PASS | STANZTECHNIK AG

TRUMPF

THICK TURRET

SALVAGNINI

PRICE LIST 03/2023-WW-A.4

INSERTS FOR PRIMA POWER/MULTITOOLS

PRICE LIST 03/2023-WW-A.4

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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INSERTS FOR PRIMA POWER/ MULTITOOLS

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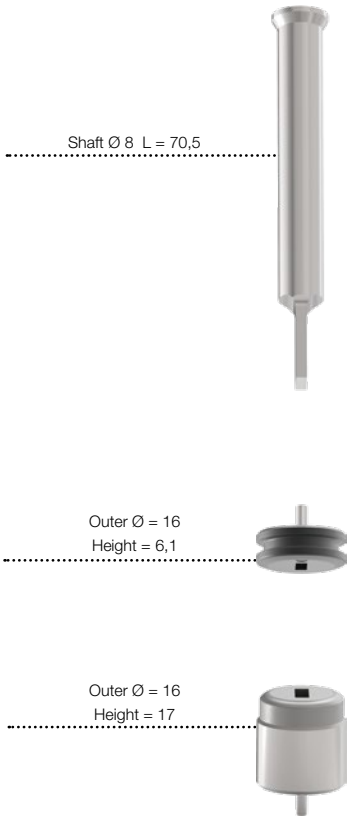
PRIMA POWER

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



		PART-NO.	PRICE IN €
PUNCH (H-PM®)			
	Round	413121	21,69
	Square	413122	42,08
	Rectangle	413123	42,08
	Oblong	413124	42,08
	O.D. Ground Special Shape	41312G	49,71
	EDM Required Special Shape	41312E	58,60
STRIPPER			
	Round	415121	20,38
	Square	415122	35,66
	Rectangle	415123	35,66
	Oblong	415124	35,66
	O.D. Ground Special Shape	41512G	47,17
	EDM Required Special Shape	41512E	53,50
DIE (HWS)			
	Round	414121	25,49
	Square	414122	61,15
	Rectangle	414123	61,15
	Oblong	414124	61,15
	O.D. Ground Special Shape	41412G	67,55
	EDM Required Special Shape	41412E	73,88

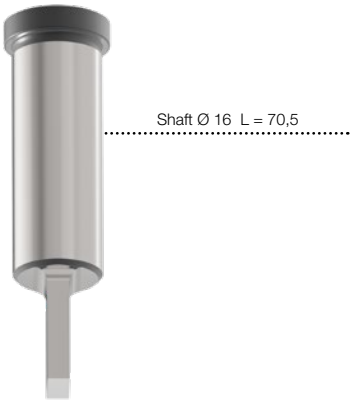
ADDITIONAL COSTS FOR PUNCHES	
TICN coating	13,68
T-MAX coating	23,61
A-MAX coating	19,89
WT-shear	18,64
DOWT-shear	18,64
2 PT-shear	22,38
4 PT-shear	27,33
Cutting part under 1,00 mm	+ 40 %

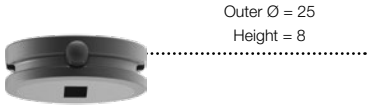
ADDITIONAL COSTS FOR DIES	
Reinforced version	19,89
H-PM® Quality	8,95
Additional pin hole	16,17

PRIMA POWER

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

		PART-NO.	PRICE IN €
PUNCH (H-PM®)			
	Round	413021	34,43
	Square	413022	67,55
	Rectangle	413023	67,55
	Oblong	413024	67,55
	O.D. Ground Special Shape	41302G	75,20
	EDM Required Special Shape	41302E	82,84
STRIPPER			
	Round	415021	26,78
	Square	415022	45,86
	Rectangle	415023	45,86
	Oblong	415024	45,86
	O.D. Ground Special Shape	41502G	49,71
	EDM Required Special Shape	41502E	56,06
DIE (HWS)			
	Round	414021	29,33
	Square	414022	61,15
	Rectangle	414023	61,15
	Oblong	414024	61,15
	O.D. Ground Special Shape	41402G	73,88
	EDM Required Special Shape	41402E	80,30





