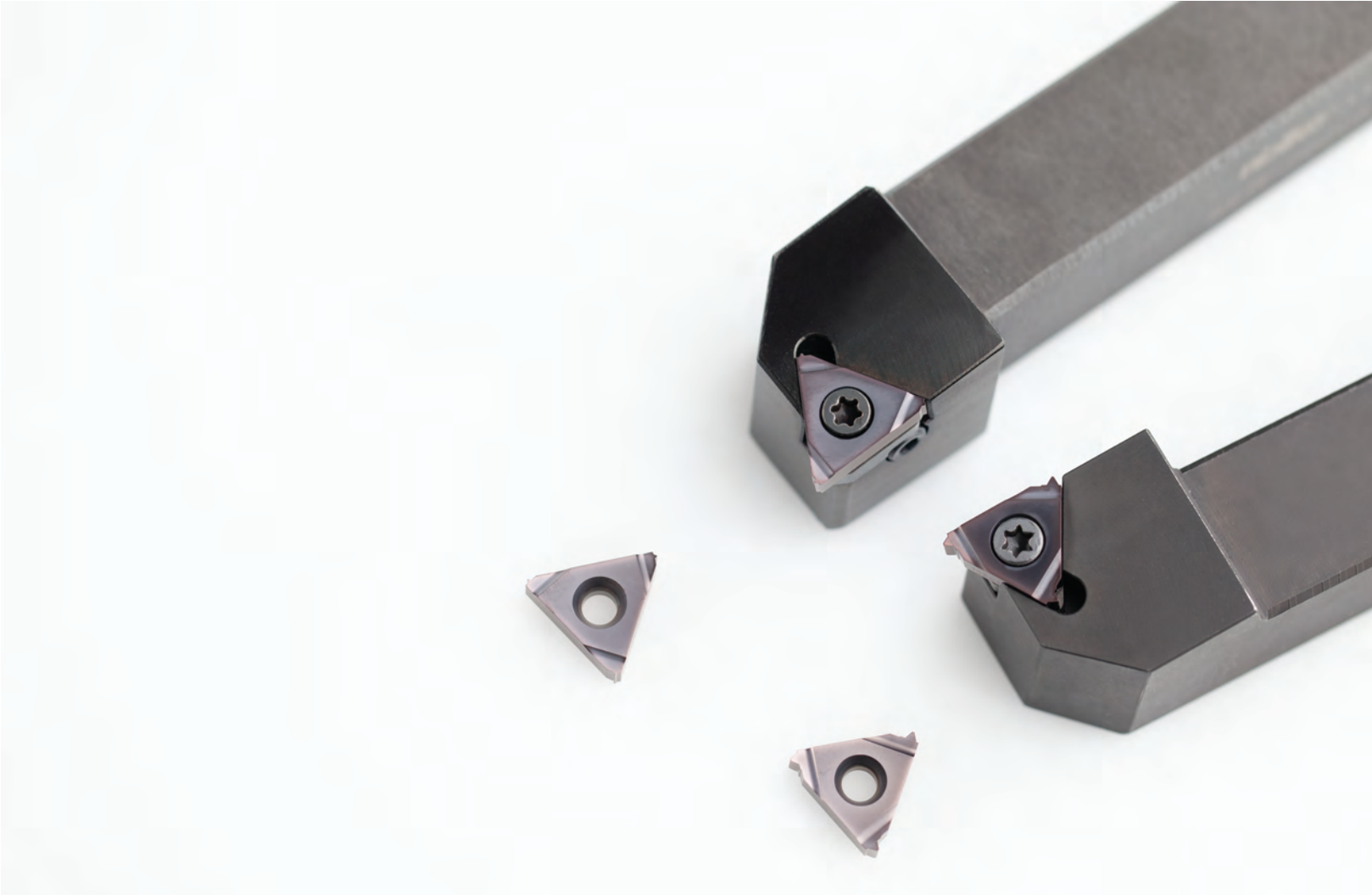


THREADING ACTION

Acquista 30 inserti e ottieni l'utensile allo sconto speciale del 60%

Inserti: 16ER
Utensili: NT-SER

Inserti: 16IR
Utensili: NT-SIR

nikkoTOOLS

uemme TOOLS and EQUIPMENT

VALIDITA': 31/12/2023

THREADING External threads

External

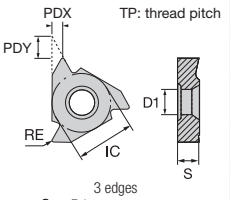
ISO 16-22

- **M**: metric threads
- **W**: parallel pipe threads (whitworth)
- **UN**: unified inch threads
- **NPT**: American national tapered pipe threads
- **BSPT**: tapered pipe threads
- Partial profile with **55°** or **60°** angle, for metric, unified and parallel pipe threads

HF: Micrograin carbide
BL: Low volume CBN
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD050
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	✱ 1st choice	✱ suitable		

Dimensions



	S	D1
16E	3.65	4.00
22E	4.71	5.00

ISO	Vc(m/min) - suggested cutting speed range (bold: 1st choice)				
P	**90 200**	**70 180**			
M	**60 150**	**50 140**			
K	90 190	60 180			
N				**400 1600**	
S				**50 100**	
H			**60 140**		

	Designation	RE	TP	PDX	PDY	IC	Stock				
FULL PROFILE	M P M K	16ER100ISO-TPM	0.14	1	0.7	0.8	9.525	●	●		
		16ER125ISO-TPM	0.18	1.25	0.9	0.8	9.525	●	●		
		16ER150ISO-TPM	0.22	1.5	1	0.8	9.525	●	●		
		16ER175ISO-TPM	0.25	1.75	1.2	1.2	9.525	●	●		
		16ER200ISO-TPM	0.29	2	1.3	1.2	9.525	●	●		
		16ER250ISO-TPM	0.36	2.5	1.5	1.2	9.525	●	●		
		16ER300ISO-TPM	0.43	3	1.5	1.2	9.525	●	●		
	TPM pressed type chip control oriented										
FULL PROFILE	M P M K	16ER050ISO	0.07	0.5	0.6	0.6	9.525		●		
		16ER070ISO	0.1	0.7	0.6	0.6	9.525		●		
		16ER075ISO	0.11	0.75	0.6	0.6	9.525		●		
		16ER080ISO	0.12	0.8	0.6	0.6	9.525		●		
		16ER100ISO	0.15	1	0.7	0.7	9.525		●		
		16ER125ISO	0.18	1.25	0.9	0.8	9.525		●		
		16ER150ISO	0.22	1.5	1	0.8	9.525		●		
		16ER175ISO	0.25	1.75	1.2	0.9	9.525		●		
		16ER200ISO	0.29	2	1.3	1	9.525		●		
		16ER250ISO	0.36	2.5	1.5	1	9.525		●		
		16ER300ISO	0.43	3	1.6	1.2	9.525		●		
	precision ground sharpness oriented										

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

FULL PROFILE

- Full profile insert will form a complete thread profile including the crest.
- The distance between root and crest is controlled.
- The insert can produce only one pitch.
- Higher tool pressure compared to partial profile.

