PASS | STANZTECHNIK AG

TRUMPF

THICK TURRET

SALVAGNINI

CATALOG 02/2022-WW-A.5

INSERTS FOR EUROMAC MULTITOOLS

CATALOG 02/2022-WW-A.5

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

INDEX

INSERTS FOR EUROMAC MULTITOOLS

TECHNICAL INFORMATION

02/2022-WW-A.5 Version 4.0

INSERTS FOR EUROMAC MULTITOOLS

PASS TOOLS FOR YOUR EUROMAC MULTITOOL SYSTEM

INDEX

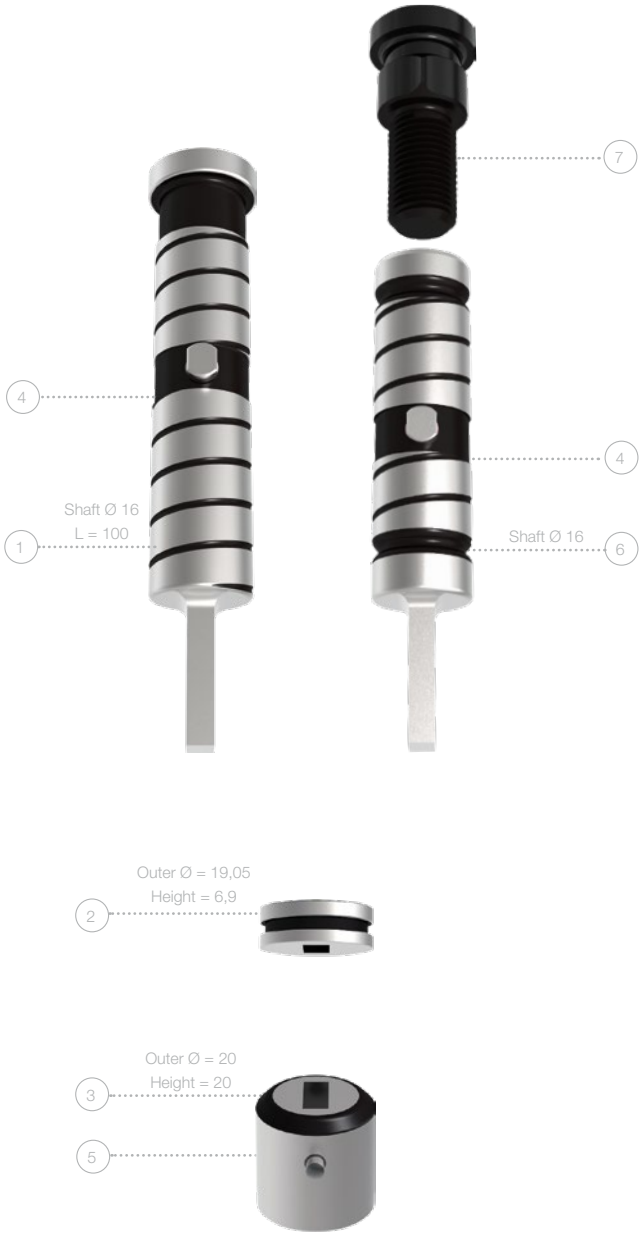
02/2022-WW-A.5 Version 4.0

EUROMAC

XMTE10-12,7; FMTE10-12,7

PUNCH PUNCH ADJUSTABLE

RIGID



	POS.-NO.	PART-NO.
PUNCH - RIGID (1) (H-PM®)		
Round	1	413101
Square	1+4	413102
Rectangle	1+4	413103
Oblong	1+4	413104
O.D. Ground Special Shape	1+4	41310G
EDM Required Special Shape	1+4	41310E
PUNCH - ADJUSTABLE (2) (H-PM®)		
Punch head	7	1999X1791
Round	6+4	413101-A
Square	6+4	413102-A
Rectangle	6+4	413103-A
Oblong	6+4	413104-A
O.D. Ground Special Shape	6+4	41310G-A
EDM Required Special Shape	6+4	41310E-A
STRIPPER		
Round	2	415101
Square	2	415102
Rectangle	2	415103
Oblong	2	415104
O.D. Ground Special Shape	2	41510G
EDM Required Special Shape	2	41510E
DIE (HWS)		
Round	3	414101
Square	3+5	414102
Rectangle	3+5	414103
Oblong	3+5	414104
O.D. Ground Special Shape	3+5	41410G
EDM Required Special Shape	3+5	41410E

