



CATALOG 03/2023-WW-A.4
INSERTS FOR PRIMA POWER/MULTITOOLS



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

INSERTS FOR PRIMA POWER/MULTITOOLS

MTPi24-8; MTP16-8; MT24-8; MTH16-8	page 6
MTPi10-16; MTP8-16; MT10-16; MTH16-16	page 7
MTPi8-24; MTP5-24; MT8-24	page 8
MT3Ri-31,75; MT3i-31,75.....	page 9
MT20i-8.....	page 10
MT8Ri2-16 (Version 2).....	page 11

TECHNICAL INFORMATION

O.D. Ground Special Shapes.....	page 14
EDM Required Special Shapes	page 15
PASS tool variety.....	page 16
Lifetime of tools I regrind advice	page 17
PASS coating versions / draw-polishing	page 18
Die versions.....	page 19
Punches with different shear types.....	page 20
PASS back taper on punches	page 21
PASS corner radius on punches.....	page 22
PASS punches with reinforced shoulder	page 23



INSERTS FOR PRIMA POWER/ MULTITOOLS

PASS TOOLS FOR YOUR
PRIMA POWER/MULTITOOL SYSTEM

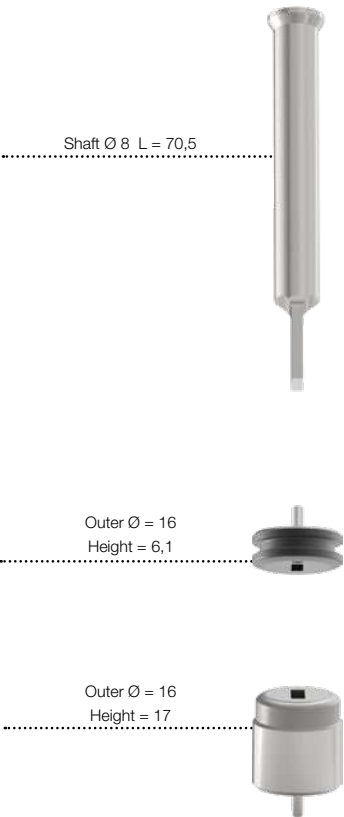
INDEX

MTPi24-8; MTP16-8; MT24-8; MTH16-8	page 6
MTPi10-16; MTP8-16; MT10-16; MTH16-16	page 7
MTPi8-24; MTP5-24; MT8-24	page 8
MT3Ri-31,75; MT3i-31,75	page 9
MT20i-8	page 10
MT8Ri2-16 (Version 2)	page 11

PRIMA POWER

MTPi24-8; MTP16-8; MT24-8; MTH16-8

PART-NO.



PUNCH (H-PM®)		
	Round	413121
	Square	413122
	Rectangle	413123
	Oblong	413124
	O.D. Ground Special Shape	41312G
	EDM Required Special Shape	41312E

STRIPPER		
	Round	415121
	Square	415122
	Rectangle	415123
	Oblong	415124
	O.D. Ground Special Shape	41512G
	EDM Required Special Shape	41512E

DIE (HWS)		
	Round	414121
	Square	414122
	Rectangle	414123
	Oblong	414124
	O.D. Ground Special Shape	41412G
	EDM Required Special Shape	41412E

ADDITIONAL COSTS FOR PUNCHES

- TICN coating
- T-MAX coating
- A-MAX coating
- WT-shear
- DOWT-shear
- 2 PT-shear
- 4 PT-shear
- Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

- Reinforced version
- H-PM® Quality
- Additional pin hole

PRIMA POWER

MTPi10-16; MTP8-16; MT10-16; MTH16-16

		PART-NO.
PUNCH (H-PM®)		
	Round	413021
	Square	413022
	Rectangle	413023
	Oblong	413024
	O.D. Ground Special Shape	41302G
	EDM Required Special Shape	41302E
STRIPPER		
	Round	415021
	Square	415022
	Rectangle	415023
	Oblong	415024
	O.D. Ground Special Shape	41502G
	EDM Required Special Shape	41502E
DIE (HWS)		
	Round	414021
	Square	414022
	Rectangle	414023
	Oblong	414024
	O.D. Ground Special Shape	41402G
	EDM Required Special Shape	41402E



Shaft Ø 16 L = 70,5



Outer Ø = 25
Height = 8



Outer Ø = 25
Height = 24

ADDITIONAL COSTS FOR PUNCHES

TICN coating
T-MAX coating
A-MAX coating
WT-shear
DOWT-shear
2 PT-shear
4 PT-shear
Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

Reinforced version
H-PM® Quality
Additional pin hole

PRIMA POWER

MTPi8-24; MTP5-24; MT8-24



		PART-NO.
PUNCH (H-PM®)		
	Round	413131
	Square	413132
	Rectangle	413133
	Oblong	413134
	O.D. Ground Special Shape	41313G
	EDM Required Special Shape	41313E
STRIPPER		
	Round	415131
	Square	415132
	Rectangle	415133
	Oblong	415134
	O.D. Ground Special Shape	41513G
	EDM Required Special Shape	41513E
DIE (HWS)		
	Round	414131
	Square	414132
	Rectangle	414133
	Oblong	414134
	O.D. Ground Special Shape	41413G
	EDM Required Special Shape	41413E

