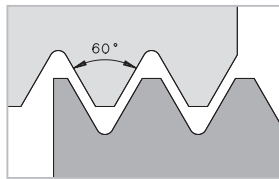




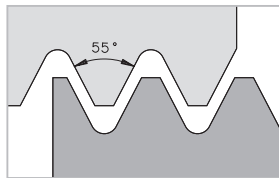
Thread Turning

• Overview Thread Types	278 – 279
• Insert Preselection	280 – 283
• Holders and Spare Parts	284 – 298
• Indexable Inserts	300 – 370
• Support Pads for Holders	371 – 372

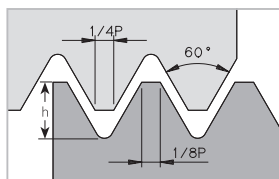
Partial profile
60°



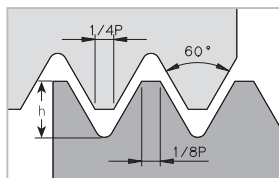
Partial profile
55°



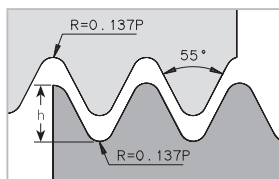
Metric
ISO



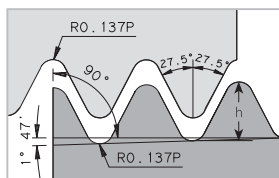
American thread
UN



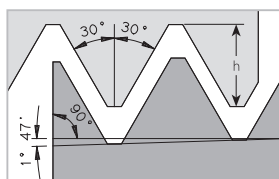
Whitworth pipe thread
BSW, BSP



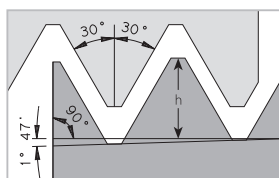
Tapered pipe thread
BSPT



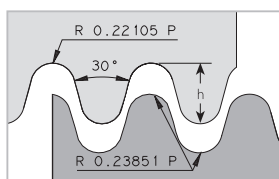
Tapered pipe thread
NPT



Tapered fine pitch
pipe thread
NPTF



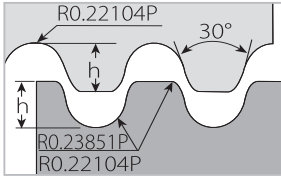
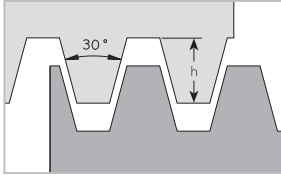
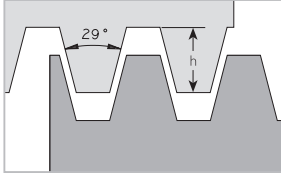
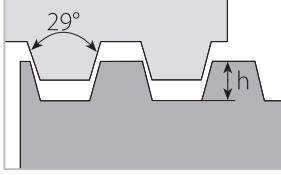
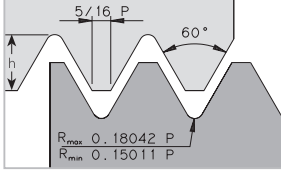
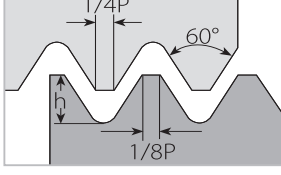
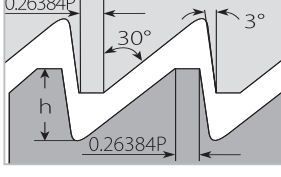
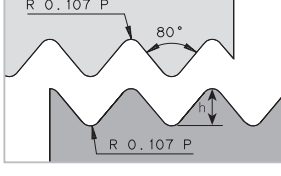
Round thread
DIN 405



Indexable insert

Holder

External Thread Page	Internal Thread Page	External Thread Page	Internal Thread Page
300 – 301	302 – 304	284 – 289	290 – 298
305 – 306	307 – 309	284 – 289	290 – 298
310 – 313	314 – 317	284 – 289	290 – 298
318 – 320	321 – 323	284 – 289	290 – 298
324 – 326	327 – 330	284 – 289	290 – 298
331	332 – 333	284 – 289	290 – 298
334 – 335	336 – 337	284 – 289	290 – 298
338	339 – 340	284 – 289	290 – 298
341	342	284 – 289	290 – 295

	Indexable insert		Holder	
	External Thread Page	Internal Thread Page	External Thread Page	Internal Thread Page
Round thread DIN 20400 	343	344	284 – 289	290 – 295
Trapezoidal thread DIN 103 	345 – 346	347 – 350	284 – 289	290 – 298
American trapezoidal thread ACME 	351 – 352	353 – 355	284 – 289	290 – 298
American flat trapezoidal thread Stub ACME 	356 – 357	358 – 360	284 – 289	290 – 298
Aerospace thread UNJ 	361	362 – 363	284 – 289	290 – 298
V-thread DIN 5855 MJ 	364	365	284 – 289	290 – 298
Metric buttress thread DIN 513 SAGE 	366	367	284 – 289	290 – 295
Pg-thread DIN 40430 	368	369 – 370	284 – 289	290 – 298

Special tools

Special holders and inserts are available on request (e.g. multi-tooth-profile inserts, custom tooling systems for standard inserts)

MICRO-threading tools for internal machining from diameter 2,2mm are available in our catalog „Tools and Inserts for Parting and Grooving“.

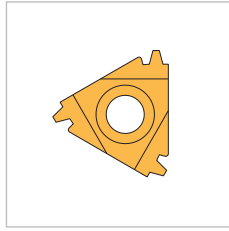
What Insert to use for which Thread?

Identification	Short description example	Description	DIN-Standard	Available threading insert
M	M 30	ISO-metric thread	DIN 13 T1	<ul style="list-style-type: none"> • Partial profile 60° • ISO-metric (full profile)
	M 20 x 1	Coarse pitch	DIN 13 T2-11	
	DIN 6630 - M 64 x 4	Barrel fittings, external	DIN 6630	
	DIN 158 - M 30 x 2 keg	Metric tapered external thread	DIN 158	<ul style="list-style-type: none"> • On request
G	G 1½	Cylindrical pipe thread, no sealing thread, internal thread	DIN ISO 228 T1	<ul style="list-style-type: none"> • Partial profile 55° • Whitworth pipe thread BSW, BSP (full profile)
	G 1½ A	External Thread	DIN ISO 228 T1	
Rp	DIN 2999 - Rp ½	Cylindrical pipe thread, sealing thread, internal thread	DIN 2999 T1	<ul style="list-style-type: none"> • Partial profile 55° • Whitworth pipe thread BSW, BSP (full profile)
	DIN 3858 - Rp ⅛		DIN 3858	
R	DIN 2999 - R ½	Tapered pipe thread, sealing thread, external thread	DIN 2999 T1	<ul style="list-style-type: none"> • Tapered pipe thread BSPT (full profile)
	DIN 3858 - R ⅛ - 1		DIN 3858	
Tr	Tr 40 x 7	ISO-trapezoidal thread, general	DIN 103 T1-8	<ul style="list-style-type: none"> • Trapezoidal thread DIN 103 (full profile)
S	S 48 x 8	Buttress thread, general	DIN 513 T2	<ul style="list-style-type: none"> • On request
Rd	Rd 40 x ⅛	Round thread, general	DIN 405	<ul style="list-style-type: none"> • Round thread DIN 405 (full profile)
	Rd 40 x 5	Cylindrical round thread for mining	DIN 20400	<ul style="list-style-type: none"> • On request
E	DIN 40400 - E 27	Electric thread	DIN 40400	<ul style="list-style-type: none"> • On request
W	DIN 477 - W 21,8 x ⅛	Cylindrical Whitworth thread	DIN 477 T1	<ul style="list-style-type: none"> • Partial profile 55° • Whitworth pipe thread BSW, BSP (full profile)
	DIN 477 - W 28,8 x ⅛ keg	Tapered Whitworth thread		<ul style="list-style-type: none"> • Tapered Whitworth thread (full profile)
Pg	DIN 40430 - Pg 21	Pg thread	DIN 40430	<ul style="list-style-type: none"> • PG-thread DIN 40430 (full profile)
UN	¼ - 20 UNC - 2A	American UN thread, coarse pitch		<ul style="list-style-type: none"> • American UN thread (full profile)
	¼ - 28 UNF - 3A	American UN thread fine pitch		
UNJ	¼ - 28 UNJ - 3A	Aerospace thread		<ul style="list-style-type: none"> • Aerospace thread UNJ (full profile)
MJ	MJ 6 x 1 - 4h6h MJ 6 x 1 - 4H6H	V-thread	DIN ISO 5855-1 und DIN ISO 5855-2	<ul style="list-style-type: none"> • V-thread MJ (full profile)
NPT	¾ - 18 NPT	Tapered pipe thread		<ul style="list-style-type: none"> • Tapered pipe thread NPT (full profile)
NPTF	⅜ - 27 NPTF - 1	Tapered fine pitch pipe thread		<ul style="list-style-type: none"> • Tapered fine pitch pipe thread NPTF (full profile)
ACME	1¾ - ACME - 2G	American trapezoidal thread		<ul style="list-style-type: none"> • American trapezoidal thread ACME (full profile)
Stub-ACME	½ - 20 Stub-ACME	American flat trapezoidal thread		<ul style="list-style-type: none"> • American flat trapezoidal thread (full profile)

REMARK: The above table shows the most common threads. Other threads are available on request.

Standard geometry

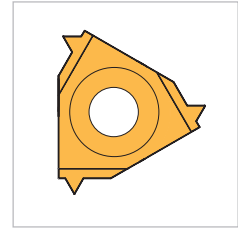
Threading inserts for all thread types. Threading almost against the work piece shoulder due to the thread profile being as close as possible to the theoretical corner of the insert blank.



MINI 3 - geometry

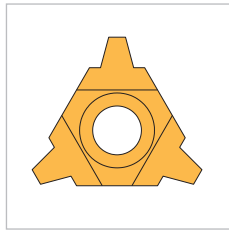
For internal threading in small diameters starting at 9,3mm

3 cutting edges



U-geometry

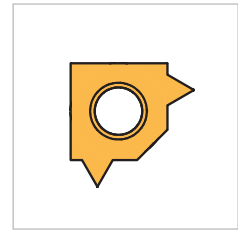
Strong threading insert for large pitch threads



MINI 2 - geometry

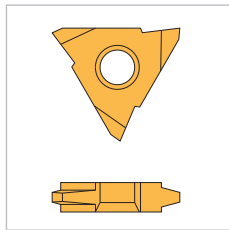
For internal threading in small diameters starting at 7,3mm

2 cutting edges



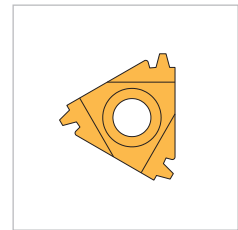
V-geometry

Vertical threading inserts for machining large profiles and pitches from 6 - 10mm, also for threading behind behind the shoulders.



SB-execution

Sintered chipbreaker for long chipping materials, TiAlN-coated (AI 100)



Carbide coated

AL100 – HC - P10, HC - M10, HC - K10, HC - N10, HC - S10, HC - H10

TiAlN coated carbide grade for machining steel, stainless steel, cast and exotic materials such as Hasteloy, Waspaloy and Inconel. Grade can also be used for hard machining.

AM15C – HC - P15, HC - M15, HC - K10, HC - N15, HC - H15

TiN coated sub micron grade with high toughness. Machining steel, stainless steel, nickel based alloys, aluminum and cast iron. Specially suitable for exotic materials and acid resistant materials.

AM7C – HC - M20, HC - N15

Multi layer TiN coated carbide grade with high wear resistance for machining stainless steel. Excellent tool life can be achieved. Also suitable for interrupted cuts due to the cutting edge stability.

Carbide uncoated

AK20 – HW - K10, HW - N10, HW - S15

Machining of nonferrous materials and grey cast iron at normal cutting speeds. Also suitable for heat-resistant materials.
Good cutting edge stability.

AP20P

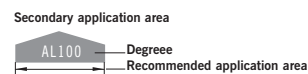
Grade AK20 with polished chip breaker for machining aluminum.
Better surface finish and reduction of build up on the edge.

HSS coated

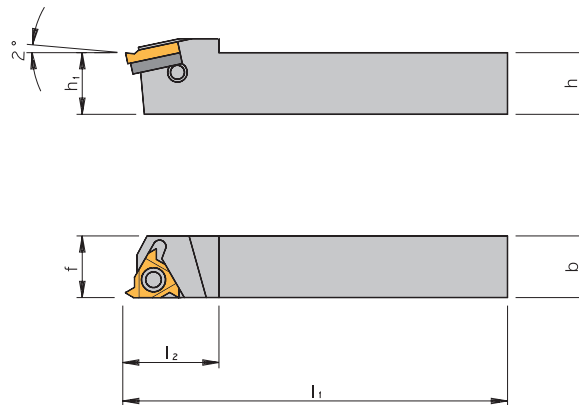
HSS-TiN

TiN coated HSS grade. Machining at very low cutting speeds (e.g. manual turning lathes), parts with small diameters and profiles where high accuracy is required. Specially suitable for machining steel, stainless steel, and nonferrous materials, even in interrupted cutting.

ISO	Carbide coated	Carbide uncoated	Cutting material	Application
P Steel, cast steel, malleable iron	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AL100		
	30	AM15C		
	40			
	50			
M Stainless steel, cast steel, manganese steel, free cutting steel	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AL100		
	30	AM7C		
	40	AM15C		
	50			
K Grey cast iron, chilled hard cast iron, short chipping malleable iron	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AL100		
	30	AM15C		
	40	AM7C		
	50			
		AK20		
N Aluminum and Al-alloys, nonferrous materials	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AM7C		
	30	AM15C		
	40			
	50			
		AK20		
	AK20P			
S High temperature resistant alloys, titanium alloys	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AL100		
	30			
	40			
	50			
		AK20		
H Hardened steel, hard cast iron	10		Toughness Wear resistance Feed rate Cutting speed	Toughness Wear resistance Feed rate Cutting speed
	20	AL100		
	30	AM15C		
	40			
	50			




External Thread




Type
Standard

Holder

	Designation	$h = h_1 = b$	f	l_1	l_2	PG
11	NL8-2 R/L	8	11	136,4	17,5	39
11	NL10-2 R/L	10	11	70,0	17,5	39
11	NL12-2 R/L	12	12	80,0	17,5	39
16	NL12-3 R/L	12	16	83,2	22,0	39
16	AL3/8-3 R/L	9,52	16	63,6	20,5	39
16	AL12-3 R/L	12	16	83,2	22,0	39
16	AL16-3 R/L	16	16	100,0	20,5	39
16	AL20-3 R/L	20	20	128,6	30,0	39
16	AL25-3 R/L	25	25	153,6	30,0	39
16	AL32-3 R/L	32	32	173,6	30,0	39
22	AL25-4 R/L	25	25	155,7	36,0	39
22	AL32-4 R/L	32	32	175,7	36,0	39
22	AL40-4 R/L	40	40	205,7	36,0	39
27	AL25-5 R/L	25	32	151,6	35,0	39
27	AL32-5 R/L	32	32	176,6	40,0	39
27	AL40-5 R/L	40	40	206,6	40,0	39
27	AL50-5 R/L	50	50	256,6	40,0	39

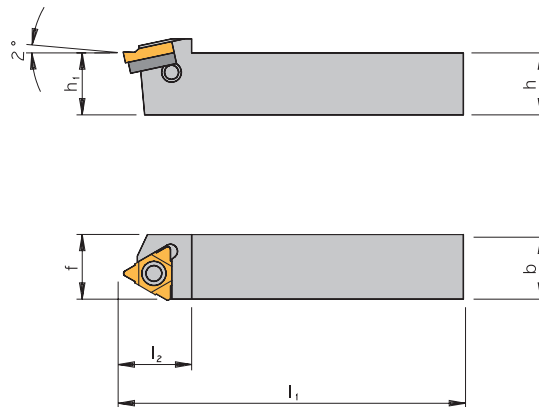
REMARK:
All tool holders are supplied with a helix angle of 1,5°.
For different a helix angle please refer to page 371 ff.
They have to be ordered separately.

Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
11	SN2T	-	KS 1751	-	-
16	SA3T	SY3T	KS 2510	YE3	YI3
22	SA4T	SY4T	KS 2520	YE4	YI4
27	SA5T	SY5T	KS 2525	YE5	YI5

5


External Thread



Type
U


Right hand execution shown

Holder

	Designation	$h = h_1 = b$	f	l_1	l_2	PG
22 U	AL25-4U R/L	25	25	178,4	38	39
22 U	AL32-4U R/L	32	32	178,4	38	39
22 U	AL40-4U R/L	40	40	208,4	38	39
27 U	AL25-5U R/L	25	25	179,1	40	39
27 U	AL32-5U R/L	32	32	179,1	40	39
27 U	AL40-5U R/L	40	40	209,1	40	39
27 U	AL50-5U R/L	50	50	259,1	40	39

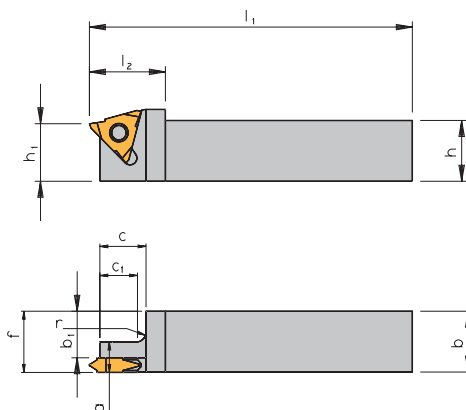
REMARK:
All tool holders are supplied with a helix angle of 1,5°.
For different a helix angle please refer to page 371 ff.
They have to be ordered separately.

Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
22U	SA4T	SY4T	KS 2520	YE4U	YI4U
27U	SA5T	SY5T	KS 2525	YE5U	YI5U


External Thread

Type
Slim Throat




Right hand execution shown

Holder

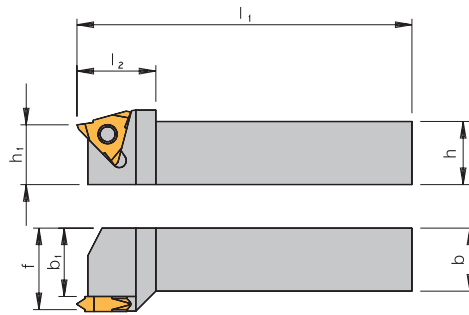
	Designation	$h = h_1 = b$	f	a	b_1	c	c_1	l_1	l_2	r	PG
11 V	NL8-2V R/L	8	10	7	4,8	12,5	11,5	60,0	14,0	1	39
11 V	NL10-2V R/L	10	10	7	6,8	12,5	11,5	70,0	14,0	1	39
11 V	NL12-2V R/L	12	12	7	8,8	14,5	11,5	80,0	14,0	3	39
11 V	NL16-2V R/L	16	16	7	12,8	14,5	11,5	100,0	14,0	3	39
16 V	NL10-3V R/L	10	14	7	6,4	14,5	11,5	70,0	18,5	3	39
16 V	NL12-3V R/L	12	14	7	8,4	14,5	11,5	80,0	18,5	3	39
16 V	NL16-3V R/L	16	16	7	12,4	14,5	11,5	100,0	25,0	3	39
16 V	NL20-3V R/L	20	20	7	16,4	16,5	11,5	125,0	30,0	3	39
16 V	NL25-3V R/L	25	25	7	21,4	16,5	11,5	150,0	30,0	5	39
16 V	NL32-3V R/L	32	32	7	28,4	16,5	11,5	170,0	30,0	5	39
16 V	NL40-3V R/L	40	40	7	36,4	16,5	11,5	200,0	30,0	5	39
22 V	NL25-4V R/L	25	25	12	20,2	16,5	11,5	150,0	30,0	5	39
22 V	NL32-4V R/L	32	32	12	27,2	16,5	11,5	170,0	30,0	5	39
22 V	NL40-4V R/L	40	40	12	35,2	16,5	11,5	200,0	30,0	5	39

REMARK:
All tool holders are supplied with a helix angle of 1,5°.

Spare Parts

	Clamping screw	Key
11V	SN2T	KS 1751
16V	SN3T	KS 2510
22V	SN4T	KS 2520

External Thread



Type
V

Right hand execution shown

Holder

	Designation	$h = h_1 = b$	b_1	l_1	l_2	f	PG
27 V	NL32-5V-6 R/L	32	25,5	170	40	32,0	39
27 V	NL32-5V-8 R/L	32	25,5	170	40	34,1	39
27 V	NL32-5V-10 R/L	32	25,5	170	40	35,8	39
27 V	NL40-5V-6 R/L	40	33,5	200	40	40,0	39
27 V	NL40-5V-8 R/L	40	33,5	200	40	42,1	39
27 V	NL40-5V-10 R/L	40	33,5	200	40	43,8	39

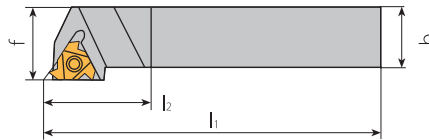
REMARK:
All tool holders are supplied with a helix angle of 1,5°.

Spare Parts

	Clamping screw	Key
27V	SN6T	KS 2525


External Thread

Type
Offset head




Right hand execution shown

Holder

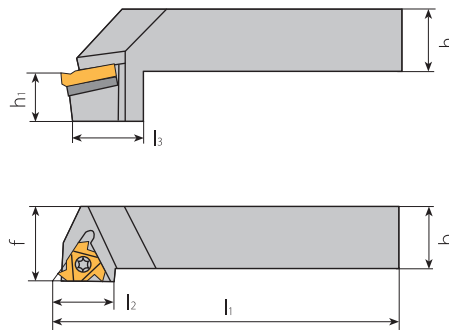
	Designation	$h = h_1 = b$	l_1	l_2	f	PG
16	AL20-3FQ R/L	20	125	25	25	39
16	AL25-3FQ R/L	25	150	25	32	39
16	AL32-3FQ R/L	32	170	32	40	39
22	AL25-4FQ R/L	25	150	30	32	39
22	AL32-4FQ R/L	32	170	30	40	39
27	AL32-5FQ R/L	32	170	35	40	39

Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
16	SA3T	SY3T	KS 2510	YE3	YI3
22	SA4T	SY4T	KS 2520	YE4	YI4
27	SA5T	SY5T	KS 2525	YE5	YI5


External Thread

Type
Drop head




Right hand execution shown

Holder

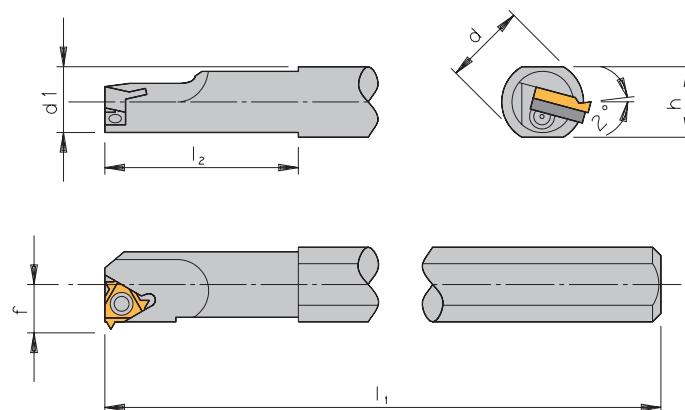
	Designation	h = b	h ₁	b ₁	c	c ₁	l ₁	PG
16	AL20-3CQ R/L	20	17,5	25	125	24	38	39
16	AL25-3CQ R/L	25	22,2	32	150	24	38	39
16	AL32-3CQ R/L	32	22,2	40	170	24	38	39
22	AL25-4CQ R/L	25	22,2	32	150	30	38	39
22	AL32-4CQ R/L	32	22,2	40	170	30	38	39
27	AL32-5CQ R/L	32	25,4	40	170	33	43	39

Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
16	SA3T	SY3T	KS 2510	YE3	YI3
22	SA4T	SY4T	KS 2520	YE4	YI4
27	SA5T	SY5T	KS 2525	YE5	YI5

Internal Thread without coolant through

Type
Standard



Holder

	Designation	h	l ₁	l ₂	d	d ₁	f	min. bore-Ø	PG
11	NVR10D-2 R/L	-	100	-	10	10,0	7,3	13,0	39
11	NVR10-2 R/L	18,0	180	25	20	10,0	7,3	13,0	39
11	NVR13-2 R/L	18,0	180	32	20	13,0	8,9	16,0	39
16	NVR13-3 R/L	18,0	180	32	20	12,7	10,3	17,0	39
16	NVR16-3 R/L	18,0	180	40	20	16,0	11,5	20,0	39
16	NVR16D-3 R/L	15,2	150	32	16	16,0	11,3	20,0	39
16	AVR20-3 R/L	18,0	180	40	20	20,0	13,4	24,0	39
16	AVR25-3 R/L	29,0	250	60	32	25,0	16,3	29,0	39
16	AVR25D-3 R/L	22,6	200	45	25	24,6	16,1	29,0	39
16	AVR32-3 R/L	29,0	250	60	32	32,0	19,6	36,0	39
16	AVR40-3 R/L	36,0	300	60	40	40,0	23,8	44,0	39
22	NVR20-4 R/L	18,0	180	50	20	20,0	15,6	27,0	39
22	AVR25-4 R/L	29,0	250	60	32	25,0	17,4	32,0	39
22	AVR25D-4 R/L	22,6	200	45	25	24,6	17,2	32,0	39
22	AVR32-4 R/L	29,0	250	60	32	32,0	21,5	39,0	39
22	AVR40-4 R/L	36,0	300	60	40	40,0	25,8	47,0	39
22	AVR50-4 R/L	45,0	350	75	50	50,0	30,8	57,0	39
27	AVR32-5 R/L	29,0	250	60	32	32,0	22,4	40,0	39
27	AVR40-5 R/L	36,0	300	60	40	40,0	26,4	48,0	39
27	AVR50-5 R/L	45,0	350	75	50	50,0	31,4	58,0	39
27	AVR60-5 R/L	54,0	400	75	60	60,0	36,4	69,0	39

REMARK:
All tool holders are supplied with a helix angle of 1,5°.
For different a helix angle please refer to page 371 ff.
They have to be ordered separately.
Tool holders designated with „N..“ are used without support pad.

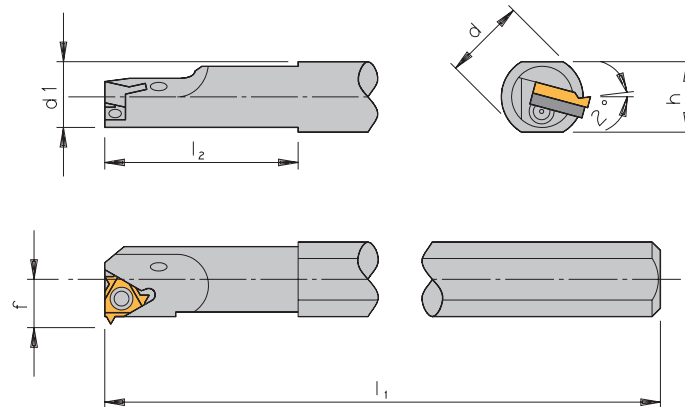
Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
11	SN2T	-	KS 1751	-	-
16 ①	SA3T	SY3T	KS 2510	Y13	YE3
22 ②	SA4T	SY4T	KS 2520	Y14	YE4
27	SA5T	SY5T	KS 2525	Y15	YE5

① NVR 16-3 R/L uses clamping screw SN3T.
② NVR 20-4 R/L uses clamping screw SN4T.

Internal Thread


with coolant through



Type
Standard for
regular threads

Right hand execution shown

Holder

	Designation	h	l ₁	l ₂	d	d ₁	min. bore-Ø	Degree	PG
11	NVRC10-2 156/001 R/L	18	180	25	20	10,1	6,53	3,0	39
16	NVRC11-3 156/005 R/L	18	180	25,4	20	11,2	8,30	4,5	39
16	NVRC13-3 156/006 R/L	18	180	32	20	13,0	9,05	4,0	39
16	NVRC13-3 156/016 R/L	18	180	34	20	13,8	8,90	2,5	39
22	NVRC17-4 156/007 R/L	18	180	40	20	16,7	11,45	4,0	39
22	NVRC20-4 156/008 R/L	18	180	50	20	19,6	12,55	3,5	39
22	NVRC20-4 156/009 R/L	18	180	50	20	19,6	12,55	3,0	39
27	NVRC25-5 156/012 R/L	29	250	60	32	25,0	16,78	3,3	39
27	NVRC28-5 156/010 R/L	29	250	50	32	28,0	17,80	3,5	39

REMARK:



All tool holders are supplied with a helix angle of 1,5°.

For different a helix angle please refer to page 371 ff.

They have to be ordered separately.

Tool holders designated with „N.“ are used without support pad.

Spare Parts

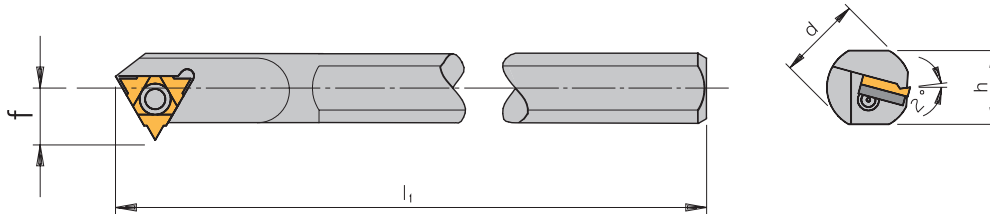
	Clamping screw	Key
11	SN2T	KS 1751
16 	SN2TM	KS 1751
16	SN3T	KS 2510
22	SN4T	KS 2520
27	SN5T	KS 2525

 Spare parts for holder NVRC 17-4 R/L.

Internal Thread


with coolant through

Type
U for regular threads



Right hand execution shown

Holder

	Designation	h	l ₁	l ₂	d	d ₁	min. bore-Ø	Degree	PG
6,0 U	NVRC8-6.0U 156/003 R/L	18	180	24	20	8,0	5,86	4,0	39
11 U	NVRC10-2U 156/004 R/L	18	180	32	20	10,0	7,40	4,0	39
11 U	NVRC11-2U 156/002 R/L	18	180	32	20	11,2	7,30	3,0	39
16 U	NVRC11-3U 156/020 R/L	18	180	32	20	11,0	8,23	4,5	39
16 U	NVRC14-3U 156/018 R/L	18	180	38	20	13,4	9,99	4,5	39
16 U	NVRC15-3U 156/019 R/L	18	180	38	20	15,4	10,99	4,0	39
22 U	NVRC20-4U 156/011 R/L	18	180	40	20	19,2	13,68	4,0	39
22 U	NVRC25-4U 156/013 R/L	29	250	60	32	25,0	17,63	3,5	39
22 U	NVRC32-4U 156/014 R/L	29	250	60	32	29,7	18,76	3,3	39
27 U	NVRC32-5U 156/015 R/L	29	250	60	32	31,6	20,96	3,2	39


REMARK:

All tool holders are supplied with a helix angle of 1,5°.

For different a helix angle please refer to page 371 ff.

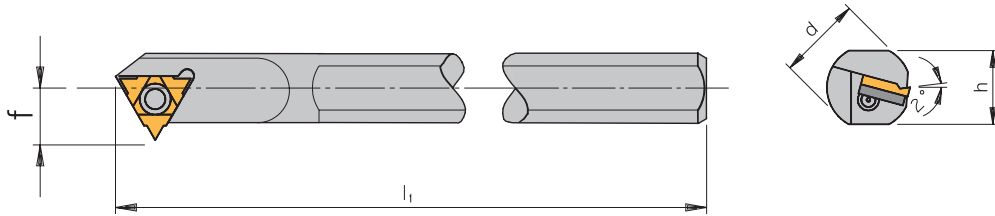
They have to be ordered separately. Tool holders designated with „N..“ are used without support pad.

Spare Parts

	Clamping screw	Key
6,0 U	SN6MT	KS 1886
11 U	SM2T8	KS 1751
16 U	SN3T	KS 2510
22 U	SN4T	KS 2520
27 U	SN5T	KS 2525


Internal Thread

Type
U




Right hand execution shown

Holder

	Designation	h	l ₁	l ₂	d	d ₁	f	min. bore-Ø	PG
22 U	AVR32-4U R/L	29	250	60	32	32	25,5	42,0	39
22 U	AVR40-4U R/L	36	300	60	40	40	29,5	51,0	39
27 U	NVR32-5U R/L	29	250	60	32	32	24,7	42,0	39
27 U	AVR40-5U R/L	36	300	60	40	40	29,4	53,0	39
27 U	AVR50-5U R/L	45	350	75	50	50	34,3	63,0	39
27 U	AVR60-5U R/L	54	400	75	60	60	39,3	74,0	39

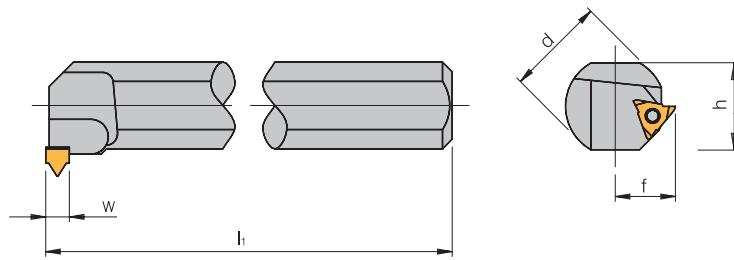
REMARK:
All tool holders are supplied with a helix angle of 1,5°.
Tool holders designated with „N.“ are used without support pad.

