PASS | STANZTECHNIK AG

TRUMPF

THICK TURRET

SALVAGNINI

PRICE LIST 03/2023-WW-A.5

INSERTS FOR EUROMAC MULTITOOLS

PRICE LIST 03/2023-WW-A.5

VALIDITY OF PRICES:

This price list is valid from 01.03.2023. From this date old price lists lose their validity. The prices do not include statutory value added tax.

CONDITIONS OF PAYMENT:

Unless otherwise stipulated, our invoices are payable in full 30 days after the submission of the invoice.

SCOPE OF APPLICATION:

Deliveries and services provided by PASS Stanztechnik AG are effected exclusively according to PASS delivery and payment conditions. These conditions shall be deemed accepted at the latest upon receipt of the goods or services.

GENERAL REMARKS:

You can find our general terms and conditions on our Homepage under: www.pass-ag.com

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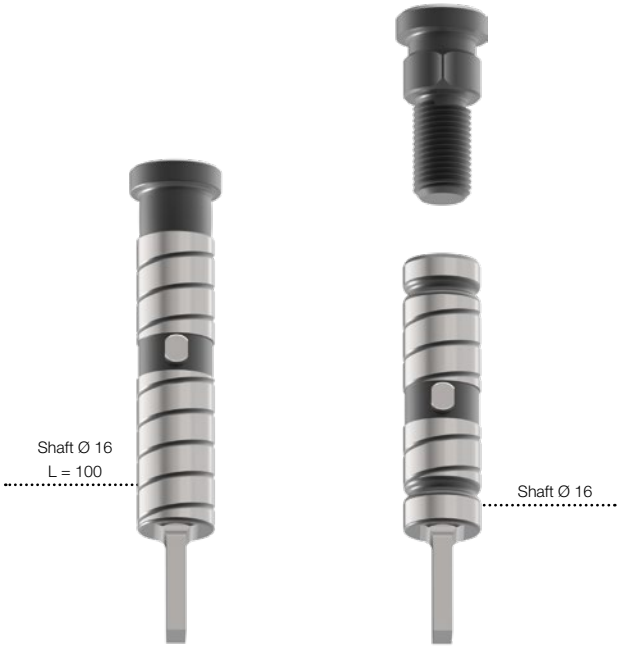
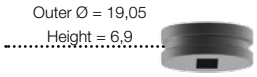
EUROMAC

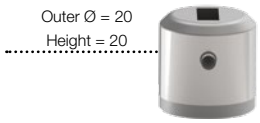
XMTE10-12,7; FMTE10-12,7

PUNCH RIGID

PUNCH ADJUSTABLE







	PART-NO.	PRICE IN €
PUNCH - RIGID (H-PM®)		
Round	413101	36,97
Square	413102	72,65
Rectangle	413103	72,65
Oblong	413104	72,65
O.D. Ground Special Shape	41310G	89,19
EDM Required Special Shape	41310E	112,10
PUNCH - ADJUSTABLE (H-PM®)		
Punch head	1999X1791	28,03
Round	413101-A	36,97
Square	413102-A	72,65
Rectangle	413103-A	72,65
Oblong	413104-A	72,65
O.D. Ground Special Shape	41310G-A	89,19
EDM Required Special Shape	41310E-A	112,10
STRIPPER		
Round	415101	42,08
Square	415102	75,20
Rectangle	415103	75,20
Oblong	415104	75,20
O.D. Ground Special Shape	41510G	94,27
EDM Required Special Shape	41510E	100,68
DIE (HWS)		
Round	414101	36,97
Square	414102	62,46
Rectangle	414103	62,46
Oblong	414104	62,46
O.D. Ground Special Shape	41410G	78,98
EDM Required Special Shape	41410E	85,38

ADDITIONAL COSTS FOR PUNCHES	
TICN coating	31,07
T-MAX coating	54,69
A-MAX coating	45,99
WT-shear	18,64
DOWT-shear	18,64
2 PT-shear	22,38
4 PT-shear	27,33
Cutting part under 1,00 mm	+ 40 %

ADDITIONAL COSTS FOR DIES	
Reinforced version	19,89
H-PM® Quality	8,95
Additional pin hole	16,17