ADDITIONAL COSTS FOR PUNCHES

- TICN coating
- T-MAX coating
- A-MAX coating
- WT-shear
- DOWT-shear
- 2 PT-shear
- 4 PT-shear
- Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

- Reinforced version
- H-PM® Quality
- Additional pin hole

PRIMA POWER

MT3Ri-31,75; MT3i-31,75

		PART-NO.
PUNCH (H-PM®)		
	Round	413181
	Square	413182
	Rectangle	413183
	Oblong	413184
	O.D. Ground Special Shape	41318G
	EDM Required Special Shape	41318E
STRIPPER		
	Round	415181
	Square	415182
	Rectangle	415183
	Oblong	415184
	O.D. Ground Special Shape	41518G
	EDM Required Special Shape	41518E
DIE (HWS)		
	Round	414181
	Square	414182
	Rectangle	414183
	Oblong	414184
	O.D. Ground Special Shape	41418G
	EDM Required Special Shape	41418E



Shaft Ø 31,75
L = 100,5



Outer Ø = 40
Height = 6,35



Outer Ø = 47,62
Height = 15,1

ADDITIONAL COSTS FOR PUNCHES

TICN coating
T-MAX coating
A-MAX coating
WT-shear
DOWT-shear
2 PT-shear
4 PT-shear
Cutting part under 1,00 mm

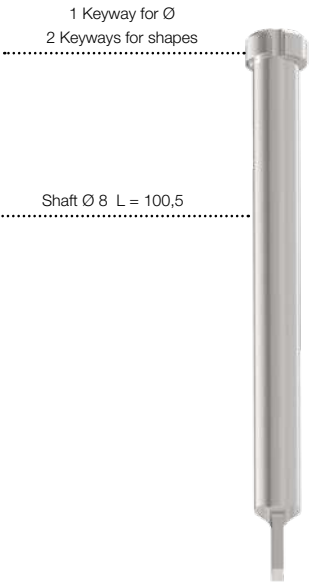
ADDITIONAL COSTS FOR DIES

Reinforced version
H-PM® Quality
Additional pin hole

PRIMA POWER

MT20i-8

PART-NO.



1 Keyway for Ø
2 Keyways for shapes

Shaft Ø 8 L = 100,5



Outer Ø = 16
Height = 6,1



Outer Ø = 16
Height = 17

PUNCH (H-PM®)		
Round	413111	
Square	413112	
Rectangle	413113	
Oblong	413114	
O.D. Ground Special Shape	41311G	
EDM Required Special Shape	41311E	

STRIPPER		
Round	415111	
Square	415112	
Rectangle	415113	
Oblong	415114	
O.D. Ground Special Shape	41511G	
EDM Required Special Shape	41511E	

DIE (HWS)		
Round	414111	
Square	414112	
Rectangle	414113	
Oblong	414114	
O.D. Ground Special Shape	41411G	
EDM Required Special Shape	41411E	

ADDITIONAL COSTS FOR PUNCHES

TICN coating
T-MAX coating
A-MAX coating
WT-shear
DOWT-shear
2 PT-shear
4 PT-shear
Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

Reinforced version
H-PM® Quality
Additional pin hole

PRIMA POWER

MT8Ri2-16 (VERSION 2)

		PART-NO.
PUNCH (H-PM®)		
	Round	413151
	Square	413152
	Rectangle	413153
	Oblong	413154
	O.D. Ground Special Shape	41315G
	EDM Required Special Shape	41315E
STRIPPER		
	Round	415151
	Square	415152
	Rectangle	415153
	Oblong	415154
	O.D. Ground Special Shape	41515G
	EDM Required Special Shape	41515E
DIE (HWS)		
	Round	414151
	Square	414152
	Rectangle	414153
	Oblong	414154
	O.D. Ground Special Shape	41415G
	EDM Required Special Shape	41415E



ADDITIONAL COSTS FOR PUNCHES

- TICN coating
- T-MAX coating
- A-MAX coating
- WT-shear
- DOWT-shear
- 2 PT-shear
- 4 PT-shear
- Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

