suce

SUCE IS…….

Since its inception in the 1950s as a small, but ambitious new business, SUCE has transformed itself over the years into a high-quality structured company specializing in the production of tools and dies. Ever-attentive to market developments and new technologies in this very particular sector, SUCE has also made a name for itself in the specialized fields of tools for punching machines, offering superior quality products and services. It is committed to finding innovate solutions to satisfy an increasingly international customer base.

SUCE's technical and competent staff, supported by the latest 2D and 3D design systems, and utilising the most superior materials and surface coatings available, facilitates the provision of equipment and tooling which in turn provides the greatest efficiency and productivity. SUCE's productive versatility is clearly demonstrated quite by the sheer extent of the items created by the business.

In this catalogue you can find standard and special tools for Amada, Trumpf, Euromac, Prima Power, Salvagnini, LVD, Muratec Murata Wiedemann, Durma, Ermaksan, Danobat, Boschert, Tailift, Rainer,Tecnology FPL, Haco.

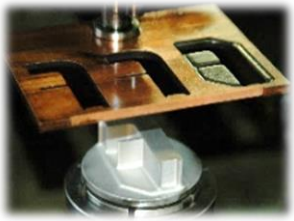
SUCE is an important reference point in this specialized market area, and has is able to offer the latest solutions for the needs and the expectations of its customers.

SUCE would be delighted to support your company as the preferred specialist in this field.

WHY SUCE?

Thanks to our project department, with 3 CAD station, we are able to design both standard and special tools.

The use of double grinding wheel plants allows fo a very low roughness coefficient



No shape limitation thanks to EDM technology

The machine tooling dept. includes automatic lines of turning with load bars and milling machines

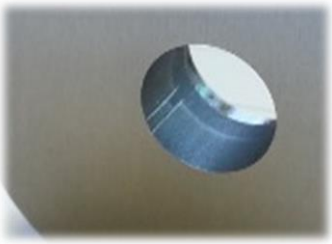
The use of the best steel available on the market by SUCE tools ensures a high standard quality and a long tool life.

10,000 items available on stock divided into 20 different categories

Quality control

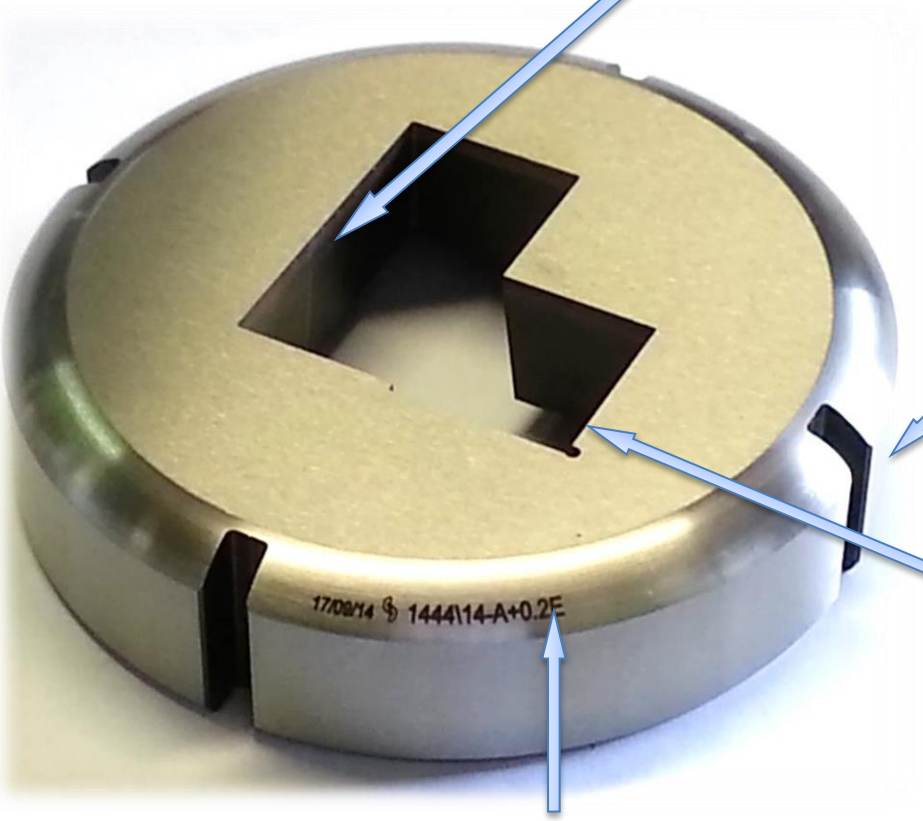
10,000 items available on stock divided into 20 different categories

No shape limitation thanks to Wire EDM technology

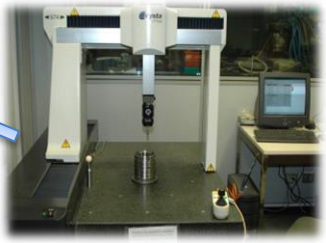


Different lock-slug systems available

Wire EDM load-unload cell



Tool testing: fault free



Tool testing: fault free

In ware house: ready for delivery

SUCE special id.number

Manufacturing execution system

Die clearance

Die clearance is the total space between die and punch.
A correct clearance between the punch and the die assures normal wear of the tool and punching without defect such as: burrs on the piece in the case of excessive clearance and premature wearing of the tool and increased punching force in the case clearance being too small.