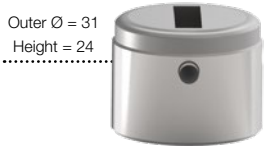
EUROMAC

XMTE6-24; XMTE10-24; FMTE6-24; FMTE10-24

	PART-NO.	PRICE IN €
PUNCH - RIGID (H-PM®)		
Round	413041	36,97
Square	413042	72,65
Rectangle	413043	72,65
Oblong	413044	72,65
O.D. Ground Special Shape	41304G	89,19
EDM Required Special Shape	41304E	112,10
PUNCH - ADJUSTABLE (H-PM®)		
Punch head	1999X1691	28,03
Round	413041-A	36,97
Square	413042-A	72,65
Rectangle	413043-A	72,65
Oblong	413044-A	72,65
O.D. Ground Special Shape	41304G-A	89,19
EDM Required Special Shape	41304E-A	112,10
STRIPPER		
Round	415041	42,08
Square	415042	75,20
Rectangle	415043	75,20
Oblong	415044	75,20
O.D. Ground Special Shape	41504G	94,27
EDM Required Special Shape	41504E	100,68
DIE (HWS)		
Round	414041	36,97
Square	414042	62,46
Rectangle	414043	62,46
Oblong	414044	62,46
O.D. Ground Special Shape	41404G	78,98
EDM Required Special Shape	41404E	85,38

PUNCH RIGID

PUNCH ADJUSTABLE



ADDITIONAL COSTS FOR PUNCHES	
TICN coating	31,07
T-MAX coating	54,69
A-MAX coating	45,99
WT-shear	18,64
DOWT-shear	18,64
2 PT-shear	22,38
4 PT-shear	27,33
Cutting part under 1,00 mm	+ 40 %

ADDITIONAL COSTS FOR DIES	
Reinforced version	19,89
H-PM® Quality	8,95
Additional pin hole	16,17

EUROMAC

XMTE4-31,75; FMTE4-31,75

	PART-NO.	PRICE IN €
PUNCH (H-PM®)		
Round	413141	67,55
Square	413142	107,01
Rectangle	413143	107,01
Oblong	413144	107,01
O.D. Ground Special Shape	41314G	127,41
EDM Required Special Shape	41314E	281,59
STRIPPER		
Round	415141	31,88
Square	415142	59,91
Rectangle	415143	59,91
Oblong	415144	59,91
O.D. Ground Special Shape	41514G	67,55
EDM Required Special Shape	41514E	73,88
DIE (HWS)		
Round	414141	30,59
Square	414142	65,02
Rectangle	414143	65,02
Oblong	414144	65,02
O.D. Ground Special Shape	41414G	78,98
EDM Required Special Shape	41414E	85,38

ADDITIONAL COSTS FOR PUNCHES	
TICN coating	49,71
T-MAX coating	84,51
A-MAX coating	74,57
WT-shear	18,64
DOWT-shear	18,64
2 PT-shear	22,38
4 PT-shear	27,33
Cutting part under 1,00 mm	+ 40 %

ADDITIONAL COSTS FOR DIES	
Reinforced version	19,89
H-PM® Quality	8,95
Additional pin hole	16,17

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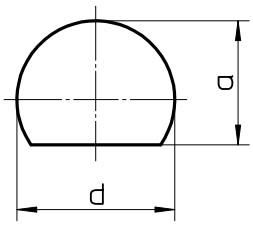
O.D. GROUND SPECIAL SHAPES



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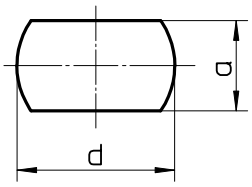

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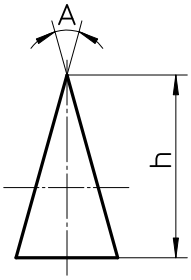

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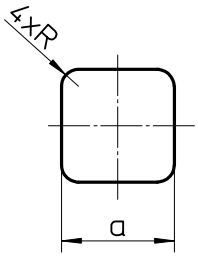

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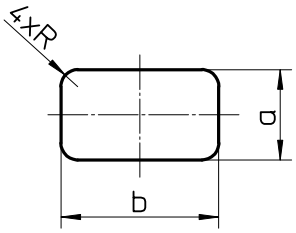

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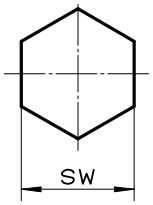

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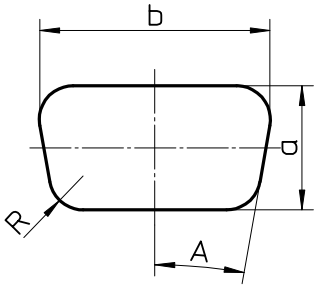

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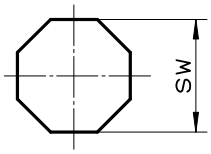

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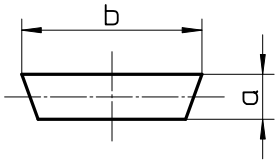

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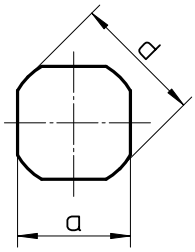