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

PRIMA POWER

MTPi8-24; MTP5-24; MT8-24

Shaft Ø 24
L = 70,5

Outer Ø = 30
Height = 10,5

Outer Ø = 31
Height = 24

		PART-NO.	PRICE IN €
PUNCH (H-PM®)			
	Round	413131	36,97
	Square	413132	72,65
	Rectangle	413133	72,65
	Oblong	413134	72,65
	O.D. Ground Special Shape	41313G	89,19
	EDM Required Special Shape	41313E	112,10
STRIPPER			
	Round	415131	42,08
	Square	415132	75,20
	Rectangle	415133	75,20
	Oblong	415134	75,20
	O.D. Ground Special Shape	41513G	94,27
	EDM Required Special Shape	41513E	100,68
DIE (HWS)			
	Round	414131	36,97
	Square	414132	62,46
	Rectangle	414133	62,46
	Oblong	414134	62,46
	O.D. Ground Special Shape	41413G	78,98
	EDM Required Special Shape	41413E	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

PRIMA POWER

MT3Ri-31,75; MT3i-31,75

	PART-NO.	PRICE IN €
PUNCH (H-PM®)		
Round	413181	82,84
Square	413182	128,69
Rectangle	413183	128,69
Oblong	413184	128,69
O.D. Ground Special Shape	41318G	149,08
EDM Required Special Shape	41318E	296,87
STRIPPER		
Round	415181	38,22
Square	415182	53,50
Rectangle	415183	53,50
Oblong	415184	53,50
O.D. Ground Special Shape	41518G	78,98
EDM Required Special Shape	41518E	90,47
DIE (HWS)		
Round	414181	63,71
Square	414182	104,46
Rectangle	414183	104,46
Oblong	414184	104,46
O.D. Ground Special Shape	41418G	127,41
EDM Required Special Shape	41418E	189,85

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

PRIMA POWER

MT20i-8

	PART-NO.	PRICE IN €
PUNCH (H-PM®)		
Round	413111	31,88
Square	413112	75,20
Rectangle	413113	75,20
Oblong	413114	75,20
O.D. Ground Special Shape	41311G	90,47
EDM Required Special Shape	41311E	194,94
STRIPPER		
Round	415111	20,38
Square	415112	35,66
Rectangle	415113	35,66
Oblong	415114	35,66
O.D. Ground Special Shape	41511G	47,17
EDM Required Special Shape	41511E	53,50
DIE (HWS)		
Round	414111	25,49
Square	414112	61,15
Rectangle	414113	61,15
Oblong	414114	61,15
O.D. Ground Special Shape	41411G	67,55
EDM Required Special Shape	41411E	73,88

ADDITIONAL COSTS FOR PUNCHES	
TICN coating	13,68
T-MAX coating	23,61
A-MAX coating	19,89
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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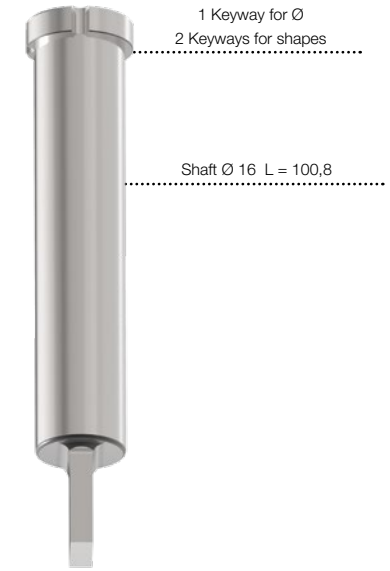
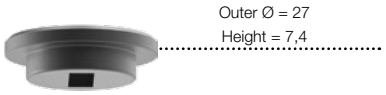
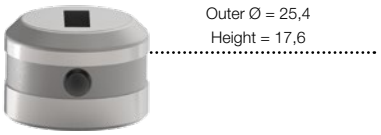
PRIMA POWER

MT8Ri2-16 (VERSION 2)

		PART-NO.	PRICE IN €
PUNCH (H-PM®)			
	Round	413151	36,97
	Square	413152	94,27
	Rectangle	413153	94,27
	Oblong	413154	94,27
	O.D. Ground Special Shape	41315G	113,42
	EDM Required Special Shape	41315E	261,19
STRIPPER			
	Round	415151	21,69
	Square	415152	40,76
	Rectangle	415153	40,76
	Oblong	415154	40,76
	O.D. Ground Special Shape	41515G	52,26
	EDM Required Special Shape	41515E	63,71
DIE (HWS)			
	Round	414151	63,71
	Square	414152	104,46
	Rectangle	414153	104,46
	Oblong	414154	104,46
	O.D. Ground Special Shape	41415G	127,41
	EDM Required Special Shape	41415E	174,56







