings to finish size.

Form radiuses or other special configuration.



Combination cutters to face and chamfer tubular stock in preparation for welding.

Double diameter turn with double diameter cutters or using two sets of cutters mounted in "piggy back" holders.

Cutter Profiles

The examples illustrated show some of the types of cutters available. Variations of these or cutters for special configurations can be supplied. To determine whether an application can be performed, submit complete details with a workprint or detailed sketch.

Operations Performed

Type 1

Turn to shoulder angle. When used to chamfer only, regular chaser holders can be used.

Type 2

Turn to square shoulder. When a radius is not permitted.

Type 3

A standard outline tool that is the most efficient cutter for turning. Used at a feed rate equal to 32TPI, the radiused Type 3 tool permits faster speed and better finish.

Type 4

Chamfer and face end of pipe to be welded.

Type 5

Special configuration cutter used for many types of turning and chamfering. Can be used to form and turn, turn and chamfer.

Type 6

Special configuration cutter used to form workpieces not possible to do with other types.

Type 7

A wedge type cutter used in receding chaser pipe machine head to taper turn oil tubular pipe.

Type 8A

Type 8B

Type 8C

Type 8D

Types 8A, 8B, 8C & 8D are supplied to cut four types of victaulic grooves in pipe. Used in stationary pipe die heads, the head is closed with the operating handle to effect cutting. Stop blocks applied to two cutters locate the tools to cut the groove at the required location.

Type 9

Type 9 Used to form grooves on hose couplings. Can be used with stationary pipe heads where the head is closed on diameter, or with an R type LANCO closed down by a hydraulically powered yoke assembly.

Types 2, 4, and 5 may require chaser holders having a helix angle of at least 5° for best results.

Application Requirements

Since hollow milling cutters do not generate self-lead, they generally require using positive feed, i.e. leadscrew, hydraulic, or cam.

When the head is used to mill on an automatic screw machine, the normal thread cam must be replaced with camming which will feed it for the full length of cut required.

Hollow Milling

An Efficient, Easy, and Economical Method to use a Landis Die Head to Turn, Groove, Form, Point, and Face

RECOMMMENDED RAKE ANGLES

MATERIAL	RAKE ANGLE
IRON & STEEL ALLOYS	
CAST IRON	15° POSITIVE
WROUGHT IRON	18° POSITIVE
MALLEABLE IRON	18° POSITIVE
LOW CARBON STEELS - free machining (B1112, C1117, etc.)	22° POSITIVE
LOW CARBON STEELS -- nonfree machining (C1010, C1018, etc.)	22° POSITIVE
ALLOY STEELS (SAE 2000 to 6000 series etc.) 160/200 Brinell	25° POSITIVE
ALLOY STEELS (SAE 2000 TO 6000 SERIES ETC.) 200/300 Brinell	18° to 22° POSITIVE
STAINLESS STEEL	25° POSITIVE
ALUMINUM & ALUMINUM ALLOYS	
ALUMINUM SHAPES, BARS AND CASTINGS	10° POSITIVE
ALLOY CASTINGS	10° POSITIVE
ALLOY BARS AND SHAPES	25° POSITIVE
COPPER & COPPER ALLOY	
GENERAL COPPER	28° POSITIVE
CAST BRASS	5° NEG. to 0°
CAST BRONZE	5° NEG to 0°
FORGED OR ROLLED BRASS (except free cutting)	22° POSITIVE
FREE CUTTING BRASS (bars and forgings)	10° POSITIVE
FORGED OR ROLLED BRONZE	10° POSITIVE
SPECIAL ALLOYS	
MANGANESE BRONZE	0° TO 10° POSITIVE
SILICON BRONZE (Everdur)	22° POSITIVE
ALUMINUM BRONZE (Ampco Metal)	18° to 22° POSITIVE
NAVAL BRONZE	0° to 10° POSITIVE
NON METALLIC MATERIALS	
PLASTICS & FIBER	0°
BAKELITE	0°
LUCITE	35° NEGATIVE

Suggested Means For Grinding Landis™ Hollow Milling Cutters

To obtain maximum tool life and optimum product surface finish, the proper techniques must be used when grinding hollow milling cutters.

The suggested grinding means given here pertain to the more popular cutter profiles. However, they can be adapted for other cutter styles.

THE ANGLES INVOLVED

Two angles are involved when regrinding cutters, the helix or lead angle ("H") and the rake or cutting angle ("R").

Angle "H" is ground to agree with the helix angle of the chaser holder in which the cutter is to be used. For example if the helix angle of the holders is 5°, the cutter is ground 85° from the front face.

For most hollow milling operations, chaser holders having a helix angle of 5° are recommended. However, satisfactory results have been obtained in some instances with holders having a helix angle as low as 2°. Using and obtaining satisfactory results with holders of other than 5° will depend upon the material to be worked and the profile to be turned.

As with Landis Tangential Chasers, the degree of angle produced on the rake or cutting angle "R" will depend upon the material to be turned. The chart on page 74 lists recommended rake angles for most materials.

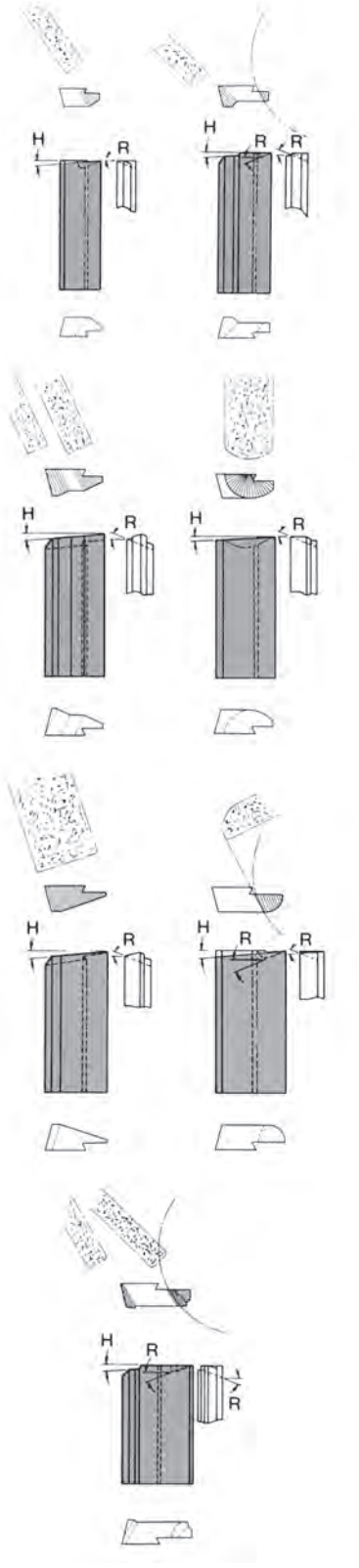
The suggested lead and rake angles given are not all inclusive. Depending upon various considerations such as turning speed, material, the condition of the equipment being used, etc., the best overall results may be obtained by deviating slightly from the recommended angles. This, of course, must be established by trial and error.

Grinding Instructions

After the correct degree of angle has been determined, grind "H" with 0 rake.* Generally, this angle should always be ground prior to producing "R". Then, grind "R" up to the cutting edge.

*Note: It is not always necessary to grind angle "H" prior to "R". As shown by the illustrations of popular profiles, it is possible, on certain profiles, to grind "H" and "R" simultaneously.

When grinding hollow milling cutters, the objective to remember is to produce a cutting edge that will coincide with the rotational centerline of the workpiece at the point of chaser tangency. Therefore, angle "H" should be ground as near perfect as possible to the required angle. Also, "R" should be ground only until it "trues out" at its intersection with "H". Undergrinding "R" will result in a poor cutting edge, overgrinding can destroy the relationship of angle "H" to the rotational centerline of the workpiece.



Form 1

"Quik-Quote" Fax Form

Landis Solutions LLC
360 South Church Street
Waynesboro, PA 17268-2610
Toll Free:
USA: +1.800.358.3500
Fax: +1.888.718.2922
Canada: +1.888.828.6340
e-mail: info@Landis-Solutions.com

THREAD CUTTING TANGENTIAL DIE HEAD MILLING CUTTERS

Customer Quotation/Order Data Sheet

When Requesting A Quotation Or Placing An Order, Please Complete And Return This Sheet With All Applicable Information.

Date: _____/_____/_____ Customer Contact Name:_____

Customer Name:_____

Customer Address:_____

City: _____ State: _____ Zip: _____

Customer Contact Phone Number: 1-_____-_____-_____ Ext.: _____

Customer Contact Fax Number: 1-_____-_____-_____

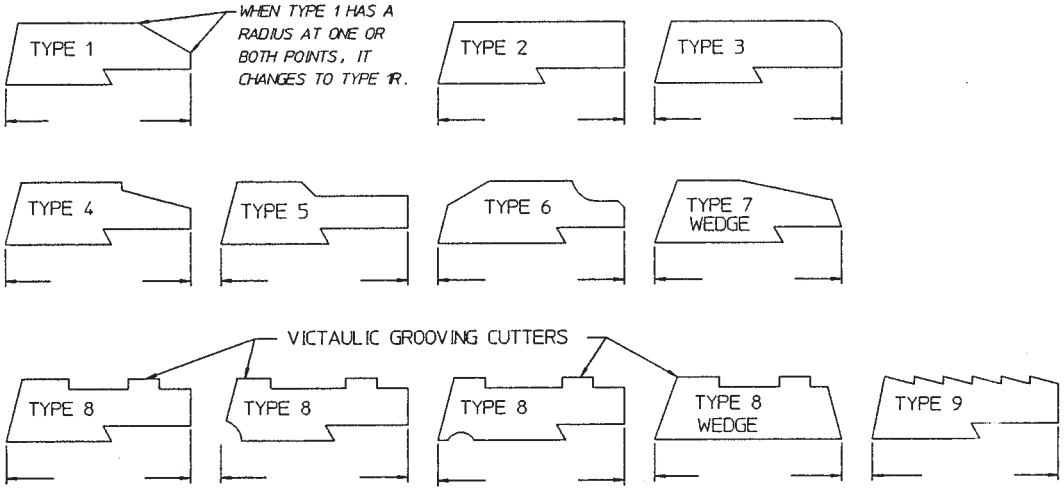
Purchase Order Number _____

Cutter Number (L92 or LNS92 No.), If Available: _____

Cutter Type: _____ Cutter Size, If Known: _____

Workpiece Print No.: _____

NOTE: Print/Sketch Must Be Attached. Submit Sample If Practical.



THREAD CUTTING HEAD INFORMATION

Head Type: _____ Head Size: _____ Head Serial Number: _____

Chaser Holder Number: _____ Chaser Holder Range: _____

Chaser Holder Helix Angle: _____

Machine: _____ Feed: Posititve or Manual

If A Landis Machine, What Is The Serial Number: _____

Production Required: _____

Form 1

"Quik-Quote" Fax Form

Landis Solutions LLC
360 South Church Street
Waynesboro, PA 17268-2610
Toll Free:
USA: +1.800.358.3500
Fax: +1.888.718.2922
Canada: +1.888.828.6340
e-mail: info@Landis-Solutions.com

THREAD CUTTING TANGENTIAL DIE HEAD MILLING CUTTERS

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When Requesting A Quotation Or Placing An Order, Please Complete And Return This Sheet With All Applicable Information.

