

Catalog



WIEDEMANN MURATEC

WHY SUCE?



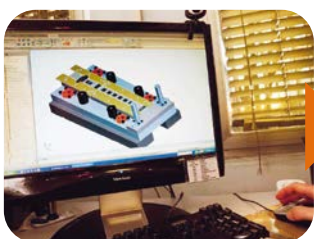
The use of double grinding wheel plants allows for a very low roughness coefficient.



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



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



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



No shape limitation thanks to EDM technology.



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





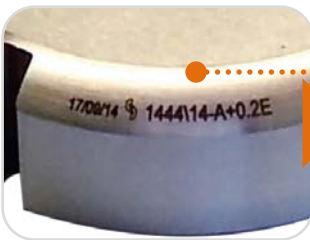
No shape limitation thanks to Wire EDM technology.



Wire EDM load-unload cell.



In warehouse: ready for delivery.

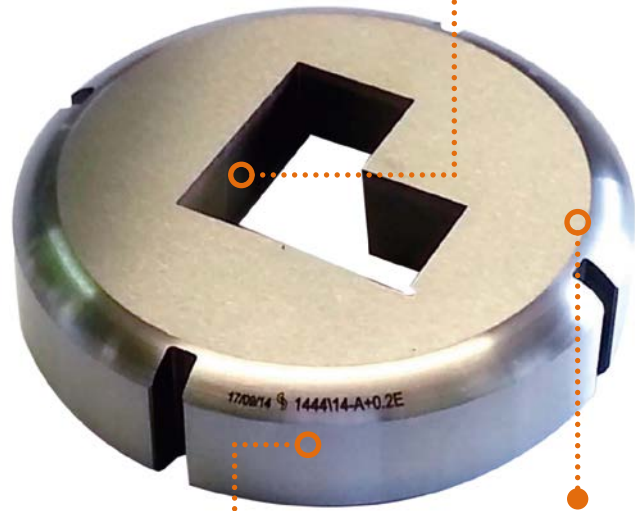


SUCE special ID number.



Manufacturing execution system.

Different lock-slug systems available



Tool testing: fault free.

DIE CLEARANCE

Die clearance is the total space between the die and the punch.

A correct clearance between the punch and the die ensures normal wear of the tool and punching without defects such as: burrs caused by excessive clearance and premature wearing of the tool and increased punching force in the case of clearance being too small.

MATERIAL				
Thickness mm	Mild steel 16-20%	Stainless steel 18-24%	Aluminum 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 – 0.55
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 aluminum and copper clearance is 10% of material thickness.



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



Lock slug **AS** best option when thickness > 3 mm.

DIES LOCK SLUG

SUCE lock slug dies eliminate slug pulling. Slug pulling occurs when 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 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.

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 3 mm, minimum cl for AS system is 0.15 mm.

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>3 mm



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 0.2 mm 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	Thickness (mm)					
	1 - 1.5	2	3	4	5	6
mm						
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



Double valley
Cod 3P



Best option when shape is long, but susceptible to breakage



Roof top
Cod V



Best option when punching force is high, punching surface 75%



Inverted roof top
Cod VR



Best option for nibbling but inverted stresses could cause breakage



Whisper
Cod W



Recommended only for blanking (turret machine)



Four ways
Cod 4P



Recommended for round and square

PUNCHES ARE FLAT, ABOVE SHEAR ARE AVAILABLE UPON REQUEST; EACH TYPE OF SHARPENING REDUCES NOISE UP TO 50%



COATING

PROBUS

PROBUS ALCRN coating , features a unique nanostructure for a substantial decrease of internal stress; is tailored to withstanding cutting temperatures of up to 1050° C.

A distinguishing feature of PROBUS coating is the improved wear performance at the cutting edge of the tool. Uniform distribution of mechanical forces in the vicinity of the cutting edge provides an additional advantage. This property puts PROBUS ahead of other coatings, making it excel in applications where similar AlCrN coatings provide only modest lifetime improvements.



STRUCTURE	Micro Hardness (HV 0.05)	Friction coefficient (100 cr6)	Thickness (micron)	Deposition temperature (°C)	Max temperature (max°C)	Colour
Multilayer	3.000	0.5	2 - 4	450 - 500	1050	Grey

GEMINUS

The double coating is obtained by overlaying the traditional TiCN with Movic self-lubricating coating. The TiCN coating comes from an evolutionary study of the precursor TiN, inheriting the already appreciated qualities and improving some of its features.