PRESSED VS GROUND

TPM pressed

- Improves the chip control
- Strongly recommended in internal application especially for difficult materials
- Best cost-performance ratio

Precision ground

- Achieves the higher precision
- A sharper cutting edge can guarantee very smooth cutting action
- Every kind of thread's standard can be easily produced using the same blank

External

ISO 16-22

- **M**: metric threads
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- **NPT**: American national tapered pipe threads
- **BSPT**: tapered pipe threads
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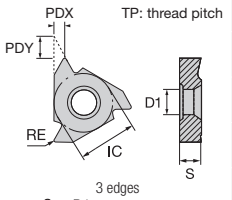
BL: Low volume CBN
DP: Polycristalline diamond
PVD: Physical vapour deposition

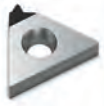
	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD50
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	● 1st choice	○ suitable		

Dimensions



	S	D1
16E	3.65	4.00
22E	4.71	5.00

ISO	Vc(m/min) - suggested cutting speed range (bold: 1st choice)				
P	**90** **200**	**70** **180**			
M	**60** **150**	**50** **140**			
K	90 190	60 180			
N				**400** **1600**	
S				**50** **100**	
H			**60** **140**		

	Designation		RE	TP	PDX	PDY	IC					Stock
FULL PROFILE	M N  **PCD** carbide backed single edge	16ER100ISO-1C	0.15	1	0.7		9.525				●	
		16ER125ISO-1C	0.16	1.25	0.9		9.525				●	
		16ER150ISO-1C	0.22	1.5	1		9.525				●	
		16ER175ISO-1C	0.26	1.75	1.2		9.525				●	
		16ER200ISO-1C	0.29	2	1.3		9.525				●	
		16ER250ISO-1C	0.37	2.5	1.5		9.525				●	
		16ER300ISO-1C	0.43	3	1.5		9.525				●	
FULL PROFILE	M H  **PCBN** solid brazing single edge	16ER100ISO-1S	0.15	1	0.7		9.525			●		
		16ER125ISO-1S	0.16	1.25	0.9		9.525			●		
		16ER150ISO-1S	0.22	1.5	1		9.525			●		
		16ER175ISO-1S	0.26	1.75	1.2		9.525			●		
		16ER200ISO-1S	0.29	2	1.3		9.525			●		
		16ER250ISO-1S	0.37	2.5	1.5		9.525			●		
		16ER300ISO-1S	0.43	3	1.5		9.525			●		
FULL PROFILE	W P M K  **TPM pressed type** chip control oriented	16ER11W-TPM	0.3	11	1.5	1.2	9.525	●	●			
		16ER14W-TPM	0.24	14	1.5	1.2	9.525	●	●			
		16ER19W-TPM	0.17	19	1	0.8	9.525		●			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

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ADVANCED THREADING

PCBN for ISO H

Please increase the number of passes when machining hardened steel with PCBN inserts. Keep the maximum infeed value lower than 0.10 mm

External

ISO 16-22

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- **BSPT**: tapered pipe threads
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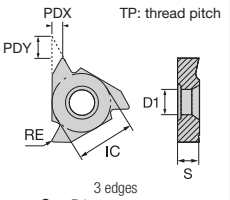
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD50
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	✱ 1st choice	✱ suitable		

Dimensions



	S	D1
16E	3.65	4.00
22E	4.71	5.00

ISO	HF PVD JPS120	HF PVD JPS125	BL PVD NBL350C	DP NDD50
	Vc(m/min) - suggested cutting speed range (bold: 1st choice)			
P	**90** 200	**70** 180		
M	**60** 150	**50** 140		
K	90 190	60 180		
N				**400** 1600
S				**50** 100
H			**60** 140	

Designation		RE	TP	PDX	PDY	IC	Stock			
FULL PROFILE	UN P M K  **TPM pressed type** chip control oriented	16ER08UN-TPM	0.46	8	1.7	1.3	9.525		●			
		16ER12UN-TPM	0.31	12	1.5	1.2	9.525		●			
		16ER14UN-TPM	0.26	14	1.5	1.2	9.525		●			
		16ER16UN-TPM	0.23	16	1.1	0.9	9.525		●			
		16ER18UN-TPM	0.2	18	1	0.8	9.525		●			
		16ER20UN-TPM	0.18	20	0.9	0.8	9.525		●			
		16ER24UN-TPM	0.15	24	0.8	0.8	9.525		●			
FULL PROFILE	NPT P M K  **TPM pressed type** chip control oriented	16ER11.5NPT-TPM	0.25	11.5	1.5	1.2	9.525		●			
		16ER14NPT-TPM	0.22	14	1.5	1.2	9.525		●			
		16ER18NPT-TPM	0.2	18	1	0.8	9.525		●			
FULL PROFILE	NPT P M K  **precision ground** sharpness oriented	16ER11.5NPT	0.07	11.5	1.5	1.1	9.525		●			
		16ER14NPT	0.06	14	1	0.8	9.525		●			
FULL PROFILE	BSPT P M K  **TPM pressed type** chip control oriented	16ER11BSPT-TPM	0.3	11	1.5	1.2	9.525		●			
		16ER14BSPT-TPM	0.24	14	1.5	1.2	9.525		●			
		16ER19BSPT-TPM	0.17	19	1	0.8	9.525		●			
		16ER28BSPT-TPM	0.11	28	0.8	0.7	9.525		●			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

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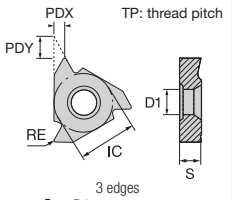
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD050
Stable machining, light cut (● 1st choice ○ suitable)	●	○	●	●
General machining, medium cut (● 1st choice ○ suitable)	●	●		
Unstable machining, heavy cut (● 1st choice ○ suitable)		●		

Dimensions



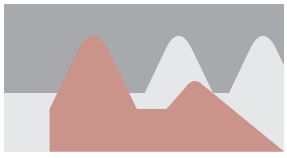
	S	D1
16E	3.65	4.00
22E	4.71	5.00

ISO	Vc(m/min) - suggested cutting speed range (bold: 1st choice)				
P	**90** **200**	**70** **180**			
M	**60** **150**	**50** **140**			
K	90 190	60 180			
N				**400** **1600**	
S				**50** **100**	
H			**60** **140**		

	Designation	RE	TP	PDX	PDY	IC	Stock				
PARTIAL PROFILE	60° P M K	16ERA60-TPM	0.08	-	0.9	0.8	9.525		●			
		16ERAG60-TPM	0.08	-	1.5	1.1	9.525		●			
		16ERG60-TPM	0.25	-	1.7	1.2	9.525		●			
	TPM pressed type chip control oriented											
PARTIAL PROFILE	55° P M K	16ERA55-TPM	0.08	-	0.9	0.8	9.525		●			
		16ERAG55-TPM	0.08	-	1.5	1.1	9.525		●			
		16ERG55-TPM	0.21	-	1.7	1.2	9.525		●			
	TPM pressed type chip control oriented											

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

PARTIAL PROFILE



- Partial profile insert works without cuts the outer diameter of the thread.
- The same insert can be used for a broad range of different thread pitches.
- Can produce burr that must be taken away.