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City: _____ State: _____ Zip: _____

Customer Contact Phone Number: 1-_____-_____-_____ Ext.: _____

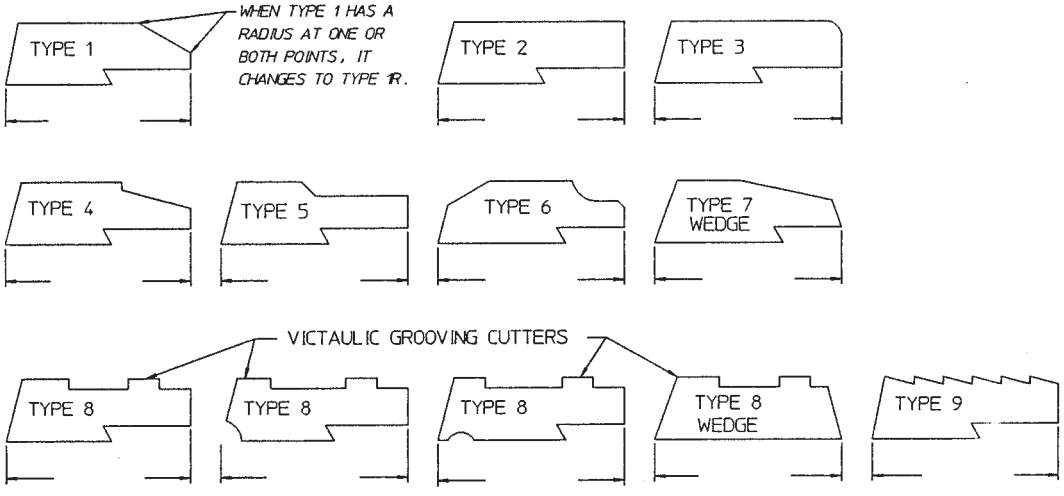
Customer Contact Fax Number: 1-_____-_____-_____

Purchase Order Number _____

Cutter Number (L92 or LNS92 No.), If Available: _____

Cutter Type: _____ Cutter Size, If Known: _____

Workpiece Print No.: _____



NOTE: Print/Sketch Must Be Attached. Submit Sample If Practical.

THREAD CUTTING HEAD INFORMATION

Head Type: _____ Head Size: _____ Head Serial Number: _____

Chaser Holder Number: _____ Chaser Holder Range: _____

Chaser Holder Helix Angle: _____

Machine: _____ Feed: Posititve or Manual

If A Landis Machine, What Is The Serial Number: _____

Production Required: _____

Die Head / Tangential Chaser Management

BEST thread finish and tool life depends upon proper management of the chasers, die head, and the machine upon which the tool is mounted.

This information gives corrective measures for the more common troubles which affect finish and tool life.

Operating problems are defined and corrective measures given strictly on the basis of what can be done to improve threading results. It does not deal with considerations outside those parameters. For example, a given material may be acceptable in all respects except thread finish. In such instances, it will be up to the user to decide whether to accept the finish, or to change to a more expensive, better threading material.

A particular problem can be the source of more than one trouble. Therefore, such problems may, for the sake of quick reference, be covered in more than one section.

Complete and detailed information on how to grind and use chasers, care and operation of die heads can be found in the 17th and earlier editions of the Landis Threading and Forming / Thread Data Handbook. This publication also includes useful information on collapsible taps, thread rolling and eighty-four pages of helix angle and thread data charts on all the major thread forms.

Maximizing Chaser And Threading Performance

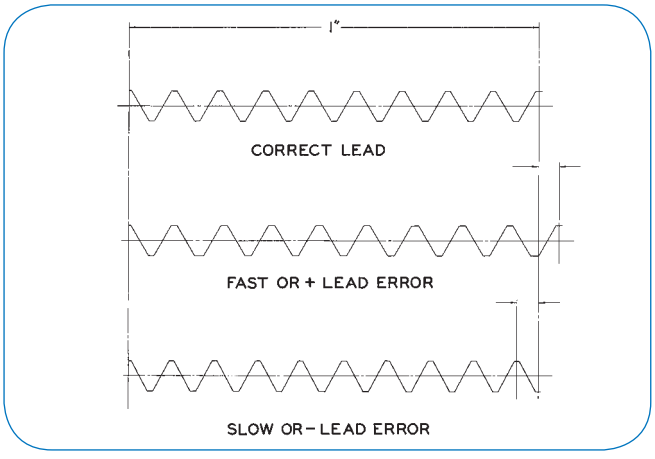
To maximize tool life and threading performance, some trial and error adjustments must be made as the threading operation progresses. However, preparations for good results should begin before the spindle makes a revolution.

Where it is possible to do so, select materials that will give good threading results.

Metallurgical quality should be consistent with that established for a given material.

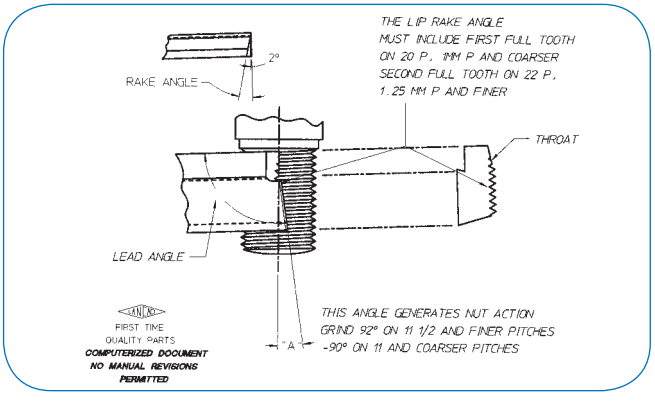
The best possible coolant, correct speed, and other constants should be chosen so that those factors are eliminated as possible trouble sources.

Lead Error



Of a progressive nature, lead error is measured in terms of plus or minus per pitch, accumulated over a given thread length. Because of a number of contributing factors, it can be difficult to trace and correct.

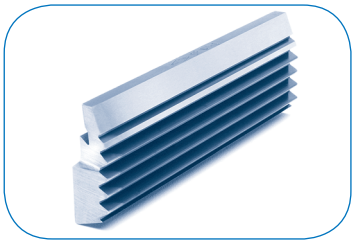
Aside from possible sources of trouble, lead should first be looked at in terms of tolerance demanded and the type of threading means required to produce it.



If tolerances are to be held to .002" per inch or better, a machine with leadscrew or other type of positive feed means will be required. With equipment in good condition, lead error can be held to .0005" per inch with precision positive feed.

While possible to use for coarse pitch, lesser tolerance threads, hydraulic, air, or spring feeds are not recommended for close tolerance work.

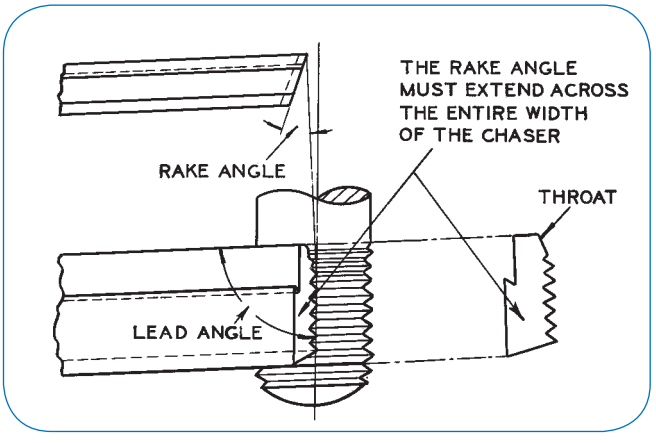
Lead Variation Corrective Measures



Regular chaser holder sets are furnished to produce a range of threads of a given series - UNC, UNF, etc. Each holder set has a mean helix angle which allows it to produce all the standard diameter and pitch combinations within that range - within tolerances for that series.

Special chaser holders having an exact helix angle for a specific diameter and pitch combination are available. Where lead tolerance is very close and cannot be realized with regular holders, special holders should be employed.

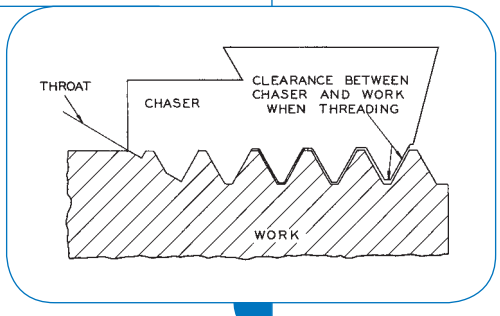
For non-leadscrew threading with a Landmatic pull-off type head, or when using a Landex yoke operated type head, chasers require a "lip rake" grind. With this grind the rear threads extend over center to produce a nut-action with the finished thread. This nut engagement is used to pull Landmatic type die heads open.



Die Head / Tangential Chaser Management

For leadscrew threading with LANCO yoke operated heads, chasers are ground with a straight rake and lead combination grind. The object of this grind is to place the cutting edge exactly on the work centerline so no nut-action is generated that would tend to override the leadscrew feed. This same general type of grind is used to "jam-cut" taper pipe threads like NPT.

With either a lip-rake or straight rake grind, an incorrect grind angle or deviations from the chaser setting position will tend to produce lead error.

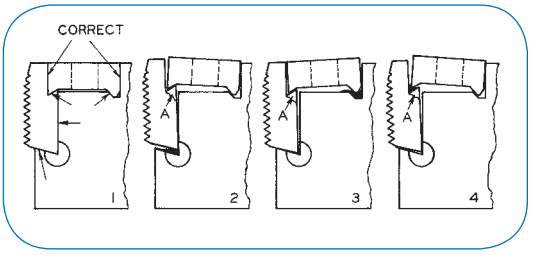


For straight threading, chasers are given back clearance to assure that they cut only with the throat and first or second full thread. The first full thread is included on 20 pitch, 1 mm pitch and coarser, the second full thread on 22 pitch, 1.25 mm pitch and finer. The remaining threads extend over center and provide nut-action without interfering with the lead being produced.

Any condition that reduces the back clearance between the chaser and finished thread will increase lead. Conversely, an increase in clearance will decrease lead.

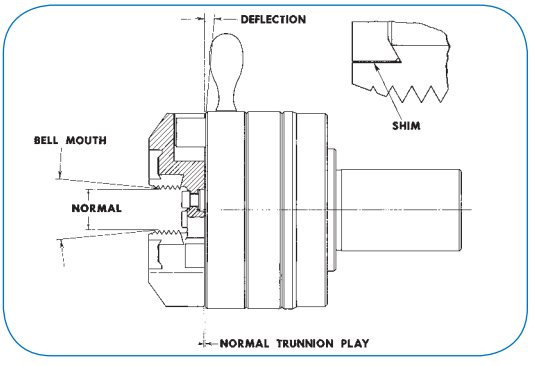
Conditions That Affect Clearance and Lead

A. Improper Chaser Setting



Damaged seating surfaces or dirt can cause improper chaser positioning. Seating surfaces should be cleaned and checked before chasers are installed. Chasers should be cleaned and holder seating surfaces free of dirt. Damaged holder seating surfaces should be honed.

