TruServices

Punching Tools

Know-how for every application

TRUMPF

Machine Tools/Power Tools
Laser Technology/Electronics
Medical Technology

Simply order – with the correct specifications for the right tool.

Have you thought of everything?

- ☑ Machine type
- ☑ Machine number
- ☑ Tool type
- ☑ Dimensions or drawings in a common CAD format (e.g. DXF)
- ☑ Sheet thickness
- ☑ Material
- ☑ Quantity
- ☑ Desired delivery date

Important ordering specifications
Please consider the "important ordering specifications" on each product page.

Useful request and order forms with the required processing information are available beginning on page 156.

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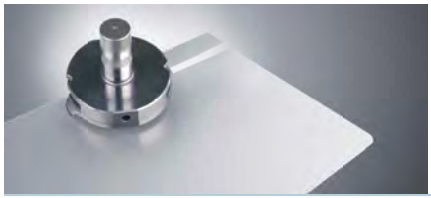
Homepage: www.trumpf.com

Content

General information

Punching



Cutting

Forming

Marking

Accessories

Useful information

Order forms

Equipped for all challenges.

Dear Readers,

We have given a lot of thought to the design of our current punching tool catalog and it is with great pleasure that we present the result to you. The catalog that you are holding in your hands is more than just a directory of our available products; it is a concise reference book of punching technology.

The catalog contains all of the TruServices Punching Tools that we offer, from standard tools to special geometries and forming tools. Check lists and ordering information simplify the ordering process. In addition, the catalog provides a wealth of useful information on tools and applications gained from practical experience.

Our catalog offers more than you would expect and you can expect more from TRUMPF: not only punching tools of the highest quality, but also personal consultation and solutions to the challenges that you face in daily production.

With over 40 years of expertise and an extensive range of punching tools, we are your world leading partner in production technology. Our punching tool service is certified in accordance with DIN EN ISO 9001.

You can rely on the outstanding interaction between machine, software, control, and tools. As a full-range supplier, we provide everything you need from a single source.

We hope that you enjoy the punching tool catalog from TRUMPF.

Kind regards,

Philipp Herwerth
Head of Sales, Punching Tools

Markus Hees
Head of Production, Punching Tools

Know-how for every application.

We know that every punching machine performs at maximum capacity on a daily basis. And, for best results it comes down to the best possible interaction between all the components. Since this can only be guaranteed by original manufacturer products, we have been producing our own punching tools for 40 years – offering the highest quality and the widest range of tools on the market.

Focused expertise.

At the Gerlingen location, just a few kilometers from TRUMPF's corporate headquarters in Ditzingen, Germany, our employees produce all of the punching and forming tools that are used in our TruPunch and TruMatic machines throughout the world. Our punching tool specialists are there for you every step of the way; from technical consultation, to development and production, to shipping. We use state-of-the-art CAD systems and manufacturing methods to produce tools to the highest quality. And, we consistently focus on the most important thing: ensuring that you receive the best possible tool, and on time.

Our delivery reliability speaks for itself: in 98% of cases, our customers receive their order by the agreed deadline. We generally dispatch orders of standard tools on the same day they are received from our Gerlingen location. So even if there is an emergency, you can get production up and running again quickly.

Process specialists.

In order to consistently guarantee high availability and quick delivery times, we continuously work to improve our punching tool production procedures. We rely on our SYNCHRO production system for producing our punching tools to achieve the highest quality for our products and services.

Contact us.

If you are interested in where and how TruServices Punching Tools are created or if you would like to discuss an idea, please contact us. We look forward to hearing from you.


153*1.0

The TRUMPF system:

Intelligent punching.

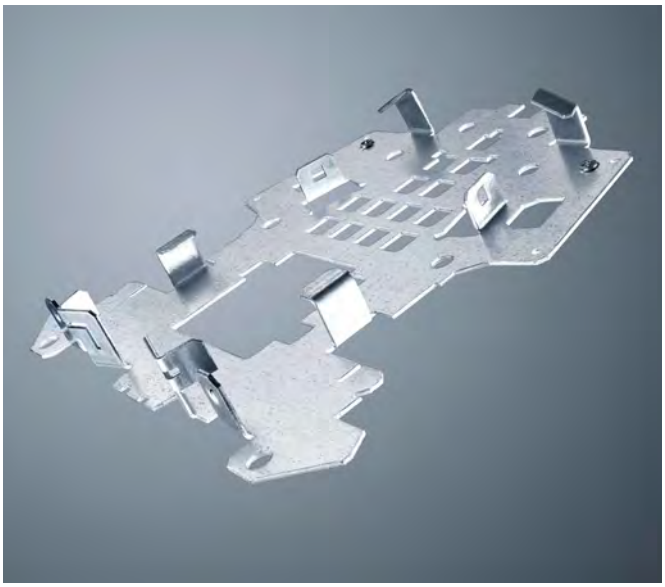
A well-coordinated team.

Modern punching technology offers a variety of processing options including: punching and forming simple or complex parts, in large or small batches, using a wide range of materials. Whatever you or your customers want to manufacture, you need a system that provides versatile and economical support for all your requirements.

The TRUMPF system consists of the machine, tools, and software, all of which are adapted to work together in perfect harmony. You can produce a wide range of parts on one machine, giving you the best in economical and efficient production. Efficient use of energy and material resources is a focal point of the system.

TruPunch:
Benefits at a glance.

1. Resource-efficient processing.
2. Punching, forming and deburring (on one machine).
3. Full tool flexibility.
4. Quality to suit every requirement.
5. Custom automation.



Equipped for all challenges.

Our Classic System includes a variety of special geometries as well as many standard geometries. These tools can be used with all generations of TRUMPF punching machines. This is guaranteed for the future too, because EasyUse, a standard feature, enables an easy setup process.

As individual as your work:
Special designs.

For entirely unique applications, you need special tools. Our specialists will develop these tools according to your exact needs. By producing the products ourselves and performing intensive tests on the tools using TRUMPF machines, we can guarantee the highest quality. Your order is dispatched within a few days.

Forming – punching in three dimensions.

Your punching machine can do more than just punch. Fitted with an intelligent punching head and the right tool, your machine will also show off its forming talents. This enables you to completely process a wide variety of sophisticated components on one machine. It is also efficient for small quantities because tool costs are low and setup times are short.

- Full tool flexibility due to a wide range of tools
- Punching, forming and deburring on one machine with the intelligent punching head and 360° tool rotation
- Uncompromising quality as a result of superior precision and intelligent solutions for scratch reduction
- Open machine concept provides excellent tool accessibility
- Economical and efficient production with continuous automation

TRUMPF quality:

Made in Germany.

1 Present: your local partner

If you need a tool then you have come to the right specialists. Whether it is by e-mail, phone, fax or through our E-Shop when it is convenient for you, you can contact us anywhere in the world through our local sales partners.

2 Experienced: technical customer advice

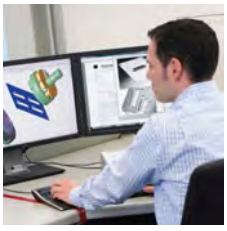
Extraordinary projects require extraordinary tools. Our specialists check the feasibility of your request and work together with you to design sophisticated special tools according to your requirements. Trust in our expertise. We can also visit you for a consultation upon request.