In fact, thanks to the introduction of the Carbon (C) within the layer, it was possible to obtain a structure that has a hardness greater than 50% compared to that of TiN.

In consequence to this, the TiCN coating ensures a higher wear resistance.

A further improvement of the TiCN was achieved by developing a “multilayer” (multi-layer) composed of several hundreds of different layers that give better control of structural stress within the 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.

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

BASIC COMPOSITION	Coating Structure	Microhardness (HV 0.05)	Coefficient of friction against (100 cr6)	µm thickness (microns)	Deposition Temperature (°C)	Max Temperature of use (max ° C)	Colour
Titanium carbonitride	Multilayer	3.500	0,5	1- 3	350 - 480	350	Pink

LEVATUS

DLC is an innovative carbon-based coating with wide spectrum of application which allows you to deal with problems related to abrasion, to chemical attack and sliding.

The low deposition temperature , the hardness and the low coefficient of friction make it of extreme interest. It is applied on finished parts while maintaining the state of the surface finishing.

The DLC is deposited by the PA-CVD (Plasma Assisted – Chemical Vapour Deposition) technology which allows to maintain low temperature of depositing and at the same time ensures an excellent adhesion.



BASIC COMPOSITION	Deposition Technology	Microhardness (HV 0.05)	Coefficient of friction against 100 Cr 6	µm thickness (microns)	Deposition Temperature (°C)	Max Temperature of use (max ° C)	Colour
a-C:H sp2-sp3	PA-CVD	1.500 - 3.000	0,05 - 0,1	0,5 - 3	250	350	Black

COATING	COPPER	ALUMINUM	MILD STEEL	GALVANIZED STEEL	STAINLESS STEEL
PROBUS	X	X	X	XX	XXX
GEMINUS	XX	XX	X	XXX	XX
LEVATUS	XXX	XXX	X	X	X

NEEDLESS	RECOMMENDED	HIGHLY RECOMMENDED
X	XX	XXX

BEST TOOLS CAN ONLY BE FORMED OUT OF THE BEST STEEL

Tool users has been demanding higher and higher standards of their tools to prolong service life and reduce costs; the tool material itself, in addition to the tool design, is a success factor which is often under-appreciated. It can significantly influence the tool life and therefore the cost effectiveness of your production.

For each of the demands of blanking and cutting, Bohler has an optimal solution in its product range. The range contains everything from standard materials to high-performance powder metallurgical steels.



LINE	TRUMPF	THICK TURRET	SALVAGNINI	MURATEC
PUNCH SIZE 0	HSS / PSM	-	-	-
PUNCH	ISODUR / PSM	ISODUR / PSM	ISODUR / PSM	ISODUR
INSERT BLADES	HSS / PSM	HSS / PSM	-	-
DIE	HWS / ISODUR	HWS / ISODUR	ISODUR / PSM	HWS

HSS - S600

M2 is the “standard” and most widely used industrial HSS. It has small and evenly distributed carbides giving high wear resistance, Tungsten-alloyed molybdenum high-speed steel with high hardness excellent cutting properties, outstanding compressive strength and good toughness.

S600 Chemical composition

CARBONIUM	CHROMIUM	MOLYBDENUM	VANADIUM	TUNGSTEN
0.90 %	4,10 %	5.0 %	1,80 %	3.50 %

D2 – K110

K110 is a high-carbon, high-chromium tool steel alloyed with molybdenum and vanadium characterized by: High abrasive wear resistance, High compressive strength, Good through-hardening properties, High stability in hardening and good resistance to tempering-back.