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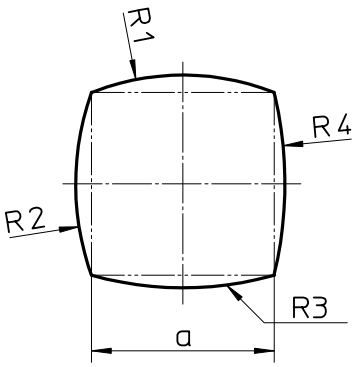

G11

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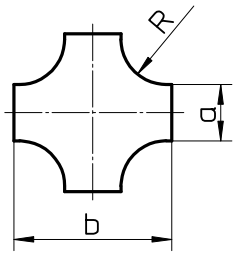
EDM REQUIRED SPECIAL SHAPES



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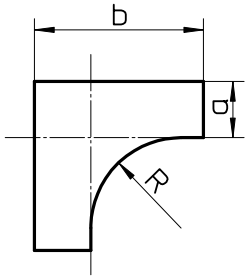

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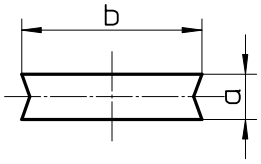

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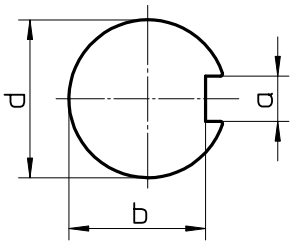

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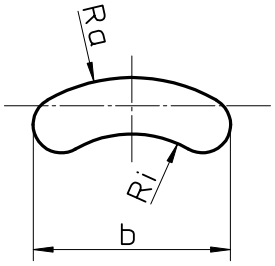

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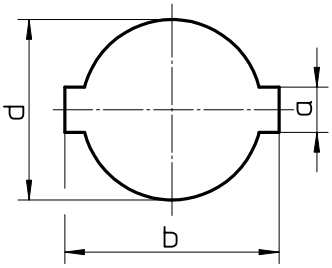

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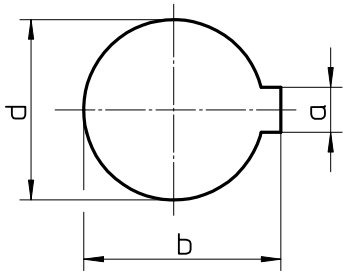

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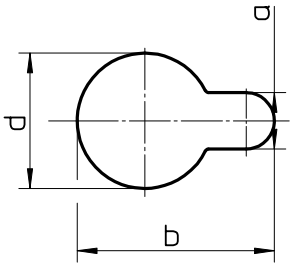

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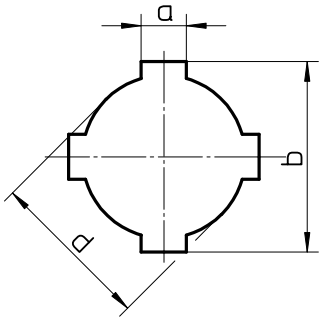

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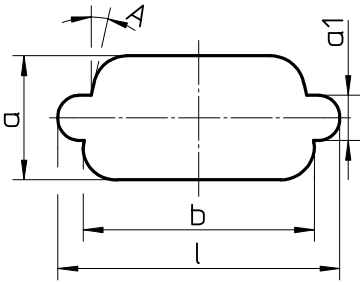

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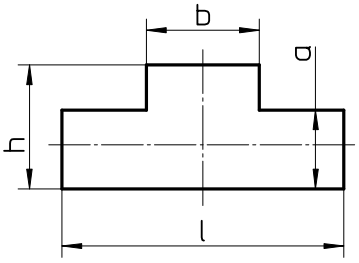

E11

PASS TOOL VARIETY

HWS

HWS tools are made of a secondary hardened cold work steel with superior toughness. This type of steel is especially suitable for dies.

Advantages for customer:

- excellent cost in accordance to performance

H-PM®

H-PM® tools are produced with steel made on powder-metallurgical base with a high degree of purity.

This guarantees a segregational uniformed microstructure in the complete cross-section of the tool.

Advantage for customer:

- excellent cost in accordance to performance
- good stability for edges by increased toughness
- high tool lifetime due to the unformed microstructure
- increased current hit-flex-capability; suitable as an excellent base for dies

X3-PM

The X3-PM tools are made of a high-end powder-metallurgical steel with the best possible performance characteristics for punches in the punching technology due to the best possible degree of purity.

The segregational uniformed microstructure with high vanadium concentration in the complete cross-section of the punch guarantees best possible wear resistance regarding tool lifetime.