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

EUROMAC

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

	POS.-NO.	PART-NO.
PUNCH - RIGID (1) (H-PM®)		
Round	1	413041
Square	1+4	413042
Rectangle	1+4	413043
Oblong	1+4	413044
O.D. Ground Special Shape	1+4	41304G
EDM Required Special Shape	1+4	41304E
PUNCH - ADJUSTABLE (2) (H-PM®)		
Punch head	7	1999X1691
Round	6+4	413041-A
Square	6+4	413042-A
Rectangle	6+4	413043-A
Oblong	6+4	413044-A
O.D. Ground Special Shape	6+4	41304G-A
EDM Required Special Shape	6+4	41304E-A
STRIPPER		
Round	2	415041
Square	2	415042
Rectangle	2	415043
Oblong	2	415044
O.D. Ground Special Shape	2	41504G
EDM Required Special Shape	2	41504E
DIE (HWS)		
Round	3	414041
Square	3+5	414042
Rectangle	3+5	414043
Oblong	3+5	414044
O.D. Ground Special Shape	3+5	41404G
EDM Required Special Shape	3+5	41404E

PUNCH RIGID

PUNCH ADJUSTABLE

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

EUROMAC

XMTE4-31,75; FMTE4-31,75

	POS.-NO.	PART-NO.
PUNCH (H-PM®)		
Round	1	413141
Square	1+4	413142
Rectangle	1+4	413143
Oblong	1+4	413144
O.D. Ground Special Shape	1+4	41314G
EDM Required Special Shape	1+4	41314E
STRIPPER		
Round	2	415141
Square	2	415142
Rectangle	2	415143
Oblong	2	415144
O.D. Ground Special Shape	2	41514G
EDM Required Special Shape	2	41514E
DIE (HWS)		
Round	3	414141
Square	3+5	414142
Rectangle	3+5	414143
Oblong	3+5	414144
O.D. Ground Special Shape	3+5	41414G
EDM Required Special Shape	3+5	41414E

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

EUROMAC

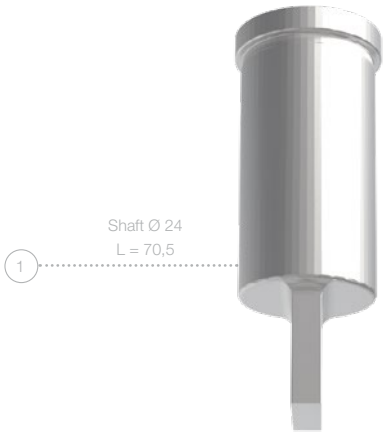
MTE10-8 (POS. 2/3/4/5/6/8/10)

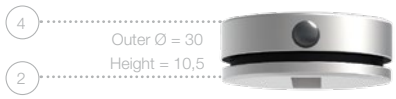
	POS.-NO.	PART-NO.
PUNCH (H-PM®)		
Round	1	413011
Square	1	413012
Rectangle	1	413013
Oblong	1	413014
O.D. Ground Special Shape	1	41301G
EDM Required Special Shape	1	41301E
STRIPPER		
Round	2	415011
Square	2+4	415012
Rectangle	2+4	415013
Oblong	2+4	415014
O.D. Ground Special Shape	2+4	41501G
EDM Required Special Shape	2+4	41501E
DIE (HWS)		
Round	3	414011
Square	3+5	414012
Rectangle	3+5	414013
Oblong	3+5	414014
O.D. Ground Special Shape	3+5	41401G
EDM Required Special Shape	3+5	41401E

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

EUROMAC

MTE6-24; MTE10-24 (POS. 1/7/9)





	POS.-NO.	PART-NO.
PUNCH (H-PM®)		
Round	1	413031
Square	1	413032
Rectangle	1	413033
Oblong	1	413034
O.D. Ground Special Shape	1	41303G
EDM Required Special Shape	1	41303E
STRIPPER		
Round	2	415031
Square	2+4	415032
Rectangle	2+4	415033
Oblong	2+4	415034
O.D. Ground Special Shape	2+4	41503G
EDM Required Special Shape	2+4	41503E
DIE (HWS)		
Round	3	414031
Square	3+5	414032
Rectangle	3+5	414033
Oblong	3+5	414034
O.D. Ground Special Shape	3+5	41403G
EDM Required Special Shape	3+5	41403E