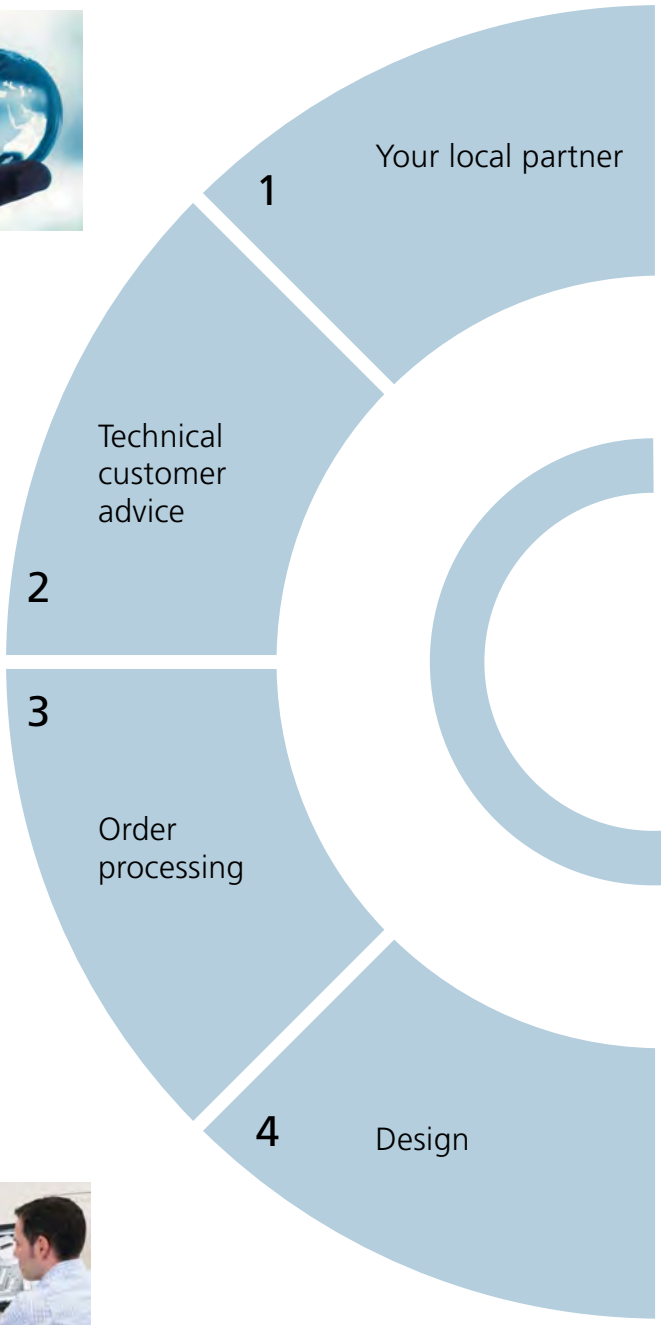
3 Efficient: order processing

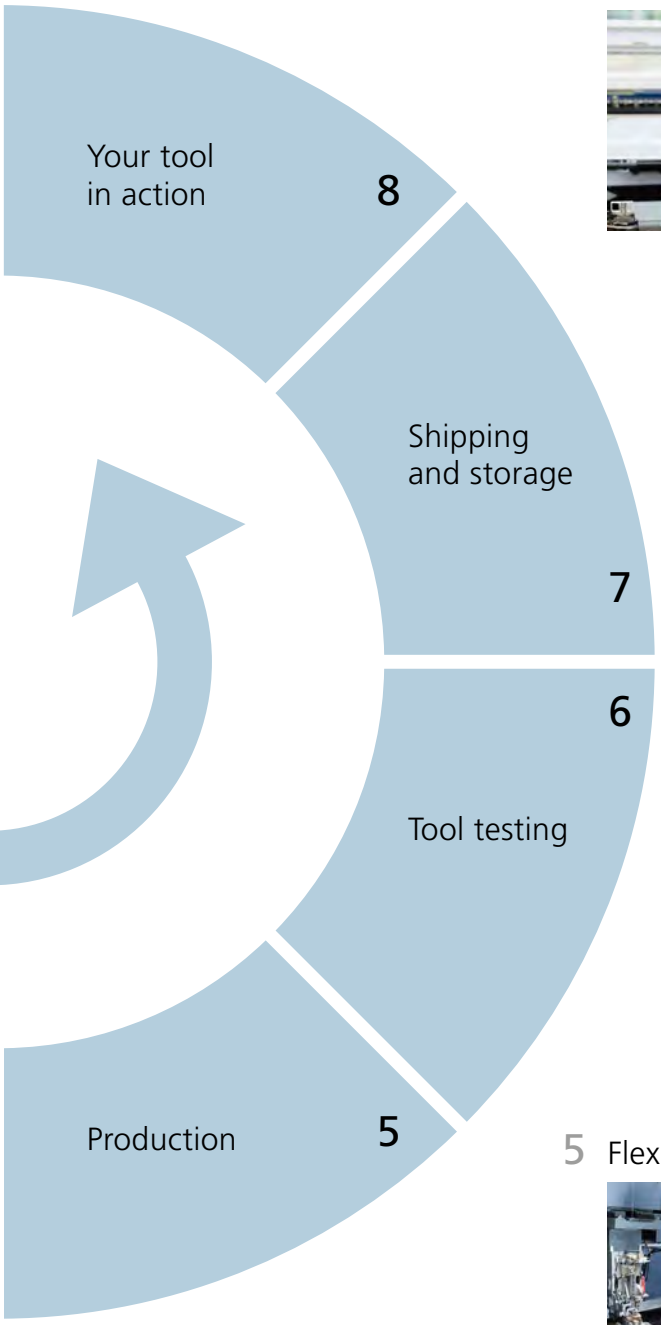
Our sales representatives are distinguished by their outstanding expertise and experience. They arrange hassle-free processing of your order and work closely with our tool technicians to ensure this. Our team coordinates orders from all over the world.

4 Creative: design

If you need a special tool, we will design it and determine the machining strategy. Our tool designers know our machines inside out. This knowledge is the perfect basis for designing the ideal interaction between tool, machine, and software.







8 Successful: your tool in action

It goes without saying that we provide outstanding delivery reliability and exceptional quality. As a result, your production processes continue to run smoothly and on schedule. And if you order special tools, you will automatically receive all of the required programming data.

7 Reliable: shipping and storage

All tools are labeled with the TRUMPF marking laser. This allows you to order more single parts for the tool throughout the entire life cycle. We generally dispatch standard tools from our Gerlingen location on the same day.

6 Fault-free: tool testing

Before we dispatch a special tool for forming or embossing we put it through its paces, using TRUMPF machines of course! You can be sure that you will be able to achieve the best results with your new tool.

5 Flexible: production

Regardless of whether it is standard or custom, your tool is produced in our punching tool production facility according to the latest manufacturing methods and the TRUMPF SYNCHRO production principle. Our excellent processes guarantee fast delivery times and the best quality for products and services.

Punching:

Great punching made easy.

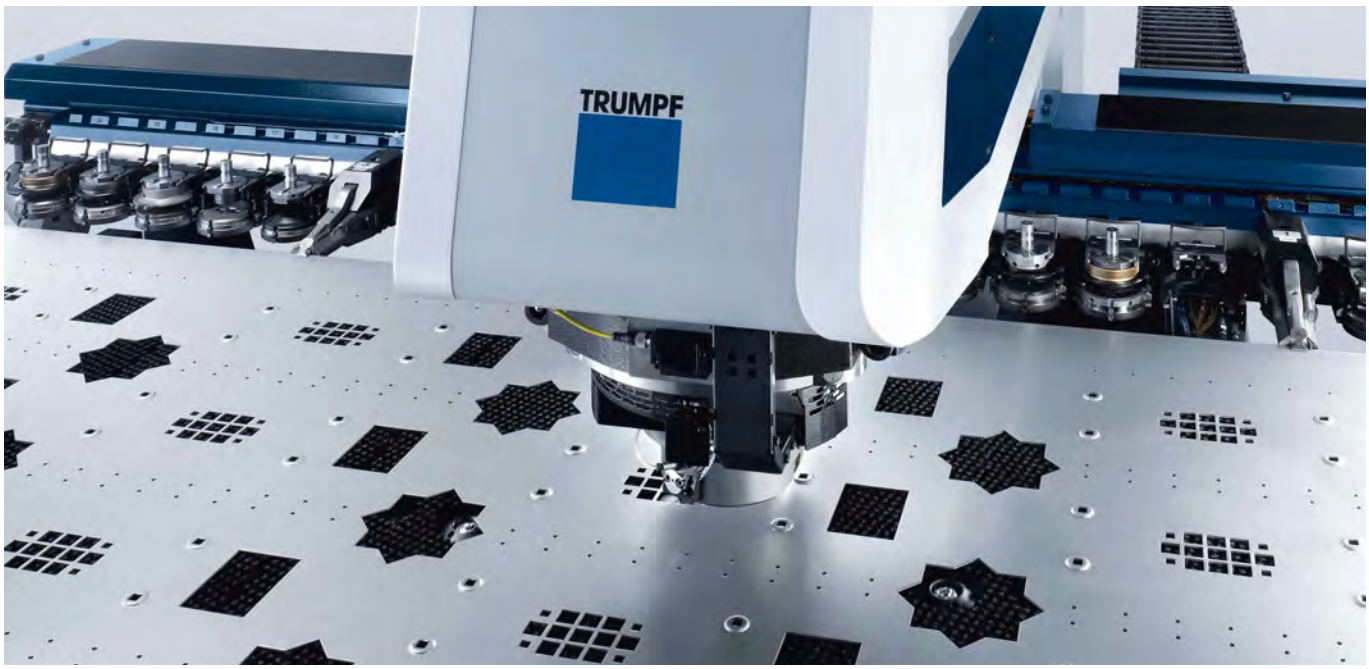
Punching with TRUMPF tools.

TRUMPF represents high-quality punching tools for maximum tool life. We offer tools made from the highest quality steels that have been produced using the latest production technology. The best conditions for your production.

