

THREAD TURNING MACHINING OPTIMIZATION TECHNIQUE

YOUR MAIN CHALLENGES EFFICIENT OPERATION & CORRECTLY FINISHED THREAD



1. CHOOSE YOUR THREADING METHOD

Right-hand thread -Right-hand tool

ER

Left-hand thread -Left-hand tool

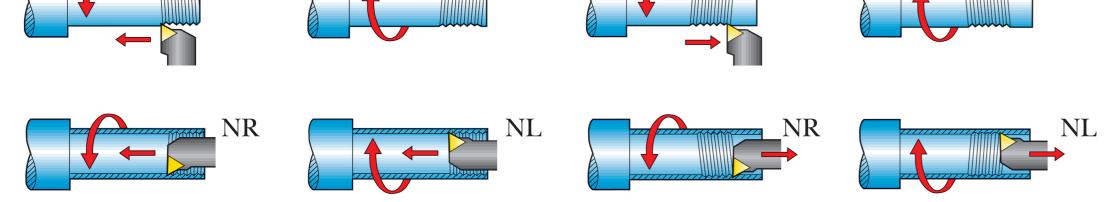
Left-hand thread -Right-hand tool

Right-hand thread -Left-hand tool



2. SELECT YOUR INSERT SHIM

												F	Pitch	dian	neter	(mm) - tł	read	ling a	way	from	the	chuc	k																		TPI	Ph
		5	15	20	25	30	40	45	50	60	65				90										155	160	165	170	180	190	200	225	250	300									mm
-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	98	98	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99					0	0	1	80	-
-	3	-	-	-	-	-	-	-	-	-	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99				0	0	0	1	72	_
8,0	Ι	-	-	-	-	-	-	-	-	98	98	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0			0	0	0	0	1	64	-
-	4	-	-	-	_	_	-	-	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0			0	0	0	0	1	2	56	-
6,0	-	-	-	-	-	-	-	98	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0				0	0	0	0	1	2	-	0,5
-	5	-	-	-	-	-	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0				0	0	0	0	0	1	2	48	-
5,0	Ι	-	-	-	-	-	98	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0				0	0	0	0	0	1	1	2	44	-
-	6	-	-	-	_	_	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0					0	0	0	0	0	0	1	1	2	40	-
4,0	-	-	-	-	-	98	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0					0	0	0	0	0	1	1	1	3	36	-
-	7	-	-	-	-	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0					0	0	0	0	0	0	1	1	1	3	_	0,75
3,5	-	-	-	-	_	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0					0	0	0	0	0	0	0	1	1	1	3	32	-
-	8	-	-	_	98	98	99	99	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0				0	0	0	0	0	0	0	1	1	1	1	3	28	-
3,0	-	-	-	-	98	98	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	4	-	1,0
-	9	_	-	_	98	98	99	99	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	4	24	-
-	10	_	-	98	98	98	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	2	5	-	1,25
2.5	-	-	-	98	98	98	99	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	2	5	20	-
-	11	-	-	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	5	18	-
-	12	-	-	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	5	-	1,5
2,0	-	-	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	-	16	-
-	13	-	98	98	99	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	2	2	-	-	1,75
-	14	-	98	98	99	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	2	2	-	14	-
1,75	-	_	98	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	-	13	-
-	16	-	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	-	_	2,0
1,5	-	_	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	-	12	-
-	18	_	98	99	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	2	2	3	-	11	-
-	20	-	98	99	99	99	99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	3	-	-	2,5
1,25	-	-	98	99	99	99	99	99	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	2	2	2	3	-	10	-
-	24	_	99	99	99	99	0	0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	-	9	-
1,0	-	-	99		99	99	0	0	0	0	0	0	0	0				0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	-	-	3,0
$ \rightarrow $	28		99		99		0	0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	4	-	8	-
	32		99		99		0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	-		3,5
0,75	-		99	99	99	0	0	0	0	0	0	0			0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	3	3	4	-	7	-
	36		99	99		0	0	0	0	0	0				0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	4	5	-		4,0
			99		0	0	0	0	0	0				0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	4	5	-	6	-
			99		0	0	0	0	0				0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	4	5	-	-		5,0
	48	98	99	0	0	0	0	0				0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	3	4	5	_	-	5	-
0,5			99		0	0	0				0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	3	4	4	5	-	-	_	6,0
-	56	98	99	0	0	0	0			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	4	5	-	-	_	4	-
	64	99	0	0	0	0			0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	3	3	4	5	-	-	-	_	-	8,0
		99		0					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	3	3	2	2	2	3	3	3	4	5	-	-	-	-	3	-
-	80	99	0						1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	3		3	3	4	4	5	5	-	-	-	-	-	-		-
P _h	TPI								300	250	225	200	190	180	170	165	160	155	150	140	135	130	120	115	110	100	95	90	85	75	70	65	60	50	45	40	30	25	20	15	5		
mm																			Pi	tch	diam	eter	(mn	n) - 1	threa	din	g tow	vards	s the	chu	ck												