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

02/2022-WW-A.5 Version 4.0

EUROMAC

MTE4-31,75

	POS.-NO.	PART-NO.
PUNCH (H-PM®)		
Round	1	413061
Square	1+4	413062
Rectangle	1+4	413063
Oblong	1+4	413064
O.D. Ground Special Shape	1+4	41306G
EDM Required Special Shape	1+4	41306E
STRIPPER		
Round	2	415061
Square	2	415062
Rectangle	2	415063
Oblong	2	415064
O.D. Ground Special Shape	2	41506G
EDM Required Special Shape	2	41506E
DIE (HWS)		
Round	3	414061
Square	3+5	414062
Rectangle	3+5	414063
Oblong	3+5	414064
O.D. Ground Special Shape	3+5	41406G
EDM Required Special Shape	3+5	41406E

ADDITIONAL COSTS FOR PUNCHES	ADDITIONAL COSTS FOR DIES
TICN coating	Reinforced version
T-MAX coating	H-PM® Quality
A-MAX coating	Additional pin hole
WT-shear	
DOWT-shear	
2 PT-shear	
4 PT-shear	
Cutting part under 1,00 mm	

02/2022-WW-A.5 Version 4.0

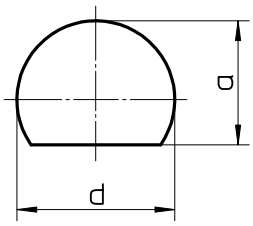
TECHNICAL INFORMATION

PASS TOOLS FOR YOUR EUROMAC MULTITOOL SYSTEM

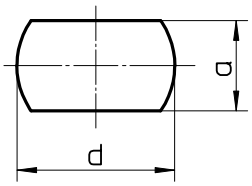
INDEX

02/2022-WW-A.5 Version 4.0

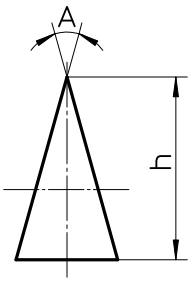
O.D. GROUND SPECIAL SHAPES



