



CATALOG 08/2019-WW-A.5
INSERTS FOR EUROMAC 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 EUROMAC MULTITOOLS

XMTE10-12,7	page 6
XMTE6-24; XMTE10-24	page 7
XMTE4-31,75	page 8
MTE10-8 (Pos. 2/3/4/5/6/8/10)	page 9
MTE6-24; MTE10-24 (Pos. 1/7/9)	page 10
MTE4-31,75	page 11

TECHNICAL INFORMATION

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



INSERTS FOR EUROMAC MULTITOOLS

PASS TOOLS FOR YOUR EUROMAC MULTITOOL SYSTEM

INDEX

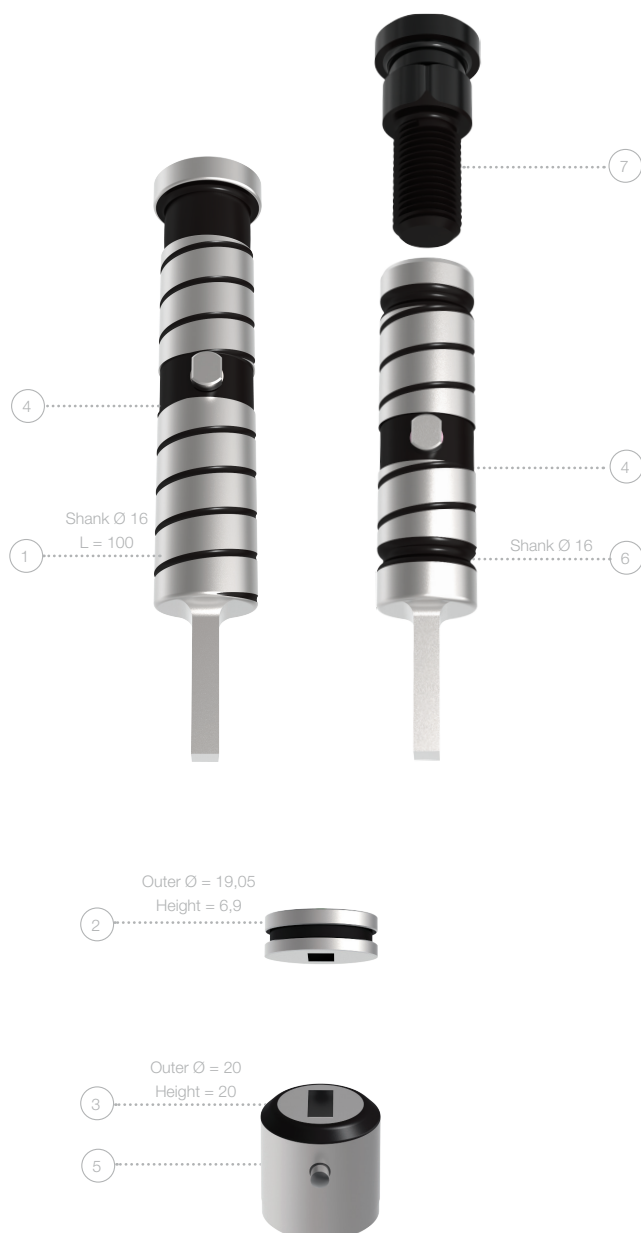
XMTE10-12,7	page 6
XMTE6-24; XMTE10-24	page 7
XMTE4-31,75	page 8
MTE10-8 (Pos. 2/3/4/5/6/8/10)	page 9
MTE6-24; MTE10-24 (Pos. 1/7/9)	page 10
MTE4-31,75	page 11