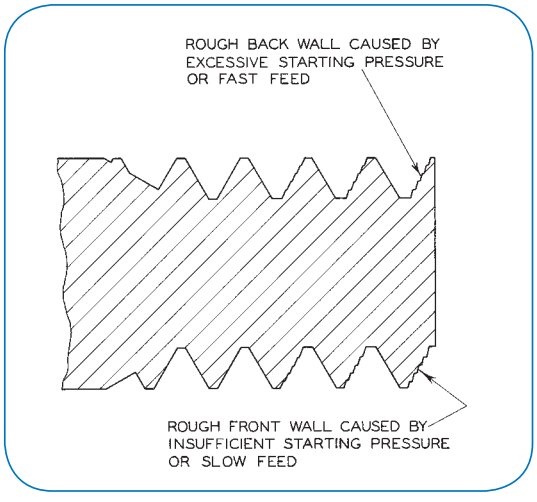
B. Threading Heat Treated Material



Harder materials create increased cutting pressures that force holders to bell-mouth outward which effectively reduces clearance. Several alternatives are possible. Use chasers with longer throats for reduced chip size which spreads the cut over a longer length. Also, make sure the trunnion clearance

is correct for the die head being used. Excessive trunnion play allows an even greater degree of bell-mouth, especially when using wider chasers. If this condition is suspected, place shim stock (starting with .003") between the chasers and each clamp as shown by the illustration. If this helps or corrects the problem, the condition is present. Vary the amount of shim until the best results are obtained. It is possible to have future chasers made with extra clearance to offset the degree of bell-mouth.

C. Dull Chasers / Incorrect Starting Pressure



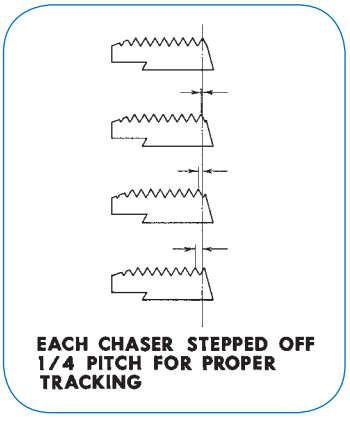
Maintain a sharp cutting edge. Dull chasers increase the resulting pressure which causes bell-mouthing thus reducing clearance.
Incorrect starting pressure, especially when the work is being manually fed, can affect lead. Generally of a temporary nature, this problem will disappear as the operator gains experience.

Side Shaved Threads

Improper starting pressure, or any condition which affects proper tracking of the chasers will cause side shaving. Side shaved threads can give an appearance of taper.

Normally found on beginning threads, eventual full engagement of the chasers will correct the condition.

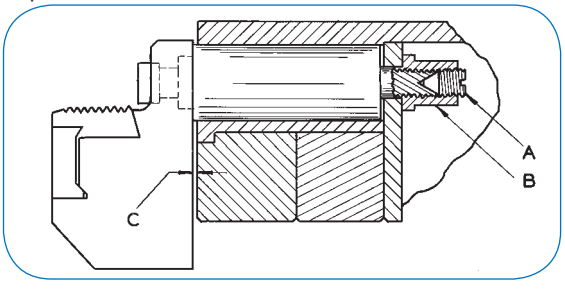
This condition can be confirmed visually. Side shaved threads have a wider root than normal. When hand feeding, new operators need to learn to apply correct starting pressure. When mechanical feed is being employed, the condition causing the problem must be identified and corrected.



Chasers are stepped off for proper tracking. With four chaser heads, the tools are mounted 90° apart, which results in each chaser being stepped off 1/4 lead from other chasers in the set. On a six chaser head, the step is 1/6 lead. The step-off allows the chasers to follow each other in the cut. Any condition that interferes with tracking will produce side shaving for the full length of the thread.

Conditions that affect tracking

A. Improper Trunnion Clearance



Die Head / Tangential Chaser Management

A prescribed amount of trunnion clearance or "play" must be maintained between the chaser holders and the face of "Heat Treated" style die heads. Trunnion play serves two purposes. First, it allows head components to move without binding during opening and closing. Secondly, it allows chasers to properly track each other in the cut. Uniform and correct play must be used for all holders or the chasers will not properly track. As shown by the chart, the prescribed amount of clearance varies with size and style of head.

B. Dirt or Chips

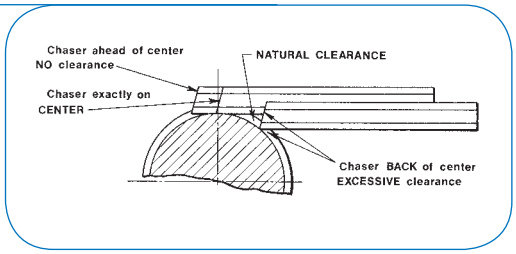
Chips and dirt packed between the holders and die head face will eliminate or reduce play and affect tracking. Holders should be periodically removed and cleaned.

C. Worn Equipment

Heads with excessive wear should be rebuilt or replaced.

The die head and machine and the die head and workpiece must be in acceptable angular and concentric alignment.

Rough Threads



A common cause of rough threads is improper chaser setting. Chasers work best usually when set slightly back of center where they have natural cutting clearance.

Minor deviations from initial gage setting position are made to accommodate the particular machineability of a specific material. This becomes a matter of trial and error.

However, if chasers are set too far forward, the thread tops will be torn, the chasers will over-heat, and prematurely wear. If set too far back, threads will be chattered and out-of-round. The latter condition can be detected by rotating the thread between thumb and forefinger.

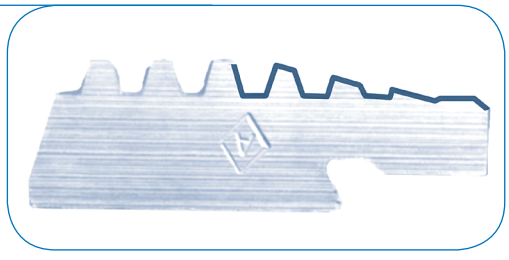
Chips welding to the tool cutting edge can be the cause. Welding occurs when threading gummy materials that do not cut well, or in response to any condition causing excessive heat.

When threading gummy materials, try using a high rake for better shearing action. Start with the recommended angle and increase by degrees until best results are obtained. Finish will never be as good as when threading a harder material that gives better shearing action. The corrective measure used, therefore, improves but doesn't completely cure the condition.

Use the best grade of cutting oil liberally flooding the cutting area. See the section on "Coolant" for more information on this subject.

Grind the cutting end grinds as smooth as possible. A rough finish will not cut as free as a smooth one. Any condition which interferes with cutting efficiency builds heat and heat hinders results.

Use the longest throat possible to spread the chip over the longest length possible. On tougher materials or coarser threads such as Acme, Modified Square, use Roughing and Finishing Form, or Roughing Form Throat chasers. With these, the thread profile of the throat, or the throat and first or second full thread are reduced in thickness. Each modified tooth progressively removes a few thousandths until a full tooth finishes the thread. See the publication on LANDIS Tangential Chasers for more detailed information on these special features.



Make sure that the chasers are mounted in proper rotation and that all have the same throat angle.

Use the proper speed for the material, diameter and pitch to be threaded.

An improper rake or lip-rake of too little "hook" can be the cause.

The accompanying chart list recommended "starting" rakes. Deviate from the "starting" angle until best results are realized. New "boxed" chasers are ground with a 22° rake suitable for mild steel. If chasers are to be used for other materials, so state on the order and they will factory ground accordingly.

The machineability of some materials is so poor that it will be difficult to obtain good finish regardless of what rake angle or tricks of the trade used.

Lip-rake grinds should be "hooked," as the material may require and on special thread forms like Acme, so the lipped section falls on the centerline, or rough threads can result. To obtain this position, the lip-rake should be hooked back an amount equal to the chaser holder helix angle.

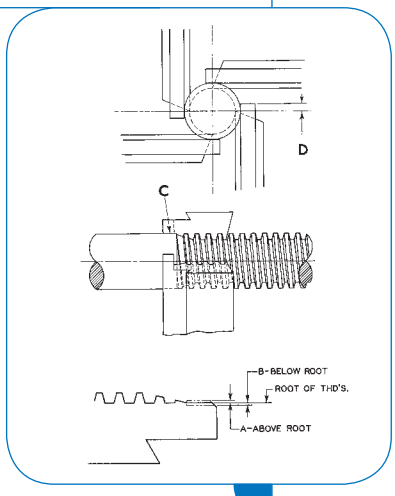
Make certain that the die head, workpiece, and machine are in angular and concentric alignment. Check and indicate to rule out misalignment as a trouble source. The die head should not over extend from the mounting.

Out-Of-Roundness / Chatter

Out-of-roundness is easily detected and can be readily felt by rotating the thread between thumb and forefinger. Chatter is readily visible on the thread. Both conditions have common causes. Chasers set too far back of center can cause either. This is easily corrected, by advancing each chaser equally, in small increments, until the condition disappears.

Verify that the thread and other diameters of the workpiece are concentric.

Die Head / Tangential Chaser Management



The workpiece and die head must be rigid. Lack of workpiece rigidity will tend to be more apparent when coarser pitches and/or long thread lengths are involved. Use of Centering Throat chasers often solves this problem. These chasers employ a pad which precedes the throat to establish a bearing on the workpiece O.D. to steady the part. The O.D. must be held consistently uniform to allow this type chaser to be used.

Never use chipped chasers. Keep the cutting edge sharp. If damaged beyond regrinding, replace.

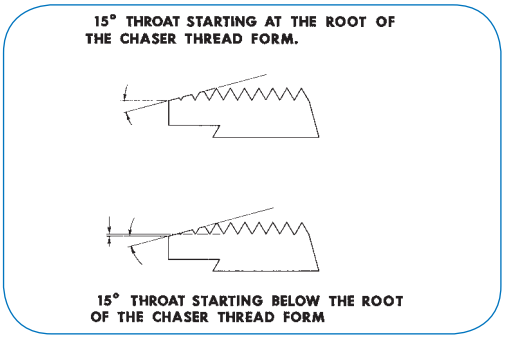
Chasers in the set must all have the same throat angle, for example, and cannot be mixed.

The die head and machine must be in concentric and angular alignment. Indicate the die head and machine components for both conditions to rule out either as a source of trouble.

Use the correct rake or lip rake. Not only must the correct angle be used, but the angle must be uniformly applied to all chasers of the set.

