Churchill
Abstechsysteme

Churchill parting off systems

Churchill systèmes de tronçonnage

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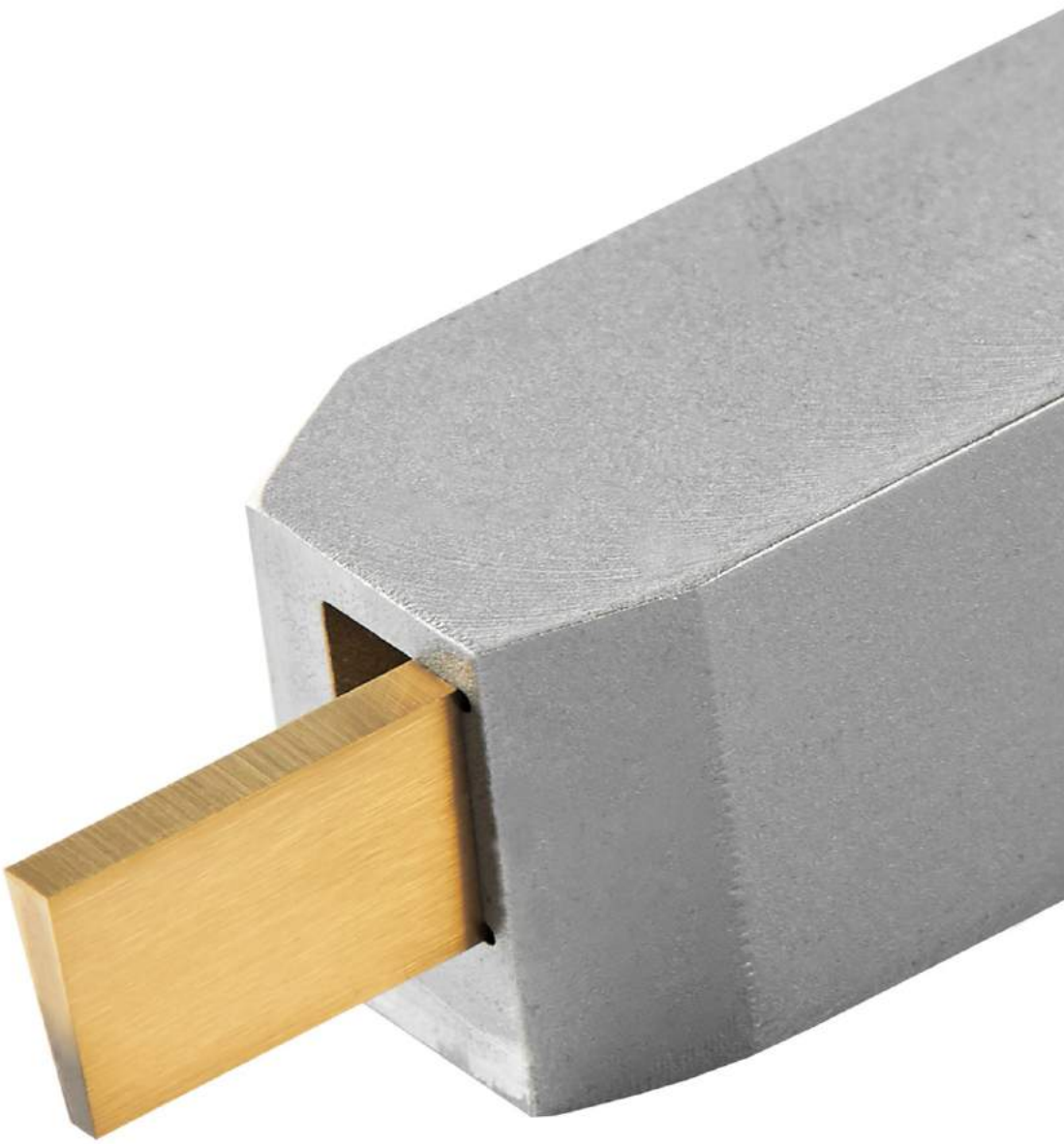