Material				
Thickness mm	**Mild steel 16-20%**	**Stainless steel 18-24%**	**Aluminium 12-16%**	**Copper 10-14%**
0,5 – 0,6	0,08-0,1	0,1- 0,12	0,06 – 0,08	0,05 – 0,06
0,8	0,14 – 0,16	0,15 – 0,2	0,1 – 0,14	0,08 – 0,1
1	0,16 – 0,2	0,18 – 0,24	0,12 – 0,16	0,1 – 0,14
1,2	0,2 – 0,24	0,24 – 0,3	0,15 – 0,2	0,12 – 0,15
1,5	0,25 – 0,3	0,27 – 0,35	0,18 – 0,24	0,15 – 0,2
2	0,34 – 0,4	0,36 – 0,45	0,24 – 0,3	0,2 – 0,25
2,5	0,45 – 0,5	0,45 – 0,55	0,32 – 0,35	0,25 – 0,3
3	0,5 – 0,6	0,6 – 0,7	0,35 -0,45	0,3 – 0,4
4	0,65 – 0,8	0,7 – 0,95	0,45 – 0,6	0,4 – 0,5
5	0,85 – 1	0,9 – 1,15	0,6 – 0,8	0,55 – 0,65
6	0,95 – 1,2	1,1 – 1,4	0,75 – 0,95	0,7 – 0,85

In case of blanking mild steel and stainless steel clearance is 15% of material thickness.
In case of blanking aluminium and copper clearance is 10% of material thickness.

Dies lock slug

SUCE lock slug dies eliminate slug pulling. This condition manifests where the slug returns to the top of the sheet during the stripping portion of the punching cycle. Because of this the slug comes between the punch and the top of the sheet on the next cycle, causing damage to the piece part and the tooling. How to avoid this problem?
The SUCE NO-SLUG has been designed with a reduction point of the shape below the surface so the slug cannot return once it passes through this point.

System E : 3 cuts with different angles insures the locking of the slug

Lock slug **AS** best option when thickness > 2.5mm

Once the slug is separated from the punch, it is free to fall through the die. Slug pulling is eliminated. This solution isn't suggested with slug exhaust system machines ; AS lock slug design with protrusions is best solution with thickness more than 3mm, minimum cl for AS system is 0.15mm. SUCE Lock slug E and A system is a standard for all Suce dies, AS is on request , reduced land is a standard for thick turret dies rt80x5 rt80x6 rt110x5 rt110x6.

lock slug AS best opt. th>2.5mm	lock slug E thick turret B,C,D,E	lock slug A thick turret A	straight and conic blank die	reduced land slitting die	conic trumpf style

Tools sharpening

Before starting, make sure that punch and die cutting edge are in perfect condition. Accurate maintenance of the tools guarantees a normal wearing and the result of punching will be without residual burr and defects. Regular sharpening of the 0,1 mm punch and 0,2mm die guarantees a constant life time of tooling.
It is preferable that grinding operation is made with tangential grinding machine with adequate cooling in order to avoid tool tempering; after grinding it is necessary to demagnetize the tools with an appropriate demagnetizer. If a urethane ejectors is applied, restore the initial hole depth in such a way that the ejector can be compressed.

Punching force

Before starting ensure that punching force doesn't exceed the capacity of punching machine.
In order to calculate the punching force in kg , use the following formula:

perimeter of the shape (mm) x thickness (mm) x 4/5 x shear strength*

*mild steel 40-50 kg/mm2 stainless steel 60-70 kg/mm2 aluminium 20-25 kg/mm2

A sharpening other than the flat one reduces both punching stress and punching noise.
Therefore to ascertain the true punching force, multiply the pressure calculated using the above formula by the **sharpening factor:**

Sharpening height (mm)	Thickness (mm)					
	1-1,5	2	3	4	5	6
1	0,75	0,9	1	1	1	1
1,5*	0,5	0,6	0,7	0,95	1	1
3**	0,5	0,5	0,5	0,6	0,7	0,75

* standard shear height thick turret style
** standard shear height Trumpf style

The shear options

				
Double valley Cod 3P	**Roof top** Cod V	**Inverted roof top** Cod VR	**Whisper** Cod W	**Four ways** Cod 4P
Best option when shape is long, but susceptible to breakage	Best option when punching force is high, punching surface 75%	Best option for nibbling but inverted stresses could cause breakage	Recommended only for blanking (turret machine)	Recommended for round and square

Punches are flat, above shear are available upon request ;each type of sharpening reduces noise up to 50%

General rules

In order to optimize the use of tooling we would recommend the following basic guidelines:

a) the punching surface must not be lower than 60% of the used punch surface, isn't recommended to punch the edge of the sheet less than 2.5 times material thickness

b) in case of nibbling, minimum feed must be 0,5 x thickness , smaller round punch with thickness 1mm is 4mm , smaller round punch with thickness 2mm is 6mm , smaller round punch with thickness 3mm is 8mm.

c) before exceeding tons capability calculate punching force with formula on page 6.

d) the tool dimension must not be lower than the material thickness and the shorter side must be at least 5% of the longest side.

e) the advantage of the technical improvements of some models of dies punching penetration should be at least 2.5mm.

