

Inserts

General turning

Aluminium
wheel turning

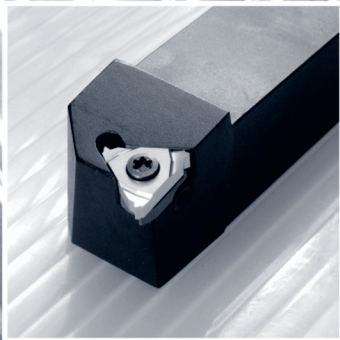
Automatic lathes

Ceramic tools

Parting and
grooving

Threading

Threading

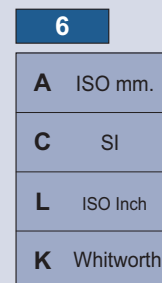
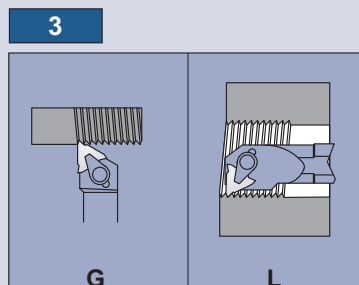
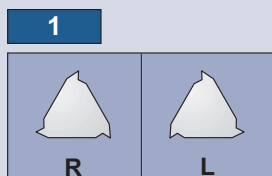


Threading

Code key	H.02
Threading inserts	H.03
Applications index	H.12
External threading	H.13
Internal threading	H.21
Technical information	H.28
Tooling for the petroleum industry	H.31

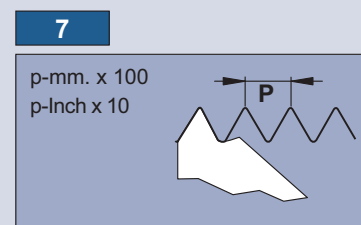
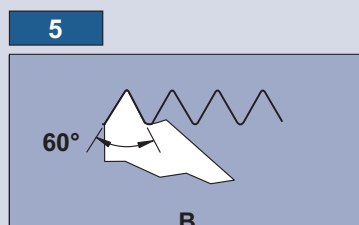
L 166 G - 3 B A 075

1 2 3 4 5 6 7



4

	IC=Inch	D=mm.	
	2 1/4	6,35	11
	3 3/8	9,52	16
	4 1/2	12,70	22

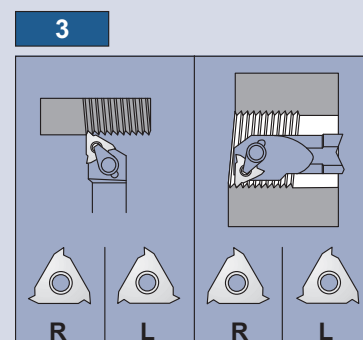
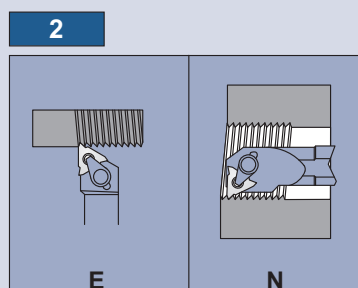


16 E L - AG 55

1 2 3 4 5

1

	IC=Inch	d=mm.
	06 5/32	3,96
	08 3/16	4,76
	11 1/4	6,35
	16 3/8	9,52
	22 1/2	12,70
	27 5/8	15,87



4

	mm.	TPI
	A 0,5-1,5	48-16
	AG 0,5-3,0	48-8
	G 1,75-3,0	14-8
	N 3,5-5,0	7-5

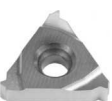
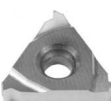
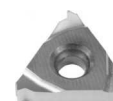
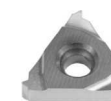
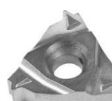
5

55	Partial profile 55°
60	Partial profile 60°
ISO	ISO metric
UN	American, UN
W	Whitworth, BSW
LG	Groove type LG

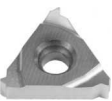
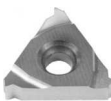
60° - 55° (non topping)

ER-60°/55°  Triangular Negative Page H.04 0°	EL-60°/55°  Triangular Negative Page H.04 0°	ER-60°/55° TD  Triangular Negative Page H.04 0°	NR-60°/55°  Triangular Negative Page H.05 0°	NL-60°/55°  Triangular Negative Page H.05 0°	NR-60°/55° TD  Triangular Negative Page H.05 0°	
--	--	---	--	---	---	--

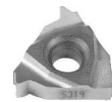
ISO (full form) BS36

ER-ISO  Triangular Negative Page H.06 0°	EL-ISO  Triangular Negative Page H.06 0°	ER-ISO TD  Triangular Negative Page H.06 0°	EL-ISO TD  Triangular Negative Page H.06 0°	NR-ISO  Triangular Negative Page H.07 0°	NL-ISO  Triangular Negative Page H.07 0°	NR-ISO TD  Triangular Negative Page H.07 0°
--	--	---	---	---	--	---

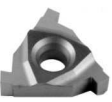
UNIFIED (full form) ASME / ANSI B1.1

ER-UN  Triangular Negative Page H.08 0°	NR-UN  Triangular Negative Page H.08 0°					
--	--	--	--	--	--	--

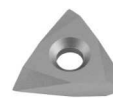
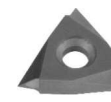
WHITWORTH (full form) BS84

ER-W  Triangular Negative Page H.08 0°	EL-W  Triangular Negative Page H.08 0°	ER-W TD  Triangular Negative Page H.08 0°	NR-W  Triangular Negative Page H.09 0°	NL-W  Triangular Negative Page H.09 0°	NR-W TD  Triangular Negative Page H.09 0°	
--	--	---	--	---	---	--

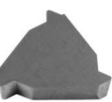
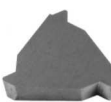
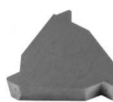
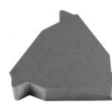
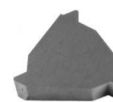
Lock ring groove inserts type LG

ER-LG  Triangular Negative Page H.10 0°	EL-LG  Triangular Negative Page H.10 0°	
---	---	--

Others

TNMC  Triangular Negative Page H.10 0°	TPMC  Triangular Negative Page H.10 0°	
---	--	--

ISO

L166G-ISO  Triangular Positive Page H.11 7°	R166G-ISO  Triangular Positive Page H.11 7°	R166G-B  Triangular Positive Page H.11 7°	L166L-ISO  Triangular Positive Page H.11 7°	R166L-ISO  Triangular Positive Page H.11 7°		
---	---	---	---	--	--	--

Partial profile thread forms - External inserts
 60° - 55° (non topping)

Normally available for immediate delivery ●

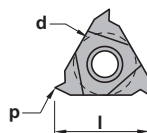
Only available in a limited quantity ○



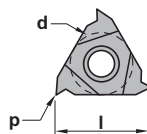
ER



ER TD



ER



EL

ER-60°

	l	d	p	KM15	PM25	TIN25	TL20
11ER-A60	11,00	6,35	60°			○	
16ER-A60	16,00	9,52	60°			○	
16ER-AG60	16,00	9,52	60°			●	○
16ER-G60	16,00	9,52	60°			●	○
22ER-N60	22,00	12,70	60°			●	○
27ER-S60	27,00	15,87	60°			○	

EL-60°

	l	d	p	KM15	PM25	TIN25	TL20
11EL-A60	11,00	6,35	60°			○	
16EL-A60	16,00	9,52	60°			○	
16EL-AG60	16,00	9,52	60°			○	
16EL-G60	16,00	9,52	60°			○	
22EL-N60	22,00	12,70	60°			○	
27EL-S60	27,00	15,87	60°			○	

ER-55°

	l	d	p	KM15	PM25	TIN25	TL20
11ER-A55	11,00	6,35	55°			○	
16ER-A55	16,00	9,52	55°			○	
16ER-AG55	16,00	9,52	55°		●	●	○
16ER-G55	16,00	9,52	55°			○	
22ER-N55	22,00	12,70	55°			○	
27ER-S55	27,00	15,87	55°			○	

EL-55°

	l	d	p	KM15	PM25	TIN25	TL20
11EL-A55	11,00	6,35	55°			○	
16EL-A55	16,00	9,52	55°			○	
16EL-AG55	16,00	9,52	55°			○	
16EL-G55	16,00	9,52	55°			○	
22EL-N55	22,00	12,70	55°			○	
27EL-S55	27,00	15,87	55°			○	

ER-60° TD

	l	d	p	KM15	PM25	TIN25	TL20
16ER-A60 TD	16,00	9,52	60°			○	
16ER-AG60 TD	16,00	9,52	60°			●	○
16ER-G60 TD	16,00	9,52	60°			○	

ER-55° TD

	l	d	p	KM15	PM25	TIN25	TL20
16ER-A55TD	16,00	9,52	55°			○	
16ER-AG55 TD	16,00	9,52	55°			●	○
16ER-G55 TD	16,00	9,52	55°			○	

Partial profile thread forms - Internal inserts
60° - 55° (non topping)

Normally available for immediate delivery ●

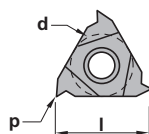
Only available in a limited quantity ○



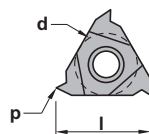
NR



NR TD



NR



NL

NR-60°

	l	d	p	KM15	PM25	TIN25	TL20
06NR-A60	6,00	3,96	60°			○	
08NR-A60	8,00	4,76	60°			○	
11NR-A60	11,00	6,35	60°			●	○
16NR-A60	16,00	9,52	60°			○	
16NR-AG60	16,00	9,52	60°			●	○
16NR-G60	16,00	9,52	60°			○	
22NR-N60	22,00	12,70	60°			●	○
27NR-S60	27,00	15,87	60°			○	

NL-60°

	l	d	p	KM15	PM25	TIN25	TL20
06NL-A60	6,00	3,96	60°			○	
08NL-A60	8,00	4,76	60°			○	
11NL-A60	11,00	6,35	60°			○	
16NL-A60	16,00	9,52	60°			○	
16NL-AG60	16,00	9,52	60°			○	
16NL-G60	16,00	9,52	60°			○	
22NL-N60	22,00	12,70	60°			○	
27NL-S60	27,00	15,87	60°			○	

NR-55°

	l	d	p	KM15	PM25	TIN25	TL20
06NR-A55	6,00	3,96	55°			○	
08NR-A55	8,00	4,76	55°			○	
11NR-A55	11,00	6,35	55°			○	
16NR-A55	16,00	9,52	55°			○	
16NR-AG55	16,00	9,52	55°			●	○
16NR-G55	16,00	9,52	55°			●	
22NR-N55	22,00	12,70	55°			○	
27NR-S55	27,00	15,87	55°			○	

NL-55°

	l	d	p	KM15	PM25	TIN25	TL20
06NL-A55	6,00	3,96	55°				
08NL-A55	8,00	4,76	55°				
11NL-A55	11,00	6,35	55°			○	
16NL-A55	16,00	9,52	55°			○	
16NL-AG55	16,00	9,52	55°			○	
16NL-G55	16,00	9,52	55°			○	
22NL-N55	22,00	12,70	55°			○	
27NL-S55	27,00	15,87	55°				

NR-60° TD

	l	d	p	KM15	PM25	TIN25	TL20
16NR-A60 TD	16,00	9,52	60°			○	
16NR-AG60 TD	16,00	9,52	60°			●	○
16NR-G60 TD	16,00	9,52	60°			○	

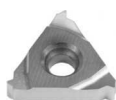
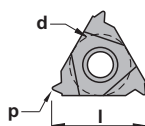
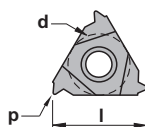
NR-55° TD

	l	d	p	KM15	PM25	TIN25	TL20
16NR-A55TD	16,00	9,52	55°			○	
16NR-AG55 TD	16,00	9,52	55°			●	○
16NR-G55 TD	16,00	9,52	55°			○	

Mechanical thread forms - External inserts
ISO (full form) BS36

Normally available for immediate delivery ●

Only available in a limited quantity ○

**ER ISO****ER ISO TD****ER****EL****ER-ISO**

	l	d	p	KM15	PM25	TIN25	TL20
11ER-030ISO	11,00	6,35	0,30			○	
11ER-040ISO	11,00	6,35	0,40			○	
11ER-045ISO	11,00	6,35	0,45			○	
11ER-050ISO	11,00	6,35	0,50			○	
11ER-060ISO	11,00	6,35	0,60			○	
11ER-070ISO	11,00	6,35	0,70			○	
11ER-075ISO	11,00	6,35	0,75			○	
11ER-080ISO	11,00	6,35	0,80			○	
11ER-100ISO	11,00	6,35	1,00			○	
11ER-125ISO	11,00	6,35	1,25			○	
11ER-150ISO	11,00	6,35	1,50			○	
11ER-175ISO	11,00	6,35	1,75			○	
16ER-075ISO	16,00	9,52	0,75			○	
16ER-100ISO	16,00	9,52	1,00			○	
16ER-125ISO	16,00	9,52	1,25			○	
16ER-150ISO	16,00	9,52	1,50			○	
16ER-175ISO	16,00	9,52	1,75			○	
16ER-200ISO	16,00	9,52	2,00			○	
16ER-250ISO	16,00	9,52	2,50			○	
16ER-300ISO	16,00	9,52	3,00			○	
22ER-350ISO	22,00	12,70	3,50			○	
22ER-400ISO	22,00	12,70	4,00			○	
22ER-450ISO	22,00	12,70	4,50			○	
22ER-500ISO	22,00	12,70	5,00			○	
27ER-500ISO	27,00	15,87	5,00			○	
27ER-550ISO	27,00	15,87	5,50			○	
27ER-600ISO	27,00	15,87	6,00			○	
27ER-800ISO	27,00	15,87	8,00			○	

EL-ISO

	l	d	p	KM15	PM25	TIN25	TL20
16EL-100ISO	16,00	9,52	1,00			○	
16EL-125ISO	16,00	9,52	1,25			○	
16EL-150ISO	16,00	9,52	1,50			○	
16EL-175ISO	16,00	9,52	1,75			○	
16EL-200ISO	16,00	9,52	2,00			○	
16EL-250ISO	16,00	9,52	2,50			○	
16EL-300ISO	16,00	9,52	3,00			○	
22EL-400ISO	22,00	12,70	4,00			○	

ER-ISO TD

	l	d	p	KM15	PM25	TIN25	TL20
16ER-100ISO TD	16,50	9,52	1,00			○	
16ER-125ISO TD	16,50	9,52	1,25			○	
16ER-150ISO TD	16,50	9,52	1,50			○	
16ER-175ISO TD	16,50	9,52	1,75			○	
16ER-200ISO TD	16,50	9,52	2,00			○	
16ER-250ISO TD	16,50	9,52	2,50			○	
16ER-300ISO TD	16,50	9,52	3,00			○	