ADDITIONAL COSTS FOR PUNCHES	
TICN coating	31,07
T-MAX coating	54,69
A-MAX coating	42,60
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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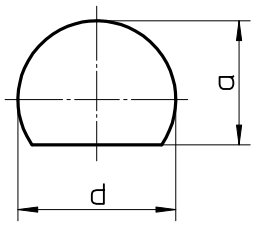

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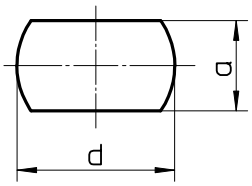

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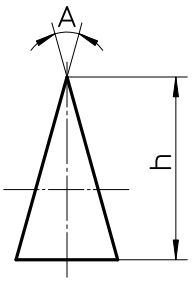

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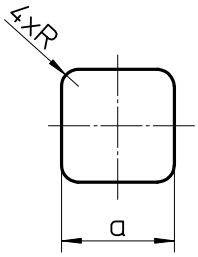

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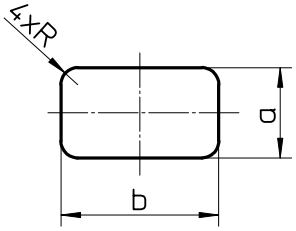

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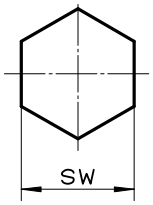

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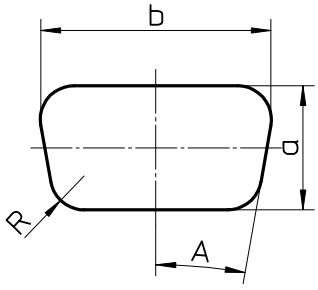

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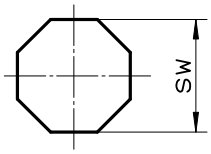

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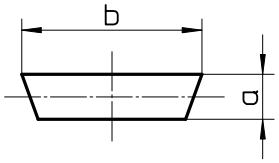

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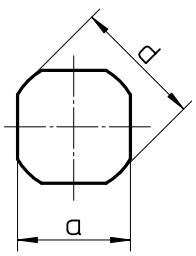

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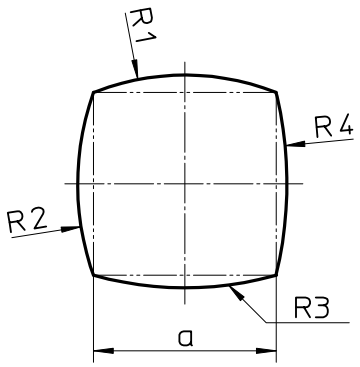

G11

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

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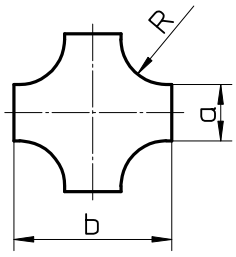
EDM REQUIRED SPECIAL SHAPES



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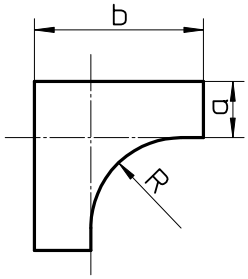

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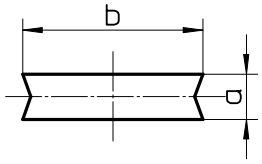

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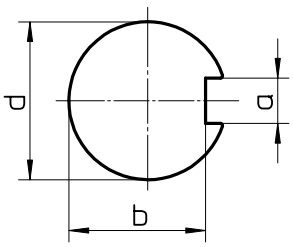

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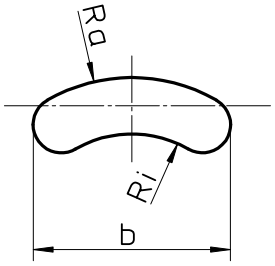