Advantage for customer:

- best efficiency by multiple increase of the punch hit count
- best possible stability for cutting edges
- extremely high abrasion resistance
- utmost compressive strength

X8-PM

The X8-PM tools are made of a high-end powder-metallurgical steel the best possible performance characteristics for dies in the punching technology caused by best possible degree of purity.

The high ductility of the segregational uniformed microstructure guarantees best possible fatigue limit. This kind of steel is especially suitable for dies with risk-breakage in regard to special shapes.

Advantage for customer:

- best possible absorption of hit-flex stress; prevents fatigue breakage
- high abrasion resistance

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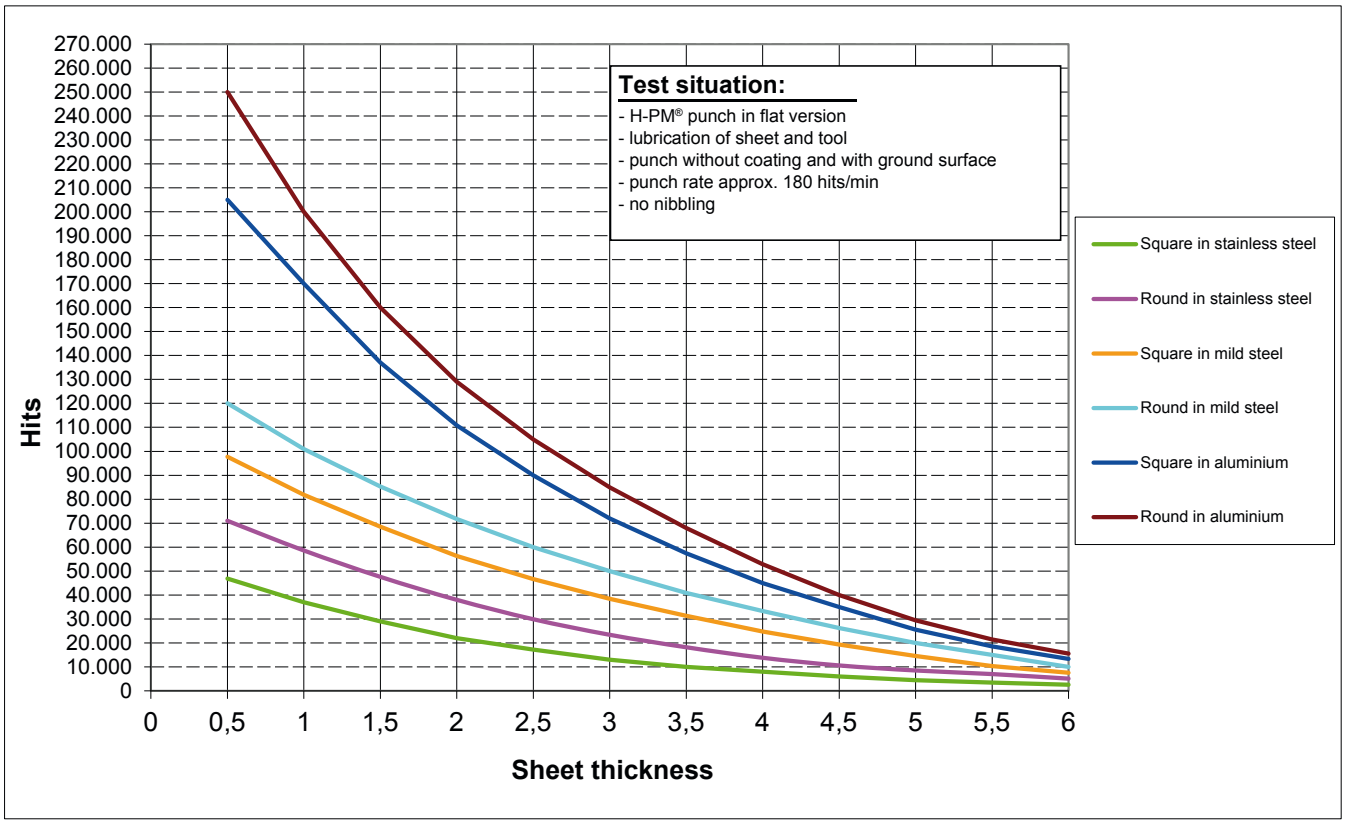
LIFETIME OF TOOLS I REGRIND ADVICE

PASS punches and dies are made of high-end special steel in order to guarantee best lifetime of tools together with high robustness.