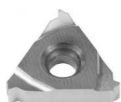
EL-ISO TD

	l	d	p	KM15	PM25	TIN25	TL20
16EL-100ISO TD	16,50	9,52	1,00			○	
16EL-125ISO TD	16,50	9,52	1,25			○	
16EL-150ISO TD	16,50	9,52	1,50			○	
16EL-175ISO TD	16,50	9,52	1,75			○	
16EL-200ISO TD	16,50	9,52	2,00			○	
16EL-250ISO TD	16,50	9,52	2,50			○	
16EL-300ISO TD	16,50	9,52	3,00			○	

Mechanical thread forms - Internal inserts
ISO (full form) BS36

Normally available for immediate delivery ●

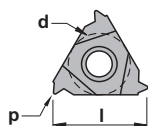
Only available in a limited quantity ○



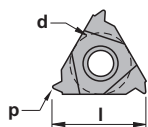
NR ISO



NR ISO TD



NR



NL

NR-ISO

	l	d	p	KM15	PM25	TIN25	TL20
06NR-050ISO	6,00	3,96	0,50			○	
06NR-075ISO	6,00	3,96	0,75			○	
06NR-100ISO	6,00	3,96	1,00			○	
06NR-125ISO	6,00	3,96	1,25			○	
08NR-050ISO	8,00	4,76	0,50			○	
08NR-075ISO	8,00	4,76	0,75			○	
08NR-100ISO	8,00	4,76	1,00			○	
08NR-125ISO	8,00	4,76	1,25			○	
08NR-150ISO	8,00	4,76	1,50			○	
08NR-175ISO	8,00	4,76	1,75			○	
11NR-035ISO	11,00	6,35	0,35			○	
11NR-040ISO	11,00	6,35	0,40			○	
11NR-045ISO	11,00	6,35	0,45			○	
11NR-050ISO	11,00	6,35	0,50			○	
11NR-060ISO	11,00	6,35	0,60			○	
11NR-070ISO	11,00	6,35	0,70			○	
11NR-075ISO	11,00	6,35	0,75			○	
11NR-080ISO	11,00	6,35	0,80			○	
11NR-100ISO	11,00	6,35	1,00			○	
11NR-125ISO	11,00	6,35	1,25			○	
11NR-150ISO	11,00	6,35	1,50			○	
11NR-175ISO	11,00	6,35	1,75			○	
11NR-200ISO	11,00	6,35	2,00			○	
11NR-250ISO	11,00	6,35	2,50			○	
16NR-075ISO	16,00	9,52	0,75			○	
16NR-100ISO	16,00	9,52	1,00			○	
16NR-125ISO	16,00	9,52	1,25			○	
16NR-150ISO	16,00	9,52	1,50			○	
16NR-175ISO	16,00	9,52	1,75			○	
16NR-200ISO	16,00	9,52	2,00			○	
16NR-250ISO	16,00	9,52	2,50			○	
16NR-300ISO	16,00	9,52	3,00			○	
22NR-350ISO	22,00	12,70	3,50			○	
22NR-400ISO	22,00	12,70	4,00			○	
22NR-450ISO	22,00	12,70	4,50			○	
22NR-500ISO	22,00	12,70	5,00			○	
27NR-500ISO	27,00	15,87	5,00			○	
27NR-550ISO	27,00	15,87	5,50			○	
27NR-600ISO	27,00	15,87	6,00			○	
27NR-800ISO	27,00	15,87	8,00			○	

NL-ISO

	l	d	p	KM15	PM25	TIN25	TL20
06NL-050ISO	6,00	3,96	0,50			○	
06NL-075ISO	6,00	3,96	0,75			○	
06NL-100ISO	6,00	3,96	1,00			○	
06NL-125ISO	6,00	3,96	1,25			○	
08NL-050ISO	8,00	4,76	0,50			○	
08NL-075ISO	8,00	4,76	0,75			○	
08NL-100ISO	8,00	4,76	1,00			○	
08NL-125ISO	8,00	4,76	1,25			○	
08NL-150ISO	8,00	4,76	1,50			○	
08NL-175ISO	8,00	4,76	1,75			○	
11NL-100ISO	11,00	6,35	1,00			○	
11NL-150ISO	11,00	6,35	1,50			○	
16NL-100ISO	16,00	9,52	1,00			○	
16NL-125ISO	16,00	9,52	1,25			○	
16NL-150ISO	16,00	9,52	1,50			○	
16NL-175ISO	16,00	9,52	1,75			○	
16NL-200ISO	16,00	9,52	2,00			○	
16NL-250ISO	16,00	9,52	2,50			○	
16NL-300ISO	16,00	9,52	3,00			○	
22NL-400ISO	22,00	12,70	4,00			○	

NR-ISO TD

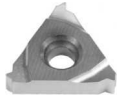
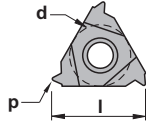
	l	d	p	KM15	PM25	TIN25	TL20
16NR-100ISO TD	16,50	9,52	1,00			●	
16NR-125ISO TD	16,50	9,52	1,25			●	
16NR-150ISO TD	16,50	9,52	1,50			●	
16NR-175ISO TD	16,50	9,52	1,75			●	
16NR-200ISO TD	16,50	9,52	2,00			●	
16NR-250ISO TD	16,50	9,52	2,50			●	
16NR-300ISO TD	16,50	9,52	3,00			●	

Mechanical thread forms - External and internal inserts

UNIFIED (full form) ASME/ANSI B1.1

Normally available for immediate delivery ●

Only available in a limited quantity ○

**ER UN****ER****ER-UN**

	l	d	p	KM15	PM25	TIN25	TL20
16ER-11UN	16,00	9,52	11,0			○	
16ER-14UN	16,00	9,52	14,0			○	
16ER-18UN	16,00	9,52	18,0			○	

NR-UN

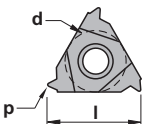
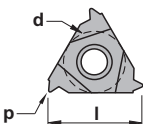
	l	d	p	KM15	PM25	TIN25	TL20
16NR-20UN	16,00	9,52	20,0			○	
16NR-24UN	16,00	9,52	24,0			○	

Mechanical thread forms - External and internal inserts

WHITWORTH (full form) BS84

Normally available for immediate delivery ●

Only available in a limited quantity ○

**ER-W****ER-W TD****ER****EL****ER-W**

	l	d	p	KM15	PM25	TIN25	TL20
11ER-14W	11,00	6,35	14,0			○	
11ER-16W	11,00	6,35	16,0			○	
11ER-18W	11,00	6,35	18,0			○	
11ER-19W	11,00	6,35	19,0			○	
11ER-22W	11,00	6,35	22,0			○	
11ER-24W	11,00	6,35	24,0			○	
11ER-26W	11,00	6,35	26,0			○	
11ER-28W	11,00	6,35	28,0			○	
11ER-40W	11,00	6,35	40,0			○	
11ER-50W	11,00	6,35	50,0			○	
11ER-56W	11,00	6,35	56,0			○	
16ER-8W	16,00	9,52	8,0			○	
16ER-9W	16,00	9,52	9,0			○	
16ER-10W	16,00	9,52	10,0			○	
16ER-11W	16,00	9,52	11,0			○	
16ER-12W	16,00	9,52	12,0			○	
16ER-14W	16,00	9,52	14,0			○	
16ER-16W	16,00	9,52	16,0			○	
16ER-18W	16,00	9,52	18,0			○	
16ER-19W	16,00	9,52	19,0			○	
16ER-20W	16,00	9,52	20,0			○	
16ER-22W	16,00	9,52	22,0			○	
16ER-24W	16,00	9,52	24,0			○	
16ER-26W	16,00	9,52	26,0			○	
16ER-28W	16,00	9,52	28,0			○	
22ER-4W	22,00	12,70	4,0			○	
22ER-4.5W	22,00	12,70	4,5			○	
22ER-5W	22,00	12,70	5,0			○	
22ER-6W	22,00	12,70	6,0			○	
22ER-7W	22,00	12,70	7,0			○	
22ER-8W	22,00	12,70	8,0			○	
27ER-4W	27,00	15,87	4,0			○	
27ER-4.5W	27,00	15,87	4,5			○	

EL-W

	l	d	p	KM15	PM25	TIN25	TL20
16EL-11W	16,00	9,52	11,0			○	
16EL-14W	16,00	9,52	14,0			○	
16EL-20W	16,00	9,52	20,0			○	

ER-W TD

	l	d	p	KM15	PM25	TIN25	TL20
16ER-11W TD	16,50	9,52	11,0			○	
16ER-14W TD	16,50	9,52	14,0			○	
16ER-16W TD	16,50	9,52	16,0			○	

Mechanical thread forms - Internal inserts
WHITWORTH (full form) BS84

Normally available for immediate delivery ●

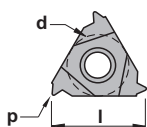
Only available in a limited quantity ○



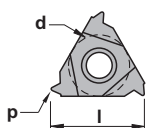
NR-W



NR-W TD



NR



NL

NR-W

	l	d	p	KM15	PM25	TIN25	TL20
06NR-18W	6,00	3,96	18,0			○	
06NR-19W	6,00	3,96	19,0			○	
06NR-20W	6,00	3,96	20,0			○	
06NR-22W	6,00	3,96	22,0			○	
06NR-26W	6,00	3,96	26,0			○	
08NR-16W	8,00	4,76	16,0			○	
08NR-18W	8,00	4,76	18,0			○	
08NR-19W	8,00	4,76	19,0			○	
08NR-20W	8,00	4,76	20,0			○	
08NR-24W	8,00	4,76	24,0			○	
08NR-28W	8,00	4,76	28,0			○	
11NR-11W	11,00	6,35	11,0			○	
11NR-12W	11,00	6,35	12,0			○	
11NR-14W	11,00	6,35	14,0			○	
11NR-16W	11,00	6,35	16,0			○	
11NR-18W	11,00	6,35	18,0			○	
11NR-19W	11,00	6,35	19,0			○	
11NR-20W	11,00	6,35	20,0			○	
11NR-22W	11,00	6,35	22,0			○	
11NR-24W	11,00	6,35	24,0			○	
11NR-26W	11,00	6,35	26,0			○	
11NR-28W	11,00	6,35	28,0			○	
11NR-32W	11,00	6,35	32,0			○	
11NR-36W	11,00	6,35	36,0			○	
11NR-40W	11,00	6,35	40,0			○	
11NR-48W	11,00	6,35	48,0			○	
16NR-8W	16,00	9,52	8,0			○	
16NR-9W	16,00	9,52	9,0			○	
16NR-10W	16,00	9,52	10,0			○	
16NR-11W	16,00	9,52	11,0			○	
16NR-12W	16,00	9,52	12,0			○	
16NR-14W	16,00	9,52	14,0			○	
16NR-16W	16,00	9,52	16,0			○	
16NR-18W	16,00	9,52	18,0			○	
16NR-19W	16,00	9,52	19,0			○	
16NR-20W	16,00	9,52	20,0			○	
16NR-22W	16,00	9,52	22,0			○	
16NR-24W	16,00	9,52	24,0			○	
16NR-26W	16,00	9,52	26,0			○	
16NR-28W	16,00	9,52	28,0			○	
22NR-4W	22,00	12,70	4,0			○	
22NR-4.5W	22,00	12,70	4,5			○	
22NR-5W	22,00	12,70	5,0			○	
22NR-6W	22,00	12,70	6,0			○	
22NR-7W	22,00	12,70	7,0			○	

NL-W

	l	d	p	KM15	PM25	TIN25	TL20
06NL-18W	6,00	3,96	18,0			○	
06NL-20W	6,00	3,96	20,0			○	
06NL-22W	6,00	3,96	22,0			○	
06NL-26W	6,00	3,96	26,0			○	
08NL-16W	8,00	4,76	16,0			○	
08NL-18W	8,00	4,76	18,0			○	
08NL-19W	8,00	4,76	19,0			○	
08NL-20W	8,00	4,76	20,0			○	
08NL-24W	8,00	4,76	24,0			○	
08NL-28W	8,00	4,76	28,0			○	
16NL-11W	16,00	9,52	11,0			○	
16NL-14W	16,00	9,52	14,0			○	
16NL-16W	16,00	9,52	16,0			○	

NR-W TD

	l	d	p	KM15	PM25	TIN25	TL20
16NR-8W TD	16,50	9,52	8,0			○	
16NR-9W TD	16,50	9,52	9,0			○	
16NR-10W TD	16,50	9,52	10,0			○	
16NR-11W TD	16,50	9,52	11,0			●	○
16NR-12W TD	16,50	9,52	12,0			○	
16NR-14W TD	16,50	9,52	14,0			●	○
16NR-16W TD	16,50	9,52	16,0			○	
16NR-18W TD	16,50	9,52	18,0			○	
16NR-19W TD	16,50	9,52	19,0			○	

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

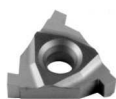
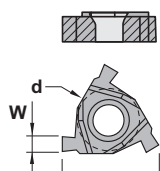
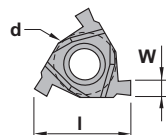
Parting and
grooving

Threading

 Grooving - External inserts
Lock ring groove inserts type LG

Normally available for immediate delivery ●

Only available in a limited quantity ○

**ER-LG****ER****EL****ER-LG**

	I	d	W	KM15	PM25	TIN25	TL20
16ER-100LG	16,00	9,52	1,15				●
16ER-120LG	16,00	9,52	1,35				●
16ER-150LG	16,00	9,52	1,65				●
16ER-175LG	16,00	9,52	1,90				●
16ER-200LG	16,00	9,52	2,15				●
16ER-250LG	16,00	9,52	2,65				●

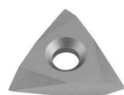
EL-LG

	I	d	W	KM15	PM25	TIN25	TL20
16EL-100LG	16,00	9,52	1,15				●
16EL-120LG	16,00	9,52	1,35				●
16EL-150LG	16,00	9,52	1,65				●
16EL-175LG	16,00	9,52	1,90				●
16EL-200LG	16,00	9,52	2,15				●

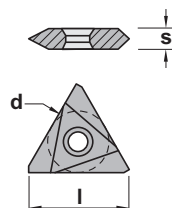
Negative triangular insert for threading.

Normally available for immediate delivery ●

Only available in a limited quantity ○

**TNMC**

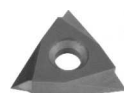
	I	s	d	KM15	PM25	TIN16	TL20
TNMC 1603XX	16,50	3,18	9,52		○	○	
TNMC 2204XX	22,00	4,76	12,70		●	○	



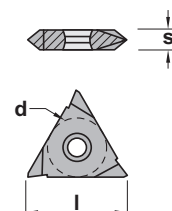
Negative triangular insert for threading.