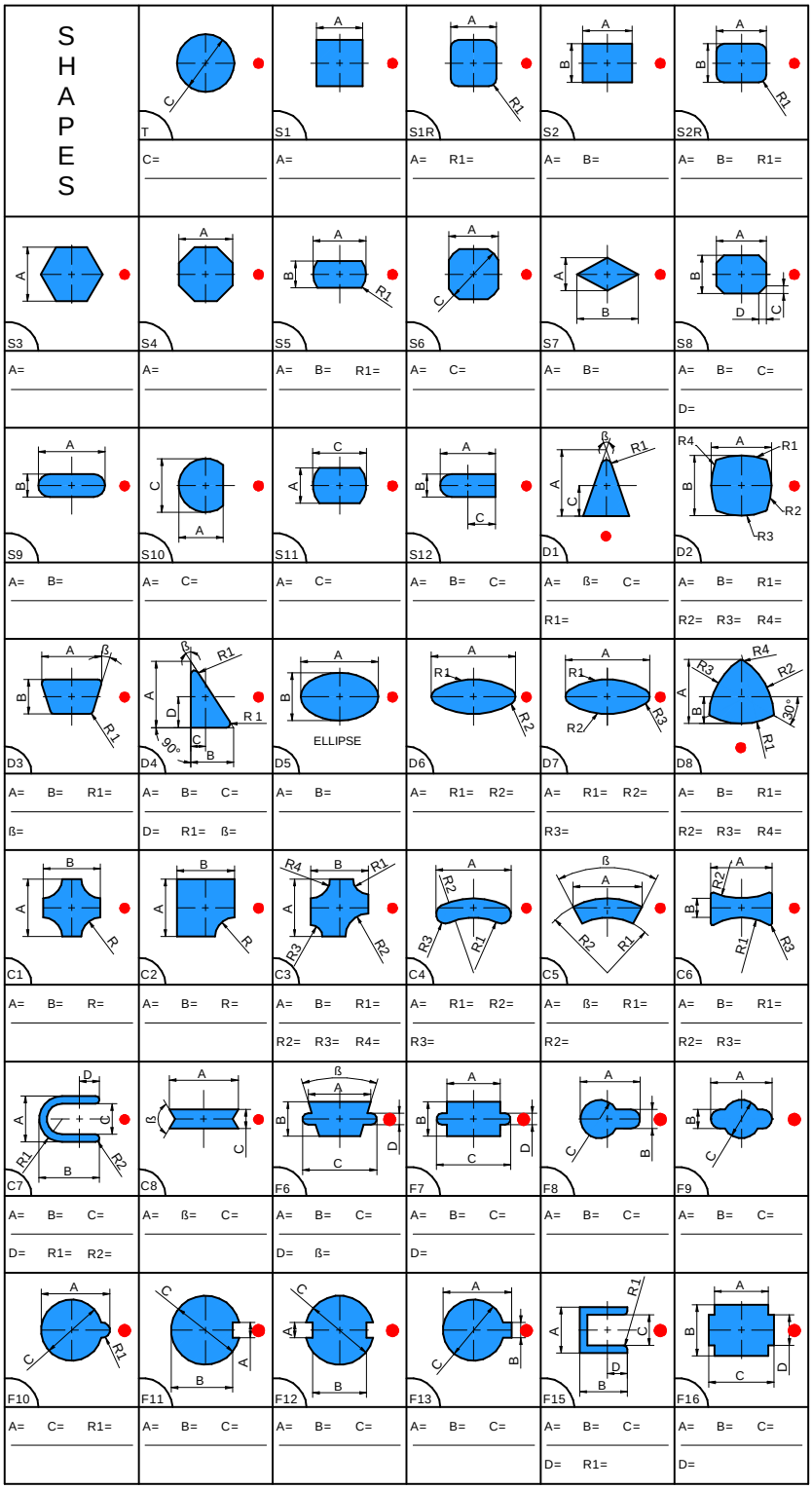
f) slitting tools must be appropriately sharpened.

g) the use of the steels commonly called High Speed Steel for our punches allows the punching of any steel. However, in order to considerably increase the punching effectiveness and reduce cold welds, apply some type of coating, such as TICN, HDP, FNC and use oil lubricant on sheet surface.

h) ensure that tooling cutting edges are without seizing or cold welding material; if any , remove them with a diamond file.

i) radius on punch corner is 0.25mm, constant radius on the corner of the dies ensures proper wear and a uniform burr.

l) delivery time : 3/5 days standard, 6/8 coating tools, some items are available in stock.



Round : T

Standard shape:
S1 , S1R , S2 , S2R , S3 , S4 , S5 , S6 , S7 , S8 , S9 , S10 , S11 , S12

Special 1:
D1 , D2 , D3 , D4 , D5 , D6 , D7 , D8

Special 0:
C1 , C2 , C3 , C4 , C5 , C6 R>2.9mm
C7 , C8

Special 2:
C1 , C2 , C3 , C4 , C5 , C6 R<2.9mm
F6 , F7 , F8 , F9 , F10 , F11 , F12 , F13
F15 , F16