Product Range

Alliance Global UK Ltd

TOOL HOLDERS

- Tool holder designs depending on every specific CNC & screw machines
- Recommended & implemented by various OEM‘s
- Wide range for every CNC or manual turning machine fitted with non-standard, as well as VDI & ISO tool stations
- Cut-off/grooving - very close to spindle, sub-spindle OR pick up
- Solutions based on experience & innovation in a specialised field

EMPIRE BLADES

- Most economical proposition
- T-section - hollow ground top surface-along the full length of the tool, collapses the chips, creating easy chip flow, provides adequate clearance & eliminates the need of back taper
- Regrinding is quick & easy, carried out on the front surface only
- Available in full length HSS, solid carbide, Mode A (extra chip breaker on top) & micrograin (double ended carbide regrindable tips)
- Available in metric dimensions & inches
- Available in various coatings for different material cutting
- Cut off/grooving - very close to spindle, sub -spindle OR pick-up

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Product Range

Alliance Global UK Ltd

TWINTIP BLADES

- Rigid, quick change, throw-away carbide tip tool (double side)
- Comprises two pre-formed carbide tips permanantly bonded to a tool steel shank
- One tool performance - parting-off as well as grooving, copying & facing
- Cut off/grooving - very close to spindle, sub-spindle OR pick-up
- Various geometries & coatings for different material cuttings
- All risks of accidents due to tips flying off and breakage OR damage to holders is completely eliminated
- Superior to all other systems implying inserts whether self-grip or clamped

VARIOUS CLAMPING OPTIONS

- WL, CL & WT clamps
- Can locate Twintips & Empire blades in the same holder by just changing the clamps

ST SYSTEM

- Manufactured from tool steel hardened to HRc 40
- Fully regrindable blades available as HSS, solid carbide, Mode A
- Constant profile blades with 2 deg 30´ side clearance
- High precision profile of the blade pocket insures accurate location
- Available in LH & RH with various clamping types
- Cut- off/grooving - very close to spindle, sub-spindle OR pick-up
- Available in various coatings for different material cuttings

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TOOL HOLDERS

FOR CNC LATHES, MULTI SPINDLE AND SINGLE SPINDLE AUTOMATICS

Alliance Global UK Ltd

Quality is the determining factor for tooling reliability and the total satisfaction of the end user. Our involvement in this area has always been absolute.

A very wide range of tool holders makes it possible to tool any type of turning machine. Machines fitted with non-standard, as well as VDI and ISO tool stations, can all be accommodated. Data sheets listing tooling available for any specific make of machine tool are available on request.

The solutions that we propose help our customers maximise their productivity and thus profitability. Solutions based on experience, innovation and leadership in a specialised field.

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TOOL HOLDERS

FOR CNC LATHES, MULTI SPINDLE AND SINGLE SPINDLE AUTOMATICS













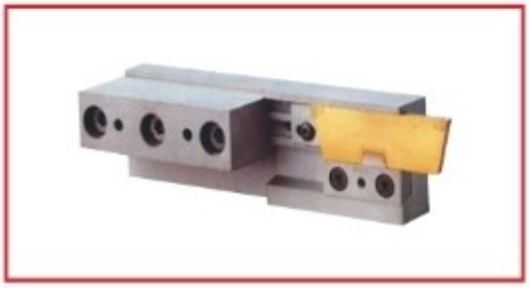


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REGRINDABLE EMPIRE BLADES

Alliance Global UK Ltd

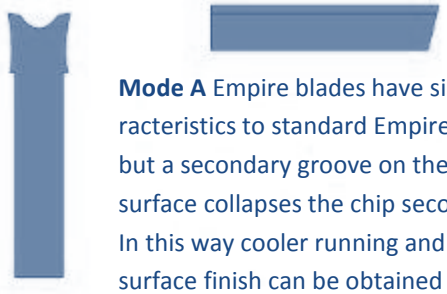
Classic blade Empire blade

Empire blades feature a unique T-section and are ground along the full length of the tool. The hollow ground top surface collapses the chip, creating easy chip flow. The hollow ground sides provide adequate clearance and eliminate the need for backtaper. This geometry ensures a cooler running blade, resulting in outstanding tool life and at the same time producing an excellent surface finish. Regrinding is quick and easy, carried out on the front face only with no need for chip breaker or clearance grinding. The quality of regrind is therefore consistant, ensuring equally consistant performance from the tool. The great number of cutting edges obtained from each blade makes for a very economical proposition.