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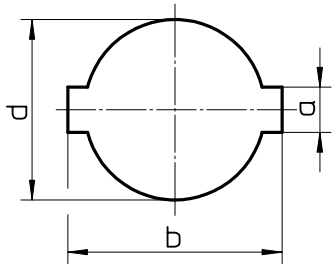

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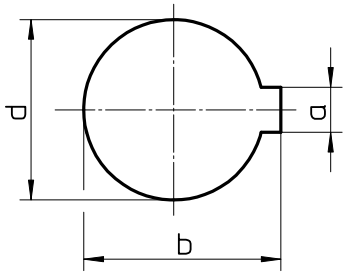

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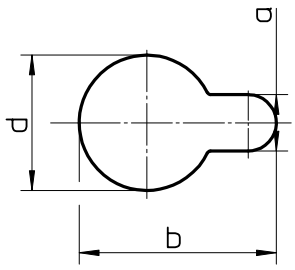

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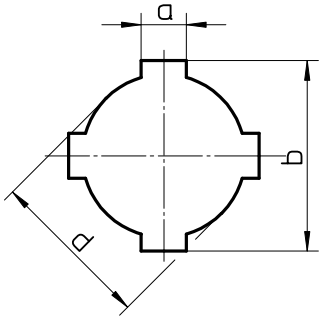

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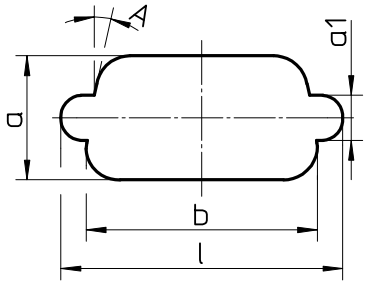

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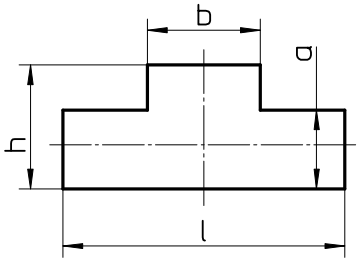

E11

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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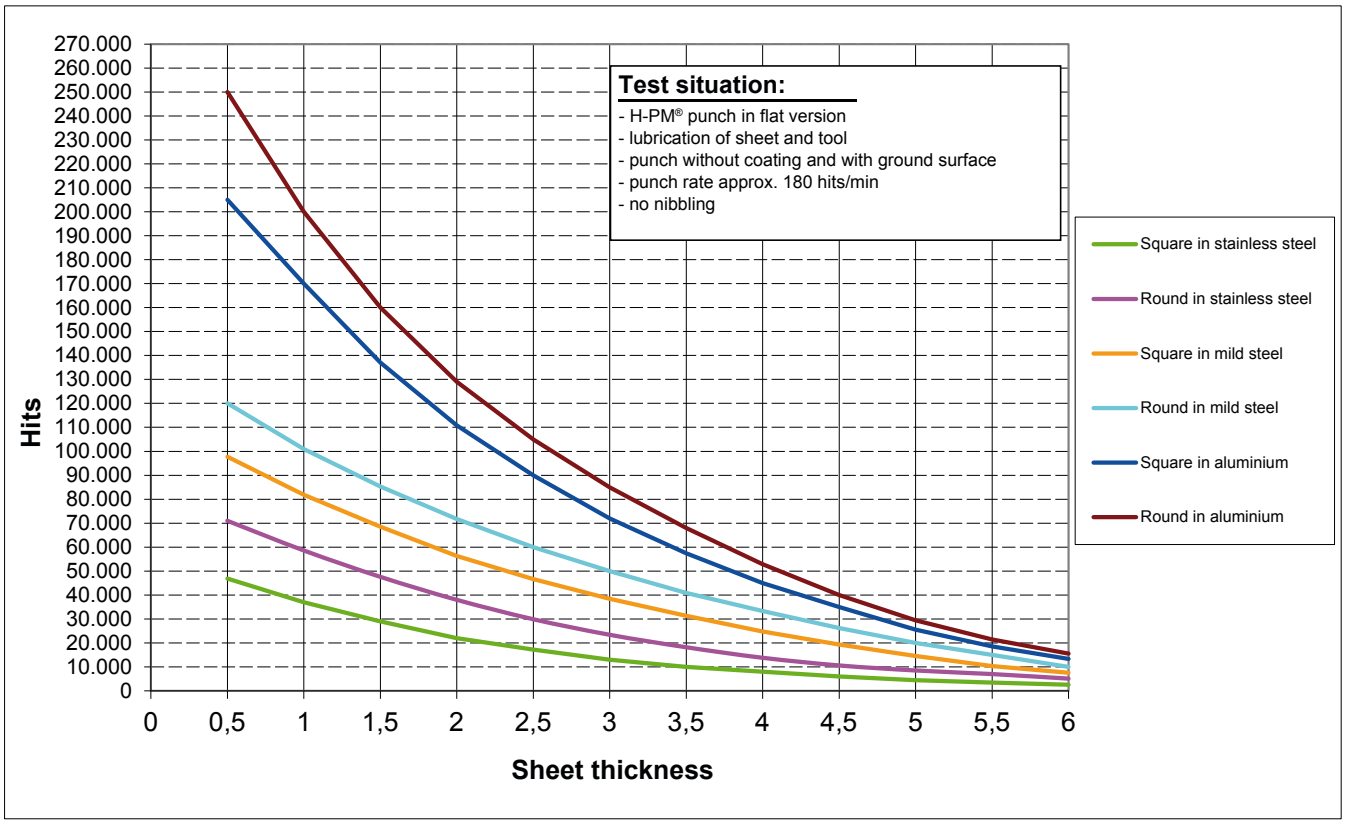
LIFETIME OF TOOLS I REGRIND ADVICE