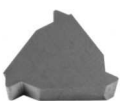
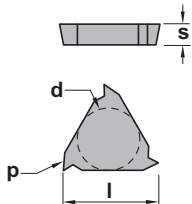
Normally available for immediate delivery ●

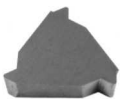
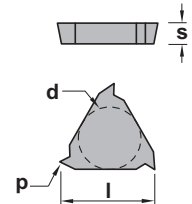
Only available in a limited quantity ○

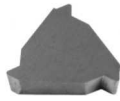
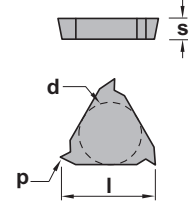
**TPMC**

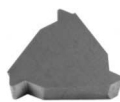
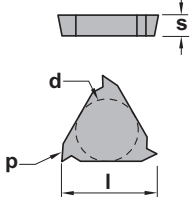
	I	s	d	KM15	PM25	TIN16	TL20
TPMC 1603XX	16,50	3,18	9,52		○		
TPMC 2204XX	22,00	4,76	12,70		○		

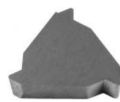
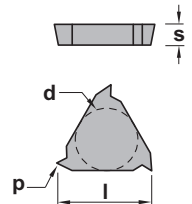


	Positive 7° clearance - Triangular insert for threading.								
	Normally available for immediate delivery ● Only available in a limited quantity ○								
	L166G-ISO	l	s	d	p	KM15	PM25	TIN25	TL20
	L166G-3BA075 L166G-3BA100 L166G-3BA125 L166G-3BA150 L166G-3BA175 L166G-3BA200 L166G-3BA250 L166G-3BA300	16,50 16,50 16,50 16,50 16,50 16,50 16,50 16,50	3,18 3,18 3,18 3,18 3,18 3,18 3,18 3,18	9,52 9,52 9,52 9,52 9,52 9,52 9,52 9,52	0,75 1,00 1,25 1,50 1,75 2,00 2,50 3,00		○		

	Positive 7° clearance - Triangular insert for threading.								
	Normally available for immediate delivery ● Only available in a limited quantity ○								
	R166G-ISO	l	s	d	p	KM15	PM25	TIN25	TL20
	R166G-3BA075 R166G-3BA100 R166G-3BA125 R166G-3BA150 R166G-3BA175 R166G-3BA200 R166G-3BA250 R166G-3BA300	16,50 16,50 16,50 16,50 16,50 16,50 16,50 16,50	3,18 3,18 3,18 3,18 3,18 3,18 3,18 3,18	9,52 9,52 9,52 9,52 9,52 9,52 9,52 9,52	0,75 1,00 1,25 1,50 1,75 2,00 2,50 3,00		○		

	Positive 7° clearance - Triangular insert for threading.								
	Normally available for immediate delivery ● Only available in a limited quantity ○								
	R166G-B	l	s	d	p	KM15	PM25	TIN25	TL20
	R166G-3BK080 R166G-3BK160	16,50 16,50	3,18 3,18	9,52 9,52	08 16		○		

	Positive 7° clearance - Triangular insert for threading.								
	Normally available for immediate delivery ● Only available in a limited quantity ○								
	L166L-ISO	l	s	d	p	KM15	PM25	TIN25	TL20
	L166L-3BA150 L166L-3BA175 L166L-3BA200 L166L-3BA250 L166L-3BA300	16,50 16,50 16,50 16,50 16,50	3,18 3,18 3,18 3,18 3,18	9,52 9,52 9,52 9,52 9,52	1,50 1,75 2,00 2,50 3,00		○		

	Positive 7° clearance - Triangular insert for threading.								
	Normally available for immediate delivery ● Only available in a limited quantity ○								
	R166L-ISO	l	s	d	p	KM15	PM25	TIN25	TL20
	R166L-2BA100 R166L-2BA150 R166L-3BA150 R166L-3BA175 R166L-3BA200 R166L-3BA250 R166L-3BA300 R166L-3BK080	11,00 11,00 16,50 16,50 16,50 16,50 16,50 16,50	3,18 3,18 3,18 3,18 3,18 3,18 3,18 3,18	6,35 6,35 9,52 9,52 9,52 9,52 9,52 9,52	1,00 1,50 1,50 1,75 2,00 2,50 3,00 08		○		

External threading

SXAN 90°


 08 ER/L..
 11 ER/L..
 16 ER/L..
 22 ER/L..

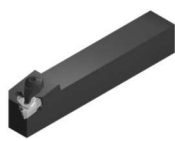
Page H.13

STAN 90°


 16 ER/L..
 22 ER/L..
 27 ER/L..

Page H.14

CTAN 90°


 16 ER/L..
 22 ER/L..
 27 ER/L..

Page H.15

SXGN 90°


 R/L 166G-3..
 R/L 166G-4..

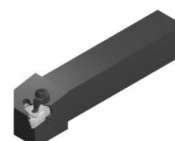
Page H.16

STXN 90°


 16 ER/L..
 22 ER/L..
 27 ER/L..

Page H.17

CTXN 90°


 16 ER/L..
 22 ER/L..
 27 ER/L..

Page H.18

STCN 90°


 TNMC 1603..
 TPMC 1603..
 TNMC 2204..
 TPMC 2204..

Page H.19

CXAP 90°


 R/L 166-3..
 R/L 166-4..

Page H.20

Internal threading

SXFN 90°


 11 NR/L..
 22 NR/L..

Page H.21

STXN 90°


 11 NR/L..
 16 NR/L..
 22 NR/L..
 27 NR/L..

Page H.23

CTXN 90°


 16 NR/L..
 22 NR/L..
 27 NR/L..

Page H.24

STGN 90°


 TNMC 1603..
 TNMC 2204..

Page H.25

STGP 90°


 TPMC 1603..
 TPMC 2204..

Page H.26

CXFP 90°


 R/L 166-2..
 R/L 166-3..
 R/L 166-4..

Page H.27

Inserts

General turning

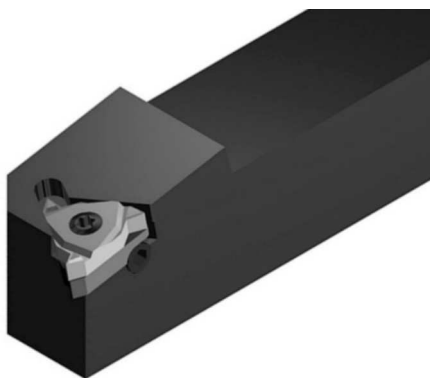
Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

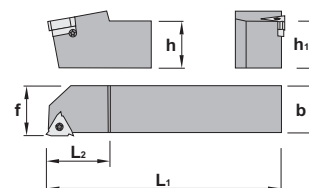
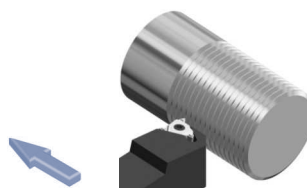
**Characteristics:**

Threading toolholder for negative lay down inserts.

The screw clamping ensures a good stiffness and evacuation of chips.

The insert is positioned a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading toolholders.

Metric screws**SXAN 90°**

Ref.		$h=h_1$	b	L_1	L_2	f	Insert size	Kg
	SXAN R/L 0808 M08	8	8	150	20	8	08 ER/L...	0,070
	SXAN R/L 1010 M08	10	10	150	20	10	08 ER/L...	0,100
	SXAN R/L 1212 M11	12	12	150	20	12	11 ER/L...	0,140
	SXAN R/L 1616 H16	16	16	100	22	16	16 ER/L...	0,200
	SXAN R/L 1616 M16	16	16	150	22	16	16 ER/L...	0,270
	SXAN R/L 2020 K16	20	20	125	28	20	16 ER/L...	0,400
	SXAN R/L 2525 M16	25	25	150	28	25	16 ER/L...	0,700
	SXAN R/L 3232 P16	32	32	170	28	32	16 ER/L...	1,300
	SXAN R/L 2525 M22	25	25	150	34	25	22 ER/L...	0,700
	SXAN R/L 3232 P22	32	32	170	34	32	22 ER/L...	1,300

Ref.					
	SXAN R/L 0808 M08	1225	5507	-	-
	SXAN R/L 1010 M08	1225	5507	-	-
	SXAN R/L 1212 M11	1225	5507	-	-
	SXAN R/L 1616 H16	1335	5515	3424	1093
	SXAN R/L 1616 M16	1335	5515	3424	1093
	SXAN R/L 2020 K16	1335	5515	3424	1093
	SXAN R/L 2525 M16	1335	5515	3424	1093
	SXAN R/L 3232 P16	1335	5515	3424	1093
	SXAN R/L 2525 M22	1340	5515	3430	1094
	SXAN R/L 3232 P22	1340	5515	3430	1094

	E R/L			Negative triangular inserts for external threading		
	Ref.					
	08 ER/L	8,00	4,76	For more information see page: H.04		
	11 ER/L	11,00	6,35			
	16 ER/L...	16,00	9,52			
	22 ER/L...	22,00	12,70			
	ER/L	ER/L TD				

Inserts

General turning

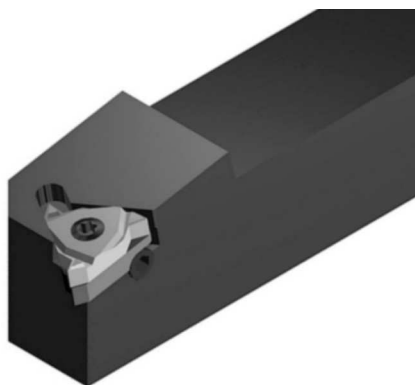
Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

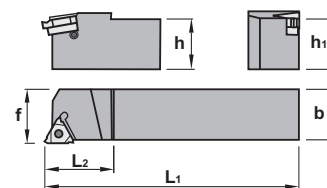
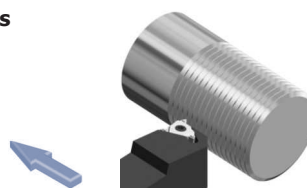
**Characteristics:**

Threading toolholder for negative lay down inserts.

The screw clamping ensures a good stiffness and evacuation of chips.

The insert is positioned a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading toolholders.

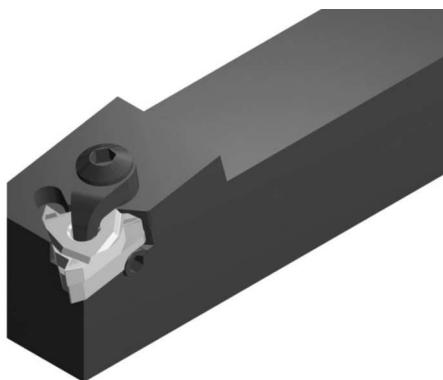
Whitworth screws**STAN 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	Kg
	STAN R/L 1616 H16	16	16	100	20,5	16	16 ER/L..	0,200
	STAN R/L 2020 K16	20	20	125	30,0	20	16 ER/L..	0,400
	STAN R/L 2525 M16	25	25	150	30,0	25	16 ER/L..	0,700
	STAN R/L 3232 P16	32	32	170	30,0	32	16 ER/L..	1,300
	STAN R/L 2525 M22	25	25	150	36,0	25	22 ER/L..	0,700
	STAN R/L 3232 P22	32	32	175	36,0	32	22 ER/L..	1,300
	STAN R/L 4040 R22	40	40	200	36,0	40	22 ER/L..	3,000
	STAN R/L 3232 P27	32	32	170	40,0	32	27 ER/L..	1,300
	STAN R/L 4040 R27	40	40	200	40,0	40	27 ER/L..	3,000
	STAN R/L 5050 S27	50	50	250	40,0	50	27 ER/L..	5,800

Ref.						
	STAN R/L 1616 H16	SA3	5510	YE3	YI3	SY3
	STAN R/L 2020 K16	SA3	5510	YE3	YI3	SY3
	STAN R/L 2525 M16	SA3	5510	YE3	YI3	SY3
	STAN R/L 3232 P16	SA3	5510	YE3	YI3	SY3
	STAN R/L 2525 M22	SA4	5520	YE4	YI4	SY4
	STAN R/L 3232 P22	SA4	5520	YE4	YI4	SY4
	STAN R/L 4040 R22	SA4	5520	YE4	YI4	SY4
	STAN R/L 3232 P27	SA5	5525	YE5	YI5	SY5
	STAN R/L 4040 R27	SA5	5525	YE5	YI5	SY5
	STAN R/L 5050 S27	SA5	5525	YE5	YI5	SY5

 	E R/L			I	d	Negative triangular inserts for external threading		
	Ref.	16 ER/L..	16,00	9,52				
		22 ER/L..	22,00	12,70				
		27 ER/L..	27,50	15,88				
						For more information see page: H.04		
ER/L	ER/L TD							
								

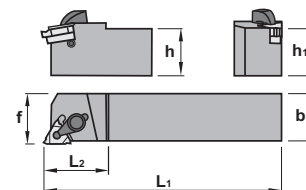
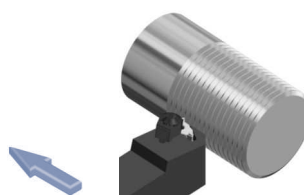
For more information see page: H.04

**Characteristics:**

Top clamp threading toolholder for negative lay down inserts.
The insert is positioned a -10° cutting angle, and a -1° clearance angle.

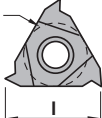
Applications:

Multipurpose threading toolholders.

**CTAN 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	Kg
	CTAN R/L 2020 K16	20	20	125	30	20	16 ER/L..	0,400
	CTAN R/L 2525 M16	25	25	150	30	25	16 ER/L..	0,700
	CTAN R/L 3232 P16	32	32	170	30	32	16 ER/L..	1,050
	CTAN R/L 2525 M22	25	25	150	36	25	22 ER/L..	0,700
	CTAN R/L 3232 P22	32	32	170	36	32	22 ER/L..	1,300
	CTAN R/L 4040 R22	40	40	200	36	40	22 ER/L..	3,000
	CTAN R/L 3232 P27	32	32	170	40	32	27 ER/L..	1,300
	CTAN R/L 4040 R27	40	40	200	40	40	27 ER/L..	3,000
	CTAN R/L 5050 S27	50	50	250	40	50	27 ER/L..	5,800

Ref.									
CTAN R/L 2020 K16	2516	5515	YE3	YI3	SY3	SA3			
CTAN R/L 2525 M16	2516	5515	YE3	YI3	SY3	SA3			
CTAN R/L 3232 P16	2516	5515	YE3	YI3	SY3	SA3			
CTAN R/L 2525 M22	2522	5515	YE4	YI4	SY4	SA4			
CTAN R/L 3232 P22	2522	5515	YE4	YI4	SY4	SA4			
CTAN R/L 4040 R22	2522	5515	YE4	YI4	SY4	SA4			
CTAN R/L 3232 P27	2527	5525	YE5	YI5	SY5	SA5			
CTAN R/L 4040 R27	2527	5525	YE5	YI5	SY5	SA5			
CTAN R/L 5050 S27	2527	5525	YE5	YI5	SY5	SA5			
									Optional

 	E R/L			Negative triangular inserts for external threading			
	Ref.	16 ER/L..	16,00	9,52			
	22 ER/L..	22,00	12,70				
	27 ER/L..	27,50	15,88				
					For more information see page: H.04		
ER/L	ER/L TD						
							

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

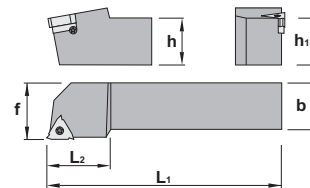
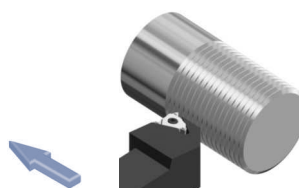
**Characteristics:**

Threading toolholder for negative lay down inserts.