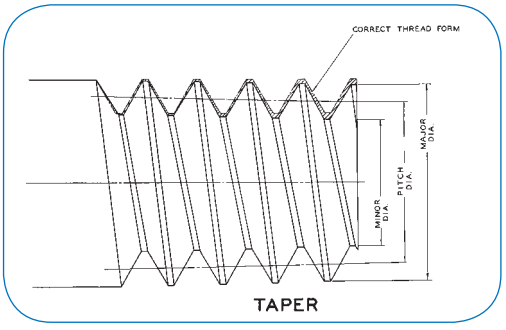
Out-of-roundness occurs on the starting threads of sheared stock. While virtually impossible to completely eliminate the condition, the use of the correct throat can minimize the result.

Use chasers having the throat starting sufficiently below the root of the thread will allow the bell-mouth of the chasers to remove the excess metal.



Tapered Threads

Defined as a progressive increase or decrease of major pitch or root diameters over the thread length. Taper is difficult to trace since it is not readily visible.



Small to Large Taper

Stepped flanks from improper starting on pressure can appear to be taper. When checked over wires, the step allows deeper seating of the wires which is falsely interpreted as taper. The condition usually results from improper hand feed. Checking the thread with a comparator will clarify the condition.

Conditions that cause chaser bell-mouthing will reduce chaser clearance and result in taper. This tends to occur more when a straight rake grind is used.

Clearance placed in a chaser at manufacture is based on the material and its specification.

Harder and gummy materials which are more difficult to shear, and abrasive materials which dull or dub the chasers causing the cutting edge to dig in, result in higher cutting pressures with reduced clearance.

Greater back clearance is, or can be, placed in chasers used for such applications.

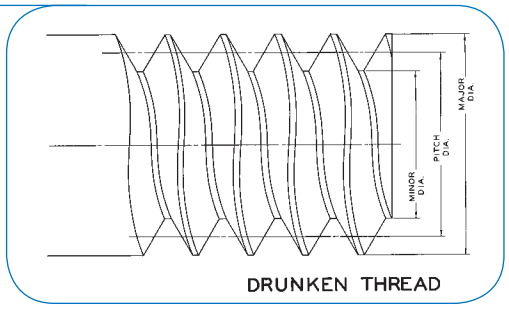
Worn or defective head parts, such as locking and closing pins and their respective bushings, are a common cause of taper. They wear tapered and the taper produced on the part will be at the end of the thread where the head opens.

The prepared blank must be straight. If the blank is not straight, the thread O.D. will be tapered, but the P.D. and root diameters will be straight.

Large to Small Taper

This condition is usually the result of chasers which are set too far back of center. Advance the chasers equally, in small amounts, until the condition is corrected.

Drunken Threads



DRUNKEN THREAD

This is a "wavy" condition of the thread going plus or minus off true helical lead when measured over the circumference of one thread revolution.

One possible cause is misalignment. Check die head and machine for alignment.

Use of a low lead angle with hand feed can result in drunken threads. For UN, Whitworth, BSF and ISO coarse, and straight pipe threads, the angle should be 90° for 11 pitch and coarser, 92° for 12 pitch and finer.

To establish the lead angle where special chaser holders are used, subtract the helix angle from 90°, then add 3°. If the holder has a helix angle of 6°, for example, the lead angle would be 90° - 6° + 3° or 87°. For convenience, helix angles of special holders are stamped in the sliding block slot, or on the holder face.

Chipped chasers, chasers set too far back of center, improper feed and worn head parts can cause a drunken thread condition.

Drunken threads are common when cutting over interrupted cuts or when threading hexagon, square, or other unround forms.

Chipped Chasers

There are numerous causes of chipped chasers.

The chasers striking the shoulder before the die head opens and is retracted. An allowance must be added to the throat length to allow for the head's forward movement, which occurs during opening motion at the end of the thread. The allowance is based on thread pitch. Refer to the charts for the appropriate dimensions.

Do not water quench chasers when grinding. Rapidly cooling a hot chaser creates cracks which cause teeth to chip during use.

Higher rake angles weaken the cutting edge. Using a rake lower than recommended generates high cutting pressures with possible chipping.

Rapidly force-starting the head onto the work.

Work not gripped tight enough, especially when positive feed is being used.

Chip Welding

When good threads are followed by a number of bad threads, followed by more good threads, it is unlikely that a mechanical problem is the cause.

Welding of the cutting edge should be one of the first possibilities investigated.

Chasers will start off cutting satisfactory. As the weld builds in size, thread quality becomes worse. The weld will continue to build until it snaps off, then good threads will return.

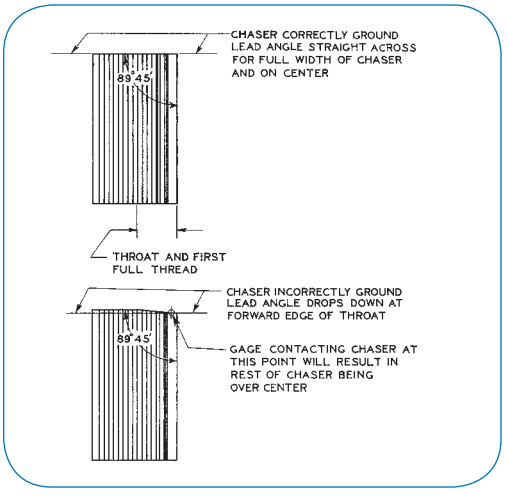
Welding is caused by excessive heat so the reason for the heat must be located and corrected.

Before spending time chasing possible causes, stop and recollect. Has anything changed? Is the material the same, is a different person doing the end grinding, are chasers with different throats being used?

Some steels weld easier than others and a material change might be required to obtain the desired results.

Use the best grade of threading coolant and flood the cutting operation. When cutting Acme and forms requiring heavy metal removal, such as Acme, use the longest throat possible. Use the highest rake possible for best shearing action and grind the cutting end as smooth as possible for cleaner cutting with less friction.

When grinding chasers there is one fault which is easily overlooked. After regrinding, there should be no rounding or drop-off at the throat end when it is checked with a straight edge. The entire cutting edge of the chaser should contact the straight edge regardless of whether the chaser has been ground with a leadscrew or lip-rake grind.



Lead angles will vary and the 89-1/2° angle used in the illustration is intended as an example and the drop-off has been exaggerated to make a point. The intersection of the throat angle with the end of the chaser forms a compound angle that must be accounted for. Thus, the chaser must be ground to assure a straight edge, especially when manipulated by hand to true out the lip-rake to obtain the straight edge condition.

When setting chasers, the setting gage contacts the cutting edge of the throat. If the cutting edge drops off, the forward throat section will be on center, but the remainder of the chaser will be over-center. Cutting clearance will be reduced in proportion to the drop-off, or eliminated. Rub will increase, heat will be higher, and the tendency to weld greater.

Speeds

Excessive rpm's will affect both thread quality and tool life. Reference to a machineability chart will give some indication of what speed can be tried. Generally, materials with a higher rating can be threaded at faster speeds than ones with lower ratings.

Speeds can be adjusted higher or lower, of course, by trial-and-error until the most acceptable combination of tool life and thread finish is obtained.

Coolant

For best all around results, it is important that the least amount of heat possible be generated and that it be dissipated quickly.

Unless application considerations prevent its use, LANDIS recommends the use of a better quality sulphur base oil containing 2 to 3% sulphur and 1/2 to 1% chlorine. Sulphur base oil gives better shearing action, reduces material build-up, and gives best tool life.

Water is excellent as far as heat dissipation is concerned. (A ten parts water to one part soluble is generally the best mixture.) However, it lacks the lubricity required to make it a good cutting fluid and will cause rusting of the internal die head parts.

The purpose of placing back clearance in chasers is to lift the heel of the chaser off the work and to restrict cutting to the throat and first full thread. Use of the wrong or inferior coolant dulls the cutting edge which increases pressure and reduces or eliminates clearance. The chasers will rub across the entire width instead of cutting on the throat and first full thread. Tool life will be diminished.

Proper Tool Setting

Setting the chasers with the setting gage will position the cutting edge on the rotational center line of the work.

Understand that the gage position is a starting point. Experience will show that chasers generally work best when set slightly back of center. The amount will vary according to the machineability of the material that is being threaded.

Each chaser is moved the same amount. Start by moving each chaser "one flat" of the chaser abutting screw at a time. Cut a trial thread. Continue to set the chasers as far back as possible without experiencing chattered and/or out-of-round threads. If either of these conditions occur, move the chasers forward until it disappears. This procedure will result in the clearance that gives freest cutting action and best tool life.

Die Head / Tangential Chaser Management

Throat Angles

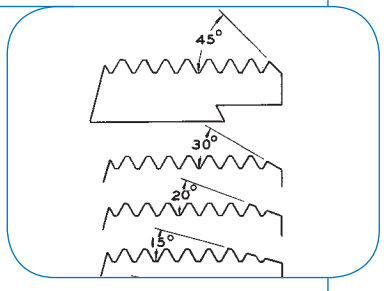
Use the longest possible throat angle.

Chasers used for UN, BSF, Whitworth, and ISO metric are normally supplied with 15°, 20°, 30°, or 45° throats. The latter is sometimes referred to as a "no throat."

A 15° or 20° throat is preferred, while 30° and 45° are to be avoided if possible. They are used where a relief or other restriction prevents using one of the longer throats.

Given a choice, always use a relief width that will allow the use of the longest throat.

The width of relief requirements for UN, Metric, and Acme Threads are given in the charts on pages 92 and 93.



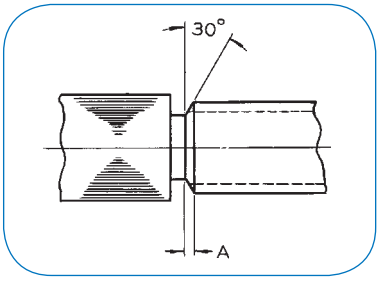
When coarse pitch thread forms are involved, such as Acme, throat angles of 12°, 10°, 9°, or 7° are used.

Throats start "at" or "below" the root of the chaser. When oversize material must be threaded, chasers with throats starting "below root" are used to permit entry of the workpiece and to shave off the excess.

THROAT ANGLE	CHIP THICKNESS	NO. OF THDS. IN THROAT
45°	.0177	0.7
30°	.0125	1.2
20°	.0086	1.9
15°	.0065	2.6

Based on 10 Pitch U.N. Thread Form Chaser

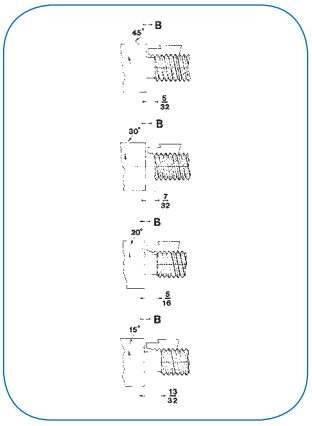
The chart illustrates the distribution of cut for various throats and indicates that the ideal choice is to use the longest throat possible.



With shoulder work, the available width of relief "A" dictates the throat that can be used.

The throat plus the first full thread should enter the relief to completely finish the thread.

The relief dimensions given in the charts represent the throat length plus 1/32" for 32-14P, 3/64" for 13-8P, and 1/16" for 7-4P chasers. These small additions, indicated by "B", are necessary to allow clearance for the forward travel of the die head opening motion to prevent damage from striking the shoulder.