PARTIAL PROFILE 60° PITCH RANGES

	M	UN
A60	0.50÷1.50	48÷16
AG60	0.50÷3.00	48÷8
G60	1.75÷3.00	14÷8
N60	3.50÷5.00	7÷5

PARTIAL PROFILE 55° PITCH RANGES

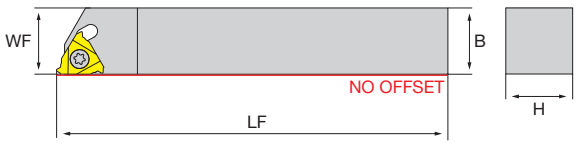
	BSW-BSF-BSP
A55	48÷16
AG55	48÷8
G55	14÷8
N55	7÷5

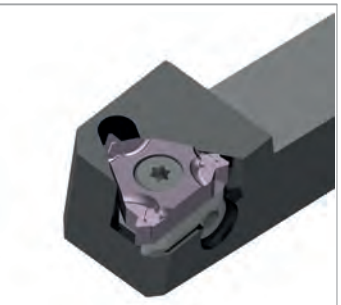
SE

ISO 16-22

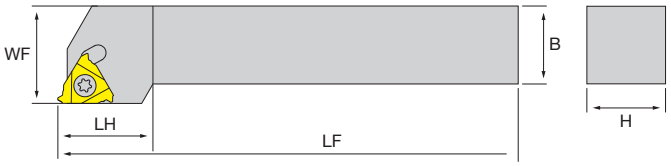
- External threading holder
- Tightened by screws
- Available with shim, convenient to change inserts
- Holds both pressed type and ground type threading inserts

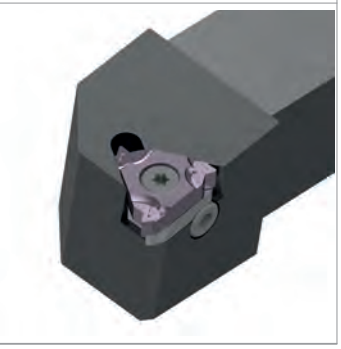
Without offset — Right-hand shown





Standard design — Right-hand shown



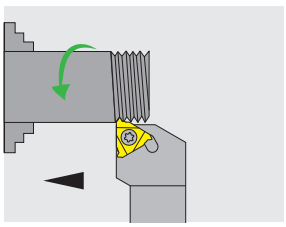


Designation	Stock L	Stock R	H	B	WF	LF	LH					MIID
WITHOUT OFFSET												
NT-SER1212H16N	○	○	12	12	12	100	-					16EL/Rooo
NT-SER1616H16N	○	○	16	16	16	100	-					16EL/Rooo
STANDARD DESIGN												
NT-SER1616H16	●	●	16	16	20	100	22					16EL/Rooo
NT-SER2020K16	●	●	20	20	25	125	25					16EL/Rooo
NT-SER2525M16	●	●	25	25	32	150	25					16EL/Rooo
NT-SER2525M22		●	25	25	32	150	29					22ERooo
NT-SER3232M22		●	32	32	40	170	32					22ERooo

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

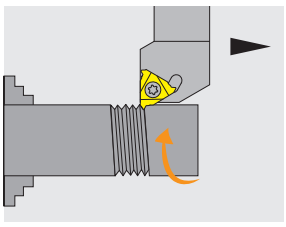
Spare parts	Shim	Shim	Locking screws	L wrench	Insert screws	Flag wrenches
NT-SERooooo16o	-	NT-SH060	NT-SC003	NT-WR025	NT-ST35115T15	NT-FT15
NT-SERooooo22o	-	NT-SH066	NT-SC004	NT-WR030	NT-ST40140T15	NT-FT15

EXTERNAL THREAD right-hand



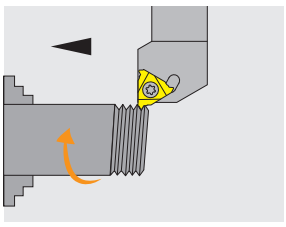
Insert: ER Rotation: counterclockwise
Holder: R Direction: towards chuck

EXTERNAL THREAD right-hand



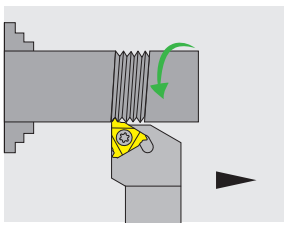
Insert: EL Rotation: clockwise
Holder: L Direction: from chuck

EXTERNAL THREAD left-hand



Insert: EL Rotation: clockwise
Holder: L Direction: towards chuck

EXTERNAL THREAD left-hand



Insert: ER Rotation: counterclockwise
Holder: R Direction: from chuck

M - External ISO-metric threads

TP	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	1.75	1.50	1.25	1.00	0.80	0.75	0.70	0.50
NO. OF INFEEDS	RADIAL INFEED PER PASS																
1	0.46	0.43	0.41	0.37	0.34	0.34	0.28	0.27	0.24	0.22	0.22	0.21	0.18	0.17	0.16	0.14	0.11
2	0.43	0.40	0.39	0.34	0.32	0.31	0.26	0.24	0.22	0.20	0.20	0.17	0.16	0.15	0.14	0.12	0.09
3	0.35	0.32	0.32	0.28	0.25	0.25	0.21	0.20	0.18	0.17	0.17	0.14	0.12	0.12	0.11	0.10	0.07
4	0.30	0.28	0.27	0.24	0.22	0.21	0.18	0.17	0.16	0.14	0.14	0.11	0.11	0.08	0.07	0.07	0.06
5	0.29	0.26	0.24	0.22	0.20	0.18	0.16	0.15	0.14	0.12	0.12	0.10	0.08	–	–	–	–
6	0.26	0.24	0.24	0.22	0.18	0.18	0.15	0.15	0.12	0.10	0.08	0.08	–	–	–	–	–
7	0.24	0.21	0.22	0.20	0.17	0.16	0.14	0.12	0.11	0.10	–	–	–	–	–	–	–
8	0.23	0.20	0.20	0.18	0.15	0.15	0.13	0.11	0.08	0.08	–	–	–	–	–	–	–
9	0.22	0.19	0.19	0.17	0.14	0.14	0.12	0.11	–	–	–	–	–	–	–	–	–
10	0.19	0.18	0.18	0.16	0.13	0.12	0.11	0.08	–	–	–	–	–	–	–	–	–
11	0.18	0.17	0.16	0.14	0.12	0.11	0.10	–	–	–	–	–	–	–	–	–	–
12	0.16	0.15	0.15	0.13	0.12	0.08	0.08	–	–	–	–	–	–	–	–	–	–
13	0.15	0.14	0.12	0.12	0.11	–	–	–	–	–	–	–	–	–	–	–	–
14	0.13	0.13	0.10	0.10	0.08	–	–	–	–	–	–	–	–	–	–	–	–
15	0.13	0.12	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
16	0.10	0.10	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
TOTAL INFEED	3.82	3.52	3.19	2.87	2.53	2.23	1.92	1.60	1.25	1.13	0.93	0.81	0.65	0.52	0.48	0.43	0.33