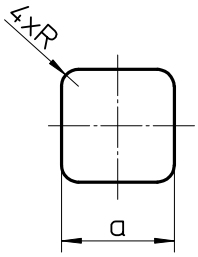
G01



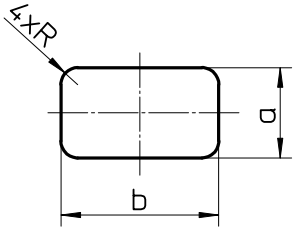
G02



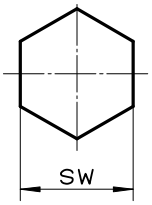
G03



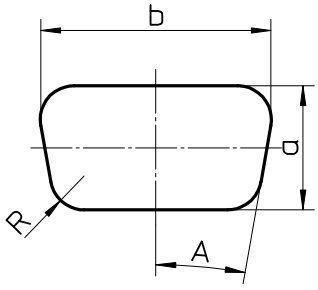
G04



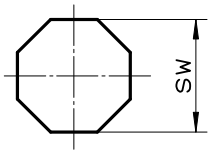
G05



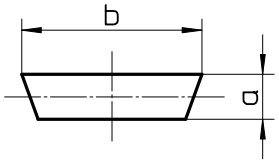
G06



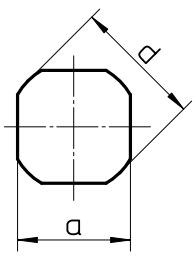
G07



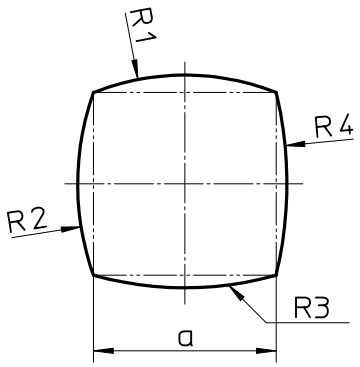
G08



G09



G10

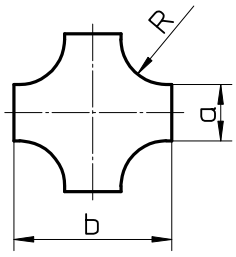


G11

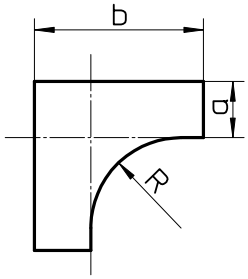
CONTACT: **+49 92 70 / 9 85 - 0**

02/2022-WW-A.5 Version 4.0

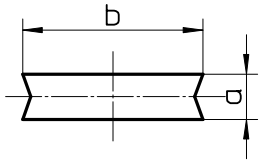
EDM REQUIRED SPECIAL SHAPES



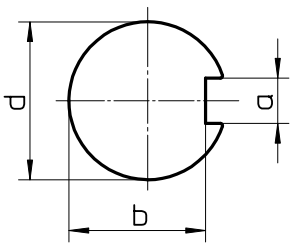
E01



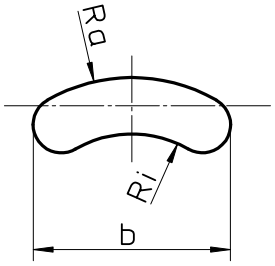
E02



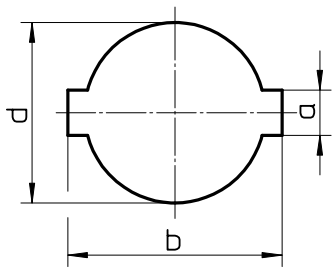
E03



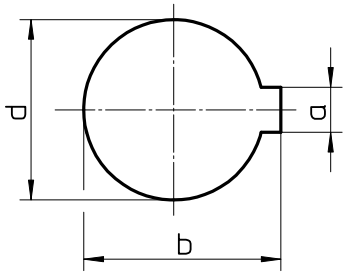
E04



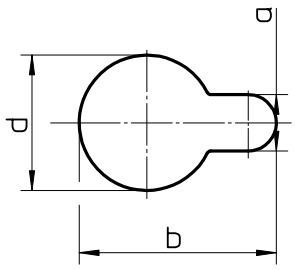
E05



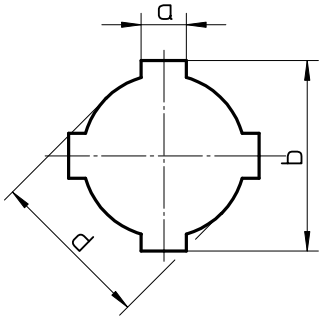
E06



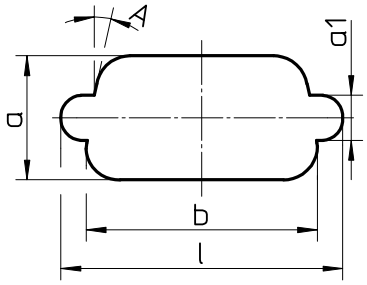
E07



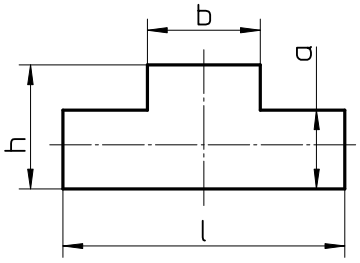
E08



E09



E10



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.