ISODUR

A tough, “long distance runner” with an optimum chemical composition

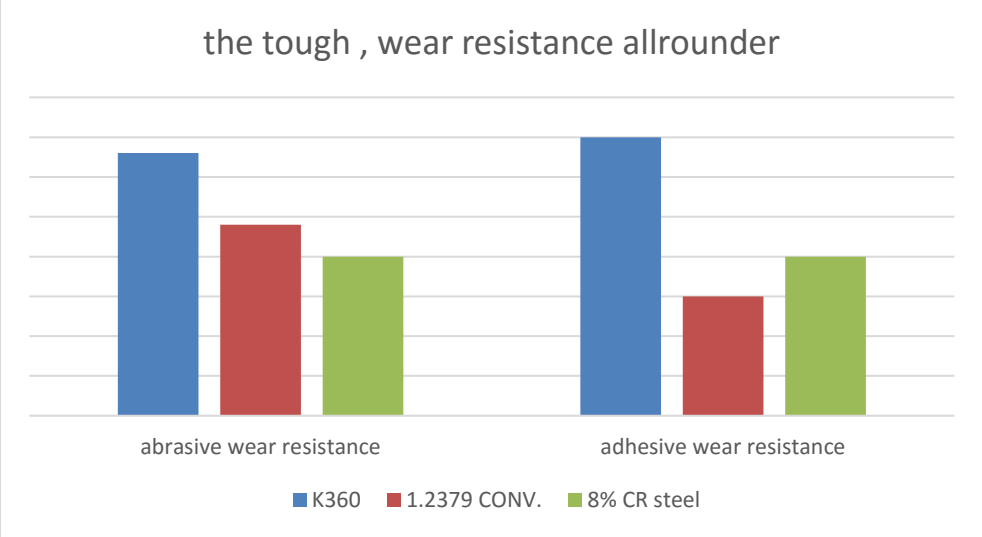
ESR electro slug remelting : a tried and tested remelting technology developed by Bohler gives the material the homogeneity it needs. A prerequisite for the best performance

ESR Manufacture improved service life due:

- Least possible inclusion content
- Lower micro and macro segregation
- Good homogeneity and higher degree of purity
- A homogeneous structure throughout the entire cross-section and bar length
- Producing larger bar dimensions at a constant carbide distribution
- Uniform correction of dimensions
- A broad range of application due to a high degree of toughness

K360 Chemical composition:

Carbonium	**1,25%**
Chromium	**8,75%**
Molybdenum	**2,70%**
Vanadium	**1,18%**
Tungsten	**3,50%**



The new K360 isodur is a further development of the 8% chromium steels and has been developed to meet the needs of customers now more than ever. High toughness and, a remarkably high compressive strenght, together with good resistance make this steel a real problem solver.

This steel is particularly outstanding when adhesive and abrasive wear resistance are necessary; it allows a considerable increase in performance , your productivity will increase and your costs per part will be reduced

Coating HDP ACTION high density plasma

Among other innovations brought by the HDP technology is a very versatile coating which can be widely used for various applications. HDP was developed to find a universal solution for the most traditional machining processes and to guarantee a constant yield and best performance of the tools.

Available with punches:

Trumpf, Amada, Finn Power, Euromac, Lvd, Rainer, Salvagnini, Tecnology, Wiedemann, Boschert, Tailift, Danobat, Durma, Ermaksan…

Test result

Coating is intact after 125.000 hits nibbling 1mm stainless steel

CHARACTERISTICS:

•**Extraordinary toughness** - this is the strong point of this coating and makes it versatile and particularly suitable for various applications

•**Adhesion to the surface -** the HDP technology makes it possible to obtain maximum adherence of the coating to the surface and makes the “tool/coating” combination become a whole.

•**Microhardness** - the very compact HDP Red layer, with a thickness of only 3 microns, gives a hardness which represents a solid barrier against wear and guarantees a unique performance.

•**Low friction coefficient** - this is another important characteristic, which becomes evident thanks to the glossy layer. The low friction coefficient has been made possible thanks to the HDP technology which makes the application of coatings almost “dropletfree” (residual macro-particles on the surface). If they are not removed, these droplets affect the surface roughness.

Structure	MicroHardness (HV 0.05)	Friction coefficient (100 cr6)	Thickness (micron)	Deposition temperature (°C)	Max temperature (max°C)	Colour
Multilayer	3.800	0.25	1-3	480	400	RED

Coating Double coating FNC

The double coating is obtained by overlaying the traditional TICN with Movic self-lubricating coating.

MOVIC is a self-lubricating and anti-adhesive coating based on MoS2 (Molybdenum), which is produced by PVD sputtering Magnetron technology.
MOVIC has been developed in the aerospace to find alternatives to traditional oils (eg oil, grease) when their use is not permitted and it has shown excellent tribological features that made it very interesting for a variety of new applications.

Available with punches:

Trumpf, Amada, Finn Power, Euromac, Lvd, Rainer, Salvagnini, Tecnology, Wiedemann, Boschert, Tailift, Danobat, Durma, Ermaksan…

SPECIFICATIONS:

•Self-lubricating single-phase coating based on MoS2.

•"Soft" coating with very low coefficient of friction (friction coefficient in dry air <0.05).

•Single-layer coating that can be combined with any hard coating.

•Functional Thickness of Coating <0.5 microns.

•Deposition temperature <150 ° C.

•Soft wear residues, lubricants (behavior Fail-safe: no abrasive particles from wear of the coating).

•Excellent running for rough surfaces. (Coating becomes smoother during the running in.)