HSS BLADES

Standard profile

Mode A profile



Mode A Empire blades have similar characteristics to standard Empire blades but a secondary groove on the top surface collapses the chip second time. In this way cooler running and a better surface finish can be obtained on materials that do not chip readily (for example 100Cr6, aluminium alloys)

HSS-Grades	
EMPRITE	HSS C=0,8 Co=12
SUPER EMPRITE	+ TiN coating
EMPRITE TCN	+TiCN based coating
EMPRITE CR	+Chromium based coating

Metric Blades

Reference	Width mm	Height mm	Length mm
PM1N *	1,0	12	90
PM1 *	1,6	12	115
PM2N *	2,0	12	115
PM2 *	2,5	12	115
PM3S *	3,0	12	115
PM3N1 *	1,0	17	125
PM3N1.6 *	1,6	17	125
PM3N2 *	2,0	17	125
PM3N *	2,5	17	125
PM3 *	3,0	17	125
PM4 *	4,0	17	125
PM5S	5,0	17	125
PM5X2.5 *	2,5	22	150
PM5X *	3,2	22	150
PM5N *	4,0	22	150
PM5	5,0	22	150
PM8X *	3,2	28	165
PM8N *	4,0	28	165
PM8 *	5,0	28	165

* = also Mode A

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REGRINDABLE EMPIRE BLADES

Alliance Global UK Ltd

HSS AND SINTERED HSS BLADES

Standard profile

HSS and sintered HSS grades for inch blades	
COBALT	HSS C=0,9 Co=8
COBALT TiN	+ TiN coating
COBALT TCN	+TiCN based coating
EV	HSS C=1,2 V=3,2
CAST ALLOY	Sintered HSS C=3 W=10 Co=47

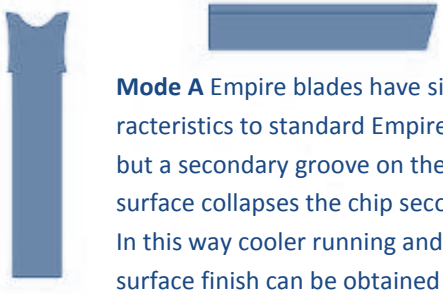
Inch blades

Reference	Width mm	Height mm	Length mm
P1	1,6	12	115
P2N	2,0	12	115
P2	2,4	12	115
P3S	3,2	12	115
P3N	2,4	17	125
P3	3,2	17	125
P4	4,0	17	125
P5S	4,8	17	125
P5X	3,2	22	150
P5N	4,0	22	150
P5	4,8	22	150
P8X	3,2	28	165
P8N	4,0	28	165
P8	4,8	28	165

CARBIDE BLADES

Standard profile

Mode A profile



Mode A Empire blades have similar characteristics to standard Empire blades but a secondary groove on the top surface collapses the chip second time. In this way cooler running and a better surface finish can be obtained on materials that do not chip readily (for example 100Cr6, aluminium alloys)

Solid carbide blade grades	
VHM1	Micrograin carbide
VHM1 TiCN	+ TiN coating
VHM1 TCN	+TiCN based coating

Solid carbide blades

Reference	Width mm	Height mm	Length mm
PM1N	1,0	12	90
PM1 *	1,6	12	115
PM2N *	2,0	12	115
PM2 *	2,5	12	115
PM3S *	3,0	12	115
PM3N1	1,0	17	125
PM3N1,5 *	1,5	17	125
PM3N2 *	2,0	17	125
PM3N *	2,5	17	125
PM3 *	3,0	17	125
PM4 *	4,0	17	125

* = also Mode A

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REGRINDABLE EMPIRE BLADES

Alliance Global UK Ltd

Standard profile

Single-ended carbide blades

Reference	Width mm	Height mm	Length mm
P1	1,6	12	115
P2N	2,0	12	115
P2	2,4	12	115
P3S	3,2	12	115
P3N	2,4	17	125
P3	3,2	17	125
P4	4,0	17	125
P5S	4,8	17	125
P5X	3,2	22	150
P5N	4,0	22	150
P5	4,8	22	150
P8X	3,2	28	165
P8N	4,0	28	165
P8	4,8	28	165