green background are standard items all other sizes can make specials

W - External Whitworth threads

TP	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28
NO. OF INFEEDS	RADIAL INFEED PER PASS																
1	0.49	0.46	0.45	0.38	0.37	0.32	0.30	0.29	0.28	0.28	0.24	0.24	0.23	0.22	0.21	0.19	0.18
2	0.46	0.43	0.43	0.36	0.35	0.30	0.28	0.27	0.26	0.26	0.22	0.22	0.22	0.22	0.21	0.18	0.17
3	0.38	0.38	0.38	0.30	0.29	0.24	0.23	0.22	0.22	0.22	0.18	0.19	0.19	0.18	0.17	0.15	0.14
4	0.36	0.33	0.32	0.26	0.25	0.21	0.20	0.19	0.19	0.18	0.15	0.16	0.16	0.14	0.14	0.12	0.12
5	0.34	0.29	0.28	0.22	0.22	0.19	0.18	0.17	0.16	0.16	0.13	0.13	0.13	0.12	0.11	0.08	0.08
6	0.31	0.25	0.25	0.21	0.19	0.17	0.15	0.15	0.14	0.14	0.11	0.11	0.08	0.08	0.08	-	-
7	0.29	0.24	0.22	0.19	0.18	0.15	0.14	0.14	0.13	0.13	0.09	0.08	-	-	-	-	-
8	0.27	0.22	0.20	0.17	0.16	0.14	0.13	0.13	0.12	0.08	0.08	-	-	-	-	-	-
9	0.24	0.20	0.19	0.16	0.15	0.13	0.12	0.12	0.08	-	-	-	-	-	-	-	-
10	0.22	0.18	0.18	0.15	0.14	0.12	0.12	0.08	-	-	-	-	-	-	-	-	-
11	0.20	0.17	0.17	0.14	0.12	0.12	0.08	-	-	-	-	-	-	-	-	-	-
12	0.19	0.16	0.15	0.14	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-
13	0.17	0.15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0.15	0.14	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL INFEED	4.29	3.82	3.44	2.90	2.50	2.17	1.93	1.76	1.58	1.45	1.20	1.13	1.01	0.96	0.92	0.72	0.69

green background are standard items all other sizes can make specials

UN - External UN threads

TP	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
NO. OF INFEEDS	RADIAL INFEED PER PASS																	
1	0.47	0.45	0.43	0.36	0.35	0.30	0.28	0.27	0.27	0.27	0.25	0.23	0.22	0.23	0.20	0.19	0.17	0.17
2	0.44	0.41	0.40	0.34	0.33	0.28	0.26	0.26	0.25	0.26	0.24	0.22	0.21	0.21	0.19	0.17	0.15	0.15
3	0.40	0.39	0.36	0.27	0.26	0.25	0.21	0.20	0.20	0.20	0.18	0.17	0.16	0.16	0.15	0.14	0.11	0.13
4	0.36	0.31	0.31	0.23	0.22	0.21	0.20	0.17	0.19	0.18	0.17	0.15	0.14	0.14	0.12	0.12	0.09	0.08
5	0.32	0.26	0.26	0.22	0.21	0.18	0.17	0.16	0.16	0.15	0.14	0.13	0.13	0.12	0.10	0.08	0.08	-
6	0.27	0.23	0.23	0.20	0.19	0.16	0.15	0.15	0.14	0.13	0.12	0.11	0.11	0.08	0.08	-	-	-
7	0.25	0.21	0.20	0.18	0.17	0.14	0.14	0.14	0.12	0.12	0.11	0.10	0.08	-	-	-	-	-
8	0.23	0.20	0.19	0.16	0.15	0.13	0.12	0.12	0.11	0.08	0.08	0.08	-	-	-	-	-	-
9	0.22	0.18	0.19	0.15	0.14	0.12	0.12	0.11	0.08	-	-	-	-	-	-	-	-	-
10	0.21	0.17	0.18	0.14	0.12	0.12	0.11	0.08	-	-	-	-	-	-	-	-	-	-
11	0.19	0.16	0.17	0.13	0.11	0.11	0.08	-	-	-	-	-	-	-	-	-	-	-
12	0.18	0.15	0.15	0.12	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-	-
13	0.16	0.14	0.12	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0.15	0.14	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL INFEED	4.07	3.62	3.29	2.71	2.33	2.08	1.84	1.66	1.52	1.39	1.29	1.19	1.05	0.94	0.84	0.70	0.60	0.53

green background are standard items all other sizes can make specials

NPT - External NPT threads

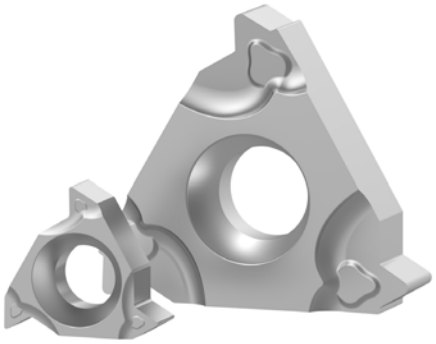
TP	8	11.5	14	18	27
NO. OF INFEEDS	RADIAL INFEED PER PASS				
1	0.28	0.25	0.24	0.22	0.19
2	0.25	0.22	0.22	0.18	0.15
3	0.22	0.18	0.17	0.15	0.13
4	0.19	0.16	0.15	0.14	0.11
5	0.18	0.16	0.14	0.13	0.09
6	0.18	0.14	0.13	0.12	0.08
7	0.17	0.14	0.12	0.10	-
8	0.17	0.12	0.10	0.08	-
9	0.16	0.12	0.10	-	-
10	0.16	0.10	0.08	-	-
11	0.14	0.09	-	-	-
12	0.13	0.08	-	-	-
13	0.12	-	-	-	-
14	0.11	-	-	-	-
15	0.08	-	-	-	-
TOTAL INFEED	2.54	1.76	1.45	1.12	0.75

green background are standard items all other sizes can make specials

BSPT - British tapered pipe threads

TP	11	14	19	28
NO. OF INFEEDS	RADIAL INFEED PER PASS			
1	0.25	0.24	0.22	0.17
2	0.23	0.20	0.19	0.14
3	0.21	0.17	0.15	0.11
4	0.18	0.14	0.12	0.10
5	0.16	0.12	0.12	0.06
6	0.14	0.12	0.06	-
7	0.13	0.11	-	-
8	0.12	0.06	-	-
9	0.06	-	-	-
TOTAL INFEED	1.58	1.20	0.86	0.58

green background are standard items all other sizes can make specials



THREADING Internal threads

Internal

ISO 11-16-22

- **M**: metric threads
- **W**: parallel pipe threads (whitwoth)
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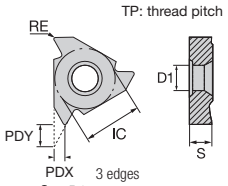
- **BSPT**: tapered pipe threads
- Partial profile with **55°** or **60°** angle, for metric, unified and parallel pipe threads

HF: Micrograin carbide
BL: Low volume CBN
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	**JPS125**	**NBL350C**	**NDD050**
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	● 1st choice	○ suitable		

Dimensions



	S	D1
11I	3.18	3.20
16I	3.65	4.00
22I	4.71	5.00

ISO					**Vc(m/min) - suggested cutting speed range** (bold: 1st choice)
P	**90** **200**	**70** **180**			
M	**60** **150**	**50** **140**			
K	90 190	60 180			
N				**400** **1600**	
S				**50** **100**	
H			**60** **140**		

	Designation	RE	TP	PDX	PDY	IC					Stock
FULL PROFILE	**16IR100ISO-TPM**	0.07	1	0.7	0.8	9.525	●	●			
	16IR125ISO-TPM	0.09	1.25	0.9	0.8	9.525	●	●			
	16IR150ISO-TPM	0.11	1.5	1	0.8	9.525	●	●			
	16IR175ISO-TPM	0.13	1.75	1.2	1.2	9.525	●	●			
	16IR200ISO-TPM	0.15	2	1.3	1.2	9.525	●	●			
	16IR250ISO-TPM	0.18	2.5	1.5	1.2	9.525	●	●			
	16IR300ISO-TPM	0.22	3	1.5	1.2	9.525	●	●			

M P M K

TPM pressed type
chip control oriented

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

FULL PROFILE

- Full profile insert will form a complete thread profile including the crest.
- The distance between root and crest is controlled.
- The insert can produce only one pitch.
- Higher tool pressure compared to partial profile.