D2 steel is an air hardening, high-carbon, high-chromium tool steel. It has high wear and abrasion resistant properties. It is heat treatable and will offer a hardness in the range 59-62 HRC

D2 K110 Chemical composition

CARBONIUM	CHROMIUM	MOLYBDENUM	SILICIUM	VANADIUM	MANGANESE
1.55 %	11.30 %	0.75 %	0.30%	0,75 %	0.30 %

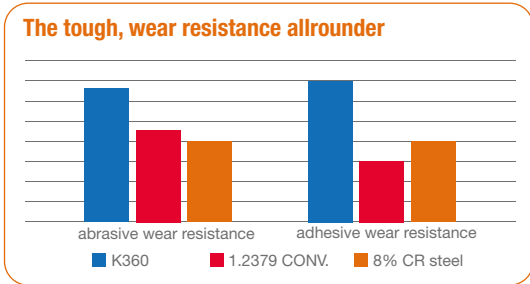
ISODUR

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 %

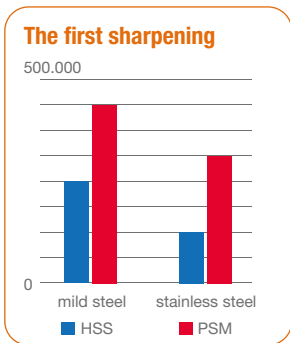


The new K360 isodur is a further development of the 8% chromium steels and has been developed to meet the needs of customers now more than ever. High toughness and, a remarkably high compressive strength, together with good resistance make this steel a real problem solver. This steel is particularly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

POWDER STEEL METALLURGY

Today Suce provides, in addition to the traditional HSS punches, of new variety of tools, Trumpf style and Thick turret style made in powder steel metallurgical.

HIGHEST METALLURGICAL PURITY	GOOD DIMENSIONAL STABILITY	FINEST CARBIDE DISTRIBUTION	HIGH DEGREE OF HARDNESS	MAXIMUM WEAR RESISTANCE	HIGHER TOUGHNESS	HIGH COMPRESSIVE STRENGTH



Graphic shows nr of hits before first sharpening punching mild and stainless steel with HSS and PSM tool. Tool tested square 6mm

One of them is **K490**. Research shows that the **K490 Microclean**, thanks to its chemical composition, is the best steel in the punching market. If you compare it with other powder steels, for example M4 and PM23, you will find that it assures twice the toughness with the same wear resistance.

- This new material is characterized by:
- **A high adhesive and abrasive wear resistance** More hits between regrind operations increases tool life, wear resistance double than traditional HSS M2
 - **A high toughness** reduces risk of breaking the punch.

K490 Chemical composition	
Carbonium	1.40 %
Chromium	6.40 %
Molybdenum	1.50 %
Vanadium	3.70 %
Tungsten	3.50 %

CPOH plus Chemical composition	
Carbonium	1.0 %
Chromium	8.0 %
Molybdenum	2.50 %
Vanadium	0.3 %

In the catalogue **POWDER STEEL PUNCHES** are marked in **RED**, available items:

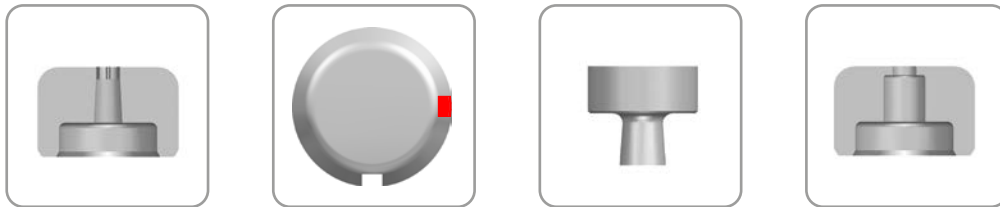
Trumpf Gr0 D6 D10.5	Trumpf Multitool 5 - 10	Trumpf Gr1	Thick turret Mate ultra style	Thick turret Smart staz.A Wilson	B station Smart, Mate Wilson	Trumpf blade Thick turret Slitting blade

Shear option

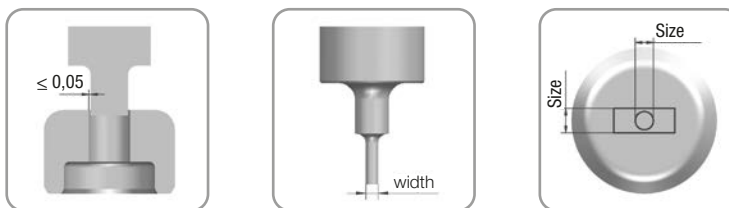


TYPE OF SHEAR	Roof top	Inverted roof top	Double valley	Whisper	Four ways
WHEN	Best option when punching force is high, minimum feed 75% of tool length	Recommended for nibbling at maximum tonnage but inverted stress could cause breakage	Recommended when punch is longer than 80mm But inverted stress could cause breakage	Best option classic trumpf style to reduce noise and tonnage, max 5°	Recommended for punching and nibbling Ø and square at maximum tonnage
CODE	Cod V	Cod VR	Cod 3P	Cod W	Cod 4P
ADD ON	€	€	€	€	€