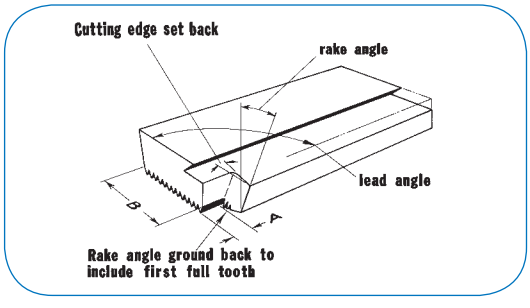


Cutting Short Length, Fine Pitch, Soft Material

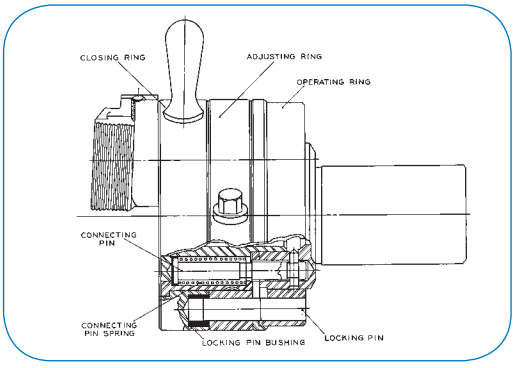
When using a pull-off type head, such as an "F" Landmatic, threads of short length, fine pitch, and/or soft materials, do not result in sufficient engagement to effect opening without thread damage. Threads will be side shaved or stripped.

Several "tricks of the trade" can be used to eliminate these conditions.

On pull-off type heads, interrupting the forward travel of the carriage or slide affects a separation between the front and rear sections of the die head. As the rear section stops, the front section continues forward due to the nut action formed by the chaser with the completed thread. When sufficient separation is reached, the locking pins withdraw from the locking pin bushings allowing the closing ring to rotate and withdraw the chasers from the cut. On fine pitch, short length, soft material work, the drag of separation is greater than the contact of engagement and the thread is damaged as a result.



One possible solution is to try using a "keyway" grind on the chasers. As illustrated, grind the lip rake, "A", back more than normal by 1/64" on smaller and 1/16" on larger diameters. Thus, "B" will extend over center to improve the bite and increase the resistance to damage the threads.



Types F, A, and other Heat Treated Style heads have locking pins which engage bushings to keep the head closed. To effect opening, the thread must withstand the force required to compress the connecting pin springs, which then enables the pins to pull from the bushings.

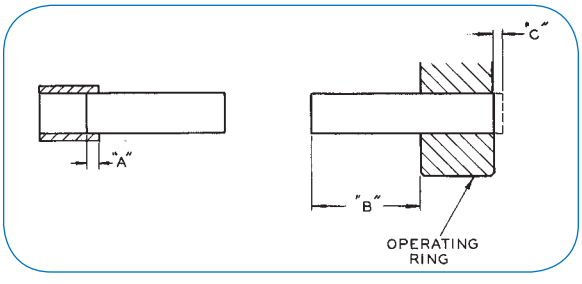
If the "keyway" grind does not solve the problem, an alternative to try is to reduce the amount of locking pin engagement with the bushings. This is done by pressing the pins rearward in the operating ring by the amount listed in the chart. Be sure that all pins are moved exactly the same amount.

Material Hardness and Machineability

Thread cutting is considered impractical when materials are 36 Rockwell C and harder.

Chaser life will be drastically decreased in direct proportion to the hardness increase.

However, the design of the LANDIS chaser allows a certain amount of latitude in heat treatment and special chaser steels for best performance.



Proper Grinds / Grinding Techniques

The rake and lead angles recommended are starting points. The user can, by trial and error, deviate from these until best results are obtained. This is especially true of rake angles, the varying of which can substantially improve results.

LANDIS chasers can be hand ground and cutting end grinds are easily varied. Precision grinding is not a requirement.

Use extra care to produce a smooth rake free of rough grinding marks. Rough grinds increase material build-up resulting in higher heat. Excessive heat will affect tool performance.

How Improper Grinding Affects The Chasers

Often, the extent of damage from improper grinding is not neither readily apparent or understood. Figures 1, 2, and 3 show chasers that have been badly abused during grinding. In Figure 1, they have been magnified three times and appear as they would to the naked eye. Note that a tooth has been chipped off each.

Magnifluxing of the chasers in Figure 2 shows the true extent of the damage. The crack, barely discernible in Figure 1, now shows clearly. Also note the other cracks and grinding burn discoloration. Obviously, chasers damaged to the extent shown cannot give satisfactory performance.

Discoloration indicates excessive heat has been generated. The discoloration on the back of the chaser in Figure 3 obviously follows the cutting end grind.

To prevent damage do not: (1) attempt to remove too much metal per pass, (2) cool by water dipping, (3) use the wrong grinding wheel, (4) use an improperly dressed wheel - improperly dressed wheels load up. Excluding water dipping, the other mentioned no-no's will tend to burnish rather than grind, and that generates high heat. That is further compounded by the chaser being presented and withdrawn from the wheel. The alternating heating and cooling of the surface layer causes surface stresses which will cause cracking. Excessive heat can temper chasers and lower their original hardness. Do not use a hard wheel. Figure 4 illustrates a 64.5 to 65 Rockwell C sample ground on the left with a hard wheel and on the opposite flank with a soft wheel. While the flank ground with the soft wheel does not appreciably differ from the microstructure, the area ground with the hard wheel exhibits a white case. Microhardness in the white area varied from 61.1 to 63.8 in proportion to depth.

Figure 1

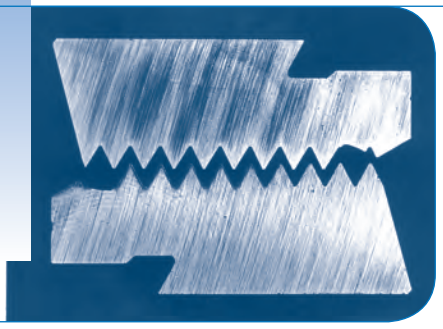


Figure 2

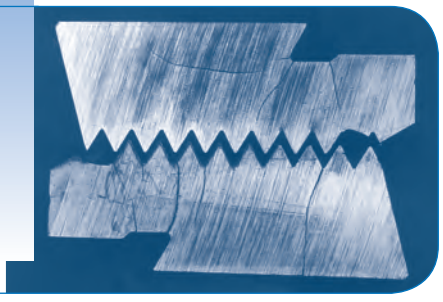
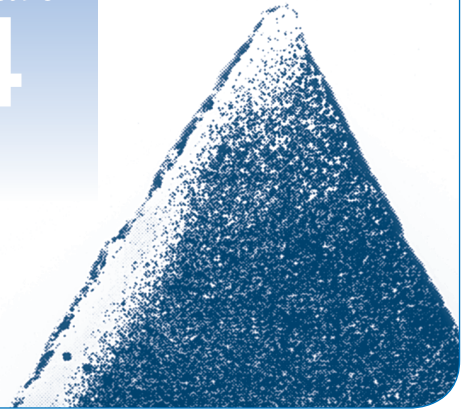


Figure 3

Figure 4



Coolant can enhance grinding but will not correct or offset improper grinding techniques. Correctly applied at the wheel and chaser contact point, coolant can limit the depth of surface tempering if excessive heat is developed.

Grinding Do's and Don'ts

1. Do not water quench. The extremely quick drop in temperature rapidly contracts the steel causing cracks.
2. Don't remove too much metal in one pass. That is not to say that the tools should necessarily be "lightly" reground until a sharp edge is restored. Metal removal will vary with the wheel, the chaser, and the operator. Experience is the best teacher.
3. Avoid discoloration. Lack of discoloration indicates a satisfactory removal rate. Watch thread crests for discoloration, being of small cross section, they burn easily.
4. Keep the wheel dressed to prevent load-up and to maintain a clean, abrasive cutting action.
5. Do not subscribe to a "hard wheel" holds up better than a soft one. While soft wheels wear somewhat faster, they produce better results with less tool damage and will be less expensive in overall cost.
6. Grind M-3 (special) high speed steel chasers more carefully than standard ones. M-3 contains higher degrees of Vanadium and carbon which is more difficult to grind.
7. When cracks develop, any attempt to remove by grinding should be done slowly and very carefully. If grinding is hurried, the cracks will extend deeper.

Chart 1

Threads Per Inch Width of Relief or Undercut – Inches

	UN Thread Form			
Threads Per Inch	45° Throat	30° Throat	20° Throat	15° Throat
32	1/16″	5/64″	3/32″	7/64″
28	1/16″	5/64″	7/64″	1/8″
26	1/16″	5/64″	7/64″	1/8″
24	1/16″	5/64″	7/64″	9/64″
22	1/16″	3/32″	1/8″	5/32″
20	5/64″	3/32″	1/8″	5/32″
18	5/64″	3/32″	9/64″	11/64″
16	5/64″	7/64″	5/32″	3/16″
14	5/64″	1/8″	11/64″	7/32″
13	7/64″	9/64″	3/16″	15/64″
12	7/64″	9/64″	13/64	1/4″
11-1/2	7/64″	5/32″	13/64″	17/64″
11	7/64″	5/32″	7/32″	17/64″
10	1/8″	11/64″	15/64″	19/64″
9	1/8″	11/64″	1/4″	21/64″
8	9/64″	3/16″	9/32″	23/64″
7	5/32″	15/64″	21/64″	27/64″
6	11/64″	1/4″	23/64″	15/32″
5	13/64″	19/64″	27/64″	35/64″
4-1/2″	7/32″	5/16″	15/32″	39/64″
4	15/64″	11/32″	33/64″	43/64″

Note: These figures are based on throat starting at the root of the thread.

Pitch In mm Width of Relief or Undercut – mm

	Metric Threads			
Threads Per mm	45° Throat	30° Throat	20° Throat	15° Throat
.5	1.6	1.6	2.0	2.4
.6	1.6	1.6	2.0	2.4
.7	1.6	2.0	2.4	3.0
.75	1.6	2.0	2.4	3.2
.8	1.6	2.0	2.4	3.2
1	1.6	2.4	3.0	3.6
1.25	2.0	2.4	3.2	4.4
1.5	2.0	3.0	4.0	4.8
1.75	2.4	3.2	4.4	5.6
2	3.0	4.0	5.2	6.8
2.5	3.2	4.4	6.4	8.0
3	3.6	5.2	7.2	9.2
3.5	4.4	6.0	8.8	11.2
4	4.8	6.8	9.6	12.4
4.5	4.8	7.2	10.4	13.5
5	5.2	8.0	11.6	15.1
5.5	5.6	8.4	12.4	16.3
6	6.0	9.2	13.5	17.5

Note:These figures are based on throat starting at the root of the thread.