- Reinforced version
- H-PM® Quality
- Additional pin hole



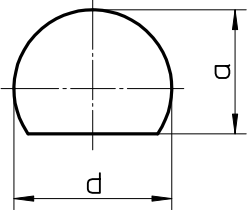
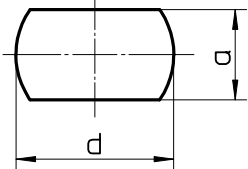
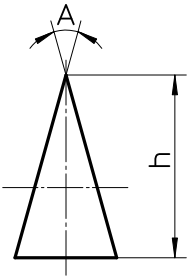
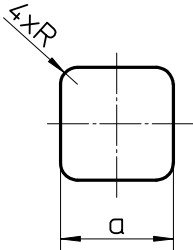
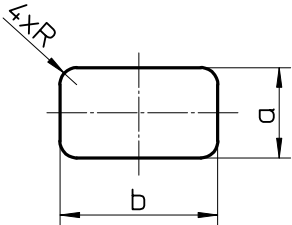
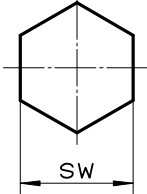
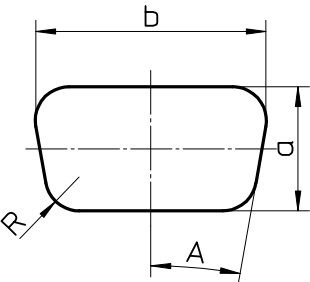
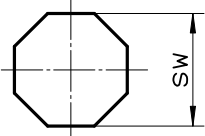
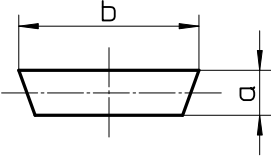
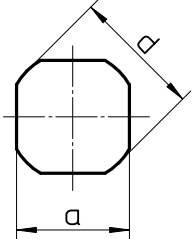
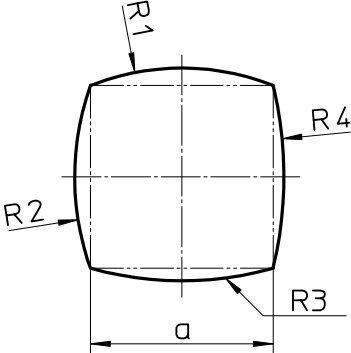
TECHNICAL INFORMATION

INFORMATION ABOUT OUR TOOLS FOR YOUR THICK TURRET SYSTEM

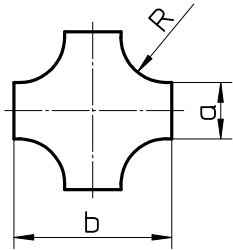
INDEX

O.D. Ground Special Shapes	page 14
EDM Required Special Shapes	page 15
PASS tool variety	page 16
Lifetime of tools I regrind advice	page 17
PASS coating versions / draw-polishing	page 18
Die versions	page 19
Punches with different shear types	page 20
PASS back taper on punches	page 21
PASS corner radius on punches	page 22
PASS punches with reinforced shoulder	page 23