The screw clamping ensures good stiffness and evacuation of chips.

The insert is positioned a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading toolholders.

Metric screws**SXGN 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	Kg
	SXGN R/L 1212 F16	12	12	80	22	16	16 ER/L...	0,100
	SXGN R/L 1616 H16	16	16	100	22	20	16 ER/L...	0,200
	SXGN R/L 2020 K16	20	20	125	28	25	16 ER/L...	0,400
	SXGN R/L 2525 M16	25	25	150	28	32	16 ER/L...	0,700
	SXGN R/L 3232 P16	32	32	170	28	40	16 ER/L...	1,050
	SXGN R/L 2525 M22	25	25	150	34	32	22 ER/L...	0,700
	SXGN R/L 3232 P22	32	32	170	34	40	22 ER/L...	1,050

				 R	 L	
Ref.	SXGN R/L 1212 F16	1335	5515	3424	3425	1093
	SXGN R/L 1616 H16	1335	5515	3424	3425	1093
	SXGN R/L 2020 K16	1335	5515	3424	3425	1093
	SXGN R/L 2525 M16	1335	5515	3424	3425	1093
	SXGN R/L 3232 P16	1335	5515	3424	3425	1093
	SXGN R/L 2525 M22	1340	5515	3430	3431	1094
	SXGN R/L 3232 P22	1340	5515	3430	3431	1094

	E R/L		I	d	Negative triangular inserts for external threading	
	Ref.	16 ER/L...	16,00	9,52		
		22 ER/L...	22,00	12,70		
					For more information see page: H.04	
	ER/L	ER/L TD				

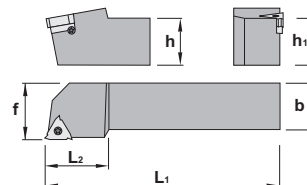
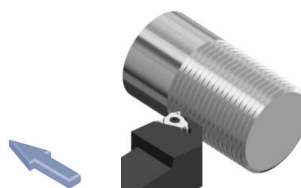
**Characteristics:**

Threading toolholder for negative lay down inserts.

The screw clamping ensures a good stiffness and evacuation of chips.

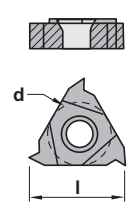
The insert is positioned a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading toolholders.

Whitworth screws**STXN 90°**

Ref.		$h=h_1$	b	L_1	L_2	f	Insert size	Kg
STXN R/L	1212 F16	12	12	80	22,0	16	16 ER/L..	0,100
	1616 H16	16	16	100	20,5	20	16 ER/L..	0,200
	2020 K16	20	20	125	30,0	25	16 ER/L..	0,400
	2525 M16	25	25	150	30,0	32	16 ER/L..	0,700
	3232 P16	32	32	170	30,0	40	16 ER/L..	1,050
	2525 M22	25	25	150	36,0	32	22 ER/L..	0,700
	3232 P22	32	32	170	36,0	40	22 ER/L..	1,300
	4040 R22	40	40	200	36,0	50	22 ER/L..	3,000
STXN R/L	2525 M27	25	25	150	35,0	32	27 ER/L..	0,700
	3232 P27	32	32	170	40,0	40	27 ER/L..	1,300
	4040 R27	40	40	200	40,0	50	27 ER/L..	3,000
	5050 S27	50	50	250	40,0	60	27 ER/L..	5,800

Ref.						
STXN R/L	1212 F16	SA3	5510	YE3	YI3	SY3
	1616 H16	SA3	5510	YE3	YI3	SY3
	2020 K16	SA3	5510	YE3	YI3	SY3
	2525 M16	SA3	5510	YE3	YI3	SY3
	3232 P16	SA3	5510	YE3	YI3	SY3
STXN R/L	2525 M22	SA4	5520	YE4	YI4	SY4
	3232 P22	SA4	5520	YE4	YI4	SY4
	4040 R22	SA4	5520	YE4	YI4	SY4
STXN R/L	2525 M27	SA5	5525	YE5	YI5	SY5
	3232 P27	SA5	5525	YE5	YI5	SY5
	4040 R27	SA5	5525	YE5	YI5	SY5
	5050 S27	SA5	5525	YE5	YI5	SY5

	E R/L			Negative triangular inserts for external threading			
	Ref.	16 ER/L..	16,00				9,52
	22 ER/L..	22,00	12,70				
	27 ER/L..	27,50	15,88				
ER/L		ER/L TD					
							

Inserts

General turning

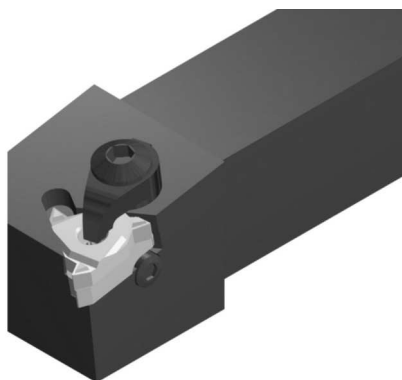
Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

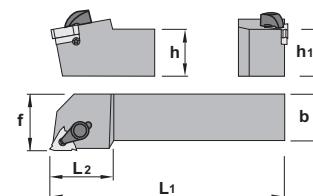
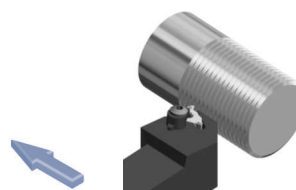
Threading

**Characteristics:**

Top clamp threading toolholder for negative lay down inserts.
 The insert is positioned a -10° cutting angle, and a -1° clearance angle.

Applications:

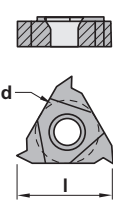
Multipurpose threading toolholders.

**CTXN 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	
	CTXN R/L 1212 F16	12	12	80	25	16	16 ER/L...	0,100
	CTXN R/L 1616 H16	16	16	100	25	20	16 ER/L...	0,200
	CTXN R/L 2020 K16	20	20	125	28	25	16 ER/L...	0,400
	CTXN R/L 2525 M16	25	25	150	28	32	16 ER/L...	0,700
	CTXN R/L 3232 P16	32	32	170	28	40	16 ER/L...	1,050
	CTXN R/L 2525 M22	25	25	150	34	32	22 ER/L...	0,700
	CTXN R/L 3232 P22	32	32	170	34	40	22 ER/L...	1,300
	CTXN R/L 4040 R22	40	40	200	36	50	22 ER/L...	3,000
	CTXN R/L 2525 M27	25	25	150	34	32	27 ER/L...	0,700
	CTXN R/L 3232 P27	32	32	170	34	40	27 ER/L...	1,300
	CTXN R/L 4040 R27	40	40	200	40	50	27 ER/L...	3,000
	CTXN R/L 5050 S27	50	50	250	50	60	27 ER/L...	5,800

				 R	 L		
Ref.	CTXN R/L 1212 F16	2516	5515	YE3	YI3	SY3	SA3
	CTXN R/L 1616 H16	2516	5515	YE3	YI3	SY3	SA3
	CTXN R/L 2020 K16	2516	5515	YE3	YI3	SY3	SA3
	CTXN R/L 2525 M16	2516	5515	YE3	YI3	SY3	SA3
	CTXN R/L 3232 P16	2516	5515	YE3	YI3	SY3	SA3
	CTXN R/L 2525 M22	2522	5515	YE4	YI4	SY4	SA4
	CTXN R/L 3232 P22	2522	5515	YE4	YI4	SY4	SA4
	CTXN R/L 4040 R22	2522	5515	YE4	YI4	SY4	SA4
	CTXN R/L 2525 M27	2527	5525	YE5	YI5	SY5	SA5
	CTXN R/L 3232 P27	2527	5525	YE5	YI5	SY5	SA5
	CTXN R/L 4040 R27	2527	5525	YE5	YI5	SY5	SA5
CTXN R/L 5050 S27	2527	5525	YE5	YI5	SY5	SA5	
							Optional

Optional

	E R/L		I	d	Negative triangular inserts for external threading	
	Ref.	16 ER/L...	16,00	9,52		
		22 ER/L...	22,00	12,70		
		27 ER/L...	27,50	15,88		
						For more information see page: H.04
	ER/L	ER/L TD				
						

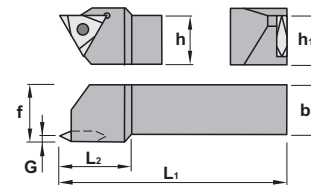
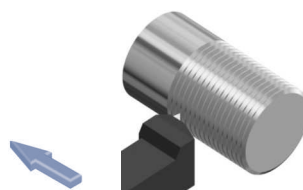
**Characteristics:**

Vertical on edge threading toolholder.

The insert is positioned with a 0° cutting angle, and a 0° clearance angle.

Applications:

Toolholders for threading.

**STCN 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	G	Insert size	kg
Ref.	STCN R/L 1212 F16	12	12	80	23	16	1,59	TNMC/TPMC 1603..	0,100
	STCN R/L 1616 H16	16	16	100	23	19	1,59	TNMC/TPMC 1603..	0,200
	STCN R/L 2020 K16	20	20	125	23	22	1,59	TNMC/TPMC 1603..	0,400
	STCN R/L 2525 M16	25	25	150	23	32	1,59	TNMC/TPMC 1603..	0,700
	STCN R/L 3232 P16	32	32	170	23	38	1,59	TNMC/TPMC 1603..	1,050
	STCN R/L 2020 K22	20	20	125	32	22	2,38	TNMC/TPMC 2204..	0,400
	STCN R/L 2525 M22	25	25	150	32	32	2,38	TNMC/TPMC 2204..	0,700
	STCN R/L 3225 P22	32	25	170	32	32	2,38	TNMC/TPMC 2204..	1,025
	STCN R/L 3232 P22	32	32	170	32	38	2,38	TNMC/TPMC 2204..	1,050
	STCN R/L 2525 M27	25	25	150	32	32	2,38	TNMC/TPMC 2704..	0,700
	STCN R/L 3232 P27	32	32	170	32	38	2,38	TNMC/TPMC 2704..	1,050

						
Ref.	STCN R/L 1212 F16	1935	2101	1815	5003	5002
	STCN R/L 1616 H16	1935	2101	1815	5003	5002
	STCN R/L 2020 K16	1935	2101	1815	5003	5002
	STCN R/L 2525 M16	1935	2101	1815	5003	5002
	STCN R/L 3232 P16	1935	2101	1815	5003	5002
	STCN R/L 2020 K22	1950	2101	1815	5003	5025
	STCN R/L 2525 M22	1950	2101	1815	5003	5025
	STCN R/L 3225 P22	1950	2101	1815	5003	5025
	STCN R/L 3232 P22	1950	2101	1815	5003	5025
	STCN R/L 2525 M27	1955	2101	1815	5003	5003
STCN R/L 3232 P27	1955	2101	1815	5003	5003	

TNMC/TPMC					Negative triangular inserts for threading
Ref.	T..MC 1603..	16,50	3,18	9,52	
	T..MC 2204..	22,00	4,76	12,70	
	T..MC 2704..	27,00	4,76	15,88	
					For more information see page: H.10
		TNMC	TPMC		

Inserts

General turning

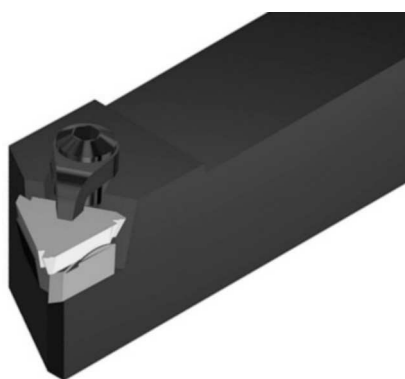
Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

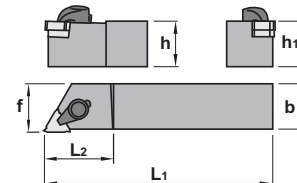
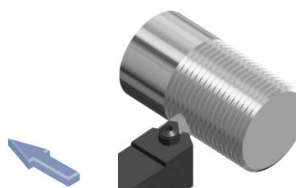
**Characteristics:**

Toolholder for flat positive inserts.

The insert is positioned with a 0° cutting angle, and a 0° clearance angle.

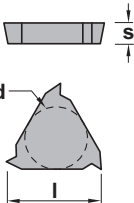
Applications:

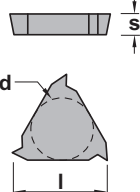
Threading toolholder.

**CXAP 90°**

Ref.		h=h ₁	b	L ₁	L ₂	f	Insert size	 Kg
	CXAP R/L 2016 K16	20	16	125	22	17	R/L 166-3..	0,300
	CXAP R/L 2020 K16	20	20	125	28	21	R/L 166-3..	0,400
	CXAP R/L 2525 M16	25	25	150	28	26	R/L 166-3..	0,700
	CXAP R/L 3225 P16	32	25	170	28	26	R/L 166-3..	1,050
	CXAP R/L 3232 P16	32	32	170	28	33	R/L 166-3..	1,300
	CXAP R/L 2525 M22	25	25	150	34	26	R/L 166-4..	0,700
	CXAP R/L 3225 P22	32	25	170	34	26	R/L 166-4..	1,050
	CXAP R/L 3232 P22	32	32	170	34	33	R/L 166-4..	1,300

Ref.						
	CXAP R/L 2016 K16	2209	5003	3126 R/L	4012	2409
	CXAP R/L 2020 K16	2209	5003	3126 R/L	4012	2409
	CXAP R/L 2525 M16	2209	5003	3126 R/L	4012	2409
	CXAP R/L 3225 P16	2209	5003	3126 R/L	4012	2409
	CXAP R/L 3232 P16	2209	5003	3126 R/L	4012	2409
	CXAP R/L 2525 M22	2211	5004	3132 R/L	4012	2411
	CXAP R/L 3225 P22	2211	5004	3132 R/L	4012	2411
	CXAP R/L 3232 P22	2211	5004	3132 R/L	4012	2411
Supplementary accessories						

	R/L 166				Positive triangular inserts for threading			
	Ref.	R/L 166-3..	16,50	3,18				9,52
		R/L 166-4..	22,00	4,76				12,70
For more information see page: H.11								
	R/L 166							
								



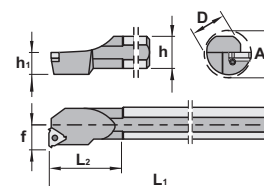
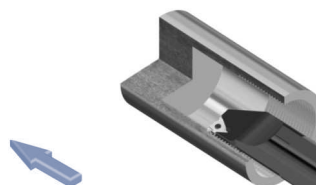
**Characteristics:**

Threading toolholder for negative lay down inserts.

The center screw ensures a good stiffness and evacuation of chips.

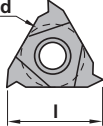
The insert is positioned with a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading boring bars.