The Classic System is the leading tool system for punching machines as well as for punching and laser cutting machines. A wide range of forms, shears, coatings, and available accessories makes the tools very flexible. The system is equipped with Easy-Use as a standard feature, guaranteeing simple setup.

Our MultiTool makes your machine more productive by integrating up to ten different punches and dies into one tool. The strengths of the MultiTool are particularly notable in processing sheet metal parts with small punches of different sizes.

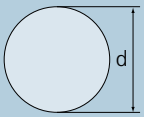
Our MultiUse tool is distinguished by its extremely reliable setup. Setup errors are virtually eliminated by clearly defining the angle position.



Punching

Round

Description and application
The reliable and cost-effective TRUMPF round tool for punching and nibbling



Advantages
- With a wide range of options there is something to suit every requirement
- Maximum flexibility with the existing TRUMPF tool inventory
- Complete compatibility with TRUMPF accessories
- Simple setup with EasyUse

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)

Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699800	

Die

- Simple setup with EasyUse

Order no.	EUR
699810	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699820	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	(d) mm	Punch chuck required	EUR	(d) mm	EUR	(d) mm	EUR
0	1.00 - 6.00	Yes (6 mm)		- 32.00		- 78.00	
	1.00 - 6.00	Yes (10.5 mm)					
	6.01 - 10.50						
1	2.00 - 30.00	No					
	30.01 - 40.00						
2	40.01 - 60.00			32.01 - 77.80			
	60.01 - 76.20						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

	Version	
Size	Slug retention die	Reinforced
1		
2		

Stripper options

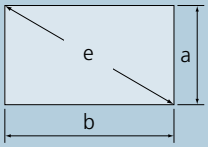
Special coating

Rectangle

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)

Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Description and application
The reliable and cost-effective TRUMPF rectangular tool for punching and nibbling



Advantages
- With a wide variety of options there is something to suit every requirement
- Maximum flexibility with the existing TRUMPF tool inventory
- Complete compatibility with TRUMPF accessories
- Simple setup with EasyUse

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699802	

Die

- Simple setup with EasyUse

Order no.	EUR
699812	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699822	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	(e) mm	Punch chuck required	EUR	(e) mm	EUR	(e) mm	EUR
0	1.80 - 6.00	Yes (6 mm)		- 32.00		- 78.00	
	6.01 - 10.50	Yes (10.5 mm)					
1	2.00 - 30.45	No					
2	30.46 - 40.00			32.01 - 78.00			
	40.01 - 50.80						
	50.81 - 60.00						
	60.01 - 76.20						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

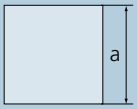
	Version	
Size	Slug retention die	Reinforced
1		
2		

Stripper options

Special coating

Square

Description and application
The reliable and cost-effective TRUMPF square tool for punching and nibbling



Advantages
- With a wide range of options there is something to suit every requirement
- Maximum flexibility with the existing TRUMPF tool inventory
- Complete compatibility with TRUMPF accessories
- Simple setup with EasyUse

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)

Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699801	

Die

- Simple setup with EasyUse

Order no.	EUR
699811	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699821	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	(a) mm	Punch chuck required	EUR	(a) mm	EUR	(a) mm	EUR
0	1.00 - 4.20	Yes (6 mm)		- 22.00		- 55.00	
	4.21 - 7.40	Yes (10.5 mm)					
1	1.00 - 20.00	No					
2	20.01 - 28.00			22.01 - 55.00			
	28.01 - 35.00						
	35.01 - 42.00						
	42.01 - 53.80						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

	Version	
Size	Slug retention die	Reinforced
1		
2		

Stripper options

Special coating

Oblong

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Description and application
The reliable and cost-effective TRUMPF oblong tool for punching and nibbling

Advantages
- With a wide range of options there is something to suit every requirement
- Maximum flexibility with the existing TRUMPF tool inventory
- Complete compatibility with TRUMPF accessories
- Simple setup with EasyUse

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699803	

Die

- Simple setup with EasyUse

Order no.	EUR
699813	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699823	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	(l) mm	Punch chuck required	EUR	(l) mm	EUR	(l) mm	EUR
0	1.80 - 6.00	Yes (6 mm)		- 32.00		- 78.00	
	6.01 - 10.50	Yes (10.5 mm)					
1	2.00 - 30.00	No					
2	30.01 - 40.00			32.01 - 78.00			
	40.01 - 50.80						
	50.81 - 60.00						
	60.01 - 76.20						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

	Version	
Size	Slug retention die	Reinforced
1		
2		

Stripper options

Special coating

Forms – category A

Description and application
Standardized forming tools for customized application

Advantages
- Can be customized to suit your requirements
- Tool Data Import makes tool programming easy
- With a wide range of options there is something to suit every requirement
- Simple setup with EasyUse

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699850	

Die

- Simple setup with EasyUse

Order no.	EUR
699860	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699870	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, form, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, form, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	Outer circle in mm	Punch chuck required	EUR	Outer circle in mm	EUR	Outer circle in mm	EUR
0	6.01 - 10.50	Yes (10.5 mm)		- 32.00		- 78.00	
1	10.51 - 30.00	No					
2	30.01 - 40.00			32.01 - 78.00			
	40.01 - 50.80						
	50.81 - 60.00						
	60.01 - 76.20						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

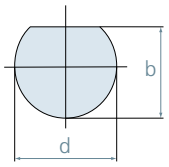
	Version	
Size	Slug retention die	Rein-forced
1		
2		

Stripper options

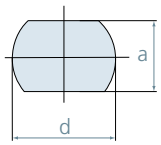
Special coating

Forms – category A

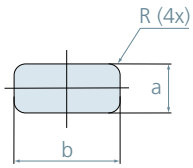
Form 6



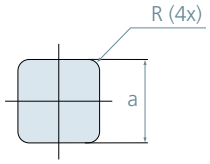
Form 7



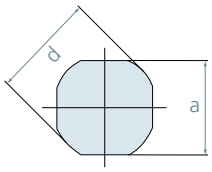
Form 9



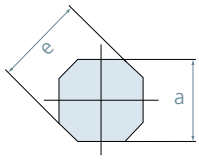
Form 10



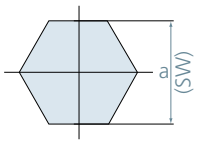
Form 11



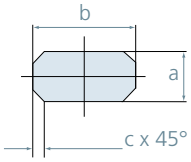
Form 12



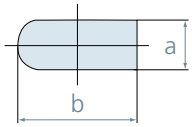
Form 13



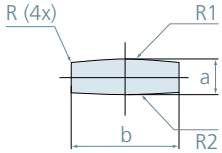
Form 30



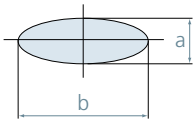
Form 32



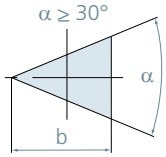
Form 29



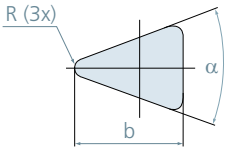
Form 36



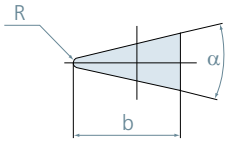
Form 20



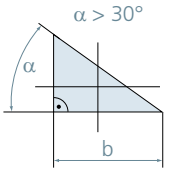
Form 22



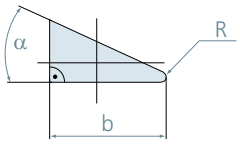
Form 23



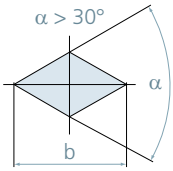
Form 21



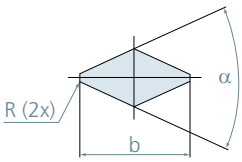
Form 24



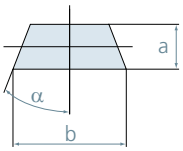
Form 16



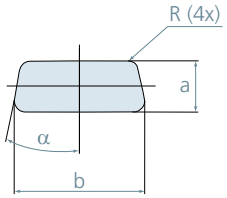
Form 17



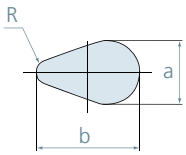
Form 25



Form 18



Form 39



Important ordering information
The smallest possible radius is 0.2 mm. With forms 16, 20, 21, and 25, the b-size is reduced.

Forms – category B

Description and application
Standardized forming tools for customized application

Advantages
- Can be customized to suit your requirements
- Tool Data Import makes tool programming easy
- With a wide range of options there is something to suit every requirement
- Simple setup with EasyUse

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness d	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699850	

Die

- Simple setup with EasyUse

Order no.	EUR
699860	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699870	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, form, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, form, dimensions, options.