Spare Parts

	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
22U	SA4T	SY4T	KS 2520	YI4U	YE4U
27U	SA5T	SY5T	KS 2525	YI5U	YE5U


Internal Thread

Type
V




Right hand execution shown

Holder

	Designation	h	l ₁	d	f	w	PG
27 V	NVR40-5V R/L	36	300	40	28,4	6,5	39
27 V	NVR50-5V R/L	45	350	50	33,4	6,5	39
27 V	NVR60-5V R/L	54	400	60	38,0	6,5	39

REMARK:
All tool holders are supplied with a helix angle of 1°.

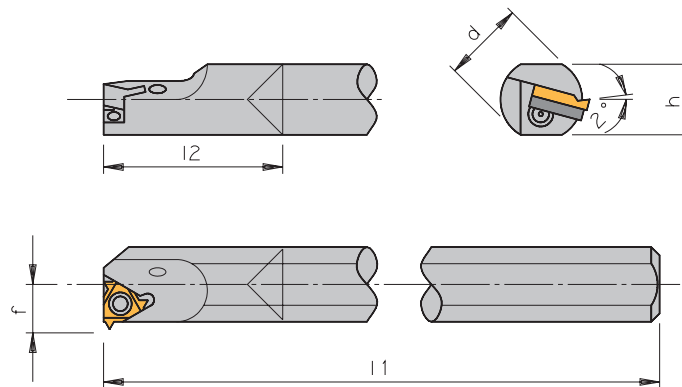
Spare Parts

	Clamping screw	Key
27V	SN6T	KS 2520

Internal Thread


with coolant through

Type
Standard
with carbide shank




Right hand execution shown

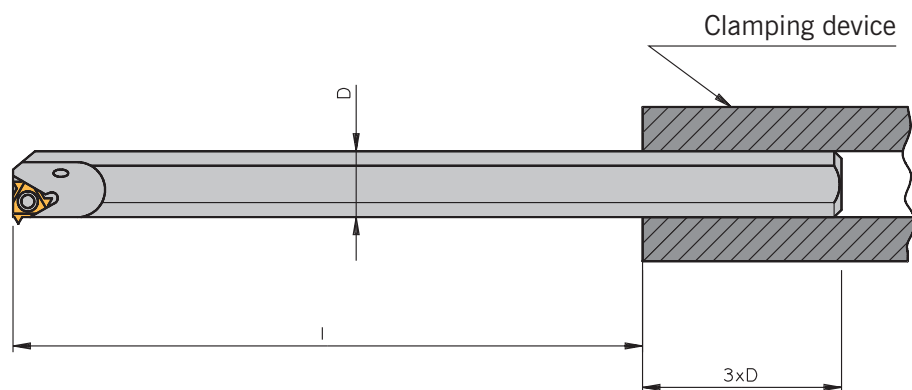
Holder

	Designation	d	h	f	l ₁	l ₂	min. bore-Ø	PG
11	CNVRC10-2 R/L	10	9,5	7,3	150	19	13,0	30
11	CNVRC12-2 R/L	12	11,7	8,3	180	25	15,0	30
16	CNVRC16-3 R/L	16	15,6	11,5	200	27	20,0	30
22	CNVRC20-4 R/L	20	19,5	13,8	250	35	25,0	30

REMARK:
All tool holders are supplied with a helix angle of 1,5°.
For different a helix angle please refer to page 371 ff.
They have to be ordered separately. Tool holders designated with „N.“ are used without support pad.

Spare Parts

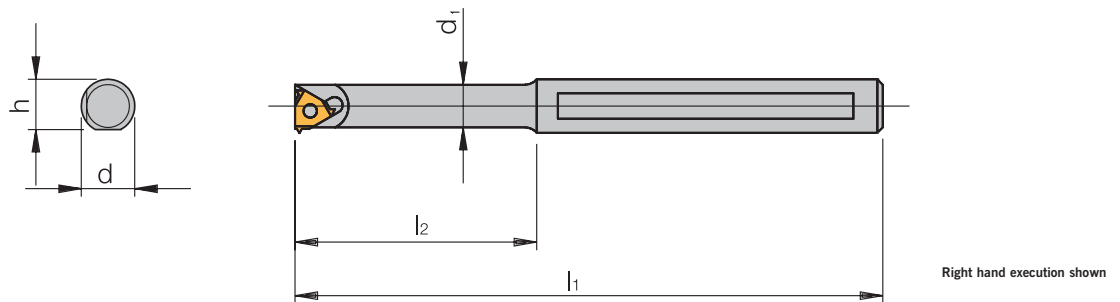
	Clamping screw	Screw and washer for support pad	Key	Support pad R	Support pad L
11	SN2T	-	KS 1751	-	-
16 (d 16)	SN3T	-	KS 2510	-	-
16 (d 20)	SA3T	SY3T	KS 2510	YI3	YE3
22	SN4T	-	KS 2520	-	-




REMARK:
Tool holders with carbide shank should be used when extra accuracy is required or when the bar length to bar diameter ratio exceeds 3:1.
The overhang to bar diameter ratio should be as small as possible to eliminate possible vibrations. The minimum length in the clamping device should be 3 times the diameter of the bar.

Internal Thread

Type
MINI 3




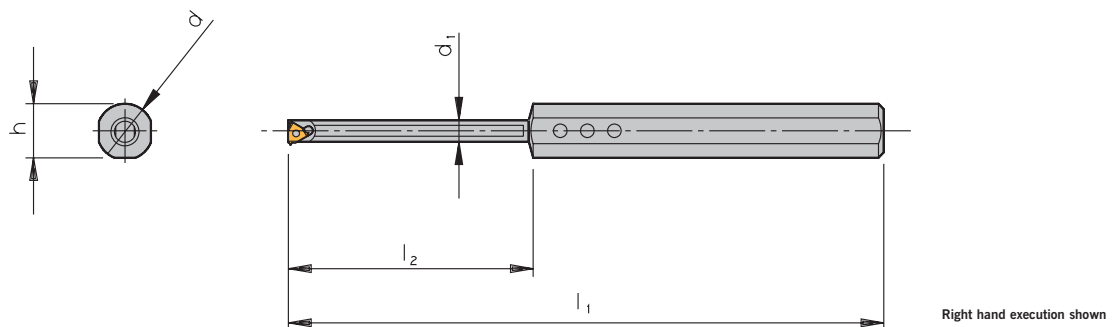
Holder

	Designation	h	l ₁	l ₂	d	d ₁	PG
4,0	CNVR 5-4.0K R/L	5,2	100	26	6	5,10	30
4,0	SNVR 5-4.0K R/L	11	100	12	12	5,10	39
10	SNVR 12U-6.0 R/L	11,4	82	16	12	8,00	39
10	BNVR 10S-6.0 R/L	9,4	89	22	10	8,00	39
10	BNVR 10M-6.0 R/L	9,4	98	31	10	8,00	39
10	BNVR 10L-6.0 R/L	9,4	110	43	10	8,00	39


REMARK:
The tool holder designated with „B..“ and „C..“ have a carbide core for reducing vibrations.

Spare Parts

	Clamping screw	Key
4,0	SN4MT	KS 1886
10	SN6MT	KS 1886



Adjustable Threading Tool Holder

	Designation sleeve	Designation holder	h	l ₁	l ₂	d	d ₁	PG
10	SV16-8.0	BNVR8.0T-6.0 R/L	15,6	100	8-56	16	8	39

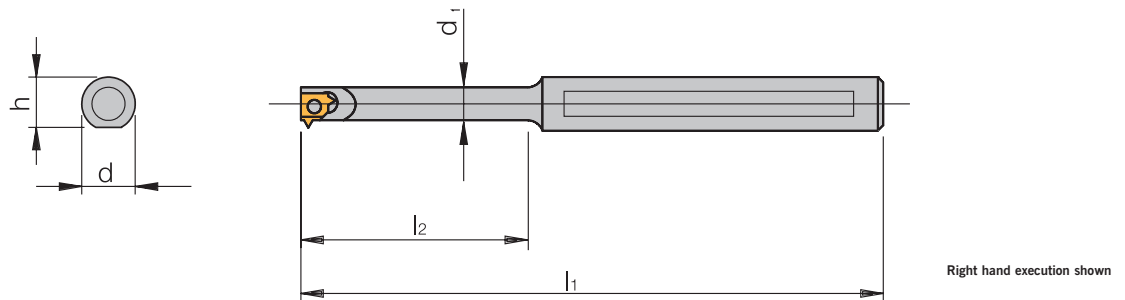
Spare Parts

	Clamping screw for holder	Key for holder	Clamping screw for sleeve	Key for sleeve
10	SN6MT	KS 1886	S4.0	KP 3421


5

Internal Thread

Type
MINI 2




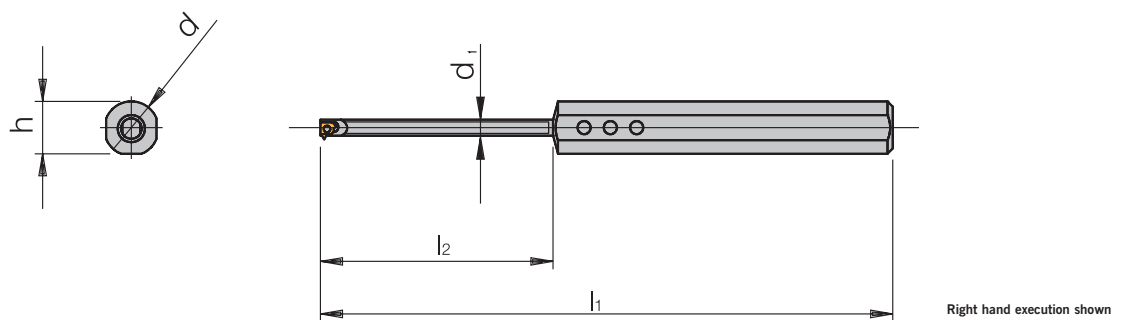
Holder

	Designation	h	l ₁	l ₂	d	d ₁	PG
5.0L	SNVR 10U-5L R/L	9,4	81	16	10	6,20	39
5.0L	BNVR 10S-5L R/L	9,4	87	22	10	6,20	39
5.0L	BNVR 10M-5L R/L	9,4	97	31	10	6,20	39
5.0L	BNVR10L-5L R/L	9,4	109	43	10	6,20	39


REMARK:
The tool holder designated with „B..“ have a carbide core for reducing vibrations.

Spare Parts


	Clamping screw	Key
5.0L	SN5LT	KS 2505



Adjustable Threading Tool Holder

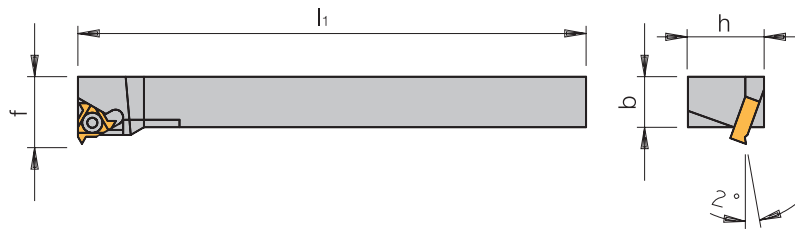
	Designation sleeve	Designation holder	h	l ₁	l ₂	d	d ₁	PG
5.0L	SV16-6.2	BNVR6.2T-5L R/L	15,6	100	8-44	16	6,2	39

Spare Parts

	Clamping screw for holder	Key for holder	Clamping screw for sleeve	Key for sleeve
5.0L	SN5LT	KS 2505	S4.0	KP 3421

External and Internal Threading

Type
Mini



Right hand execution shown

Mini Holder with Square Shank

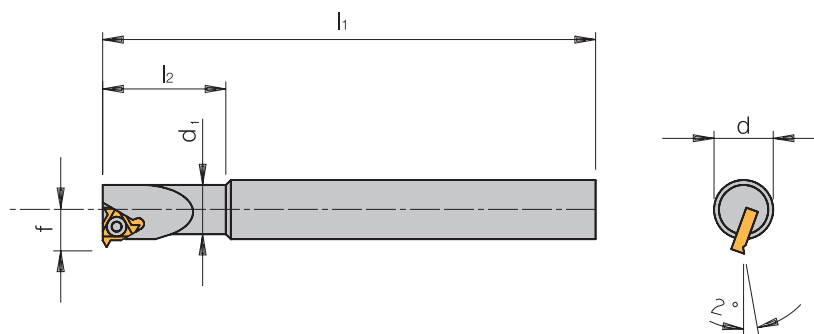
	Designation	b = h	l ₁	f	min. bore-Ø	PG
11	OV 8-2 R/L	8	100	12	29,20	39
11	OV 10-2 R/L	10	100	14	36,10	39

REMARK:

Mini holders on round or square execution are designated for use on automatic lathes for the optical and other precision industries. They can be used for external and internal threading.

Thread	ER	EL	IR	IL
Insert	ER	EL	IR	IL
Holder execution	L	R	R	L

E = External / I = Internal / R = Right / L = Left. The helix angle is 0,5°.



Right hand execution shown

Mini Holder with Round Shank

	Designation	l ₁	l ₂	d	d ₁	f	min. bore-Ø	PG
11	OVR 12-2 R/L	100	25	12	10,00	7,4	13,0	39
11	OVR 15-2 R/L	100	32	15	13,00	8,9	16,0	39
11	OVR 16D-2 R/L	100	32	16	13,00	8,9	16,0	39

REMARK:

Mini holders on round or square execution are designated for use on automatic lathes for the optical and other precision industries. They can be used for external and internal threading.

Thread	ER	EL	IR	IL
Insert	ER	EL	IR	IL
Holder execution	L	R	R	L

E = External / I = Internal / R = Right / L = Left. The helix angle is 0,5°.

Spare Parts

	Clamping screw	Key
11	SN2T	KS 1751

5

ARNO® SIM-Boring Bars for Internal Machining

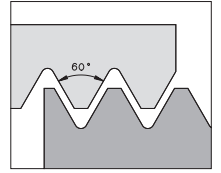
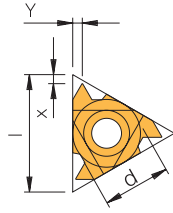


ARNO® SIM-BORING BARS

The modular internal grooving system in 4 different sizes starting at a minimum bore of 7,8mm.

- Vibration reduced carbide shank with brazed steel head
- Internal coolant
- Shank with 2 clamping surfaces
- Highest stability through oval shaped shank
- Reach into bore up to 80mm
- Grooving depths up to 4,5mm
- Grooving widths from 0,8 – 4mm
- Inserts with harmonized PVD coating

External Thread

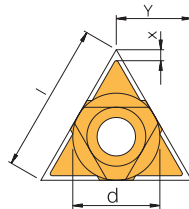


Type
Standard

Pitch											Grade availability			Holder	
	[mm]	[TPI]	Left hand	Right hand	d	r	x	y	PG	coated			uncoated		
										AL100	AM7C	AM15C	AK20	AK20P	
11	0,5-1,5	48-16		11ER-T-A60	6,35	0,05	0,8	0,9	7	X	X	X	X		NL...-2
11	0,5-1,5	48-16	11EL-T-A60		6,35	0,05	0,8	0,9	7	X	X	X	X		NL...-2
16	0,5-1,5	48-16		16ER-T-A60	9,525	0,05	0,8	0,9	7	X	X	X	X	X	AL...-3
16	0,5-1,5	48-16	16EL-T-A60		9,525	0,05	0,8	0,9	7	X	X	X	X		AL...-3
16	1,75-3,0	14-8		16ER-T-G60	9,525	0,27	1,2	1,7	7	X	X	X	X		AL...-3
16	1,75-3,0	14-8	16EL-T-G60		9,525	0,27	1,2	1,7	7	X	X	X	X		AL...-3
16	0,5-3,0	48-8		16ER-T-AG60	9,525	0,08	1,2	1,7	7	X	X	X	X	X	AL...-3
16	0,5-3,0	48-8	16EL-T-AG60		9,525	0,08	1,2	1,7	7	X	X	X	X		AL...-3
16	0,5-1,5	48-16		16ER-T-A60-SB	9,525	0,05	0,6	0,8	7	X					AL...-3
16	1,75-3,0	14-8		16ER-T-G60-SB	9,525	0,27	1,1	1,5	7	X					AL...-3
16	0,5-3,0	48-8		16ER-T-AG60-SB	9,525	0,08	0,9	1,5	7	X					AL...-3

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				



Type
U

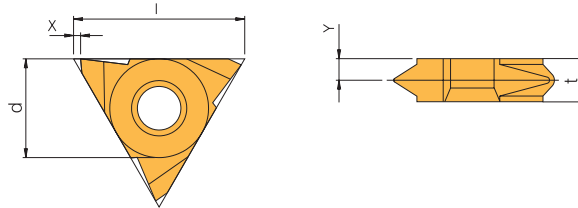
Pitch											Grade availability			Holder
	[mm]	[TPI]	Left / right	d	r	x	y	PG	coated		uncoated			
									AL100	AM15C	AK20			
22	5,5-8,0	4,5-3,25	22UEI-T-U60	12,7	0,30	0,6	11,0	7	X	X		AL...-4U		
27	6,5-9,0	4,0-2,75	27UEI-T-U60	15,88	0,37	1,0	13,7	7		X	X	AL...-5U		

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			

5

External Thread

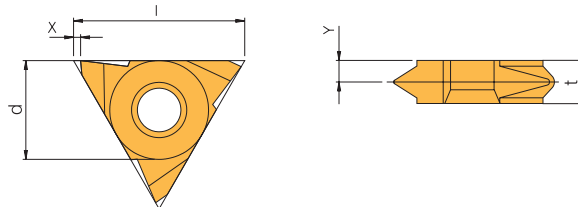


Right hand execution shown

Type Slim Throat

Pitch	Pitch		Left hand	Right hand	d	r	x	y	t	PG	Grade availability			Holder	
	[mm]	[TPI]									coated	uncoated			
											AL100	AM7C	AM15C	AK20	
11	0,5-1,5	48-16		11VER-T-A60	6,35	0,05	0,69	2,3	3,2	7	X	X	X	X	NL...-2V
11	0,5-1,5	48-16	11VEL-T-A60		6,35	0,05	0,69	2,3	3,2	7	X	X	X	X	NL...-2V
16	0,5-1,5	48-16		16VER-T-A60	9,525	0,05	1,1	2,7	3,6	7	X	X	X	X	NL...-3V
16	0,5-1,5	48-16	16VEL-T-A60		9,525	0,05	1,1	2,7	3,6	7	X	X	X	X	NL...-3V
16	1,75-3,0	14-8		16VER-T-G60	9,525	0,27	1,1	1,9	3,6	7	X	X	X	X	NL...-3V
16	1,75-3,0	14-8	16VEL-T-G60		9,525	0,27	1,1	1,9	3,6	7	X	X	X	X	NL...-3V
16	0,5-3,0	48-8		16VER-T-AG60	9,525	0,08	1,1	1,9	3,6	7	X	X	X	X	NL...-3V
16	0,5-3,0	48-8	16VEL-T-AG60		9,525	0,08	1,1	1,9	3,6	7	X	X	X	X	NL...-3V
22	3,5-5,0	7-5		22VER-T-N60	12,7	0,53	1,1	2,3	4,8	7	X	X	X	X	NL...-4V
22	3,5-5,0	7-5	22VEL-T-N60		12,7	0,53	1,1	2,3	4,8	7	X	X	X	X	NL...-4V

X	Available grade	P	●	○	
●	Main application	M	●	●	●
○	2nd application	K	○	○	●
		N			●
		S	○		
		H			



Right hand execution shown

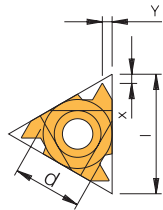
Type V

Pitch	Pitch		Left hand	Right hand	d	r	x	y	t	PG	Grade availability			Holder
	[mm]	[TPI]									coated	uncoated		
											AL100	AM15C	AK20	
27	6,0-10,0	4-2,5		27VER-T-V60	15,88	0,75	0,6	5,2	10	7	X	X	X	NL...-5V-10
27	6,0-10,0	4-2,5	27VEL-T-V60		15,88	0,75	0,6	5,2	10	7	X	X	X	NL...-5V-10

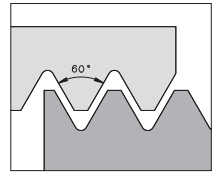
X	Available grade	P	●	○	
●	Main application	M	●	●	
○	2nd application	K	○		●
		N			●
		S	○		
		H			



Internal Thread



Right hand execution shown

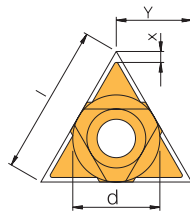


Type
Standard

Pitch	Pitch		Left hand	Right hand	d	r	x	y	PG	Grade availability			AK20	Holder
	[mm]	[TPI]								coated	uncoated			
11	0,5-1,5	48-16		11IR-T-A60	6,35	0,05	0,8	0,9	7	X	X	X	X	NVR...2
11	0,5-1,5	48-16	11IL-T-A60	11IR-T-A60	6,35	0,05	0,8	0,9	7	X	X	X	X	NVR...2
16	0,5-1,5	48-16		16IR-T-A60	9,525	0,05	0,8	0,9	7	X	X	X	X	AVR...3
16	0,5-1,5	48-16	16IL-T-A60	16IR-T-A60	9,525	0,05	0,8	0,9	7	X	X	X	X	AVR...3
16	1,75-3,0	14-8		16IR-T-G60	9,525	0,16	1,2	1,7	7	X	X	X	X	AVR...3
16	1,75-3,0	14-8	16IL-T-G60	16IR-T-G60	9,525	0,16	1,2	1,7	7	X	X	X	X	AVR...3
16	0,5-3,0	48-8		16IR-T-AG60	9,525	0,05	1,2	1,7	7	X	X	X	X	AVR...3
16	0,5-3,0	48-8	16IL-T-AG60	16IR-T-AG60	9,525	0,05	1,2	1,7	7	X	X	X	X	AVR...3
16	0,5-1,5	48-16		16IR-T-A60-SB	9,525	0,05	0,6	0,8	7	X				AVR...3
16	1,75-3,0	14-8		16IR-T-G60-SB	9,525	0,16	1,0	1,5	7	X				AVR...3
16	0,5-3,0	48-8		16IR-T-AG60-SB	9,525	0,05	0,9	1,5	7	X				AVR...3
22	3,5-5,0	7-5		22IR-T-N60	12,7	0,30	1,7	2,5	7	X	X	X	X	AVR...4
22	3,5-5,0	7-5	22IL-T-N60	22IR-T-N60	12,7	0,30	1,7	2,5	7	X	X	X	X	AVR...4
27	5,5-6,0	4,5-4		27IR-T-Q60	15,88	0,30	1,8	2,7	7	X		X	X	AVR...5
27	5,5-6,0	4,5-4	27IL-T-Q60	27IR-T-Q60	15,88	0,30	1,8	2,7	7	X		X	X	AVR...5

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	
K	○	○	●
N			●
S	○		
H			



Type
U

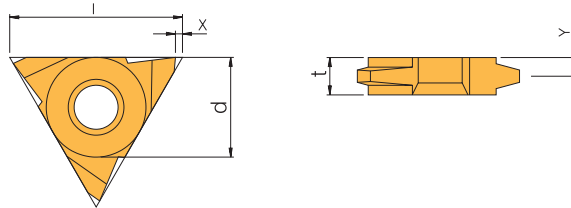
Pitch	Pitch		Left / right	d	r	x	y	PG	Grade availability			AK20	Holder
	[mm]	[TPI]							coated	uncoated			
22	5,5-8,0	4,5-3,25	22UEI-T-U60	12,7	0,30	0,6	11,0	7	X	X			AVR...4U
27	6,5-9,0	4-2,75	27UEI-T-U60	15,88	0,37	1,0	13,7	7		X		X	AVR...5U

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			

5

Internal Thread



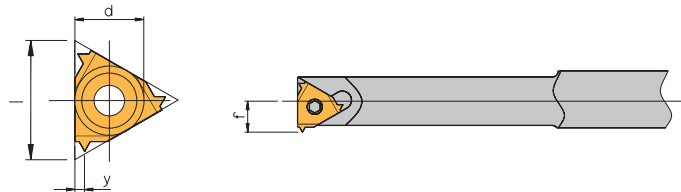
Right hand execution shown

Type V

Pitch	Pitch		Left hand	Right hand	d	r	x	y	t	PG	Grade availability		Holder
	[mm]	[TPI]									coated	uncoated	
											AL100	AK20	
27	6,0-10,0	4-2,5		27VIR-T-V60	15,88	0,35	1,0	4,3	8	7	X	X	NVR...5V
27	6,0-10,0	4-2,5	27VIL-T-V60		15,88	0,35	1,0	4,3	8	7	X		NVR...5V

X Available grade
 ● Main application
 ○ 2nd application

P	●	
M	●	
K	○	●
N		●
S	○	
H		



Right hand execution shown

Type MINI 3

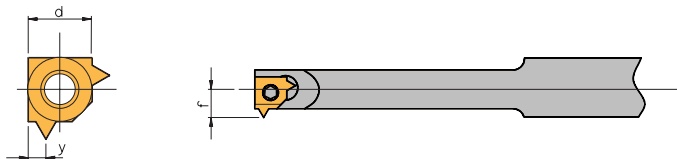
Pitch	Pitch		Right hand	d	r	y	f	Min. bore ø	PG	Grade availability				Holder
	[mm]	[TPI]								AL100	AM7C	AM15C	HSS-TiN	
6	0,5-1,25	48-20	4KIR-T-A60	4	0,05	0,6	3,7	6,35	7	X				...NVR.5-4,0K*
10	0,5-1,5	48-16	6IR-T-A60	6	0,05	0,9	5,3	10,00	7	X	X	X	X	...NVR 1...-6,0*

*Tool holders are shown on page 296.

X Available grade
 ● Main application
 ○ 2nd application

P	●		○	●
M	●	●		○
K	○	○		
N				
S	○			○
H				

Internal Thread



Type
MINI 2

Right hand execution shown

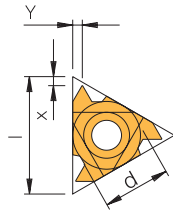
Pitch		Grade availability											
[mm]	[TPI]	Left hand	Right hand	d	r	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN	Holder
0,5-1,5	48-16		5LIR-T-A60	5	0,05	0,9	4,65	8,00	7	X	X	X	...NVR 10.-5L*
0,5-1,5	48-16	5LIL-T-A60		5	0,05	0,9	4,65	8,00	7			X	...NVR 10.-5L*

*Tool holders are shown on page 297.

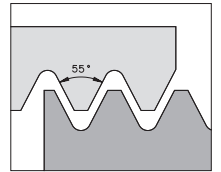
- X Available grade
- Main application
- 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

External Thread



Right hand execution shown



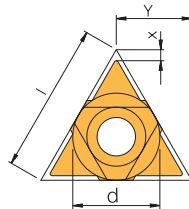
Type
Standard

Pitch	Pitch		Left hand	Right hand	d	r	x	y	PG	Grade availability			AK20	Holder
	[mm]	[TPI]								AL100	AM7C	AM15C		
11	0,5-1,5	48-16		11ER-T-A55	6,35	0,05	0,8	0,9	7	X	X	X	X	NL...-2
11	0,5-1,5	48-16	11EL-T-A55		6,35	0,05	0,8	0,9	7	X	X	X	X	NL...-2
16	0,5-1,5	48-16		16ER-T-A55	9,525	0,05	0,8	0,9	7	X	X	X	X	NL...-2
16	0,5-1,5	48-16	16EL-T-A55		9,525	0,05	0,8	0,9	7	X	X	X	X	NL...-2
16	1,75-3,0	14-8		16ER-T-G55	9,525	0,21	1,2	1,7	7	X	X	X	X	NL...-2
16	1,75-3,0	14-8	16EL-T-G55		9,525	0,21	1,2	1,7	7	X	X	X	X	NL...-2
16	0,5-3,0	48-8		16ER-T-AG55	9,525	0,07	1,2	1,7	7	X	X	X	X	NL...-2
16	0,5-3,0	48-8	16EL-T-AG55		9,525	0,07	1,2	1,7	7	X	X	X	X	NL...-2
16	0,5-1,5	48-16		16ER-T-A55-SB	9,525	0,05	0,6	0,8	7	X	X	X		AL...-3
16	1,75-3,0	14-8		16ER-T-G55-SB	9,525	0,21	1,1	1,5	7	X	X	X		AL...-3
16	0,5-3,0	48-8		16ER-T-AG55-SB	9,525	0,07	0,9	1,5	7	X	X	X		AL...-3

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Type
U



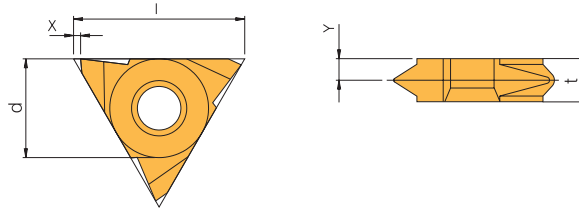
Pitch	Pitch		Left / right	d	r	x	y	PG	Grade availability			Holder
	[mm]	[TPI]							AL100	AM7C	AM15C	
22	5,5-8,0	4,5-3,25	22UEI-T-U55	12,7	0,60	0,9	11,0	7		X	X	AL...-4U
27	6,5-9,0	4-2,75	27UEI-T-U55	15,88	0,80	1,2	13,7	7	X			AL...-5U

- X Available grade
- Main application
- 2nd application

P	●		○
M	●	●	●
K	○	○	
N			
S	○		
H			



External Thread



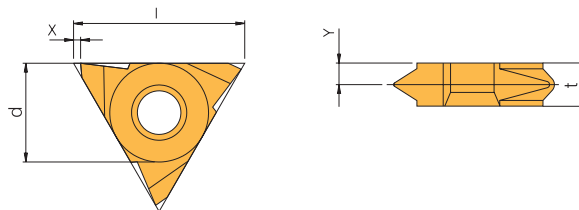
Right hand execution shown

Type Slim Throat

Pitch	Pitch		Grade availability												
	[mm]	[TPI]	Left hand	Right hand	d	r	x	y	t	PG	coated			uncoated	Holder
											AL100	AM7C	AM15C	AK20	
11	0,5-1,5	48-16		11VER-T-A55	6,35	0,05	0,8	2,7	3,2	7	X	X			NL...-2V
11	0,5-1,5	48-16	11VEL-T-A55		6,35	0,05	0,8	2,7	3,2	7	X				NL...-2V
16	0,5-1,5	48-16		16VER-T-A55	9,525	0,05	1,1	2,7	3,6	7	X		X	X	NL...-3V
16	0,5-1,5	48-16	16VEL-T-A55		9,525	0,05	1,1	2,7	3,6	7	X		X	X	NL...-3V
16	1,75-3,0	14-8		16VER-T-G55	9,525	0,21	1,1	1,9	3,6	7	X		X	X	NL...-3V
16	0,5-3,0	48-8		16VER-T-AG55	9,525	0,07	1,1	1,9	3,6	7	X	X	X	X	NL...-3V
16	0,5-3,0	48-8	16VEL-T-AG55		9,525	0,07	1,1	1,9	3,6	7	X			X	NL...-3V
22	3,5-5,0	7-5		22VER-T-N55	12,7	0,43	1,1	2,3	4,8	7	X			X	NL...-4V

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			



Right hand execution shown

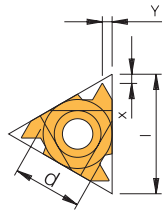
Type V

Pitch	Pitch		Grade availability											
	[mm]	[TPI]	Right hand	d	r	x	y	t	PG	AL100	Holder			
27	6,0-9,0	4-2,75	27VER-T-V55	15,88	0,70	1,0	4,3	8	7	X	NL...-5V-8			

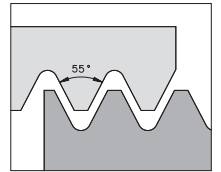
- X Available grade
- Main application
- 2nd application