PRESSED VS GROUND

TPM pressed

- Improves the chip control
- Strongly recommended in internal application especially for difficult materials
- Best cost-performance ratio

Precision ground

- Achieves the higher precision
- A sharper cutting edge can guarantee very smooth cutting action
- Every kind of thread's standard can be easily produced using the same blank

Internal

ISO 11-16-22

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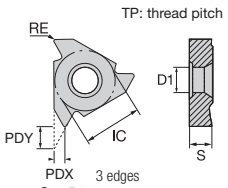
HF: Micrograin carbide
BL: Low volume CBN
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	**JPS125**	**NBL350C**	**NDD50**
Stable machining, light cut	● 1st choice ○ suitable	○	●	●
General machining, medium cut	● 1st choice ○ suitable	●		
Unstable machining, heavy cut	✱ 1st choice ✱ suitable	✱		

Dimensions



	S	D1
11I	3.18	3.20
16I	3.65	4.00
22I	4.71	5.00

ISO	HF PVD	HF PVD	BL PVD	DP
	JPS120	**JPS125**	**NBL350C**	**NDD50**
P	90 200	70 180		
M	60 150	50 140		
K	90 190	60 180		
N				400 1600
S				50 100
H			60 140	

Vc(m/min) - suggested cutting speed range (bold: 1st choice)

	Designation	RE	TP	PDX	PDY	IC	Stock			
FULL PROFILE	M P M K									
	16IR100ISO	0.072	1	0.7	0.6	9.525		●		
	16IR125ISO	0.09	1.25	0.9	0.8	9.525		●		
	16IR150ISO	0.11	1.5	1	0.8	9.525		●		
	16IR175ISO	0.13	1.75	1.2	0.9	9.525		●		
	16IR200ISO	0.14	2	1.3	1	9.525		●		
	16IR250ISO	0.18	2.5	1.5	1.1	9.525		●		
	16IR300ISO	0.22	3	1.5	1.1	9.525		●		

precision ground
sharpness oriented

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

FULL PROFILE

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ISO 11-16-22

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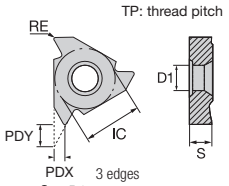
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD050
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	✱ 1st choice	⬡ suitable		

Dimensions



	S	D1
11I	3.18	3.20
16I	3.65	4.00
22I	4.71	5.00

ISO	HF PVD	HF PVD	BL PVD	DP	Vc(m/min) - suggested cutting speed range (bold: 1st choice)
P	**90** 200	**70** 180			
M	**60** 150	**50** 140			
K	90 190	60 180			
N				**400** 1600	
S				**50** 100	
H			**60** 140		

	Designation		RE	TP	PDX	PDY	IC	Stock				
FULL PROFILE	M N	16IR100ISO-1C	0.08	1	0.7	0.8	9.525				●	
		16IR125ISO-1C	0.09	1.25	0.9		9.525				●	
		16IR150ISO-1C	0.11	1.5	1		9.525				●	
		16IR175ISO-1C	0.13	1.75	1.2		9.525				●	
		16IR200ISO-1C	0.15	2	1.3		9.525				●	
		16IR250ISO-1C	0.18	2.5	1.5		9.525				●	
		16IR300ISO-1C	0.22	3	1.5		9.525				●	
	PCD carbide backed single edge											
FULL PROFILE	M H	16IR100ISO-1S	0.08	1	0.7	0.8	9.525			●		
		16IR125ISO-1S	0.09	1.25	0.9		9.525			●		
		16IR150ISO-1S	0.11	1.5	1		9.525			●		
		16IR175ISO-1S	0.13	1.75	1.2		9.525			●		
		16IR200ISO-1S	0.15	2	1.3		9.525			●		
		16IR250ISO-1S	0.18	2.5	1.5		9.525			●		
		16IR300ISO-1S	0.22	3	1.5		9.525			●		
	PCBN solid brazing single edge											
FULL PROFILE	W P M K											
		16IR11W-TPM	0.3	11	1.5	1.2	9.525	●	●			
		16IR14W-TPM	0.24	14	1.5	1.2	9.525	●	●			
		16IR19W-TPM	0.17	19	1	0.8	9.525		●			
	TPM pressed type chip control oriented											
FULL PROFILE	UN P M K	16IR08UN-TPM	0.23	8	1.7	1.3	9.525		●			
		16IR12UN-TPM	0.16	12	1.5	1.2	9.525		●			
		16IR14UN-TPM	0.13	14	1.5	1.2	9.525		●			
		16IR16UN-TPM	0.12	16	1.1	0.9	9.525		●			
		16IR18UN-TPM	0.1	18	1	0.8	9.525		●			
		16IR20UN-TPM	0.09	20	0.9	0.8	9.525		●			
		16IR24UN-TPM	0.08	24	0.8	0.8	9.525		●			
	TPM pressed type chip control oriented											

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

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ADVANCED THREADING

PCBN for ISO H

Please increase the number of passes when machining hardened steel with PCBN inserts. Keep the maximum infeed value lower than 0.10 mm

PRESSED VS GROUND

TPM pressed

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Precision ground

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Internal

ISO 11-16-22

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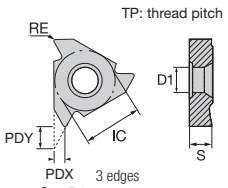
HF: Micrograin carbide
BL: Low volume CBN
DP: Polycristalline diamond
PVD: Physical vapour deposition

	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD50
Stable machining, light cut	● 1st choice	○ suitable	●	●
General machining, medium cut	● 1st choice	○ suitable		
Unstable machining, heavy cut	✱ 1st choice	✱ suitable		

Dimensions



	S	D1
11I	3.18	3.20
16I	3.65	4.00
22I	4.71	5.00

ISO	HF PVD JPS120	HF PVD JPS125	BL PVD NBL350C	DP NDD50
	Vc(m/min) - suggested cutting speed range (bold: 1st choice)			
P	**90** 200	**70** 180		
M	**60** 150	**50** 140		
K	90 190	60 180		
N				**400** 1600
S				**50** 100
H			**60** 140	

	Designation		RE	TP	PDX	PDY	IC	Stock				
FULL PROFILE	NPT P M K	16IR11.5NPT-TPM	0.25	11.5	1.5	1.2	9.525		●			
		16IR14NPT-TPM	0.22	14	1.5	1.2	9.525		●			
	TPM pressed type chip control oriented	16IR18NPT-TPM	0.2	18	1	0.8	9.525		●			
FULL PROFILE	NPT P M K	16IR11.5NPT	0.07	11.5	1.5	1.1	9.525		●			
	precision ground sharpness oriented	16IR14NPT	0.06	14	1	0.8	9.525		●			
FULL PROFILE	BSPT P M K	16IR11BSPT-TPM	0.3	11	1.5	1.2	9.525		●			
		16IR14BSPT-TPM	0.24	14	1.5	1.2	9.525		●			
		16IR19BSPT-TPM	0.17	19	1	0.8	9.525		●			
	TPM pressed type chip control oriented	16IR28BSPT-TPM	0.11	28	0.8	0.7	9.525		●			
PARTIAL PROFILE	60° P M K											
		16IRA60-TPM	0.08	-	0.9	0.8	9.525		●			
		16IRAG60-TPM	0.08	-	1.5	1.1	9.525		●			
	TPM pressed type chip control oriented	16IRG60-TPM	0.13	-	1.7	1.2	9.525		●			

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

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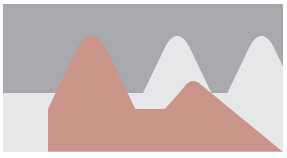
PARTIAL PROFILE



- Partial profile insert works without cuts the outer diameter of the thread.
- The same insert can be used for a broad range of different thread pitches.
- Can produce burr that must be taken away.