Single-ended carbide blade grades	
C2	K10-K20 carbide
C2 TiN	+ TiN coating
C2 TCN	+TiCN based coating
C6	P20 carbide
C6 TiN	+ TiN coating
C6 TCN	+TiCN based coating

Standard profile

Mode A profile

Mode A Empire blades have similar characteristics to standard Empire blades but a secondary groove on the top surface collapses the chip second time. In this way cooler running and a better surface finish can be obtained on materials that do not chip readily (for example 100Cr6, aluminium alloys)

Double-ended carbide blades

Reference	Width mm	Height mm	Length mm
P1 *	1,6	12	115
P2N *	2,0	12	115
P2 *	2,4	12	115
P3S *	3,2	12	115
P3N1.6 *	1,6	17	125
P3N2 *	2,0	17	125
P3N *	2,4	17	125
P3 *	3,2	17	125
P4 *	4,0	17	125
P5S	4,8	17	125
P5X *	3,2	22	150
P5N *	4,0	22	150
P5	4,8	22	150
P8X	3,2	28	165
P8N	4,0	28	165
P8	4,8	28	165

* = also Mode A

Solid carbide blade grades	
VHM1	Micrograin carbide
VHM1 TiCN	+ TiN coating
VHM1 TCN	+TiCN based coating

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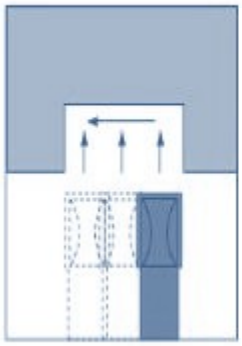
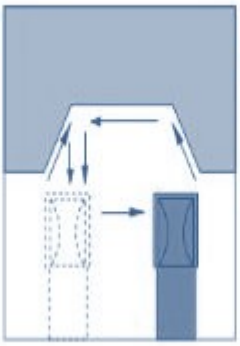
TWINTIP BLADES

Alliance Global UK Ltd

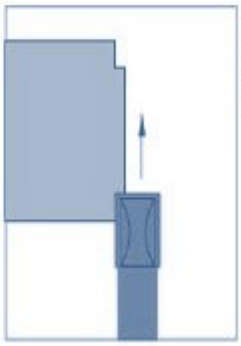
Twintip is a quick change throw-away carbide tool. A completely new concept, Twintip comprises two pre-formed carbide tips bonded permanently to a tool steel shank. The rigidity of the tool is exceptional, superior to all other systems employing inserts whether self-grip or clamped. All risks of accident due to tips flying off and breakage or damage to holders is completely eliminated. The robustness of the system allows the one tool to perform grooving, copying and facing operations as well parting-off. Because of its reliability and the absence of vulnerable tip carrier common to all other systems, Twintip provides a sensible solution to reducing the cost of grooving and part-off operations.



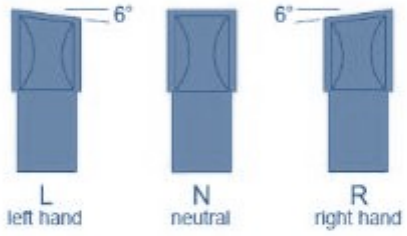
On a CNC lathe, grooves can be achieved by making a number of cuts to produce the width required and facing across the bottom.

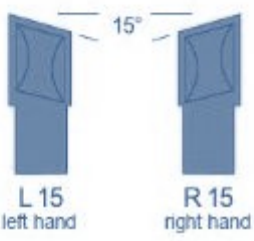


A chamfer can be generated by a copying operation, after the groove has been operated, using the same tool.



Twintip can also be used for face grooving at the bar end





Standard geometry

References		Width mm	Height mm	Length mm
7516	L,N,R	1,6	7,5	58
7520	L,N,R	2,0	7,5	58
1216	L,N,R	1,6	12	58
1220	L,N,R	2,0	12	58
1230	L,N,R	3,0	12	64
1716	L,N,R	1,6	17	58
1720	L,N,R	2,0	17	58
1720+20	L,N,R	2,0	17	78
1730	L,N,R	3,0	17	64
1730+20	L,N,R	3,0	17	84
1740	L,N,R	4,0	17	79
1750	L,N,R	5,0	17	76
2220	L,N,R	2,0	22	58
2230	L,N,R	3,0	22	64
2230+20	L,N,R	3,0	22	84
2240	L,N,R	4,0	22	79
2240+20	L,N,R	4,0	22	90
2250	L,N,R	5,0	22	76
2250+40	L,N,R	5,0	22	116
2260	N	6,0	22	82
2260+40	N	6,0	22	122