P	●
M	●
K	○
N	
S	○
H	

Internal Thread



Right hand execution shown

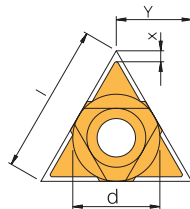


Type
Standard

Pitch	Pitch		Left hand	Right hand	d	r	x	y	PG	Grade availability			Holder		
	[mm]	[TPI]								coated			uncoated		
										AL100	AM7C	AM15C	AK20	AK20P	
11	0,5-1,5	48-16		11IR-T-A55	6,35	0,05	0,8	0,9	7	X	X	X	X		NVR...2
11	0,5-1,5	48-16	11IL-T-A55		6,35	0,05	0,8	0,9	7	X	X		X		NVR...2
16	0,5-1,5	48-16		16IR-T-A55	9,525	0,05	0,8	0,9	7	X	X	X	X	X	AVR...3
16	0,5-1,5	48-16	16IL-T-A55		9,525	0,05	0,8	0,9	7	X	X	X			AVR...3
16	1,75-3,0	14-8		16IR-T-G55	9,525	0,21	1,2	1,7	7	X	X	X	X	X	AVR...3
16	1,75-3,0	14-8	16IL-T-G55		9,525	0,21	1,2	1,7	7	X	X	X	X	X	AVR...3
16	0,5-3,0	48-8		16IR-T-AG55	9,525	0,07	1,2	1,7	7	X	X	X	X	X	AVR...3
16	0,5-3,0	48-8	16IL-T-AG55		9,525	0,07	1,2	1,7	7	X	X	X			AVR...3
16	0,5-1,5	48-16		16IR-T-A55-SB	9,525	0,05	0,6	0,8	7	X					AVR...3
16	1,75-3,0	14-8		16IR-T-G55-SB	9,525	0,21	1,1	1,5	7	X					AVR...3
16	0,5-3,0	48-8		16IR-T-AG55-SB	9,525	0,07	0,9	1,5	7	X					AVR...3
22	3,5-5,0	7-5		22IR-T-N55	12,7	0,43	1,7	2,5	7	X	X	X	X		AVR...4
22	3,5-5,0	7-5	22IL-T-N55		12,7	0,43	1,7	2,5	7	X			X		AVR...4
27	5,5-6,0	4,5-4		27IR-T-Q55	15,88	0,60	2,0	2,9	7	X	X	X	X		AVR...5

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●					
AM7C	●	●				
AM15C	○					
AK20				●	●	
AK20P				●	●	



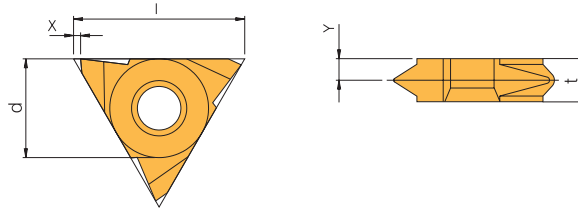
Type
U

Pitch	Pitch		Left / right	d	r	x	y	PG	Grade availability			Holder
	[mm]	[TPI]							AL100	AM7C	AM15C	
22	5,5-8,0	4,5-3,25	22UEI-T-U55	12,7	0,60	0,9	11,0	7		X	X	AVR...4U
27	6,5-9,0	4-2,75	27UEI-T-U55	15,88	0,80	1,2	13,7	7	X			AVR...5U

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●					
AM7C	●	●				
AM15C	○					
AK20				●	●	
AK20P				●	●	

Internal Thread



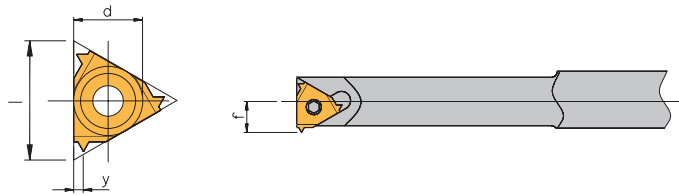
Right hand execution shown

Type V

Pitch										Grade availability			Holder	
	[mm]	[TPI]	Right hand	d	r	x	y	t	PG	coated		uncoated		
											AL100	AM15C	AK20	
27	6,0-9,0	4-2,75	27VIR-T-V55	15,88	0,70	1,0	4,3	8	7	X	X	X		NVR...-5V

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	○	●				
AK20			●	●		
HSS-TiN						



Right hand execution shown

Type MINI 3

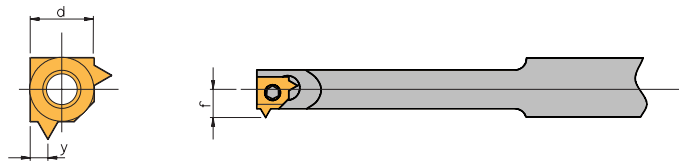
Pitch											Grade availability			Holder
[mm]	[TPI]	Right hand	d	r	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN			
6	0,5-1,25	48-20	4KIR-T-A55	4	0,05	0,6	3,8	6,45	7	X			...NVR 5-4,0K*	
10	0,5-1,5	48-16	6IR-T-A55	6	0,05	0,9	5,3	10,00	7		X	X	...NVR 1...-6,0*	

*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	○	●				
HSS-TiN						

Internal Thread



Type
MINI 2

Right hand execution shown

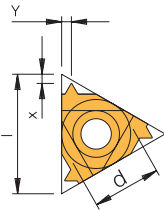
Pitch			Grade availability										
[mm]	[TPI]	Right hand	d	r	y	f	Min. bore ø	PG	AL100	AM7C	AM15C	HSS-TiN	Holder
0,5-1,5	48-16	5LIR-T-A55	5	0,05	0,9	4,65	8,00	7	X	X	X	X	...NVR 10.-5L*

*Tool holders are shown on page 297.

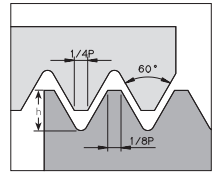
- X Available grade
- Main application
- 2nd application

P	●		○	●
M	●	●		○
K	○	○		
N				
S	○			○
H				


External Thread



Right hand execution shown




Type
Standard

Pitch 	[mm]	Pitch		Grade availability											
		Left hand	Right hand	coated			uncoated					Holder			
				d	h _{min}	x	y	PG	AL100	AM7C	AM15C	AK20	AK20P		
11	0,25		11ER-V-ISO0,25	6,35	0,14	0,4	0,2	7	X						NL...2
11	0,3		11ER-V-ISO0,30	6,35	0,19	0,7	0,3	7	X						NL...2
11	0,35		11ER-V-ISO0,35	6,35	0,21	0,8	0,4	7	X	X	X	X			NL...2
11	0,35	11EL-V-ISO0,35		6,35	0,21	0,8	0,4	7	X			X			NL...2
11	0,4		11ER-V-ISO0,40	6,35	0,25	0,7	0,4	7	X	X	X	X			NL...2
11	0,45		11ER-V-ISO0,45	6,35	0,28	0,7	0,4	7	X	X	X				NL...2
11	0,45	11EL-V-ISO0,45		6,35	0,28	0,7	0,4	7	X			X			NL...2
11	0,5		11ER-V-ISO0,50	6,35	0,31	0,6	0,4	7	X	X	X	X	X		NL...2
11	0,5	11EL-V-ISO0,50		6,35	0,31	0,6	0,4	7	X		X	X		X	NL...2
11	0,6		11ER-V-ISO0,60	6,35	0,37	0,6	0,6	7	X		X	X			NL...2
11	0,7		11ER-V-ISO0,70	6,35	0,43	0,6	0,6	7	X	X	X	X			NL...2
11	0,75		11ER-V-ISO0,75	6,35	0,46	0,6	0,6	7	X	X	X	X			NL...2
11	0,75	11EL-V-ISO0,75		6,35	0,46	0,6	0,6	7	X			X			NL...2
11	0,8		11ER-V-ISO0,80	6,35	0,49	0,6	0,6	7	X	X	X	X			NL...2
11	0,8	11EL-V-ISO0,80		6,35	0,49	0,6	0,6	7	X		X				NL...2
11	1,0		11ER-V-ISO1,00	6,35	0,61	0,7	0,7	7	X	X	X	X	X		NL...2
11	1,0	11EL-V-ISO1,00		6,35	0,61	0,7	0,7	7	X	X	X	X			NL...2
11	1,25		11ER-V-ISO1,25	6,35	0,77	0,8	0,9	7	X	X	X	X			NL...2
11	1,25	11EL-V-ISO1,25		6,35	0,77	0,8	0,9	7	X		X	X			NL...2
11	1,5		11ER-V-ISO1,50	6,35	0,92	0,8	1,0	7	X	X	X	X			NL...2
11	1,5	11EL-V-ISO1,50		6,35	0,92	0,8	1,0	7	X		X	X			NL...2
11	1,75		11ER-V-ISO1,75	6,35	1,07	0,8	1,1	7	X	X	X	X			NL...2
11	1,75	11EL-V-ISO1,75		6,35	1,07	0,8	1,1	7	X			X			NL...2
16	0,25		16ER-V-ISO0,25	9,525	0,14	0,4	0,2	7	X	X	X	X	X		AL...3
16	0,25	16EL-V-ISO0,25		9,525	0,14	0,4	0,2	7					X		AL...3
16	0,35		16ER-V-ISO0,35	9,525	0,21	0,8	0,4	7	X	X	X	X	X		AL...3
16	0,35	16EL-V-ISO0,35		9,525	0,21	0,8	0,4	7	X		X	X			AL...3
16	0,4		16ER-V-ISO0,40	9,525	0,25	0,7	0,4	7	X	X	X	X	X		AL...3
16	0,4	16EL-V-ISO0,40		9,525	0,25	0,7	0,4	7	X		X	X			AL...3
16	0,45		16ER-V-ISO0,45	9,525	0,28	0,7	0,4	7	X	X	X	X			AL...3
16	0,45	16EL-V-ISO0,45		9,525	0,28	0,7	0,4	7	X		X	X			AL...3
16	0,5		16ER-V-ISO0,50	9,525	0,31	0,6	0,4	7	X	X	X	X	X		AL...3
16	0,5	16EL-V-ISO0,50		9,525	0,31	0,6	0,4	7	X		X	X	X		AL...3
16	0,6		16ER-V-ISO0,60	9,525	0,37	0,6	0,6	7	X	X	X	X			AL...3
16	0,6	16EL-V-ISO0,60		9,525	0,37	0,6	0,6	7	X	X	X	X			AL...3
16	0,7		16ER-V-ISO0,70	9,525	0,43	0,6	0,6	7	X	X	X	X	X		AL...3
16	0,7	16EL-V-ISO0,70		9,525	0,43	0,6	0,6	7	X	X	X	X			AL...3
16	0,75		16ER-V-ISO0,75	9,525	0,46	0,6	0,6	7	X	X	X	X	X		AL...3
16	0,75	16EL-V-ISO0,75		9,525	0,46	0,6	0,6	7	X	X	X	X	X		AL...3
16	0,8		16ER-V-ISO0,80	9,525	0,49	0,6	0,6	7	X	X	X	X	X		AL...3
16	0,8	16EL-V-ISO0,80		9,525	0,49	0,6	0,6	7	X	X	X	X	X		AL...3
16	1,0		16ER-V-ISO1,00	9,525	0,61	0,7	0,7	7	X	X	X	X	X		AL...3
16	1,0	16EL-V-ISO1,00		9,525	0,61	0,7	0,7	7	X	X	X	X	X		AL...3
16	1,25		16ER-V-ISO1,25	9,525	0,77	0,8	0,9	7	X	X	X	X	X		AL...3
16	1,25	16EL-V-ISO1,25		9,525	0,77	0,8	0,9	7	X	X	X	X			AL...3
16	1,5		16ER-V-ISO1,50	9,525	0,92	0,8	1,0	7	X	X	X	X	X		AL...3
16	1,5	16EL-V-ISO1,50		9,525	0,92	0,8	1,0	7	X	X	X	X	X		AL...3
16	1,75		16ER-V-ISO1,75	9,525	1,07	0,9	1,2	7	X	X	X	X	X		AL...3
16	1,75	16EL-V-ISO1,75		9,525	1,07	0,9	1,2	7	X	X	X	X			AL...3
16	2,0		16ER-V-ISO2,00	9,525	1,23	1,0	1,3	7	X	X	X	X	X		AL...3
16	2,0	16EL-V-ISO2,00		9,525	1,23	1,0	1,3	7	X	X	X	X			AL...3
16	2,5		16ER-V-ISO2,50	9,525	1,53	1,1	1,5	7	X	X	X	X	X		AL...3
16	2,5	16EL-V-ISO2,50		9,525	1,53	1,1	1,5	7	X	X	X	X	X		AL...3
16	3,0		16ER-V-ISO3,00	9,525	1,84	1,2	1,6	7	X	X	X	X	X		AL...3
16	3,0	16EL-V-ISO3,00		9,525	1,84	1,2	1,6	7	X	X	X	X	X		AL...3
16	3,5		16ER-V-ISO3,50	9,525	2,15	1,6	1,9	7	X	X	X				AL...3
16	3,5	16EL-V-ISO3,50		9,525	2,15	1,6	1,9	7	X						AL...3
16	0,5		16ER-V-ISO0,50-SB	9,525	0,31	1,2	0,5	7	X						AL...3
16	0,75		16ER-V-ISO0,75-SB	9,525	0,46	1,2	0,5	7	X						AL...3
16	0,8		16ER-V-ISO0,80-SB	9,525	0,49	1,2	0,5	7	X						AL...3
16	1,0		16ER-V-ISO1,00-SB	9,525	0,61	0,7	0,8	7	X						AL...3
16	1,25		16ER-V-ISO1,25-SB	9,525	0,77	0,7	0,8	7	X						AL...3

5

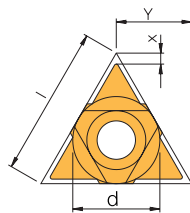
External Thread

Type Standard


Pitch	[mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder	
									coated			uncoated			
									AL100	AM7C	AM15C	AK20	AK20P		
16	1,5		16ER-V-ISO1,50-SB	9,525	0,92	0,7	0,8	7	X						AL...-3
16	1,75		16ER-V-ISO1,75-SB	9,525	1,07	1,2	1,5	7	X						AL...-3
16	2,0		16ER-V-ISO2,00-SB	9,525	1,23	1,2	1,5	7	X						AL...-3
16	2,5		16ER-V-ISO2,50-SB	9,525	1,53	1,2	1,5	7	X						AL...-3
16	3,0		16ER-V-ISO3,00-SB	9,525	1,84	1,3	1,5	7	X						AL...-3
22	3,5		22ER-V-ISO3,50	12,7	2,15	1,6	2,3	7	X	X	X	X			AL...-4
22	3,5	22EL-V-ISO3,50		12,7	2,15	1,6	2,3	7	X	X	X	X			AL...-4
22	4,0		22ER-V-ISO4,00	12,7	2,45	1,6	2,3	7	X	X	X	X			AL...-4
22	4,0	22EL-V-ISO4,00		12,7	2,45	1,6	2,3	7	X	X	X	X			AL...-4
22	4,5		22ER-V-ISO4,50	12,7	2,76	1,7	2,4	7	X	X	X	X			AL...-4
22	4,5	22EL-V-ISO4,50		12,7	2,76	1,7	2,4	7	X	X	X	X			AL...-4
22	5,0		22ER-V-ISO5,00	12,7	3,07	1,7	2,5	7	X	X	X	X			AL...-4
22	5,0	22EL-V-ISO5,00		12,7	3,07	1,7	2,5	7	X	X	X	X			AL...-4
22	6,0		22ER-V-ISO6,00	12,7	3,68	2,0	2,9	7	X	X	X	X			AL...-4
22	6,0	22EL-V-ISO6,00		12,7	3,68	2,0	2,9	7	X	X	X	X			AL...-4
27	5,5		27ER-V-ISO5,50	15,88	3,37	1,9	2,7	7	X	X	X	X			AL...-5
27	5,5	27EL-V-ISO5,50		15,88	3,37	1,9	2,7	7	X	X	X	X			AL...-5
27	6,0		27ER-V-ISO6,00	15,88	3,68	2,0	2,9	7	X	X	X	X			AL...-5
27	6,0	27EL-V-ISO6,00		15,88	3,68	2,0	2,9	7	X	X	X	X			AL...-5

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○		○	●	●
N				●	●
S	○				
H					



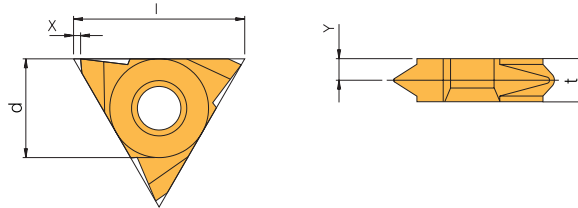
Type U

Pitch	[mm]	Left / right	d	h _{min}	x	y	PG	Grade availability					Holder	
								coated			uncoated			
								AL100	AM7C	AM15C	AK20			
22	5,0	22UEN-V-ISO5,00	12,7	3,07	2,2	11,0	7	X						AL...-4U
22	5,5	22UEN-V-ISO5,50	12,7	3,37	2,3	11,0	7	X		X	X			AL...-4U
22	6,0	22UEN-V-ISO6,00	12,7	3,68	2,6	11,0	7	X	X	X	X			AL...-4U
27	8,0	27UEN-V-ISO8,00	15,88	4,91	2,4	13,7	7	X		X	X	X		AL...-5U

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○		○	●	●
N				●	●
S	○				
H					

External Thread



Right hand execution shown

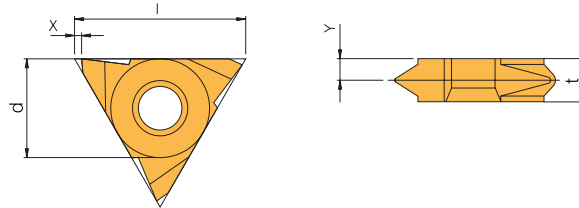
Type
Slim Throat

Pitch	[mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability					
										coated			uncoated		
										AL100	AM7C	AM15C	AK20	AK20P	
11	0,75		11VER-V-ISO0,75	6,35	0,46	0,7	2,6	3,2	7	X	X	X			NL...-2V
11	0,75	11VEL-V-ISO0,75		6,35	0,46	0,7	2,6	3,2	7	X					NL...-2V
11	1,0		11VER-V-ISO1,00	6,35	0,61	0,7	2,5	3,2	7	X	X	X		X	NL...-2V
11	1,0	11VEL-V-ISO1,00		6,35	0,61	0,7	2,5	3,2	7	X	X	X			NL...-2V
11	1,5		11VER-V-ISO1,50	6,35	0,92	0,7	2,2	3,2	7	X	X	X			NL...-2V
11	1,5	11VEL-V-ISO1,50		6,35	0,92	0,7	2,2	3,2	7	X	X	X			NL...-2V
11	1,75		11VER-V-ISO1,75	6,35	1,07	0,7	2,1	3,2	7	X		X	X		NL...-2V
11	2,0		11VER-V-ISO2,00	6,35	1,23	0,7	1,9	3,2	7		X	X	X		NL...-2V
11	2,0	11VEL-V-ISO2,00		6,35	1,23	0,7	1,9	3,2	7		X	X			NL...-2V
16	0,35		16VER-V-ISO0,35	9,525	0,20	1,1	3,25	3,6	7	X			X		NL...-3V
16	0,35	16VEL-V-ISO0,35		9,525	0,20	1,1	3,25	3,6	7	X					NL...-3V
16	0,4		16VER-V-ISO0,40	9,525	0,25	1,1	3,2	3,6	7			X	X		NL...-3V
16	0,5		16VER-V-ISO0,50	9,525	0,31	1,1	3,0	3,6	7	X	X	X	X	X	NL...-3V
16	0,5	16VEL-V-ISO0,50		9,525	0,31	1,1	3,0	3,6	7	X	X		X		NL...-3V
16	0,75		16VER-V-ISO0,75	9,525	0,46	1,1	3,0	3,6	7	X	X	X	X	X	NL...-3V
16	0,75	16VEL-V-ISO0,75		9,525	0,46	1,1	3,0	3,6	7	X	X	X	X		NL...-3V
16	0,8		16VER-V-ISO0,80	9,525	0,49	1,1	3,0	3,6	7	X	X	X			NL...-3V
16	0,8	16VEL-V-ISO0,80		9,525	0,49	1,1	3,0	3,6	7	X		X			NL...-3V
16	1,0		16VER-V-ISO1,00	9,525	0,61	1,1	2,9	3,6	7	X	X	X	X	X	NL...-3V
16	1,0	16VEL-V-ISO1,00		9,525	0,61	1,1	2,9	3,6	7	X	X	X	X		NL...-3V
16	1,25		16VER-V-ISO1,25	9,525	0,77	1,1	2,7	3,6	7	X	X	X	X		NL...-3V
16	1,25	16VEL-V-ISO1,25		9,525	0,77	1,1	2,7	3,6	7	X	X	X			NL...-3V
16	1,5		16VER-V-ISO1,50	9,525	0,92	1,1	2,6	3,6	7	X	X	X	X	X	NL...-3V
16	1,5	16VEL-V-ISO1,50		9,525	0,92	1,1	2,6	3,6	7	X	X	X	X		NL...-3V
16	1,75		16VER-V-ISO1,75	9,525	1,07	1,1	2,45	3,6	7	X	X	X	X	X	NL...-3V
16	1,75	16VEL-V-ISO1,75		9,525	1,07	1,1	2,45	3,6	7	X	X	X	X		NL...-3V
16	2,0		16VER-V-ISO2,00	9,525	1,23	1,1	2,3	3,6	7	X	X	X	X		NL...-3V
16	2,0	16VEL-V-ISO2,00		9,525	1,23	1,1	2,3	3,6	7	X	X	X	X	X	NL...-3V
16	2,5		16VER-V-ISO2,50	9,525	1,53	1,1	2,1	3,6	7	X	X	X	X		NL...-3V
16	2,5	16VEL-V-ISO2,50		9,525	1,53	1,1	2,1	3,6	7	X		X	X		NL...-3V
16	3,0		16VER-V-ISO3,00	9,525	1,84	1,1	2,0	3,6	7	X	X	X	X		NL...-3V
16	3,0			9,525	1,84	1,1	2,0	3,6	7	X	X	X	X		NL...-3V

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

External Thread



Type
V

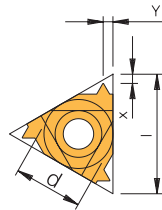
Right hand execution shown

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			Holder
									coated		uncoated	
									AL100	AM15C	AK20	
27 6		27VER-V-ISO6,00	15,88	3,68	1,0	3,3	6	7	X	X		NL...-5V-6
27 6	27VEL-V-ISO6,00		15,88	3,68	1,0	3,3	6	7	X	X		NL...-5V-6
27 8		27VER-V-ISO8,00	15,88	4,91	1,0	4,3	8	7	X	X	X	NL...-5V-8
27 8	27VEL-V-ISO8,00		15,88	4,91	1,0	4,3	8	7	X	X	X	NL...-5V-8
27 10		27VER-V-ISO10,00	15,88	6,13	1,0	5,2	10	7	X	X		NL...-5V-10

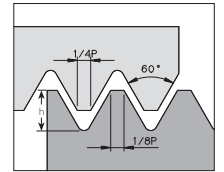
- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			

Internal Thread



Right hand execution shown




Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
								coated			uncoated		Holder	
								AL100	AM7C	AM15C	AK20	AK20P		
11	0,35		11IR-V-ISO0,35	6,35	0,20	0,8	0,3	7	X	X	X	X		NVR...-2
11	0,35	11IL-V-ISO0,35		6,35	0,20	0,8	0,3	7	X					NVR...-2
11	0,4		11IR-V-ISO0,40	6,35	0,23	0,8	0,4	7	X		X			NVR...-2
11	0,45		11IR-V-ISO0,45	6,35	0,26	0,8	0,4	7	X			X		NVR...-2
11	0,5		11IR-V-ISO0,50	6,35	0,29	0,6	0,4	7	X	X	X	X	X	NVR...-2
11	0,5	11IL-V-ISO0,50		6,35	0,29	0,6	0,4	7	X	X	X	X	X	NVR...-2
11	0,6		11IR-V-ISO0,60	6,35	0,35	0,6	0,6	7	X			X		NVR...-2
11	0,7		11IR-V-ISO0,70	6,35	0,40	0,6	0,6	7	X	X	X	X		NVR...-2
11	0,7	11IL-V-ISO0,70		6,35	0,40	0,6	0,6	7		X				NVR...-2
11	0,75		11IR-V-ISO0,75	6,35	0,43	0,6	0,6	7	X	X		X	X	NVR...-2
11	0,75	11IL-V-ISO0,75		6,35	0,43	0,6	0,6	7	X		X	X	X	NVR...-2
11	0,8		11IR-V-ISO0,80	6,35	0,46	0,6	0,6	7	X	X		X		NVR...-2
11	0,8	11IL-V-ISO0,80		6,35	0,46	0,6	0,6	7	X		X			NVR...-2
11	1		11IR-V-ISO1,00	6,35	0,58	0,6	0,7	7	X	X		X	X	NVR...-2
11	1	11IL-V-ISO1,00		6,35	0,58	0,6	0,7	7	X	X	X	X	X	NVR...-2
11	1,25		11IR-V-ISO1,25	6,35	0,72	0,8	0,9	7	X	X	X	X	X	NVR...-2
11	1,25	11IL-V-ISO1,25		6,35	0,72	0,8	0,9	7	X		X	X	X	NVR...-2
11	1,5		11IR-V-ISO1,50	6,35	0,87	0,8	1,0	7	X	X	X	X	X	NVR...-2
11	1,5	11IL-V-ISO1,50		6,35	0,87	0,8	1,0	7	X	X	X	X	X	NVR...-2
11	1,75		11IR-V-ISO1,75	6,35	1,01	0,9	1,1	7	X	X	X	X		NVR...-2
11	1,75	11IL-V-ISO1,75		6,35	1,01	0,9	1,1	7	X		X			NVR...-2
11	2		11IR-V-ISO2,00	6,35	1,15	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	2	11IL-V-ISO2,00		6,35	1,15	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	2,5		11IR-V-ISO2,50	6,35	1,44	0,8	1,1	7	X	X	X	X		NVR...-2
11	2,5	11IL-V-ISO2,50		6,35	1,44	0,8	1,1	7	X	X	X			NVR...-2
11	0,5		11IR-V-ISO0,50-SB	6,35	0,29	1,2	0,5	7	X					NVR...-2
11	0,75		11IR-V-ISO0,75-SB	6,35	0,43	1,2	0,5	7	X					NVR...-2
11	0,8		11IR-V-ISO0,80-SB	6,35	0,46	1,2	0,5	7	X					NVR...-2
11	1		11IR-V-ISO1,00-SB	6,35	0,58	0,7	0,8	7	X					NVR...-2
11	1,25		11IR-V-ISO1,25-SB	6,35	0,72	0,7	0,8	7	X					NVR...-2
11	1,5		11IR-V-ISO1,50-SB	6,35	0,87	0,7	0,8	7	X					NVR...-2
16	0,35		16IR-V-ISO0,35	9,525	0,20	0,8	0,3	7	X		X	X		AVR...-3
16	0,35	16IL-V-ISO0,35		9,525	0,20	0,8	0,3	7			X			AVR...-3
16	0,4		16IR-V-ISO0,40	9,525	0,23	0,8	0,4	7	X	X	X	X		AVR...-3
16	0,4	16IL-V-ISO0,40		9,525	0,23	0,8	0,4	7	X					AVR...-3
16	0,45		16IR-V-ISO0,45	9,525	0,26	0,8	0,4	7	X					AVR...-3
16	0,45	16IL-V-ISO0,45		9,525	0,26	0,8	0,4	7	X					AVR...-3
16	0,5		16IR-V-ISO0,50	9,525	0,29	0,6	0,4	7	X	X	X	X	X	AVR...-3
16	0,5	16IL-V-ISO0,50		9,525	0,29	0,6	0,4	7	X	X	X	X	X	AVR...-3
16	0,6		16IR-V-ISO0,60	9,525	0,35	0,6	0,6	7	X	X	X	X		AVR...-3
16	0,6	16IL-V-ISO0,60		9,525	0,35	0,6	0,6	7	X	X	X			AVR...-3
16	0,7		16IR-V-ISO0,70	9,525	0,40	0,6	0,6	7	X	X	X	X		AVR...-3
16	0,7	16IL-V-ISO0,70		9,525	0,40	0,6	0,6	7	X	X	X			AVR...-3
16	0,75		16IR-V-ISO0,75	9,525	0,43	0,6	0,6	7	X	X	X	X	X	AVR...-3
16	0,75	16IL-V-ISO0,75		9,525	0,43	0,6	0,6	7	X	X	X	X	X	AVR...-3
16	0,8		16IR-V-ISO0,80	9,525	0,46	0,6	0,6	7	X	X	X	X		AVR...-3
16	0,8	16IL-V-ISO0,80		9,525	0,46	0,6	0,6	7	X	X	X			AVR...-3
16	1,0		16IR-V-ISO1,00	9,525	0,58	0,6	0,7	7	X	X	X	X	X	AVR...-3
16	1,0	16IL-V-ISO1,00		9,525	0,58	0,6	0,7	7	X	X	X	X	X	AVR...-3
16	1,25		16IR-V-ISO1,25	9,525	0,72	0,8	0,9	7	X	X	X	X	X	AVR...-3
16	1,25	16IL-V-ISO1,25		9,525	0,72	0,8	0,9	7	X	X	X	X	X	AVR...-3
16	1,5		16IR-V-ISO1,50	9,525	0,87	0,8	1,0	7	X	X	X	X	X	AVR...-3
16	1,5	16IL-V-ISO1,50		9,525	0,87	0,8	1,0	7	X	X	X	X	X	AVR...-3
16	1,75		16IR-V-ISO1,75	9,525	1,01	0,9	1,2	7	X	X	X	X	X	AVR...-3
16	1,75	16IL-V-ISO1,75		9,525	1,01	0,9	1,2	7	X	X	X	X	X	AVR...-3
16	2,0		16IR-V-ISO2,00	9,525	1,15	1,0	1,3	7	X	X	X	X	X	AVR...-3
16	2,0	16IL-V-ISO2,00		9,525	1,15	1,0	1,3	7	X	X	X	X	X	AVR...-3
16	2,5		16IR-V-ISO2,50	9,525	1,44	1,1	1,5	7	X	X	X	X	X	AVR...-3
16	2,5	16IL-V-ISO2,50		9,525	1,44	1,1	1,5	7	X	X	X	X	X	AVR...-3
16	3,0		16IR-V-ISO3,00	9,525	1,73	1,1	1,5	7	X	X	X	X	X	AVR...-3
16	3,0	16IL-V-ISO3,00		9,525	1,73	1,1	1,5	7	X	X	X	X	X	AVR...-3

5

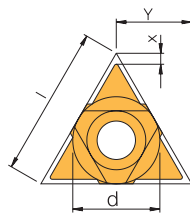
Internal Thread

Type Standard


Pitch 	[mm]	Pitch		Grade availability										Holder
		Left hand	Right hand	coated			uncoated							
				d	h _{min}	x	y	PG	AL100	AM7C	AM15C	AK20	AK20P	
16	3,5		16IR-V-ISO3,50	9,525	2,02	1,2	1,5	7	X	X	X			AVR...3
16	3,5	16IL-V-ISO3,50		9,525	2,02	1,2	1,5	7	X	X	X			AVR...3
16	1,0		16IR-V-ISO1,00-SB	9,525	0,58	0,7	0,8	7	X					AVR...3
16	1,25		16IR-V-ISO1,25-SB	9,525	0,72	0,7	0,8	7	X					AVR...3
16	1,5		16IR-V-ISO1,50-SB	9,525	0,87	0,7	0,8	7	X					AVR...3
16	1,75		16IR-V-ISO1,75-SB	9,525	1,01	1,1	1,5	7	X					AVR...3
16	2,0		16IR-V-ISO2,00-SB	9,525	1,15	1,1	1,5	7	X					AVR...3
16	2,5		16IR-V-ISO2,50-SB	9,525	1,44	1,1	1,5	7	X					AVR...3
16	3,0		16IR-V-ISO3,00-SB	9,525	1,73	1,1	1,5	7	X					AVR...3
22	3,5		22IR-V-ISO3,50	12,7	2,02	1,6	2,3	7	X	X	X	X		AVR...4
22	3,5	22IL-V-ISO3,50		12,7	2,02	1,6	2,3	7	X	X	X	X		AVR...4
22	4,0		22IR-V-ISO4,00	12,7	2,31	1,6	2,3	7	X	X	X	X		AVR...4
22	4,0	22IL-V-ISO4,00		12,7	2,31	1,6	2,3	7	X	X	X	X		AVR...4
22	4,5		22IR-V-ISO4,50	12,7	2,60	1,6	2,4	7	X	X	X	X		AVR...4
22	4,5	22IL-V-ISO4,50		12,7	2,60	1,6	2,4	7	X	X	X	X		AVR...4
22	5,0		22IR-V-ISO5,00	12,7	2,89	1,6	2,3	7	X	X	X	X		AVR...4
22	5,0	22IL-V-ISO5,00		12,7	2,89	1,6	2,3	7	X	X	X	X		AVR...4
22	5,5		22IR-V-ISO5,50	12,7	3,17	1,6	2,3	7	X	X	X	X		AVR...4
22	5,5	22IL-V-ISO5,50		12,7	3,17	1,6	2,3	7	X	X	X	X		AVR...4
22	6,0		22IR-V-ISO6,00	12,7	3,46	1,8	2,5	7	X	X	X	X		AVR...4
22	6,0	22IL-V-ISO6,00		12,7	3,46	1,8	2,5	7	X	X	X	X		AVR...4
27	4,5		27IR-V-ISO4,50	15,88	2,60	1,6	2,4	7	X	X				AVR...5
27	5,0		27IR-V-ISO5,00	15,88	2,89	1,6	2,3	7	X					AVR...5
27	5,5		27IR-V-ISO5,50	15,88	3,17	1,6	2,3	7	X	X	X	X		AVR...5
27	5,5	27IL-V-ISO5,50		15,88	3,17	1,6	2,3	7	X	X	X	X		AVR...5
27	6,0		27IR-V-ISO6,00	15,88	3,46	1,8	2,5	7	X	X	X	X		AVR...5
27	6,0	27IL-V-ISO6,00		15,88	3,46	1,8	2,5	7	X	X	X	X		AVR...5