Chart 2

WIDTH OF RELIEF OR UNDERCUT – ACME THREADS

Throat Angle

A -- Starting At The Root
B -- Starting Below The Root

	7°		9°		10°		12°		15°		20°		30°	
	A	B	A	B	A	B	A	B	A	B	A	B	A	B
Pitch	Width of Relief or Undercut – Inches – Acme Threads													
16	.398″	.480″	.323″	.386″	.297″	.353″	.237″	.304″	.217″	.254″	.176″	.203″	.134″	.151″
14	.443″	.524″	.359″	.422″	.330″	.386″	.286″	.333″	.241″	.278″	.196″	.224″	.150″	.167″
12	.504″	.585″	.409″	.472″	.376″	.433″	.326″	.373″	.276″	.313″	.225″	.252″	.172″	.189″
10	.588″	.670″	.478″	.542″	.440″	.497″	.382″	.429″	.323″	.361″	.264″	.292″	.203″	.221″
9	.645″	.726″	.525″	.588″	.483″	.539″	.419″	.466″	.355″	.393″	.291″	.318″	.224″	.241″
8	.715″	.796″	.582″	.645″	.536″	.592″	.466″	.513″	.395″	.432″	.324″	.351″	.250″	.267″
7	.806″	.887″	.657″	.720″	.604″	.661″	.525″	.573″	.446″	.484″	.366″	.394″	.284″	.301″
6	.926″	1.008″	.756″	.819″	.696″	.752″	.605″	.653″	.515″	.552″	.423″	.450″	.328″	.346″
5	1.095″	1.177″	.894″	.957″	.823″	.880″	.717″	.764″	.610″	.647″	.502″	.529″	.390″	.407″
4	1.349″	1.431″	1.102″	1.165″	1.015″	1.072″	.885″	.932″	.753″	.791″	.620″	.648″	.483″	.501″
3-1/2	1.531″	1.612″	1.251″	1.314″	1.153″	1.209″	1.005″	1.052″	.856″	.893″	.706″	.733″	.550″	.568″
3	1.772″	1.853″	1.448″	1.511″	1.335″	1.391″	1.164″	1.211″	.992″	1.029″	.818″	.846″	.639″	.656″
2-1/2	2.110″	2.191″	1.725″	1.789″	1.590″	1.647″	1.388″	1.435″	1.183″	1.221″	.977″	1.004″	.763″	.781″
2	2.617″	2.698	2.141″	2.204″	1.974″	1.031″	1.723″	1.770″	1.470″	1.507″	1.214″	1.241″	.950″	.967″

Chart 1

External Threading Problems: Causes And Cures

In addition to this quick reference chart, more complete information on threading problems is contained in "Die Head/Tangential Chaser Management."

PROBLEM CAUSE	SOLUTION
PROBLEM: ROUGH THREADS	
Chasers set too far above or over center	Set to gage position and/or adjust all chasers of the set back equally.
Cutting rake ground too low for the material	Start with rake angle recommended by Landis for the material. Vary if necessary to obtain best results.
Misalignment between die head and workpiece	Check die head and machine components for both angular and concentric agreement.
Improper starting pressure	On hand feedwork, it generally is a matter of an operator's gaining sufficient experience to apply proper pressure. Leadscrew and other mechanical starting means such as cams and spring starts, must be correct for the lead of the thread.
Insufficient hook in the lip rake	Grind lip rake to factory specified angle.
Welding of chips on cutting edge	Increase coolant flow to reduce heat factor, the cause of welding. Use a good grade of sulfur base cutting oil. Use chasers with sufficiently long throats, especially on coarse pitch work. Also, use a higher rake and grind the cutting end as smooth as possible.
Improper chaser seating	Disassemble and clean chaser holders and clamps. Hone away any nicks from clamps and holders that would interfere with proper seating.
Chipped chasers	Regrind.
Mixed chaser throat angles	Make certain all the throats of the chasers have the same angle. If 20°, all should be 20°.
Low machineability rating	Materials with low machineability ratings require that all conditions such as the use of good sulfur base coolant, proper chaser throat, correct cutting end geometry and right speed be met. Using chasers with roughing and finishing throat will often help.
Speed too fast	Use recommended starting speed for the diameter, pitch and material combination. If desired, adjust upward to improve results.

PROBLEM CAUSE	SOLUTION
PROBLEM: CHIPPED CHASERS	
Failing to back off die head when opening under cut	When stopping under cut to check chaser chip distribution, do not open the head until it has been backed off sufficiently to clear the chasers from the cut.
Die head striking shoulder	Add sufficient run-out to include the throat length plus a slight allowance to compensate for the die head's slight forward movement that occurs during opening. When a leadscrew is being used, the leadscrew trip must be set to disengage the screw after the head opens but before the head strikes the shoulder.
Grinding burn	Grind carefully to prevent burn. Also, do not water quench. Alternate rapid heating and cooling with water causes cracks that may break out in service, although not readily visible.
Rake angle too high or too low	A too high rake weakens the edge. Too low rake causes high cutting pressures. Use factory recommended rake.
Misalignment	Check and correct any angular or concentric misalignment between the die head and work.
Abrupt starting	Corrected with experience.
Threading sheared ends	Minimize the effect of the shearing operation as much as possible and use chasers with a throat starting sufficiently below the root of thread to remove excess metal and true out the end.
Work turning in grips	Use more gripping pressure or sharper grips.

Chart 2

External Threading Problems: Causes And Cures

In addition to this quick reference chart, more complete information on threading problems is contained in "Die Head/Tangential Chaser Management."

PROBLEM CAUSE	SOLUTION
PROBLEM: OUT-OF-ROUNDNESS	
Chasers set too far back of center	Advance all chasers of the set gradually and equally until condition disappears.
Lack of rigidity on the part of the workpiece or the die head	Use "centering throat" chasers.
Mixed throats in set	Make sure all chasers of the set are of the same throat angle.
Improper chaser seating	Clean and/or hone defects of chaser holder seating surfaces and clamps.
Chipped chasers	Regrind and/or correct condition causing chipping.
Threading sheared stock	Minimize the effect of the shearing operation as much as possible and use chasers with a throat starting sufficiently below the root of thread to remove excess metal and true out the end.
Using improper rake angle	Use factory recommended rake angle to cut the material.

PROBLEM CAUSE	SOLUTION
PROBLEM: TAPERED THREADS	
Threading hard or abrasive material	When using Heat Treated style heads, hard materials bellmouth the chaser holders destroying chaser clearance to cause cutting across the entire width, thus producing a tapered thread. Use chasers with more heel clearance. Abrasive materials dub the cutting surfaces which also destroys the chaser clearance of Heat Treated heads. Request harder chasers to improve cutting action and obtain longer running time.
Misalignment	Correct any misalignment between die head, machine and work.
Poor starting	Improper hand feed side shaves the flank and can appear to be tapered on the beginning threads. Correct feed rate through experience.
Excessive backlash in head adjusting worm	Take up excess, or, if worm is worn, replace.
Improperly seated chasers.	Clean and/or hone away defects of chaser holder seating surfaces and clamps.
Worn head parts	Return head to factory for inspection and reconditioning or replace obviously defective parts such as sprung chaser holders, worn head body, worn trunnions.

PROBLEM CAUSE	SOLUTION
PROBLEM: LEAD ERROR	
Incorrect helix angle	Use correct chaser holder for the thread series. Where lead is critical, use "special" chaser holder incorporating the correct helix.
Improper chaser setting	Check and reset the chasers.
Improper chaser seating	Clean and/or hone away defects of chaser holder seating surface and clamps.
Improper chaser clearance	Correct any condition affecting clearance, or obtain chasers with different clearance. Reduced clearance increases lead; increased clearance reduces lead.
Improper starting	Correct hand starting technique. Check lead of mechanical feed.
Hand feed being used when leadscrew or positive feed is required	If lead tolerance of .001" per inch or less is required, the use of leadscrew, precision ground thread cam or precision feed gears is required.

Chart 3

External Threading Problems: Causes And Cures

In addition to this quick reference chart, more complete information on threading problems is contained in "Die Head/Tangential Chaser Management."

PROBLEM CAUSE	SOLUTION
PROBLEM: SIDE SHAVE	
Misalignment between die head, machine and workpiece	Check angular and concentric alignment and correct.
Trunnion play or clearance not uniformly set	Reset to factory recommendations.
Improper chaser seating	Clean and/or hone chaser holder seating surfaces and clamps.
Improper hand start	Improve starting technique.
Improper chaser grind	Review recommended grinds and regrind chasers.
Worn head parts	Inspect and replace as required or return for factory inspection and recommendations.
Work turns in grips when using leadscrew feed	Use greater gripping pressure or sharpen grips.

PROBLEM CAUSE	SOLUTION
PROBLEM: DRUNKEN THREADS	
Chasers set too far back of center	Advance all chasers of the set equally until condition disappears.
Misalignment	Correct as required. Drunkenness is most likely caused by an off-square condition, not eccentricity.
Improper feed	Improve hand feed technique. Check lead of mechanical feed.
Improper chaser seating	Inspect, clean and/or hone defects on chaser holders and clamps.
Worn head parts	Replace worn parts or return head to factory for inspection and rebuild.

PROBLEM CAUSE	SOLUTION
PROBLEM: CHATTER	
Chaser set too far back of center	Advance all chasers equally until chatter disappears.
Cutting rake too high	Grind chasers to factory recommended angle for the material being threaded.
Lack of rigidity on the part of the die head or workpiece	Inspect die head and machine components and correct as required.
Too much hook in lip rake	Regrind chasers to recommended rake.
Chipped chasers	Regrind chasers.
Mixed chaser throats	Replace chasers as required.

Support Information–

THE following is available as supplemental support to the information contained in this catalog: 17th Edition Thread and Forming/Thread Data Handbook. In continuous print since 1920, this useful book contains approximately 250 pages of information on:

Care and operation of Landis die heads, rolling heads and collapsible taps.

Grinding Landis tangential die head chasers.

Helix angles for most thread forms.

Thread data and dimension charts for the popular forms including UN, British, Acme, Metric, American and British pipe.