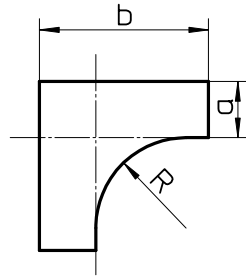
O.D. GROUND SPECIAL SHAPES

 G01	 G02	 G03
 G04	 G05	 G06
 G07	 G08	 G09
 G10	 G11	

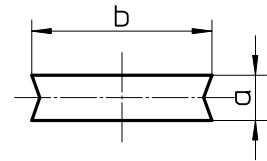
EDM REQUIRED SPECIAL SHAPES



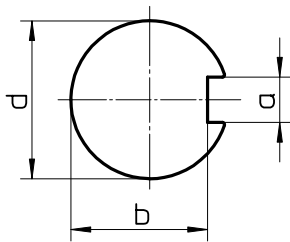
E01



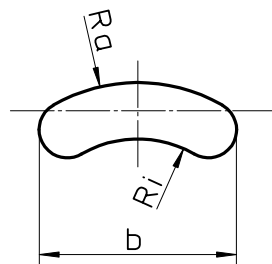
E02



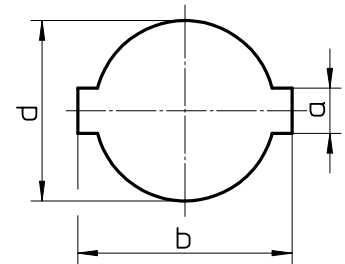
E03



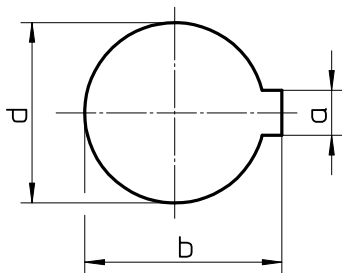
E04



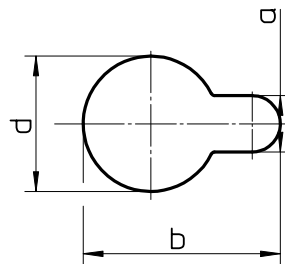
E05



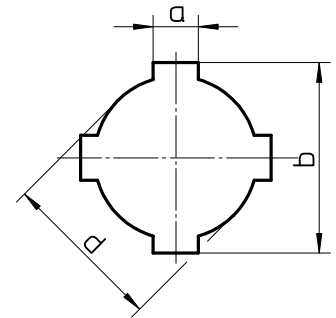
E06



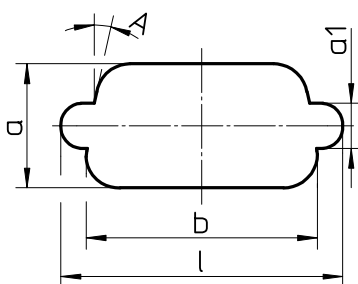
E07



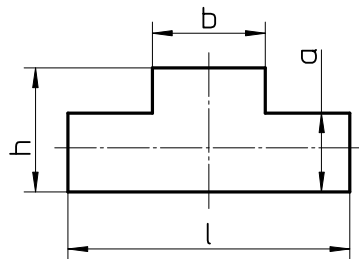
E08



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 uniformed 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.

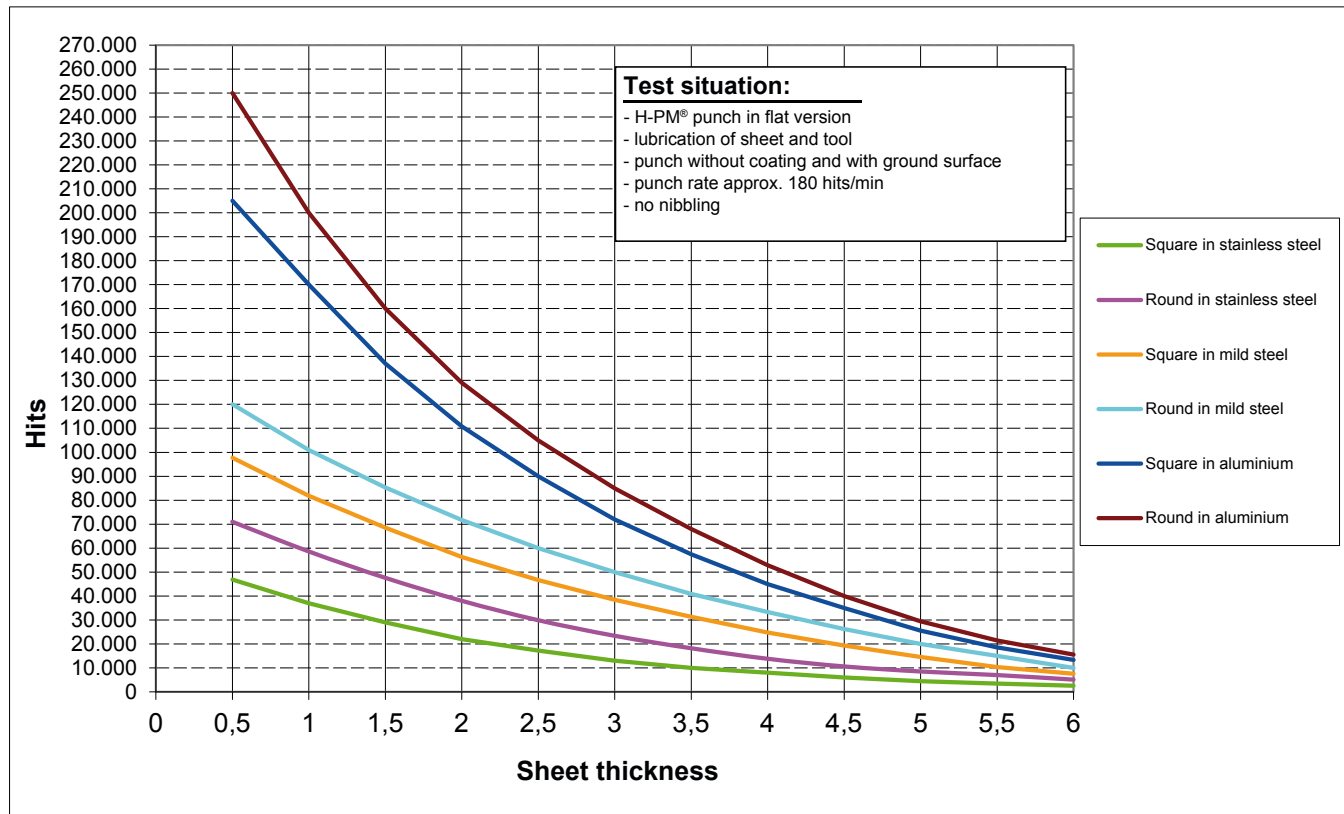
The high ductility of the segregational uniformed microstructure guarantees best possible fatigue limit. This kind of steel is especially suitable for dies with risk-breakage in regard to special shapes.

Advantage for customer:

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

LIFETIME OF TOOLS | 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 fulfil the highest punching demands.

Furthermore we attach great importance to a high quality hardening process by repeated tempering 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.