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				



Type U

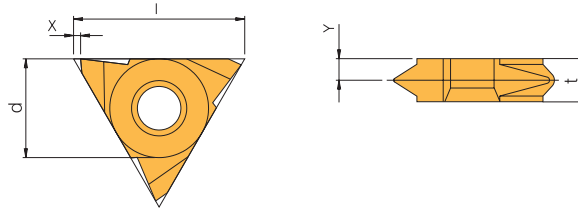
Pitch 	[mm]	Pitch		Grade availability										Holder
		Left / right		coated			uncoated							
				d	h _{min}	x	y	PG	AL100	AM7C	AM15C	AK20		
22	5,5		22UIN-V-ISO5,50	12,7	3,17	2,4	11,0	7	X					AVR...4U
22	6		22UIN-V-ISO6,00	12,7	3,46	2,1	11,0	7	X		X			AVR...4U
27	8		27UIN-V-ISO8,00	15,88	4,62	2,4	13,7	7	X		X			AVR...5U

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				



Internal Thread



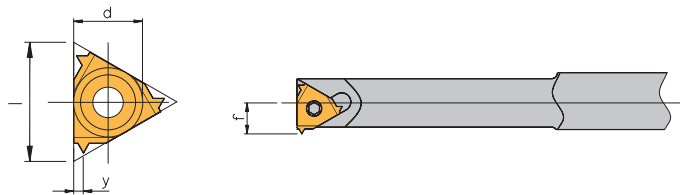
Type V

Right hand execution shown

Pitch	[mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			Holder
										coated		uncoated	
										AL100	AM15C	AK20	
27	6,0		27VIR-V-ISO6,00	15,88	3,46	1,0	3,3	6	7	X	X		NVR...5V
27	6,0	27VIL-V-ISO6,00		15,88	3,46	1,0	3,3	6	7	X			NVR...5V
27	8,0		27VIR-V-ISO8,00	15,88	4,62	1,0	4,3	8	7	X	X	X	NVR...5V
27	8,0	27VIL-V-ISO8,00		15,88	4,62	1,0	4,3	8	7	X			NVR...5V
27	10,0		27VIR-V-ISO10,00	15,88	5,77	1,0	5,2	10	7	X	X		NVR...5V
27	10,0	27VIL-V-ISO10,00		15,88	5,77	1,0	5,2	10	7		X		NVR...5V

X Available grade
● Main application
○ 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			



Type MINI 3

Right hand execution shown

Pitch	[mm]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	Grade availability			Holder
										AL100	AM15C	HSS-TiN	
6	0,25		4KIR-V-ISO0,25	4	0,15	0,25	3,3	5,95	7	X			...NVR.5-4.0K*
6	0,5		4KIR-V-ISO0,50	4	0,29	0,5	3,4	6,05	7	X			...NVR.5-4.0K*
6	0,75		4KIR-V-ISO0,75	4	0,43	0,5	3,5	6,15	7	X			...NVR.5-4.0K*
6	1,0		4KIR-V-ISO1,00	4	0,58	0,7	3,6	6,25	7	X			...NVR.5-4.0K*
6	1,25		4KIR-V-ISO1,25	4	0,72	0,6	3,7	6,35	7	X			...NVR.5-4.0K*
10	0,5		6IR-V-ISO0,50	6	0,29	0,6	4,4	9,30	7	X	X	X	...NVR1...6.0*
10	0,5	6IL-V-ISO0,50		6	0,29	0,6	4,4	9,30	7	X	X	X	...NVR1...6.0*
10	0,75		6IR-V-ISO0,75	6	0,43	0,6	4,6	9,50	7	X	X	X	...NVR1...6.0*
10	0,75	6IL-V-ISO0,75		6	0,43	0,6	4,6	9,50	7	X	X	X	...NVR1...6.0*
10	1,0		6IR-V-ISO1,00	6	0,58	0,7	4,7	9,60	7	X	X	X	...NVR1...6.0*
10	1,0	6IL-V-ISO1,00		6	0,58	0,7	4,7	9,60	7	X	X	X	...NVR1...6.0*
10	1,25		6IR-V-ISO1,25	6	0,72	0,9	4,9	9,80	7	X	X	X	...NVR1...6.0*
10	1,25	6IL-V-ISO1,25		6	0,72	0,9	4,9	9,80	7	X	X	X	...NVR1...6.0*
10	1,5		6IR-V-ISO1,50	6	0,87	1,0	5,0	9,90	7	X	X	X	...NVR1...6.0*
10	1,5	6IL-V-ISO1,50		6	0,87	1,0	5,0	9,90	7	X	X	X	...NVR1...6.0*
10	1,75		6IR-V-ISO1,75	6	1,01	1,05	5,2	10,00	7	X	X	X	...NVR1...6.0*
10	1,75	6IL-V-ISO1,75		6	1,01	1,05	5,2	10,00	7	X	X	X	...NVR1...6.0*
10	2,0		6IR-V-ISO2,00	6	1,15	1,05	5,3	10,00	7	X	X	X	...NVR1...6.0*
10	2,0	6IL-V-ISO2,00		6	1,15	1,05	5,3	10,00	7	X	X	X	...NVR1...6.0*

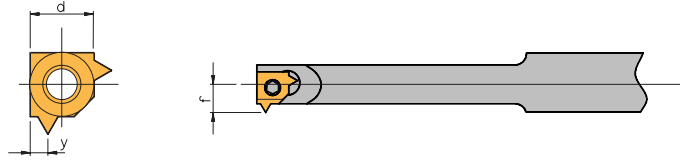
*Tool holders are shown on page 296.

X Available grade
● Main application
○ 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

5

Internal Thread



Type
MINI 2

Right hand execution shown

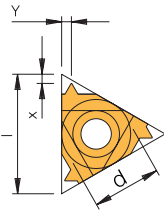
Pitch		Grade availability										
[mm]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN	Holder
0,35		5LIR-V-ISO0,35	5	0,20	0,3	3,75	7,30	7		X		...NVR10.-5L*
0,5		5LIR-V-ISO0,50	5	0,29	0,4	3,75	7,30	7	X	X	X	...NVR10.-5L*
0,5	5LIL-V-ISO0,50		5	0,29	0,4	3,75	7,30	7		X		...NVR10.-5L*
0,75		5LIR-V-ISO0,75	5	0,43	0,6	3,91	7,50	7	X	X	X	...NVR10.-5L*
0,75	5LIL-V-ISO0,75		5	0,43	0,6	3,91	7,50	7		X		...NVR10.-5L*
1,0		5LIR-V-ISO1,00	5	0,58	0,7	4,06	7,70	7	X	X	X	...NVR10.-5L*
1,0	5LIL-V-ISO1,00		5	0,58	0,7	4,06	7,70	7		X		...NVR10.-5L*
1,25		5LIR-V-ISO1,25	5	0,72	0,9	4,21	7,80	7		X	X	...NVR10.-5L*
1,25	5LIL-V-ISO1,25		5	0,72	0,9	4,21	7,80	7		X	X	...NVR10.-5L*
1,5		5LIR-V-ISO1,50	5	0,87	1,0	4,35	7,90	7	X	X	X	...NVR10.-5L*
1,5	5LIL-V-ISO1,50		5	0,87	1,0	4,35	7,90	7		X	X	...NVR10.-5L*
1,75		5LIR-V-ISO1,75	5	1,01	1,05	4,51	8,00	7		X	X	...NVR10.-5L*
1,75	5LIL-V-ISO1,75		5	1,01	1,05	4,51	8,00	7		X		...NVR10.-5L*
2,0		5LIR-V-ISO2,00	5	1,15	1,05	4,65	8,00	7		X	X	...NVR10.-5L*
2,0	5LIL-V-ISO2,00		5	1,15	1,05	4,65	8,00	7		X		...NVR10.-5L*

*Tool holders are shown on page 297.

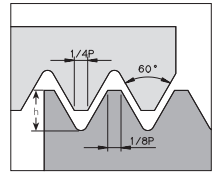
- X Available grade
- Main application
- 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

External Thread



Right hand execution shown




Type
Standard

Pitch	[TPI]	Type		Dimensions					PG	Grade availability			Holder	
		Left hand	Right hand	d	h _{min}	x	y	coated		uncoated				
								AL100	AM7C	AM15C	AK20	AK20P		
11	72		11ER-V-UN72	6,35	0,22	0,8	0,4	7			X			NL...2
11	64		11ER-V-UN64	6,35	0,24	0,8	0,4	7	X		X			NL...2
11	56		11ER-V-UN56	6,35	0,28	0,7	0,4	7			X			NL...2
11	48		11ER-V-UN48	6,35	0,32	0,6	0,6	7			X	X	X	NL...2
11	48	11EL-V-UN48		6,35	0,32	0,6	0,6	7			X			NL...2
11	40		11ER-V-UN40	6,35	0,39	0,6	0,6	7	X		X	X		NL...2
11	36		11ER-V-UN36	6,35	0,43	0,6	0,6	7	X	X	X	X		NL...2
11	32		11ER-V-UN32	6,35	0,49	0,6	0,6	7	X		X	X		NL...2
11	32	11EL-V-UN32		6,35	0,49	0,6	0,6	7	X		X	X		NL...2
11	28		11ER-V-UN28	6,35	0,56	0,6	0,7	7	X		X	X		NL...2
11	24		11ER-V-UN24	6,35	0,65	0,7	0,8	7	X		X	X		NL...2
11	24	11EL-V-UN24		6,35	0,65	0,7	0,8	7			X			NL...2
11	20		11ER-V-UN20	6,35	0,78	0,8	0,9	7			X	X		NL...2
11	18		11ER-V-UN18	6,35	0,87	0,8	1,0	7		X	X	X	X	NL...2
11	16		11ER-V-UN16	6,35	0,97	0,9	1,1	7	X		X	X		NL...2
11	14		11ER-V-UN14	6,35	1,11	0,9	1,1	7	X			X		NL...2
11	14	11EL-V-UN14		6,35	1,11	0,9	1,1	7					X	NL...2
16	80		16ER-V-UN80	9,525	0,18	0,8	0,3	7	X	X				AL...3
16	72		16ER-V-UN72	9,525	0,22	0,8	0,4	7	X	X	X	X		AL...3
16	64		16ER-V-UN64	9,525	0,24	0,8	0,4	7			X	X		AL...3
16	64	16EL-V-UN64		9,525	0,24	0,8	0,4	7			X			AL...3
16	56		16ER-V-UN56	9,525	0,28	0,7	0,4	7	X		X	X		AL...3
16	56	16EL-V-UN56		9,525	0,28	0,7	0,4	7			X	X		AL...3
16	48		16ER-V-UN48	9,525	0,32	0,6	0,6	7	X	X	X	X		AL...3
16	48	16EL-V-UN48		9,525	0,32	0,6	0,6	7	X	X	X	X		AL...3
16	44		16ER-V-UN44	9,525	0,35	0,6	0,6	7	X	X	X	X		AL...3
16	44	16EL-V-UN44		9,525	0,35	0,6	0,6	7	X	X	X	X		AL...3
16	40		16ER-V-UN40	9,525	0,39	0,6	0,6	7	X	X	X	X		AL...3
16	40	16EL-V-UN40		9,525	0,39	0,6	0,6	7	X	X	X	X		AL...3
16	36		16ER-V-UN36	9,525	0,43	0,6	0,6	7	X	X	X	X	X	AL...3
16	36	16EL-V-UN36		9,525	0,43	0,6	0,6	7	X	X	X	X		AL...3
16	32		16ER-V-UN32	9,525	0,49	0,6	0,6	7	X	X	X	X		AL...3
16	32	16EL-V-UN32		9,525	0,49	0,6	0,6	7	X	X	X	X		AL...3
16	28		16ER-V-UN28	9,525	0,56	0,6	0,7	7	X	X	X	X	X	AL...3
16	28	16EL-V-UN28		9,525	0,56	0,6	0,7	7	X	X	X	X		AL...3
16	27		16ER-V-UN27	9,525	0,58	0,7	0,8	7	X	X	X	X		AL...3
16	27	16EL-V-UN27		9,525	0,58	0,7	0,8	7	X	X	X	X		AL...3
16	24		16ER-V-UN24	9,525	0,65	0,7	0,8	7	X	X	X	X		AL...3
16	24	16EL-V-UN24		9,525	0,65	0,7	0,8	7	X	X	X	X		AL...3
16	20		16ER-V-UN20	9,525	0,78	0,8	0,9	7	X	X	X	X	X	AL...3
16	20	16EL-V-UN20		9,525	0,78	0,8	0,9	7	X	X	X	X		AL...3
16	18		16ER-V-UN18	9,525	0,87	0,8	1,0	7	X	X	X	X		AL...3
16	18	16EL-V-UN18		9,525	0,87	0,8	1,0	7	X	X	X	X		AL...3
16	16		16ER-V-UN16	9,525	0,97	0,9	1,1	7	X	X	X	X	X	AL...3
16	16	16EL-V-UN16		9,525	0,97	0,9	1,1	7	X	X	X	X		AL...3
16	14		16ER-V-UN14	9,525	1,11	1,0	1,2	7	X	X	X	X		AL...3
16	14	16EL-V-UN14		9,525	1,11	1,0	1,2	7	X	X	X	X		AL...3
16	13		16ER-V-UN13	9,525	1,20	1,0	1,3	7	X	X	X	X		AL...3
16	13	16EL-V-UN13		9,525	1,20	1,0	1,3	7	X	X	X	X		AL...3
16	12		16ER-V-UN12	9,525	1,30	1,1	1,4	7	X	X	X	X		AL...3
16	12	16EL-V-UN12		9,525	1,30	1,1	1,4	7	X	X	X	X		AL...3
16	11,5		16ER-V-UN11.5	9,525	1,35	1,1	1,5	7	X		X	X		AL...3
16	11		16ER-V-UN11	9,525	1,42	1,1	1,5	7	X	X	X	X		AL...3
16	11	16EL-V-UN11		9,525	1,42	1,1	1,5	7	X	X	X	X		AL...3
16	10		16ER-V-UN10	9,525	1,56	1,1	1,5	7	X	X	X	X		AL...3
16	10	16EL-V-UN10		9,525	1,56	1,1	1,5	7	X	X	X	X		AL...3
16	9		16ER-V-UN9	9,525	1,73	1,2	1,7	7	X	X	X	X	X	AL...3
16	9	16EL-V-UN9		9,525	1,73	1,2	1,7	7	X	X	X	X		AL...3
16	8		16ER-V-UN8	9,525	1,95	1,2	1,6	7	X	X	X	X		AL...3
16	8	16EL-V-UN8		9,525	1,95	1,2	1,6	7	X	X	X	X		AL...3
16	36		16ER-V-UN36-SB	9,525	0,43	1,2	0,5	7	X					AL...3
16	32		16ER-V-UN32-SB	9,525	0,49	1,2	0,5	7	X					AL...3
16	28		16ER-V-UN28-SB	9,525	0,56	0,7	0,8	7	X					AL...3

5

External Thread

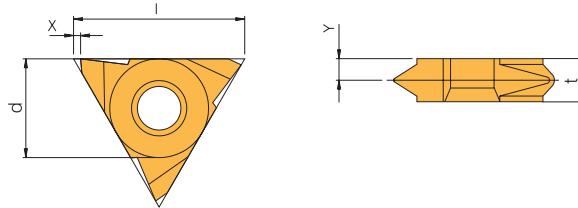
Type
Standard

Pitch 	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated			Holder
									AL100	AM7C	AM15C	AK20	AK20P		
16	24		16ER-V-UN24-SB	9,525	0,65	0,7	0,8	7	X						AL...-3
16	20		16ER-V-UN20-SB	9,525	0,78	0,7	0,8	7	X						AL...-3
16	18		16ER-V-UN18-SB	9,525	0,87	0,7	0,8	7	X						AL...-3
16	16		16ER-V-UN16-SB	9,525	0,97	0,8	0,8	7	X						AL...-3
16	14		16ER-V-UN14-SB	9,525	1,11	1,2	1,5	7	X						AL...-3
16	13		16ER-V-UN13-SB	9,525	1,20	1,2	1,5	7	X						AL...-3
16	12		16ER-V-UN12-SB	9,525	1,30	1,3	1,5	7	X						AL...-3
16	10		16ER-V-UN10-SB	9,525	1,56	1,2	1,5	7	X						AL...-3
16	9		16ER-V-UN9-SB	9,525	1,73	1,2	1,5	7	X						AL...-3
16	8		16ER-V-UN8-SB	9,525	1,95	1,3	1,5	7	X						AL...-3
22	7		22ER-V-UN7	12,7	2,22	1,6	2,3	7	X	X	X		X		AL...-4
22	7	22EL-V-UN7		12,7	2,22	1,6	2,3	7	X	X	X		X		AL...-4
22	6		22ER-V-UN6	12,7	2,60	1,6	2,3	7	X	X	X		X		AL...-4
22	6	22EL-V-UN6		12,7	2,60	1,6	2,3	7	X	X	X		X		AL...-4
22	5		22ER-V-UN5	12,7	3,12	1,7	2,5	7	X	X	X		X	X	AL...-4
22	5	22EL-V-UN5		12,7	3,12	1,7	2,5	7	X	X	X		X		AL...-4
27	4,5		27ER-V-UN4.5	15,88	3,46	1,9	2,7	7	X	X	X		X		AL...-5
27	4,5	27EL-V-UN4.5		15,88	3,46	1,9	2,7	7	X	X	X		X		AL...-5
27	4		27ER-V-UN4	15,88	3,89	2,1	3,0	7		X	X		X		AL...-5
27	4	27EL-V-UN4		15,88	3,89	2,1	3,0	7		X	X		X		AL...-5

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

External Thread



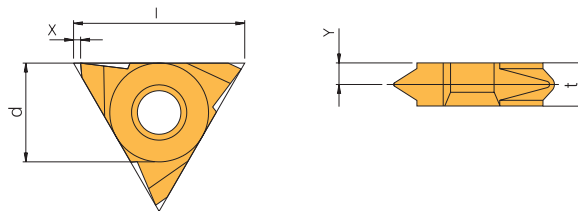
Right hand execution shown

Type Slim Throat

Pitch [TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
11	20		11VER-V-UN20	6,35	0,78	0,69	2,3	3,2	7	X			NL...2V
11	18	11VEL-V-UN18		6,35	0,87	0,69	2,2	3,2	7		X		NL...2V
11	16		11VER-V-UN16	6,35	0,97	0,69	2,2	3,2	7		X		NL...2V
16	32		16VER-V-UN32	9,525	0,48	1,1	3,0	3,6	7	X	X		NL...3V
16	28		16VER-V-UN28	9,525	0,56	1,1	3,0	3,6	7	X	X		NL...3V
16	24		16VER-V-UN24	9,525	0,65	1,1	2,9	3,6	7	X	X	X	NL...3V
16	20		16VER-V-UN20	9,525	0,78	1,1	2,7	3,6	7	X	X	X	NL...3V
16	20	16VEL-V-UN20		9,525	0,78	1,1	2,7	3,6	7	X	X	X	NL...3V
16	18		16VER-V-UN18	9,525	0,87	1,1	2,6	3,6	7	X	X		NL...3V
16	18	16VEL-V-UN18		9,525	0,87	1,1	2,6	3,6	7	X			NL...3V
16	16		16VER-V-UN16	9,525	0,97	1,1	2,55	3,6	7	X	X	X	NL...3V
16	16	16VEL-V-UN16		9,525	0,97	1,1	2,55	3,6	7	X	X		NL...3V
16	14		16VER-V-UN14	9,525	1,11	1,1	2,4	3,6	7		X	X	NL...3V
16	14	16VEL-V-UN14		9,525	1,11	1,1	2,4	3,6	7	X			NL...3V
16	12		16VER-V-UN12	9,525	1,3	1,1	2,2	3,6	7	X	X	X	NL...3V
16	12	16VEL-V-UN12		9,525	1,3	1,1	2,2	3,6	7	X	X		NL...3V
16	10	16VEL-V-UN10		9,525	1,56	1,1	2,1	3,6	7	X			NL...3V
16	8	16VEL-V-UN8		9,525	1,95	1,1	2,0	3,6	7			X	NL...3V

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			



Right hand execution shown

Type V

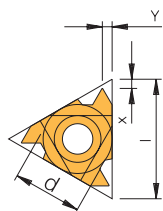
Pitch [TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability		Holder
									AL100		
27	4		27VER-V-UN4	15,88	3,89	1,0	3,3	6	7	X	NL...5V-6
27	4	27VEL-V-UN4		15,88	3,89	1,0	3,3	6	7	X	NL...5V-6

- X Available grade
- Main application
- 2nd application

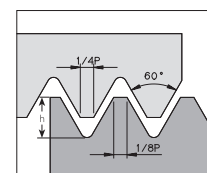
P	●
M	●
K	○
N	
S	○
H	

5

Internal Thread



Right hand execution shown




Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder
									coated			uncoated		
									AL100	AM7C	AM15C	AK20	AK20P	
11	72		11IR-V-UN72	6,35	0,20	0,8	0,3	7				X		NVR...-2
11	64		11IR-V-UN64	6,35	0,23	0,8	0,4	7	X		X	X		NVR...-2
11	56		11IR-V-UN56	6,35	0,26	0,7	0,4	7	X		X	X		NVR...-2
11	48		11IR-V-UN48	6,35	0,31	0,6	0,6	7	X			X		NVR...-2
11	40		11IR-V-UN40	6,35	0,37	0,6	0,6	7	X		X	X		NVR...-2
11	36		11IR-V-UN36	6,35	0,41	0,6	0,6	7	X		X	X		NVR...-2
11	32		11IR-V-UN32	6,35	0,46	0,6	0,6	7	X	X	X	X		NVR...-2
11	32	11IL-V-UN32		6,35	0,46	0,6	0,6	7	X		X	X		NVR...-2
11	28		11IR-V-UN28	6,35	0,52	0,6	0,7	7	X	X	X	X		NVR...-2
11	28	11IL-V-UN28		6,35	0,52	0,6	0,7	7	X		X	X		NVR...-2
11	27		11IR-V-UN27	6,35	0,54	0,7	0,8	7	X		X	X	X	NVR...-2
11	24		11IR-V-UN24	6,35	0,61	0,7	0,8	7	X	X	X	X	X	NVR...-2
11	24	11IL-V-UN24		6,35	0,61	0,7	0,8	7	X	X	X	X	X	NVR...-2
11	20		11IR-V-UN20	6,35	0,73	0,8	0,9	7	X	X	X	X	X	NVR...-2
11	20	11IL-V-UN20		6,35	0,73	0,8	0,9	7	X	X	X	X	X	NVR...-2
11	18		11IR-V-UN18	6,35	0,81	0,8	1,0	7	X	X	X	X	X	NVR...-2
11	18	11IL-V-UN18		6,35	0,81	0,8	1,0	7	X	X	X	X	X	NVR...-2
11	16		11IR-V-UN16	6,35	0,92	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	16	11IL-V-UN16		6,35	0,92	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	14		11IR-V-UN14	6,35	1,05	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	14	11IL-V-UN14		6,35	1,05	0,9	1,1	7	X	X	X	X	X	NVR...-2
11	12		11IR-V-UN12	6,35	1,22	0,8	1,1	7	X		X	X		NVR...-2
11	12	11IL-V-UN12		6,35	1,22	0,8	1,1	7	X		X	X		NVR...-2
11	11		11IR-V-UN11	6,35	1,33	0,8	1,1	7	X		X	X		NVR...-2
11	11	11IL-V-UN11		6,35	1,33	0,8	1,1	7	X		X	X		NVR...-2
11	36		11IR-V-UN36-SB	6,35	0,41	1,1	0,5	7	X					NVR...-2
11	32		11IR-V-UN32-SB	6,35	0,46	1,2	0,5	7	X					NVR...-2
11	28		11IR-V-UN28-SB	6,35	0,52	0,6	0,8	7	X					NVR...-2
11	24		11IR-V-UN24-SB	6,35	0,61	0,7	0,8	7	X					NVR...-2
11	20		11IR-V-UN20-SB	6,35	0,73	0,6	0,8	7	X					NVR...-2
11	18		11IR-V-UN18-SB	6,35	0,81	0,6	0,8	7	X					NVR...-2
11	16		11IR-V-UN16-SB	6,35	0,97	0,7	0,8	7	X					NVR...-2
16	72		16IR-V-UN72	9,525	0,20	0,8	0,3	7			X			AVR...-3
16	56		16IR-V-UN56	9,525	0,26	0,7	0,4	7				X		AVR...-3
16	48		16IR-V-UN48	9,525	0,31	0,6	0,6	7	X	X	X	X		AVR...-3
16	48	16IL-V-UN48		9,525	0,31	0,6	0,6	7	X	X				AVR...-3
16	44		16IR-V-UN44	9,525	0,33	0,6	0,6	7	X	X	X			AVR...-3
16	44	16IL-V-UN44		9,525	0,33	0,6	0,6	7	X	X				AVR...-3
16	40		16IR-V-UN40	9,525	0,37	0,6	0,6	7	X	X	X	X		AVR...-3
16	40	16IL-V-UN40		9,525	0,37	0,6	0,6	7	X	X	X	X		AVR...-3
16	36		16IR-V-UN36	9,525	0,41	0,6	0,6	7	X	X	X	X		AVR...-3
16	36	16IL-V-UN36		9,525	0,41	0,6	0,6	7	X	X	X	X		AVR...-3
16	32		16IR-V-UN32	9,525	0,51	0,6	0,6	7	X	X	X	X		AVR...-3
16	32	16IL-V-UN32		9,525	0,51	0,6	0,6	7	X	X	X	X		AVR...-3
16	28		16IR-V-UN28	9,525	0,52	0,6	0,7	7	X	X	X	X		AVR...-3
16	28	16IL-V-UN28		9,525	0,52	0,6	0,7	7	X	X	X	X		AVR...-3
16	27		16IR-V-UN27	9,525	0,54	0,7	0,8	7	X	X	X	X		AVR...-3
16	27	16IL-V-UN27		9,525	0,54	0,7	0,8	7	X	X	X	X		AVR...-3
16	24		16IR-V-UN24	9,525	0,61	0,7	0,8	7	X	X	X	X		AVR...-3
16	24	16IL-V-UN24		9,525	0,61	0,7	0,8	7	X	X	X	X		AVR...-3
16	20		16IR-V-UN20	9,525	0,73	0,8	0,9	7	X	X	X	X		AVR...-3
16	20	16IL-V-UN20		9,525	0,73	0,8	0,9	7	X	X	X	X		AVR...-3
16	18		16IR-V-UN18	9,525	0,81	0,8	1,0	7	X	X	X	X		AVR...-3
16	18	16IL-V-UN18		9,525	0,81	0,8	1,0	7	X	X	X	X		AVR...-3
16	16		16IR-V-UN16	9,525	0,92	0,9	1,1	7	X	X	X	X	X	AVR...-3
16	16	16IL-V-UN16		9,525	0,92	0,9	1,1	7	X	X	X	X	X	AVR...-3
16	14		16IR-V-UN14	9,525	1,05	0,9	1,2	7	X	X	X	X	X	AVR...-3
16	14	16IL-V-UN14		9,525	1,05	0,9	1,2	7	X	X	X	X	X	AVR...-3
16	13		16IR-V-UN13	9,525	1,13	1,0	1,3	7	X	X	X	X	X	AVR...-3
16	13	16IL-V-UN13		9,525	1,13	1,0	1,3	7	X	X	X	X	X	AVR...-3
16	12		16IR-V-UN12	9,525	1,22	1,1	1,4	7	X	X	X	X	X	AVR...-3
16	12	16IL-V-UN12		9,525	1,22	1,1	1,4	7	X	X	X	X	X	AVR...-3
16	11,5		16IR-V-UN11,5	9,525	1,28	1,1	1,5	7	X		X	X	X	AVR...-3



Internal Thread

Type
Standard

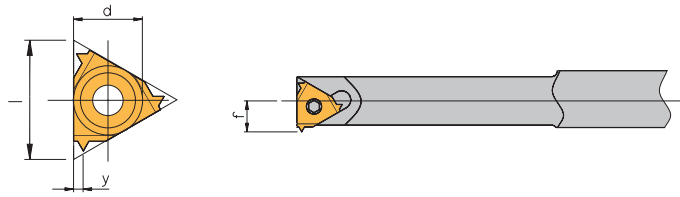
Pitch 	[TPI]	Grade availability													Holder
		Left hand	Right hand	d	h _{min}	x	y	PG	coated			uncoated			
									AL100	AM7C	AM15C	AK20	AK20P		
16	11		16IR-V-UN11	9,525	1,33	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	11	16IL-V-UN11		9,525	1,33	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	10		16IR-V-UN10	9,525	1,47	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	10	16IL-V-UN10		9,525	1,47	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	9		16IR-V-UN9	9,525	1,63	1,2	1,7	7	X	X	X	X	X	X	AVR...-3
16	9	16IL-V-UN9		9,525	1,63	1,2	1,7	7	X	X	X	X	X	X	AVR...-3
16	8		16IR-V-UN8	9,525	1,83	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	8	16IL-V-UN8		9,525	1,83	1,1	1,5	7	X	X	X	X	X	X	AVR...-3
16	28		16IR-V-UN28-SB	9,525	0,52	0,6	0,8	7	X						AVR...-3
16	24		16IR-V-UN24-SB	9,525	0,61	0,7	0,8	7	X						AVR...-3
16	20		16IR-V-UN20-SB	9,525	0,73	0,6	0,8	7	X						AVR...-3
16	18		16IR-V-UN18-SB	9,525	0,81	0,6	0,8	7	X						AVR...-3
16	16		16IR-V-UN16-SB	9,525	0,92	0,7	0,8	7	X						AVR...-3
16	14		16IR-V-UN14-SB	9,525	1,05	1,1	1,5	7	X						AVR...-3
16	13		16IR-V-UN13-SB	9,525	1,13	1,1	1,5	7	X						AVR...-3
16	12		16IR-V-UN12-SB	9,525	1,22	1,1	1,5	7	X						AVR...-3
16	10		16IR-V-UN10-SB	9,525	1,47	1,1	1,5	7	X						AVR...-3
16	9		16IR-V-UN9-SB	9,525	1,63	1,2	1,7	7	X						AVR...-3
16	8		16IR-V-UN8-SB	9,525	1,83	1,1	1,5	7	X						AVR...-3
22	7		22IR-V-UN7	12,7	2,09	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
22	7	22IL-V-UN7		12,7	2,09	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
22	6		22IR-V-UN6	12,7	2,44	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
22	6	22IL-V-UN6		12,7	2,44	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
22	5		22IR-V-UN5	12,7	2,93	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
22	5	22IL-V-UN5		12,7	2,93	1,6	2,3	7	X	X	X	X	X	X	AVR...-4
27	4,5		27IR-V-UN4,5	15,88	3,26	1,7	2,4	7	X		X	X	X	X	AVR...-5
27	4,5	27IL-V-UN4,5		15,88	3,26	1,7	2,4	7	X		X	X	X	X	AVR...-5
27	4		27IR-V-UN4	15,88	3,67	1,8	2,7	7	X			X	X	X	AVR...-5

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

5

Internal Thread



Right hand execution shown

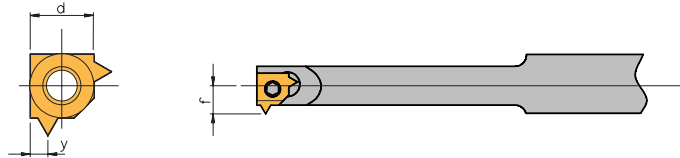
Type MINI 3

Pitch		Grade availability										
[TPI]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN	Holder
6	32		4	0,46	0,5	3,50	6,15	7	X			...NVR.5-4.0K*
6	28		4	0,52	0,6	3,50	6,15	7	X			...NVR.5-4.0K*
6	24		4	0,61	0,6	3,60	6,25	7	X			...NVR.5-4.0K*
6	24	4KIL-V-UN24	4	0,61	0,6	3,60	6,25	7	X			...NVR.5-4.0K*
6	20		4	0,73	0,6	3,70	6,35	7	X			...NVR.5-4.0K*
6	18		4	0,81	0,7	3,70	6,35	7	X			...NVR.5-4.0K*
10	40	6IL-V-UN40	6	0,37	0,6	4,50	9,5	7		X		...NVR1...-6.0*
10	32		6	0,46	0,6	4,60	9,5	7		X	X	...NVR1...-6.0*
10	28		6	0,52	0,65	4,70	9,6	7		X	X	...NVR1...-6.0*
10	24		6	0,61	0,75	4,80	9,7	7		X	X	...NVR1...-6.0*
10	20		6	0,73	0,9	4,90	9,8	7		X	X	...NVR1...-6.0*
10	18		6	0,81	1,0	5,00	9,9	7	X	X	X	...NVR1...-6.0*
10	18	6IL-V-UN18	6	0,81	1,0	5,00	9,9	7			X	...NVR1...-6.0*
10	16		6	0,92	1,05	5,10	10,0	7		X	X	...NVR1...-6.0*
10	14		6	1,05	1,05	5,20	10,0	7		X	X	...NVR1...-6.0*

*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			



Right hand execution shown

Type MINI 2

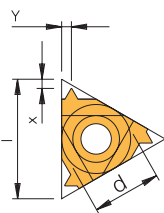
Pitch		Grade availability										
[TPI]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN	Holder
32		5LIR-V-UN32	5	0,46	0,6	3,92	7,5	7		X	X	...NVR10.-5L*
28		5LIR-V-UN28	5	0,52	0,65	3,99	7,6	7		X	X	...NVR10.-5L*
24		5LIR-V-UN24	5	0,61	0,75	4,09	7,7	7		X	X	...NVR10.-5L*
24	5LIL-V-UN24		5	0,61	0,75	4,09	7,7	7		X	X	...NVR10.-5L*
20		5LIR-V-UN20	5	0,73	0,9	4,21	7,8	7	X	X	X	...NVR10.-5L*
18		5LIR-V-UN18	5	0,81	1,0	4,30	7,9	7		X	X	...NVR10.-5L*
16		5LIR-V-UN16	5	0,92	1,05	4,41	8,0	7		X	X	...NVR10.-5L*
14		5LIR-V-UN14	5	1,05	1,05	4,54	8,0	7		X	X	...NVR10.-5L*

*Tool holders are shown on page 297.