EUROMAC

XMTE10-12,7

PUNCH RIGID

PUNCH ADJUSTABLE



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

*not for distribution in Germany, Italy, Turkey, China and the USA

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

EUROMAC

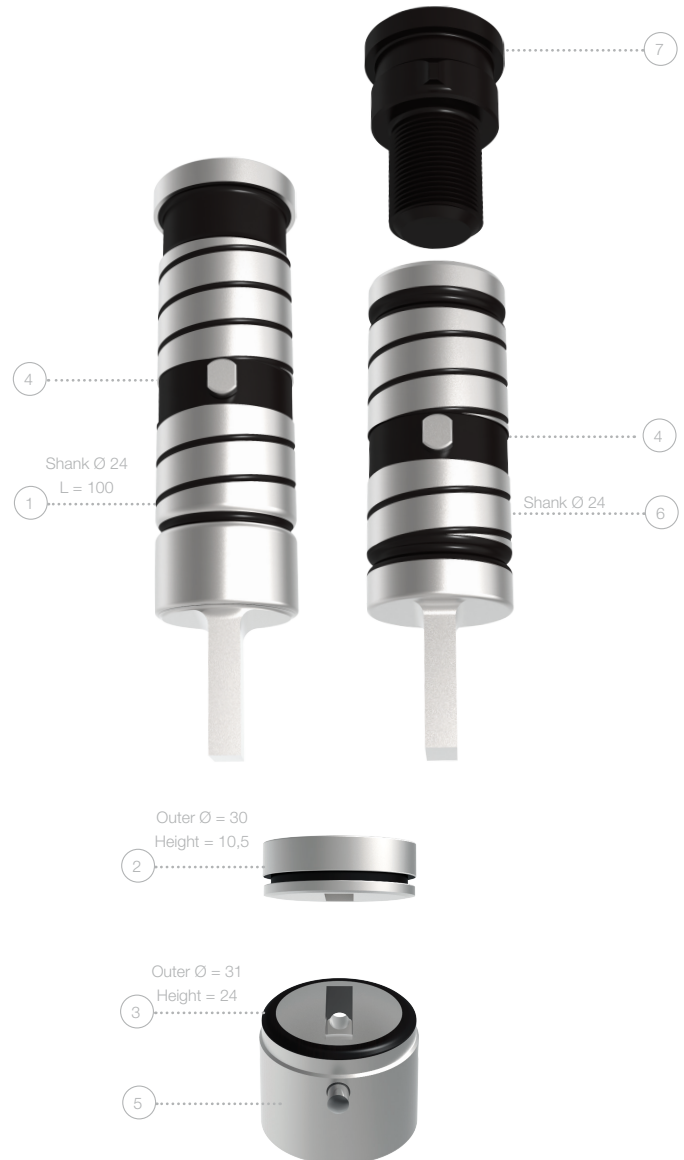
XMTE6-24; XMTE10-24

	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

*not for distribution in Germany, Italy, Turkey, China and the USA

PUNCH
RIGID

PUNCH
ADJUSTABLE



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

EUROMAC

XMTE4-31,75



	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

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

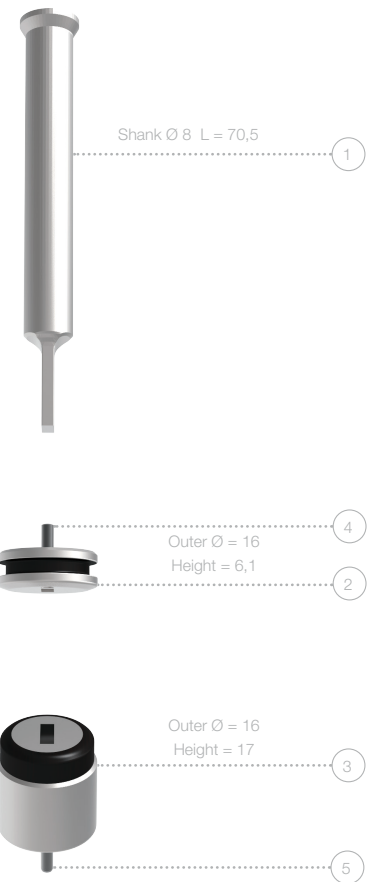
ADDITIONAL COSTS FOR DIE

Reinforced version
H-PM® Quality
Additional pin hole

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

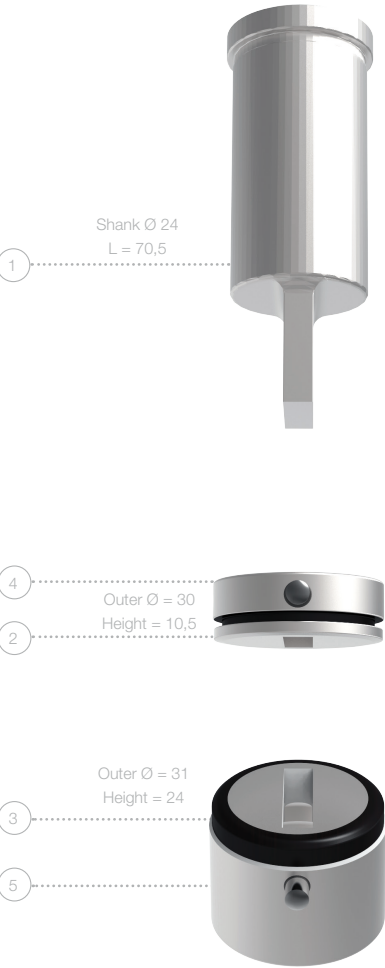
TICN coating
T-MAX coating
A-MAX coating
WT-shear
DOWT-shear
2 PT-shear
4 PT-shear
Cutting part under 1,00 mm