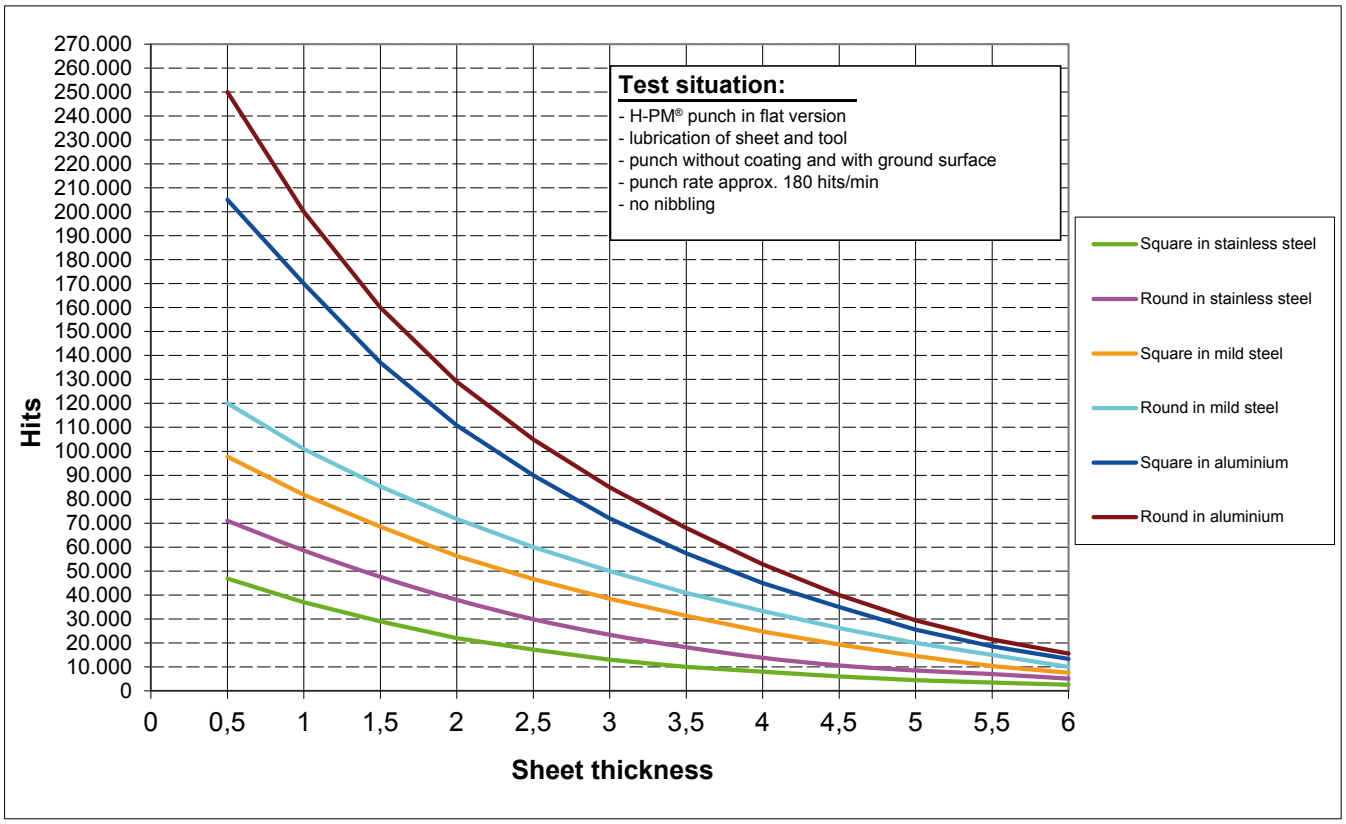
Advantage for customer:

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

02/2022-WW-A.5 Version 4.0

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.

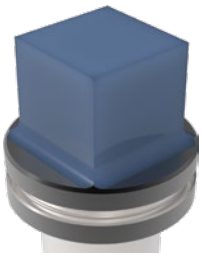
A high punch hardness as well as an excellent grinding surface are important in order to counteract the problem with edge build-up.

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

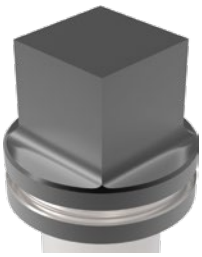
- galvanised steel
- aluminium

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



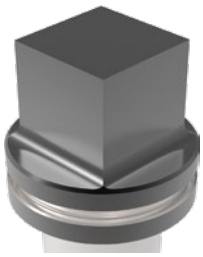
TICN

for working with stainless steel



A-MAX

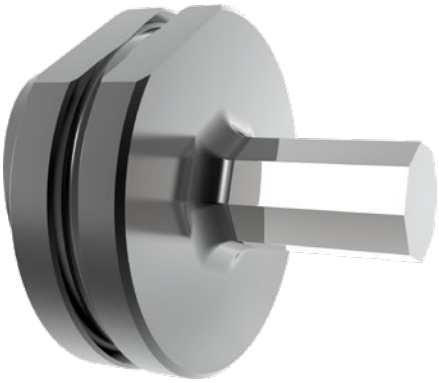
for dry processing with aluminium sheet



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):

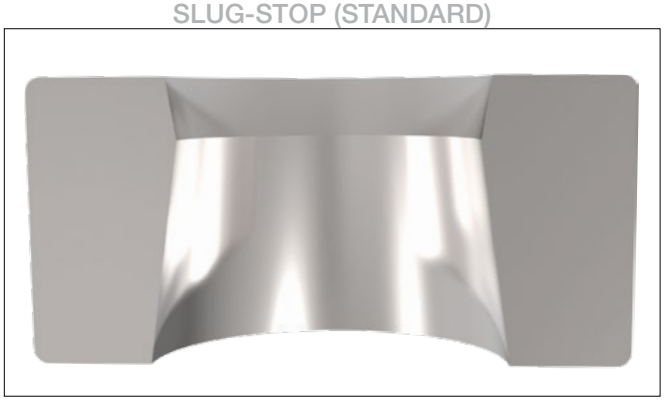


02/2022-WW-A.5 Version 4.0

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).