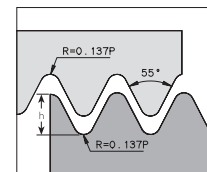
- X Available grade
- Main application
- 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

External Thread



Right hand execution shown




Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated			
									AL100	AM7C	AM15C	AK20	AK20P	Holder	
11	36		11ER-V-W36	6,35	0,45	0,6	0,6	7							NL...2
11	28		11ER-V-W28	6,35	0,58	0,6	0,7	7	X	X	X				NL...2
11	28	11EL-V-W28		6,35	0,58	0,6	0,7	7			X				NL...2
11	26		11ER-V-W26	6,35	0,63	0,7	0,8	7				X			NL...2
11	24		11ER-V-W24	6,35	0,68	0,7	0,8	7	X						NL...2
11	24	11EL-V-W24		6,35	0,68	0,7	0,8	7	X		X				NL...2
11	22		11ER-V-W22	6,35	0,74	0,8	0,9	7	X						NL...2
11	20		11ER-V-W20	6,35	0,81	0,8	0,9	7	X						NL...2
11	19		11ER-V-W19	6,35	0,86	0,8	1,0	7	X	X	X	X			NL...2
11	19	11EL-V-W19		6,35	0,86	0,8	1,0	7		X	X				NL...2
11	18		11ER-V-W18	6,35	0,90	0,8	1,0	7			X	X			NL...2
11	18		11ER-V-W18	6,35	0,90	0,8	1,0	7			X	X	X		NL...2
11	14		11ER-V-W14	6,35	1,16	1,0	1,2	7	X	X	X	X	X		NL...2
11	14	11EL-V-W14		6,35	1,16	1,0	1,2	7			X				NL...2
16	60		16ER-V-W60	9,525	0,27	0,7	0,4	7			X				AL...3
16	48		16ER-V-W48	9,525	0,34	0,6	0,6	7		X	X	X			AL...3
16	48	16EL-V-W48		9,525	0,34	0,6	0,6	7		X	X				AL...3
16	40		16ER-V-W40	9,525	0,41	0,6	0,6	7	X	X	X	X			AL...3
16	40	16EL-V-W40		9,525	0,41	0,6	0,6	7		X	X				AL...3
16	36		16ER-V-W36	9,525	0,45	0,6	0,6	7	X	X	X	X			AL...3
16	36	16EL-V-W36		9,525	0,45	0,6	0,6	7		X		X			AL...3
16	32		16ER-V-W32	9,525	0,51	0,6	0,6	7	X	X	X	X			AL...3
16	32	16EL-V-W32		9,525	0,51	0,6	0,6	7		X	X				AL...3
16	28		16ER-V-W28	9,525	0,58	0,6	0,7	7	X	X	X	X	X		AL...3
16	28	16EL-V-W28		9,525	0,58	0,6	0,7	7	X	X	X		X		AL...3
16	26		16ER-V-W26	9,525	0,63	0,7	0,8	7	X	X	X	X			AL...3
16	26	16EL-V-W26		9,525	0,63	0,7	0,8	7		X	X				AL...3
16	24		16ER-V-W24	9,525	0,68	0,7	0,8	7	X	X	X	X			AL...3
16	24	16EL-V-W24		9,525	0,68	0,7	0,8	7	X	X	X	X			AL...3
16	22		16ER-V-W22	9,525	0,74	0,8	0,9	7	X	X	X	X			AL...3
16	22	16EL-V-W22		9,525	0,74	0,8	0,9	7		X	X				AL...3
16	20		16ER-V-W20	9,525	0,81	0,8	0,9	7	X	X	X	X			AL...3
16	20	16EL-V-W20		9,525	0,81	0,8	0,9	7	X	X	X	X			AL...3
16	19		16ER-V-W19	9,525	0,86	0,8	1,0	7	X	X	X	X	X		AL...3
16	19	16EL-V-W19		9,525	0,86	0,8	1,0	7	X	X	X	X	X		AL...3
16	18		16ER-V-W18	9,525	0,90	0,8	1,0	7	X	X	X	X			AL...3
16	18	16EL-V-W18		9,525	0,90	0,8	1,0	7	X	X	X				AL...3
16	16		16ER-V-W16	9,525	1,02	0,9	1,1	7	X	X	X	X	X		AL...3
16	16	16EL-V-W16		9,525	1,02	0,9	1,1	7	X	X	X		X		AL...3
16	14		16ER-V-W14	9,525	1,16	1,0	1,2	7	X	X	X	X	X		AL...3
16	14	16EL-V-W14		9,525	1,16	1,0	1,2	7	X	X	X	X	X		AL...3
16	12		16ER-V-W12	9,525	1,36	1,1	1,4	7	X	X	X	X	X		AL...3
16	12	16EL-V-W12		9,525	1,36	1,1	1,4	7	X	X	X	X			AL...3
16	11		16ER-V-W11	9,525	1,48	1,1	1,5	7	X	X	X	X	X		AL...3
16	11	16EL-V-W11		9,525	1,48	1,1	1,5	7	X	X	X	X			AL...3
16	10		16ER-V-W10	9,525	1,63	1,1	1,5	7	X	X	X	X			AL...3
16	10	16EL-V-W10		9,525	1,63	1,1	1,5	7	X	X	X	X			AL...3
16	9		16ER-V-W9	9,525	1,81	1,2	1,7	7	X	X	X	X			AL...3
16	9	16EL-V-W9		9,525	1,81	1,2	1,7	7		X	X				AL...3
16	8		16ER-V-W8	9,525	2,03	1,2	1,5	7	X	X	X	X			AL...3
16	8	16EL-V-W8		9,525	2,03	1,2	1,5	7	X	X	X				AL...3
16	36		16ER-V-W36-SB	9,525	0,45	1,2	0,5	7	X						AL...3
16	32		16ER-V-W32-SB	9,525	0,51	1,2	0,5	7	X						AL...3
16	28		16ER-V-W28-SB	9,525	0,58	0,7	0,8	7	X						AL...3
16	24		16ER-V-W24-SB	9,525	0,68	0,7	0,8	7	X						AL...3
16	20		16ER-V-W20-SB	9,525	0,81	0,7	0,8	7	X						AL...3
16	19		16ER-V-W19-SB	9,525	0,86	0,7	0,8	7	X						AL...3
16	18		16ER-V-W18-SB	9,525	0,90	0,8	0,8	7	X						AL...3
16	16		16ER-V-W16-SB	9,525	1,02	0,8	0,8	7	X						AL...3
16	14		16ER-V-W14-SB	9,525	1,16	1,3	1,5	7	X						AL...3
16	12		16ER-V-W12-SB	9,525	1,36	1,3	1,5	7	X						AL...3
16	11		16ER-V-W11-SB	9,525	1,48	1,3	1,5	7	X						AL...3
16	8		16ER-V-W8-SB	9,525	2,03	1,3	1,5	7	X						AL...3
22	7		22ER-V-W7	12,7	2,41	1,6	2,3	7	X	X	X	X			AL...4

5

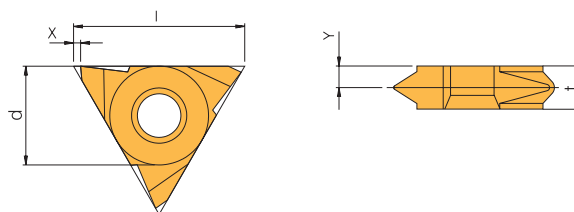
External Thread

Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder	
									coated			uncoated			
									AL100	AM7C	AM15C	AK20	AK20P		
22	7	22EL-V-W7		12,7	2,41	1,6	2,3	7		X	X				AL...-4
22	6		22ER-V-W6	12,7	2,71	1,6	2,3	7	X	X	X	X			AL...-4
22	6	22EL-V-W6		12,7	2,71	1,6	2,3	7	X	X	X				AL...-4
22	5		22ER-V-W5	12,7	3,25	1,7	2,4	7	X	X	X	X			AL...-4
22	5	22EL-V-W5		12,7	3,25	1,7	2,4	7		X	X				AL...-4
27	4,5		27ER-V-W4,5	15,88	3,61	1,8	2,6	7	X		X	X			AL...-5
27	4		27ER-V-W4	15,88	4,07	2,0	2,9	7	X		X	X			AL...-5


- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●					
AM7C	●	●				
AM15C	○					
AK20				●	●	
AK20P				●	●	



Right hand execution shown

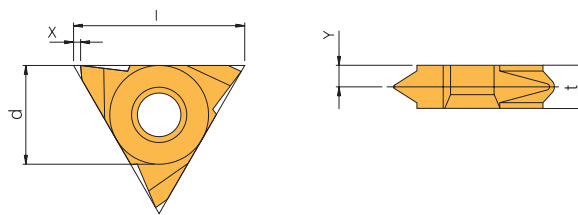
Type
Slim Throat

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability					Holder
										coated			uncoated		
										AL100	AM7C	AM15C	AK20		
11	19		11VER-V-W19	6,35	0,86	0,69	2,30	3,20	7			X	X		NL...-2V
11	14		11VER-V-W14	6,35	1,16	0,69	2,00	3,20	7			X	X		NL...-2V
11	14	11VEL-V-W14		6,35	1,16	0,69	2,00	3,20	7	X		X			NL...-2V
11	11		11VER-V-W11	6,35	1,48	0,69	1,70	3,20	7	X	X	X	X		NL...-2V
16	19		16VER-V-W19	9,525	0,68	1,10	2,70	3,60	7	X	X	X	X		NL...-3V
16	19	16VEL-V-W19		9,525	0,68	1,10	2,70	3,60	7	X	X		X		NL...-3V
16	16		16VER-V-W16	9,525	1,02	1,10	2,60	3,60	7	X					NL...-3V
16	14		16VER-V-W14	9,525	1,16	1,10	2,40	3,60	7	X	X	X	X		NL...-3V
16	14	16VEL-V-W14		9,525	1,16	1,10	2,40	3,60	7	X	X	X	X		NL...-3V
16	12		16VER-V-W12	9,525	1,36	1,10	2,20	3,60	7	X					NL...-3V
16	11		16VER-V-W11	9,525	1,48	1,10	2,10	3,60	7	X	X	X	X		NL...-3V
16	11	16VEL-V-W11		9,525	1,48	1,10	2,10	3,60	7	X	X	X	X		NL...-3V

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●					
AM7C	●	●				
AM15C	○					
AK20				●	●	

External Thread



Type
V

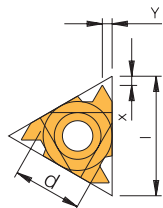
Right hand execution shown

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability				
										coated			uncoated	
										AL100	AM7C	AM15C	AK20	Holder
27	4	27VEL-V-W4		15,88	4,07	1,0	3,3	6	7				X	NL...-5V-6
27	3		27VER-V-W3	15,88	5,42	1,0	4,3	8	7	X			X	NL...-5V-8
27	2,5		27VER-V-W2,5	15,88	6,51	1,0	5,2	10	7	X	X	X		NL...-5V-10

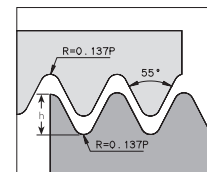
- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●			○		
AM7C	●	●				
AM15C						
AK20					●	
Holder					●	

Internal Thread



Right hand execution shown




Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated			
									AL100	AM7C	AM15C	AK20	AK20P	Holder	
11	48		11IR-V-W48	6,35	0,34	0,6	0,6	7				X			NVR...-2
11	40		11IR-V-W40	6,35	0,41	0,6	0,6	7	X	X	X				NVR...-2
11	36		11IR-V-W36	6,35	0,45	0,6	0,6	7			X	X			NVR...-2
11	36	11IL-V-W36		6,35	0,45	0,6	0,6	7			X				NVR...-2
11	32		11IR-V-W32	6,35	0,51	0,6	0,6	7	X	X	X	X			NVR...-2
11	28		11IR-V-W28	6,35	0,58	0,6	0,7	7	X	X		X			NVR...-2
11	26		11IR-V-W26	6,35	0,63	0,7	0,8	7	X	X	X	X			NVR...-2
11	26	11IL-V-W26		6,35	0,63	0,7	0,8	7	X		X	X			NVR...-2
11	24		11IR-V-W24	6,35	0,68	0,7	0,8	7	X	X	X	X			NVR...-2
11	24	11IL-V-W24		6,35	0,68	0,7	0,8	7	X	X					NVR...-2
11	22		11IR-V-W22	6,35	0,74	0,8	0,9	7	X		X				NVR...-2
11	20		11IR-V-W20	6,35	0,81	0,8	0,9	7	X		X	X			NVR...-2
11	20	11IL-V-W20		6,35	0,81	0,8	0,9	7			X	X			NVR...-2
11	19		11IR-V-W19	6,35	0,86	0,8	1,0	7	X	X	X	X	X		NVR...-2
11	19	11IL-V-W19		6,35	0,86	0,8	1,0	7	X	X	X	X		X	NVR...-2
11	18		11IR-V-W18	6,35	0,90	0,8	1,0	7	X	X	X	X			NVR...-2
11	18	11IL-V-W18		6,35	0,90	0,8	1,0	7	X						NVR...-2
11	16		11IR-V-W16	6,35	1,02	0,9	1,1	7	X	X	X	X			NVR...-2
11	14		11IR-V-W14	6,35	1,16	0,9	1,1	7	X	X	X	X	X		NVR...-2
11	14	11IL-V-W14		6,35	1,16	0,9	1,1	7	X	X	X	X			NVR...-2
11	12		11IR-V-W12	6,35	1,32	0,9	1,2	7	X		X				NVR...-2
11	12	11IL-V-W12		6,35	1,32	0,9	1,2	7			X				NVR...-2
11	36		11IR-V-W36-SB	6,35	0,45	1,2	0,5	7	X						NVR...-2
11	32		11IR-V-W32-SB	6,35	0,51	1,2	0,5	7	X						NVR...-2
11	28		11IR-V-W28-SB	6,35	0,58	0,7	0,8	7	X						NVR...-2
11	24		11IR-V-W24-SB	6,35	0,68	0,7	0,8	7	X						NVR...-2
11	20		11IR-V-W20-SB	6,35	0,81	0,7	0,8	7	X						NVR...-2
11	19		11IR-V-W19-SB	6,35	0,86	0,6	0,8	7	X						NVR...-2
11	18		11IR-V-W18-SB	6,35	0,90	0,8	0,8	7	X						NVR...-2
11	16		11IR-V-W16-SB	6,35	1,02	0,8	0,8	7	X						NVR...-2
11	14		11IR-V-W14-SB	6,35	1,16	0,7	0,9	7	X						NVR...-2
16	48		16IR-V-W48	9,525	0,34	0,6	0,6	7			X	X			AVR...-3
16	48	16IL-V-W48		9,525	0,34	0,6	0,6	7			X				AVR...-3
16	40		16IR-V-W40	9,525	0,41	0,6	0,6	7			X	X			AVR...-3
16	40	16IL-V-W40		9,525	0,41	0,6	0,6	7			X	X			AVR...-3
16	36		16IR-V-W36	9,525	0,45	0,6	0,6	7			X	X	X		AVR...-3
16	36	16IL-V-W36		9,525	0,45	0,6	0,6	7			X	X			AVR...-3
16	32		16IR-V-W32	9,525	0,51	0,6	0,6	7	X	X	X	X			AVR...-3
16	32	16IL-V-W32		9,525	0,51	0,6	0,6	7			X	X			AVR...-3
16	28		16IR-V-W28	9,525	0,58	0,6	0,7	7	X	X	X	X			AVR...-3
16	28	16IL-V-W28		9,525	0,58	0,6	0,7	7			X	X			AVR...-3
16	26		16IR-V-W26	9,525	0,63	0,7	0,8	7	X	X	X	X			AVR...-3
16	26	16IL-V-W26		9,525	0,63	0,7	0,8	7			X	X			AVR...-3
16	24		16IR-V-W24	9,525	0,68	0,7	0,8	7	X	X	X	X			AVR...-3
16	24	16IL-V-W24		9,525	0,68	0,7	0,8	7			X	X			AVR...-3
16	22		16IR-V-W22	9,525	0,74	0,8	0,9	7	X	X	X	X			AVR...-3
16	22	16IL-V-W22		9,525	0,74	0,8	0,9	7			X	X			AVR...-3
16	20		16IR-V-W20	9,525	0,81	0,8	0,9	7	X	X	X	X			AVR...-3
16	20	16IL-V-W20		9,525	0,81	0,8	0,9	7			X	X			AVR...-3
16	19		16IR-V-W19	9,525	0,86	0,8	1,0	7	X	X	X	X	X		AVR...-3
16	19	16IL-V-W19		9,525	0,86	0,8	1,0	7			X	X			AVR...-3
16	18		16IR-V-W18	9,525	0,90	0,8	1,0	7	X	X	X	X			AVR...-3
16	18	16IL-V-W18		9,525	0,90	0,8	1,0	7			X	X			AVR...-3
16	16		16IR-V-W16	9,525	1,02	0,9	1,1	7	X	X	X	X			AVR...-3
16	16	16IL-V-W16		9,525	1,02	0,9	1,1	7			X	X			AVR...-3
16	14		16IR-V-W14	9,525	1,16	1,0	1,2	7	X	X	X	X	X		AVR...-3
16	14	16IL-V-W14		9,525	1,16	1,0	1,2	7			X	X			AVR...-3
16	12		16IR-V-W12	9,525	1,36	1,1	1,4	7	X	X	X	X			AVR...-3
16	12	16IL-V-W12		9,525	1,36	1,1	1,4	7			X	X			AVR...-3
16	11		16IR-V-W11	9,525	1,48	1,1	1,5	7	X	X	X	X	X		AVR...-3
16	11	16IL-V-W11		9,525	1,48	1,1	1,5	7			X	X			AVR...-3
16	10		16IR-V-W10	9,525	1,63	1,1	1,5	7	X	X	X	X			AVR...-3
16	10	16IL-V-W10		9,525	1,63	1,1	1,5	7			X	X			AVR...-3



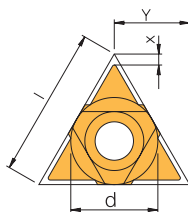
Internal Thread

Type Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder
									coated			uncoated		
									AL100	AM7C	AM15C	AK20	AK20P	
16	9		16IR-V-W9	9,525	1,81	1,2	1,7	7	X	X	X	X		AVR...3
16	9	16IL-V-W9		9,525	1,81	1,2	1,7	7	X	X	X			AVR...3
16	8		16IR-V-W8	9,525	2,03	1,2	1,5	7	X	X	X	X		AVR...3
16	8	16IL-V-W8		9,525	2,03	1,2	1,5	7	X	X	X	X		AVR...3
16	28		16IR-V-W28-SB	9,525	0,58	0,7	0,8	7	X					AVR...3
16	24		16IR-V-W24-SB	9,525	0,68	0,7	0,8	7	X					AVR...3
16	20		16IR-V-W20-SB	9,525	0,81	0,7	0,8	7	X					AVR...3
16	19		16IR-V-W19-SB	9,525	0,86	0,6	0,5	7	X					AVR...3
16	18		16IR-V-W18-SB	9,525	0,90	0,8	0,8	7	X					AVR...3
16	16		16IR-V-W16-SB	9,525	1,02	0,8	0,8	7	X					AVR...3
16	14		16IR-V-W14-SB	9,525	1,16	1,3	1,5	7	X					AVR...3
16	12		16IR-V-W12-SB	9,525	1,36	1,3	1,5	7	X					AVR...3
16	11		16IR-V-W11-SB	9,525	1,48	1,3	1,5	7	X					AVR...3
16	10		16IR-V-W10-SB	9,525	1,63	1,3	1,5	7	X					AVR...3
16	8		16IR-V-W8-SB	9,525	2,03	1,3	1,5	7	X					AVR...3
22	7		22IR-V-W7	12,7	2,41	1,6	2,3	7	X	X	X	X		AVR...4
22	7	22IL-V-W7		12,7	2,41	1,6	2,3	7	X	X	X			AVR...4
22	6		22IR-V-W6	12,7	2,71	1,6	2,3	7	X	X	X			AVR...4
22	6	22IL-V-W6		12,7	2,71	1,6	2,3	7	X	X	X			AVR...4
22	5		22IR-V-W5	12,7	3,25	1,7	2,4	7	X	X	X	X		AVR...4
22	5	22IL-V-W5		12,7	3,25	1,7	2,4	7	X	X	X			AVR...4
27	4,5		27IR-V-W4,5	15,88	3,61	1,8	2,6	7	X		X			AVR...5
27	4,5	27IL-V-W4,5		15,88	3,61	1,8	2,6	7	X					AVR...5
27	4		27IR-V-W4	15,88	4,07	2,0	2,9	7	X		X	X		AVR...5
27	4	27IL-V-W4		15,88	4,07	2,0	2,9	7			X	X		AVR...5


- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○	●	●
N			●	●
S	○			
H				



5

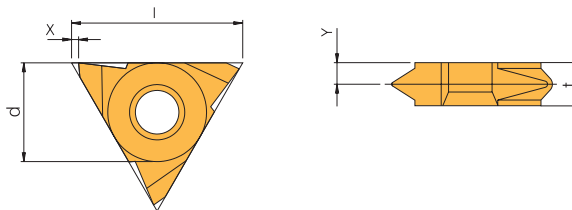
Type U

Pitch	[TPI]	Left / right	d	h _{min}	x	y	PG	Grade availability		Holder
								AL100	AM15C	
										
22	4,5	22UIN-V-W4,5	12,7	3,61	2,3	11,0	7	X		AVR...4U
22	4	22UIN-V-W4	12,7	4,07	1,8	11,0	7	X	X	AVR...4U
22	3,5	22UIN-V-W3,5	12,7	4,65	2,1	11,0	7	X		AVR...4U
27	3,5	27UIN-V-W3,5	15,88	4,65	2,1	13,7	7	X	X	AVR...5U
27	3,25	27UIN-V-W3,25	15,88	5,00	2,0	13,7	7	X	X	AVR...5U
27	3	27UIN-V-W3	15,88	5,42	2,3	13,7	7	X	X	AVR...5U
27	2,75	27UIN-V-W2,75	15,88	5,91	2,4	13,7	7		X	AVR...5U

- X Available grade
- Main application
- 2nd application

P	●	○
M	●	●
K	○	
N		
S	○	
H		

Internal Thread



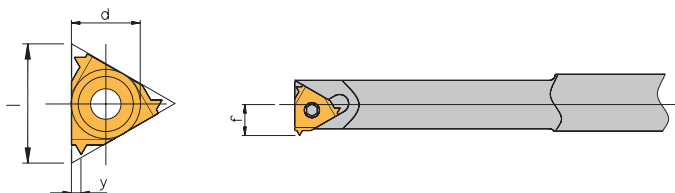
Type V

Right hand execution shown

Pitch												Grade availability		
[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	coated		uncoated	Holder		
									AL100	AM15C	AK20			
27	4		15,88	4,07	1,0	3,3	6	7	X	X		NVR...5V		
27	3		15,88	5,42	1,0	4,3	8	7	X	X	X	NVR...5V		
27	3	27VIL-V-W3	15,88	5,42	1,0	4,3	8	7	X			NVR...5V		
27	2,5		15,88	6,51	1,0	5,2	10	7	X			NVR...5V		

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	○	○				
AK20				●		
Holder						



Type MINI 3

Right hand execution shown

Pitch												Grade availability		
[TPI]	Left hand	Right hand	d	h _{min}	y	f	PG	coated			Holder			
								AL100	AM15C	HSS-TIN				
6	26		4	0,63	0,6	3,6	7	X			...NVR.5-4,0K*			
6	22		4	0,74	0,6	3,7	7	X			...NVR.5-4,0K*			
6	20		4	0,81	0,7	3,7	7	X			...NVR.5-4,0K*			
6	19		4	0,86	0,7	3,7	7	X			...NVR.5-4,0K*			
6	18		4	0,90	0,7	3,7	7	X			...NVR.5-4,0K*			
10	28		6	0,58	0,7	4,7	7		X	X	...NVR1...6,0*			
10	19		6	0,86	1,0	5,0	7	X	X	X	...NVR1...6,0*			
10	19	6IL-V-W19	6	0,86	1,0	5,0	7		X		...NVR1...6,0*			
10	14		6	1,16	1,1	5,3	7		X	X	...NVR1...6,0*			

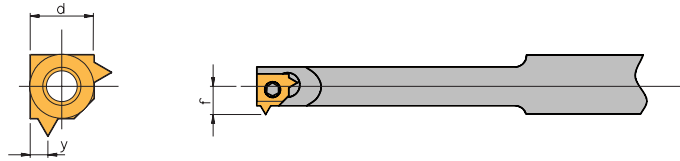
*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	○	○				
HSS-TIN				●		
Holder						



Internal Thread



Type
MINI 2

Right hand execution shown

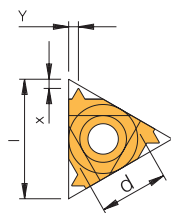
Pitch		Grade availability									
[TPI]	Right hand	d	h_{min}	y	f	PG	AL100	AM7C	AM15C	HSS-TiN	Holder
28	5LIR-V-W28	5	0,58	0,7	4,05	7	X	X	X	X	...NVR 10.-5L*
19	5LIR-V-W19	5	0,86	1,0	4,35	7		X	X	X	...NVR 10.-5L*
14	5LIR-V-W14	5	1,16	1,1	4,68	7			X	X	...NVR 10.-5L*

*Tool holders are shown on page 297.

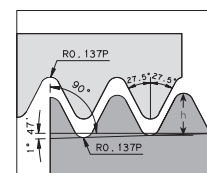
- X Available grade
- Main application
- 2nd application

P	●		○	●
M	●	●	●	○
K	○	○		
N				
S	○			○
H				

External Thread



Right hand execution shown

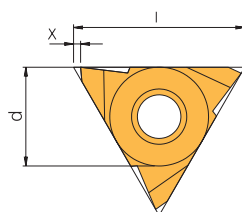


Type Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
11	14		11ER-V-BSPT14	6,35	1,16	0,9	1,0	7	X		X		NL...-2
16	28		16ER-V-BSPT28	9,525	0,58	0,6	0,6	7	X	X	X	X	AL...-3
16	28	16EL-V-BSPT28		9,525	0,58	0,6	0,6	7			X		AL...-3
16	19		16ER-V-BSPT19	9,525	0,86	0,8	0,9	7	X	X	X	X	AL...-3
16	14		16ER-V-BSPT14	9,525	1,16	1,0	1,2	7	X	X	X	X	AL...-3
16	14	16EL-V-BSPT14		9,525	1,16	1,0	1,2	7	X		X		AL...-3
16	11		16ER-V-BSPT11	9,525	1,48	1,1	1,5	7	X	X	X	X	AL...-3
16	11	16EL-V-BSPT11		9,525	1,48	1,1	1,5	7	X		X		AL...-3

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○	○	○	○
AM7C	○	●	○	○	○	○
AM15C	○	●	○	○	○	○
AK20	○	○	○	○	○	○
Holder	○	○	○	○	○	○



Right hand execution shown

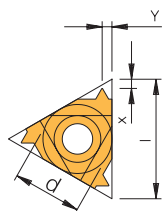
Type Slim Throat

Pitch	[TPI]	Right hand	d	h _{min}	x	y	t	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
16	28	16VER-V-BSPT28	9,525	0,58	1,1	3,0	3,6	7		X	X		NL...-3V
16	19	16VER-V-BSPT19	9,525	0,86	1,1	2,7	3,6	7	X			X	NL...-3V
16	11	16VER-V-BSPT11	9,525	1,48	1,1	2,1	3,6	7			X		NL...-3V

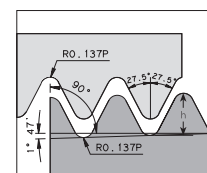
- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○	○	○	○
AM7C	○	●	○	○	○	○
AM15C	○	●	○	○	○	○
AK20	○	○	○	○	○	○
Holder	○	○	○	○	○	○

Internal Thread



Right hand execution shown

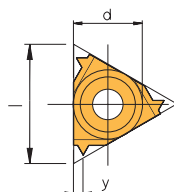


Type
Standard

Pitch		Grade availability												
[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	coated			uncoated		Holder	
								AL100	AM7C	AM15C	AK20	AK20P		
11	19		11IR-V-BSPT19	6,35	0,86	0,8	0,9	7	X	X	X		X	NVR...2
11	14		11IR-V-BSPT14	6,35	1,16	0,9	1,0	7	X	X	X		X	NVR...2
11	14	11IL-V-BSPT14		6,35	1,16	0,9	1,0	7		X				NVR...2
16	28		16IR-V-BSPT28	9,525	0,58	0,6	0,6	7	X		X			AVR...3
16	19		16IR-V-BSPT19	9,525	0,86	0,8	0,9	7	X		X			AVR...3
16	14		16IR-V-BSPT14	9,525	1,16	1,0	1,2	7	X	X	X	X		AVR...3
16	14	16IL-V-BSPT14		9,525	1,16	1,0	1,2	7	X					AVR...3
16	11		16IR-V-BSPT11	9,525	1,48	1,1	1,5	7	X	X	X	X		AVR...3
16	11	16IL-V-BSPT11		9,525	1,48	1,1	1,5	7	X					AVR...3

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○	●	●
N			●	●
S	○			
H				



Right hand execution shown

Type
MINI 3

Pitch		Grade availability									
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AL100	AM15C	HSS-TiN	Holder
6	28	4KIR-V-BSPT28	4	0,58	0,6	3,6	6,25	7	X		...NVR.5-4.0K*
10	28	6IR-V-BSPT28	6	0,58	0,6	4,7	9,60	7		X	...NVR1..6.0*
10	19	6IR-V-BSPT19	6	0,86	0,9	5,0	9,90	7		X	...NVR1..6.0*
10	14	6IR-V-BSPT14	6	1,16	1,2	5,3	10,00	7		X	...NVR1..6.0*

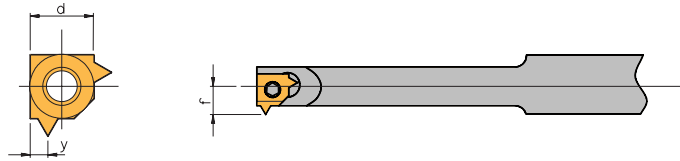
*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

5

Internal Thread



Type
MINI 2

Right hand execution shown

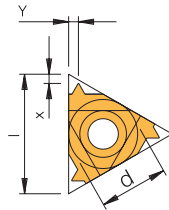
Pitch									Grade availability		
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	HSS-TiN	Holder	
19	5LIR-V-BSPT19	5,0L	0,86	0,9	4,35	7,90	7	X	X	...NVR10.-5L*	
14	5LIR-V-BSPT14	5,0L	1,16	1,2	4,68	8,00	7	X	X	...NVR10.-5L*	

*Tool holders are shown on page 297.