References		Width mm	Height mm	Length mm
1220	L15,R15	2	12	58
1230	L15,R15	3	12	64
1720	L15,R15	2	17	58
1730	L15,R15	3	17	64
2230	L15,R15	3	22	64
2230+20	L15,R15	3	22	84

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TWINTIP BLADES

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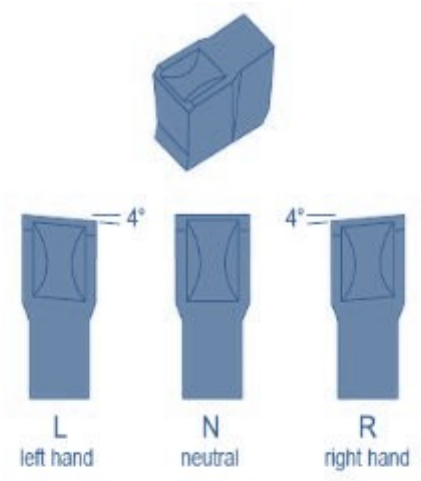
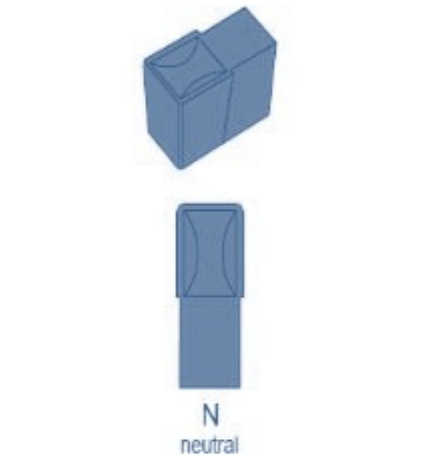


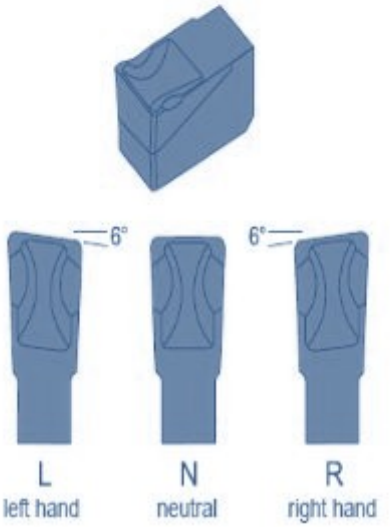
Geometry A

References		Width mm	Height mm	Length mm
A1220	L,N,R	2	12	58
A1230	L,N,R	3	12	64
A1720	L,N,R	2	17	58
A1730	L,N,R	3	17	64
A1740	L,N,R	4	17	70
A1750	N	5	17	76
A2230	L,N,R	3	22	64
A2230+20	L,N,R	3	22	84
A2240	L,N,R	4	22	70
A2240+20	L,N,R	4	22	90
A2250	N	5	22	76



Geometry B

References		Width mm	Height mm	Length mm
B1220	N	2	12	58
B1230	N	3	12	64
B1716	N	1,6	17	58
B1720	N	2	17	58
B1730	N	3	17	64
B1740	N	4	17	70
B1750	N	5	17	76
B2230	N	3	22	64
B2230+20	N	3	22	84
B2240	N	4	22	70
B2240+20	N	4	22	90
B2250	N	5	22	76
B2260	N	6	22	82



Geometry D

References		Width mm	Height mm	Length mm
D7520	L,N,R	2	7,5	58
D1220	L,N,R	2	12	58
D1224	N	2,4	12	64
D1230	L,N,R	3	12	64
D1720	L,N,R	2	17	58
D1720+20	L,N,R	2	17	78
D1724	N	2,4	17	64
D1730	L,N,R	3	17	64
D1730+20	L,N,R	3	17	84
D1740	L,N,R	4	17	70
D2220	L,N,R	2	22	58
D2224	N	2,4	22	64
D2230	L,N,R	3	22	64
D2230+20	L,N,R	3	22	84
D2240	L,N,R	4	22	70
D2240+20	L,N,R	4	22	90