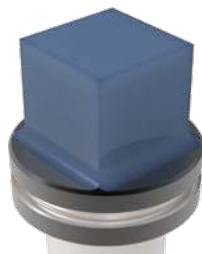
A high punch hardness as well as an excellent grinding surface are important in order to counteract the problem with edge build-up.

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

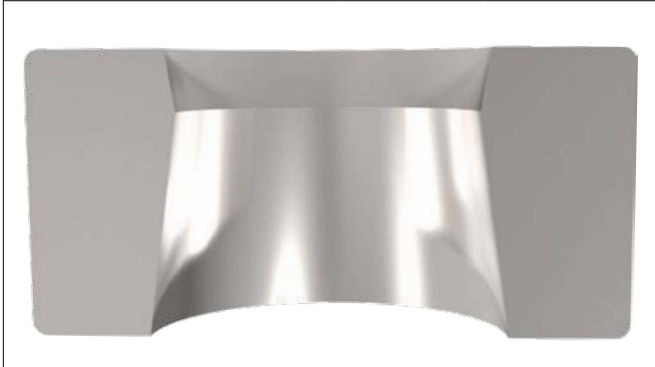
We recommend draw-polished punch edges to increase tool lifetime and reduce material build up (prices on request):



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).

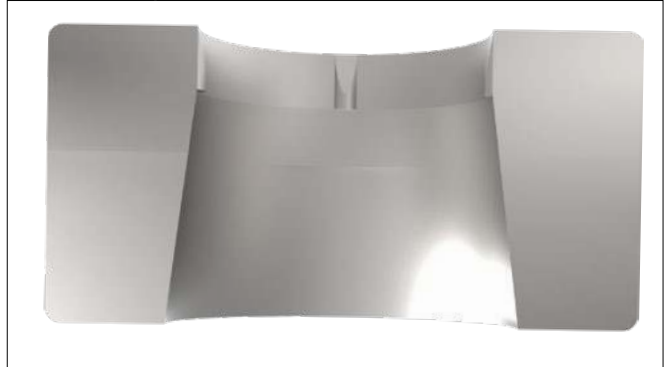
This means that the upper part of the cutting part is produced with a negative angle.

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)

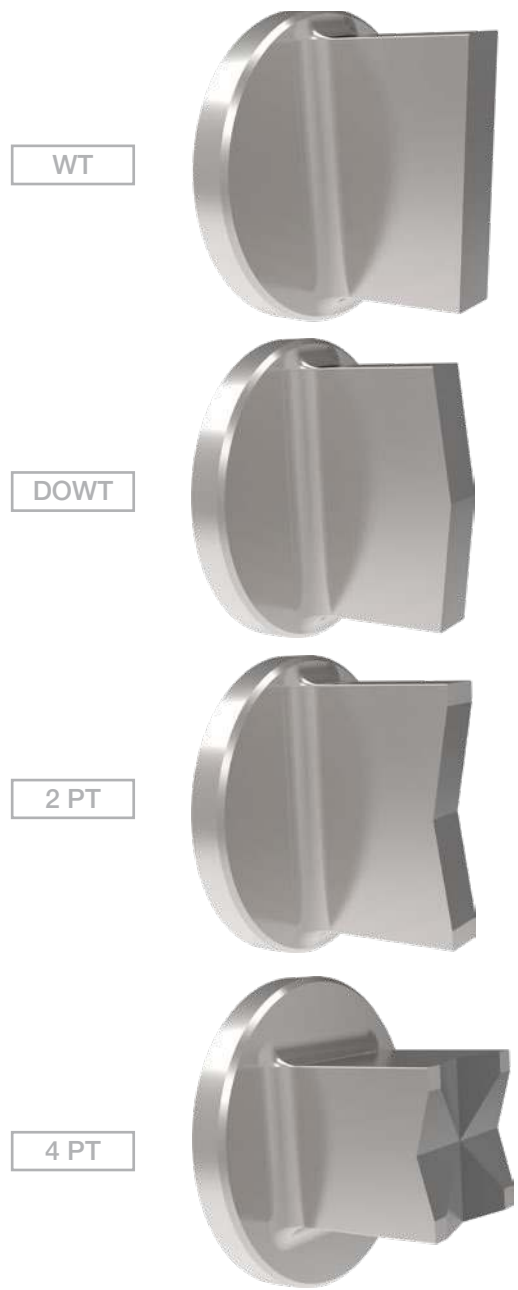


Alternatively we offer our slug-snap version (additional costs).