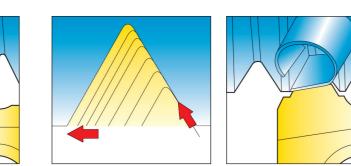
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3. SELECT YOUR INFEED METHOD

Modified flank infeed

First choice for CNC machines infeed angle should be 2,5 - 5% less than the flank angle

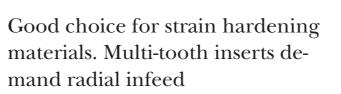
- Good chip control (int. threading)
- Good surface quality on thread • Long tool life



Flank infeed

Choose flank infeed when modified flank cannot be used • Good chip control

- Can result in bad surface quality
- Not suitable for strain hardening materials

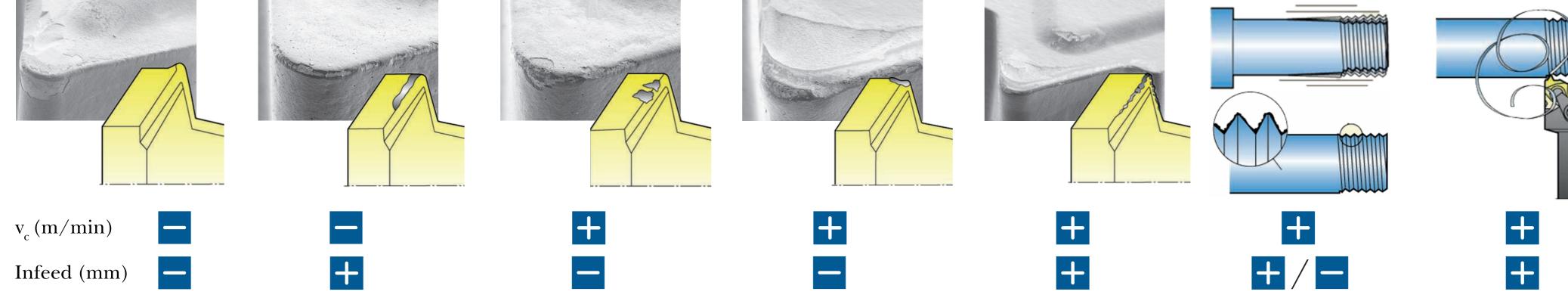


- Difficult to control the chip
- High cutting forces

Radial infeed

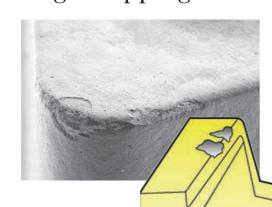
4. TOOL WEAR

Plastic deformation

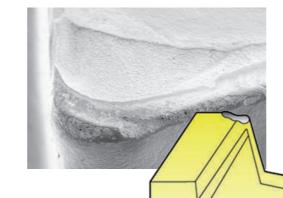




Edge chipping



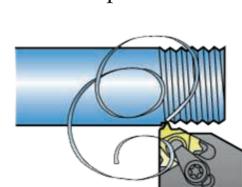
Insert breakage





Vibrations /

Poor chip control poor surface quality



5. GENERAL ADVICE

- Check that the workpiece diameter is correct before your start your threading operation
- Check the stability of your workpiece and tool
- Verify that correct insert shim is applied
- Verify that the tool is at centre height
- Verify that correct coolant is used (when build up edge occurs, do not use coolant)
- Apply by preference modified flank infeed method

This overview represents the majority of cases. For specific situations in unfavorable circumstances or for specific threading operations, please contact your business partner at Seco.