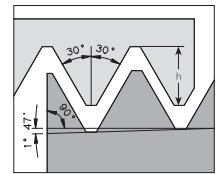
- X Available grade
- Main application
- 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

External Thread



Right hand execution shown



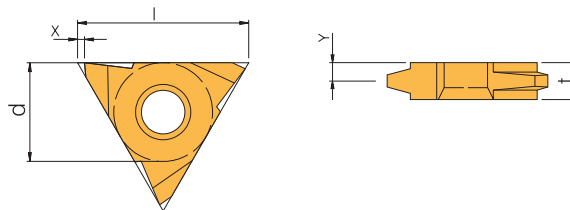
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated			Holder
									AL100	AM7C	AM15C	AK20	AK20P		
11	18		11ER-V-NPT18	6,35	1,01	0,8	1,0	7				X			NL...-2
11	14		11ER-V-NPT14	6,35	1,33	0,8	1,0	7	X	X					NL...-2
11	14	11EL-V-NPT14		6,35	1,33	0,8	1,0	7			X				NL...-2
16	27		16ER-V-NPT27	9,525	0,66	0,7	0,8	7	X	X	X				AL...-3
16	27	16EL-V-NPT27		9,525	0,66	0,7	0,8	7	X		X	X			AL...-3
16	18		16ER-V-NPT18	9,525	1,01	0,8	1,0	7	X	X	X	X	X		AL...-3
16	18	16EL-V-NPT18		9,525	1,01	0,8	1,0	7	X	X	X	X	X		AL...-3
16	14		16ER-V-NPT14	9,525	1,33	0,9	1,2	7	X	X	X	X	X	X	AL...-3
16	14	16EL-V-NPT14		9,525	1,33	0,9	1,2	7	X	X	X	X	X		AL...-3
16	11,5		16ER-V-NPT11,5	9,525	1,64	1,1	1,5	7	X	X	X	X	X	X	AL...-3
16	11,5	16EL-V-NPT11,5		9,525	1,64	1,1	1,5	7	X	X	X	X	X		AL...-3
16	8		16ER-V-NPT8	9,525	2,42	1,3	1,8	7	X	X	X	X			AL...-3
16	8	16EL-V-NPT8		9,525	2,42	1,3	1,8	7	X		X				AL...-3
16	27		16ER-V-NPT27-SB	9,525	0,66	0,6	0,8	7	X						AL...-3
16	18		16ER-V-NPT18-SB	9,525	1,01	0,6	0,8	7	X						AL...-3
16	14		16ER-V-NPT14-SB	9,525	1,33	1,1	1,5	7	X						AL...-3
16	11,5		16ER-V-NPT11,5-SB	9,525	1,64	1,1	1,5	7	X						AL...-3
16	8		16ER-V-NPT8-SB	9,525	2,42	1,0	1,5	7	X						AL...-3

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

External Thread



Right hand execution shown

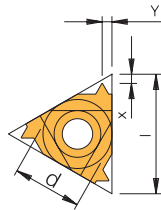
Type
Slim Throat

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			AK20	Holder
										AL100	AM7C	AM15C		
11	18		11VER-V-NPT18	6,35	1,01	0,7	1,8	3,2	7	X		X		NL...-2V
11	18	11VEL-V-NPT18		6,35	1,01	0,7	1,8	3,2	7	X				NL...-2V
11	14		11VER-V-NPT14	6,35	1,33	0,7	1,8	3,2	7			X		NL...-2V
11	11,5		11VER-V-NPT11,5	6,35	1,64	0,7	2,1	3,2	7				X	NL...-2V
11	11,5	11VEL-V-NPT11,5		6,35	1,64	0,7	2,1	3,2	7			X		NL...-2V
16	27		16VER-V-NPT27	9,525	0,66	1,1	2,9	3,6	7	X		X		NL...-3V
16	18		16VER-V-NPT18	9,525	1,01	1,1	2,6	3,6	7	X		X		NL...-3V
16	18	16VEL-V-NPT18		9,525	1,01	1,1	2,6	3,6	7		X			NL...-3V
16	11,5		16VER-V-NPT11,5	9,525	1,64	1,1	2,1	3,6	7	X		X		NL...-3V
16	11,5	16VEL-V-NPT11,5		9,525	1,64	1,1	2,1	3,6	7	X			X	NL...-3V

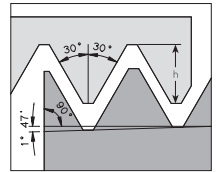
- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Internal Thread



Right hand execution shown

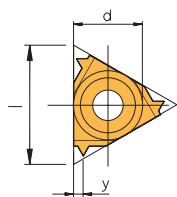


Type Standard

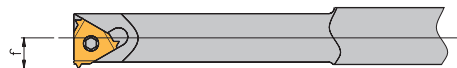
Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder
									coated			uncoated		
								AL100	AM7C	AM15C	AK20	AK20P		
11	27		11IR-V-NPT27	6,35	0,66	0,7	0,8	7	X	X	X			NVR...2
11	18		11IR-V-NPT18	6,35	1,01	0,8	1,0	7	X	X	X	X		NVR...2
11	18	11IL-V-NPT18		6,35	1,01	0,8	1,0	7		X	X			NVR...2
11	14		11IR-V-NPT14	6,35	1,33	0,8	1,0	7	X	X	X	X		NVR...2
11	14	11IL-V-NPT14		6,35	1,33	0,8	1,0	7	X	X	X			NVR...2
16	27		16IR-V-NPT27	9,525	0,66	0,7	0,8	7	X	X	X			AVR...3
16	27	16IL-V-NPT27		9,525	0,66	0,7	0,8	7		X	X			AVR...3
16	18		16IR-V-NPT18	9,525	1,01	0,8	1,0	7	X	X	X	X		AVR...3
16	14		16IR-V-NPT14	9,525	1,33	0,9	1,2	7	X	X	X	X		AVR...3
16	14	16IL-V-NPT14		9,525	1,33	0,9	1,2	7	X	X	X			AVR...3
16	11,5		16IR-V-NPT11,5	9,525	1,64	1,1	1,5	7	X	X	X	X	X	AVR...3
16	11,5	16IL-V-NPT11,5		9,525	1,64	1,1	1,5	7	X		X			AVR...3
16	8		16IR-V-NPT8	9,525	2,42	1,3	1,8	7	X	X	X	X		AVR...3
16	8	16IL-V-NPT8		9,525	2,42	1,3	1,8	7	X		X			AVR...3
16	27		16IR-V-NPT27-SB	9,525	0,66	0,6	0,8	7	X					AVR...3
16	18		16IR-V-NPT18-SB	9,525	1,01	0,6	0,8	7	X					AVR...3
16	14		16IR-V-NPT14-SB	9,525	1,33	1,1	1,5	7	X					AVR...3
16	11,5		16IR-V-NPT11,5-SB	9,525	1,64	1,1	1,5	7	X					AVR...3
16	8		16IR-V-NPT8-SB	9,525	2,42	1,0	1,5	7	X					AVR...3

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					



Right hand execution shown



Type MINI 3

Pitch	[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	Grade availability				Holder
									AL100	AM7C	AM15C	HSS-TIN	
6	27	4KIR-V-NPT27	4	0,66	0,6	3,7	6,35	7	X				...NVR.5-4.0K*
10	27	6IR-V-NPT27	6	0,66	0,8	5,3	10,00	7			X	X	...NVR1...6.0*
10	18	6IR-V-NPT18	6	1,01	1,0	5,3	10,00	7	X	X	X	X	...NVR1...6.0*
10	14	6IR-V-NPT14	6	1,33	1,1	5,3	10,00	7			X	X	...NVR1...6.0*

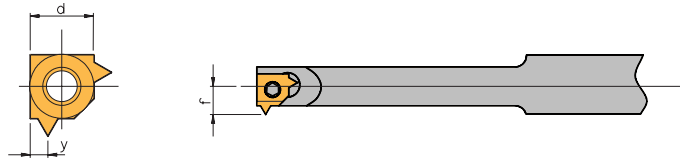
*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

P	●		○	●
M	●	●	●	○
K	○	○		
N				
S	○			○
H				

5

Internal Thread



Type
MINI 2

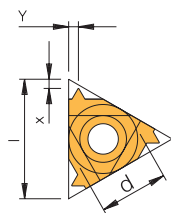
Right hand execution shown

Pitch									Grade availability		
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	HSS-TiN	Holder	
27	5LIR-V-NPT27	5,0L	0,66	0,8	4,65	8,00	7	X	X	...NVR10.-5L*	
18	5LIR-V-NPT18	5,0L	1,01	1,0	4,65	8,00	7	X	X	...NVR10.-5L*	
14	5LIR-V-NPT14	5,0L	1,33	1,1	4,65	8,00	7	X	X	...NVR10.-5L*	

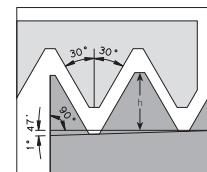
*Tool holders are shown on page 297.

X	Available grade	P	○	●
●	Main application	M	●	○
○	2nd application	K		
		N		
		S	○	
		H		

External Thread



Right hand execution shown



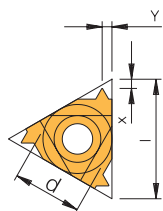
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									coated				
									AL100	AM7C	AM15C		
11	27		11ER-V-NPTF27	6,35	0,64	0,7	0,8	7	X		X		NL...-2
11	18		11ER-V-NPTF18	6,35	1,00	0,8	1,0	7	X				NL...-2
16	27		16ER-V-NPTF27	9,525	0,64	0,7	0,8	7	X	X	X	X	AL...-3
16	18		16ER-V-NPTF18	9,525	1,00	0,8	1,0	7	X	X	X	X	AL...-3
16	18	16EL-V-NPTF18		9,525	1,00	0,8	1,0	7	X				AL...-3
16	14		16ER-V-NPTF14	9,525	1,35	0,9	1,2	7	X	X	X	X	AL...-3
16	11,5		16ER-V-NPTF11,5	9,525	1,63	1,1	1,5	7	X	X	X	X	AL...-3
16	8		16ER-V-NPTF8	9,525	2,38	1,3	1,8	7	X		X	X	AL...-3

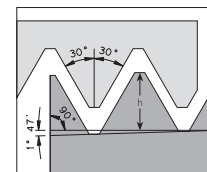
- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Internal Thread



Right hand execution shown

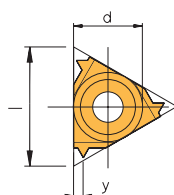


Type Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									coated				
									AL100	AM7C	AM15C		
11	18		11IR-V-NPTF18	6,35	1,00	0,8	1,0	7	X	X	X		NVR...2
11	14		11IR-V-NPTF14	6,35	1,35	0,8	1,0	7	X	X	X	X	NVR...2
11	14	11IL-V-NPTF14		6,35	1,35	0,8	1,0	7			X		NVR...2
16	18		16IR-V-NPTF18	9,525	1,00	0,8	1,0	7		X	X		AVR...3
16	14		16IR-V-NPTF14	9,525	1,35	0,9	1,2	7	X	X	X	X	AVR...3
16	11,5		16IR-V-NPTF11,5	9,525	1,63	1,1	1,5	7	X	X	X	X	AVR...3
16	8		16IR-V-NPTF8	9,525	2,38	1,3	1,8	7	X	X	X	X	AVR...3

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM7C	●	●	○			
AM15C	○	○				
AK20			●	●		
Holder						



Right hand execution shown



Type MINI 3

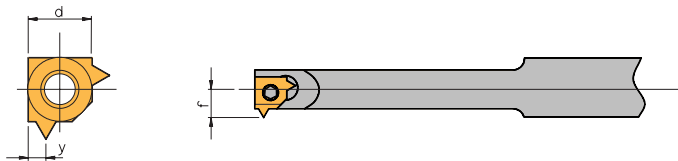
Pitch		Right hand	d	h _{min}	y	f	Min. bore ø	PG	Grade availability			Holder
[TPI]									AL100	AM15C	HSS-TiN	
6	27	4KIR-V-NPTF27	4	0,64	0,6	3,6	6,25	7	X			...NVR.5-4.0K*
10	18	6IR-V-NPTF18	6	1,00	1,0	5,3	10,00	7		X	X	...NVR1...6.0*
10	14	6IR-V-NPTF14	6	1,35	1,1	5,3	10,00	7		X		...NVR1...6.0*

*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	●	●	○			
HSS-TiN	○	○				
Holder						

Internal Thread



Type
MINI 2

Right hand execution shown

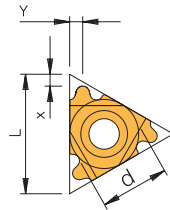
Pitch								Grade availability		
[TPI]	Right hand	d	h_{min}	y	f	Min. bore ϕ	PG	AM15C	HSS-TiN	Holder
27	5LIR-V-NPTF27	5,0L	0,64	0,8	4,65	8,00	7	X	X	...NVR10.-5L*
18	5LIR-V-NPTF18	5,0L	1,00	1,0	4,65	8,00	7	X	X	...NVR10.-5L*
14	5LIR-V-NPTF14	5,0L	1,35	1,1	4,65	8,00	7	X	X	...NVR10.-5L*

*Tool holders are shown on page 297.

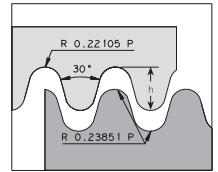
- X Available grade
- Main application
- 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

External Thread



Right hand execution shown



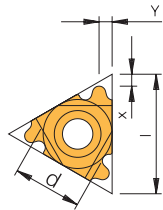
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated		Holder	
									AL100	AM7C	AM15C	AK20	AK20P		
16	10		16ER-V-RD405/10	9,525	1,27	1,1	1,2	7	X	X	X	X			AL...-3
16	10	16EL-V-RD405/10		9,525	1,27	1,1	1,2	7	X	X	X		X		AL...-3
16	8		16ER-V-RD405/8	9,525	1,59	1,4	1,3	7	X	X	X	X	X		AL...-3
16	8	16EL-V-RD405/8		9,525	1,59	1,4	1,3	7	X	X	X		X		AL...-3
16	6		16ER-V-RD405/6	9,525	2,12	1,5	1,7	7	X	X	X	X	X		AL...-3
16	6	16EL-V-RD405/6		9,525	2,12	1,5	1,7	7	X	X	X		X		AL...-3
22	6		22ER-V-RD405/6	12,7	2,12	1,5	1,7	7	X	X	X	X			AL...-4
22	6	22EL-V-RD405/6		12,7	2,12	1,5	1,7	7		X					AL...-4
22	4		22ER-V-RD405/4	12,7	3,18	2,2	2,3	7	X	X	X	X			AL...-4
22	4	22EL-V-RD405/4		12,7	3,18	2,2	2,3	7	X	X					AL...-4
27	4		27ER-V-RD405/4	15,88	3,18	2,2	2,3	7	X	X	X				AL...-5
27	4	27EL-V-RD405/4		15,88	3,18	2,2	2,3	7	X						AL...-5

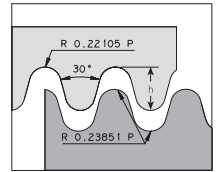
- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

Internal Thread



Right hand execution shown



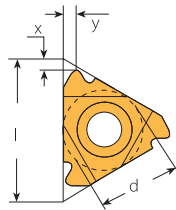
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									coated				
									AL100	AM7C	AM15C		
16	10		16IR-V-RD405/10	9,525	1,27	1,1	1,2	7	X	X	X	X	AVR...-3
16	10	16IL-V-RD405/10		9,525	1,27	1,1	1,2	7	X	X	X	X	AVR...-3
16	8		16IR-V-RD405/8	9,525	1,59	1,4	1,4	7	X	X	X	X	AVR...-3
16	8	16IL-V-RD405/8		9,525	1,59	1,4	1,4	7	X	X	X	X	AVR...-3
16	6		16IR-V-RD405/6	9,525	2,12	1,4	1,5	7	X	X	X	X	AVR...-3
16	6	16IL-V-RD405/6		9,525	2,12	1,4	1,5	7	X	X	X	X	AVR...-3
22	6		22IR-V-RD405/6	12,7	2,12	1,5	1,7	7	X	X	X	X	AVR...-4
22	6	22IL-V-RD405/6		12,7	2,12	1,5	1,7	7	X	X	X	X	AVR...-4
22	4		22IR-V-RD405/4	12,7	3,18	2,2	2,3	7	X	X	X	X	AVR...-4
22	4	22IL-V-RD405/4		12,7	3,18	2,2	2,3	7	X	X	X	X	AVR...-4
27	4		27IR-V-RD405/4	15,88	3,18	2,2	2,3	7	X	X	X	X	AVR...-5

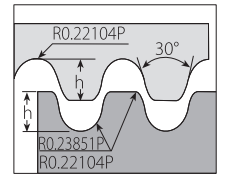
- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

External Thread



Right hand execution shown

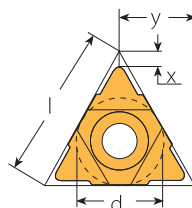


Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability		AK20	Holder
								coated	uncoated		
22	3,0	22ER-V-RD20400/3	12,7	1,65	1,3	1,7	7	X	X		AL...-4
22	4,0	22ER-V-RD20400/4	12,7	2,20	1,6	2,2	7	X	X		AL...-4
22	5,0	22ER-V-RD20400/5	12,7	2,75	1,4	1,7	7	X	X	X	AL...-4
22	5,0	22EL-V-RD20400/5	12,7	2,75	1,4	1,7	7	X	X		AL...-4
22	6,0	22ER-V-RD20400/6	12,7	3,30	1,7	2,1	7	X	X		AL...-4
22	6,0	22EL-V-RD20400/6	12,7	3,30	1,7	2,1	7	X			AL...-4

- X Available grade
- Main application
- 2nd application

	P	M	K	N	S	H
AL100	●	●	○			
AM15C	○	○				



Type
U

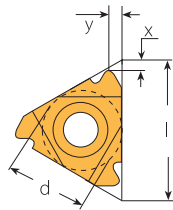
Pitch [mm]	Left / right	d	h _{min}	x	y	PG	AL100	Holder
27	8,0	27UIN-V-RD20400/8	15,88	4,40	2,9	7	X	AL...-5U

- X Available grade
- Main application
- 2nd application

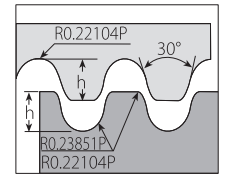
	P	M	K	N	S	H
AL100	●	●	○			



Internal Thread



Right hand execution shown

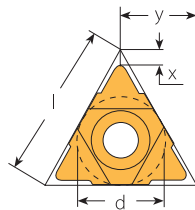


Type
Standard

Pitch	Pitch							Grade availability			
	[mm]	Left hand	Right hand	d	h_{min}	x	y	PG	AL100	AM15C	Holder
22	3,0		22IR-V-RD20400/3	12,7	1,65	1,3	1,7	7	X	X	AVR...-4
22	4,0		22IR-V-RD20400/4	12,7	2,20	1,6	2,2	7	X	X	AVR...-4
22	4,0	22IL-V-RD20400/4		12,7	2,20	1,6	2,2	7	X	X	AVR...-4
22	5,0		22IR-V-RD20400/5	12,7	2,75	1,4	1,7	7	X	X	AVR...-4
22	5,0	22IL-V-RD20400/5		12,7	2,75	1,4	1,7	7	X	X	AVR...-4
22	6,0		22IR-V-RD20400/6	12,7	3,30	1,7	2,1	7	X	X	AVR...-4
22	6,0	22IL-V-RD20400/6		12,7	3,30	1,7	2,1	7	X	X	AVR...-4

- X Available grade
- Main application
- 2nd application

P	●	○
M	●	●
K	○	
N		
S	○	
H		



Type
U

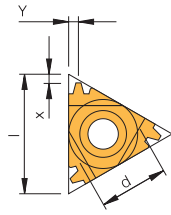
Pitch	Pitch						Grade availability		
	[mm]	Left / right	d	h_{min}	x	y	PG	AL100	Holder
27	8,0	27UIN-V-RD20400/8	15,88	4,40	2,9	13,5	7	X	AL...-5U

- X Available grade
- Main application
- 2nd application

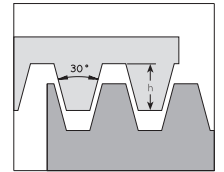
P	●
M	●
K	○
N	
S	○
H	

5

External Thread



Right hand execution shown



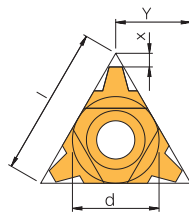
Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
								coated			uncoated		Holder	
								AL100	AM7C	AM15C	AK20	AK20P		
11	1,5		11ER-V-TR103/1,5	6,35	0,90	0,8	0,9	7	X	X				NL...-2
11	1,5	11EL-V-TR103/1,5		6,35	0,90	0,8	0,9	7			X			NL...-2
16	1,5		16ER-V-TR103/1,5	9,525	0,90	1,0	1,1	7	X	X	X	X		AL...-3
16	1,5	16EL-V-TR103/1,5		9,525	0,90	1,0	1,1	7	X		X	X		AL...-3
16	2,0		16ER-V-TR103/2,0	9,525	1,25	1,1	1,3	7	X	X	X	X		AL...-3
16	2,0	16EL-V-TR103/2,0		9,525	1,25	1,1	1,3	7	X	X	X	X		AL...-3
16	2,5		16ER-V-TR103/2,5	9,525	1,55	1,2	1,4	7	X					AL...-3
16	2,5	16EL-V-TR103/2,5		9,525	1,55	1,2	1,4	7			X			AL...-3
16	3,0		16ER-V-TR103/3,0	9,525	1,75	1,3	1,5	7	X	X	X	X	X	AL...-3
16	3,0	16EL-V-TR103/3,0		9,525	1,75	1,3	1,5	7	X	X	X	X		AL...-3
22	4,0		22ER-V-TR103/4,0	12,7	2,25	1,7	1,9	7	X	X	X	X	X	AL...-4
22	4,0	22EL-V-TR103/4,0		12,7	2,25	1,7	1,9	7	X	X	X	X		AL...-4
22	5,0		22ER-V-TR103/5,0	12,7	2,75	2,1	2,5	7	X	X	X	X	X	AL...-4
22	5,0	22EL-V-TR103/5,0		12,7	2,75	2,1	2,5	7	X	X	X	X		AL...-4
22	6,0		22ER-V-TR103/6,0	12,7	3,50	2,3	2,7	7	X	X	X			AL...-4
22	6,0	22EL-V-TR103/6,0		12,7	3,50	2,3	2,7	7	X		X	X		AL...-4
27	6,0		27ER-V-TR103/6,0	15,88	3,50	2,3	2,7	7	X	X	X	X		AL...-5
27	6,0	27EL-V-TR103/6,0		15,88	3,50	2,3	2,7	7	X		X	X		AL...-5

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

Type
U

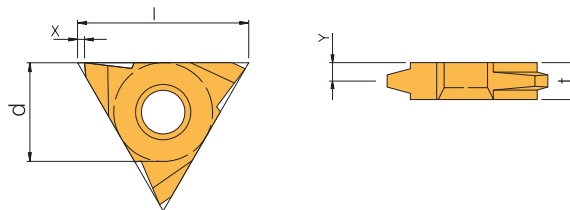


Pitch [mm]	Left / right	d	h _{min}	x	y	PG	Grade availability					
							coated			uncoated		Holder
							AL100	AM7C	AM15C	AK20		
22	6,0	22UEN-V-TR103/6,0	12,7	3,50	2,0	11,0	7	X	X	X	X	AL...-4U
22	7,0	22UEN-V-TR103/7,0	12,7	4,00	2,3	11,0	7	X		X	X	AL...-4U
22	8,0	22UEN-V-TR103/8,0	12,7	4,50	2,6	11,0	7	X		X	X	AL...-4U
27	8,0	27UEN-V-TR103/8,0	15,88	4,50	2,6	13,7	7	X		X	X	AL...-5U
27	9,0	27UEN-V-TR103/9,0	15,88	5,00	3,0	13,7	7	X	X	X	X	AL...-5U

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

External Thread



Right hand execution shown

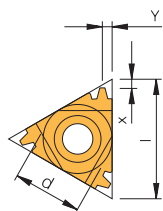
Type
V

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
27 6,0		27VER-V-TR103/6,0	15,88	3,50	1,0	3,3	6	7	X	X	X		NL...-5V-6
27 6,0	27VEL-V-TR103/6,0		15,88	3,50	1,0	3,3	6	7	X	X			NL...-5V-6
27 7,0		27VER-V-TR103/7,0	15,88	4,00	1,0	3,3	6	7	X	X	X	X	NL...-5V-6
27 7,0	27VEL-V-TR103/7,0		15,88	4,00	1,0	3,3	6	7	X	X			NL...-5V-6
27 8,0		27VER-V-TR103/8,0	15,88	4,50	1,0	3,3	6	7	X	X	X	X	NL...-5V-6
27 8,0	27VEL-V-TR103/8,0		15,88	4,50	1,0	3,3	6	7	X	X			NL...-5V-6
27 9,0		27VER-V-TR103/9,0	15,88	5,00	1,0	4,3	8	7	X		X	X	NL...-5V-8
27 9,0	27VEL-V-TR103/9,0		15,88	5,00	1,0	4,3	8	7	X				NL...-5V-8
27 10,0		27VER-V-TR103/10,0	15,88	5,50	1,0	4,3	8	7	X		X	X	NL...-5V-8
27 10,0	27VEL-V-TR103/10,0		15,88	5,50	1,0	4,3	8	7	X	X			NL...-5V-8
27 12,0		27VER-V-TR103/12,0	15,88	6,50	1,0	5,2	10	7	X	X	X	X	NL...-5V-10
27 12,0	27VEL-V-TR103/12,0		15,88	6,50	1,0	5,2	10	7	X				NL...-5V-10

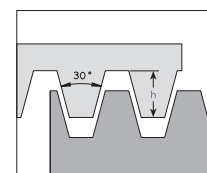
- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Internal Thread



Right hand execution shown



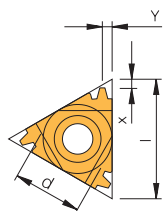
Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
								coated			uncoated		Holder	
								AL100	AM7C	AM15C	AK20	AK20P		
11	1,5		11IR-V-TR103/1,5	6,35	0,90	0,8	0,9	7	X		X	X		NVR 8-2
11	1,5	11IL-V-TR103/1,5		6,35	0,90	0,8	0,9	7	X		X	X		NVR 8-2
16	1,5		16IR-V-TR103/1,5	9,525	0,90	1,0	1,1	7	X	X	X	X		AVR...3
16	1,5	16IL-V-TR103/1,5		9,525	0,90	1,0	1,1	7	X		X	X		AVR...3
16	2,0		16IR-V-TR103/2,0	9,525	1,25	1,1	1,3	7	X	X	X	X		AVR...3
16	2,0	16IL-V-TR103/2,0		9,525	1,25	1,1	1,3	7	X		X	X		AVR...3
16	2,5		16IR-V-TR103/2,5	9,525	1,53	1,2	1,4	7	X	X				AVR...3
16	2,5	16IL-V-TR103/2,5		9,525	1,53	1,2	1,4	7			X			AVR...3
16	3,0		16IR-V-TR103/3,0	9,525	1,75	1,3	1,5	7	X	X	X	X	X	AVR...3
16	3,0	16IL-V-TR103/3,0		9,525	1,75	1,3	1,5	7	X	X	X	X		AVR...3
22	4,0		22IR-V-TR103/4,0	12,7	2,25	1,7	1,9	7	X	X	X	X		AVR...4
22	4,0	22IL-V-TR103/4,0		12,7	2,25	1,7	1,9	7	X	X	X			AVR...4
22	5,0		22IR-V-TR103/5,0	12,7	2,75	2,1	2,5	7	X	X	X	X	X	AVR...4
22	5,0	22IL-V-TR103/5,0		12,7	2,75	2,1	2,5	7	X		X	X		AVR...4
22	6,0		22IR-V-TR103/6,0	12,7	3,50	2,3	2,7	7	X		X	X		AVR...4
22	6,0	22IL-V-TR103/6,0		12,7	3,50	2,3	2,7	7	X		X		X	AVR...4
27	6,0		27IR-V-TR103/6,0	15,88	3,50	2,3	2,7	7	X	X	X	X		AVR...5
27	6,0	27IL-V-TR103/6,0		15,88	3,50	2,3	2,7	7	X		X			AVR...5

- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○	○		●	●
N				●	●
S	○				
H					

Internal Thread



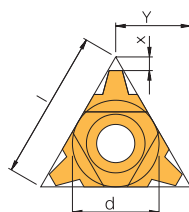
Right hand execution shown

Type
Standard

Pitch	Thread	Right hand	d	h _{min}	x	y	Min. bore ø	PG	Grade availability					Holder
									coated			uncoated		
								AL100	AM7C	AM15C	AK20	AK20P		
16	TR18x4	16UIR-V-TR103/4,0...158/013	9,525	2,25	2,10	8,0	14,0	7	X					NVRC11-3U
16	TR20x4	16IR-V-TR103/4,0...158/012	9,525	2,25	1,53	1,9	16,0	7	X		X	X		NVRC13-3
16	TR22x5	16UIR-V-TR103/5,0...158/011	9,525	2,75	1,56	8,0	17,0	7	X		X		X	NVRC14-3U
16	TR24x5	16UIR-V-TR103/5,0...158/011	9,525	2,75	1,56	8,0	19,0	7	X		X		X	NVRC15-3U
16	TR26x5	16UIR-V-TR103/5,0...158/011	9,525	2,75	1,56	8,0	21,0	7	X		X		X	NVRC15-3U
22	TR28x5	22IR-V-TR103/5,0	12,7	2,75	2,30	2,7	23,0	7	X	X	X	X	X	NVRC20-4
22	TR30x6	22UIR-V-TR103/6,0...158/007	12,7	3,50	1,94	11,0	24,0	7	X		X			NVRC20-4U
27	TR36x6	27IR-V-TR103/6,0	15,88	3,50	2,30	2,7	30,0	7	X	X	X	X	X	NVRC25-5
22	TR38x7	22UIR-V-TR103/7,0...158/008	12,7	4,00	2,27	11,0	31,0	7	X		X			NVRC25-4U
22	TR40x7	22UIR-V-TR103/7,0...158/008	12,7	4,00	2,27	11,0	33,0	7	X		X			NVRC25-4U
22	TR42x7	22UIR-V-TR103/7,0...158/008	12,7	4,00	2,27	11,0	35,0	7	X		X			NVRC32-4U
22	TR44x7	22UIR-V-TR103/7,0...158/008	12,7	4,00	2,27	11,0	37,0	7	X		X			NVRC32-4U
27	TR46x8	27UI-V-TR103/8,0...158/10	15,88	4,50	2,59	13,5	38,0	7	X	X	X	X	X	NVRC32-5U
27	TR48x8	27UI-V-TR103/8,0...158/10	15,88	4,50	2,59	13,5	40,0	7	X	X	X	X	X	NVRC32-5U
27	TR50x8	27UI-V-TR103/8,0...158/10	15,88	4,50	2,59	13,5	42,0	7	X	X	X	X	X	NVRC32-5U
27	TR52x8	27UI-V-TR103/8,0...158/10	15,88	4,50	2,59	13,5	44,0	7	X	X	X	X	X	NVRC32-5U