ADDITIONAL COSTS FOR DIES

Reinforced version
H-PM® Quality
Additional pin hole

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

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

	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

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



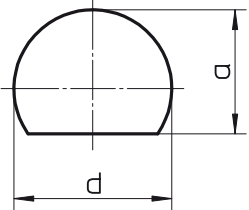
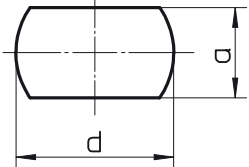
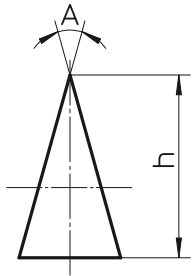
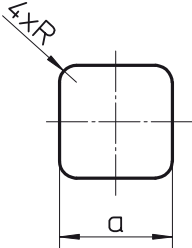
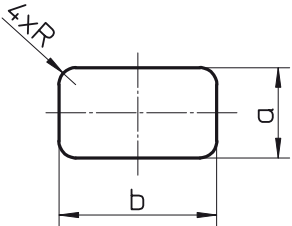
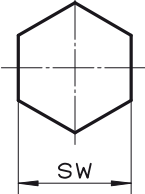
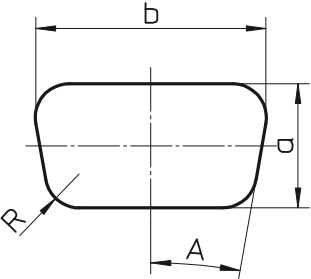
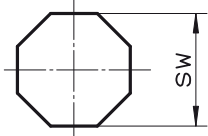
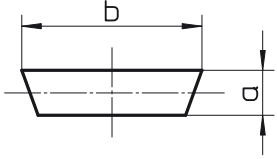
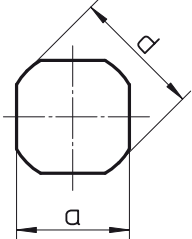
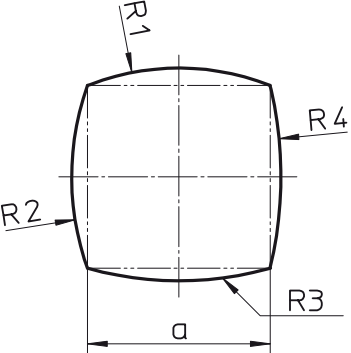
TECHNICAL INFORMATION

PASS TOOLS FOR YOUR EUROMAC MULTITOOL SYSTEM

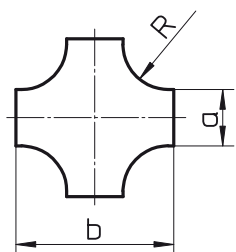
INDEX

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

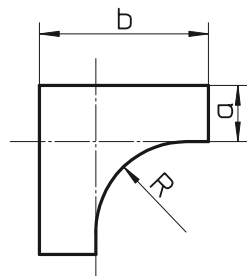
O.D. GROUND SPECIAL SHAPES

 <p>G01</p>	 <p>G02</p>	 <p>G03</p>
 <p>G04</p>	 <p>G05</p>	 <p>G06</p>
 <p>G07</p>	 <p>G08</p>	 <p>G09</p>
 <p>G10</p>	 <p>G11</p>	