Prices

	Punch			Die		Stripper	
Size	Outer circle in mm	Punch chuck required	EUR	Outer circle in mm	EUR	Outer circle in mm	EUR
0	6.01 - 10.50	Yes (10.5 mm)		- 32.00		- 78.00	
1	10.51 - 30.00	No					
2	30.01 - 40.00			32.01 - 78.00			
	40.01 - 50.80						
	50.81 - 60.00						
	60.01 - 76.20						

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
0						
1						
2						

Die options

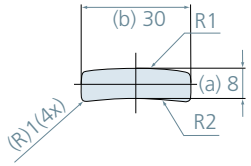
	Version	
Size	Slug retention die	Rein-forced
1		
2		

Stripper options

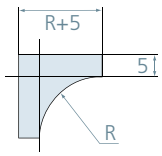
Special coating

Forms – category B

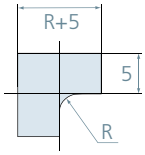
Form 37



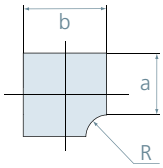
Form 35



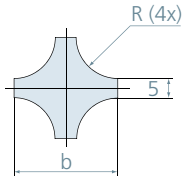
Form 15



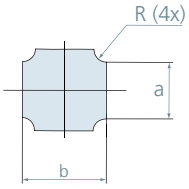
Form 15



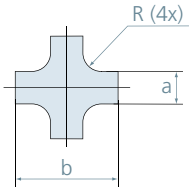
Form 14



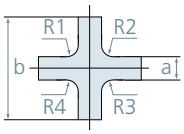
Form 14



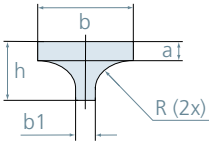
Form 14



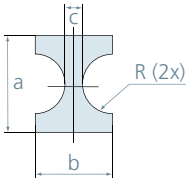
Form 40



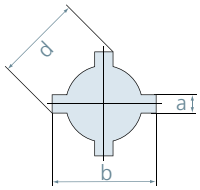
Form 28



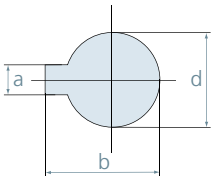
Form 31



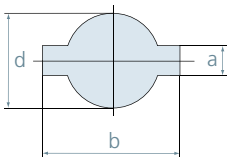
Form 27



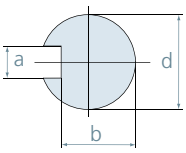
Form 1



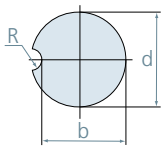
Form 2



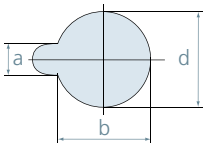
Form 3



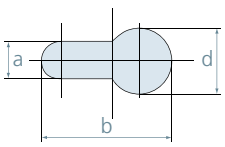
Form 38



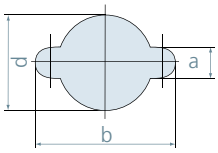
Form 4



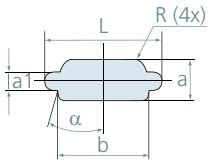
Form 5



Form 8



Form 19

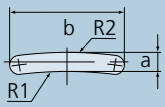


Banana tool

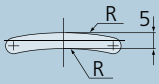
Description and application
The tool for punching curved shapes

Advantages
- Can be customized to suit your requirements
- Can be used for large openings and circular punching
- Tool Data Import makes tool programming easy
- With a wide range of options there is something to suit every requirement
- Simple setup with EasyUse

Form 33



Form 34



Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)

Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699850	

Die

- Simple setup with EasyUse

Order no.	EUR
699860	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699870	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, form, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, form, dimensions, options.

Prices

	Punch		Die		Stripper	
Size	Outer circle in mm	EUR	Outer circle in mm	EUR	Outer circle in mm	EUR
1	10.51 - 30.00		- 32.00		- 78.00	
2	30.01 - 76.20		32.01 - 78.00			

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
1						
2						

Die options

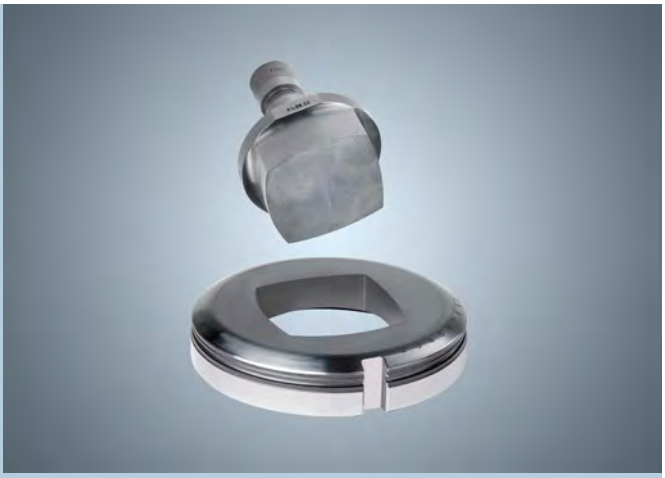
	Version	
Size	Slug retention die	Reinforced
1		
2		

Stripper options

Special coating

MultiCut radii tool

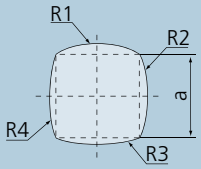
Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156



Description and application
The adaptable tool with four different radii for producing round holes

Advantages
- Short processing time for producing round holes
- Can be customized to suit your requirements
- Tool Data Import makes tool programming easy
- Simple setup with EasyUse

Form 26



Item

Punch

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699850	

Die

- Simple setup with EasyUse

Order no.	EUR
699860	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
699870	

Important ordering specifications
Punch, die: machine, sheet thickness, material, size, form, dimensions, options (reinforced punch requires special alignment ring).
Stripper: machine, sheet thickness, material, form, dimensions, options.

Prices

	Punch		Die		Stripper	
Size	Outer circle in mm	EUR	Outer circle in mm	EUR	Outer circle in mm	EUR
1	10.51 - 30.00		- 32.00		- 78.00	
2	30.01 - 76.20		32.01 - 78.00			

Punch options

	Coating			Shear		Version
Size	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof	Reinforced
1						
2						

Die options

	Version	
Size	Slug retention die	Rein-forced
1		
2		

Stripper options

Special coating

Recommended dimensions
a=26.5 mm where R1=25, R2=40, R3=50, R4=65
a=42.0 mm where R1=50, R2=60, R3=80, R4=100

Forms – customized

Description and application
Forming tools produced to suit your individual requirements

Advantages
- Individual consultation with punching specialists to discuss feasibility and application
- Quick delivery times as a result of the latest production methods
- Tool Data Import makes programming easy
- Simple setup with EasyUse

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete tool

Order no.	EUR
323300	

Punch

- Optional: longer tool life with coating

Order no.	EUR
323301	

Die

- Simple setup with EasyUse

Order no.	EUR
323311	

Stripper

- Optional: special coating to avoid imprints

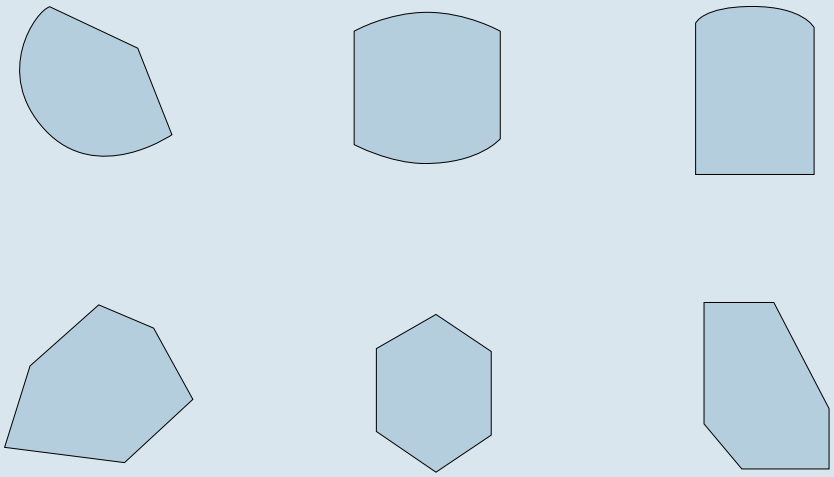
Order no.	EUR
323305	

Important ordering specifications
Reordering complete tools: drawing in common CAD format (e.g. DXF), machine, sheet thickness, material, options.
Reordering individual components: specify the TRUMPF graphic number.