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				



Type
U

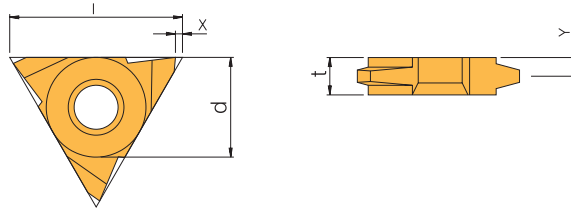
Pitch	[mm]	Left / right	d	h _{min}	x	y	PG	Grade availability			Holder	
								coated		uncoated		
								AL100	AM15C	AK20		
22	6,0	22UIN-V-TR103/6,0	12,7	3,50	2,0	11,0	7	X	X	X	X	AVR...-4U
22	7,0	22UIN-V-TR103/7,0	12,7	4,00	2,3	11,0	7	X	X	X	X	AVR...-4U
22	8,0	22UIN-V-TR103/8,0	12,7	4,50	2,6	11,0	7	X	X	X	X	AVR...-4U
27	8,0	27UIN-V-TR103/8,0	15,88	4,50	2,6	13,7	7	X	X	X	X	AVR...-5U
27	9,0	27UIN-V-TR103/9,0	15,88	5,00	3,0	13,7	7	X	X	X	X	AVR...-5U

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				

5

Internal Thread



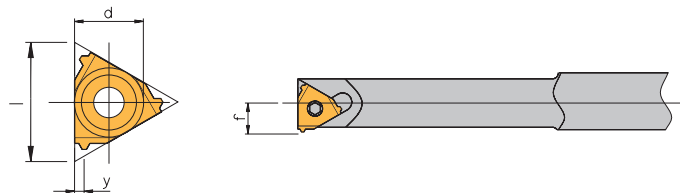
Right hand execution shown

Type V

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability			Holder	
									AL100	AM7C	AM15C		coated
27	6,0		27VIR-V-TR103/6,0	15,88	3,50	1,0	3,3	6	7	X	X	X	NVR...5V
27	6,0	27VIL-V-TR103/6,0		15,88	3,50	1,0	3,3	6	7	X	X	X	NVR...5V
27	7,0		27VIR-V-TR103/7,0	15,88	4,00	1,0	3,3	6	7	X	X	X	NVR...5V
27	7,0	27VIL-V-TR103/7,0		15,88	4,00	1,0	3,3	6	7	X	X	X	NVR...5V
27	8,0		27VIR-V-TR103/8,0	15,88	4,50	1,0	3,3	6	7	X	X	X	NVR...5V
27	8,0	27VIL-V-TR103/8,0		15,88	4,50	1,0	3,3	6	7	X	X	X	NVR...5V
27	9,0		27VIR-V-TR103/9,0	15,88	5,00	1,0	4,3	8	7	X	X	X	NVR...5V
27	9,0	27VIL-V-TR103/9,0		15,88	5,00	1,0	4,3	8	7	X	X	X	NVR...5V
27	10,0		27VIR-V-TR103/10,0	15,88	5,50	1,0	4,3	8	7	X	X	X	NVR...5V
27	10,0	27VIL-V-TR103/10,0		15,88	5,50	1,0	4,3	8	7	X	X	X	NVR...5V
27	12,0		27VIR-V-TR103/12,0	15,88	6,50	1,0	5,2	10	7	X	X	X	NVR...5V
27	12,0	27VIL-V-TR103/12,0		15,88	6,50	1,0	5,2	10	7	X	X	X	NVR...5V

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○		●
N				●
S	○			
H				



Right hand execution shown

Type MINI 3

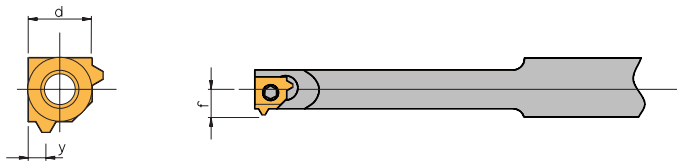
Pitch [mm]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	Grade availability		Holder	
									AM15C	HSS-TiN		
10	1,5		6IR-V-TR103/1,5	6,0	0,85	0,85	5,3	10,0	7	X	X	...NVR1...-6.0*
10	1,5	6IL-V-TR103/1,5		6,0	0,85	0,85	5,3	10,0	7	X	X	...NVR1...-6.0*
10	2,0		6IR-V-TR103/2,0	6,0	1,25	1,3	5,3	10,0	7	X	X	...NVR1...-6.0*
10	2,0	6IL-V-TR103/2,0		6,0	1,25	1,3	5,3	10,0	7	X	X	...NVR1...-6.0*

*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

Internal Thread



Type
MINI 2

Right hand execution shown

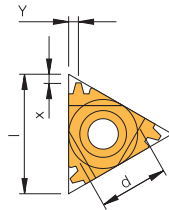
Pitch		Grade availability										
[mm]	Left hand	Right hand	d	h_{min}	y	f	Min. bore ϕ	PG	AL100	AM15C	HSS-TiN	Holder
1,5		5LIR-V-TR103/1,5	5,0L	0,85	0,85	4,65	8,0	7		X	X	...NVR 10.-5L*
1,5	5LIL-V-TR103/1,5		5,0L	0,85	0,85	4,65	8,0	7			X	...NVR 10.-5L*
2,0		5LIR-V-TR103/2,0	5,0L	1,25	1,3	4,65	8,0	7		X	X	...NVR 10.-5L*
2,0	5LIL-V-TR103/2,0		5,0L	1,25	1,3	4,65	8,0	7	X	X	X	...NVR 10.-5L*

*Tool holders are shown on page 297.

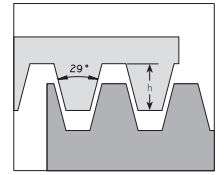
- X Available grade
- Main application
- 2nd application

Grade	AL100	AM15C	HSS-TiN
P	●	○	●
M	●	●	○
K	○		
N			
S	○		○
H			

External Thread



Right hand execution shown

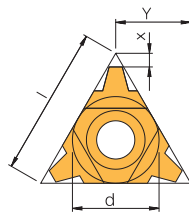


Type
Standard

Pitch [TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					Holder
								coated			uncoated		
							AL100	AM7C	AM15C	AK20	AK20P		
11		11ER-V-ACME16	6,35	0,92	1,0	1,1	7					X	NL...-2
16		16ER-V-ACME16	9,525	0,92	1,0	1,1	7	X		X	X	X	AL...-3
16		16ER-V-ACME14	9,525	1,03	1,0	1,2	7	X		X	X		AL...-3
16		16ER-V-ACME12	9,525	1,19	1,1	1,2	7	X	X	X	X		AL...-3
16	16EL-V-ACME12		9,525	1,19	1,1	1,2	7	X		X			AL...-3
16		16ER-V-ACME10	9,525	1,52	1,3	1,4	7	X	X	X	X		AL...-3
16	16EL-V-ACME10		9,525	1,52	1,3	1,4	7	X		X			AL...-3
16		16ER-V-ACME8	9,525	1,84	1,4	1,5	7	X	X	X	X		AL...-3
16	16EL-V-ACME8		9,525	1,84	1,4	1,5	7	X		X			AL...-3
16		16ER-V-ACME7	9,525	2,08	1,9	2,2	7	X					AL...-3
16		16ER-V-ACME6	9,525	2,37	1,7	1,9	7	X					AL...-3
16	16EL-V-ACME6		9,525	2,37	1,7	1,9	7	X					AL...-3
22		22ER-V-ACME6	12,7	2,08	1,9	2,2	7	X	X	X	X		AL...-4
22	22EL-V-ACME6		12,7	2,37	1,8	2,1	7	X		X			AL...-4
22		22ER-V-ACME5	12,7	2,79	2,0	2,3	7	X	X	X	X		AL...-4
22	22EL-V-ACME5		12,7	2,79	2,0	2,3	7	X		X			AL...-4
27		27ER-V-ACME4	15,88	3,43	2,4	2,7	7	X		X	X		AL...-5
27	27EL-V-ACME4		15,88	3,43	2,4	2,7	7	X		X			AL...-5

- X Available grade
- Main application
- 2nd application

P	●	○		
M	●	●	●	
K	○	○	●	●
N			●	●
S	○			
H				



Type
U

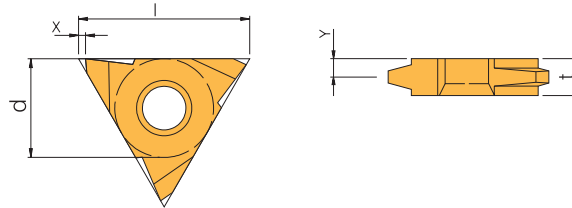
Pitch [TPI]	Left / right	d	h _{min}	x	y	PG	Grade availability			Holder	
							coated		uncoated		
							AL100	AM15C	AK20		
22	3	22UEN-V-ACME3	12,7	4,49	3,0	11,0	7	X			AL...-4U
22	4	22UEN-V-ACME4	12,7	3,43	2,3	11,0	7	X	X		AL...-4U
27	3	27UEN-V-ACME3	15,88	4,49	3,0	13,7	7	X	X	X	AL...-5U

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			


5

External Thread



Type
V

Right hand execution shown

Pitch		Grade availability											
	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	AL100	AM7C	AM15C	Holder
	27		27VER-V-ACME4	15,88	3,43	1,0	3,3	6	7	X	X	X	NL...-5V-6
	27	27VEL-V-ACME4		15,88	3,43	1,0	3,3	6	7	X	X		NL...-5V-6
	27		27VER-V-ACME3	15,88	4,49	1,0	3,3	6	7	X		X	NL...-5V-6
	27	27VEL-V-ACME3		15,88	4,49	1,0	3,3	6	7	X	X	X	NL...-5V-6
	27		27VER-V-ACME2	15,88	6,60	1,0	5,2	10	7	X		X	NL...-5V-10

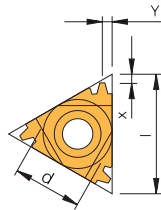
X Available grade

● Main application

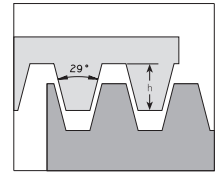
○ 2nd application

P	●		○
M	●	●	●
K	○	○	
N			
S	○		
H			

Internal Thread



Right hand execution shown

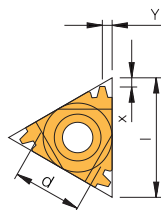


Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									coated				
									AL100	AM7C	AM15C		
11	16		11IR-V-ACME16	6,35	0,92	0,9	0,9	7			X	X	NVR...2
16	16		16IR-V-ACME16	9,525	0,92	1,0	1,1	7	X	X	X	X	AVR...3
16	14		16IR-V-ACME14	9,525	1,03	1,1	1,2	7	X		X	X	AVR...3
16	14	16IL-V-ACME14		9,525	1,03	1,1	1,2	7			X		AVR...3
16	12		16IR-V-ACME12	9,525	1,19	1,2	1,3	7	X		X	X	AVR...3
16	12	16IL-V-ACME12		9,525	1,19	1,2	1,3	7	X		X	X	AVR...3
16	10		16IR-V-ACME10	9,525	1,52	1,2	1,3	7	X	X	X	X	AVR...3
16	10	16IL-V-ACME10		9,525	1,52	1,2	1,3	7			X	X	AVR...3
16	8		16IR-V-ACME8	9,525	1,84	1,4	1,5	7	X	X	X	X	AVR...3
16	8	16IL-V-ACME8		9,525	1,84	1,4	1,5	7	X		X		AVR...3
16	6		16IR-V-ACME6	9,525	2,37	1,7	1,9	7	X		X		AVR...3
22	6		22IR-V-ACME6	12,7	2,37	1,8	2,1	7	X		X	X	AVR...4
22	6	22IL-V-ACME6		12,7	2,37	1,8	2,1	7	X		X		AVR...4
22	5		22IR-V-ACME5	12,7	2,79	2,0	2,3	7	X	X	X	X	AVR...4
22	5	22IL-V-ACME5		12,7	2,79	2,0	2,3	7	X	X	X	X	AVR...4
27	4		27IR-V-ACME4	15,88	3,43	2,3	2,6	7	X	X	X	X	AVR...5
27	4	27IL-V-ACME4		15,88	3,43	2,3	2,6	7	X	X	X	X	AVR...5

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				



Right hand execution shown

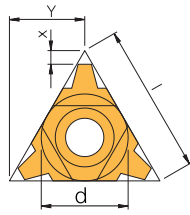
Type
Standard

Thread	Right hand	d	h _{min}	x	y	Min. bore ø	PG	Grade availability			AK20	Holder	
								coated					uncoated
								AL100	AM7C	AM15C			
10	1/2"x10	6UIR-V-ACME10...158/005	6,0U	1,52	1,0	5,2	10,16	7			X		NVRC8-6,0U
11	5/8"x8	11UIR-V-ACME8...158/006	6,35	1,84	1,0	5,5	12,70	7			X		NVRC10-2U
16	3/4"x6	16IR-V-ACME6	9,525	2,37	1,7	1,8	14,82	7	X		X		NVRC11-3
16	7/8"x6	16IR-V-ACME6	9,525	2,37	1,7	1,8	18,42	7	X		X		NVRC13-3
22	1"x5	22IR-V-ACME5	12,7	2,79	2,0	2,3	20,32	7	X	X	X	X	NVRC17-4
22	1 1/8"x5	22IR-V-ACME5	12,7	2,79	2,0	2,3	24,00	7	X	X	X	X	NVRC20-4
22	1 1/4"x5	22IR-V-ACME5	12,7	2,79	2,0	2,3	27,18	7	X	X	X	X	NVRC20-4
27	1 1/2"x4	27IR-V-ACME4	15,88	3,43	2,3	2,6	32,38	7	X	X	X	X	NVRC28-5
27	1 3/4"x4	27IR-V-ACME4	15,88	3,43	2,3	2,6	38,74	7	X	X	X	X	AVRC32-5

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Internal Thread

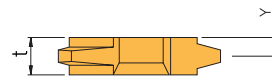
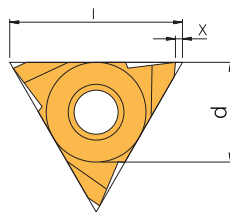


Type U

Pitch								Grade availability			
[TPI]	Left / right	d	h _{min}	x	y	PG	coated		uncoated	Holder	
							AL100	AM15C	AK20		
22	4	22UIN-V-ACME4	12,7	3,43	2,3	11,0	7	X	X	X	AVR...4U
22	3	22UIN-V-ACME3	12,7	4,49	2,9	11,0	7	X	X	X	AVR...4U
27	3	27UIN-V-ACME3	15,88	4,49	2,9	13,7	7	X	X	X	AVR...5U

X Available grade
● Main application
○ 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			



Type V

Right hand execution shown

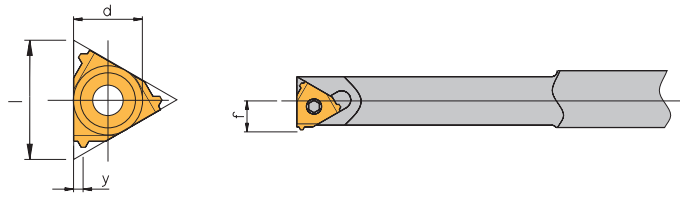
Pitch										Grade availability			
[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	coated		uncoated	Holder	
									AL100	AM15C	AK20		
27	4		27VIR-V-ACME4	15,88	3,43	1,0	3,3	6	7	X	X		NVR...5V
27	4	27VIL-V-ACME4		15,88	3,43	1,0	3,3	6	7	X	X		NVR...5V
27	3		27VIR-V-ACME3	15,88	4,49	1,0	3,3	6	7	X	X		NVR...5V
27	3	27VIL-V-ACME3		15,88	4,49	1,0	3,3	6	7	X	X		NVR...5V
27	2		27VIR-V-ACME2	15,88	6,60	1,0	5,2	10	7	X	X	X	NVR...5V
27	2	27VIL-V-ACME2		15,88	6,60	1,0	5,2	10	7	X	X	X	NVR...5V

X Available grade
● Main application
○ 2nd application

P	●	○	
M	●	●	
K	○		●
N			●
S	○		
H			

5

Internal Thread



Right hand execution shown

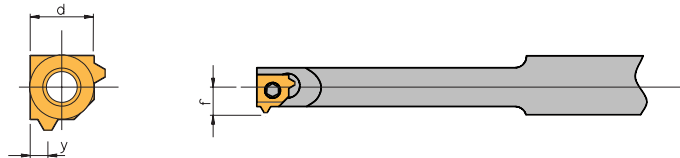
**Type
MINI 3**

Pitch		Grade availability								
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	Holder	
10	12	6IR-V-ACME12	6,0	1,19	1,1	5,1	10,0	7	X	...NVR1...-6,0*

*Tool holders are shown on page 296.

- X Available grade
- Main application
- 2nd application

P	○
M	●
K	
N	
S	
H	



Right hand execution shown

**Type
MINI 2**

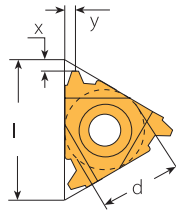
Pitch		Grade availability								
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	Holder	
12		5LIR-V-ACME12	5,0L	1,19	1,1	4,42	8,0	7	X	...NVR 10.-5L*

*Tool holders are shown on page 297.

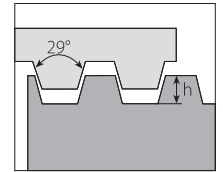
- X Available grade
- Main application
- 2nd application

P	○
M	●
K	
N	
S	
H	

External Thread



Right hand execution shown

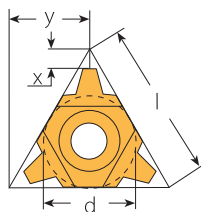


Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
16	16		16ER-V-STACME16	9,525	0,60	1,0	1,0	7	X		X	AL...-3	
16	16	16EL-V-STACME16		9,525	0,60	1,0	1,0	7			X	AL...-3	
16	14		16ER-V-STACME14	9,525	0,67	1,1	1,1	7	X		X	AL...-3	
16	12		16ER-V-STACME12	9,525	0,76	1,2	1,2	7	X	X	X	AL...-3	
16	12	16EL-V-STACME12		9,525	0,76	1,2	1,2	7		X	X	AL...-3	
16	10		16ER-V-STACME10	9,525	1,02	1,2	1,3	7	X	X	X	AL...-3	
16	10	16EL-V-STACME10		9,525	1,02	1,2	1,3	7		X	X	AL...-3	
16	8		16ER-V-STACME8	9,525	1,21	1,4	1,5	7	X	X	X	AL...-3	
16	8	16EL-V-STACME8		9,525	1,21	1,4	1,5	7	X	X	X	AL...-3	
16	6		16ER-V-STACME6	9,525	1,52	1,7	1,8	7	X	X	X	AL...-3	
16	6	16EL-V-STACME6		9,525	1,52	1,7	1,8	7		X	X	AL...-3	
22	5		22ER-V-STACME5	12,7	1,78	2,1	2,3	7	X	X	X	AL...-4	
22	4		22ER-V-STACME4	12,7	2,16	2,3	2,3	7	X		X	AL...-4	
22	4	22EL-V-STACME4		12,7	2,16	2,3	2,3	7	X		X	AL...-4	
27	4		27ER-V-STACME4	15,88	2,16	2,3	2,4	7	X		X	AL...-5	
27	3		27ER-V-STACME3	15,88	2,79	2,9	2,9	7	X		X	AL...-5	
27	3	27EL-V-STACME3		15,88	2,79	2,9	2,9	7			X	AL...-5	

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			



Type
U

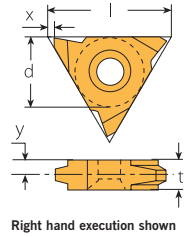
Pitch	[TPI]	Left / right	d	h _{min}	x	y	PG	AL100	Holder
22	4	22UEN-V-STACME4	12,7	2,16	2,6	11,0	7	X	AL...-4U
22	3	22UEN-V-STACME3	12,7	2,79	3,4	11,0	7	X	AL...-4U

- X Available grade
- Main application
- 2nd application


P	●
M	●
K	○
N	
S	○
H	

5

External Thread



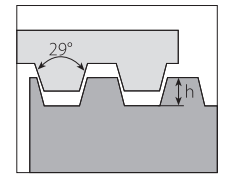
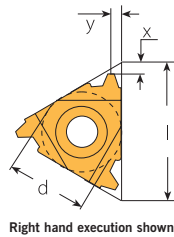
Type
V

Pitch		Grade availability										
	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	AL100	AM15C	Holder
27	4		27VER-V-STACME4	15,88	2,16	1,0	3,3	6	7		X	NL...-5V-6
27	3		27VER-V-STACME3	15,88	2,79	1,0	3,3	6	7	X	X	NL...-5V-6
27	2		27VER-V-STACME2	15,88	4,06	1,0	4,3	8	7	X	X	NL...-5V-8
27	2	27VEL-V-STACME2		15,88	4,06	1,0	4,3	8	7	X		NL...-5V-8

- X Available grade
- Main application
- 2nd application

P	●	○
M	●	●
K	○	
N		
S	○	
H		

Internal Thread

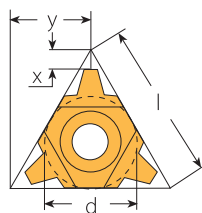


Type
Standard

Pitch [TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
								coated	uncoated			
								AL100	AM7C	AM15C		
11		11IR-V-STACME16	6,35	0,60	1,0	1,0	7			X		NVR...2
16		16IR-V-STACME16	9,525	0,60	1,0	1,0	7	X	X	X	X	AVR...3
16		16IR-V-STACME14	9,525	0,67	1,1	1,1	7	X		X		AVR...3
16		16IR-V-STACME12	9,525	0,76	1,1	1,2	7	X	X	X	X	AVR...3
16	16IL-V-STACME12		9,525	0,76	1,1	1,2	7	X		X		AVR...3
16		16IR-V-STACME10	9,525	1,02	1,2	1,3	7	X	X	X	X	AVR...3
16	16IL-V-STACME10		9,525	1,02	1,2	1,3	7			X		AVR...3
16	8	16IR-V-STACME8	9,525	1,21	1,4	1,5	7	X	X	X	X	AVR...3
16	8	16IL-V-STACME8	9,525	1,21	1,4	1,5	7	X				AVR...3
16	6	16IR-V-STACME6	9,525	1,52	1,7	1,8	7	X	X	X	X	AVR...3
16	6	16IL-V-STACME6	9,525	1,52	1,7	1,8	7			X		AVR...3
22	6	22IL-V-STACME6	12,7	1,52	1,7	1,8	7	X				AVR...4
22	5	22IR-V-STACME5	12,7	1,78	2,1	2,3	7	X	X	X		AVR...4
22	4	22IR-V-STACME4	12,7	2,16	2,3	2,3	7	X		X		AVR...4
22	4	22IL-V-STACME4	12,7	2,16	2,3	2,3	7	X				AVR...4
27	4	27IR-V-STACME4	15,88	2,16	2,3	2,4	7	X	X	X	X	AVR...5
27	3	27IR-V-STACME3	15,88	2,79	2,9	2,9	7	X		X		AVR...5
27	3	27IL-V-STACME3	15,88	2,79	2,9	2,9	7	X		X		AVR...5

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			



Type
U

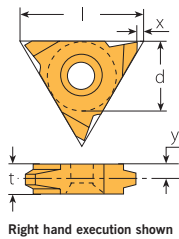
Pitch [TPI]	Left / right	d	h _{min}	x	y	PG	Grade availability		AK20	Holder	
							coated	uncoated			
							AL100				
22	4	22UIN-V-STACME4	12,7	2,16	2,5	11,0	7	X			AVR...4U
22	3	22UIN-V-STACME3	12,7	2,79	3,3	11,0	7			X	AVR...4U

- X Available grade
- Main application
- 2nd application

P	●	
M	●	
K	○	●
N		●
S	○	
H		

5

Internal Thread

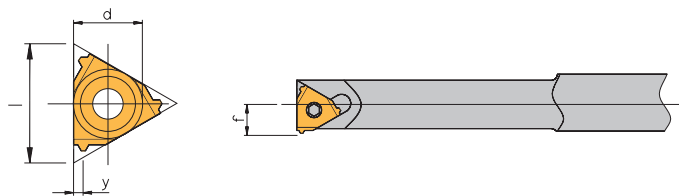


Type V

Pitch										Grade availability		
	[TPI]	Left hand	Right hand	d	h _{min}	x	y	t	PG	AL100	AM15C	Holder
27	4		27VIR-V-STACME4	15,88	2,16	1,0	3,3	6	7		X	NVR..-5V
27	4	27VIL-V-STACME4		15,88	2,16	1,0	3,3	6	7		X	NVR..-5V
27	3		27VIR-V-STACME3	15,88	2,79	1,0	3,3	6	7		X	NVR..-5V
27	2		27VIR-V-STACME2	15,88	4,06	1,0	4,3	8	7	X	X	NVR..-5V
27	2	27VIL-V-STACME2		15,88	4,06	1,0	4,3	8	7	X	X	NVR..-5V

X Available grade
● Main application
○ 2nd application

P	●	○
M	●	●
K	○	
N		
S	○	
H		



Type MINI 3

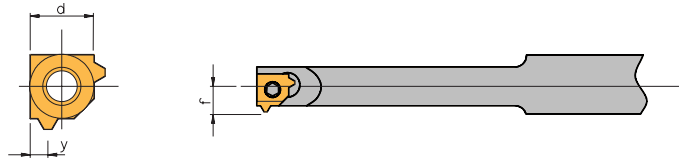
Pitch									Grade availability		
	[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	HSS-TiN	Holder
10	12	6IR-V-STACME12	6,0	0,76	1,2	5,1	10,0	7	X	X	...NVR1...-6,0*

*Tool holders are shown on page 296.

X Available grade
● Main application
○ 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

Internal Thread



Type
MINI 2

Right hand execution shown

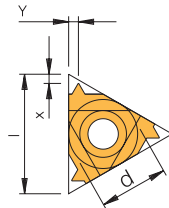
Pitch								Grade availability		
[TPI]	Right hand	d	h_{min}	y	f	Min. bore ϕ	PG	AM15C	HSS-TiN	Holder
12	5LIR-V-STACME12	5,0L	0,76	1,2	4,42	8,0	7	X	X	...NVR 10.-5L*

*Tool holders are shown on page 297.

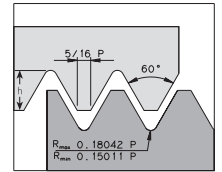
- X** Available grade
- Main application
- 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

External Thread



Right hand execution shown



Type
Standard

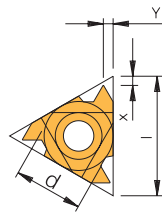
Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
11	48		11ER-V-UNJ48	6,35	0,31	0,6	0,5	7			X		NL...-2
11	44		11ER-V-UNJ44	6,35	0,33	0,6	0,6	7					NL...-2
11	40		11ER-V-UNJ40	6,35	0,37	0,6	0,6	7			X		NL...-2
11	36		11ER-V-UNJ36	6,35	0,41	0,6	0,6	7					NL...-2
11	32		11ER-V-UNJ32	6,35	0,46	0,6	0,7	7	X		X		NL...-2
11	28		11ER-V-UNJ28	6,35	0,52	0,7	0,7	7	X		X		NL...-2
11	28	11EL-V-UNJ28		6,35	0,52	0,7	0,7	7	X				NL...-2
11	24		11ER-V-UNJ24	6,35	0,61	0,7	0,8	7	X		X		NL...-2
11	24	11EL-V-UNJ24		6,35	0,61	0,7	0,8	7	X				NL...-2
11	20		11ER-V-UNJ20	6,35	0,73	0,8	0,9	7			X		NL...-2
11	18		11ER-V-UNJ18	6,35	0,81	0,8	1,0	7			X		NL...-2
11	18	11EL-V-UNJ18		6,35	0,81	0,8	1,0	7	X				NL...-2
11	16		11ER-V-UNJ16	6,35	0,92	0,9	1,1	7			X		NL...-2
11	16	11EL-V-UNJ16		6,35	0,92	0,9	1,1	7	X				NL...-2
11	14		11ER-V-UNJ14	6,35	1,05	1,0	1,2	7	X				NL...-2
16	48		16ER-V-UNJ48	9,525	0,31	0,6	0,5	7					AL...-3
16	44		16ER-V-UNJ44	9,525	0,33	0,6	0,6	7			X		AL...-3
16	40		16ER-V-UNJ40	9,525	0,37	0,6	0,6	7	X		X	X	AL...-3
16	40	16EL-V-UNJ40		9,525	0,37	0,6	0,6	7	X				AL...-3
16	36		16ER-V-UNJ36	9,525	0,41	0,6	0,6	7		X	X		AL...-3
16	32		16ER-V-UNJ32	9,525	0,46	0,6	0,7	7	X	X	X	X	AL...-3
16	32	16EL-V-UNJ32		9,525	0,46	0,6	0,7	7			X		AL...-3
16	28		16ER-V-UNJ28	9,525	0,52	0,7	0,7	7	X	X	X	X	AL...-3
16	28	16EL-V-UNJ28		9,525	0,52	0,7	0,7	7		X			AL...-3
16	24		16ER-V-UNJ24	9,525	0,61	0,7	0,8	7	X	X	X	X	AL...-3
16	24	16EL-V-UNJ24		9,525	0,61	0,7	0,8	7	X		X	X	AL...-3
16	20		16ER-V-UNJ20	9,525	0,73	0,8	0,9	7	X	X	X	X	AL...-3
16	20	16EL-V-UNJ20		9,525	0,73	0,8	0,9	7	X		X	X	AL...-3
16	18		16ER-V-UNJ18	9,525	0,81	0,8	1,0	7	X	X	X	X	AL...-3
16	18	16EL-V-UNJ18		9,525	0,81	0,8	1,0	7	X	X		X	AL...-3
16	16		16ER-V-UNJ16	9,525	0,92	0,9	1,1	7	X	X	X	X	AL...-3
16	16	16EL-V-UNJ16		9,525	0,92	0,9	1,1	7		X	X	X	AL...-3
16	14		16ER-V-UNJ14	9,525	1,05	1,0	1,2	7	X	X	X	X	AL...-3
16	13		16ER-V-UNJ13	9,525	1,13	1,0	1,3	7		X	X	X	AL...-3
16	12		16ER-V-UNJ12	9,525	1,22	1,1	1,3	7	X	X	X	X	AL...-3
16	12	16EL-V-UNJ12		9,525	1,22	1,1	1,3	7		X	X	X	AL...-3
16	11		16ER-V-UNJ11	9,525	1,33	1,2	1,5	7			X	X	AL...-3
16	11	16EL-V-UNJ11		9,525	1,33	1,2	1,5	7	X		X		AL...-3
16	10		16ER-V-UNJ10	9,525	1,47	1,2	1,5	7	X		X		AL...-3
16	10	16EL-V-UNJ10		9,525	1,47	1,2	1,5	7		X			AL...-3
16	9		16ER-V-UNJ9	9,525	1,63	1,3	1,7	7			X		AL...-3
16	8		16ER-V-UNJ8	9,525	1,83	1,2	1,6	7	X	X	X	X	AL...-3
22	7		22ER-V-UNJ7	12,7	2,09	1,7	2,3	7	X				AL...-4
22	5	22EL-V-UNJ5		12,7	2,93	1,8	2,5	7			X		AL...-4
27	4		27ER-V-UNJ4	15,88	3,67	2,2	3,1	7	X				AL...-5

- X Available grade
- Main application
- 2nd application

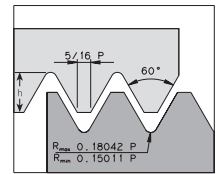
P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			

5

Internal Thread



Right hand execution shown



Type
Standard

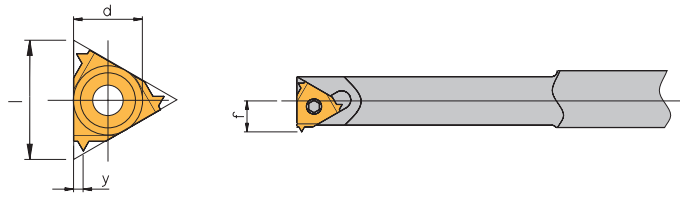
Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
									coated			uncoated		Holder	
									AL100	AM7C	AM15C	AK20	AK20P		
11	48		11IR-V-UNJ48	6,35	0,28	0,6	0,5	7						X	NVR...-2
11	28		11IR-V-UNJ28	6,35	0,47	0,7	0,7	7	X		X				NVR...-2
11	24		11IR-V-UNJ24	6,35	0,55	0,7	0,8	7	X	X	X	X			NVR...-2
11	24	11IL-V-UNJ24		6,35	0,55	0,7	0,8	7	X						NVR...-2
11	20		11IR-V-UNJ20	6,35	0,66	0,8	0,9	7	X	X	X				NVR...-2
11	18		11IR-V-UNJ18	6,35	0,74	0,8	1,0	7	X	X	X	X			NVR...-2
11	18	11IL-V-UNJ18		6,35	0,74	0,8	1,0	7	X		X				NVR...-2
11	16		11IR-V-UNJ16	6,35	0,83	0,9	1,1	7	X	X	X	X			NVR...-2
11	16	11IL-V-UNJ16		6,35	0,83	0,9	1,1	7	X		X				NVR...-2
11	14		11IR-V-UNJ14	6,35	0,95	1,0	1,2	7	X	X	X				NVR...-2
11	14	11IL-V-UNJ14		6,35	0,95	1,0	1,2	7	X			X			NVR...-2
16	48		16IR-V-UNJ48	9,525	0,28	0,6	0,5	7	X						AVR...-3
16	36		16IR-V-UNJ36	9,525	0,37	0,6	0,6	7				X			AVR...-3
16	32		16IR-V-UNJ32	9,525	0,42	0,6	0,7	7	X		X				AVR...-3
16	28		16IR-V-UNJ28	9,525	0,47	0,7	0,7	7	X		X				AVR...-3
16	24		16IR-V-UNJ24	9,525	0,55	0,7	0,8	7	X		X				AVR...-3
16	20		16IR-V-UNJ20	9,525	0,66	0,8	0,9	7	X		X				AVR...-3
16	18		16IR-V-UNJ18	9,525	0,74	0,8	1,0	7	X	X	X			X	AVR...-3
16	18	16IL-V-UNJ18		9,525	0,74	0,8	1,0	7	X		X				AVR...-3
16	16		16IR-V-UNJ16	9,525	0,83	0,9	1,1	7	X	X	X	X			AVR...-3
16	16	16IL-V-UNJ16		9,525	0,83	0,9	1,1	7	X		X				AVR...-3
16	14		16IR-V-UNJ14	9,525	0,95	1,0	1,2	7	X	X	X	X			AVR...-3
16	13		16IR-V-UNJ13	9,525	1,02	1,0	1,3	7				X			AVR...-3
16	12		16IR-V-UNJ12	9,525	1,11	1,1	1,3	7	X	X	X	X			AVR...-3
16	12	16IL-V-UNJ12		9,525	1,11	1,1	1,3	7	X						AVR...-3
16	11		16IR-V-UNJ11	9,525	1,21	1,2	1,5	7				X			AVR...-3
16	10		16IR-V-UNJ10	9,525	1,33	1,2	1,5	7				X			AVR...-3
16	9		16IR-V-UNJ9	9,525	1,48	1,3	1,7	7				X			AVR...-3
16	8		16IR-V-UNJ8	9,525	1,66	1,2	1,6	7				X			AVR...-3
16	8	16IL-V-UNJ8		9,525	1,66	1,2	1,6	7	X						AVR...-3
22	7	22IL-V-UNJ7		12,7	1,90	1,7	2,3	7	X						AVR...-4
22	6		22IR-V-UNJ6	12,7	2,21	1,7	2,3	7				X			AVR...-4

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		
N			●	●
S	○			
H				

5

Internal Thread



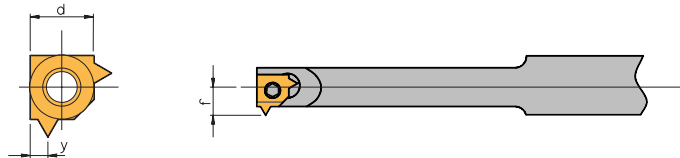
Right hand execution shown

Type MINI 3

Pitch										Grade availability		
[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	HSS-TiN	Holder		
10	20	6IR-V-UNJ20	6,0	0,66	0,9	4,9	9,8	7	X	X	...NVR1...-6,0*	

*Tool holders are shown on page 296.