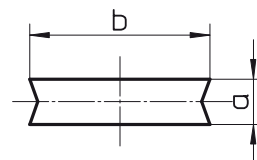
EDM REQUIRED SPECIAL SHAPES



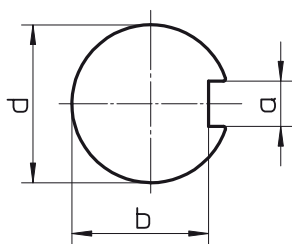
E01



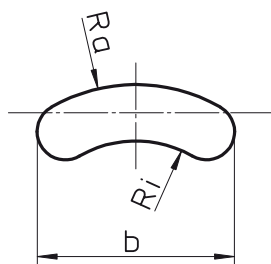
E02



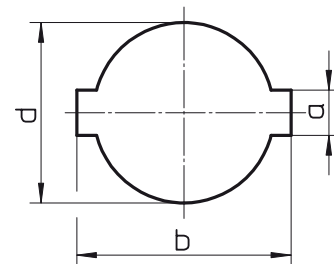
E03



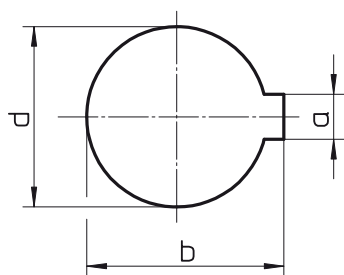
E04



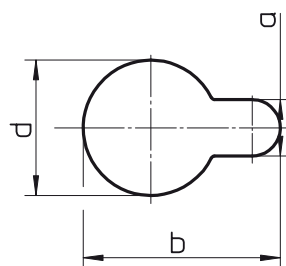
E05



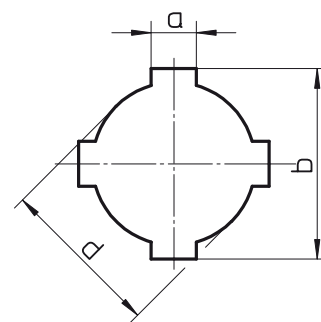
E06



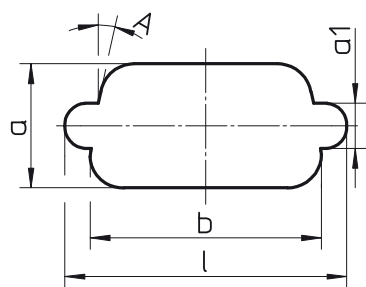
E07



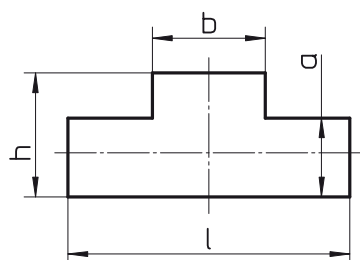
E08



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.

Advantage 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 life time 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 life time.

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.

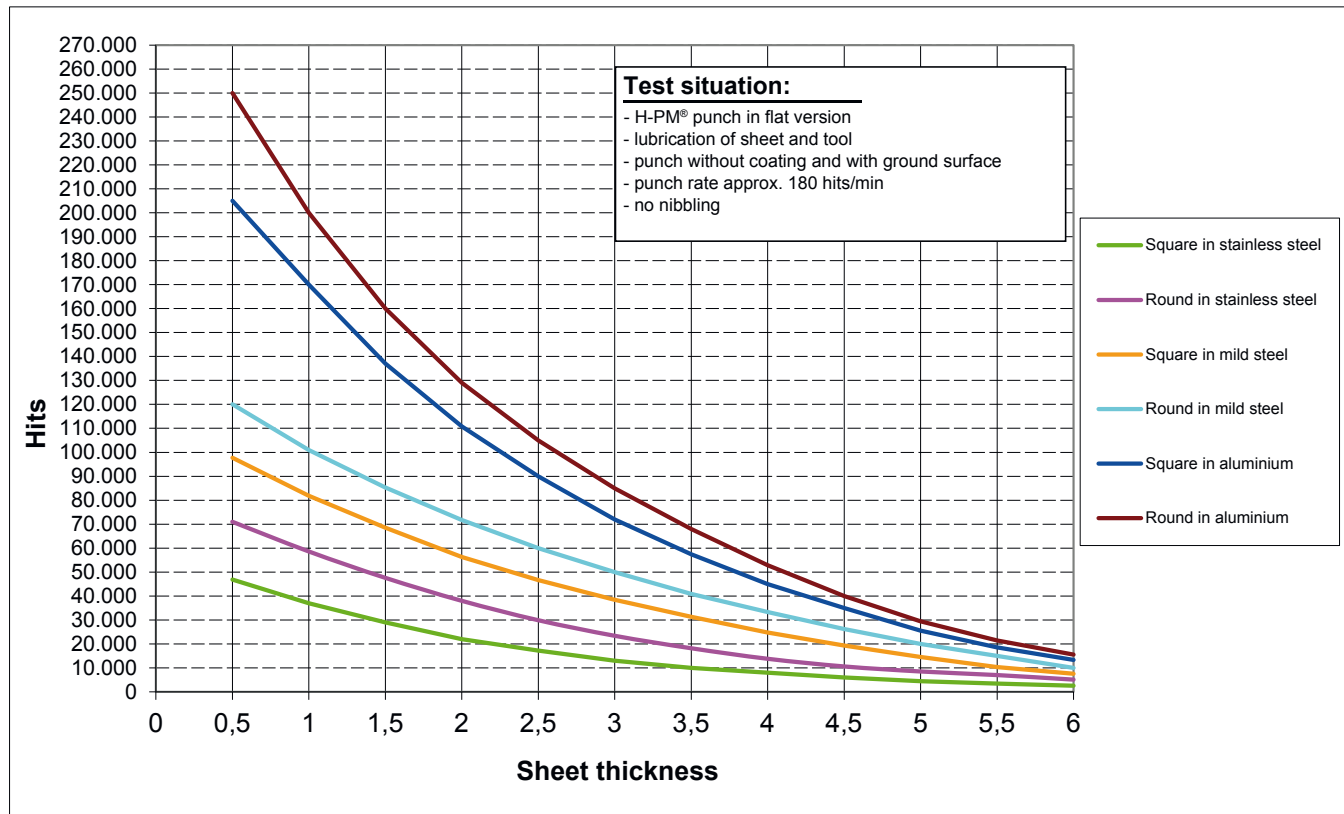
The high ductility of the segregational uniformed microstructure guarantees best possible fatigue limit. This kind of steel is especially suitable for dies with risk-breakage in regards to special shapes.