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.

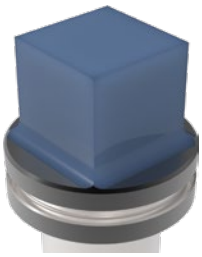
A high punch hardness as well as an excellent grinding surface are important in order to counteract the problem with edge build-up.

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

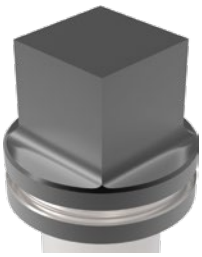
- galvanised steel
- aluminium

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



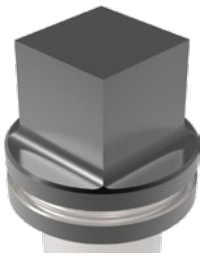
TICN

for working with stainless steel



A-MAX

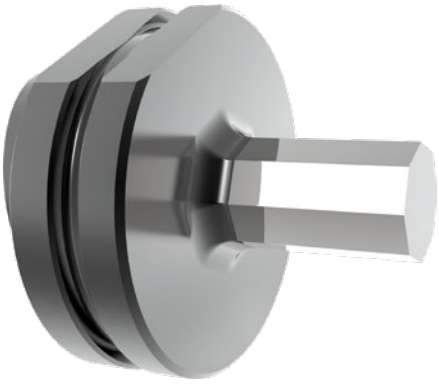
for dry processing with aluminium sheet



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):



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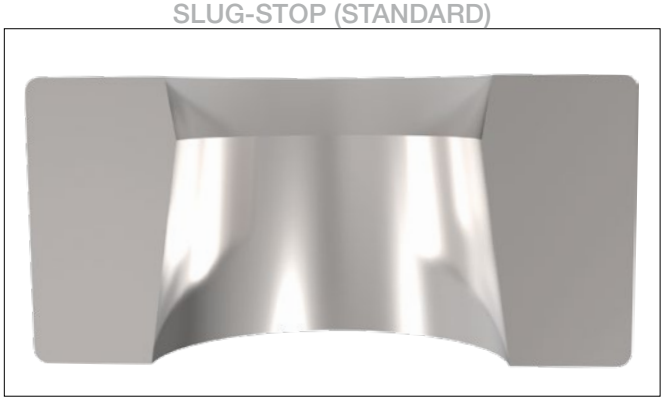
DIE VERSIONS

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).