INFLUENCING FACTORS	FACTOR
Galvanised steel / stainless steel with foil / aluminium anodised	0,5 - 0,8
No sheet lubrication	0,4 - 0,6
Punch coating (TICN for stainless steel / T-MAX for galvanised steel / A-MAX for aluminium)	2,0 - 4,0
PASS X3-PM punch	6,0 - 10,0
Nibbling	0,7 - 0,9
Notching	0,5 - 0,7
Shear	0,8 - 0,9
Punching rate > 300 hits / min.	0,8 - 0,9
Cutting part with EDM surface	0,4 - 0,8
Cutting part with polished surface	1,5 - 3,0
Cutting part smaller than 1,5x sheet thickness	0,6 - 0,8
Cutting part smaller than 1,0x sheet thickness	0,3 - 0,5
Using of a too small clearance	0,4 - 0,9

An average decrease of the tool life of 5 - 10% per regrind has to be taken in account for the first regrind.

PASS COATING VERSIONS / DRAW-POLISHING

TO REDUCE MATERIAL BUILD-UP

H-PM® tools are produced with steel made on powder-metallurgical base with a high degree of purity to fullfil the highest punching demands.

Furthermore we attach great importance to a high quality hardening process by repeated temporing and deep-freeze subsequently.

This process guarantees an extremely high hardness with an outstanding wear resistance of our punching tools.

Associated with modern production methods (grinding of the cutting edges with special grinding wheels) we can ensure that the wide range of different sheet qualities can be punched up to 1.600 N/mm² – no matter if it concerns mild alloyed aluminium, mild steel, stainless steel or spring band steel.

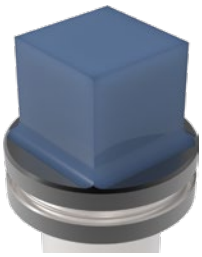
A high punch hardness as well as an excellent grinding surface are important in order to counteract the problem with edge build-up.

Tests show us that the well-known TICN coating is a good coating to increase the lifetime (especially working with stainless steel). However, the problem of material buildup on the edges have not really been counteracted.

Built-up edges are known especially when working with

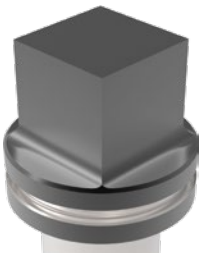
- galvanised steel
- aluminium

After specialized tests at PASS Stanztechnik AG the below mentioned coatings turned out to be the most successful coatings:



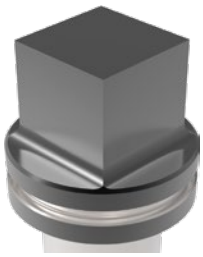
TICN

for working with stainless steel



A-MAX

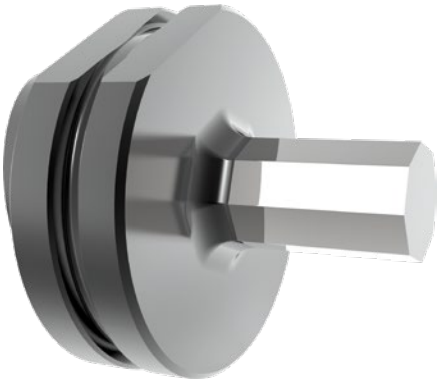
for dry processing with aluminium sheet



T-MAX

for working with galvanised sheet / zincor

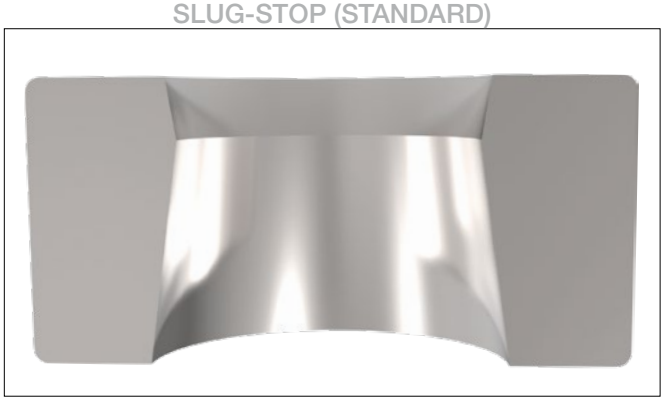
We recommend draw-polished punch edges to increase tool lifetime and reduce material build up (prices on request):



DIE VERSIONS

SLUG-STOP AND SLUG-SNAP (AVOID THE BUILD-UP OF THE SLUGS)

SLUG-STOP (STANDARD)



PASS dies for tooling system THICK TURRET are produced in standard version with a slug-stop version (without additional costs).