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



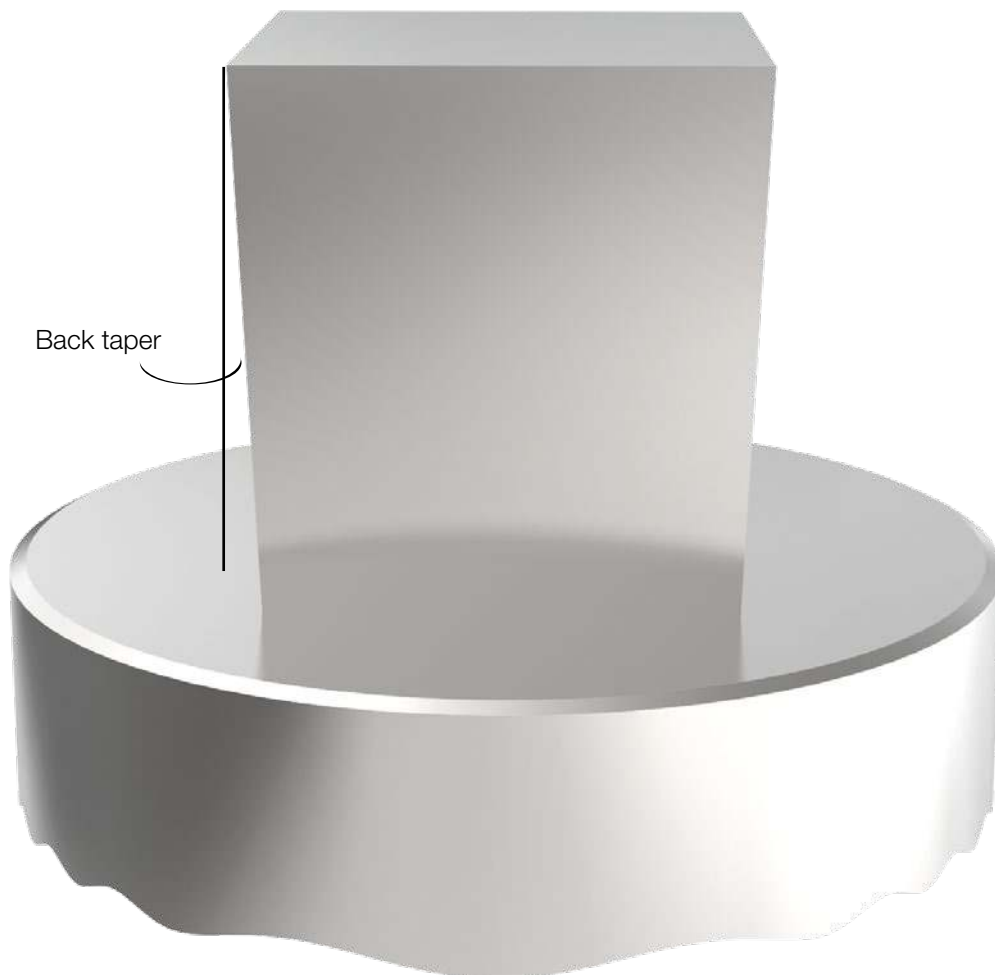
DESCRIPTION	
WT	
Advantage	easy regrindable
Disadvantage	lateral forces
DOWT	
Advantages	easy regrindable no lateral forces
Disadvantage	only reasonable for big shapes
2 PT	
Advantages	no lateral forces optimal die cutting
Disadvantages	only reasonable for big and slim shapes difficult to regrind
4 PT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

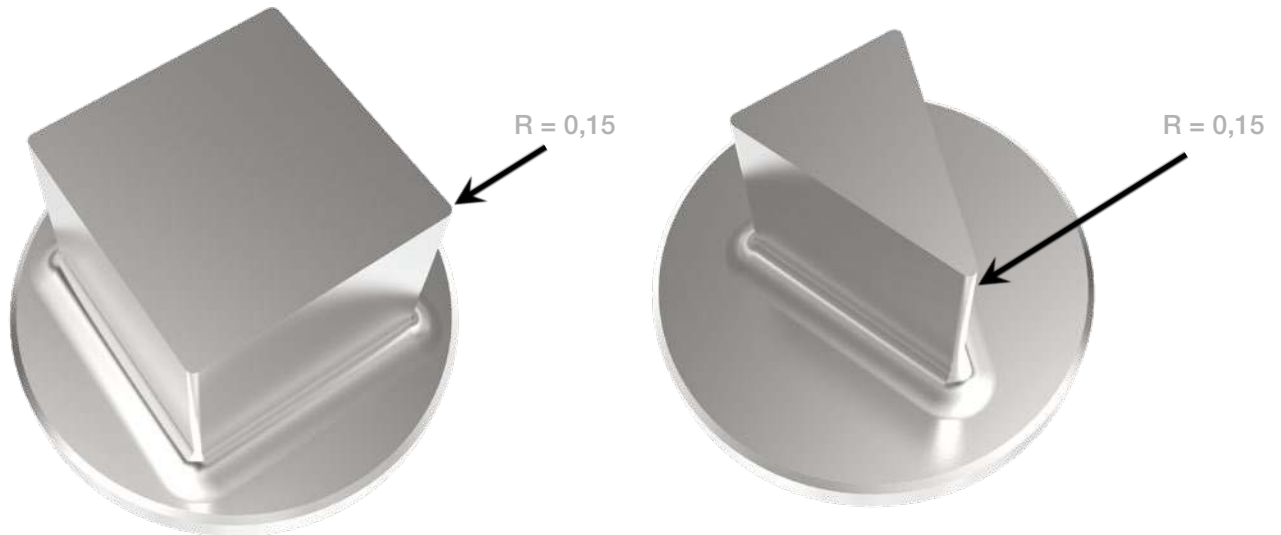
We recommend a line polished version for cutting parts, which have to be produced sink-eroded (special shape with internal shape, e.g. cross-form, U-form, etc.) and in high quality sheets.