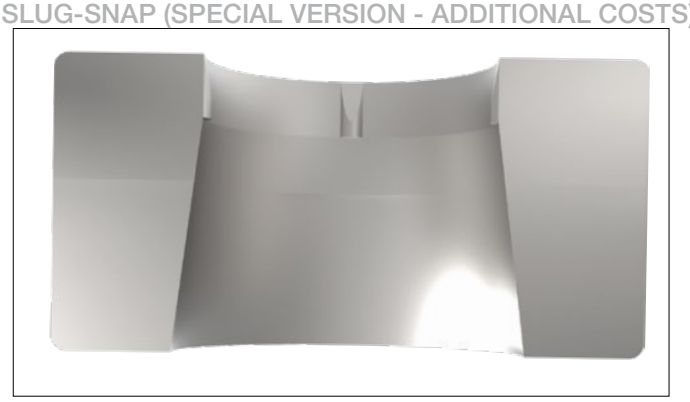
This means that the upper part of the cutting part is produced with a negative angle.

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).

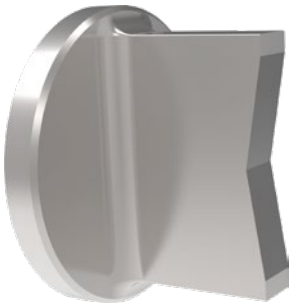
The slug-snap version is also more convenient for shapes smaller than 1,25 mm and clearance smaller 0,1 mm.