PARTIAL PROFILE 60° PITCH RANGES

	M	UN
A60	0.50÷1.50	48÷16
AG60	0.50÷3.00	48÷8
G60	1.75÷3.00	14÷8
N60	3.50÷5.00	7÷5

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ISO 11-16-22

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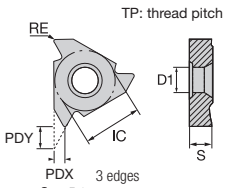
	HF PVD	HF PVD	BL PVD	DP
	JPS120	JPS125	NBL350C	NDD050
Stable machining, light cut	● 1st choice ○ suitable	○	●	●
General machining, medium cut	● 1st choice ○ suitable	●		
Unstable machining, heavy cut	● 1st choice ○ suitable	●		

Dimensions



	S	D1
11I	3.18	3.20
16I	3.65	4.00
22I	4.71	5.00

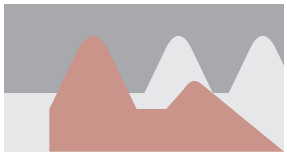
ISO	HF PVD JPS120	HF PVD JPS125	BL PVD NBL350C	DP NDD050
	Vc(m/min) - suggested cutting speed range (bold: 1st choice)			
P	**90 200**	**70 180**		
M	**60 150**	**50 140**		
K	90 190	60 180		
N				**400 1600**
S				**50 100**
H			**60 140**	

Designation		RE	TP	PDX	PDY	IC	HF PVD JPS120	HF PVD JPS125	BL PVD NBL350C	DP NDD050	Stock
PARTIAL PROFILE	55° P M K										
	16IRA55-TPM	0.08	-	0.9	0.8	9.525		●			
	16IRAG55-TPM	0.08	-	1.5	1.1	9.525		●			
	16IRG55-TPM	0.21	-	1.7	1.2	9.525		●			

TPM pressed type
chip control oriented

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

PARTIAL PROFILE



- Partial profile insert works without cuts the outer diameter of the thread.
- The same insert can be used for a broad range of different thread pitches.
- Can produce burr that must be taken away.

PARTIAL PROFILE 55° PITCH RANGES

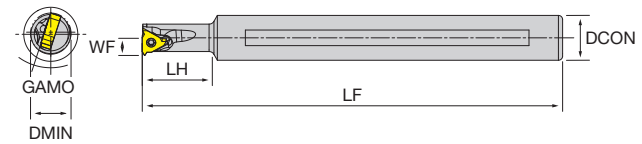
	BSW-BSF-BSP
A55	48÷16
AG55	48÷8
G55	14÷8
N55	7÷5

V SI

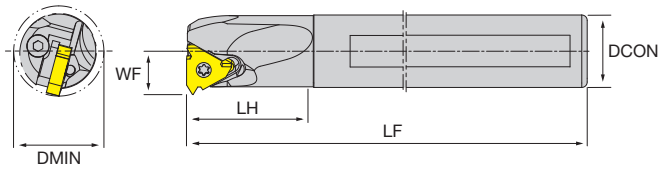
ISO 11-16-22

- Internal threading holder
- Vortex boring bar (High standard steel)
- Special chip evacuation path
- With coolant through

Reduced neck — Right-hand shown



Standard design — Right-hand shown

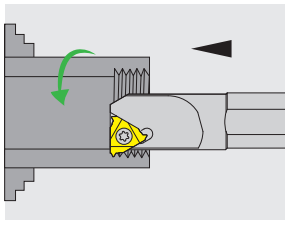


Designation	Stock L	Stock R	DMIN	DCON	WF	LF	LH	GAMO				MIID
REDUCED NECK												
NT-V16M-SIR11-12		●	12	16	6.3	150	25	18°				11IRooo
NT-V16M-SIR11-15		●	15	16	7.5	150	25	18°				11IRooo
STANDARD DESIGN												
NT-V10M-SIR11-10		●	10	10	5.2	150	25	21°				11IRooo
NT-V16M-SIR16-20		●	20	16	10	150	35	15°				16IRooo
NT-V20Q-SIR16-24		●	24	20	12	180	35	15°				16IRooo
NT-V25R-SIR16-30		●	30	25	15	200	35	15°				16IRooo
NT-V32S-SIR16-37		●	37	32	18.5	250	35	15°				16IRooo

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

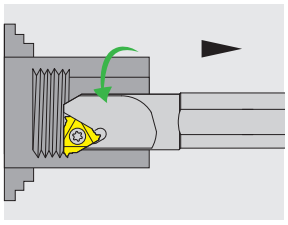
Spare parts	Shim	Locking screws	L wrench	Insert screws	Flag wrenches
NT-V∞M-SIR11-∞	-	-	-	NT-ST25059T08	NT-FT08
NT-V16M-SIR16-20	-	-	-	NT-ST35089T15	NT-FT15
NT-V20Q-SIR16-24	NT-SH065	NT-SC003	NT-WR025	NT-ST35120T15	NT-FT15
NT-V25R-SIR16-30	NT-SH065	NT-SC003	NT-WR025	NT-ST35120T15	NT-FT15
NT-V32S-SIR16-37	NT-SH065	NT-SC003	NT-WR025	NT-ST35120T15	NT-FT15

INTERNAL THREAD right-hand



Insert: IR Rotation: counterclockwise
Holder: R Direction: towards chuck

INTERNAL THREAD left-hand



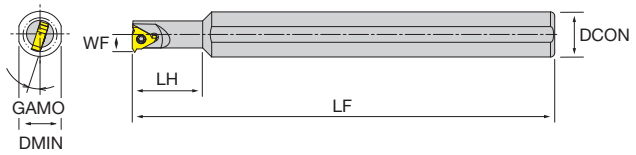
Insert: IR Rotation: counterclockwise
Holder: R Direction: from chuck

SI

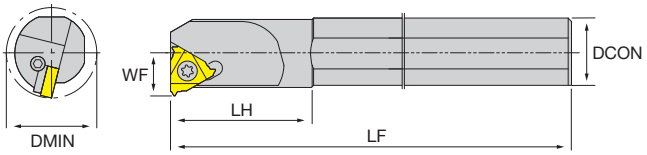
ISO 11-16-22

- Internal threading holder
- Steel boring bar
- Without coolant through
- Small diameters with reduced neck

Reduced neck — Right-hand shown



Standard design — Right-hand shown

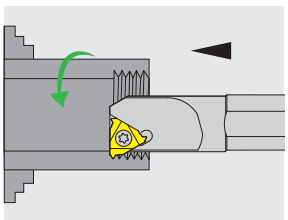


Designation	Stock L	Stock R	DMIN	DCON	WF	LF	LH	GAMO				MIID
REDUCED NECK												
NT-SIR1012-11		●	10	12	5.2	150	25	21°				11IRooo
NT-SIR1216-11		●	12	16	6.3	150	25	18°				11IRooo
NT-SIR1516-11		●	15	16	7.5	150	25	15°				11IRooo
STANDARD DESIGN												
NT-SIR2016-16	●	●	20	16	10	150	35	15°				16IL/Rooo
NT-SIR2420S-16	●	●	24	20	12	180	35	15°				16IL/Rooo
NT-SIR3025S-16	●	●	30	25	15	200	35	15°				16IL/Rooo
NT-SIR3732S-16	●	●	37	32	18.5	250	35	15°				16IL/Rooo
NT-SIR3025S-22		●	30	25	16	200	35	15°				22IRooo
NT-SIR3732S-22		●	37	32	19.5	250	35	15°				22IRooo
NT-SIR4440S-22		●	44	40	24.5	300	35	15°				22IRooo