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.

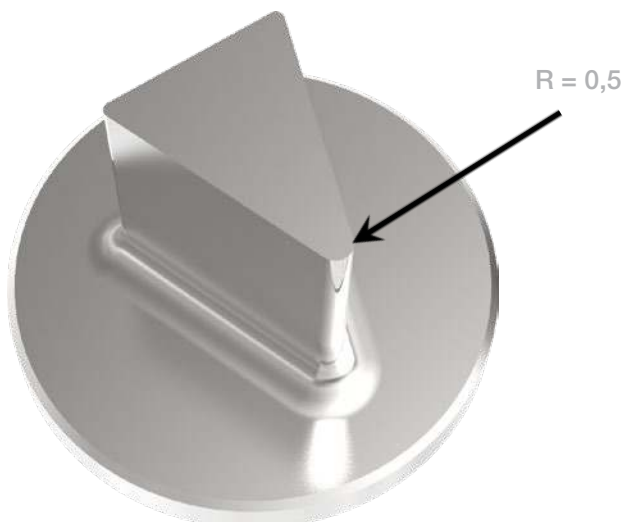
E.g.: square and triangle punch



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.



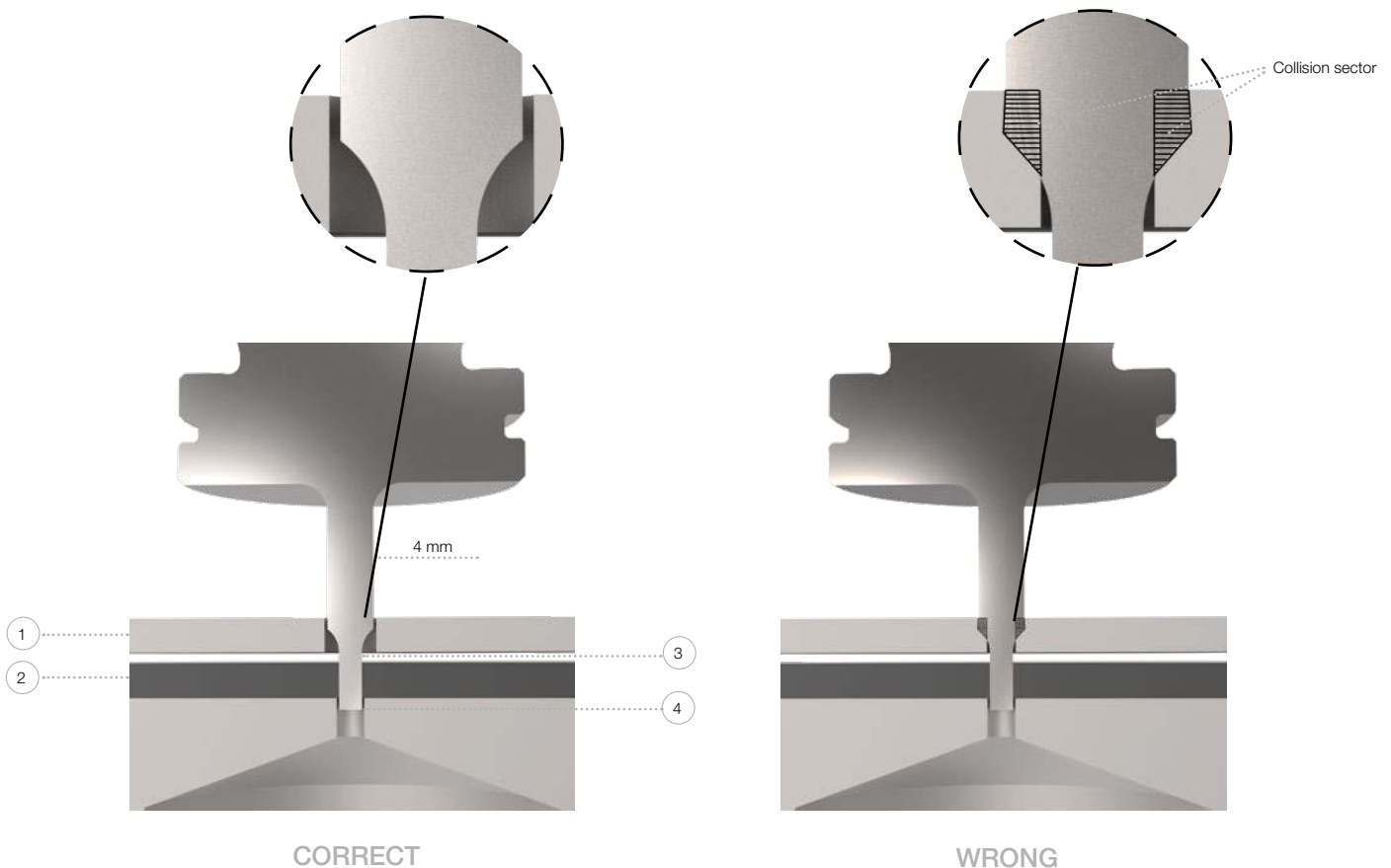
PASS PUNCHES WITH REINFORCED SHOULDER

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).