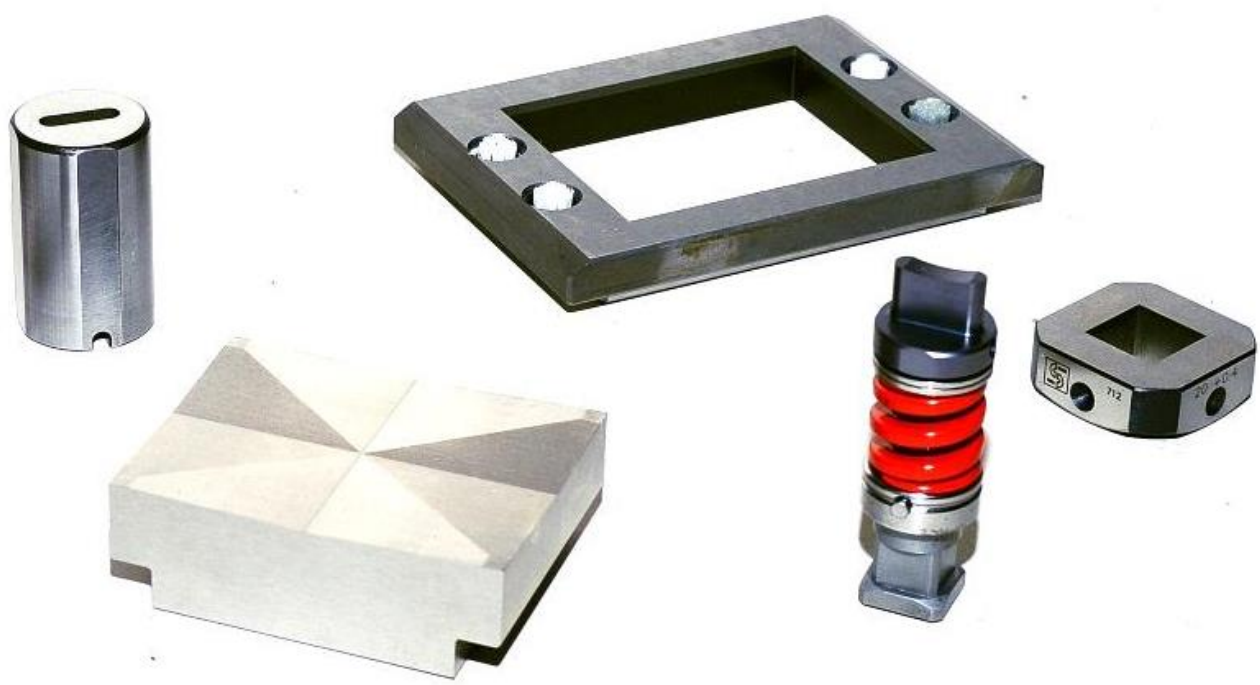
•Positive transfer of lubricant film on the side in contact.

•can be easily re-covered without removal. If necessary the removal is easily achievable.

Structure	Micro-Hardness (HV 0.05)	Friction Coefficient (100 cr6)	Thickness (micron)	Deposition temperature (°C)	Max temperature (max°C)	Colour
Single layer	**_**	**<0.1**	**1**	**<150**	**-**	**GREY**

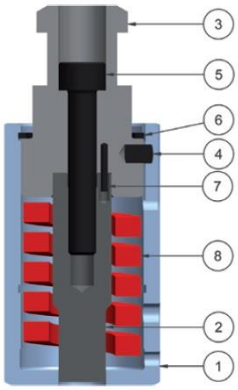
SALVAGNINI STYLE

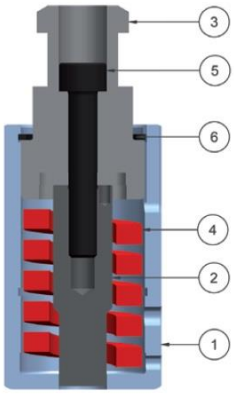
- *P13 - 7 T model P0, P3*
- *P14 - P9 , S4 , S5*
- *P15 - P5_PU_P2R , S6*
- *P16 - S8 type 70 , S9 type 90 , SA type 90 , coating*
- *P17 - special*
- *P18 - cluster*



P0
70 kN station

Pos 1-20 41-76
Max10mm
Punch
grinding
Life 1.5mm



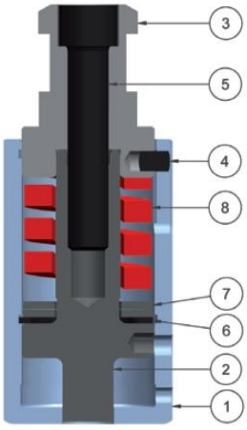


item	PUNCH	€		€	Ref	N.°	Cod.	Descr.	Ref	N.°	Cod.	Descr.
ROUND	SAA12PUT006T		SAA1PAP006T		8	1	NMO020025038	SPRING**	6	1	NSG060026012	SEEGER
STANDARD	SAA12PUT006S		SAA1PAP006S		7	1	NSP060001510	PIN	5	1	NVI05AR06035	SCREW M6X35
					6	1	NSG060026012	SEEGER	4	1	NMO020025038	SPRING **
	* consulting table pag. 22 to complete code ** To replace after 800.000 hits				5	1	NVI05AR06035	SCREW M6X35	3	1	MSAA12TES	HEAD
					4	1	NSP01MR04006	PIN	2	1	SAA12PUT006S	PUNCH
					3	1	MSAA12TET	HEAD	1	1	SAA26GUTOS	GUIDE
					2	1	SAA12PUT006T	PUNCH				
					1	1	SAA26GUT0T	GUIDE				