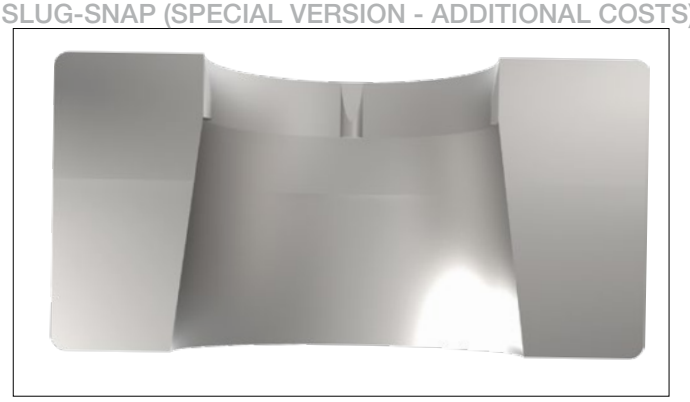
This means that the upper part of the cutting part is produced with a negative angle.

The slug will be held with the complete circumference in the die.

This is not recommended for:

- shapes smaller than 1,25 mm
- clearance smaller 0,1 mm

SLUG-SNAP (SPECIAL VERSION - ADDITIONAL COSTS)



Alternatively we offer our slug-snap version (additional costs).

In this case special holding bolts are included in the die, clamping the slug positively (better than the slug-stop version).

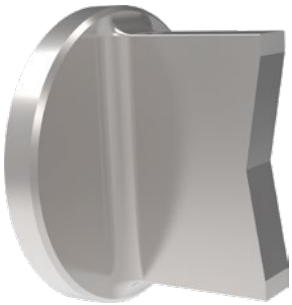
The slug-snap version is also more convenient for shapes smaller than 1,25 mm and clearance smaller 0,1 mm.

PUNCHES WITH DIFFERENT SHEAR TYPES

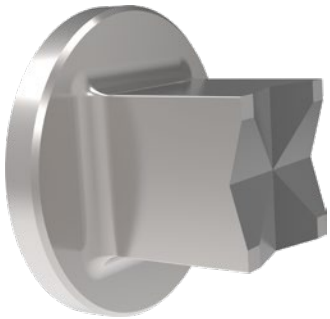
WT

DOWT

2 PT



4 PT



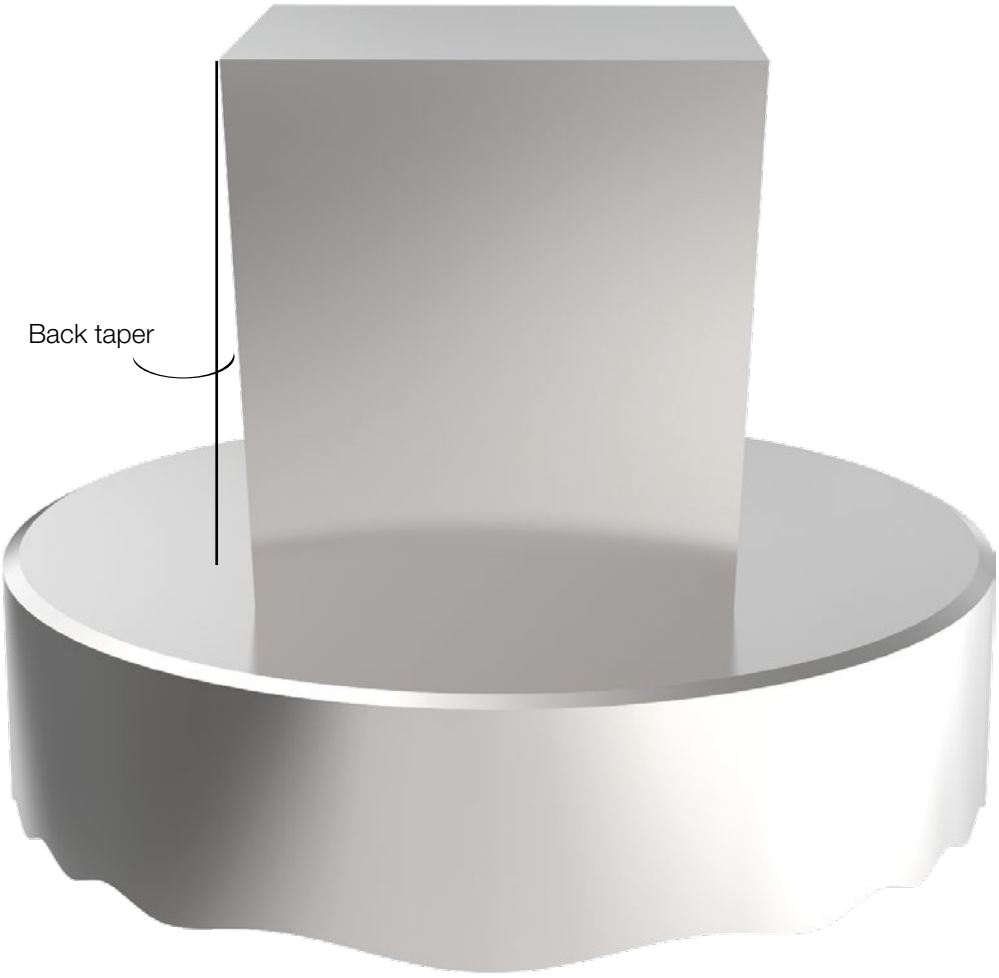
	DESCRIPTION
WT	
Advantage	easy regrindable
Disadvantage	lateral forces
DOWT	
Advantages	easy regrindable no lateral forces
Disadvantage	only reasonable for big shapes
2 PT	
Advantages	no lateral forces optimal die cutting
Disadvantages	only reasonable for big and slim shapes difficult to regrind
4 PT	
Advantages	no lateral forces optimal die cutting suitable for trimming
Disadvantages	only reasonable for big shapes difficult to regrind