Add on

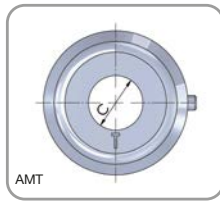


ADD ON	Die lock slug	Extra Key slot	Back taper punch Jump station*	Reduced milled land
WHEN	Best option to prevent the come out of the slug	C-D-E thick turret dies keys 0-90 standard shape 0-135 square	Recommended for punching thick material, more than 4mm. *Thick turret punches example: square10 in C station	To facilitate the fall of the slug; recommended when long side is more than 20 times short side, ex re22x1
ADD ON	€	€		€ ∅ ∅



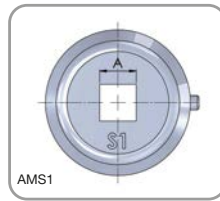
ADD ON	Die clearance <math><0.1</math>	Punch width	Die size <math><1.5</math>

ROUND AND STANDARD



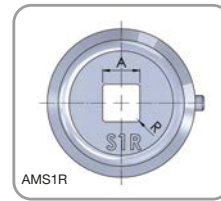
AMS1

C: _____



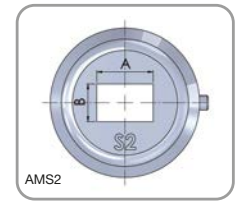
AMS1R

A: _____



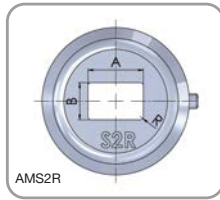
AMS1R

A: _____ R: _____



AMS2

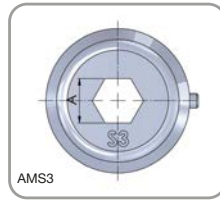
A: _____ B: _____



AMS2R

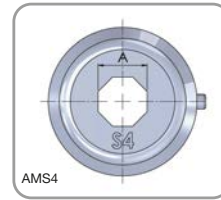
A: _____ B: _____

R: _____



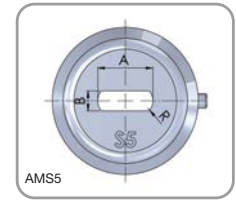
AMS3

A: _____



AMS4

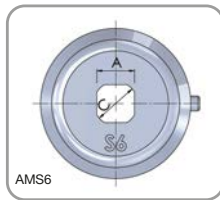
A: _____



AMS5

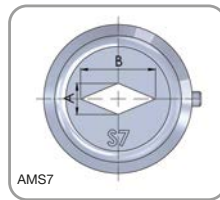
A: _____ B: _____

R: _____



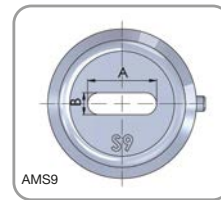
AMS6

A: _____ C: _____



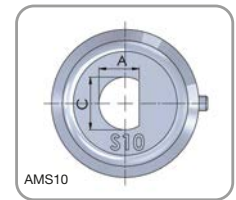
AMS7

A: _____ B: _____



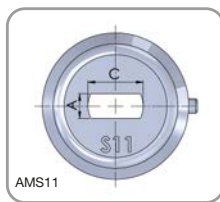
AMS9

A: _____ B: _____



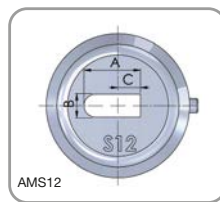
AMS10

A: _____ C: _____



AMS11

A: _____ C: _____

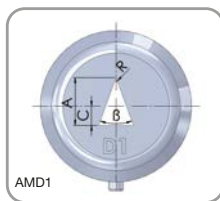


AMS12

A: _____ B: _____

C: _____

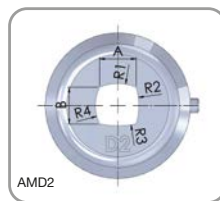
SPECIAL 1



AMD1

A: _____ B: _____

C: _____ R: _____

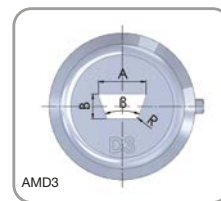


AMD2

A: _____ B: _____

R1: _____ R2: _____

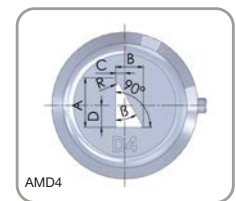
R3: _____ R4: _____



AMD3

A: _____ B: _____

B: _____ R: _____

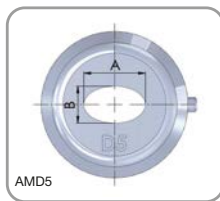


AMD4

A: _____ B: _____