Metric screws**SXFN 90°**

Ref.		D	h	h ₁	L ₁	L ₂	f	A	Insert size	kg
	S10K SXFN R/L 11	10	9	4,5	125	16	7,3	13	11 NR/L...	0,070
	S16M SXFN R/L 11	16	15	7,5	150	25	8,9	16	11 NR/L...	0,200
	S16M SXFN R/L 16	16	15	7,5	150	25	11,5	20	16 NR/L...	0,200
	S20Q SXFN R/L 16	20	18	9,0	180	25	13,4	24	16 NR/L...	0,400
	S25S SXFN R/L 16	25	23	11,5	250	35	16,3	29	16 NR/L...	0,900
	S32T SXFN R/L 16	32	30	15,0	300	40	19,6	36	16 NR/L...	1,750
	S40T SXFN R/L 16	40	37	18,5	300	40	23,8	44	16 NR/L...	2,700
	S20Q SXFN R/L 22	20	18	9,0	180	25	15,6	27	22 NR/L...	0,400
	S25S SXFN R/L 22	25	23	11,5	250	35	17,2	32	22 NR/L...	0,900
	S32T SXFN R/L 22	32	30	15,0	300	40	21,5	39	22 NR/L...	1,750
	S40T SXFN R/L 22	40	37	18,5	300	40	25,8	47	22 NR/L...	2,700

Ref.						
	S10K SXFN R/L 11	1225	5507	-	-	-
	S16M SXFN R/L 11	1225	5507	-	-	-
	S16M SXFN R/L 16	1635	5510	-	-	-
	S20Q SXFN R/L 16	1334	5515	3425	3424	1093
	S25S SXFN R/L 16	1335	5515	3425	3424	1093
	S32T SXFN R/L 16	1335	5515	3425	3424	1093
	S40T SXFN R/L 16	1335	5515	3425	3424	1093
	S20Q SXFN R/L 22	1640	5515	-	-	-
	S25S SXFN R/L 22	1340	5515	3431	3430	1094
	S32T SXFN R/L 22	1340	5515	3431	3430	1094
	S40T SXFN R/L 22	1340	5515	3431	3430	1094

 	N R/L			I			d			Negative triangular inserts for internal threading
	Ref.	11 NR/L..		11,00		6,35				
		16 NR/L..		16,00		9,52				
		22 NR/L..		22,00		12,70				
For more information see page: H.05										
	NR/L	NR/L TD								
										

For more information see page: H.05

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

**Characteristics:**

Boring bars with anti-vibration shank.

H-SXFN 90°

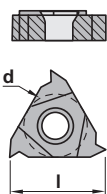
		D	h	h ₁	L ₁	L ₂	f	A	Insert size	Kg
Ref.	H10K SXFN R/L 11	10	9	4,5	125	16	7,3	13	11 NR/L..	0,130
	H16M SXFN R/L 11	16	15	7,5	150	25	8,9	16	11 NR/L..	0,400
	H16M SXFN R/L 16	16	15	7,5	150	25	11,5	20	16 NR/L..	0,400
 										
Ref.	H10K SXFN R/L 11			1225				5507		
	H16M SXFN R/L 11			1225				5507		
	H16M SXFN R/L 16			1635				5510		

**Characteristics:**

Boring bars with internal coolant and anti-vibration shank.

J-SXFN 90°

		D	h	h ₁	L ₁	L ₂	f	A	Insert size	Kg
Ref.	J10K SXFN R/L 11	10	9	4,5	125	16	7,3	13	11 NR/L..	0,150
	J16M SXFN R/L 11	16	15	7,5	150	25	8,9	16	11 NR/L..	0,450
	J16M SXFN R/L 16	16	15	7,5	150	25	11,5	20	16 NR/L..	0,450
 										
Ref.	J10K SXFN R/L 11			1225				5507		
	J16M SXFN R/L 11			1225				5507		
	J16M SXFN R/L 16			1635				5510		

	N R/L		I	d	Negative triangular inserts for internal threading		
	Ref.	11 NR/L..	11,00	6,35			
		16 NR/L..	16,00	9,52			
For more information see page: H.05							
NR/L	NR/L TD						
							

**Characteristics:**

Threading toolholder for negative lay down inserts.

The center screw ensures a good stiffness and evacuation of chips.

The insert is positioned with a -10° cutting angle, and a -1° clearance angle.**Applications:**

Multipurpose threading boring bars.

Whitworth screws**STXN 90°**

Ref.		D	h	h ₁	L ₁	L ₂	f	A	Insert size	kg
Ref.	S16M STXN R/L 16	16	15	7,5	150	32	11,5	20	16 NR/L...	0,200
	S20Q STXN R/L 16	20	18	9,0	180	40	13,4	24	16 NR/L...	0,400
	S25R STXN R/L 16	25	23	11,5	200	45	16,3	29	16 NR/L...	0,700
	S32S STXN R/L 16	32	30	15,0	250	60	19,6	36	16 NR/L...	1,500
	S40T STXN R/L 16	40	37	18,5	300	60	23,8	44	16 NR/L...	2,850
	S20Q STXN R/L 22	20	18	9,0	180	50	15,6	27	22 NR/L...	0,400
	S25R STXN R/L 22	25	23	11,5	200	60	17,2	32	22 NR/L...	0,700
	S32S STXN R/L 22	32	30	15,0	250	60	21,5	39	22 NR/L...	1,500
	S40T STXN R/L 22	40	37	18,5	300	60	25,8	47	22 NR/L...	2,850
	S32S STXN R/L 27	32	30	15,0	250	60	22,4	40	27 NR/L...	1,500
	S40T STXN R/L 27	40	37	18,5	300	60	26,4	48	27 NR/L...	2,850
	S50U STXN R/L 27	50	47	23,5	350	75	31,4	58	27 NR/L...	5,200
	S60V STXN R/L 27	60	57	28,5	400	75	36,4	69	27 NR/L...	8,550

Ref.						
Ref.	S16M STXN R/L 16	SN3	5510	-	-	-
	S20Q STXN R/L 16	SN3	5510	YI3	YE3	SY3
	S25R STXN R/L 16	SA3	5510	YI3	YE3	SY3
	S32S STXN R/L 16	SA3	5510	YI3	YE3	SY3
	S40T STXN R/L 16	SA3	5510	YI3	YE3	SY3
	S20Q STXN R/L 22	SN4	5520	-	-	-
	S25R STXN R/L 22	SA4	5520	YI4	YE4	SY4
	S32S STXN R/L 22	SA4	5520	YI4	YE4	SY4
	S40T STXN R/L 22	SA4	5520	YI4	YE4	SY4
	S32S STXN R/L 27	SA5	5525	YI5	YE5	SY5
	S40T STXN R/L 27	SA5	5525	YI5	YE5	SY5
	S50U STXN R/L 27	SA5	5525	YI5	YE5	SY5
	S60V STXN R/L 27	SA5	5525	YI5	YE5	SY5

Ref.	N R/L		I	d	Negative triangular inserts for internal threading		
	16 NR/L...	22 NR/L...	27 NR/L...				
	16 NR/L...	22 NR/L...	27 NR/L...	16,00	9,52		
	22 NR/L...	27 NR/L...		22,00	12,70		
				27,00	15,87		
For more information see page: H.05							
	NR/L	NR/L TD					
							

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

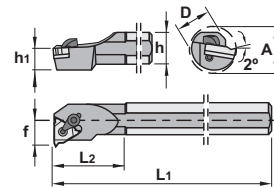
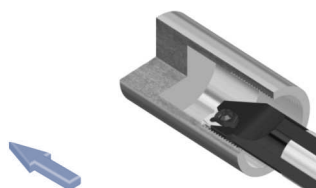
Threading

**Characteristics:**

Top clamp threading toolholder for negative lay down inserts.
 The top clamp ensures a good stiffness and evacuation of chips.
 The insert is positioned with a -10° cutting angle, and a -1° clearance angle.

Applications:

Multipurpose threading boring bars.

**CTXN 90°**

Ref.		D	h	h ₁	L ₁	L ₂	f	A	Insert size	Kg
	S20Q CTXN R/L 16	20	18	9,0	180	50	13,0	18,0	16 NR/L...	0,400
	S25R CTXN R/L 16	25	23	11,5	200	45	17,0	22,6	16 NR/L...	0,700
	S32S CTXN R/L 16	32	30	15,0	250	60	22,0	29,0	16 NR/L...	1,500
	S40T CTXN R/L 16	40	37	18,5	300	60	27,0	36,0	16 NR/L...	2,850
	S25R CTXN R/L 22	25	23	11,5	200	45	17,0	22,6	22 NR/L...	0,700
	S32S CTXN R/L 22	32	30	15,0	250	60	22,0	29,0	22 NR/L...	1,500
	S40T CTXN R/L 22	40	37	18,5	300	60	27,0	36,0	22 NR/L...	2,850
	S32S CTXN R/L 27	32	30	15,0	250	60	22,4	40,0	27 NR/L...	1,500
	S40T CTXN R/L 27	40	37	18,5	300	60	26,4	48,0	27 NR/L...	2,850
	S50U CTXN R/L 27	50	47	23,5	350	75	31,4	58,0	27 NR/L...	5,200
	S60V CTXN R/L 27	60	58	29,0	400	75	36,4	69,0	27 NR/L...	8,550

Ref.									
S20Q CTXN R/L 16	2516	5515	YI3	YE3	SY3	SA3			
S25R CTXN R/L 16	2516	5515	YI3	YE3	SY3	SA3			
S32S CTXN R/L 16	2516	5515	YI3	YE3	SY3	SA3			
S40T CTXN R/L 16	2516	5515	YI3	YE3	SY3	SA3			
S25R CTXN R/L 22	2522	5515	YI4	YE4	SY4	SA4			
S32S CTXN R/L 22	2522	5515	YI4	YE4	SY4	SA4			
S40T CTXN R/L 22	2522	5515	YI4	YE4	SY4	SA4			
S32S CTXN R/L 27	2527	5525	YI5	YE5	SY5	SA5			
S40T CTXN R/L 27	2527	5525	YI5	YE5	SY5	SA5			
S50U CTXN R/L 27	2527	5525	YI5	YE5	SY5	SA5			
S60V CTXN R/L 27	2527	5525	YI5	YE5	SY5	SA5			
							<i>Optional</i>		

	N R/L			l			d			Negative triangular inserts for internal threading
	Ref.	16 NR/L...	22 NR/L...	27 NR/L...	16,00	22,00	27,00	9,52	12,70	
		NR/L	NR/L TD							

For more information see page: H.05

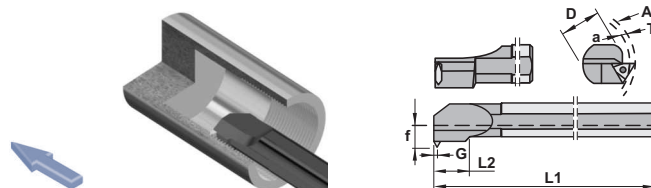
**Characteristics:**

Vertical on edge threading toolholder.

The insert is positioned with a 0° cutting angle, and a 0° clearance angle.

Applications:

Threading boring bar.

**STGN 90°**

Ref.		D	L ₁	L ₂	f	A	a	T	G	Insert size	Kg
	S32U STGN R/L 16	32	350	19	21,0	50,4	45	2,7	1,59	TNMC 1603..	2,100
	S40V STGN R/L 16	40	400	19	25,0	60,4	55	2,7	1,59	TNMC 1603..	3,650
	S32U STGN R/L 22	32	350	28	21,0	50,4	45	4,1	2,38	TNMC 2204..	2,100
	S40V STGN R/L 22	40	400	28	25,0	60,4	55	4,1	2,38	TNMC 2204..	3,650
	S50W STGN R/L 22	50	450	28	36,5	78,2	70	4,1	2,38	TNMC 2204..	6,700
	S40V STGN R/L 27	40	400	28	25,0	60,4	55	6,0	3,18	TNMC 2704..	3,650
	S50W STGN R/L 27	50	450	28	36,5	78,2	70	6,0	3,18	TNMC 2704..	6,700

						
Ref.	S32U STGN R/L 16	1935	2101	1815	5002	5003
	S40V STGN R/L 16	1935	2101	1815	5002	5003
	S32U STGN R/L 22	1950	2101	1815	5025	5003
	S40V STGN R/L 22	1950	2101	1815	5025	5003
	S50W STGN R/L 22	1950	2101	1815	5025	5003
	S40V STGN R/L 27	1955	2101	1815	5003	5003
S50W STGN R/L 27	1955	2101	1815	5003	5003	

TNMC					Triangular inserts for threading.
Ref.		l	s	d	
	TNMC 1603..	16,50	3,18	9,52	
	TNMC 2204..	22,00	4,76	12,70	
	TNMC 2704..	27,00	4,76	15,88	
					For more information see page: H.10
TNMC					

Inserts

General turning

Aluminium
wheel turning

Automatic lathes

Ceramic tools

Parting and
grooving

Threading

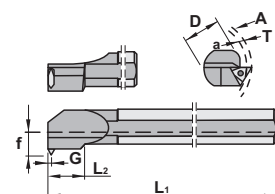
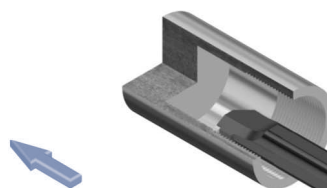
**Characteristics:**

Vertical on edge threading toolholder.

The insert is positioned with a 0° cutting angle, and a 0° clearance angle.

Applications:

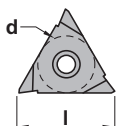
Threading boring bar.

**STGP 90°**

Ref.		D	L1	L2	f	A	a	T	G	Insert size	Kg
	S25T STGP R/L 16	25	300	19	17,5	50,4	45	2,7	1,59	TPMC 1603..	1,100
	S32U STGP R/L 16	32	350	19	20,5	50,4	45	2,7	1,59	TPMC 1603..	2,100
	S40V STGP R/L 22	40	400	28	25,0	78,2	70	4,1	2,38	TPMC 2204..	3,650
	S50W STGP R/L 22	50	450	28	36,5	78,2	70	4,1	2,38	TPMC 2204..	6,700

Ref.						
	S25T STGP R/L 16	1935	2101	1815	5002	5003
	S32U STGP R/L 16	1935	2101	1815	5002	5003
	S40V STGP R/L 22	1950	2101	1815	5025	5003
	S50W STGP R/L 22	1950	2101	1815	5025	5003

TPMC		l	s	d	Triangular inserts for threading.
Ref.	TPMC 1603..	16,50	3,18	9,52	
	TPMC 2204..	22,00	4,76	12,70	
TNMC					For more information see page: H.10
					



**Characteristics:**

Threading toolholder for flat positive inserts.

The insert is positioned with a 0° cutting angle, and a 0° clearance angle.

Applications:

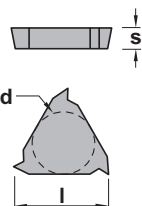
Threading boring bar.