Grades	ISO Equivalent
XG4	P35-P45
XG6	P25-P35
C2*	K10-K20
TiN	P40+ TiN coating
XTCN	P40+ TiCN based coating
XPN	P40+ Al based coating

Grades	ISO Equivalent
XG4253	P40+ AlSi based coating
XG4230	P40+ AlCr based coating
XG6G	P30+ Al based coating
XC6253	P30+ AlSi based coating
XG6230	P30+ AlCr based coating

* Available in standard geometry 12 and 17 mm heigts

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TWINTIP BLADES

Recommended speeds and feeds for Twintips

	SPEED (m/min)					FEED (mm/rev.)	
MATERIALS	XG4/XG6	C2	TiN	XTCN	XPN/XG4253 XG6/XG6253	Width 2	Width 3-4
CARBON STEELS							
0,20% C	80 - 110		110 - 180			0,05 - 0,10	0,06 - 0,15
0,45% C	65 - 100		100 - 160			0,05 - 0,10	0,06 - 0,15
0,85% C	50 - 80		70 - 140			0,05 - 0,08	0,06 - 0,10
ALLOY STEELS							
< 0,30% C	40 - 80		70 - 120			0,05 - 0,10	0,06 - 0,15
> 0,30% C	40 - 80		40 - 80			0,05 - 0,08	0,06 - 0,10
STAINLESS STEELS							
Martensitic 400	50 - 90		60 - 120	60 - 140	60 - 140	0,05 - 0,08	0,06 - 0,12
Austenitic 300	60 - 100		80 - 130	80 - 150	80 - 150	0,05 - 0,08	0,06 - 0,12
BRONZE BRASS		80 - 150		100 - 200		0,05 - 0,10	0,08 - 0,15
ALUMINIUM		150 - 300		200 - 400		0,05 - 0,08	0,05 - 0,15
COPPER		80 - 150		120 - 200		0,05 - 0,10	0,08 - 0,15
ELECTROLYTIC		80 - 150				0,05 - 0,10	0,08 - 0,15
CAST IRON		50 - 90		70 - 120		0,05 - 0,15	0,10 - 0,20
TITANIUM		40 - 60				0,05 - 0,08	0,05 - 0,08
Fe/Ni/Co BASED ALLOYS					55 - 80	0,05 - 0,08	0,06 - 0,10

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CLAMPING SYSTEMS

for Empire Blades and Twintips

WL and CL clamp numbers change according to the width of the Empire blades or the Twintips to be held. It is necessary to always use the clamp corresponding to the tool's width in order to ensure that it is perfectly located in the tool holder.

Examples:

Clamp WL25286-**3** =====> for PM**3** Empire blades

Clamp WL25286-**3N2** =====> for PM**3N2** Empire blades

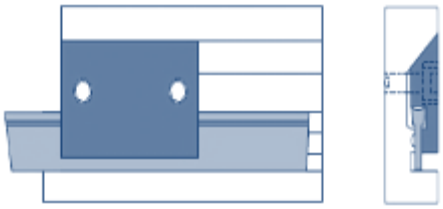
Clamp WL25286-**30** =====> for 17**30** Twintips

Clamp WL25286-**20** =====> for 17**20** Twintips

Please note that the last digits of the clamp numbers are the same as last digits of the blades or the Twintips. This does not apply to WT clamps which accept different widths of Empire blades or Twintips.

WL clamp

for maximum rigidity with narrow nose
access to clamp from the side



CL clamp

for maximum rigidity
access to clamp from above

WT clamp

For very short components and use with pick-up or synchro spindle

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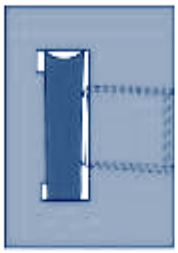
Alliance Global UK Ltd

PARTING-OFF

ST holders are manufactured from tool steel and hardened to HRc 40. The high precision profile of the blade pocket ensures accurate location. Tool holders are available in LH and RH versions with two types of clamping systems

The TP version provides maximum rigidity for possible turning operations and the TP-Y version places the blade in line with the outside of the holder for absolute closeness to collet when using the appropriate blade width.