Operator's Manuals

Lanco, Landmatic and Landex Heat Treated die heads manual-I-405

Lanco Type T internal trip, S type receding chaser and 16 TXX heads for pipe threading manual-I-425

Repair Parts Lists

	MANUAL No.
Lanco	
3/4" – 6R thru 2-1/2" 20R Heat Threated	H-208-3
4" – 32R Heat Treated	H-265-2
6" – 48R Heat Treated	H-262-2
3/4" – 6S Receding Chaser	H-209-2
1-1/2" – 12S Receding Chaser	H-261-2
2" – 16S & 2-1/2" – 20S Receding Chaser	H-264-1
6" – 48S Receding Chaser	H-263-2
Landmatic	
5/8"– 5F and 7/8" – 7F Heat Treated	H-255-5
1-1/4" – 10F and 2" – 16F Heat Treated	H-256-5
3" – 24A and 4" – 32A Heat Treated	H-250-4
5/8" – 5DE Heat Treated (repair and operator's manual)	H-251/2/7/8
Landex	
2" – 16JNK	H-281
1/2" – 4JN	H-228-3
13/16" – 13JN	H-217-3
1-1/4" – 10JN and 2" – 16JN and 16 JNB	H-218-4

PITCHES APPLIED TO NOMINAL DIE HEAD CHASER WIDTHS

Type of Head	Size of Head	Pitch		Nominal
		Threads Per Inch	M/M	Chaser Width
LANCO TYPES R, T, VV AND VVV	3/8	80 to 16	.5 to 1.5	5/8
	9-1/6 and 5/8	40 to 12	.6 to 2.0	3/4
	3/4 and 7/8	40 to 10	.6 to 2.5	15/16
	1, 1-1-2, 2 and 2-1/2	30 to 8	1.0 to 3.0	1-3/64
	1-1/2, 2 and 2-1/2	7 and 6	3.5 and 4.0	1-7/64
	2 and 2-1/2	5-1/2 to 4	4.5 to 6.0	1-1/2
		30 to 8	1.0 to 4.0	1-3/64
	4 and 6	5-1/2 to 3	4.5 to 7.5	1-1/2
		2-3/4 to 2-1/2	8.0 to 10.0	2-1/4
LANDMATIC TYPES A, F, C, Z, H, HH AND DE	1/2 DE	80 to 13	0.6 to 1.75	1/2
	5/8	40 to 11	0.6 to 2.0	5/8
	7/8	32 to 9	0.75 to 2.5	3/4
	1-1/4 and 2	28 to 7	.09 to 3.5	15/16
	2	6 to 4-1/2	4.0 to 5.0	1-1/4
	3 and 4 Z	16 to 9	1.5 to 2.5	1
	3 and 4 Z	8 to 6	3.0 to 4.0	1-1/16
	3 and 4 Z	5-1/2 to 4	4.5 to 6.0	1-1/4
	3 and 4 A and C	16 to 8	1.5 to 3.0	1-3/64
	3 and 4 A and C	7 and 6	3.5 to 4.0	1-7/64
	3 and 4 A	5-1/2 to 4	4.5 to 6.0	1-1/2
LANDEX TYPES JN AND LLL	1/2 LLL	80 to 13	.5 to 1.75	1/2
	1/2 (J & JN) and 5/8	80 to 12	.5 to 2.0	5/8
	13/16 and 7/8	32 to 10	.75 to 2.5	3/4
	1-1/4 and 2	28 to 7	.9 to 3.5	15/16
	2	6 to 4-1/2	4.0 to 5.0	1-1/4

ALLOWABLE HELIX ANGLES FOR LANDIS HEADS

Size of Head	LANCO		LANDMATIC		LANDEX	
	Type R	Type VV and VVV	Types DE, A and F	Types H and HH	Types J and JN	Type LLL
3/8	15º					
1/2			15º		16-1/2º	7-3/4º
9/16	16-1/2º					
5/8		6-3/4º	16-1/2º	8º		6º
3/4	12º					
13/16					12º	
7/8		7º	12º	6-3/4º		6-3/4º
1	20º	5º				
1-1/4			12º	7º	12º	7º
1-1/2	23º	5º				
2	16º	5º	12º	7º	12º	7º
2-1/2	16º	5º				
3			3/4 to 1-1/2 dia. – 13-1/2º 1-5/8 to 3 dia. – 12º			
4	10º		1 to 1-1/2 dia. – 15º 1-5/8 to 3 dia. – 10º 3-1/4 to 4 dia. – 5º			
6	10º					

Helix angles are subject to pitch.

Helix angles in excess of those listed above should be referred to LANDIS Engineering for recommendations.

TABLE OF AMERICAN STANDARD, B.S.F., WHITWORTH, AND I.S.O. METRIC COARSE STANDARD THREADS

	U.N.C.		U.N.F.		WHITWORTH		B.S.F.		I.S.O. Metric Coarse		
Size (Inches)	Pitch Thds. Per In.	P.D	Pitch Thds. Per In.	P.D.	Pitch Thds. Per In.	P.D.	Pitch Thds. Per In.	P.D.	Dia. M/M	Pitch M/M	P.D. M/M
4 (.112)	40	.0958	48	.0985					3	0.5	2.675
5 (.125)	40	.1088	44	.1102	1/8 (40)	.1089			3.5	0.6	3.111
6 (.138)	32	.1177	40	.1218	5/32 (32)	.1362			4	0.7	3.545
8 (.164)	32	.1437	36	.1460	3/16 (24)	.1608			4.5	0.75	4.013
10 (.190)	24	.1629	32	.1697	7/32 (24)	.1920			5	0.8	4.480
12 (.216)	24	.1889	28	.1928			28	.1931	6	1.	5.350
1/4	20	.2175	28	.2268	20	.2180	26	.2254	7	1.	6.350
5/16	18	.2764	24	.2854	18	.2769	22	.2834	8	1.25	7.188
3/8	16	.3344	24	.3479	16	.3350	20	.3430	9	1.25	8.188
7/16	14	.3911	20	.4050	14	.3918	18	.4019	10	1.5	9.026
1/2	13	.4500	20	.4675	12	.4466	16	.4600	12	1.75	10.863
9/16	12	.5084	18	.5264	12	.5091	16	.5225	14	2.	12.701
5/8	11	.5660	18	.5889	11	.5668	14	.5793	16	2.	14.701
3/4	10	.6850	16	.7094	10	.6860	12	.6966	18	2.5	16.376
7/8	9	.8028	14	.8286	9	.8038	11	.8168	20	2.5	18.376
1	8	.9188	12	.9459	8	.9200	10	.9360	22	2.5	20.376
1-1/8	7	1.0322	12	1.0709	7	1.0335	9	1.0539	24	3.	22.051
1-1/4	7	1.1572	12	1.1959	7	1.1585	9	1.1789	27	3.	25.051
1-3/8	*6	1.2667	*12	1.3209	6	1.2683	8	1.2950	30	3.5	27.727
1-1/2	6	1.3917	12	1.4459	6	1.3933	8	1.4200	33	3.5	30.727
1-5/8	*5-1/2				5	1.4969	8	1.5450	36	4.	33.402
1-3/4	5	1.6201			5	1.6219	7	1.6585	39	4.	36.402
1-7/8	*5				4.5	1.7327			42	4.5	39.077
2	4-1/2	1.8557			4.5	1.8577	7	1.9085	45	4.5	42.077
2-1/4	4-1/2	2.1057			4	2.0899	6	2.1433	48	5.	44.752
2-1/2	4	2.3376			4	2.3399	6	2.3933	52	5.	48.752
2-3/4	4	2.5876			3.5	2.5670	6	2.6433	56	5.5	52.428
									60	5.5	56.428
3	4	2.8376			3.5	2.8170	5	2.8719	64	6.	60.103
3-1/4	4	3.0876			3.25	3.0530	5	3.1219	68	6.	64.103
3-1/2	4	3.3376			3.25	3.3030	4-1/2	3.3577	72	6.	68.103
									76	6.	72.103
3-3/4	4	3.5876			3	3.5366	4-1/2	3.6077	80	6.	76.103
4	4	3.8376			3	3.7866	4-1/2	3.8577	84	6.	80.103
4-1/4							4	4.0899			

*The diameter opposite these pitches do not appear in the American Standard on Screw Threads.

SURFACE CUTTING SPEED – RPM CONVERSION TABLE FOR BOLT THREADING

Circumferential Cutting Speeds, Feet Per Min.

Diameter of\ Bolt (Inches)	10	12	14	16	18	20	25	30	35	40	50	60
	Revolutions Per Minute											
1/8	306	366	428	488	550	661						
3/16	204	244	285	326	367	407	509	611				
1/4	153	183	214	244	275	306	382	459				
5/16	122	146	171	196	220	244	306	367	428	489		
3/8	102	122	143	163	183	204	255	306	357	408		
7/16	87	105	122	135	158	175	218	262	306	349	437	524
1/2	76	92	107	122	137	153	191	229	267	306	382	459
9/16	72	86	101	115	129	144	180	216	252	288	360	432
5/8	61	73	86	98	110	122	153	183	214	244	306	367
3/4	51	61	71	81	92	102	127	153	178	204	255	306
7/8	44	52	61	70	79	87	109	131	153	175	218	262
1	38	46	53	61	69	76	95	114	134	153	191	229
1-1/8	34	41	48	54	61	68	85	102	119	136	170	204
1-1/4	31	37	43	49	55	61	76	92	107	122	153	183
1-3/8	28	33	39	44	50	56	69	83	97	111	129	167
1-1/2	25	31	36	41	46	51	64	76	89	102	127	153
1-5/8	23	28	33	37	42	47	58	70	82	94	117	141
1-3/4	22	26	31	35	39	44	55	66	76	87	109	131
1-7/8	20	24	29	32	37	41	51	61	71	81	102	122
2	19	23	27	31	34	38	48	57	67	76	96	115
2-1/8	18	21	25	29	32	36	45	54	63	72	90	108
2-1/4	17	20	24	27	31	34	42	51	59	68	85	102
2-3/8	16	19	23	26	29	32	40	48	56	64	80	96
2-1/2	15	18	21	24	27	31	38	46	53	61	76	82
2-3/4	14	17	19	22	25	28	35	42	49	55	69	83
3	13	15	18	20	23	25	32	38	45	51	64	76
3-1/4	12	14	16	19	21	23	29	35	41	47	59	70
3-1/2	11	13	15	17	20	22	27	33	38	44	55	65
3-3/4	10	12	14	16	18	20	25	31	35	41	51	61
4	9	11	13	15	17	19	24	29	33	38	48	57

SURFACE CUTTING SPEED – RPM CONVERSION TABLE FOR PIPE THREADING

Cutting Speed, Feet Per Min.