● stock standard, ○ non-standard stock, ▲ upcoming introduction, ▽ stock exhaustion

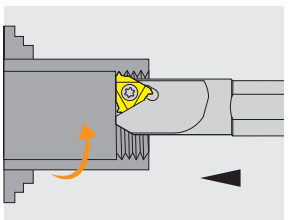
Spare parts	Shim	Shim	Locking screws	L wrench	Insert screws	Flag wrenches
NT-SIRoooo-11	-	-	-	-	NT-ST25059T08	NT-FT08
NT-SIRoooo-16	-	-	-	-	NT-ST35089T15	NT-FT15
	NT-SH060					
NT-SIRoooS-16	-	NT-SH065	NT-SC003	NT-WR025	NT-ST35115T15	NT-FT15
NT-SIRoooS-22	-	NT-SH067	NT-SC004	NT-WR030	NT-ST40140T15	NT-FT15

INTERNAL THREAD right-hand



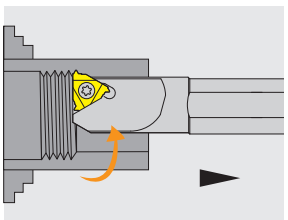
Insert: IR Rotation: counterclockwise
Holder: R Direction: towards chuck

INTERNAL THREAD left-hand



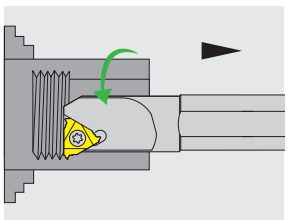
Insert: IL Rotation: clockwise
Holder: L Direction: towards chuck

INTERNAL THREAD right-hand



Insert: IL Rotation: clockwise
Holder: L Direction: from chuck

INTERNAL THREAD left-hand



Insert: IR Rotation: counterclockwise
Holder: R Direction: from chuck

M - Internal ISO-metric threads

TP	6.00	5.50	5.00	4.50	4.00	3.50	3.00	2.50	2.00	1.75	1.50	1.25	1.00	0.80	0.75	0.70	0.50
NO. OF INFEEDS	RADIAL INFEED PER PASS																
1	0.46	0.43	0.42	0.37	0.34	0.32	0.28	0.26	0.23	0.22	0.20	0.17	0.17	0.17	0.16	0.13	0.10
2	0.43	0.40	0.40	0.34	0.31	0.30	0.26	0.25	0.21	0.20	0.18	0.17	0.15	0.14	0.13	0.12	0.08
3	0.35	0.33	0.32	0.28	0.24	0.24	0.21	0.18	0.17	0.15	0.15	0.14	0.11	0.11	0.10	0.10	0.07
4	0.30	0.26	0.26	0.23	0.21	0.19	0.16	0.15	0.15	0.13	0.13	0.10	0.09	0.07	0.07	0.07	0.06
5	0.26	0.22	0.22	0.21	0.18	0.17	0.14	0.13	0.12	0.10	0.11	0.09	0.08	-	-	-	-
6	0.22	0.20	0.20	0.19	0.15	0.15	0.13	0.12	0.11	0.09	0.08	0.08	-	-	-	-	-
7	0.20	0.18	0.17	0.16	0.14	0.14	0.12	0.11	0.10	0.08	-	-	-	-	-	-	-
8	0.19	0.17	0.16	0.15	0.13	0.13	0.11	0.10	0.08	0.08	-	-	-	-	-	-	-
9	0.18	0.16	0.16	0.14	0.12	0.12	0.10	0.10	-	-	-	-	-	-	-	-	-
10	0.16	0.15	0.15	0.13	0.12	0.11	0.10	0.08	-	-	-	-	-	-	-	-	-
11	0.15	0.14	0.14	0.12	0.11	0.10	0.09	-	-	-	-	-	-	-	-	-	-
12	0.15	0.14	0.14	0.12	0.10	0.08	0.08	-	-	-	-	-	-	-	-	-	-
13	0.14	0.13	0.12	0.11	0.10	-	-	-	-	-	-	-	-	-	-	-	-
14	0.13	0.12	0.10	0.10	0.08	-	-	-	-	-	-	-	-	-			-
15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL INFEED	3.54	3.25	2.96	2.65	2.33	2.05	1.78	1.48	1.17	1.05	0.85	0.75	0.60	0.49	0.46	0.42	0.31

green background are standard items all other sizes can make specials

W - Internal Whitworth threads

TP	4	4.5	5	6	7	8	9	10	11	12	14	16	18	19	20	26	28
NO. OF INFEEDS	RADIAL INFEED PER PASS																
1	0.49	0.46	0.45	0.38	0.37	0.32	0.30	0.29	0.28	0.28	0.24	0.24	0.23	0.22	0.21	0.19	0.18
2	0.46	0.43	0.43	0.36	0.35	0.30	0.28	0.27	0.26	0.26	0.22	0.22	0.22	0.22	0.21	0.18	0.17
3	0.38	0.38	0.38	0.30	0.29	0.24	0.23	0.22	0.22	0.22	0.18	0.19	0.19	0.18	0.17	0.15	0.14
4	0.36	0.33	0.32	0.26	0.25	0.21	0.20	0.19	0.19	0.18	0.15	0.16	0.16	0.14	0.14	0.12	0.12
5	0.34	0.29	0.28	0.22	0.22	0.19	0.18	0.17	0.16	0.16	0.13	0.13	0.13	0.12	0.11	0.08	0.08
6	0.31	0.25	0.25	0.21	0.19	0.17	0.15	0.15	0.14	0.14	0.11	0.11	0.08	0.08	0.08	-	-
7	0.29	0.24	0.22	0.19	0.18	0.15	0.14	0.14	0.13	0.13	0.09	0.08	-	-	-	-	-
8	0.27	0.22	0.20	0.17	0.16	0.14	0.13	0.13	0.12	0.08	0.08	-	-	-	-	-	-
9	0.24	0.20	0.19	0.16	0.15	0.13	0.12	0.12	0.08	-	-	-	-	-	-	-	-
10	0.22	0.18	0.18	0.15	0.14	0.12	0.12	0.08	-	-	-	-	-	-	-	-	-
11	0.20	0.17	0.17	0.14	0.12	0.12	0.08	-	-	-	-	-	-	-	-	-	-
12	0.19	0.16	0.15	0.14	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-
13	0.17	0.15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0.15	0.14	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL INFEED	4.29	3.82	3.44	2.90	2.50	2.17	1.93	1.76	1.58	1.45	1.20	1.13	1.01	0.96	0.92	0.72	0.69