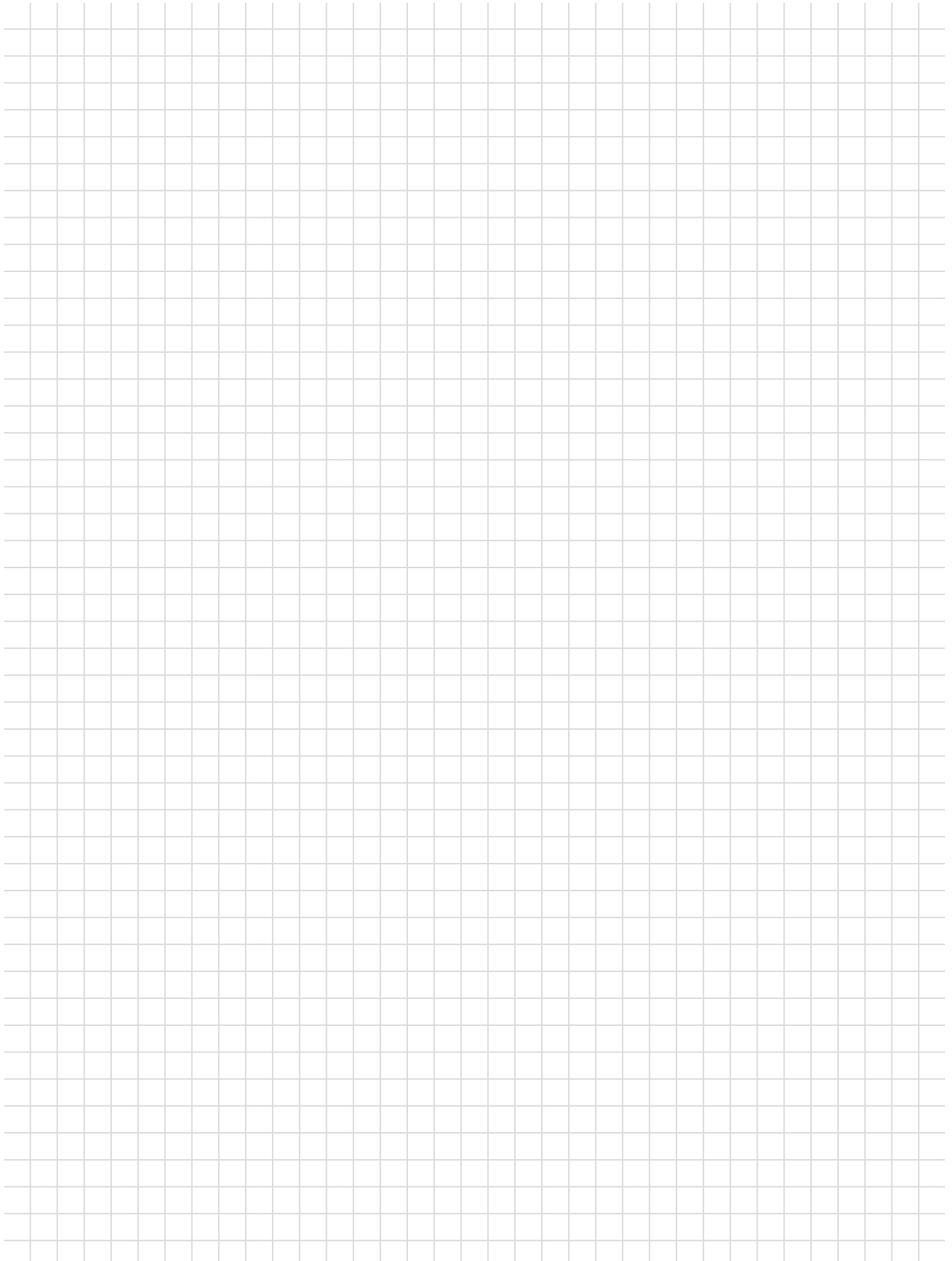
It might be possible that it gets necessary to use a stripper with an appropriate big shape (width min. 4,5 mm) in order to get sure that the reinforced punch shoulder can immerse into the stripper.



NOTES

A large grid of 20 columns and 40 rows for taking notes. The grid is composed of thin, light gray lines forming a uniform pattern across the central area of the page.

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