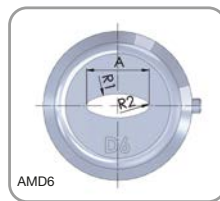
C: _____ D: _____

B: _____ R: _____



AMD5

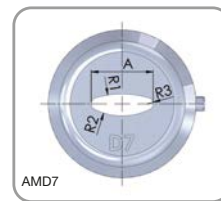
A: _____ B: _____



AMD6

A: _____ R1: _____

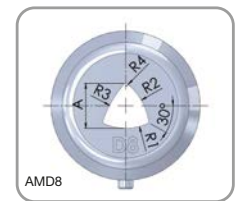
R2: _____



AMD7

A: _____ R1: _____

R2: _____ R3: _____

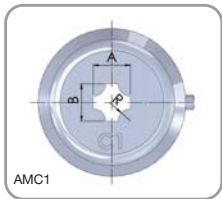


AMD8

A: _____ R1: _____

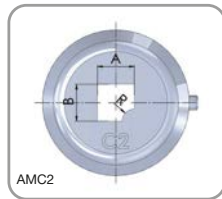
R2: _____ R3: _____

R4: _____



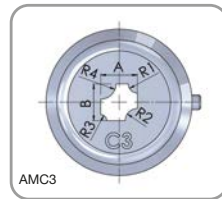
AMC1

A: _____ B: _____
R: _____



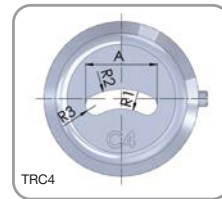
AMC2

A: _____ B: _____
R: _____



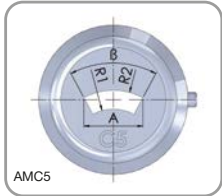
AMC3

A: _____ B: _____
R1: _____ R2: _____
R3: _____ R4: _____



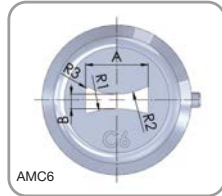
TRC4

A: _____ R1: _____
R2: _____ R3: _____



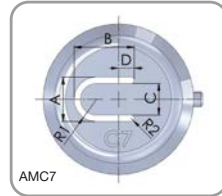
AMC5

A: _____ B: _____
R1: _____ R2: _____



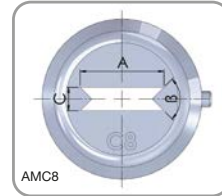
AMC6

A: _____ B: _____
R1: _____ R2: _____
R3: _____



AMC7

A: _____ B: _____
C: _____ D: _____
R1: _____ R2: _____

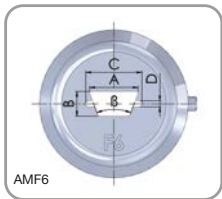


AMC8

A: _____ B: _____
C: _____

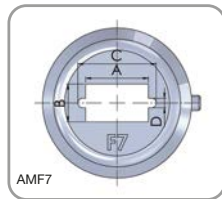
Note:
R<3 price is SPECIAL 2

SPECIAL 2



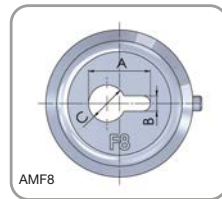
AMF6

A: _____ B: _____
C: _____ D: _____
B: _____



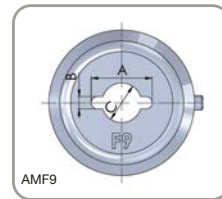
AMF7

A: _____ B: _____
C: _____ D: _____



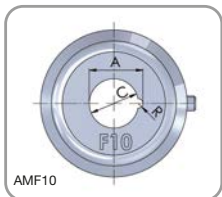
AMF8

A: _____ B: _____
C: _____



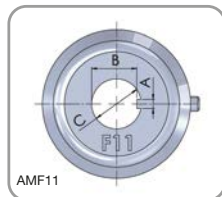
AMF9

A: _____ B: _____
C: _____



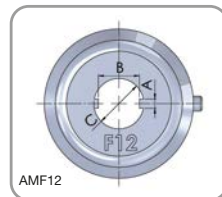
AMF10

A: _____ C: _____
R: _____



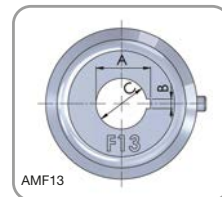
AMF11

A: _____ B: _____
C: _____



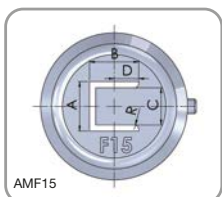
AMF12

A: _____ B: _____
C: _____



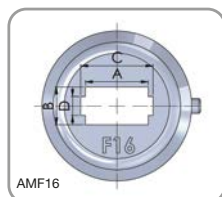
AMF13

A: _____ B: _____
C: _____



AMF15

A: _____ B: _____
C: _____ D: _____
R: _____



AMF16

A: _____ B: _____
C: _____ D: _____