Advantage for customer:

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

LIFE-TIME OF TOOLS / REGRIND ADVICE

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



INFLUENCING FACTORS	FACTOR
Zinc coated sheet / stainless steel with foil / aluminium anodized	0,5 - 0,8
No sheet-lubrication	0,4 - 0,6
Punch coating (TICN for stainless steel / T-MAX for zinc coated 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
Whisper tool	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 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.

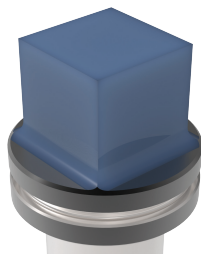
A high punch hardness as well as an excellent grinding surface are important in order to counteract the problem with edge build-up.

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

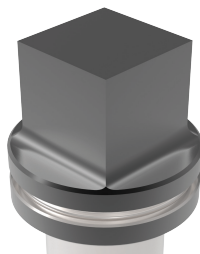
- zinc steel
- aluminium

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



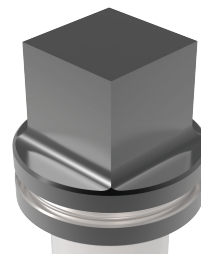
TiCN

for working with
stainless steel



A-MAX

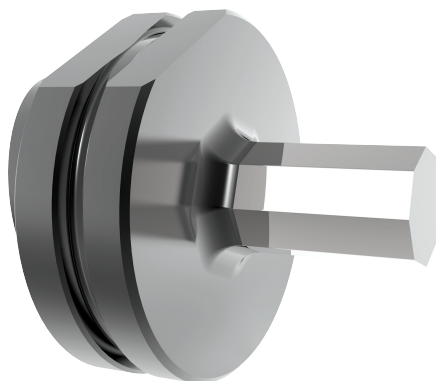
for dry processing with
aluminium sheet



T-MAX

for working with
galvanized sheet / zincor

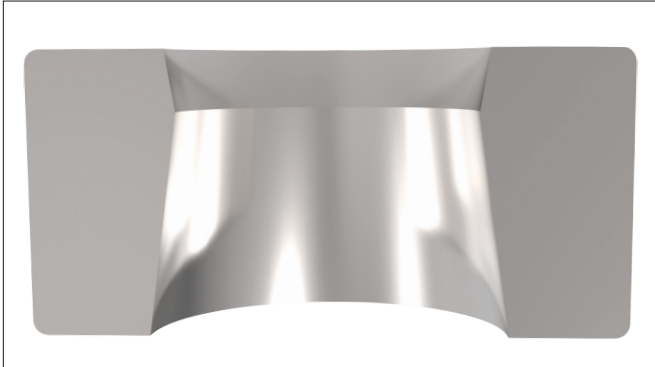
We recommend draw-polished punch edges to increase tool lifetime and reduce material build up (prices on request).



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).

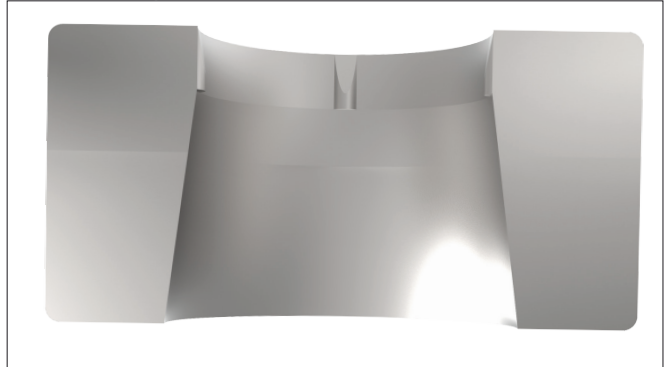
This means that the upper part of the cutting part is produced with a negative angle.