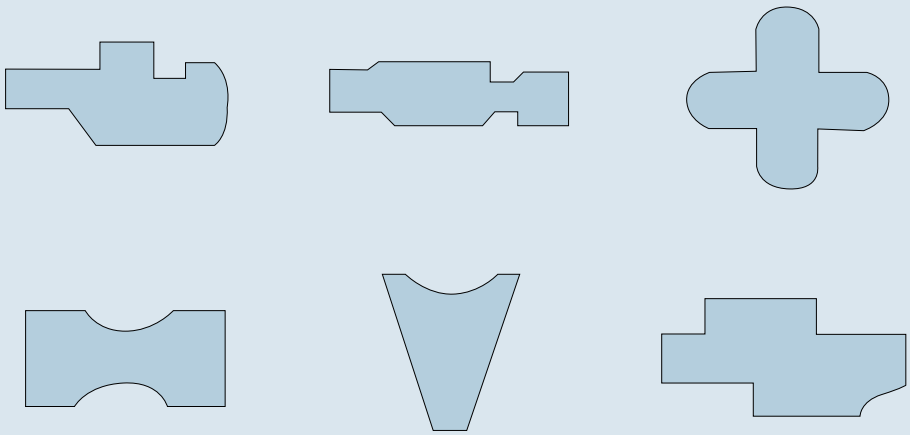
Forms – customized

Forms to suit your individual requirements

Examples of forms in category A



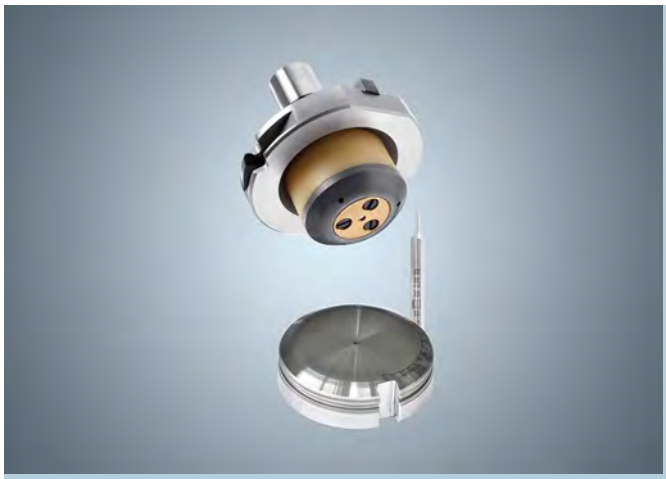
Examples of forms in category B



In addition to the many standard forms, TRUMPF can create a custom form for your specific requirements. Please send us a drawing in a common CAD format (e.g. DXF). If you order a custom form, you will automatically receive all required programming data.

We would be happy to help you.

Tools with guided cutting edge



Description and application
Tools for punching holes with dimensions that are less than the sheet thickness

Advantages
- Reduced risk of breakage when punch load is increased
- Reliable punching of very small geometries
- Punch insert and guide bushing can be replaced individually

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	
Round	max. 4.0 mm
Square	max. 2.5 mm
Rectangle	max. 2.5 mm
Oblong	max. 2.5 mm
Useful information	
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Guided punch, round

- Optional: longer tool life with coating

Order no.	EUR
699900	

Guided punch, square

- Optional: longer tool life with coating

Order no.	EUR
699900	

Guided punch, rectangle

- Optional: longer tool life with coating

Order no.	EUR
699900	

Guided punch, oblong

- Optional: longer tool life with coating

Order no.	EUR
699900	

Important ordering specifications
Machine, sheet thickness, material, form, dimensions, options.

Inserts

Precision piercing punch

	Dimension in mm	Order no.	EUR
Round	(d) = 1.00 - 6.00	699901	
Square	(a) = 1.00 - 7.40		
Rectangle	(e) = 1.30 - 10.50		
Oblong	(l) = 1.30 - 10.50		

Guide bushing/presser foot

	Type	Order no.	EUR
Round	Guide bushing	699902	
Square			
Rectangle	Presser foot	699903	
Oblong			

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Hollow spring element (round)	093928	
Spring element (square, rectangle, oblong)	517153	

Punch options

Coating		
MultiDur TiCN	**MultiDur Performance**	**MultiDur Alu**

Cluster tools

Description and application
Tools for the highly efficient production of perforated sheets and perforations

Advantages
- Numerous geometries and options ensure there is something to suit every requirement
- Individual consultation with punching specialists to discuss feasibility and application
- Quick delivery times as a result of the latest production methods
- Punch inserts can be replaced one at a time if worn
- Tool Data Import makes programming easy

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	dependent on the geometry and punching force see p. 122 (punching force and shear strength)

Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punch selection	see p. 124
Die selection	see p. 125
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool Data Import	see p. 133
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete tool

Order no.	EUR
326400	

Punch

- One-piece punch or with replaceable inserts
- Optional: longer tool life with coating

Order no.	EUR
326450	

Die

- Optional: leveling effect to improve sheet evenness

Order no.	EUR
326411	

Stripper

- Optional: special coating to avoid imprints

Order no.	EUR
326405	

Important ordering specifications
Reordering complete tools: drawing in common CAD format (e.g. DXF), machine, sheet thickness, material, options.
Reordering individual components: specify the TRUMPF graphic number.

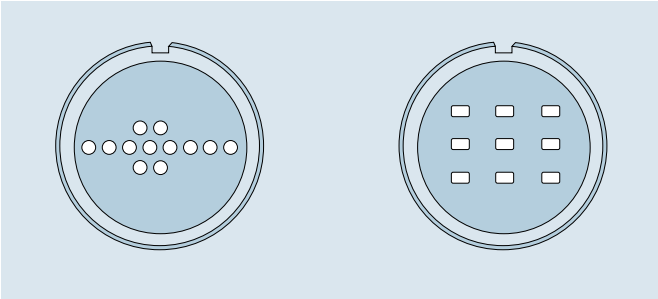
Cluster tools

The technology

Cluster tools are able to punch several holes simultaneously in a single stroke. They are produced to order according to the requirements and field of application. Cluster tools can be produced with replaceable punch inserts or from a single piece of material.

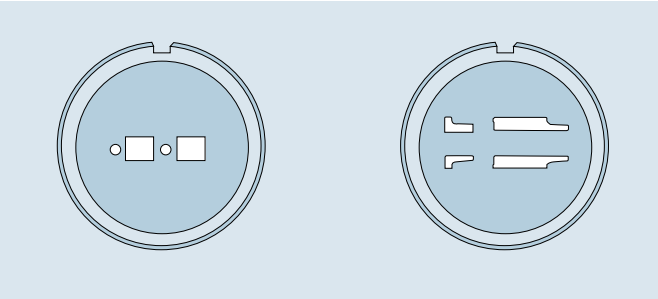
The expertise

For the best results in all aspects of our tools, we draw on the wealth of knowledge from specialists of TRUMPF. There is so much we can offer, including different coatings, the leveling effect, slug retention function, and much more. The only limits to producing cluster tools are the machine's maximum punching force and the maximum outer circle diameter of 72 mm.



Punch with replaceable punch inserts

- Punch inserts can be replaced one at a time e.g. if worn
- Easy mounting
- Well suited for smaller dimensions and standard forms
- Particularly economical for large quantities



One-piece punch

- A solid punch, can be supplied with an integrated alignment ring as an option
- Can be combined with a range of geometries
- Particularly suited for larger geometries, special shapes, or high-precision processing

MultiTool 5-station

Description and application
The original MultiTool from TRUMPF with a tool adapter for 5 inserts – ideal for lots of small punches with different sizes

Advantages
- Number of tools on the machine is increased with 5 tool inserts in one tool adapter
- Shorter setup and tool change times
- Considerable increase in productivity for small punches
- Die inserts can be reground one at a time
- The gear rim with special coating runs exceptionally well

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiTool
Sheet thickness s	
Steel	0.5 - 4.5 mm
Stainless steel	0.5 - 3.0 mm
Aluminum	0.5 - 4.5 mm
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punching force and shear	see p. 122
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete MultiTool

Order no.	EUR
699830	

Punch adapter

Order no.	EUR
629134	

Die holder

- Optional: with brush inserts for low-scratch processing (order no. 668915)

Order no.	EUR
629150	

Stripper

- Optional: Fitted stripper (order no. 699827)

Order no.	EUR
629161	

Important ordering specifications
Machine, MultiTool type (4-, 5-, 6-, 10-station). The "MultiTool" machine option is a prerequisite.