**CXFP 90°**

		D	h	h ₁	L ₁	L ₂	f	A	Insert size	kg
Ref.	S16R CXFP R/L 11	16	15	7,5	200	30	11	20	R/L 166-2..	0,300
	S20S CXFP R/L 11	20	18	9,0	250	35	13	24	R/L 166-2..	0,550
	S20S CXFP R/L 16	20	18	9,0	250	35	13	24	R/L 166-3..	0,550
	S25T CXFP R/L 16	25	23	11,5	300	40	17	31	R/L 166-3..	1,050
	S32U CXFP R/L 16	32	30	15,0	350	50	22	39	R/L 166-3..	2,050
	S40V CXFP R/L 22	40	37	18,5	400	60	27	48	R/L 166-4..	3,650

Ref.	S16R CXFP R/L 11	2107	5025
	S20S CXFP R/L 11	2107	5025
	S20S CXFP R/L 16	2109	5003
	S25T CXFP R/L 16	2109	5003
	S32U CXFP R/L 16	2209	5003
	S40V CXFP R/L 22	2211	5004

R/L 166		l	s	d	Positive triangular inserts for threading
Ref.	R/L 166-2..	11,00	3,18	6,35	
	R/L 166-3..	16,50	3,18	9,52	
	R/L 166-4..	22,00	4,76	12,70	
					For more information see page: H.11
R/L 166					



Cutting data

Material	Cutting speed m/min. (Ft/min) Tool grade		
	PM25	KM15	TIN25
Low and medium carbon steel	120-80 (390-260)		250-210 (820-690)
High carbon steel	110-70 (360-230)		210-150 (690-490)
Alloyed tool steel and heat-treatment steels	100-70 (360-230)		180-140 (590-460)
Stainless steels	100-70 (360-230)	90-70 (295-230)	140-110 (460-360)
Cast-iron HB 180-250		90-70 (295-230)	
Non-Ferrous metals		180-120 (590-390)	

N° of passes		
P mm	TPI	N° of passes
0,50	48,0	4 - 6
0,75	32,0	4 - 7
1,00	24,0	4 - 8
1,25	20,0	5 - 9
1,50	16,0	6 - 10
1,75	14,0	7 - 12
2,00	12,0	7 - 12
2,50	10,0	8 - 14
3,00	8,0	10 - 18
3,50	7,0	11 - 18
4,00	6,0	11 - 18
4,50	5,5	11 - 19
5,00	5,0	12 - 20
5,50	4,5	12 - 20
6,00	4,0	12 - 20
8,00	3,0	15 - 24

General recommendations:

- Threading speeds should normally be a minimum of 80% to 90% of turning speeds being used to machine the same component. (Assuming grades are compatible).
- Check helix angle and number of passes shown in charts before starting.
- Ensure centre height is correct.
- When there is a problem consult the following recommendations and change only one variable at time. This will help to be sure of the original problem.
- Do not use flank infeed on work hardening materials.

Component problems

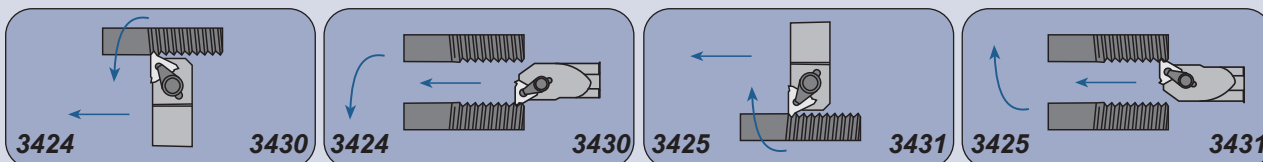
	Problem	Cause and remedy
Pitch error (on CNC machines)	★ Starting too close to workpiece ★ Saddle speed towards chuck is excessive	☆ Start cycle further back from workpiece. ☆ Reduce speed by 10% until correct.
Thread torn on one side only	★ Incorrect helix angle in toolholder.	☆ Check helix chart. ☆ Reassemble with correct anvil. ☆ Check centre height.
Thread torn on both sides	★ Running too slow. ★ Built up edge.	☆ Increase cutting speed. ☆ Check center height. ☆ Use coated grade. ☆ Compare thread speed with turning speed.
Long dangerous swarf	★ Incorrect chipbreaker geometry. ★ Incorrect method of infeed.	☆ Use Canela (TD) chipbreaker. ☆ Use different infeed method.
Vibration chatter marks on both flanks	★ Poor stability. ★ Excessive overhang.	☆ Renew anvil to support insert. ☆ Check tool clamping. ☆ Check rigidity of setup.
Shallow threads Problem with gauging	★ Insert not cresting. ★ Incorrect effective diameter.	☆ Check machined diameters. ☆ Excessive tool wear or chipped on nose see remedies above.

Helix chart

Feed direction towards the chuck

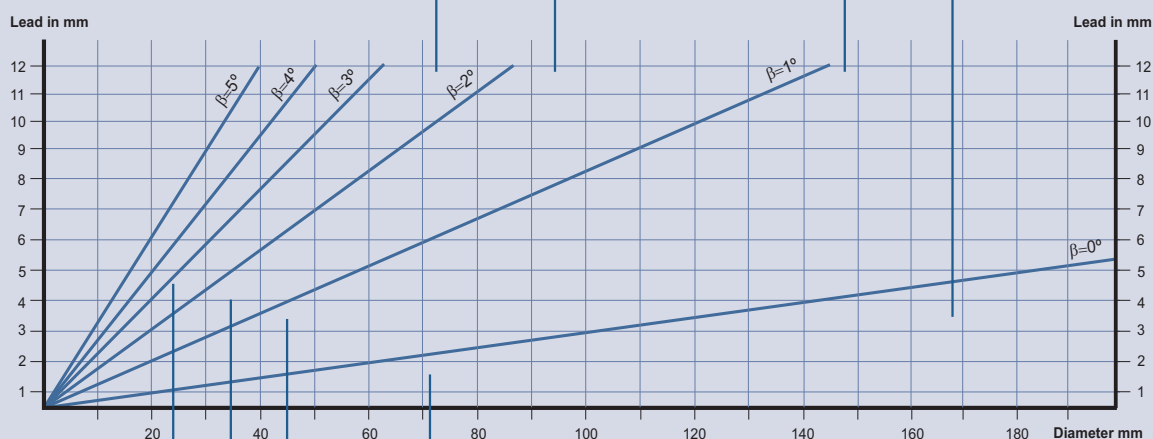
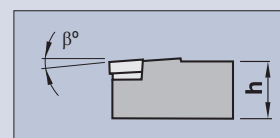
RH Thread - RH Tool

LH Thread - LH Tool



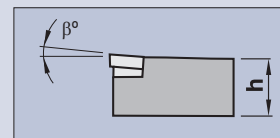
Anvil to give correct helix

Insert size	+3°	+2°	+1°	+0°
16R	3424+3	3424+2	3424+1	3424
16L	3425+3	3425+2	3425+1	3425
22R	3430+3	3430+2	3430+1	3430
22L	3431+3	3431+2	3431+1	3431



Anvil to give correct helix

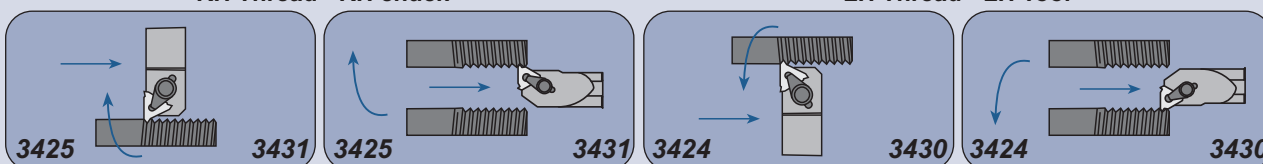
Insert size	-3°	-2°	-1°	0°
16R	3424-3	3424-2	3424-1	3424
16L	3425-3	3425-2	3425-1	3425
22R	3430-3	3430-2	3430-1	3430
22L	3431-3	3431-2	3431-1	3431



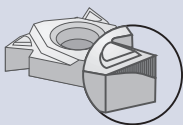
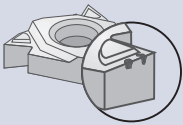
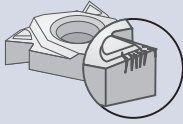
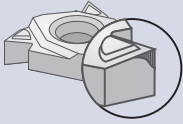
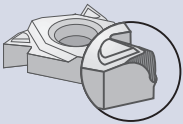
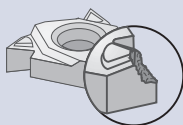
Feed direction away from the chuck

RH Thread - RH chuck

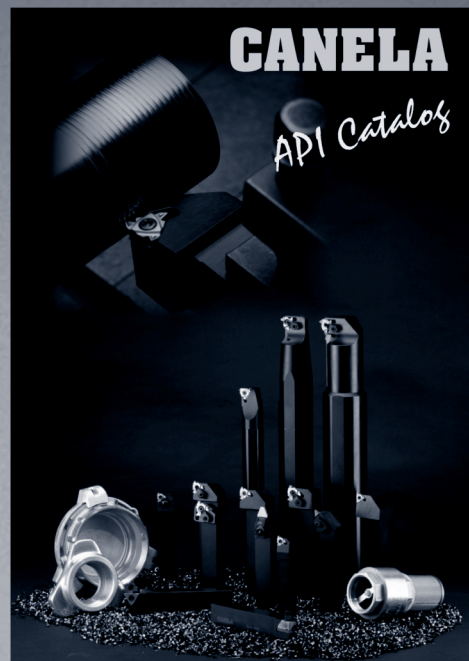
LH Thread - LH Tool



Threading insert wear and tool life

	Problem	Cause and Remedy
Rapid flank wear 	★ Cutting speed too high. ★ Lack of coolant. ★ Infeed per pass too small - too many passes ★ Incorrect grade.	☆ Reduce the cutting speed. ☆ Increase the coolant supply. ☆ Increase the depth of infeed for the smallest infeed depths - reduce the number of passes. ☆ Select a more wear resistant grade.
Edge frittering 	★ Instability of workholding and/or tool set-up.	☆ Check rigidity of operation. ☆ Select a tougher grade.
Edge spalling 	★ Intermittent coolant supply.	☆ Position coolant flow and/or increase coolant supply.
Uneven flank wear 	★ Incorrect method of infeed. ★ Incorrect angle of inclination.	☆ In case of flank infeed use modified flank infeed. Decrease infeed angle 3-5°. ☆ Correct the angle on inclination according to the diagram.
Excessive plastic deformation 	★ Infeed per pass too big - too few passes. ★ Lack of coolant. ★ Cutting speed too high. ★ Incorrect grade. ★ Excessive stock removal from crest.	☆ Decrease the depth of infeed for the biggest depths. - Increase the number of passes. ☆ Increase coolant supply. ☆ Reduce the cutting speed. ☆ Select a harder grade. ☆ Check the volume of the material above the crest.
Insert breakage 	★ Instability. ★ Lack of chip control. ★ Excessive plastic deformation. ★ Intermittent or inadequate coolant supply ★ Incorrect preparation of the operation	☆ Check rigidity of operation. ☆ Select a tougher grade. Select modified flank infeed. ☆ Machine with same infeed per pass. ☆ Direct coolant flow and/or increase coolant supply. ☆ Check dimension of blank.
Shallow thread profile	★ Wrong centre height. ★ Insert not cresting. ★ Excessive tool wear.	☆ Adjust cutting edge height. ☆ Check dimension of blank. ☆ Change insert earlier.
Incorrect thread profile	★ Incorrect tool setting.	☆ Correct tool setting.
Lack of chip control	★ Incorrect depth of infeed per pass ★ Radial infeed.	☆ Adjust cutting edge height. ☆ Check dimension of blank. ☆ Change insert earlier.
Bad surface finish	★ Cutting speed too low. ★ Incorrect angle of inclination. ★ Flank infeed.	☆ Increase the cutting speed. ☆ Correct the angle of inclination according to diagram. ☆ Use modified flank infeed or radial infeed.

This catalogue is available at
any of our subsidiaries.