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)



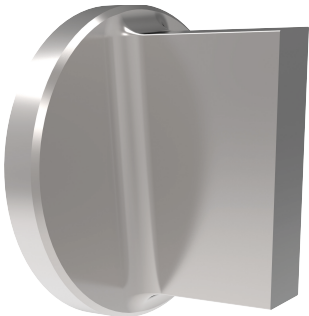
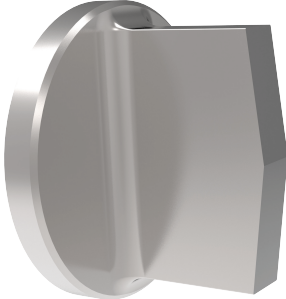
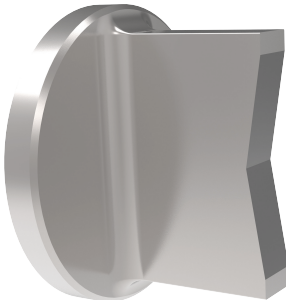
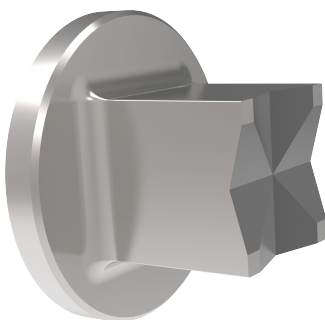
Alternatively we offer our slug-snap version (additional costs).

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
- clearance smaller 0,1 mm

PUNCHES WITH DIFFERENT SHEAR TYPES

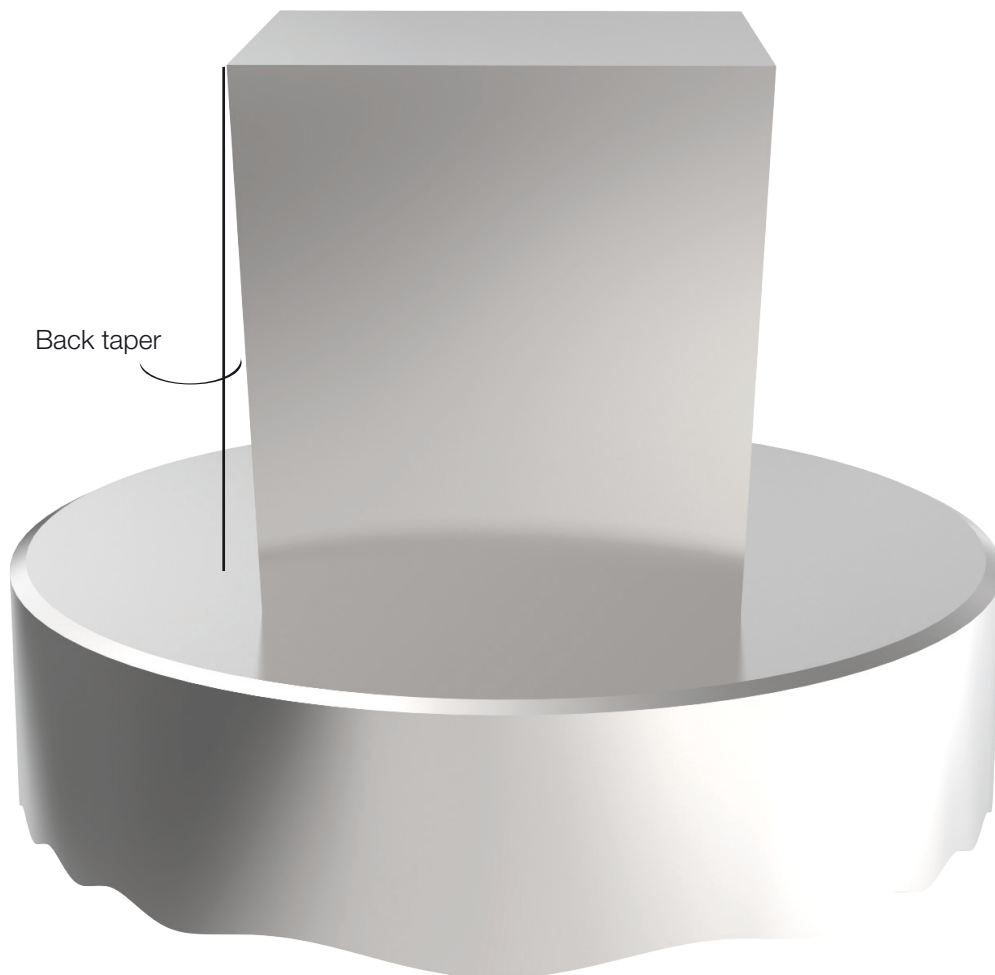
		DESCRIPTION
WT		<div>WT</div> <div>Advantage</div> <div>easy regrindable</div> <div>Disadvantage</div> <div>lateral forces</div>
DOWT		<div>DOWT</div> <div>Advantages</div> <div>easy regrindable no lateral forces</div> <div>Disadvantage</div> <div>only reasonable for big shapes</div>
2 PT		<div>2 PT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