Size of Pipe (Inches)	10	15	20	25	30	35	40	45	50
	Revolutions Per Minute								
1/8	94.33	141.50	188.66	235.83	282.99	330.16	377.32	424.49	471.65
1/4	70.9	106.35	141.8	177.25	212.7	248.15	283.6	319.05	354.50
3/8	56.5	84.75	113	141.25	169.5	197.75	226	254.25	282.5
1/2	45.45	68.17	90.90	113.63	136.35	159.08	181.80	204.53	227.25
3/4	36.4	54.6	72.8	91	109.2	127.4	145.6	163.8	182
1	29.1	43.65	58.2	72.75	87.30	101.85	116.4	130.95	145.5
1-1/4	23	34.5	46	57.5	69	80.5	92	103.5	115
1-1/2	20.1	30.15	40.2	50.25	60.3	70.35	80.4	90.45	100.5
2	16.1	24.15	32.2	40.25	48.3	56.35	64.4	72.45	80.5
2-1/2	13.3	19.95	26.60	33.25	39.90	46.55	53.20	59.85	66.5
3	10.9	16.35	21.8	27.25	32.7	38.15	43.6	49.05	54.5
3-1/2	9.52	14.28	19.04	23.80	28.56	33.32	38.08	42.84	47.5
4	8.47	12.71	16.94	21.18	25.41	29.65	33.88	38.12	42.35
4-1/2	7.63	11.45	15.26	19.02	22.89	26.71	30.52	34.34	38.15
5	6.87	10.31	13.74	17.18	20.61	24.05	27.48	30.92	34.35
6	5.77	8.66	11.54	14.43	17.31	20.20	23.08	25.97	28.85
7	5.01	7.52	10.02	12.53	15.03	17.54	20.04	22.55	25.05
8	4.43	6.65	8.86	11.08	13.29	15.51	17.72	19.94	22.15
9	3.97	5.96	7.94	9.93	11.91	13.90	15.88	17.87	19.85
10	3.55	5.33	7.10	8.88	10.65	12.43	14.2	15.98	17.75
11	3.25	4.88	6.5	8.13	9.75	11.38	13	14.63	16.25
12	3	4.5	6	7.5	9	10.5	12	13.5	15
14	2.73	4.1	5.46	6.83	8.19	9.56	10.92	12.29	13.65
15	2.55	3.82	5.1	6.38	7.65	8.93	10.2	11.48	12.75
16	2.39	3.57	4.78	5.98	7.17	8.37	9.56	10.76	11.95
17	2.25	3.38	4.5	5.63	6.75	7.88	9.00	10.13	11.25
18	2.12	3.18	4.24	5.3	6.36	7.42	8.48	9.54	10.6
20	1.91	2.87	3.82	4.78	5.73	6.67	7.64	8.60	9.55

F AND A LANDMATIC™ HEAT TREATED DIE HEADS

Chaser Holder Special and Oversize Diameter and Pitch Combination Ranges

	DIAMETRICAL RANGE OF CHASER HOLDERS						COARSE PITCH LIMITATIONS			
	Special Chaser Holders for Diameters within the Standard Range**		Oversize Chaser Holders for Diameters Beyond The Standard Range							
							Standard Range		Oversize Range	
					Maximum Thread Lengths		Threads		Threads	
Size of Head	Inches	MM	Inches	MM	Inches	MM	Per Inch	MM	Per Inch	MM
5/8″	#4 to #12 3/16 to 5/8	4 to 16	3/4 to 1 1 to 1-1/4	20 to 24 24 to 33	7/8 1-5/16	22 33	11	2.0	14	1.75
7/8″	#4 to #12 1/4 to 7/8	6 to 22	15/16 to 1-1/2 1-9/16 to 2	24 to 39 39 to 52	1-1/8 1-1/8	28 28	9	2.5	14	1.75
1-1/4″	1/4 to 3/4 13/16 to 1-1/4	6 to 18 20 to 33	1-5/16 to 2 2-1/8 to 2-3/4	33 to 52 52 to 68	1-3/16 or 2 1-3/16 or 2*	30 or 50* 	7	3.5	12	2.0
2″	3/8 to 1-1/4 1-3/8 to 3	9 to 33 36 to 52	2-1/8 to 3 3-1/8 to 3-3/4	56 to 76 80 to 95	1-5/16 or 2-1/8* 1-5/16 or 2-1/8*	33 or 54* 33 or 54*	4-1/2	5.0	8	3.0
3″	3/4 to 1-1/2 1-5/8 to 3	18 to 39 42 to 76	3-1/8 to 4-1/4 4-3/8 to 5-1/2	80 to 105 110 to 140	1-1/2 or 3-1/16* 1-13/16	38 or 78* 46	4	6.0	6	4.0
4″	1 to 1-1/2 1-5/8 to 2-1/2	24 to 39 42 to 64 68 to 100	4-1/8 to 4-3/4 5 to 6-1/2	105 to 120 125 to 165	2-5/16 1-7/8 or 2-7/8*	59 48 or 73*	4	6.0	6	4.0

*Requires special built-up chaser holders.
** Other special chaser holders in addition to those listed may be required to thread all special threads within the die head range.

J AND JN LANDEX™ HEAT TREATED DIE HEADS

Chaser Holder Special and Oversize Diameter and Pitch Combination Ranges

	DIAMETRICAL RANGE OF CHASER HOLDERS						COARSE PITCH LIMITATIONS			
	Special Holders - Diameters Within The Standard Range		Oversize Holders - Diameters Beyond The Standard Range				Coarse Pitch Limitations			
							Standard Range		Oversize Range	
					Maximum Thread Lengths		Threads	MM	Threads	MM
Size of Head	Inches	MM	Inches	MM	Inches	MM	Per Inch	Pitch	Per Inch	Pitch
1/2″	#4 to #12 3/16 to 1/2	4 to 12	3/4 to 1	20 to 24	7/8	22	12	2.0	14	1.75
13/16″	#4 to #12 1/4 to 13/16	6 to 22	15/16 to 1-1/2 1-9/16 to 2	24 to 39 39 to 52	1-1/8 1-1/8	28 28	9	2.5	14	1.75
1-1/4″	1/4 to 3/4 13/16 to 1-1/4	6 to 18 20 to 33	1-5/16 to 2 2-1/8 to 2-3/4	33 to 52 56 to 72	1-3/16 to 2* 1-3/16 to 2*	30 or 50* 30 or 50*	7	3.5	12	2.0
2″	3/8 to 1-1/4 1-3/8 to 2	9 to 33 36 to 52	2-1/8 to 3 3-1/8 to 3-3/4	56 to 72 80 to 95	1-5/16 to 2-1/8* 1-5/16 to 2-1/8*	33 or 54*	4-1/2	5.0	8	3.0

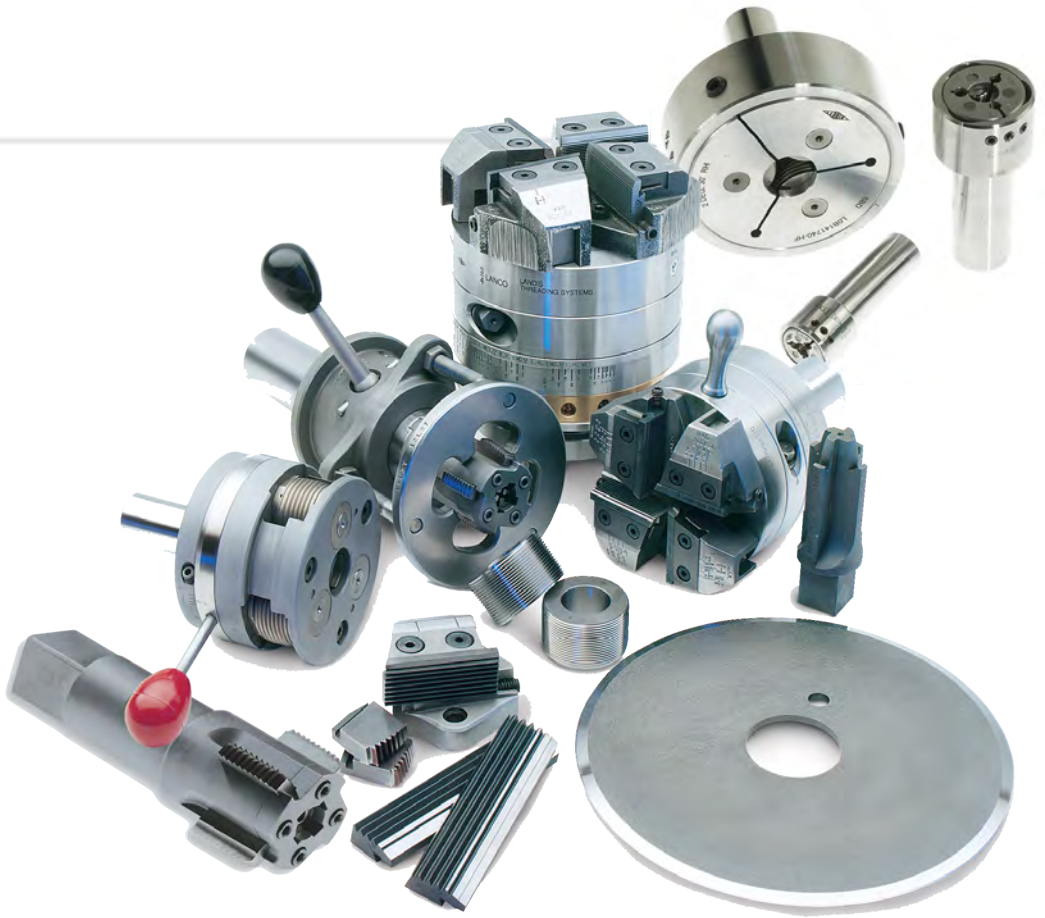
*Requires special built-up chaser holders.
** Other special chaser holders in addition to those listed may be required to thread all special threads within the die head range.

R LANCO™ HEAT TREATED DIE HEADS

Chaser Holder Special and Oversize Diameter and Pitch Combination Ranges

	DIAMETRICAL RANGE OF CHASER HOLDERS						COARSE PITCH LIMITATIONS			
	Special Chaser Holders for Diameters within the Standard Range**		Oversize Chaser Holders for Diameters Beyond the Standard Range							
							Standard Range		Oversize Range	
					Maximum Thread Lengths		Threads		Threads	
Size of Head	Inches	MM	Inches	MM	Inches	MM	Per Inch	MM	Per Inch	MM
3/4″	1/4 to 3/4	6 to 18	1-3/16 to 1-1/4 1-1/4 to 2 1-3/16 to 2*	20 to 32 33 to 52 52 to 72	1-3/8 1-3/16 or 2* 1-3/16 or 2*	33 30 or 50* 30 or 50*	10	2.5	10 12 12	2.5 2.0 2.0
1″	1/4 to 1	6 to 27	1-1/16 to 2-1/8 2-1/8 to 3	28 to 56 60 to 76	1-7/16 or 2-3/16* 2-3/8*	36 or 55* 60*	8	3.0	8 8	3.0 3.0
1-1/2″	3/8 to 1-1/2	8 to 39	1-9/16 to 2-5/8 2-5/8 to 3-3/4	40 to 68 72 to 95	1-1/4 or 2* 1-1/2 or 2-5/16*	33 or 52* 38 or 59*	6	4.0	7 7	3.5 3.5
2″	1/2 to 1-1/2 1-5/8 to 2	12 to 39 42 to 52	2-1/16 to 3-1/8 3-1/8 to 4-1/4	56 to 80 84 to 108	1-7/8 or 2-5/8* 2 or 2-3/4*	47 or 67* 51 or 70*	4-1/2	5.0	7 7	3.5 3.5
2-1/2″	1/2 to 1-1/2 1-5/8 to 2-1/2	12 to 39 42 to 64	2-9/16 to 3-1/8 3-1/8 to 4-1/4	68 to 80 84 to 108	1-7/8 or 2-5/8* 2 or 2-3/4*	47 or 67* 51 or 70*	4	6.0	7 7	3.5 3.5
4″	1 to 1-1/2 1-5/8 to 2-1/2 2-5/8 to 4	24 to 39 42 to 64 68 to 100	4-1/8 to 5-1/4	102 to 134	3-1/8	79	3	7.5	6	4.0
6″	2-1/2 to 2-3/4 2-7/8 to 4 4-1/8 to 5-1/4 5-3/8 to 6-5/8	64 to 68 70 to 100					3	7.5		

Note: The 6″ LANCO has no oversize chaser holders.
* Requires special built-up holders.
** Other special chaser holders in addition to those listed may be required to thread all special threads within the die head range.



FIRST In Threading Tools

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