X	Available grade	P	○	●
●	Main application	M	●	○
○	2nd application	K		
		N		
		S	○	
		H		



Right hand execution shown

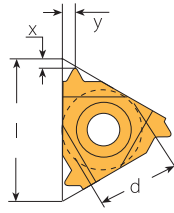
Type MINI 2

Pitch													Grade availability				
[TPI]	Left hand	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AL100	AM7C	AM15C	HSS-TiN	Holder				
32		5LIR-V-UNJ32	5,0L	0,42	0,6	3,92	7,5	7			X		...NVR 10.-5L*				
28		5LIR-V-UNJ28	5,0L	0,47	0,6	3,99	7,6	7			X		...NVR 10.-5L*				
28	5LIL-V-UNJ28		5,0L	0,47	0,6	3,99	7,6	7			X		...NVR 10.-5L*				
20		5LIR-V-UNJ20	5,0L	0,66	0,9	4,21	7,8	7	X	X	X	X	...NVR 10.-5L*				
18		5LIR-V-UNJ18	5,0L	0,74	1,0	4,30	7,9	7			X		...NVR 10.-5L*				
18	5LIL-V-UNJ18		5,0L	0,74	1,0	4,30	7,9	7			X		...NVR 10.-5L*				
14		5LIR-V-UNJ14	5,0L	0,95	1,0	4,54	8,0	7			X		...NVR 10.-5L*				

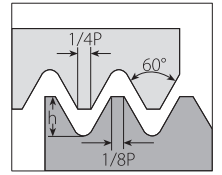
*Tool holders are shown on page 297.

X	Available grade	P	●	○	●
●	Main application	M	●	●	●
○	2nd application	K	○	○	
		N			
		S	○		○
		H			

External Thread



Right hand execution shown

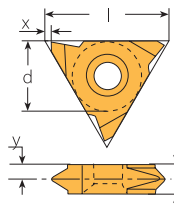


Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
								AL100	AM7C	AM15C		
16	0,7	16ER-V-MJ0,70	9,525	0,40	0,6	0,6	7			X		AL...-3
16	1,0	16ER-V-MJ1,00	9,525	0,58	0,7	0,7	7	X		X	X	AL...-3
16	1,0	16EL-V-MJ1,00	9,525	0,58	0,7	0,7	7	X		X		AL...-3
16	1,25	16ER-V-MJ1,25	9,525	0,72	0,8	0,9	7	X	X	X	X	AL...-3
16	1,25	16EL-V-MJ1,25	9,525	0,72	0,8	0,9	7	X		X		AL...-3
16	1,5	16ER-V-MJ1,50	9,525	0,87	0,8	1,0	7	X	X	X	X	AL...-3
16	1,5	16EL-V-MJ1,50	9,525	0,87	0,8	1,0	7	X		X		AL...-3
16	2,0	16ER-V-MJ2,00	9,525	1,15	1,0	1,3	7	X		X		AL...-3
16	2,0	16EL-V-MJ2,00	9,525	1,15	1,0	1,3	7	X		X		AL...-3
16	2,5	16ER-V-MJ2,50	9,525	1,49	1,1	1,5	7	X		X		AL...-3
16	2,5	16EL-V-MJ2,50	9,525	1,49	1,1	1,5	7	X		X		AL...-3
16	3,0	16ER-V-MJ3,00	9,525	1,73	1,2	1,6	7			X		AL...-3
16	3,0	16EL-V-MJ3,00	9,525	1,73	1,2	1,6	7			X		AL...-3

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				



Right hand execution shown

Type
Slim Throat

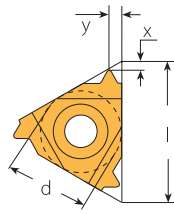
Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	t	PG	Grade availability		Holder
									AL100	AM15C	
11	0,7	11VER-V-MJ0,70	6,35	0,40	0,7	2,5	3,2	7	X		NL...-2V
11	0,7	11VEL-V-MJ0,70	6,35	0,40	0,7	2,5	3,2	7	X		NL...-2V
11	0,8	11VER-V-MJ0,80	6,35	0,44	0,7	2,5	3,2	7	X	X	NL...-2V
11	0,8	11VEL-V-MJ0,80	6,35	0,44	0,7	2,5	3,2	7	X		NL...-2V
11	0,9	11VER-V-MJ0,90	6,35	0,53	0,7	2,6	3,2	7	X		NL...-2V
11	0,9	11VEL-V-MJ0,90	6,35	0,53	0,7	2,6	3,2	7	X		NL...-2V
11	1,0	11VER-V-MJ1,00	6,35	0,58	0,7	2,5	3,2	7	X		NL...-2V
11	1,0	11VEL-V-MJ1,00	6,35	0,58	0,7	2,5	3,2	7	X		NL...-2V

- X Available grade
- Main application
- 2nd application

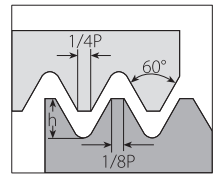
P	●		○
M	●	●	●
K	○	○	
N			
S	○		
H			

5

Internal Thread



Right hand execution shown

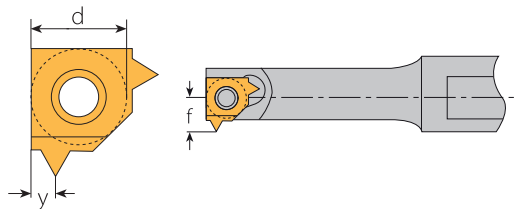


Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
								AL100	AM7C	AM15C		
16	1,0	16IR-V-MJ1,00	9,525	0,49	0,6	0,7	7	X		X		AVR...-3
16	1,0	16IL-V-MJ1,00	9,525	0,49	0,6	0,7	7	X		X		AVR...-3
16	1,25	16IR-V-MJ1,25	9,525	0,61	0,8	0,9	7			X		AVR...-3
16	1,25	16IL-V-MJ1,25	9,525	0,61	0,8	0,9	7			X		AVR...-3
16	1,5	16IR-V-MJ1,50	9,525	0,73	0,8	1,0	7	X	X	X	X	AVR...-3
16	1,5	16IL-V-MJ1,50	9,525	0,73	0,8	1,0	7	X		X		AVR...-3
16	2,0	16IR-V-MJ2,00	9,525	0,97	0,8	1,3	7	X		X		AVR...-3
16	2,0	16IL-V-MJ2,00	9,525	0,97	0,8	1,3	7	X		X		AVR...-3
16	3,0	16IR-V-MJ3,00	9,525	1,46	1,2	1,6	7			X		AVR...-3

- X Available grade
- Main application
- 2nd application

P	●	○	
M	●	●	●
K	○	○	●
N			●
S	○		
H			



Right hand execution shown

Type
MINI 2

Pitch [mm]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	AM15C	Holder
1,25	5LIR-V-MJ1,25	5,0L	0,61	0,9	4,21	7,80	7	X	...NVR10.-5L*

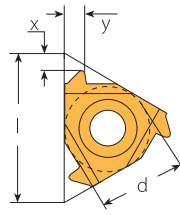
*Tool holders are shown on page 297.

- X Available grade
- Main application
- 2nd application

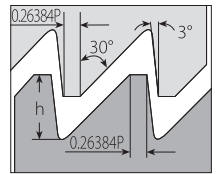
P	○
M	●
K	
N	
S	
H	



External Thread



Right hand execution shown



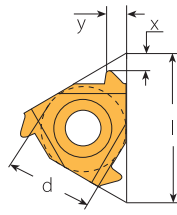
Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder	
								coated					uncoated
								AL100	AM7C	AM15C			
16	2,0		16ER-V-SAGE2,0	9,525	1,74	1,5	2,1	7	X	X	X	X	AL...-3
16	2,0	16EL-V-SAGE2,0		9,525	1,74	1,5	2,1	7	X		X	X	AL...-3
22	2,0		22ER-V-SAGE2,0	12,7	1,74	1,5	2,1	7	X		X		AL...-4
22	3,0		22ER-V-SAGE3,0	12,7	2,60	1,8	2,6	7	X	X	X	X	AL...-4
22	3,0	22EL-V-SAGE3,0		12,7	2,60	1,8	2,6	7	X		X		AL...-4
22	4,0		22ER-V-SAGE4,0	12,7	3,55	1,75	3,1	7	X		X		AL...-4
22	4,0	22EL-V-SAGE4,0		12,7	3,55	1,75	3,1	7			X		AL...-4
27	4,0		27ER-V-SAGE4,0	15,88	3,55	1,9	3,2	7	X	X	X		AL...-5
27	4,0	27EL-V-SAGE4,0		15,88	3,55	1,9	3,2	7	X	X		X	AL...-5

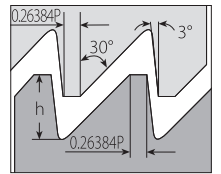
- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		●
N				●
S	○			
H				

Internal Thread



Right hand execution shown



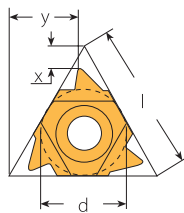
Type
Standard

Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability						
								coated			uncoated		Holder	
								AL100	AM7C	AM15C	AK20	AK20P		
16	2,0		16IR-V-SAGE2,0	9,525	1,50	1,5	2,2	7	X	X	X	X		AVR...-3
16	2,0	16IL-V-SAGE2,0		9,525	1,50	1,5	2,2	7	X					AVR...-3
22	3,0		22IR-V-SAGE3,0	12,7	2,25	1,7	2,9	7	X		X	X		AVR...-4
22	3,0	22IL-V-SAGE3,0		12,7	2,25	1,7	2,9	7	X			X		AVR...-4
22	4,0		22IR-V-SAGE4,0	12,7	3,09	2,03	3,25	7	X		X			AVR...-4
22	4,0	22IL-V-SAGE4,0		12,7	3,09	2,03	3,25	7			X			AVR...-4
27	4,0		27IR-V-SAGE4,0	15,88	3,09	2,1	3,2	7	X	X	X	X	X	AVR...-5
27	4,0	27IL-V-SAGE4,0		15,88	3,09	2,1	3,2	7	X	X		X		AVR...-5

- X Available grade
- Main application
- 2nd application

P	●		○	
M	●	●	●	
K	○	○		● ●
N				● ●
S	○			
H				

Type
U



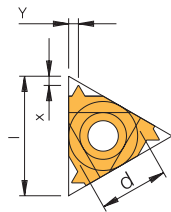
Pitch [mm]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					
								coated		uncoated		Holder	
								AL100	AM15C	AK20	AK20P		
22	5,0		22UIR-V-SAGE5,0	12,7	3,76	1,8	10,3	7	X	X	X		AVR...-4U
22	5,0	22UIL-V-SAGE5,0		12,7	3,76	1,8	10,3	7		X			AVR...-4U
22	6,0		22UIR-V-SAGE6,0	12,7	4,54	1,9	10,15	7	X	X		X	AVR...-4U

- X Available grade
- Main application
- 2nd application

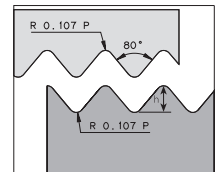
P	●		○	
M	●	●		
K	○			● ●
N				● ●
S	○			
H				



External Thread



Right hand execution shown



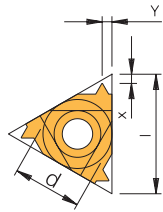
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability					
									coated			uncoated		Holder
								AL100	AM7C	AM15C	AK20	AK20P		
16	20		16ER-V-PG20	9,525	0,61	0,8	0,9	7	X	X	X	X		AL...-3
16	18		16ER-V-PG18	9,525	0,67	0,8	1,0	7	X	X	X	X		AL...-3
16	18	16EL-V-PG18		9,525	0,67	0,8	1,0	7			X			AL...-3
16	16		16ER-V-PG16	9,525	0,76	0,9	1,1	7	X	X	X	X	X	AL...-3
16	16	16EL-V-PG16		9,525	0,76	0,9	1,1	7	X		X			AL...-3

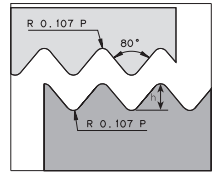
- X Available grade
- Main application
- 2nd application

P	●		○		
M	●	●	●		
K	○		○	●	●
N				●	●
S	○				
H					

Internal Thread



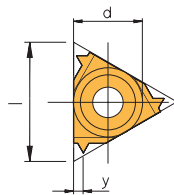
Right hand execution shown



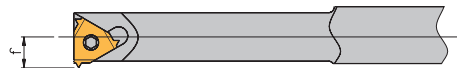
Type
Standard

Pitch	[TPI]	Left hand	Right hand	d	h _{min}	x	y	PG	Grade availability			AK20	Holder
									AL100	AM7C	AM15C		
16	20		16IR-V-PG20	9,525	0,64	0,8	0,9	7	X	X	X		AVR...-3
16	20	16IL-V-PG20		9,525	0,64	0,8	0,9	7	X	X			AVR...-3
16	18		16IR-V-PG18	9,525	0,67	0,8	1,0	7	X	X	X	X	AVR...-3
16	18	16IL-V-PG18		9,525	0,67	0,8	1,0	7	X	X			AVR...-3
16	16		16IR-V-PG16	9,525	0,76	0,8	1,1	7	X	X	X	X	AVR...-3
16	16	16IL-V-PG16		9,525	0,76	0,8	1,1	7	X	X			AVR...-3

X Available grade	P	●	○	
● Main application	M	●	●	●
○ 2nd application	K	○	○	●
	N			●
	S	○		
	H			



Right hand execution shown



Type
MINI 3

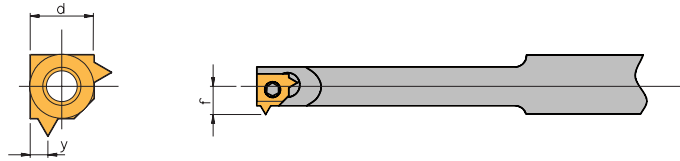
Pitch	[TPI]	Right hand	d	h _{min}	y	f	Min. bore ø	PG	Grade availability			Holder
									AL100	AM15C	HSS-TiN	
10	20	6IR-V-PG20	6	0,61	0,8	5,3	10,0	7	X	X	X	...NVR1...-6.0*
10	18	6IR-V-PG18	6	0,67	0,9	5,3	10,0	7	X	X	X	...NVR1...-6.0*

*Tool holders are shown on page 296.

X Available grade	P	●	○	●
● Main application	M	●	●	○
○ 2nd application	K	○		
	N			
	S	○	○	
	H			



Internal Thread

Type
MINI 2

Right hand execution shown

Pitch									Grade availability		
[TPI]	Right hand	d	h_{min}	y	f	Min. bore ϕ	PG	AM15C	HSS-TiN	Holder	
20	5LIR-V-PG20	5,0L	0,61	0,8	4,65	8,0	7	X	X	...NVR10..-5L*	
18	5LIR-V-PG18	5,0L	0,67	0,9	4,65	8,0	7	X	X	...NVR10..-5L*	

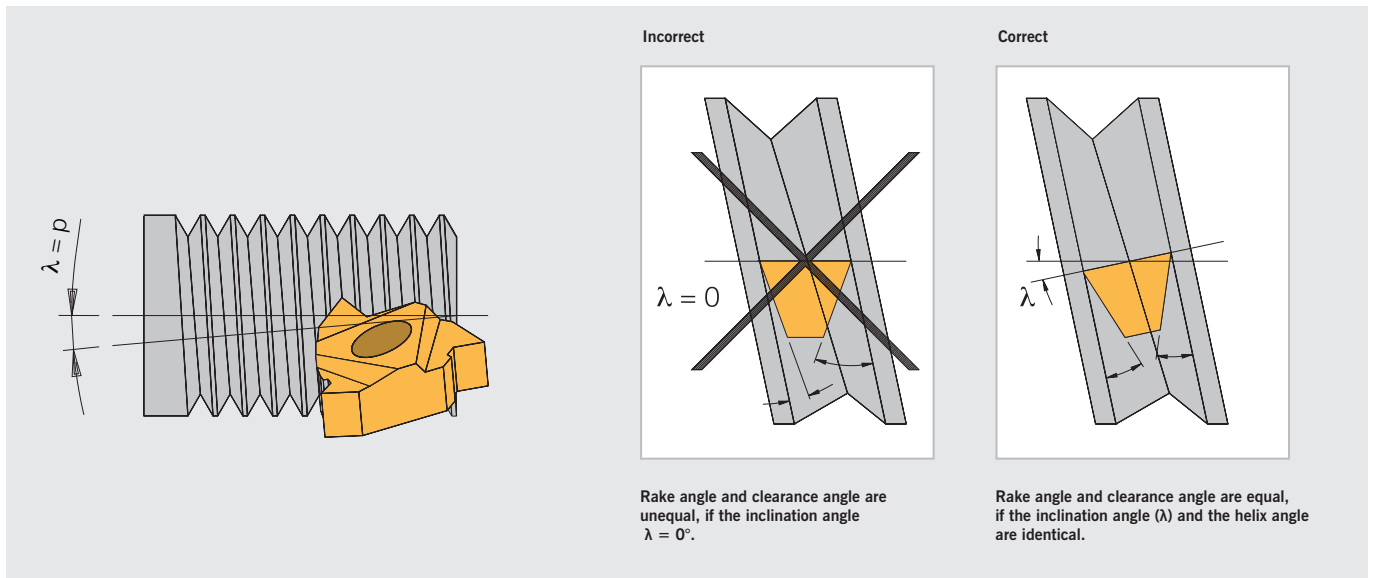
*Tool holders are shown on page 297.

- X Available grade
- Main application
- 2nd application

P	○	●
M	●	○
K		
N		
S	○	
H		

Support Pads for Tool Holders

The flank clearance angle of the thread profile depends on the helix angle. To ensure that the flanks of the insert cutting edge will not rub on the work piece it is very important to use the correct angle of the support pad. This is the only way to produce an accurate thread form and to avoid excessive flank wear on one side. Correct application ensures optimum tool life. The calculation is shown below. The chart on the next page shows how to pick the correct support pad for each thread.



The helix angle of the thread and the required inclination angle can be calculated by the following formula:

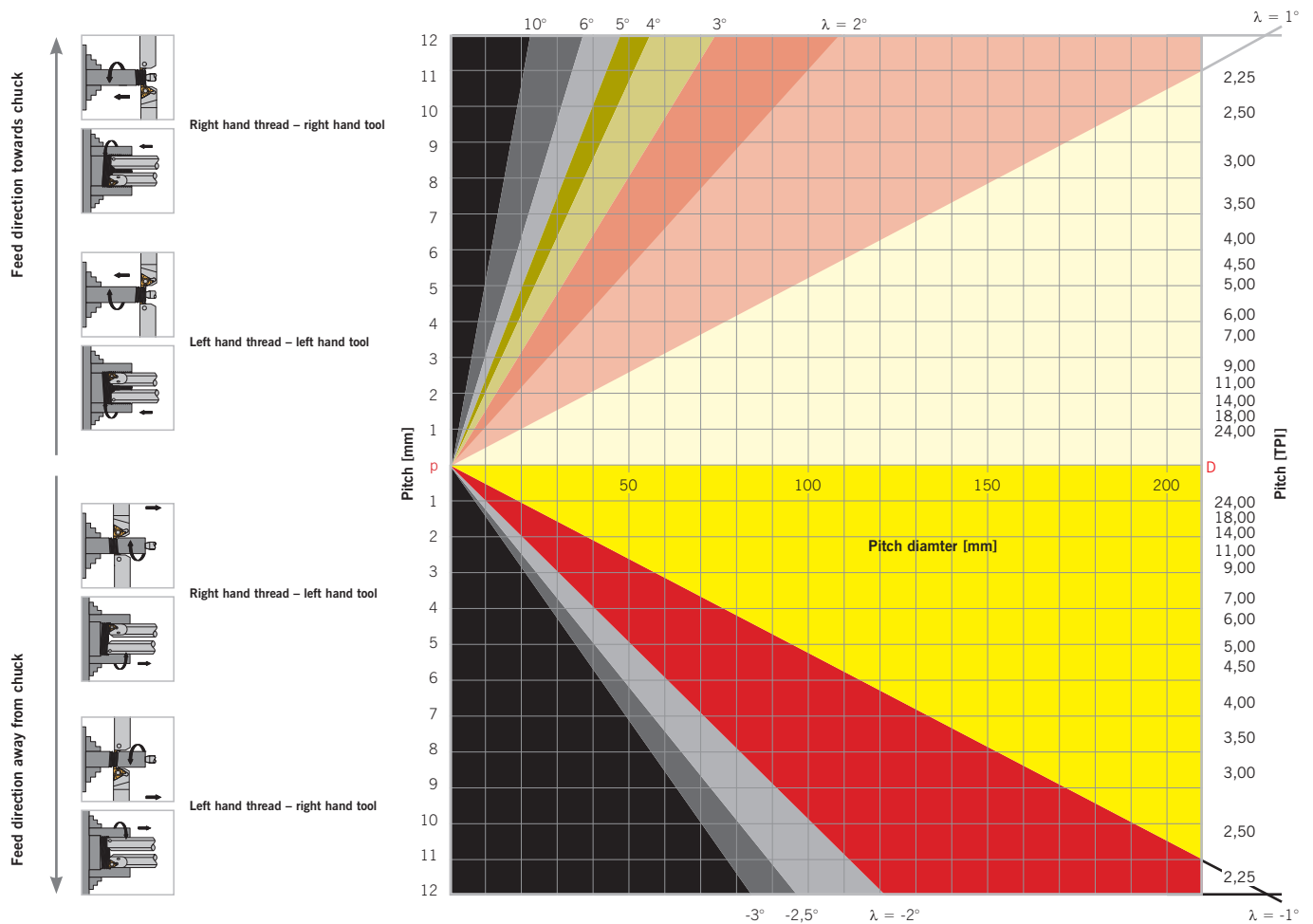
$$\tan \lambda = \frac{p}{d_2 \times \pi}$$

λ_2 = Inclination angle
 d_2 = Pitch diameter
 p = Pitch

The tool holders are supplied with a 1,5° inclination angle. The support pads mounted in our tool holders are ground parallel to 0°. It is most important that the support pad is corrected, if the helix angle changes more than 1°.

The center height will always be constant (independent from the selection of support pad).

Helix Angle Diagramm



Support Pads

External thread	Holder	Helix angle							
		4,5°	3,5°	2,5°	1,5°	0,5°	0°	-0,5°	-1,5°
16	R	YE 3-3P	YE 3-2P	YE 3-1P	YE 3	YE 3-1 N	YE 3-1,5N	YE 3-2N	YE 3-3N
	L	YI 3-3P	YI 3-2P	YI 3-1P	YI 3	YI 3-1 N	YI 3-1,5N	YI 3-2N	YI 3-3N
22	R	YE 4-3P	YE 4-2P	YE 4-1P	YE 4	YE 4-1 N	YE 4-1,5N	YE 4-2N	YE 4-3N
	L	YI 4-3P	YI 4-2P	YI 4-1P	YI 4	YI 4-1 N	YI 4-1,5N	YI 4-2N	YI 4-3N
22 U	R	YE 4U-3P	YE 4U-2P	YE 4U-1P	YE 4U	YE 4U-1 N	YE 4U-1,5N	YE 4U-2N	YE 4U-3N
	L	YI 4U-3P	YI 4U-2P	YI 4U-1P	YI 4U	YI 4U-1 N	YI 4U-1,5N	YI 4U-2N	YI 4U-3N
27	R	YE 5-3P	YE 5-2P	YE 5-1P	YE 5	YE 5-1 N	YE 5-1,5N	YE 5-2N	YE 5-3N
	L	YI 5-3P	YI 5-2P	YI 5-1P	YI 5	YI 5-1 N	YI 5-1,5N	YI 5-2N	YI 5-3N
27U	R	YE 5U-3P	YE 5U-2P	YE 5U-1P	YE 5U	YE 5U-1 N	YE 5U-1,5N	YE 5U-2N	YE 5U-3N
	L	YI 5U-3P	YI 5U-2P	YI 5U-1P	YI 5U	YI 5U-1 N	YI 5U-1,5N	YI 5U-2N	YI 5U-3N
Internal thread									
16	R	YI 3-3P	YI 3-2P	YI 3-1P	YI 3	YI 3-1 N	YI 3-1,5N	YI 3-2N	YI 3-3N
	L	YE 3-3P	YE 3-2P	YE 3-1P	YE 3	YE 3-1 N	YE 3-1,5N	YE 3-2N	YE 3-3N
22	R	YI 4-3P	YI 4-2P	YI 4-1P	YI 4	YI 4-1 N	YI 4-1,5N	YI 4-2N	YI 4-3N
	L	YE 4-3P	YE 4-2P	YE 4-1P	YE 4	YE 4-1 N	YE 4-1,5N	YE 4-2N	YE 4-3N
22 U	R	YI 4U-3P	YI 4U-2P	YI 4U-1P	YI 4U	YI 4U-1 N	YI 4U-1,5N	YI 4U-2N	YI 4U-3N
	L	YE 4U-3P	YE 4U-2P	YE 4U-1P	YE 4U	YE 4U-1 N	YE 4U-1,5N	YE 4U-2N	YE 4U-3N
27	R	YI 5-3P	YI 5-2P	YI 5-1P	YI 5	YI 5-1 N	YI 5-1,5N	YI 5-2N	YI 5-3N
	L	YE 5-3P	YE 5-2P	YE 5-1P	YE 5	YE 5-1 N	YE 5-1,5N	YE 5-2N	YE 5-3N
27 U	R	YI 5U-3P	YI 5U-2P	YI 5U-1P	YI 5U	YI 5U-1 N	YI 5U-1,5N	YI 5U-2N	YI 5U-3N
	L	YE 5U-3P	YE 5U-2P	YE 5U-1P	YE 5U	YE 5U-1 N	YE 5U-1,5N	YE 5U-2N	YE 5U-3N

ARNO Shark-CUT®

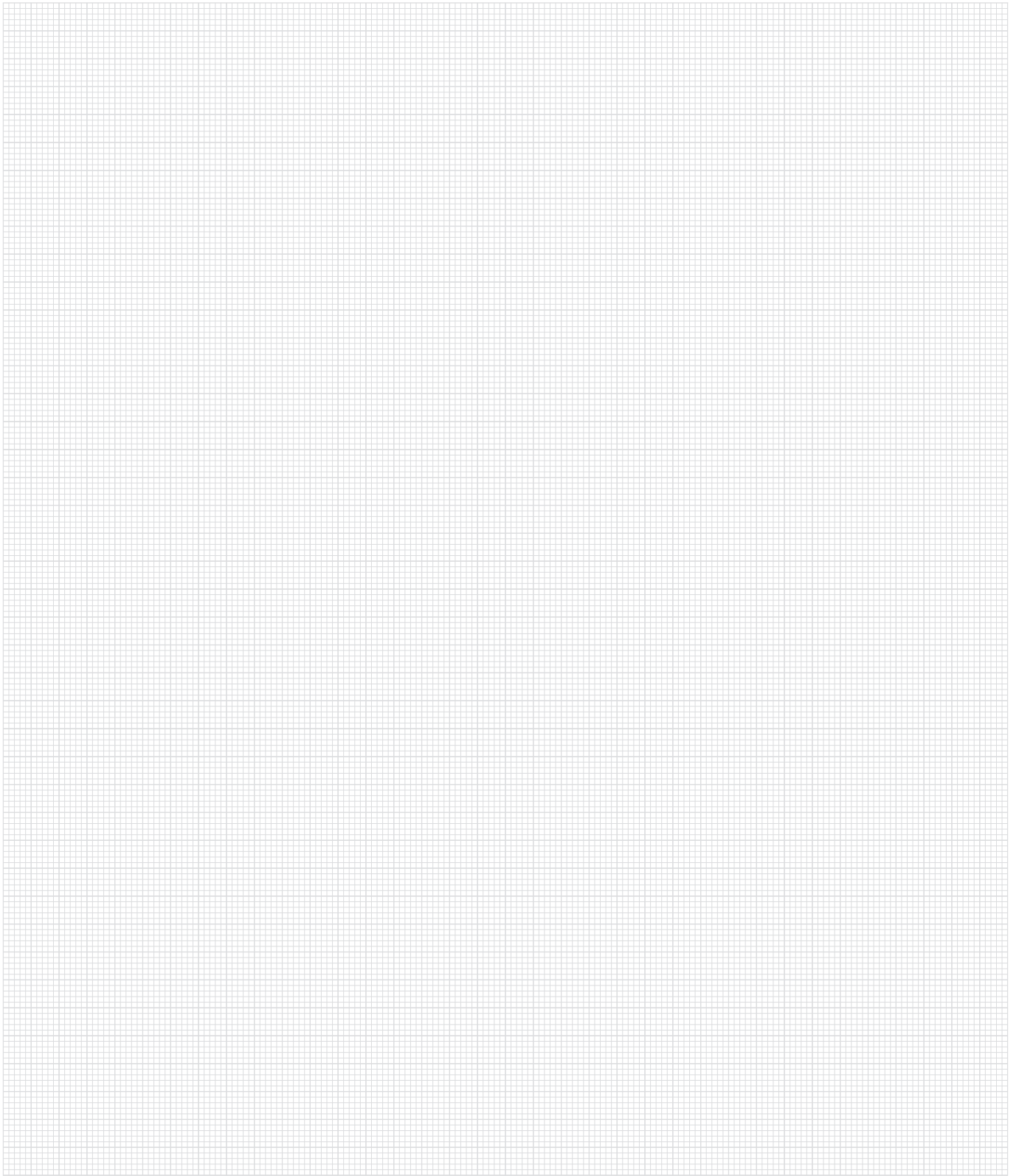
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