Offload connectors					
REF PART NUMBER	TP	TP1	Range with centre line	Connector Number / Size	Part No
API V1038	4	2,000	1" 45° 45'	NO20 NO21 NO22 NO23 NO24 NO25 NO26 NO27 NO28 NO29 NO30 NO31 NO32 NO33 NO34 NO35 NO36 NO37 NO38 NO39 NO40 NO41 NO42 NO43 NO44 NO45 NO46 NO47 NO48 NO49 NO50 NO51 NO52 NO53 NO54 NO55 NO56 NO57 NO58 NO59 NO60 NO61 NO62 NO63 NO64 NO65 NO66 NO67 NO68 NO69 NO70 NO71 NO72 NO73 NO74 NO75 NO76 NO77 NO78 NO79 NO80 NO81 NO82 NO83 NO84 NO85 NO86 NO87 NO88 NO89 NO90 NO91 NO92 NO93 NO94 NO95 NO96 NO97 NO98 NO99 NO100 NO101 NO102 NO103 NO104 NO105 NO106 NO107 NO108 NO109 NO110 NO111 NO112 NO113 NO114 NO115 NO116 NO117 NO118 NO119 NO120 NO121 NO122 NO123 NO124 NO125 NO126 NO127 NO128 NO129 NO130 NO131 NO132 NO133 NO134 NO135 NO136 NO137 NO138 NO139 NO140 NO141 NO142 NO143 NO144 NO145 NO146 NO147 NO148 NO149 NO150 NO151 NO152 NO153 NO154 NO155 NO156 NO157 NO158 NO159 NO160 NO161 NO162 NO163 NO164 NO165 NO166 NO167 NO168 NO169 NO170 NO171 NO172 NO173 NO174 NO175 NO176 NO177 NO178 NO179 NO180 NO181 NO182 NO183 NO184 NO185 NO186 NO187 NO188 NO189 NO190 NO191 NO192 NO193 NO194 NO195 NO196 NO197 NO198 NO199 NO200 NO201 NO202 NO203 NO204 NO205 NO206 NO207 NO208 NO209 NO210 NO211 NO212 NO213 NO214 NO215 NO216 NO217 NO218 NO219 NO220 NO221 NO222 NO223 NO224 NO225 NO226 NO227 NO228 NO229 NO230 NO231 NO232 NO233 NO234 NO235 NO236 NO237 NO238 NO239 NO240 NO241 NO242 NO243 NO244 NO245 NO246 NO247 NO248 NO249 NO250 NO251 NO252 NO253 NO254 NO255 NO256 NO257 NO258 NO259 NO260 NO261 NO262 NO263 NO264 NO265 NO266 NO267 NO268 NO269 NO270 NO271 NO272 NO273 NO274 NO275 NO276 NO277 NO278 NO279 NO280 NO281 NO282 NO283 NO284 NO285 NO286 NO287 NO288 NO289 NO290 NO291 NO292 NO293 NO294 NO295 NO296 NO297 NO298 NO299 NO300 NO301 NO302 NO303 NO304 NO305 NO306 NO307 NO308 NO309 NO310 NO311 NO312 NO313 NO314 NO315 NO316 NO317 NO318 NO319 NO320 NO321 NO322 NO323 NO324 NO325 NO326 NO327 NO328 NO329 NO330 NO331 NO332 NO333 NO334 NO335 NO336 NO337 NO338 NO339 NO340 NO341 NO342 NO343 NO344 NO345 NO346 NO347 NO348 NO349 NO350 NO351 NO352 NO353 NO354 NO355 NO356 NO357 NO358 NO359 NO360 NO361 NO362 NO363 NO364 NO365 NO366 NO367 NO368 NO369 NO370 NO371 NO372 NO373 NO374 NO375 NO376 NO377 NO378 NO379 NO380 NO381 NO382 NO383 NO384 NO385 NO386 NO387 NO388 NO389 NO390 NO391 NO392 NO393 NO394 NO395 NO396 NO397 NO398 NO399 NO400 NO401 NO402 NO403 NO404 NO405 NO406 NO407 NO408 NO409 NO410 NO411 NO412 NO413 NO414 NO415 NO416 NO417 NO418 NO419 NO420 NO421 NO422 NO423 NO424 NO425 NO426 NO427 NO428 NO429 NO430 NO431 NO432 NO433 NO434 NO435 NO436 NO437 NO438 NO439 NO440 NO441 NO442 NO443 NO444 NO445 NO446 NO447 NO448 NO449 NO450 NO451 NO452 NO453 NO454 NO455 NO456 NO457 NO458 NO459 NO460 NO461 NO462 NO463 NO464 NO465 NO466 NO467 NO468 NO469 NO470 NO471 NO472 NO473 NO474 NO475 NO476 NO477 NO478 NO479 NO480 NO481 NO482 NO483 NO484 NO485 NO486 NO487 NO488 NO489 NO490 NO491 NO492 NO493 NO494 NO495 NO496 NO497 NO498 NO499 NO500 NO501 NO502 NO503 NO504 NO505 NO506 NO507 NO508 NO509 NO510 NO511 NO512 NO513 NO514 NO515 NO516 NO517 NO518 NO519 NO520 NO521 NO522 NO523 NO524 NO525 NO526 NO527 NO528 NO529 NO530 NO531 NO532 NO533 NO534 NO535 NO536 NO537 NO538 NO539 NO540 NO541 NO542 NO543 NO544 NO545 NO546 NO547 NO548 NO549 NO550 NO551 NO552 NO553 NO554 NO555 NO556 NO557 NO558 NO559 NO560 NO561 NO562 NO563 NO564 NO565 NO566 NO567 NO568 NO569 NO570 NO571 NO572 NO573 NO574 NO575 NO576 NO577 NO578 NO579 NO580 NO581 NO582 NO583 NO584 NO585 NO586 NO587 NO588 NO589 NO590 NO591 NO592 NO593 NO594 NO595 NO596 NO597 NO598 NO599 NO600 NO601 NO602 NO603 NO604 NO605 NO606 NO607 NO608 NO609 NO610 NO611 NO612 NO613 NO614 NO615 NO616 NO617 NO618 NO619 NO620 NO621 NO622 NO623 NO624 NO625 NO626 NO627 NO628 NO629 NO630 NO631 NO632 NO633 NO634 NO635 NO636 NO637 NO638 NO639 NO640 NO641 NO642 NO643 NO644 NO645 NO646 NO647 NO648 NO649 NO650 NO651 NO652 NO653 NO654 NO655 NO656 NO657 NO658 NO659 NO660 NO661 NO662 NO663 NO664 NO665 NO666 NO667 NO668 NO669 NO670 NO671 NO672 NO673 NO674 NO675 NO676 NO677 NO678 NO679 NO680 NO681 NO682 NO683 NO684 NO685 NO686 NO687 NO688 NO689 NO690 NO691 NO692 NO693 NO694 NO695 NO696 NO697 NO698 NO699 NO700 NO701 NO702 NO703 NO704 NO705 NO706 NO707 NO708 NO709 NO710 NO711 NO712 NO713 NO714 NO715 NO716 NO717 NO718 NO719 NO720 NO721 NO722 NO723 NO724 NO725 NO726 NO727 NO728 NO729 NO730 NO731 NO732 NO733 NO734 NO735 NO736 NO737 NO738 NO739 NO740 NO741 NO742 NO743 NO744 NO745 NO746 NO747 NO748 NO749 NO750 NO751 NO752 NO753 NO754 NO755 NO756 NO757 NO758 NO759 NO760 NO761 NO762 NO763 NO764 NO765 NO766 NO767 NO768 NO769 NO770 NO771 NO772 NO773 NO774 NO775 NO776 NO777 NO778 NO779 NO780 NO781 NO782 NO783 NO784 NO785 NO786 NO787 NO788 NO789 NO790 NO791 NO792 NO793 NO794 NO795 NO796 NO797 NO798 NO799 NO800 NO801 NO802 NO803 NO804 NO805 NO806 NO807 NO808 NO809 NO810 NO811 NO812 NO813 NO814 NO815 NO816 NO817 NO818 NO819 NO820 NO821 NO822 NO823 NO824 NO825 NO826 NO827 NO828 NO829 NO830 NO831 NO832 NO833 NO834 NO835 NO836 NO837 NO838 NO839 NO840 NO841 NO842 NO843 NO844 NO845 NO846 NO847 NO848 NO849 NO850 NO851 NO852 NO853 NO854 NO855 NO856 NO857 NO858 NO859 NO860 NO861 NO862 NO863 NO864 NO865 NO866 NO867 NO868 NO869 NO870 NO871 NO872 NO873 NO874 NO875 NO876 NO877 NO878 NO879 NO880 NO881 NO882 NO883 NO884 NO885 NO886 NO887 NO888 NO889 NO890 NO891 NO892 NO893 NO894 NO895 NO896 NO897 NO898 NO899 NO900 NO901 NO902 NO903 NO904 NO905 NO906 NO907 NO908 NO909 NO910 NO911 NO912 NO913 NO914 NO915 NO916 NO917 NO918 NO919 NO920 NO921 NO922 NO923 NO924 NO925 NO926 NO927 NO928 NO929 NO930 NO931 NO932 NO933 NO934 NO935 NO936 NO937 NO938 NO939 NO940 NO941 NO942 NO943 NO944 NO945 NO946 NO947 NO948 NO949 NO950 NO951 NO952 NO953 NO954 NO955 NO956 NO957 NO958 NO959 NO960 NO961 NO962 NO963 NO964 NO965 NO966 NO967 NO968 NO969 NO970 NO971 NO972 NO973 NO974 NO975 NO976 NO977 NO978 NO979 NO980 NO981 NO982 NO983 NO984 NO985 NO986 NO987 NO988 NO989 NO990 NO991 NO992 NO993 NO994 NO995 NO996 NO997 NO998 NO999 NO1000 NO1001 NO1002 NO1003 NO1004 NO1005 NO1006 NO1007 NO1008 NO1009 NO1010 NO1011 NO1012 NO1013 NO1014 NO1015 NO1016 NO1017 NO1018 NO1019 NO1020 NO1021 NO	API 304
API V1039	4	2,000	1" 7" 30"	NO10 NO11 NO12 NO13 NO14 NO15 NO16 NO17 NO18 NO19 NO20 NO21 NO22 NO23 NO24 NO25 NO26 NO27 NO28 NO29 NO30 NO31 NO32 NO33 NO34 NO35 NO36 NO37 NO38 NO39 NO40 NO41 NO42 NO43 NO44 NO45 NO46 NO47 NO48 NO49 NO50 NO51 NO52 NO53 NO54 NO55 NO56 NO57 NO58 NO59 NO60 NO61 NO62 NO63 NO64 NO65 NO66 NO67 NO68 NO69 NO70 NO71 NO72 NO73 NO74 NO75 NO76 NO77 NO78 NO79 NO80 NO81 NO82 NO83 NO84 NO85 NO86 NO87 NO88 NO89 NO90 NO91 NO92 NO93 NO94 NO95 NO96 NO97 NO98 NO99 NO100 NO101 NO102 NO103 NO104 NO105 NO106 NO107 NO108 NO109 NO110 NO111 NO112 NO113 NO114 NO115 NO116 NO117 NO118 NO119 NO120 NO121 NO122 NO123 NO124 NO125 NO126 NO127 NO128 NO129 NO130 NO131 NO132 NO133 NO134 NO135 NO136 NO137 NO138 NO139 NO140 NO141 NO142 NO143 NO144 NO145 NO146 NO147 NO148 NO149 NO150 NO151 NO152 NO153 NO154 NO155 NO156 NO157 NO158 NO159 NO160 NO161 NO162 NO163 NO164 NO165 NO166 NO167 NO168 NO169 NO170 NO171 NO172 NO173 NO174 NO175 NO176 NO177 NO178 NO179 NO180 NO181 NO182 NO183 NO184 NO185 NO186 NO187 NO188 NO189 NO190 NO191 NO192 NO193 NO194 NO195 NO196 NO197 NO198 NO199 NO200 NO201 NO202 NO203 NO204 NO205 NO206 NO207 NO208 NO209 NO210 NO211 NO212 NO213 NO214 NO215 NO216 NO217 NO218 NO219 NO220 NO221 NO222 NO223 NO224 NO225 NO226 NO227 NO228 NO229 NO230 NO231 NO232 NO233 NO234 NO235 NO236 NO237 NO238 NO239 NO240 NO241 NO242 NO243 NO244 NO245 NO246 NO247 NO248 NO249 NO250 NO251 NO252 NO253 NO254 NO255 NO256 NO257 NO258 NO259 NO260 NO261 NO262 NO263 NO264 NO265 NO266 NO267 NO268 NO269 NO270 NO271 NO272 NO273 NO274 NO275 NO276 NO277 NO278 NO279 NO280 NO281 NO282 NO283 NO284 NO285 NO286 NO287 NO288 NO289 NO290 NO291 NO292 NO293 NO294 NO295 NO296 NO297 NO298 NO299 NO300 NO301 NO302 NO303 NO304 NO305 NO306 NO307 NO308 NO309 NO310 NO311 NO312 NO313 NO314 NO315 NO316 NO317 NO318 NO319 NO320 NO321 NO322 NO323 NO324 NO325 NO326 NO327 NO328 NO329 NO330 NO331 NO332 NO333 NO334 NO335 NO336 NO337 NO338 NO339 NO340 NO341 NO342 NO343 NO344 NO345 NO346 NO347 NO348 NO349 NO350 NO351 NO352 NO353 NO354 NO355 NO356 NO357 NO358 NO359 NO360 NO361 NO362 NO363 NO364 NO365 NO366 NO367 NO368 NO369 NO370 NO371 NO372 NO373 NO374 NO375 NO376 NO377 NO378 NO379 NO380 NO381 NO382 NO383 NO384 NO385 NO386 NO387 NO388 NO389 NO390 NO391 NO392 NO393 NO394 NO395 NO396 NO397 NO398 NO399 NO400 NO401 NO402 NO403 NO404 NO405 NO406 NO407 NO408 NO409 NO410 NO411 NO412 NO413 NO414 NO415 NO416 NO417 NO418 NO419 NO420 NO421 NO422 NO423 NO424 NO425 NO426 NO427 NO428 NO429 NO430 NO431 NO432 NO433 NO434 NO435 NO436 NO437 NO438 NO439 NO440 NO441 NO442 NO443 NO444 NO445 NO446 NO447 NO448 NO449 NO450 NO451 NO452 NO453 NO454 NO455 NO456 NO457 NO458 NO459 NO460 NO461 NO462 NO463 NO464 NO465 NO466 NO467 NO468 NO469 NO470 NO471 NO472 NO473 NO474 NO475 NO476 NO477 NO478 NO479 NO480 NO481 NO482 NO483 NO484 NO485 NO486 NO487 NO488 NO489 NO490 NO491 NO492 NO493 NO494 NO495 NO496 NO497 NO498 NO499 NO500 NO501 NO502 NO503 NO504 NO505 NO506 NO507 NO508 NO509 NO510 NO511 NO512 NO513 NO514 NO515 NO516 NO517 NO518 NO519 NO520 NO521 NO522 NO523 NO524 NO525 NO526 NO527 NO528 NO529 NO530 NO531 NO532 NO533 NO534 NO535 NO536 NO537 NO538 NO539 NO540 NO541 NO542 NO543 NO544 NO545 NO546 NO547 NO548 NO549 NO550 NO551 NO552 NO553 NO554 NO555 NO556 NO557 NO558 NO559 NO560 NO561 NO562 NO563 NO564 NO565 NO566 NO567 NO568 NO569 NO570 NO571 NO572 NO573 NO574 NO575 NO576 NO577 NO578 NO579 NO580 NO581 NO582 NO583 NO584 NO585 NO586 NO587 NO588 NO589 NO590 NO591 NO592 NO593 NO594 NO595 NO596 NO597 NO598 NO599 NO600 NO601 NO602 NO603 NO604 NO605 NO606 NO607 NO608 NO609 NO610 NO611 NO612 NO613 NO614 NO615 NO616 NO617 NO618 NO619 NO620 NO621 NO622 NO623 NO624 NO625 NO626 NO627 NO628 NO629 NO630 NO631 NO632 NO633 NO634 NO635 NO636 NO637 NO638 NO639 NO640 NO641 NO642 NO643 NO644 NO645 NO646 NO647 NO648 NO649 NO650 NO651 NO652 NO653 NO654 NO655 NO656 NO657 NO658 NO659 NO660 NO661 NO662 NO663 NO664 NO665 NO666 NO667 NO668 NO669 NO670 NO671 NO672 NO673 NO674 NO675 NO676 NO677 NO678 NO679 NO680 NO681 NO682 NO683 NO684 NO685 NO686 NO687 NO688 NO689 NO690 NO691 NO692 NO693 NO694 NO695 NO696 NO697 NO698 NO699 NO700 NO701 NO702 NO703 NO704 NO705 NO706 NO707 NO708 NO709 NO710 NO711 NO712 NO713 NO714 NO715 NO716 NO717 NO718 NO719 NO720 NO721 NO722 NO723 NO724 NO725 NO726 NO727 NO728 NO729 NO730 NO731 NO732 NO733 NO734 NO735 NO736 NO737 NO738 NO739 NO740 NO741 NO742 NO743 NO744 NO745 NO746 NO747 NO748 NO749 NO750 NO751 NO752 NO753 NO754 NO755 NO756 NO757 NO758 NO759 NO760 NO761 NO762 NO763 NO764 NO765 NO766 NO767 NO768 NO769 NO770 NO771 NO772 NO773 NO774 NO775 NO776 NO777 NO778 NO779 NO780 NO781 NO782 NO783 NO784 NO785 NO786 NO787 NO788 NO789 NO790 NO791 NO792 NO793 NO794 NO795 NO796 NO797 NO798 NO799 NO800 NO801 NO802 NO803 NO804 NO805 NO806 NO807 NO808 NO809 NO810 NO811 NO812 NO813 NO814 NO815 NO816 NO817 NO818 NO819 NO820 NO821 NO822 NO823 NO824 NO825 NO826 NO827 NO828 NO829 NO830 NO831 NO832 NO833 NO834 NO835 NO836 NO837 NO838 NO839 NO840 NO841 NO842 NO843 NO844 NO845 NO846 NO847 NO848 NO849 NO850 NO851 NO852 NO853 NO854 NO855 NO856 NO857 NO858 NO859 NO860 NO861 NO862 NO863 NO864 NO865 NO866 NO867 NO868 NO869 NO870 NO871 NO872 NO873 NO874 NO875 NO876 NO877 NO878 NO879 NO880 NO881 NO882 NO883 NO884 NO885 NO886 NO887 NO888 NO889 NO890 NO891 NO892 NO893 NO894 NO895 NO896 NO897 NO898 NO899 NO900 NO901 NO902 NO903 NO904 NO905 NO906 NO907 NO908 NO909 NO910 NO911 NO912 NO913 NO914 NO915 NO916 NO917 NO918 NO919 NO920 NO921 NO922 NO923 NO924 NO925 NO926 NO927 NO928 NO929 NO930 NO931 NO932 NO933 NO934 NO935 NO936 NO937 NO938 NO939 NO940 NO941 NO942 NO943 NO944 NO945 NO946 NO947 NO948 NO949 NO950 NO951 NO952 NO953 NO954 NO955 NO956 NO957 NO958 NO959 NO960 NO961 NO962 NO963 NO964 NO965 NO966 NO967 NO968 NO969 NO970 NO971 NO972 NO973 NO974 NO975 NO976 NO977 NO978 NO979 NO980 NO981 NO982 NO983 NO984 NO985 NO986 NO987 NO988 NO989 NO990 NO991 NO992 NO993 NO994 NO995 NO996 NO997 NO998 NO999 NO1000 NO1001 NO1002 NO1003 NO1004 NO1005 NO1006 NO1007 NO1008 NO1009 NO1010 NO1011 NO1012 NO1013 NO1014 NO1015 NO1016 NO1017 NO1018 NO1019 NO1020 NO1021 NO	API 304
API V1040	4	2,000	1" 7" 30"	NO10 NO11 NO12 NO13 NO14 NO15 NO16 NO17 NO18 NO19 NO20 NO21 NO22 NO23 NO24 NO25 NO26 NO27 NO28 NO29 NO30 NO31 NO32 NO33 NO34 NO35 NO36 NO37 NO38 NO39 NO40 NO41 NO42 NO43 NO44 NO45 NO46 NO47 NO48 NO49 NO50 NO51 NO52 NO53 NO54 NO55 NO56 NO57 NO58 NO59 NO60 NO61 NO62 NO63 NO64 NO65 NO66 NO67 NO68 NO69 NO70 NO71 NO72 NO73 NO74 NO75 NO76 NO77 NO78 NO79 NO80 NO81 NO82 NO83 NO84 NO85 NO86 NO87 NO88 NO89 NO90 NO91 NO92 NO93 NO94 NO95 NO96 NO97 NO98 NO99 NO100 NO101 NO102 NO103 NO104 NO105 NO106 NO107 NO108 NO109 NO110 NO111 NO112 NO113 NO114 NO115 NO116 NO117 NO118 NO119 NO120 NO121 NO122 NO123 NO124 NO125 NO126 NO127 NO128 NO129 NO130 NO131 NO132 NO133 NO134 NO135 NO136 NO137 NO138 NO139 NO140 NO141 NO142 NO143 NO144 NO145 NO146 NO147 NO148 NO149 NO150 NO151 NO152 NO153 NO154 NO155 NO156 NO157 NO158 NO159 NO160 NO161 NO162 NO163 NO164 NO165 NO166 NO167 NO168 NO169 NO170 NO171 NO172 NO173 NO174 NO175 NO176 NO177 NO178 NO179 NO180 NO181 NO182 NO183 NO184 NO185 NO186 NO187 NO188 NO189 NO190 NO191 NO192 NO193 NO194 NO195 NO196 NO197 NO198 NO199 NO200 NO201 NO202 NO203 NO204 NO205 NO206 NO207 NO208 NO209 NO210 NO211 NO212 NO213 NO214 NO215 NO216 NO217 NO218 NO219 NO220 NO221 NO222 NO223 NO224 NO225 NO226 NO227 NO228 NO229 NO230 NO231 NO232 NO233 NO234 NO235 NO236 NO237 NO238 NO239 NO240 NO241 NO242 NO243 NO244 NO245 NO246 NO247 NO248 NO249 NO250 NO251 NO252 NO253 NO254 NO255 NO256 NO257 NO258 NO259 NO260 NO261 NO262 NO263 NO264 NO265 NO266 NO267 NO268 NO269 NO270 NO271 NO272 NO273 NO274 NO275 NO276 NO277 NO278 NO279 NO280 NO281 NO282 NO283 NO284 NO285 NO286 NO287 NO288 NO289 NO290 NO291 NO292 NO293 NO294 NO295 NO296 NO297 NO298 NO299 NO300 NO301 NO302 NO303 NO304 NO305 NO306 NO307 NO308 NO309 NO310 NO311 NO312 NO313 NO314 NO315 NO316 NO317 NO318 NO319 NO320 NO321 NO322 NO323 NO324 NO325 NO326 NO327 NO328 NO329 NO330 NO331 NO332 NO333 NO334 NO335 NO336 NO337 NO338 NO339 NO340 NO341 NO342 NO343 NO344 NO345 NO346 NO347 NO348 NO349 NO350 NO351 NO352 NO353 NO354 NO355 NO356 NO357 NO358 NO359 NO360 NO361 NO362 NO363 NO364 NO365 NO366 NO367 NO368 NO369 NO370 NO371 NO372 NO373 NO374 NO375 NO376 NO377 NO378 NO379 NO380 NO381 NO382 NO383 NO384 NO385 NO386 NO387 NO388 NO389 NO390 NO391 NO392 NO393 NO394 NO395 NO396 NO397 NO398 NO399 NO400 NO401 NO402 NO403 NO404 NO405 NO406 NO407 NO408 NO409 NO410 NO411 NO412 NO413 NO414 NO415 NO416 NO417 NO418 NO419 NO420 NO421 NO422 NO423 NO424 NO425 NO426 NO427 NO428 NO429 NO430 NO431 NO432 NO433 NO434 NO435 NO436 NO437 NO438 NO439 NO440 NO441 NO442 NO443 NO444 NO445 NO446 NO447 NO448 NO449 NO450 NO451 NO452 NO453 NO454 NO455 NO456 NO457 NO458 NO459 NO460 NO461 NO462 NO463 NO464 NO465 NO466 NO467 NO468 NO469 NO470 NO471 NO472 NO473 NO474 NO475 NO476 NO477 NO478 NO479 NO480 NO481 NO482 NO483 NO484 NO485 NO486 NO487 NO488 NO489 NO490 NO491 NO492 NO493 NO494 NO495 NO496 NO497 NO498 NO499 NO500 NO501 NO502 NO503 NO504 NO505 NO506 NO507 NO508 NO509 NO510 NO511 NO512 NO513 NO514 NO515 NO516 NO517 NO518 NO519 NO520 NO521 NO522 NO523 NO524 NO525 NO526 NO527 NO528 NO529 NO530 NO531 NO532 NO533 NO534 NO535 NO536 NO537 NO538 NO539 NO540 NO541 NO542 NO543 NO544 NO545 NO546 NO547 NO548 NO549 NO550 NO551 NO552 NO553 NO554 NO555 NO556 NO557 NO558 NO559 NO560 NO561 NO562 NO563 NO564 NO565 NO566 NO567 NO568 NO569 NO570 NO571 NO572 NO573 NO574 NO575 NO576 NO577 NO578 NO579 NO580 NO581 NO582 NO583 NO584 NO585 NO586 NO587 NO588 NO589 NO590 NO591 NO592 NO593 NO594 NO595 NO596 NO597 NO598 NO599 NO600 NO601 NO602 NO603 NO604 NO605 NO606 NO607 NO608 NO609 NO610 NO611 NO612 NO613 NO614 NO615 NO616 NO617 NO618 NO619 NO620 NO621 NO622 NO623 NO624 NO625 NO626 NO627 NO628 NO629 NO630 NO631 NO632 NO633 NO634 NO635 NO636 NO637 NO638 NO639 NO640 NO641 NO642 NO643 NO644 NO645 NO646 NO647 NO648 NO649 NO650 NO651 NO652 NO653 NO654 NO655 NO656 NO657 NO658 NO659 NO660 NO661 NO662 NO663 NO664 NO665 NO666 NO667 NO668 NO669 NO670 NO671 NO672 NO673 NO674 NO675 NO676 NO677 NO678 NO679 NO680 NO681 NO682 NO683 NO684 NO685 NO686 NO687 NO688 NO689 NO690 NO691 NO692 NO693 NO694 NO695 NO696 NO697 NO698 NO699 NO700 NO701 NO702 NO703 NO704 NO705 NO706 NO707 NO708 NO709 NO710 NO711 NO712 NO713 NO714 NO715 NO716 NO717 NO718 NO719 NO720 NO721 NO722 NO723 NO724 NO725 NO726 NO727 NO728 NO729 NO730 NO731 NO732 NO733 NO734 NO735 NO736 NO737 NO738 NO739 NO740 NO741 NO742 NO743 NO744 NO745 NO746 NO747 NO748 NO749 NO750 NO751 NO752 NO753 NO754 NO755 NO756 NO757 NO758 NO759 NO760 NO761 NO762 NO763 NO764 NO765 NO766 NO767 NO768 NO769 NO770 NO771 NO772 NO773 NO774 NO775 NO776 NO777 NO778 NO779 NO780 NO781 NO782 NO783 NO784 NO785 NO786 NO787 NO788 NO789 NO790 NO791 NO792 NO793 NO794 NO795 NO796 NO797 NO798 NO799 NO800 NO801 NO802 NO803 NO804 NO805 NO806 NO807 NO808 NO809 NO810 NO811 NO812 NO813 NO814 NO815 NO816 NO817 NO818 NO819 NO820 NO821 NO822 NO823 NO824 NO825 NO826 NO827 NO828 NO829 NO830 NO831 NO832 NO833 NO834 NO835 NO836 NO837 NO838 NO839 NO840 NO841 NO842 NO843 NO844 NO845 NO846 NO847 NO848 NO849 NO850 NO851 NO852 NO853 NO854 NO855 NO856 NO857 NO858 NO859 NO860 NO861 NO862 NO863 NO864 NO865 NO866 NO867 NO868 NO869 NO870 NO871 NO872 NO873 NO874 NO875 NO876 NO877 NO878 NO879 NO880 NO881 NO882 NO883 NO884 NO885 NO886 NO887 NO888 NO889 NO890 NO891 NO892 NO893 NO894 NO895 NO896 NO897 NO898 NO899 NO900 NO901 NO902 NO903 NO904 NO905 NO906 NO907 NO908 NO909 NO910 NO911 NO912 NO913 NO914 NO915 NO916 NO917 NO918 NO919 NO920 NO921 NO922 NO923 NO924 NO925 NO926 NO927 NO928 NO929 NO930 NO931 NO932 NO933 NO934 NO935 NO936 NO937 NO938 NO939 NO940 NO941 NO942 NO943 NO944 NO945 NO946 NO947 NO948 NO949 NO950 NO951 NO952 NO953 NO954 NO955 NO956 NO957 NO958 NO959 NO960 NO961 NO962 NO963 NO964 NO965 NO966 NO967 NO968 NO969 NO970 NO971 NO972 NO973 NO974 NO975 NO976 NO977 NO978 NO979 NO980 NO981 NO982 NO983 NO984 NO985 NO986 NO987 NO988 NO989 NO990 NO991 NO992 NO993 NO994 NO995 NO996 NO997 NO998 NO999 NO1000 NO1001 NO1002 NO1003 NO1004 NO1005 NO1006 NO1007 NO1008 NO1009 NO1010 NO1011 NO1012 NO1013 NO1014 NO1015 NO1016 NO1017 NO1018 NO1019 NO1020 NO1021 NO	API 304
API V1041	4	2,000	1" 7" 30"	NO10 NO11 NO12 NO13 NO14 NO15 NO16 NO17 NO18 NO19 NO20 NO21 NO22 NO23 NO24 NO25 NO26 NO27 NO28 NO29 NO30 NO31 NO32 NO33 NO34 NO35 NO36 NO37 NO38 NO39 NO40 NO41 NO42 NO43 NO44 NO45 NO46 NO47 NO48 NO49 NO50 NO51 NO52 NO53 NO54 NO55 NO56 NO57 NO58 NO59 NO60 NO61 NO62 NO63 NO64 NO65 NO66 NO67 NO68 NO69 NO7	