P3
70 kN station

Pos 1-20 41-76
P3 Max26mm
P9 Max26.5mm

P3 Punch
grinding life
1.5mm



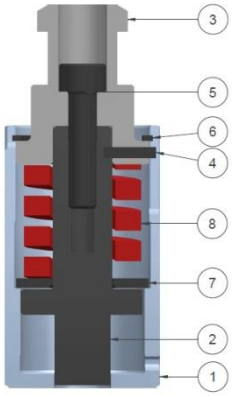
item	PUNCH P3	€	PUNCH P3 ASSEMBLY	€	Ref.	N.°	Cod.	Descr.
ROUND	SAA26PUT006T		SAA26PPAPPT		8	1	NMO020025025	SPRING***
STANDARD	SAA26PUT006S		SAA26PPAPPS		7	1	MSAA26PPPPU7	SHIM
SPECIAL 0	SAA26PUT006C		SAA26PPAPPC		6	1	NSG060026012	SEEGER
SPECIAL 1	SAA26PUT006D		SAA26PPAPPD		5	1	NVI03AR08040	SCREW M8X40
SPECIAL 2	SAA26PUT006F		SAA26PPAPPF		4	1	NSP01MR04006	PIN
					3	1	MSAA26PPPPU3	HEAD
	*** To replace after 200.000 hits				2	1	SAA26PUT006S	PUNCH
					1	1	SAA26GUT0T/S	GUIDE

P9
70 kN station

Pos 1-20 41-76

Punch grinding life 3mm

Die grinding life 1.2mm



PUNCH KEY REFERENCE


0°
RECT /OBROUND


90°
RECT /OBROUND


0°
SQ


45°
SQ


0°
HEXAGON


90°
HEXAGON

Item	PUNCH P9	€	PUNCH P9 ASSEMBLY	€	Ref.	N.°	Cod.	Descr.
ROUND	SAA265PUT006T		SAA265PPAPPT		8	1	NMO020025025	SPRING*
STANDARD	SAA265PUT006S		SAA265PPAPPS		7	1	MSAA265PPPPU7	SHIM
SPECIAL 0	SAA265PUT006C		SAA265PPAPPC		6	1	NSG060026012	SEEGER SB29
SPECIAL 1	SAA265PUT006D		SAA265PPAPPD		5	1	NVI03AR0625	SCREW M6X25
SPECIAL 2	SAA265PUT006F		SAA265PPAPPF		4	1	NSP02MR23012	PIN
					3	1	MSAA265PPPPU3	HEAD
					2	1	SAA265PUT006_	PUNCH
					1	1	SAA26GUTOS	GUIDE

* To replace after 200.000 hits

S4
70 kN station

Pos 1-20 41-76
Max33mm
Punch grinding life 4-2mm
Die grinding life 1.2mm

item	PUNCH S4	€	STRIPPER	€	DIE 0-12mm	€	DIE 12.1-33	€	DIE SHIM mm	€
ROUND	SAA1PUT00VT		SAA1PLT0T		SAA1MAT00VT		SAA3MAT00VT		0.2 SAA1SPMA02	
STANDARD	SAA1PUT00VS		SAA1PLT0S		SAA1MAT00VS		SAA3MAT00VS		0.3 SAA1SPMA03	
SPECIAL 0	SAA1PUT00VC		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD		0.5 SAA1SPMA05	
SPECIAL 1	SAA1PUT00VD		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD			
SPECIAL 2	SAA1PUT00VF		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD			

S5 punch
70 kN station

Pos 1-20 41-76
Max33mm
Punch grinding life 4-2mm
Die grinding life 1.2mm

item	PUNCH S5 rd	€	PUNCH S5 sh	€	STRIPPER	€	DIE 0-12mm	€	DIE 12.1-33	€	DIE SHIM mm	€
ROUND	SAA1IPTI0VT				SAA1PLT0T		SAA1MAT00VT		SAA3MAT00VT		0.2 SAA1SPMA02	
STANDARD			SAA1IPTI0VS		SAA1PLT0S		SAA1MAT00VS		SAA3MAT00VS		0.3 SAA1SPMA03	
SPECIAL 0			SAA1IPTI0VC		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD		0.5 SAA1SPMA05	
SPECIAL 1			SAA1IPTI0VD		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD			
SPECIAL 2			SAA1IPTI0VF		SAA1PLT0D		SAA1MAT00VD		SAA3MAT00VD			

P5_PU_P2R
120 kN station

Pos 30-35
0-42mm

Punch grinding life
4-2mm

Die grinding life
1.2mm



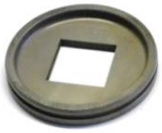
item	PUNCH	€	STRIPPER	€	DIE	€
ROUND	SAB1PUT106T		SAB1PLT1T		SAB1MAT101T	
STANDARD	SAB1PUT106S		SAB1PLT1S		SAB1MAT101S	
SPECIAL 0	SAB1PUT106C		SAB1PLT1D		SAB1MAT101D	
SPECIAL 1	SAB1PUT106D		SAB1PLT1D		SAB1MAT101D	
SPECIAL 2	SAB1PUT106F		SAB1PLT1D		SAB1MAT101D	