VARITOOL

Max Size mm: 12.7



item	DIE	€	PUNCH	€	PUNCH ASSEMBLY	€
ROUND	WNA0MAM801T		H130 mm WNA0PUM806T H152 mm WNA0PUM8L06T		H130 mm WNA0PAM806T H152 mm WNA0PAM8L06T	
STANDARD	WNA0MAM801S		H130 mm WNA0PUM806S H152 mm WNA0PUM8L06S		H130 mm WNA0PAM806S H152 mm WNA0PAM8L06S	

STATION X

Max Size mm: Round 12.7



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNX1PUT006T		WNB1MAT001T		WNX1PLT0	

STATION A - B

Max Size mm:
Obr - Round 25
Square 16
Rect diagonal 22



item	PUNCH	€	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNA1PUT006T		WNB1PUT006T		WNB1MAT001T		WNB1PLTA1	
STANDARD			WNB1PUT006S		WNB1MAT001S		WNB1PLTA1	
			WNB1PUT006Q 0 - 45°		WNB1MAT001Q 0 - 45°			
SPECIAL 0			WNB1PUT006C		WNB1MAT001D		WNB1PLTA1	
SPECIAL 1			WNB1PUT006D		WNB1MAT001D		WNB1PLTA1	
SPECIAL 2			WNB1PUT006F		WNB1MAT001D		WNB1PLTA1	

STATION C

Max Size mm:
Obr - Round 38
Square 22
Rect diagonal 31



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNC1PUT006T		WNC1MAT001T		WNC1PLT0	
STANDARD	WNC1PUT006S		WNC1MAT001S		WNC1PLT0	
	WNC1PUT006Q 0 - 45°		WNC1MAT001Q 0 - 45°			
SPECIAL 0	WNC1PUT006C		WNC1MAT001D		WNC1PLT0	
SPECIAL 1	WNC1PUT006D		WNC1MAT001D		WNC1PLT0	
SPECIAL 2	WNC1PUT006F		WNC1MAT001D		WNC1PLT0	

STATION D

Max Size mm:
Obr - Round 51
Square 32
Rect diagonal 44



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WND1PUT006T		WND1MAT001T		WND1PLT0	
STANDARD	WND1PUT006S		WND1MAT001S		WND1PLT0	
SPECIAL 0	WND1PUT006C		WND1MAT001D		WND1PLT0	
SPECIAL 1	WND1PUT006D		WND1MAT001D		WND1PLT0	
SPECIAL 2	WND1PUT006F		WND1MAT001D		WND1PLT0	

STATION INDEX 112

Max Size mm:
Obr - Round 51
Square 32
Rect diagonal 44



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNT1PUT006T		WNT1MAT001T		WNTIPLT0	
STANDARD	WNT1PUT006S		WNT1MAT001S		WNTIPLT0	
SPECIAL 0	WNT1PUT006C		WNT1MAT001D		WNTIPLT0	
SPECIAL 1	WNT1PUT006D		WNT1MAT001D		WNTIPLT0	
SPECIAL 2	WNT1PUT006F		WNT1MAT001D		WNTIPLT0	