		REF	λ	$\frac{\lambda}{\sigma_{\text{ref}}}$	BP	κ	γ	PMOS	TMOS
API-VSR		250 nm, 400 nm 250 nm, 400 nm 250 nm, 400 nm 250 nm, 400 nm	0.12 0.12 0.12 0.12	0.01 0.01 0.01 0.01	0.0 0.0 0.0 0.0	1.0 1.0 1.0 1.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	
API-VG		250 nm, 400 nm 250 nm, 400 nm 250 nm, 400 nm 250 nm, 400 nm	0.12 0.12 0.12 0.12	0.01 0.01 0.01 0.01	0.0 0.0 0.0 0.0	1.0 1.0 1.0 1.0	0.0 0.0 0.0 0.0	0.0 0.0 0.0 0.0	
API-PAC		250 nm, 400 nm	0.12	0.01	1.0	0.0	0.0	0.0	

REF.	L	A (P.C.)	SP	X	Y	PM25	TM25
------	---	-------------	----	---	---	------	------

27941 SAPU 556		
27942 SAPU 556		



Laydown-style Threading bars		Ø	F ₁	F ₂	E	N
	Alu20000000-6	1.500	0,990	6,000	14,000	3,000
	Alu20000000-6	1.750	1,070	6,000	16,000	3,000
	Alu20000000-6	2.000	1,150	6,000	18,000	3,000
	Alu20000000-6	2.250	1,230	6,000	20,000	3,000
	Alu20000000-6	2.500	1,300	6,000	22,000	3,000
	Alu20000000-6	2.750	1,370	6,000	24,000	3,000
	Alu20000000-6	1.000	1,200	1,200	14,000	3,000
	Alu20000000-6	1.250	1,250	1,250	16,000	3,000
	Alu20000000-6	1.500	1,300	1,300	18,000	3,000
	Alu20000000-6	1.750	1,350	1,350	20,000	3,000
	Alu20000000-6	2.000	1,400	1,400	22,000	3,000
	Alu20000000-6	2.250	1,450	1,450	24,000	3,000

REF.						
AJ01-007FM-4	1676	2022	1488	5124	5128	
AJ01-007FM-4	1676	2022	1488	5124	5128	
AJ01-007FM-4	1676	2022	1488	5124	5128	
AJ01-007FM-4	1676	2022	1488	5124	5128	
AJ01-007FM-5	1677	2027	1488	5103	5104	
AJ01-007FM-5	1677	2027	1488	5103	5104	
AJ01-007FM-5	1677	2027	1488	5103	5104	
AJ01-007FM-5	1677	2027	1488	5103	5104	

SELECT MODE	API-V5	API-FAC	API-ROUND	API-CRIBING	API-BUTTRES	API-VAR	API-GUAGES
							
33	220W SAPI 100 220W SAPI 204 220W SAPI 404 220W SAPI 708		220W SAPI 100 220W 100S API	220W-BELC 220W-BELC	220W SAPI 2.0 220W SAPI 2.0	220W KUM 220W KUM 220W KUM	
37	220W SAPI 100 220W SAPI 104 220W SAPI 206 220W SAPI 358	220W FAC					220W ELI-HED 220W ELI-HED 220W 3.0, HED 220W 3.0, HED

- Normally available for immediate delivery
- Only available in a limited quantity

CANELA
10