S6
120 kN station

Pos 30-35
0-60mm

Punch grinding life
4-2mm

Die grinding life
1.2mm

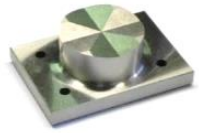
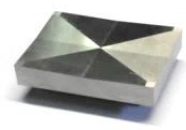
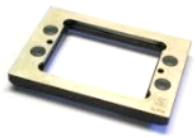
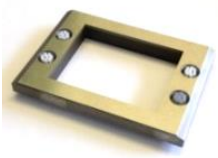



item	PUNCH	€	STRIPPER	€	DIE	€	DIE SHIM 0.2mm	€
ROUND	SAB1PUT00VT		SAB1PLT0T		SAB1MAT101T		SAB1SPMA	
STANDARD	SAB1PUT00VS		SAB1PLT0S		SAB1MAT101S			
SPECIAL 0	SAB1PUT00VC		SAB1PLT0D		SAB1MAT101D			
SPECIAL 1	SAB1PUT00VD		SAB1PLT0D		SAB1MAT101D			
SPECIAL 2	SAB1PUT00VF		SAB1PLT0D		SAB1MAT101D			

S8 90X70 TYPE 70
260 kN station

Pos 21-22-23-24
Punch grinding life 4-2mm

Die grinding life 1.2mm

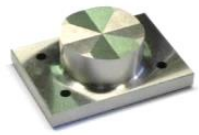
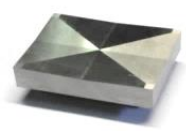
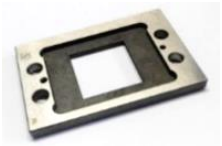






item	PUNCH Max 70x50mm	€	PUNCH Max 90x70mm	€	STRIPPER Max 90x70mm	€	DIE Max 90x70mm	€	DIE SHIM 0,2mm	€
ROUND	SAC1PUT00VT		SAC1PUT60VT		SAC1PLT3T		SAC1MAT30VT		SAC1SPMAT3	
STANDARD	SAC1PUT00VS		SAC1PUT60VS		SAC1PLT3S		SAC1MAT30VS			
SPECIAL 0	SAC1PUT00VC		SAC1PUT60VC		SAC1PLT3D		SAC1MAT30VD			
SPECIAL 1	SAC1PUT00VD		SAC1PUT60VD		SAC1PLT3D		SAC1MAT30VD			
SPECIAL 2	SAC1PUT00VF		SAC1PUT60VF		SAC1PLT3D		SAC1MAT30VD			

S9 90X70 TYPE 90
260 kN station

Pos 22-23
Punch grinding life 4-2mm

Die grinding life 1.2mm

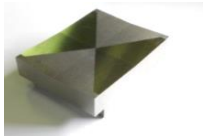
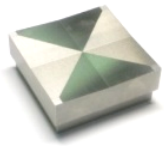




item	PUNCH Max70x50mm	€	PUNCH Max90x70mm	€	STRIPPER Max 90x70mm	€	DIE Max 90x70mm	€	DIE SHIM 0.2mm	€
ROUND	SAC1PUT00VT		SAC1PUT60VT		SAC1PLT0T		SAC1MAT00VT		SAC1SPMAT0	
STANDARD	SAC1PUT00VS		SAC1PUT60VS		SAC1PLT0S		SAC1MAT00VS			
SPECIAL 0	SAC1PUT00VC		SAC1PUT60VC		SAC1PLT0D		SAC1MAT00VD			
SPECIAL 1	SAC1PUT00VD		SAC1PUT60VD		SAC1PLT0D		SAC1MAT00VD			
SPECIAL 2	SAC1PUT00VF		SAC1PUT60VF		SAC1PLT0D		SAC1MAT00VD			

SA 90X90 TYPE 90
260 kN station

Pos 21-24
Punch grinding life 4-2mm

Die grinding life 1.2mm


	PUNCH Max70x90mm	€	PUNCH Max90x90mm	€	STRIPPER Max90x90mm	€	DIE Max90x90mm	€	DIE SHIM 0.2mm	€
ROUND	SAC1PUT40VT		SAC1PUT50VT		SAC1PLT2T		SAC1MAT20VT		SAC1SPMAT2	
STANDARD	SAC1PUT40VS		SAC1PUT50VS		SAC1PLT2S		SAC1MAT20VS			
SPECIAL 0	SAC1PUT40VC		SAC1PUT50VD		SAC1PLT2D		SAC1MAT20VD			
SPECIAL 1	SAC1PUT40VD		SAC1PUT50VC		SAC1PLT2D		SAC1MAT20VD			
SPECIAL 2	SAC1PUT40VF		SAC1PUT50VF		SAC1PLT2D		SAC1MAT20VD			

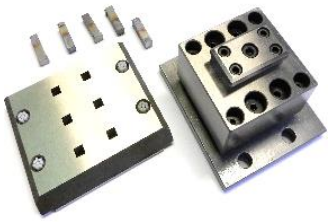
STATION	P0	P3-4 P9	S4	P5	S6	S8 90x70	SA 90x90
item	€	€	€	€	€	€	€
Coating HDP							
Coating FNC							