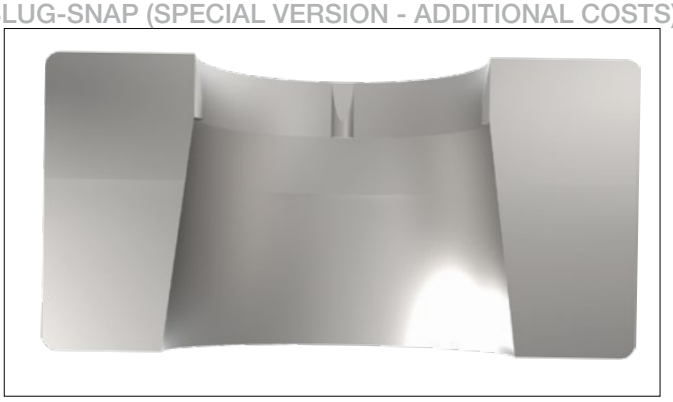
This means that the upper part of the cutting part is produced with a negative angle.

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).

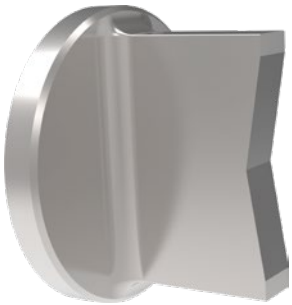
The slug-snap version is also more convenient for shapes smaller than 1,25 mm and clearance smaller 0,1 mm.

PUNCHES WITH DIFFERENT SHEAR TYPES

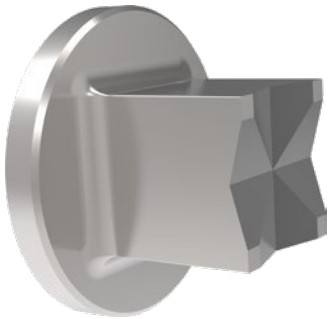
WT

DOWT

2 PT



4 PT



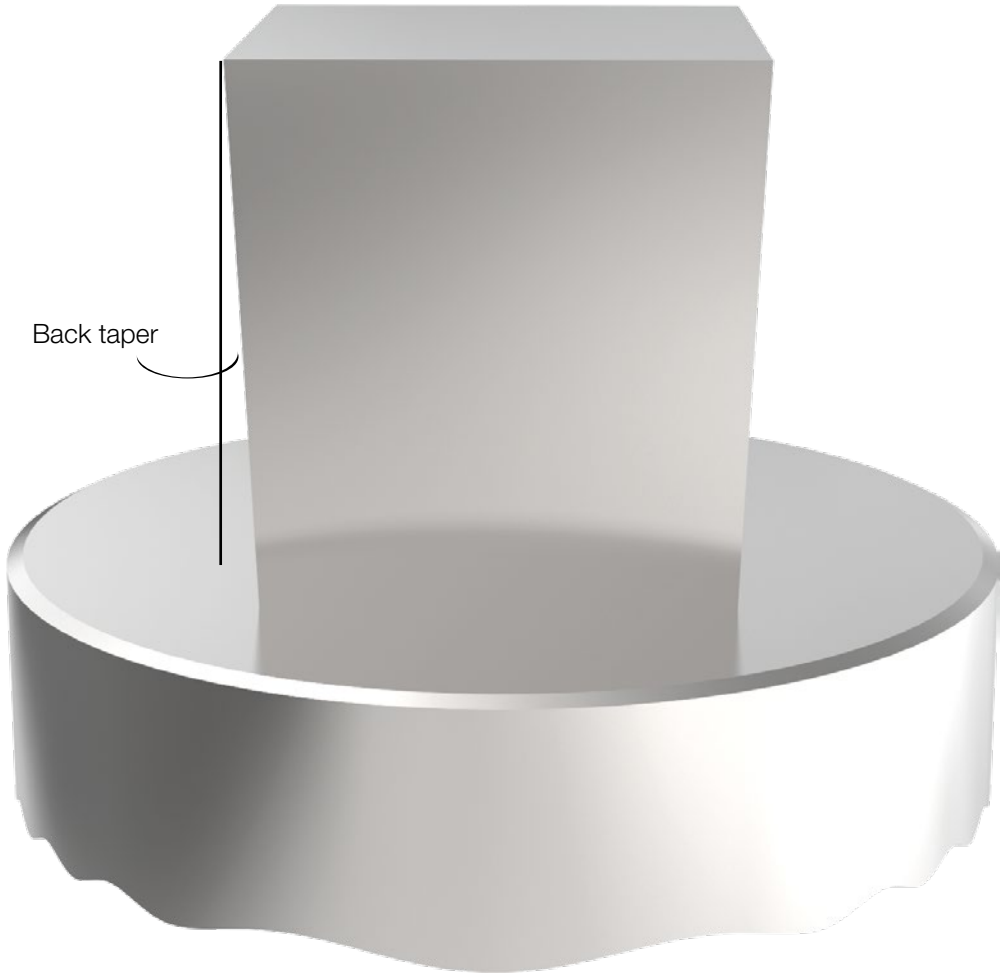
DESCRIPTION	
WT	
Advantage	easy regrindable
Disadvantage	lateral forces
DOWT	
Advantages	easy regrindable no lateral forces
Disadvantage	only reasonable for big shapes
2 PT	
Advantages	no lateral forces optimal die cutting
Disadvantages	only reasonable for big and slim shapes difficult to regrind
4 PT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