TP LH


TP RH


TP-Y LH


TP-Y RH

Part-off holders

Section	Length	Spindle rotation	Holder reference	Blade
8x8	125	CW	ST8 TP RH or TP-Y RH	5,0
8x8	125	CCW	ST8 TP LH or TP-Y LH	5,0
10x10	150	CW	ST10 TP RH or ST10 TP-Y RH	7,5
10x10	150	CCW	ST10 TP LH or ST10 TP-Y LH	7,5
12x12	150	CW	ST12 TP RH or ST12 TP-Y RH	7,5
12x12	150	CCW	ST12 TP LH or ST12 TP-Y LH	7,5
14x14	150	CW	ST14 TP RH or ST14 TP-Y RH	7,5
14x14	150	CCW	ST14 TP LH or ST14 TP-Y LH	7,5
16x16	150	CW	ST16 TP RH or ST16 TP-Y RH	7,5
16x16	150	CCW	ST16 TP LH or ST16 TP-Y LH	7,5

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PART-OFF AND CHAMFER

Manufactured from steel hardened to HRc40. ST TPC holders are designed to carry two blades side by side for part-off and chamfer. The first blade produces a chamfer or radius on the next component while the second blade parts off the component being machined. The two blades are perfectly clamped together in the high precision blade pocket.

For machines equipped with a synchro spindle, holders can be fitted with three blades for parting-off and chamfering both ends of the component

TPC LH

TPC RH

Section	Length	Spindle rotation	Holder reference	Blade height	Total width of blades(max.)
8x10	125	CW	ST8 TPC RH	5,0	4mm
8x10	125	CCW	ST8 TPC LH	5,0	4mm
10x12	150	CW	ST10 TPC RH	7,5	4,5mm
10x12	150	CCW	ST10 TPC LH	7,5	4,5mm
12x14	150	CW	ST12 TPC RH	7,5	5mm
12x14	150	CCW	ST12 TPC LH	7,5	5mm
14x14	150	CW	ST14 TPC RH	7,5	5mm
14x14	150	CCW	ST14 TPC LH	7,5	5mm
16x16	150	CW	ST16 TPC RH	7,5	6mm
16x16	150	CCW	ST16 TPC LH	7,5	6mm

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ST PART-OFF BLADES

Constant profile blades with 2°30‘ side clearance. HSS blades have a hollow ground top face to help collapse the chip . Regrinding is quick and easy, carried out on the front face only, making maximum use of blade length available.

References	Width mm	Height mm	Length mm
PM505	0,5	5,0	70
PM510	1,0	5,0	70
PM512	1,2	5,0	70
PM515	1,5	5,0	70
PM518	1,8	5,0	70
PM520	2,0	5,0	70
PM708	0,8	7,5	70
PM710	1,0	7,5	70
PM712	1,2	7,5	70
PM715	1,5	7,5	70
PM718	1,8	7,5	70
PM720	2,0	7,5	70
PM725	2,5	7,5	70
PM730	3,0	7,5	70
PM740	4,0	7,5	70
PM750	5,0	7,5	70

HSS blade

Carbide blade

Grades	
EMPRITE	HSS C=0.8 Co=12
SUPER EMPRITE	+ TiN coating
EMPRITE TCN	+TiCN based coating
C2	K10-K20 carbide
C2 TiN	+ TiN coating
C2 TCN	+ TiCN based coating
Ramet	Micrograin carbide
Ramet TiN	+ TiN coating
Ramet TCN	+ TiCN based coating

CHAMFER BLADES

The chamfer blades incorporate the 2°30‘ side angle allowing a perfect fit alongside the part-off blade.

Refe-rences	Width mm	Height mm	Length mm
C510	1,0	5,0	70
C515	1,5	5,0	70
C520	2,0	5,0	70
C525	2,5	5,0	70
C710	1,0	7,5	70
C715	1,5	7,5	70
C720	2,0	7,5	70
C725	2,5	7,5	70
C730	3,0	7,5	70

Grades	
RAMET	Micrograin carbide
RAMET TiN	+ TiN coating
RAMET TCN	+TiCN based coating

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