PASS BACK TAPER ON PUNCHES

PASS punches are normally produced with back taper to reduce galling and premature punch wear.

However it should be mentioned that back taper is very important when punching materials such as stainless steel or very thick material to reduce galling and eliminate breakage of the tool corners and edges.

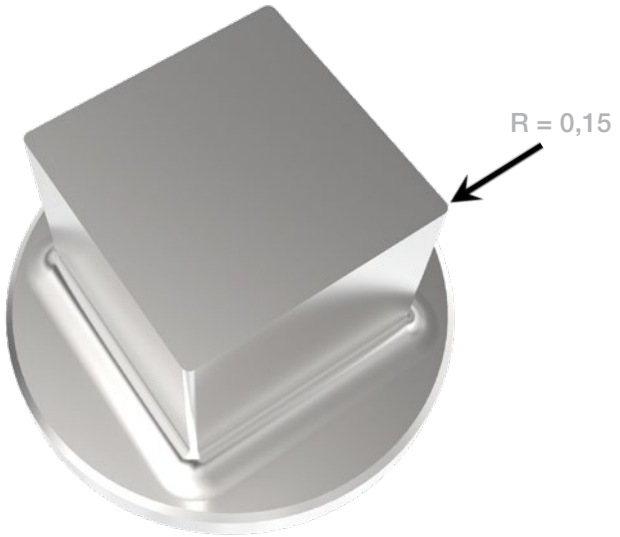
We recommend a line polished version for cutting parts, which have to be produced sink-eroded (special shape with internal shape, e.g. cross-form, U-form, etc.) and in high qualitity sheets.

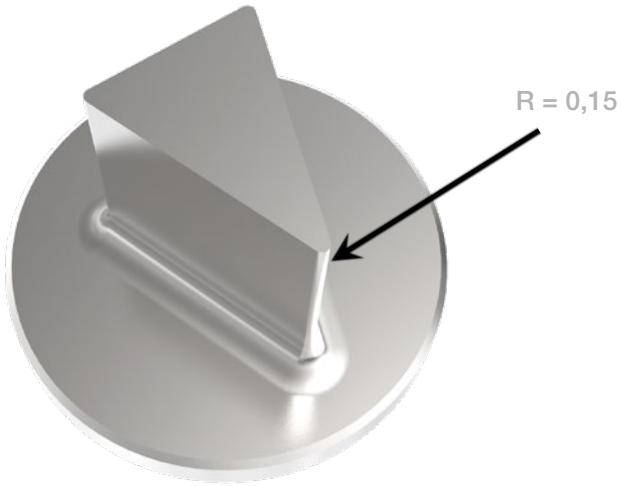


PASS CORNER RADIUS ON PUNCHES

PASS punches are automatically produced with corner radius R = 0,15 mm. This process increases the lifetime as the corner abrasive wear will be decreased considerably.

E.g.: square and triangle punch

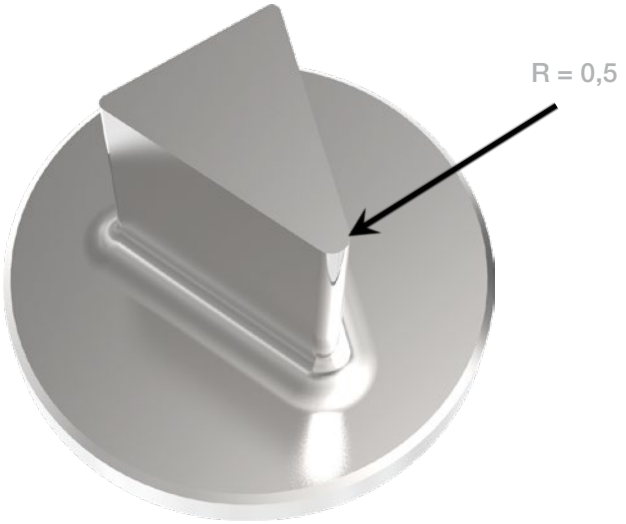




The corner radius can be changed on customer‘s request.