Inserts

Punch insert

		Dimension in mm	Order no.	EUR
Round	d	(d) = 1.00 - 16.00	699804	
Square	a	(a) = 1.00 - 11.30		
Rectangle	e, a, b	(e) = 1.80 - 16.00		
Oblong	a, l	(l) = 2.00 - 16.00		
Forms A/B	see p. 18 - 21	1.00 - 16.00		

Die insert

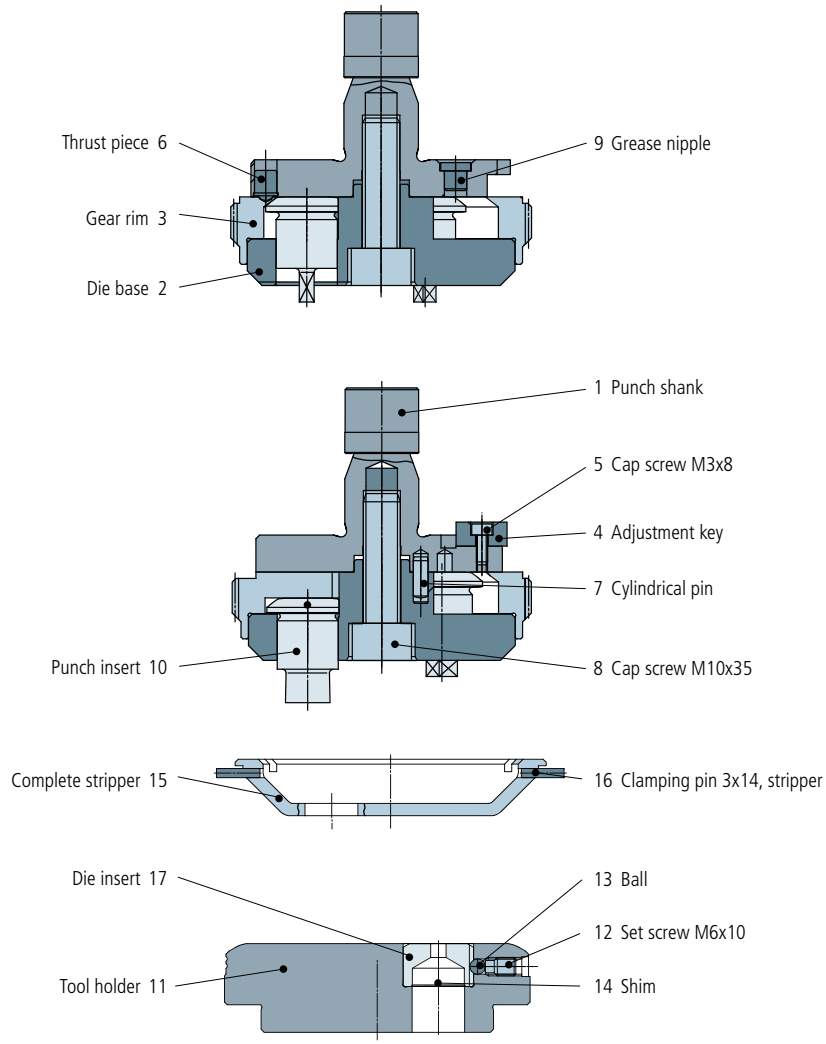
		Dimension in mm	Order no.	EUR
Round	d	(d) = 1.00 - 16.90	699814	
Square	a	(a) = 1.00 - 12.20		
Rectangle	e, a, b	(e) = 1.80 - 16.90		
Oblong	a, l	(l) = 2.00 - 16.00		
Forms A/B	see p. 18 - 21	1.00 - 16.00		

Important ordering specifications
Machine, sheet thickness, material, MultiTool type (4-, 5-, 6-, 10-station), form, dimensions, options.

Punch options

Coating		
MultiDur TiCN	MultiDur Performance	MultiDur Alu

MultiTool 5-station



Accessories and single parts

Item	Name	Quantity	Order no.	EUR
1)	Punch shank	1	629117	
2)	Die base	1	629120	
3)	Gear rim	1	629121	
4)	Adjustment key	1	063548	
5)	Cap screw M3x8	1	014346	
6)	Thrust piece	1	355256	
7)	Cylindrical pin	2	023116	
8)	Cap screw M10x35	1	015199	
9)	Grease nipple	1	029556	
10)	Punch insert	5	699804	
11)	Tool holder	1	629136	

Item	Name	Quantity	Order no.	EUR
12)	Set screw M6x10	5	074438	
13)	Ball	5	030210	
14)	Shim 0.1 mm	10	1460499	
	Shim 0.3 mm	5	1460502	
	Shim 0.5 mm	5	1460503	
15)	Complete stripper	1	629161	
16)	Clamping pin 3x14, stripper	2	146927	
17)	Die insert	5	699814	
18)	Brush insert (not pictured)	5	540021	
	Plain washer 0.1 mm for brush insert (not pictured)	5	540026	
	Plain washer 0.3 mm for brush insert (not pictured)	5	540027	

MultiTool 10-station

Description and application
The original MultiTool from TRUMPF with a tool adapter for 10 inserts – ideal for lots of small punches with different sizes

Advantages
- Number of tools on the machine is increased with 10 tool inserts in one tool adapter
- Shorter setup and tool change times
- Considerable increase in productivity for small punches
- Die inserts can be reground one at time
- Gear rim with special coating runs exceptionally well.

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiTool
Sheet thickness s	
Steel	0.5 - 4.5 mm
Stainless steel	0.5 - 3.0 mm
Aluminum	0.5 - 4.5 mm
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punching force and shear strength	see p. 122
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete MultiTool

Order no.	EUR
699830	

Punch adapter

Order no.	EUR
630593	

Die holder

- With brush field for low-scratch processing

Order no.	EUR
358911	

Stripper

- Optional: Fitted stripper (order no. 699827)

Order no.	EUR
641046	

Important ordering specifications
Machine, MultiTool type (4-, 5-, 6-, 10-station). The "MultiTool" machine option is a prerequisite.

Inserts

Punch insert

		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 10.50	699804	
Square		(a) = 1.00 - 7.40		
Rectangle		(e) = 1.80 - 10.50		
Oblong		(l) = 2.00 - 10.50		
Forms A/B	see p. 18 - 21	1.00 - 10.50		

Die insert

		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 11.00	699814	
Square		(a) = 1.00 - 7.70		
Rectangle		(e) = 1.80 - 11.00		
Oblong		(l) = 2.00 - 11.00		
Forms A/B	see p. 18 - 21	1.00 - 11.00		

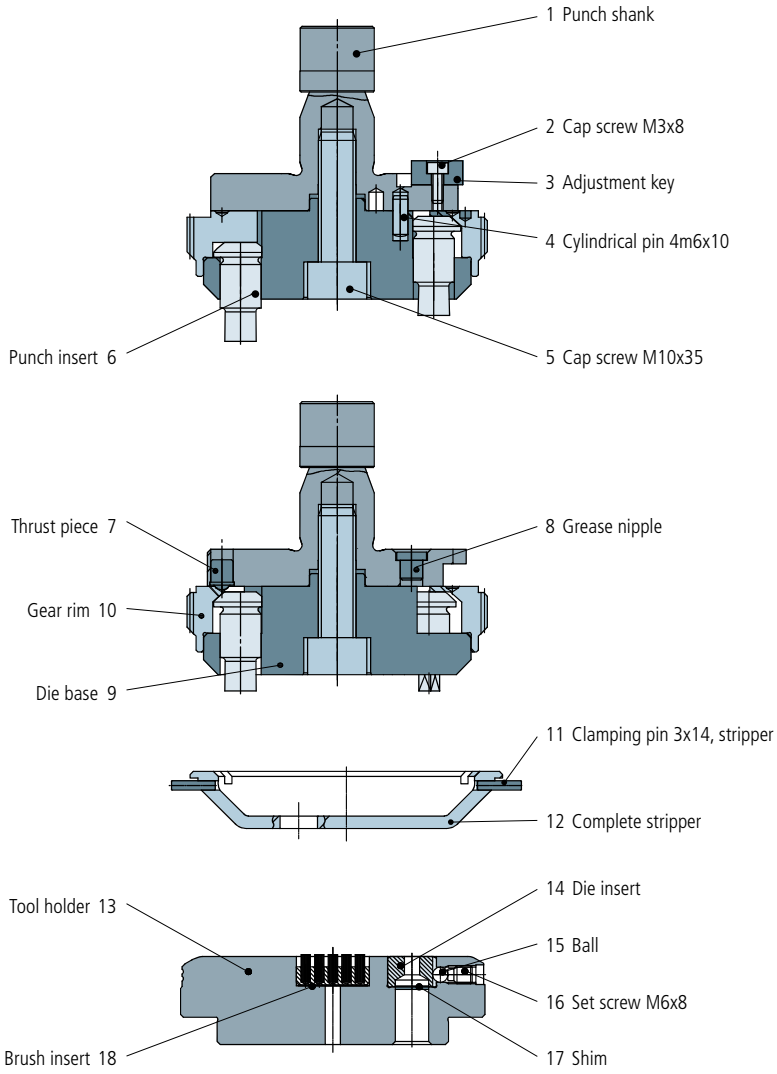
Important ordering specifications
Machine, sheet thickness, material, MultiTool type, (4-, 5-, 6-, 10-station), form, dimensions, options.