PUNCHES WITH DIFFERENT SHEAR TYPES

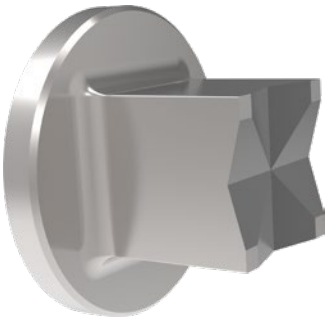
WT

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

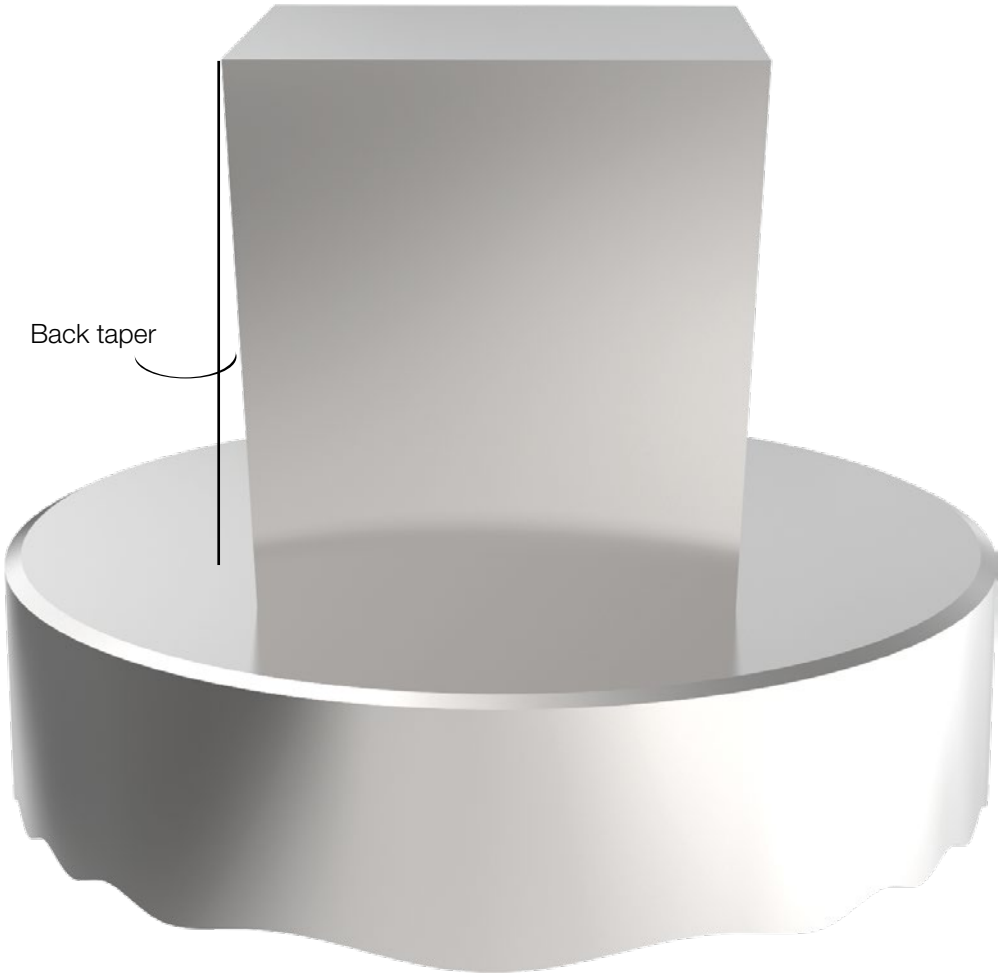
02/2022-WW-A.5 Version 4.0

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.

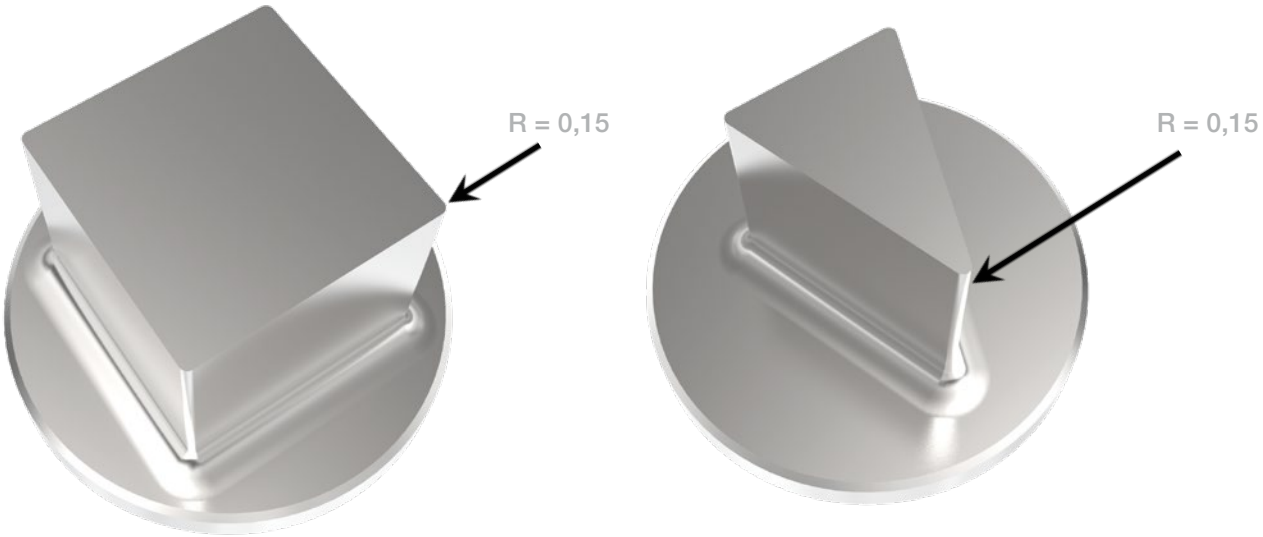
We recommend a line polished version for cutting parts, which have to be produced sink-eroded (special shape with internal shape, e.g. cross-form, U-form, etc.) and in high qualitity sheets.



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.

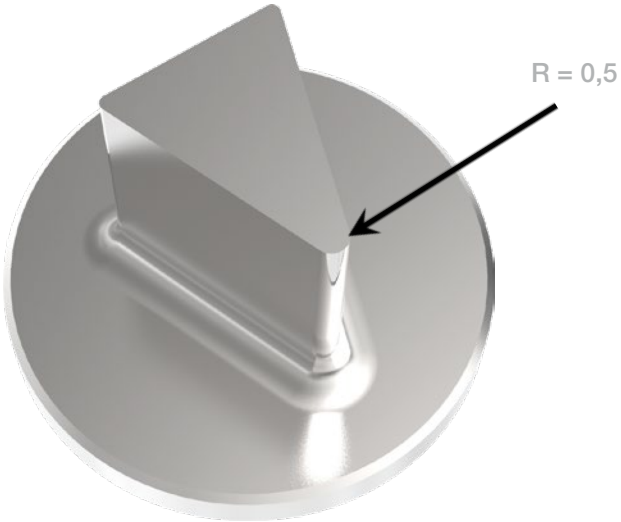
E.g.: square and triangle punch



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.