STATION E

Max Size mm:
Obr - Round 64
Square 41
Rect diagonal 57



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNE1PUT006T		WNE1MAT001T		WNE1PLT0	
STANDARD	WNE1PUT006S		WNE1MAT001S		WNE1PLT0	
SPECIAL 0	WNE1PUT006C		WNE1MAT001D		WNE1PLT0	
SPECIAL 1	WNE1PUT006D		WNE1MAT001D		WNE1PLT0	
SPECIAL 2	WNE1PUT006F		WNE1MAT001D		WNE1PLT0	

STATION F

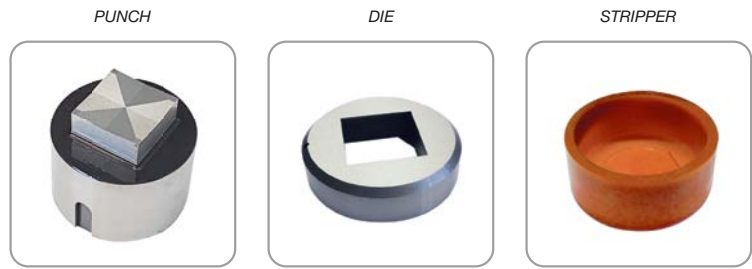
Max Size mm:
Obr - Round 76
Square 48
Rect diagonal 67



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNF1PUT006T		WNF1MAT001T		WNE1PLT0	
STANDARD	WNF1PUT006S		WNF1MAT001S		WNE1PLT0	
SPECIAL 0	WNF1PUT006C		WNF1MAT001D		WNE1PLT0	
SPECIAL 1	WNF1PUT006D		WNF1MAT001D		WNE1PLT0	
SPECIAL 2	WNF1PUT006F		WNF1MAT001D		WNE1PLT0	

STATION G

Max Size mm:
Obr - Round 89
Square 57
Rect diagonal 79



item	PUNCH	€	DIE	€	STRIPPER	€
ROUND	WNG1PUT006T		WNG1MAT001T		WNH1PLT0	
STANDARD	WNG1PUT006S		WNG1MAT001S		WNH1PLT0	
SPECIAL 0	WNG1PUT006C		WNG1MAT001D		WNH1PLT0	
SPECIAL 1	WNG1PUT006D		WNG1MAT001D		WNH1PLT0	
SPECIAL 2	WNG1PUT006F		WNG1MAT001D		WNH1PLT0	

STATION H

Max Size mm:
Obr - Round 105, Square 70, Rect diagonal 98



item	PUNCH	€	PUNCH HOLDER	€	BLADE	€	DIE	€	STRIPPER	€
ROUND	WNH1PUT006T						WNH1MAT001T		WNH1PLT0	
STANDARD	WNH1PUT006S		WNH1PPLAT0		WNH1PULT006S		WNH1MAT001S		WNH1PLT0	
SPECIAL 0	WNH1PUT006C						WNH1MAT001D		WNH1PLT0	
SPECIAL 1	WNH1PUT006D						WNH1MAT001D		WNH1PLT0	
SPECIAL 2	WNH1PUT006F						WNH1MAT001D		WNH1PLT0	

STATION	VARITOOL H 130	VARITOOL H 152	B ROUND	B SHAPE	C ROUND	C SHAPE	D R & S	E R & S	F R & S	G R & S	H R & S	H BLADE
Coating Probus												
Coating Geminus												

Shims



item	B STATION	€	C STATION	€	D STATION	€	E STATION	€
SET DIE SHIMS 0.5 - 1 - 2 MM	WNB1SETSPMA		WNC1SETSPMA		WND1SETSPMA		WNE1SETSPMA	
SET PUNCH SHIMS 1 - 2.5 - 4 MM	WNB1SETSPPU		WNC1SETSPPU		WND1SETSPPU		WNF1SETSPPU	

item	F STATION	€	G STATION	€	H STATION	€
SET DIE SHIMS 0.5 - 1 - 2 MM	WNF1SETSPMA		WNG1SETSPMA		WNH1SETSPMA	
SET PUNCH SHIMS 1 - 2.5 - 4 MM	WNF1SETSPPU		WNH1SETSPPU		WNH1SETSPPU	



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