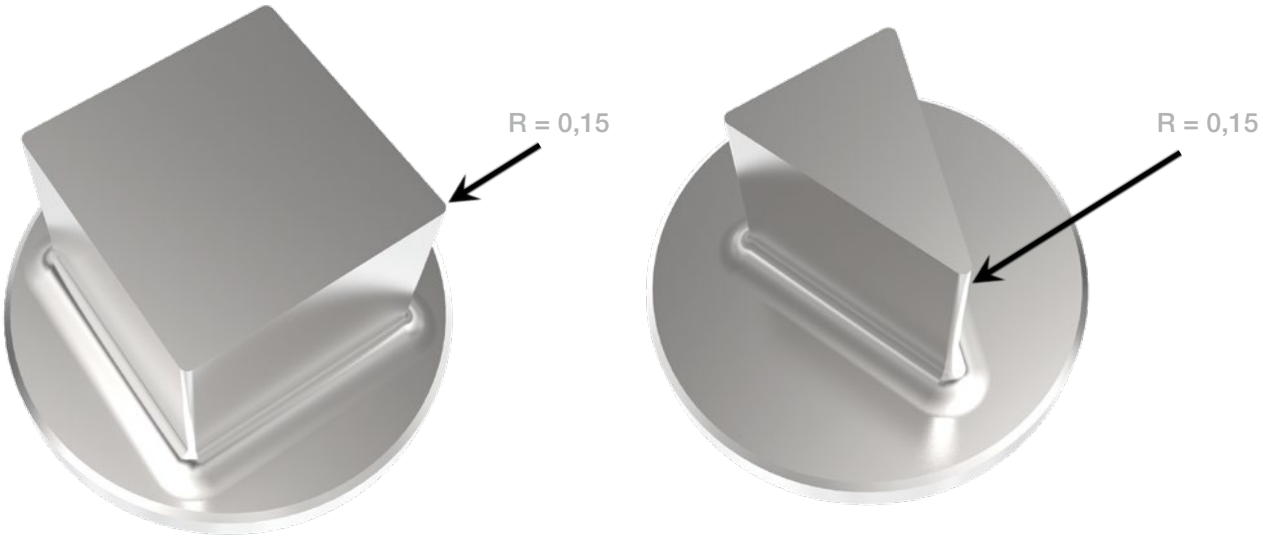
We recommend a line polished version for cutting parts, which have to be produced sink-eroded (special shape with internal shape, e.g. cross-form, U-form, etc.) and in high qualitity sheets.



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.

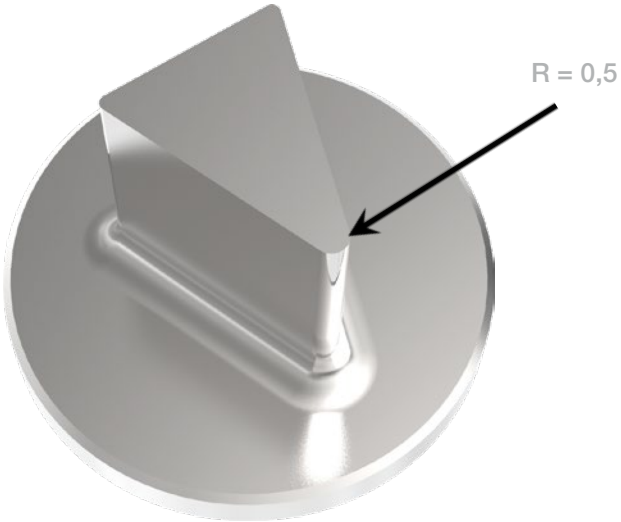
E.g.: square and triangle punch



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.