02/2022-WW-A.5 Version 4.0

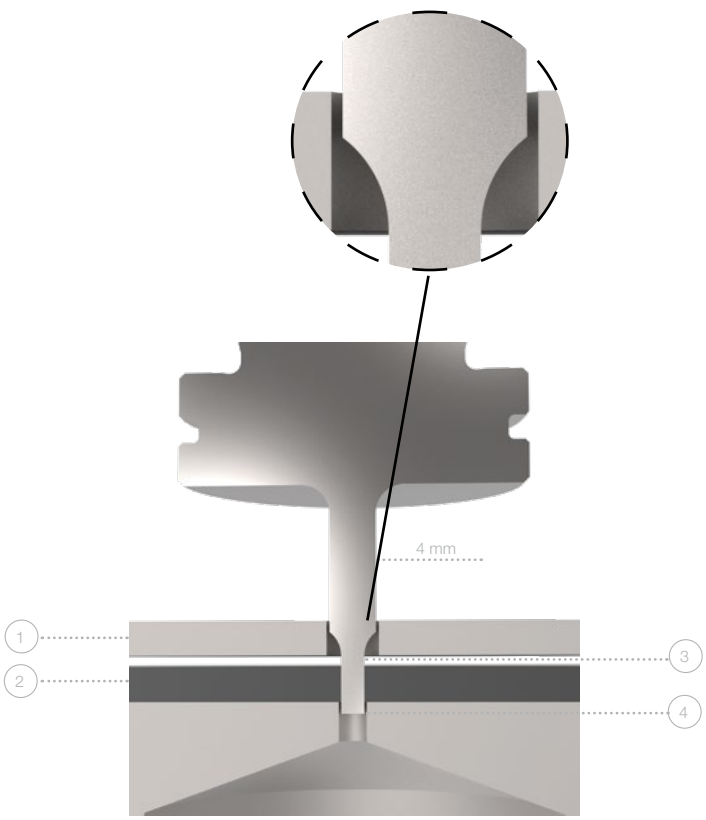
PASS PUNCHES WITH REINFORCED SHOULDER

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

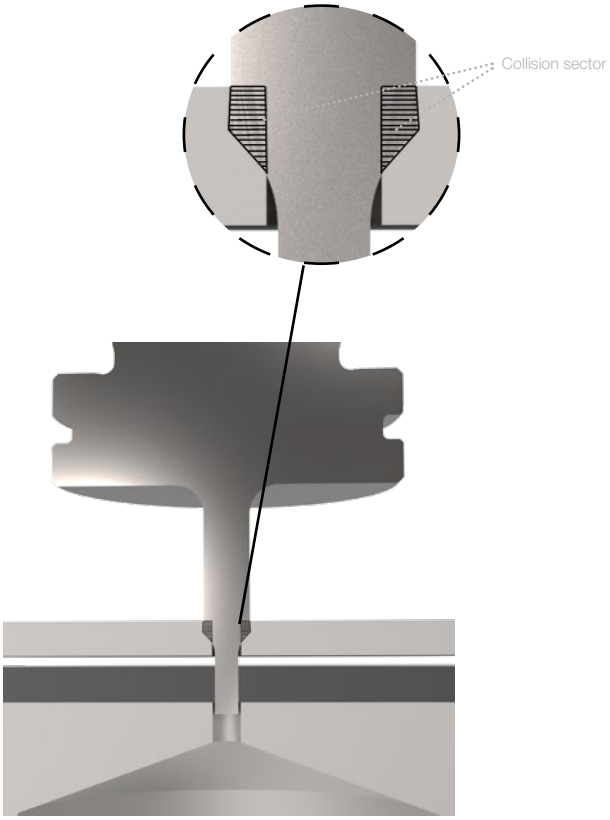
This guarantees that you will get a tool with highest stability in order to punch also thicker and high-strength sheets.

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

NOTES

NOTES

02/2022-WW-A.5 Version 4.0

NOTES

SALVAGNINI | THICK TURRET | TRUMPF

Am Steinkreuz 2
95473 Creußen | Germany

WEB: www.pass-ag.com
MAIL: info@pass-ag.com

FON: +49 (0) 92 70 / 9 85 - 0
FAX: +49 (0) 92 70 / 9 85 - 99