Punch options

Coating

MultiDur TiCN	MultiDur Performance	MultiDur Alu

MultiTool 10-station



Accessories and single parts

Item	Name	Quantity	Order no.	EUR
1)	Punch shank	1	629117	
2)	Cap screw M3x8	1	014346	
3)	Adjustment key	1	063548	
4)	Cylindrical pin 4m6x10	1	023116	
5)	Cap screw M10x35	1	015199	
6)	Punch insert	10	699804	
7)	Thrust piece	1	355256	
8)	Grease nipple	1	029556	
9)	Die base	1	630586	
10)	Gear rim	1	630587	

	Name	Quantity	Order no.	EUR
11)	Clamping pin 3x14, stripper	2	146927	
12)	Complete stripper	1	641046	
13)	Tool holder	1	1282660	
14)	Die insert	10	699814	
15)	Ball	10	030210	
16)	Set screw M6x8	10	053720	
	Shim 0.1 mm	20	1460490	
17)	Shim 0.3 mm	10	1460493	
	Shim 0.5 mm	10	1460496	
18)	Brush insert	1	0540023	

MultiTool 4-station

Description and application
The original MultiTool from TRUMPF with a tool adapter for 4 inserts – ideal for lots of small punches with different sizes

Advantages
- Number of tools on the machine is increased with 4 tool inserts in one tool adapter
- Shorter setup and tool change times
- Considerable increase in productivity for small punches
- Die inserts can be reground individually

Machine type	
TC	190 R, 200 R, 240 R, 260 R, 500 R, 600 L
Required machine option	MultiTool
Sheet thickness s	
Steel	0.5 - 3.0 mm
Stainless steel	0.5 - 2.0 mm
Aluminum	0.5 - 3.0 mm
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punching force and shear	see p. 122
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete MultiTool

Order no.	EUR
699830	

Punch adapter

- For TC 240/TC 260 order no. 203629

Order no.	EUR
712118	

Die holder

- Optional: with brush inserts for low-scratch processing (order no. 540019)

Order no.	EUR
075560	

Important ordering specifications
Machine, MultiTool type (4-, 5-, 6-, 10-station). The "MultiTool" machine option is a prerequisite.

Inserts

Punch insert

		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 16.00	699804	
Square		(a) = 1.00 - 11.30		
Rectangle		(e) = 1.80 - 16.00		
Oblong		(l) = 2.00 - 16.00		
Forms A/B	see p. 18 - 21	1.00 - 16.00		

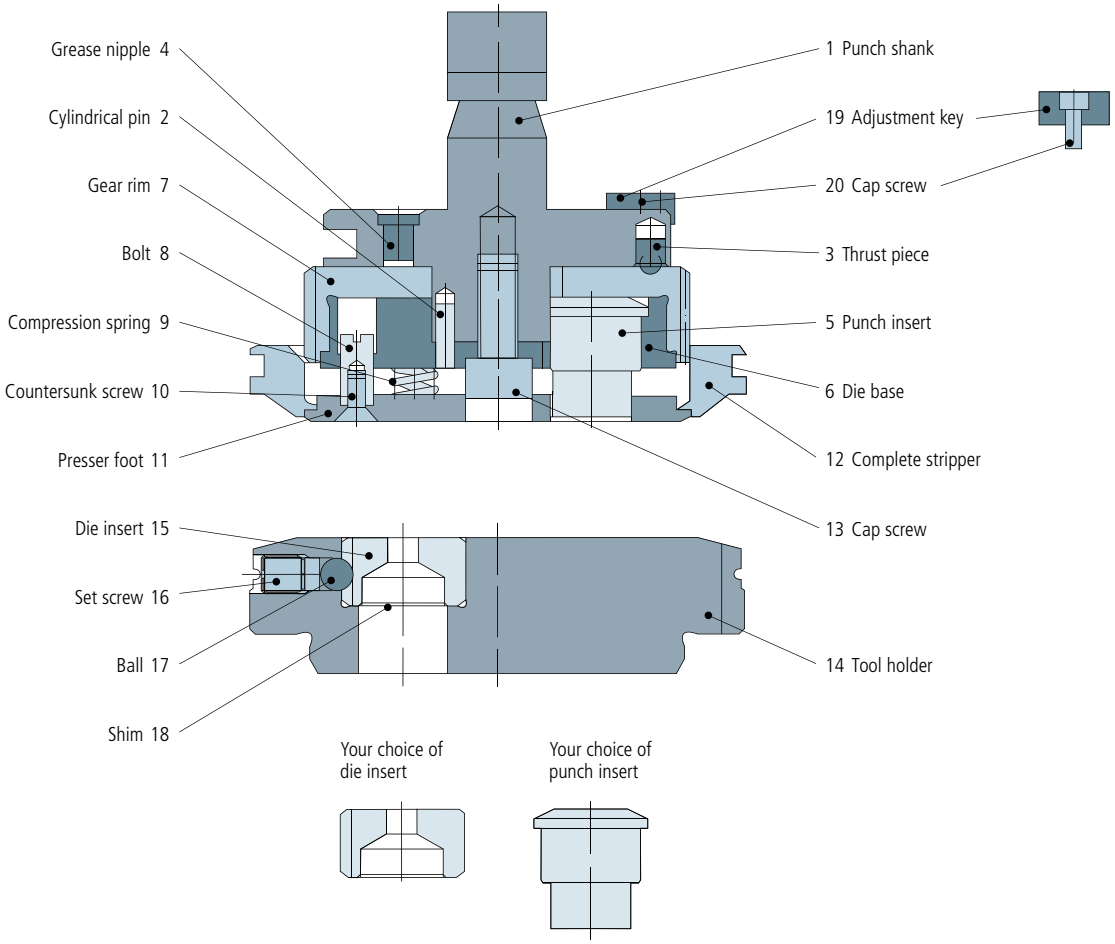
Die insert

		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 16.60	699814	
Square		(a) = 1.00 - 11.90		
Rectangle		(e) = 1.80 - 16.55		
Oblong		(l) = 2.00 - 16.60		
Forms A/B	see p. 18 - 21	1.00 - 16.60		

Important ordering specifications
Machine, sheet thickness, material, MultiTool type (4-, 5-, 6-, 10-station), form, dimensions, options.

Punch options

Coating		
MultiDur TiCN	MultiDur Performance	MultiDur Alu



Accessories and single parts

Item	Name	Quantity	Order no.	EUR
1)	Punch shank	1	540538	
2)	Cylindrical pin	1	023116	
3)	Thrust piece	1	355256	
4)	Grease nipple	1	029556	
5)	Punch insert	4	699804	
6)	Die base	1	203625	
7)	Gear rim	1	203626	
8)	Bolt	4	062171	
9)	Compression spring	4	630128	
10)	Countersunk screw	4	017965	
11)	Presser foot	1	711957	
	Presser foot for TC 240/TC 260	1	203627	
12)	Complete stripper	1	712115	
	Complete stripper for TC 240/TC 260	1	203619	
13)	Cap screw	1	016349	
14)	Tool holder	1	066205	
15)	Die insert	4	699814	
16)	Set screw	4	073865	
17)	Ball	4	062005	
18)	Shim 0.1 mm	8	366744	
	Shim 0.3 mm	4	366745	
	Shim 0.5 mm	4	366746	
19)	Adjustment key	1	063548	
20)	Cap screw	1	014346	

MultiTool 6-station

Description and application
The original MultiTool from TRUMPF with a tool adapter for 6 inserts – ideal for lots of small punches with different sizes

Advantages
- Number of tools on the machine is increased with 6 tool inserts in one tool adapter
- Shorter setup and tool change times
- Considerable increase in productivity for small punches
- Die inserts can be reground one at a time

Machine type	
TC	190 R, 200 R, 240 R, 260 R, 500 R, 600 L
Required machine option	MultiTool
Sheet thickness s	
Steel	0.5 - 3.0 mm
Stainless steel	0.5 - 2.0 mm
Aluminum	0.5 - 3.0 mm
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Punching force and shear	see p. 122
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Complete MultiTool

Order no.	EUR
699830	

Punch adapter

- For TC 240/TC 260 order no. 203635

Order no.	EUR
712120	

Die holder

- Optional: with brush inserts for low-scratch processing (order no. 540041)

Order no.	EUR
075554	

Important ordering specifications
Machine, MultiTool type (4-, 5-, 6-, 10-station). The "MultiTool" machine option is a prerequisite.