Special

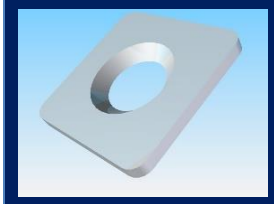
EI forming UP tooling
Emboss , countersink

EI forming tool UP tooling
Lance and bridge UP

Special shape with stripper metallic plate and springs

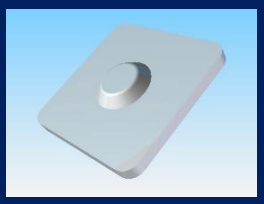


Cluster with replaceable punches



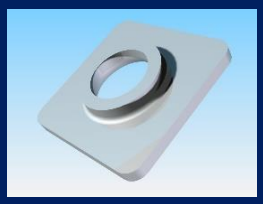
Countersink after pre-pierce

Material:_____Thickness:____
A:
D:
H:



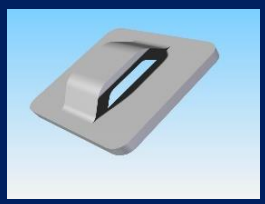
Emboss up Rd and Shape
EI station

Material:_____Thickness:____
D:
H:
A:
R:



Extrusion up Rd after pre-pierce
EI station

Material:_____Thickness:____
D:
H:
R:

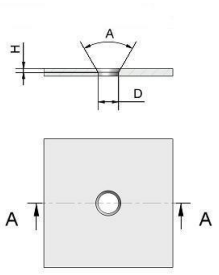


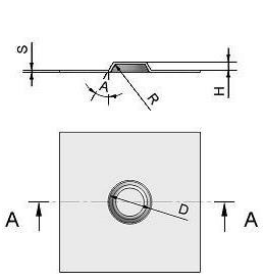
Bridge up
EI station

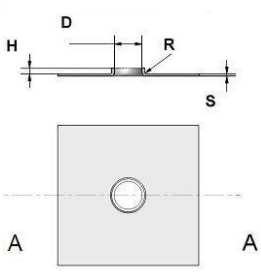
Material:_____Thickness:____
L:
B:
H:
A:
R:

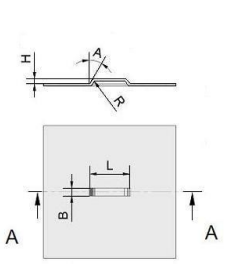
Lance up
EI station

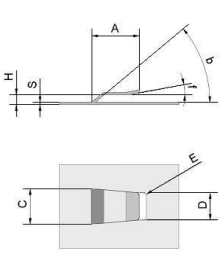
Material:_____Thickness:____
A:
C:
D:
H:
B:
F:



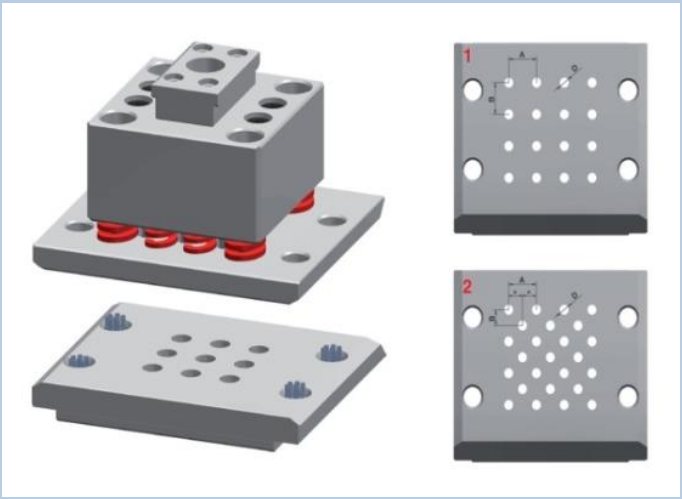








Cluster



Materiale / *Material:*

Spessore / *Thickness:*

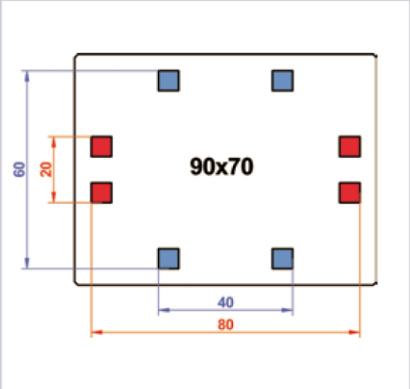
Disposizione / *Pattern:* 1 - 2

Sagoma / *Shape:*

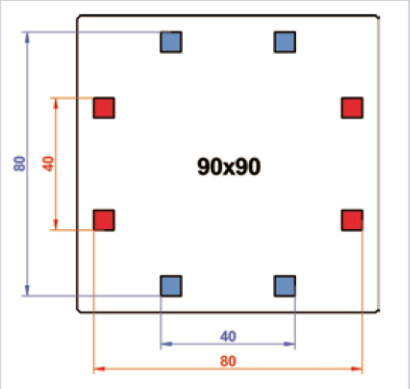
Dimensioni / *Size:*

A= B=

max area mod 90x70
(X40 Y60) (X80 Y20) mm



max area mod 90x90
(X40 Y80) (X80 Y40) mm



Notes

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