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.

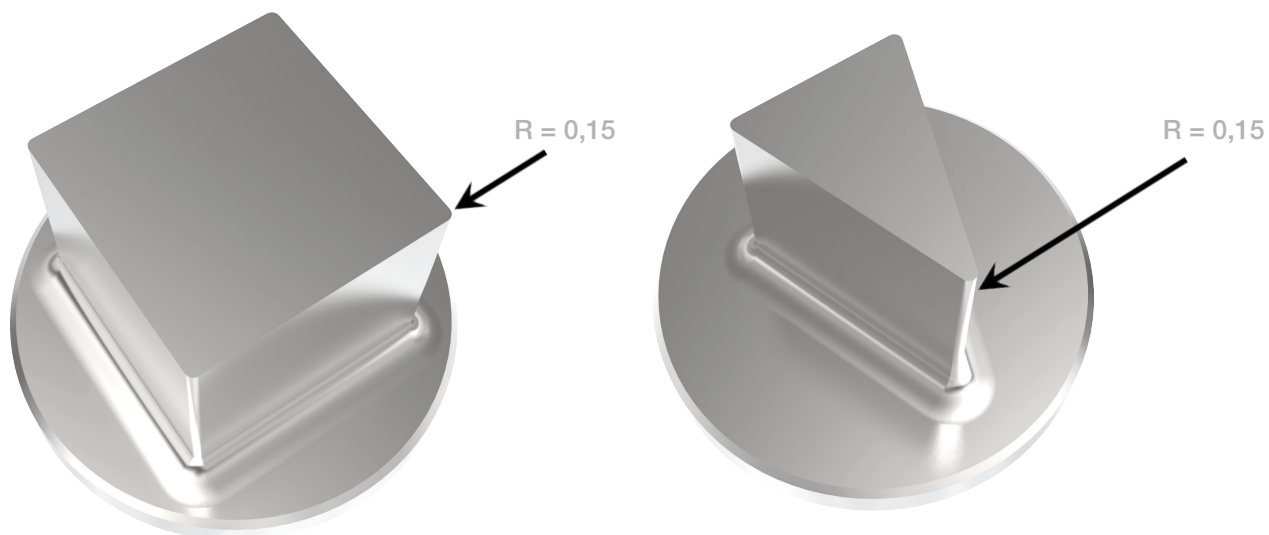
We recommend a line polished version for cutting parts, which have to be produced sink-eroded (special shape with internal shape, e.g. cross-form, U-form, etc.) and in high quality sheets.



PASS CORNER RADIUS ON PUNCHES

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

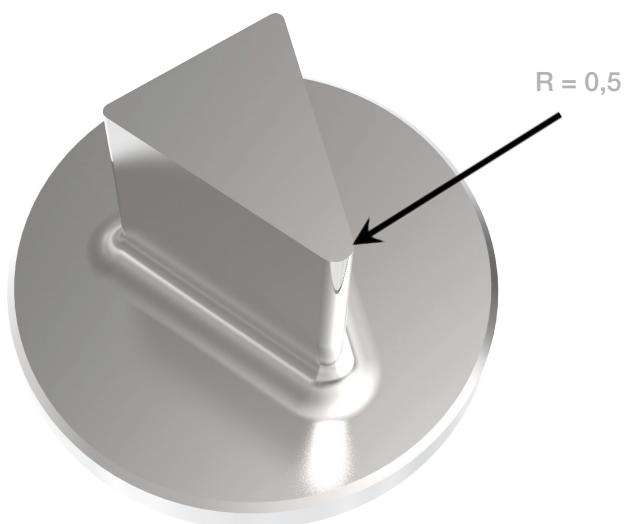
e.g.: square and triangle punch



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.