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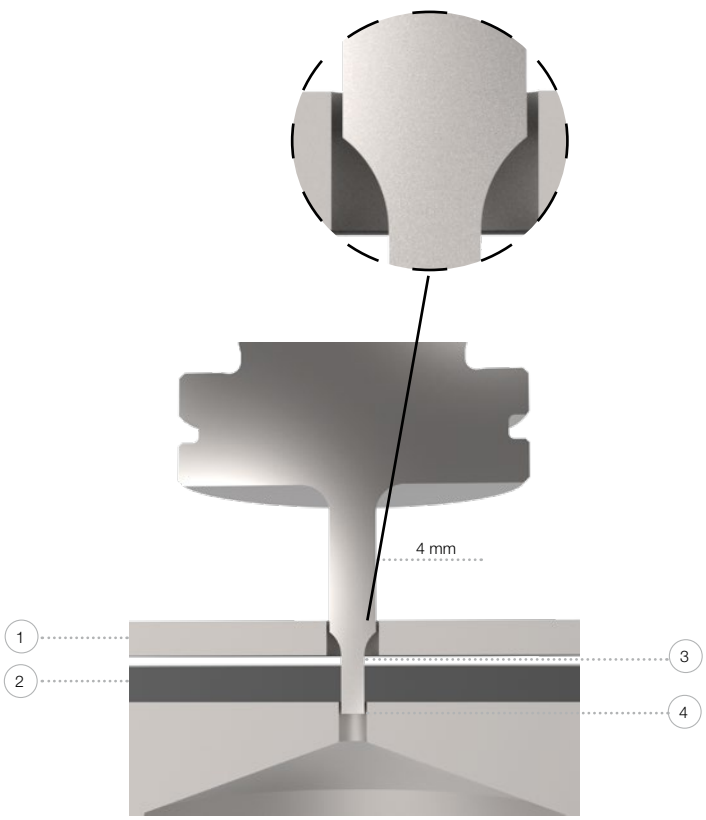
PASS PUNCHES WITH REINFORCED SHOULDER

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

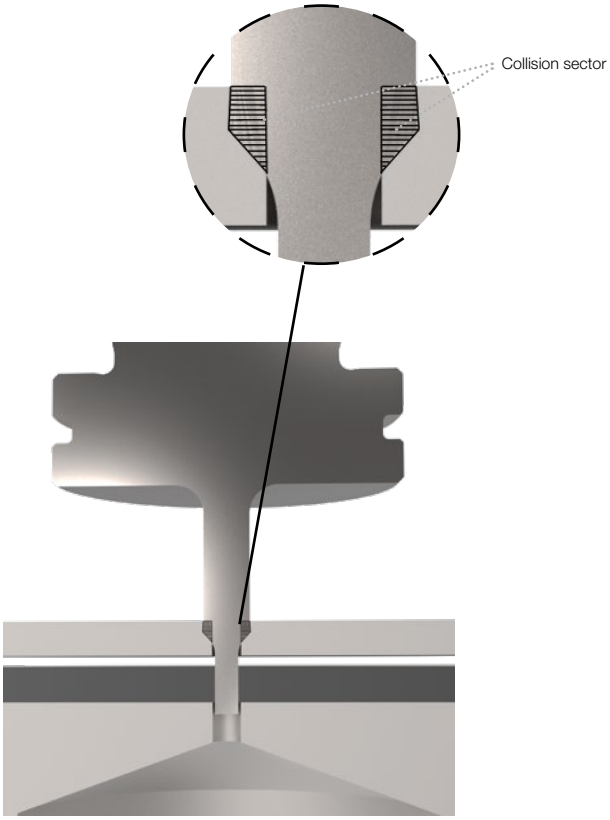
This guarantees that you will get a tool with highest stability in order to punch also thicker and high-strength sheets.

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

NOTES

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