green background are standard items all other sizes can make specials

UN - Internal UN threads

TP	4	4.5	5	6	7	8	9	10	11	12	13	14	16	18	20	24	28	32
NO. OF INFEEDS	RADIAL INFEED PER PASS																	
1	0.44	0.41	0.42	0.35	0.34	0.30	0.28	0.27	0.27	0.27	0.25	0.23	0.22	0.23	0.20	0.18	0.17	0.17
2	0.41	0.38	0.38	0.33	0.32	0.28	0.26	0.25	0.23	0.23	0.20	0.18	0.18	0.17	0.16	0.15	0.14	0.14
3	0.39	0.34	0.33	0.25	0.24	0.22	0.19	0.18	0.18	0.18	0.15	0.14	0.14	0.14	0.13	0.13	0.09	0.10
4	0.33	0.28	0.27	0.21	0.21	0.18	0.16	0.15	0.15	0.15	0.13	0.13	0.12	0.12	0.10	0.10	0.08	0.08
5	0.28	0.23	0.23	0.18	0.17	0.15	0.14	0.13	0.13	0.13	0.12	0.11	0.10	0.10	0.09	0.08	0.08	-
6	0.24	0.20	0.20	0.16	0.15	0.13	0.13	0.12	0.11	0.11	0.11	0.10	0.09	0.08	0.08	-	-	-
7	0.22	0.19	0.18	0.15	0.14	0.12	0.12	0.11	0.11	0.10	0.10	0.09	0.08	-	-	-	-	-
8	0.21	0.18	0.17	0.14	0.13	0.11	0.11	0.10	0.10	0.08	0.08	0.08	-	-	-	-	-	-
9	0.20	0.17	0.16	0.13	0.12	0.11	0.10	0.10	0.08	-	-	-	-	-	-	-	-	-
10	0.18	0.16	0.15	0.12	0.12	0.10	0.09	0.08	-	-	-	-	-	-	-	-	-	-
11	0.17	0.15	0.14	0.12	0.11	0.10	0.08	-	-	-	-	-	-	-	-	-	-	-
12	0.16	0.14	0.14	0.11	0.08	0.08	-	-	-	-	-	-	-	-	-	-	-	-
13	0.15	0.14	0.12	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-
14	0.14	0.13	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-
15	0.12	0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
16	0.10	0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL INFEED	3.74	3.32	2.99	2.46	2.13	1.88	1.66	1.49	1.36	1.25	1.14	1.06	0.93	0.84	0.76	0.64	0.56	0.49

green background are standard items all other sizes can make specials

NPT - Internal NPT threads

TP	8	11.5	14	18	27.0
NO. OF INFEEDS	RADIAL INFEED PER PASS				
1	0.28	0.28	0.28	0.28	0.28
2	0.25	0.25	0.25	0.25	0.25
3	0.22	0.22	0.22	0.22	0.22
4	0.19	0.19	0.19	0.19	0.19
5	0.18	0.18	0.18	0.18	0.18
6	0.18	0.18	0.18	0.18	0.18
7	0.17	0.17	0.17	0.17	0.17
8	0.17	0.17	0.17	0.17	0.17
9	0.16	0.16	0.16	0.16	0.16
10	0.16	0.16	0.16	0.16	0.16
11	0.14	0.14	0.14	0.14	0.14
12	0.13	0.13	0.13	0.13	0.13
13	0.12	0.12	0.12	0.12	0.12
14	0.11	0.11	0.11	0.11	0.11
15	0.08	0.08	0.08	0.08	0.08
TOTAL INFEED	2.54	1.76	1.45	1.12	0.75

green background are standard items all other sizes can make specials

BSPT - British tapered pipe threads

TP	11	14	19	28
NO. OF INFEEDS	RADIAL INFEED PER PASS			
1	0.25	0.24	0.22	0.17
2	0.23	0.20	0.19	0.14
3	0.21	0.17	0.15	0.11
4	0.18	0.14	0.12	0.10
5	0.16	0.12	0.12	0.06
6	0.14	0.12	0.06	-
7	0.13	0.11	-	-
8	0.12	0.06	-	-
9	0.06	-	-	-
TOTAL INFEED	1.58	1.20	0.86	0.58

green background are standard items all other sizes can make specials

ISO 513	MATERIAL	HARDNESS HB	JP5120 min	JP5120 start	JP5120 max	JP5125 min	JP5125 start	JP5125 max
P1 - P2	Free cutting steel and low carbon (ex. 1.0715/9 smn 28/avp, 1.0503/c45)	≤ 200	100	**150**	200	100	**140**	180
			90	**130**	170	80	**120**	160
						70	**100**	130
P3 - P4	Medium and high alloy steel (ex. 1.7225/42 CrMo 4, 1.3505/100 Cr 6)	200 ÷ 300	90	**130**	170	80	**120**	160
			80	**110**	140	70	**100**	120
						60	**80**	100
P5 - P6	High tensile strength and tool steel (ex. 1.2344/X 40 CrMoV 5 1/ORVAR, Hardox400®)	300 ÷ 400	80	**110**	150	70	**100**	130
			70	**100**	130	60	**90**	120
						60	**80**	100
P7	Ferritic and martensitic stainless steel (ex. 1.4021/X 20 Cr 13/AISI420)	≤ 200	100	**150**	200	100	**140**	180
			90	**130**	170	80	**120**	160
						70	**100**	130
P8	Precipitation hardening stainless steel (ex. 1.4548/X 5 CrNiCuNb 17 4/17-4-PH)	≤ 450	70	**90**	110	60	**80**	100
			60	**80**	100	50	**70**	90
						50	**60**	70
M1	Austenitic stainless steel (ex. 1.4305/X 10 CrNiS 18 9/AISI303)	> 200	70	**110**	150	60	**100**	140
			60	**100**	140	50	**90**	130
						50	**80**	110
M2 - M3	Austenitic and Duplex stainless steel (ex. 1.4401/X 5 CrNiMo 17 12 2/AISI316)		70	**100**	130	60	**90**	120
			60	**90**	120	60	**80**	100
						50	**70**	90
K1	Grey cast iron (ex. 0.6025/GG 25/EN-GJL-250)	150 ÷ 250	110	**150**	190	100	**140**	180
			90	**135**	160	80	**115**	150
						60	**90**	120
K2	Nodular cast iron (ex. 0.7050/GGG 50/EN-GJS-500-7)	150 ÷ 350	90	**130**	170	80	**120**	160
			80	**105**	130	70	**95**	120
						60	**80**	100
K3 - K4	Austenitic and ADI cast iron (ex. 0.6660/GGL-NiCr 20 2/Ni-Resist 2, GJS-1000-5/ADI1000)	250 ÷ 500	80	**115**	150	70	**105**	140
			70	**100**	130	60	**90**	120
						50	**75**	100

ISO 513	MATERIAL	HARDNESS HB	ND050 (NDP001) min	ND050 (NDP001) start	ND050 (NDP001) max
N1	Aluminium alloys ≤ Si 12% (ex. 3.4365/AlZn5.5MgCu/ERGAL)		400	**1000**	1600
N2	Aluminium alloys Si > 12% (ex. 3.2382/G-AlSi12)		250	**400**	550
N3	Copper alloy (ex. 2.0060/E-Cu57)		300	**600**	900
S4 - S5	Titanium alloys (ex. TiAl2Sn4Zr2MoSi)		50	**75**	100

Complete workpiece materials p. **H**1.

ISO 513	MATERIAL	HARDNESS HB	NBL350C min	NBL350C start	NBL350C max		
H1	Case-hardened steel (ex. 1.7131/16 MnCr 5)	50 ÷ 56	●	60	**100**	140	
H2	Bearing steel, quenched and tempered steel (ex.1.3505/100 Cr 6)	54 ÷ 62	●	60	**90**	120	
H3	Hardened tool steel (ex 1.2436/X 210 CrW 12/2312)	60 ÷ 65	●	50	**70**	90	

Complete workpiece materials p. **H**1.