E.g.:

R = 0,5 mm instead of R = 0,15 mm for stainless steel
in order to increase tool life.



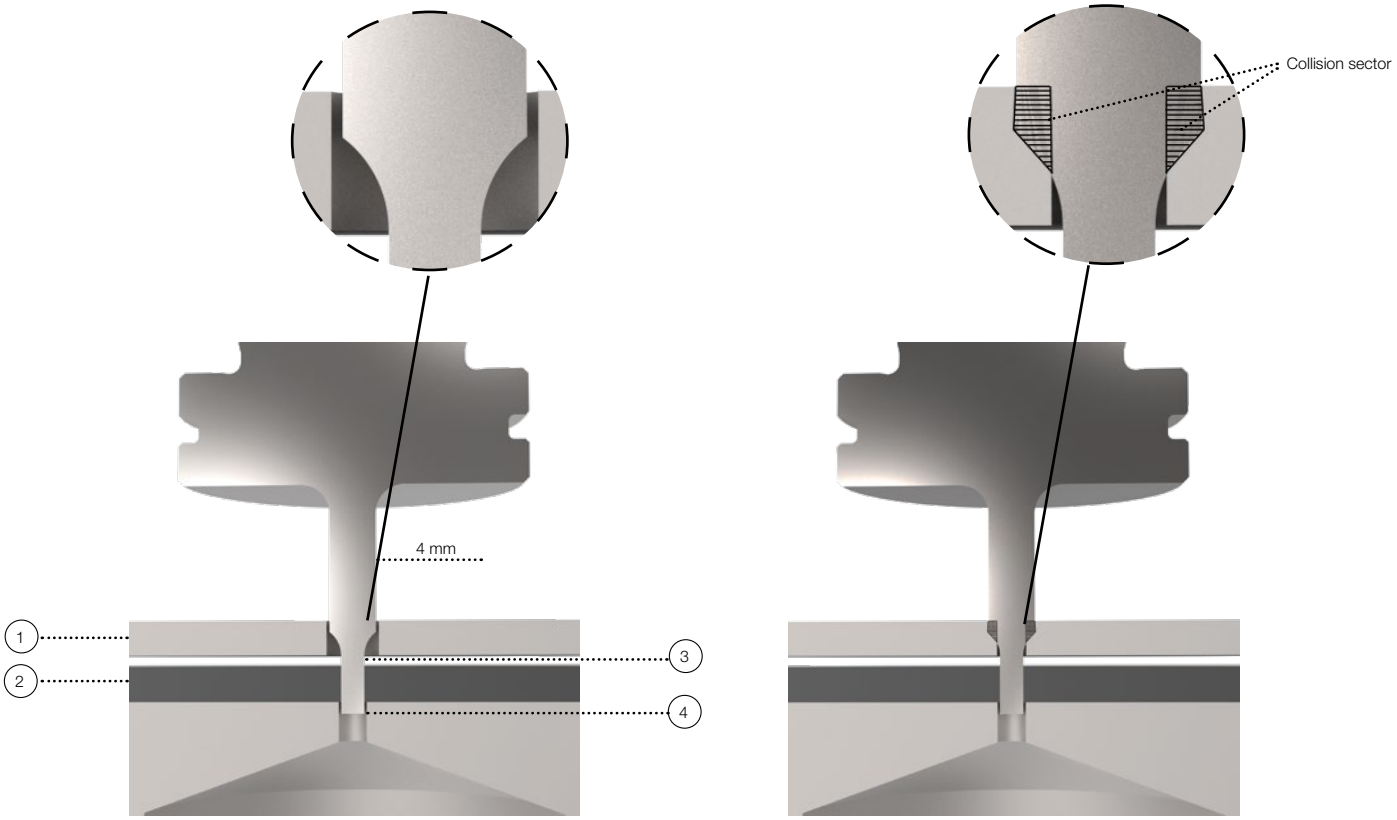
PASS PUNCHES WITH REINFORCED SHOULDER

All PASS punches are produced with a 4 mm reinforced shoulder as soon as the cutting section is required smaller than 4 mm.

This guarantees that you will get a tool with highest stability in order to punch also thicker and high-strength sheets.

However, the correct stripper size has to be selected in subject to machine type, tool design, sheet thickness (1), punching depth (2), stripper thickness (3) and stripper overlap (4).

It might be possible that it gets necessary to use a stripper with an appropriate big shape (width min. 4.5 mm) in order to get sure that the reinforced punch shoulder can immerse into the stripper.



CORRECT

WRONG

NOTES

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NOTES

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