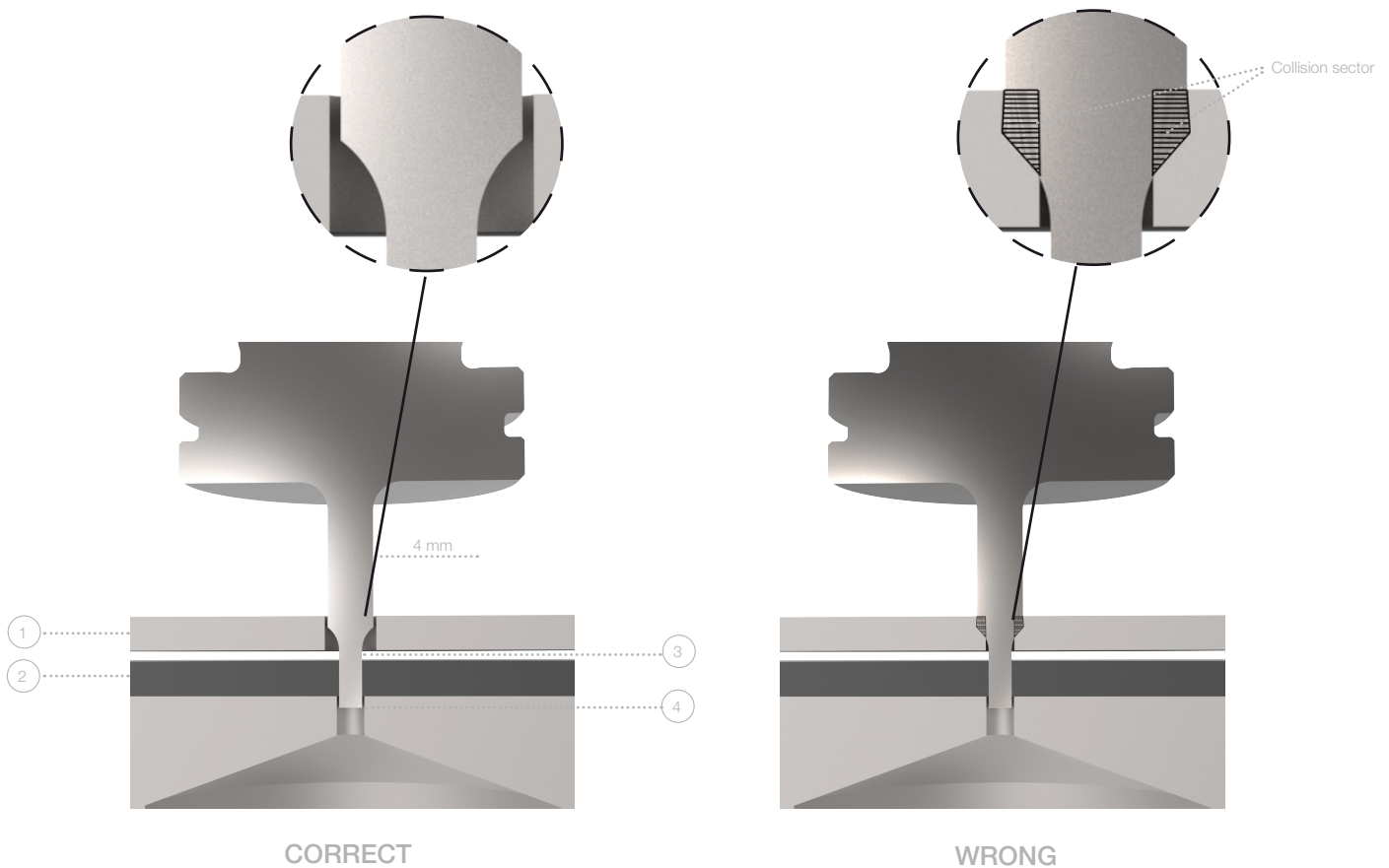
PASS PUNCHES WITH REINFORCED SHOULDER

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), immersion 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 squares, approximately 30 columns wide and 40 rows high, intended for taking notes. The grid is composed of thin, light gray lines on a white background.

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

A large grid of squares, resembling graph paper, occupying the central portion of the page. The grid is composed of thin, light gray lines forming a uniform pattern of small squares.

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.

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