Inserts

Punch insert

		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 10.50	699804	
Square		(a) = 1.00 - 7.40		
Rectangle		(e) = 1.80 - 10.50		
Oblong		(l) = 2.00 - 10.50		
Forms A/B	see p. 18 - 21	1.00 - 10.50		

Die insert

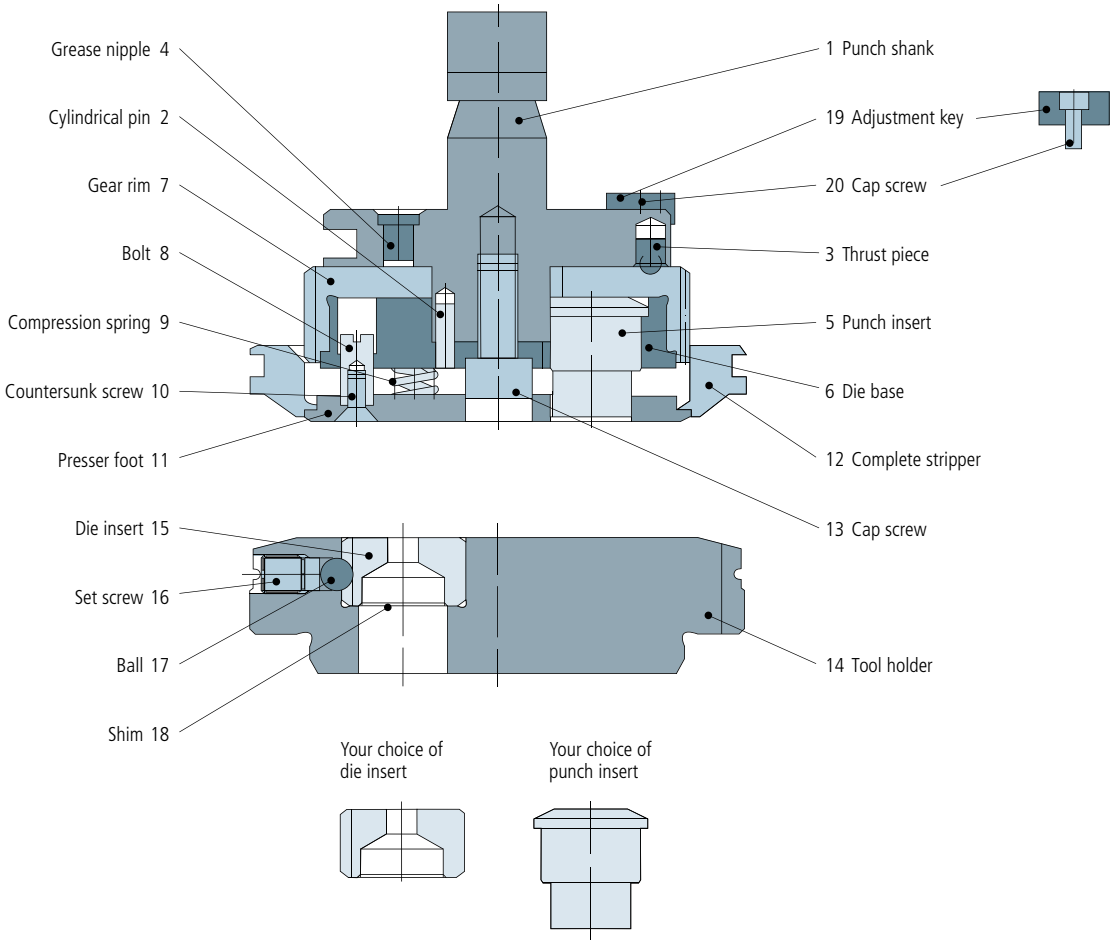
		Dimension in mm	Order no.	EUR
Round		(d) = 1.00 - 11.10	699814	
Square		(a) = 1.00 - 8.00		
Rectangle		(e) = 1.80 - 11.00		
Oblong		(l) = 2.00 - 11.10		
Forms A/B	see p. 18 - 21	1.00 - 11.10		

Important ordering specifications
Machine, sheet thickness, material, MultiTool type (4-, 5-, 6-, 10-station), form, dimensions, options.

Punch options

Coating		
MultiDur TiCN	MultiDur Performance	MultiDur Alu

MultiTool 6-station



Accessories and single parts

Item	Name	Quantity	Order no.	EUR
1)	Punch shank	1	073722	
2)	Cylindrical pin	1	756338	
3)	Thrust piece	1	355256	
4)	Grease nipple	1	029556	
5)	Punch insert	6	699804	
6)	Die base	1	203631	
7)	Gear rim	1	203632	
8)	Bolt	3	062171	
9)	Compression spring	3	091714	
10)	Countersunk screw	3	017965	
11)	Presser foot	1	712129	
	Presser foot for TC 240/TC 260	1	203633	

	Name	Quantity	Order no.	EUR
12)	Complete stripper	1	712115	
	Complete stripper for TC 240/TC 260	1	203619	
13)	Cap screw	1	016349	
14)	Tool holder	1	075195	
15)	Die insert	6	699814	
16)	Set screw	6	013218	
17)	Ball	6	062005	
18)	Shim 0.1 mm	12	366747	
	Shim 0.3 mm	6	366748	
	Shim 0.5 mm	6	366749	
19)	Adjustment key	1	063548	
20)	Cap screw	1	014346	

MultiUse

Description and application
Tool system with reliable setup and interchangeable punch and die inserts

Advantages
- Quick and easy setup
- Tool setup errors are eliminated by the easy-to-see fasteners on the mounting position
- Protected against twisting if there is a high load on one side
- Economical for large lot sizes
- Maximum regrind amount up to 9.5 mm

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness (punch)	dependent on the geometry and punching force see p. 122 (punching force and shear strength)
Sheet thickness (die)	
Steel	0.5 - 2.0 mm
Stainless steel	0.5 - 1.5 mm
Aluminum	0.5 - 2.0 mm
Useful information	
Tooling accessories	see p. 104
Dimensions and regrinding	see p. 120
Stripper selection	see p. 128
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Sheet flatness	see p. 138
Low-scratch/scratch-free processing	see p. 140
Positioning accuracy	see p. 142
Order forms	see p. 156

Item

Punch holder

Outer circle (mm)	Keyway	Order no.	EUR
1.00 - 40.00	0° + 90°	363450	
40.01 - 76.20		363494	

Punch insert

- Optional: longer tool life with coating
- Optional: free Whisper/roof shear

Order no.	EUR
699345	

Die holder

Outer circle (mm)	Order no.	EUR
1.00 - 40.00	358373	
40.01 - 56.00	358374	

Blanking die

Order no.	EUR
699346	

Important ordering specifications
Punch insert: machine, sheet thickness, material, form, dimensions, options.
Blanking die: machine, sheet thickness, material, form, dimensions.

Punch inserts

Round		Square		Rectangle		Oblong	
							
(d) mm	EUR	(a) mm	EUR	(e) mm	EUR	(l) mm	EUR
1.50 - 30.50		1.50 - 21.22		1.50 - 30.42		1.50 - 30.42	
30.51 - 40.00		21.23 - 28.29		30.43 - 40.00		30.43 - 40.00	
40.01 - 56.00		28.30 - 39.60		40.01 - 56.00		40.01 - 56.00	
56.01 - 66.00		39.61 - 46.68		56.01 - 66.00		56.01 - 66.00	
66.01 - 76.20		46.69 - 50.80		66.01 - 76.20		66.01 - 76.20	

MultiUse

Blanking dies

Round		Square		Rectangle		Oblong	
							
(d) mm	EUR	(a) mm	EUR	(e) mm	EUR	(l) mm	EUR
1.50 - 40.00		1.60 - 28.29		1.60 - 40.00		1.60 - 40.00	
40.01 - 56.00		28.30 - 50.80		40.01 - 56.00		40.01 - 56.00	

Punch options

	Coating			Shear	
Outer circle (mm)	MultiDur TiCN	MultiDur Performance	MultiDur Alu	Whisper	Roof
1.50 - 30.50					
30.51 - 76.20					

Accessories and single parts

Item		
Name	Order no.	EUR
Adjustment key for MultiUse punch	063548	
Spacer for punch 1.00 - 40.00 mm	1460891	
Spacer for punch 40.01 - 76.20 mm	1460892	
Plain washer for die 1.00 - 40.00 mm	1496972	
Plain washer for die 40.01 - 56.00 mm	1496991	

Cutting:

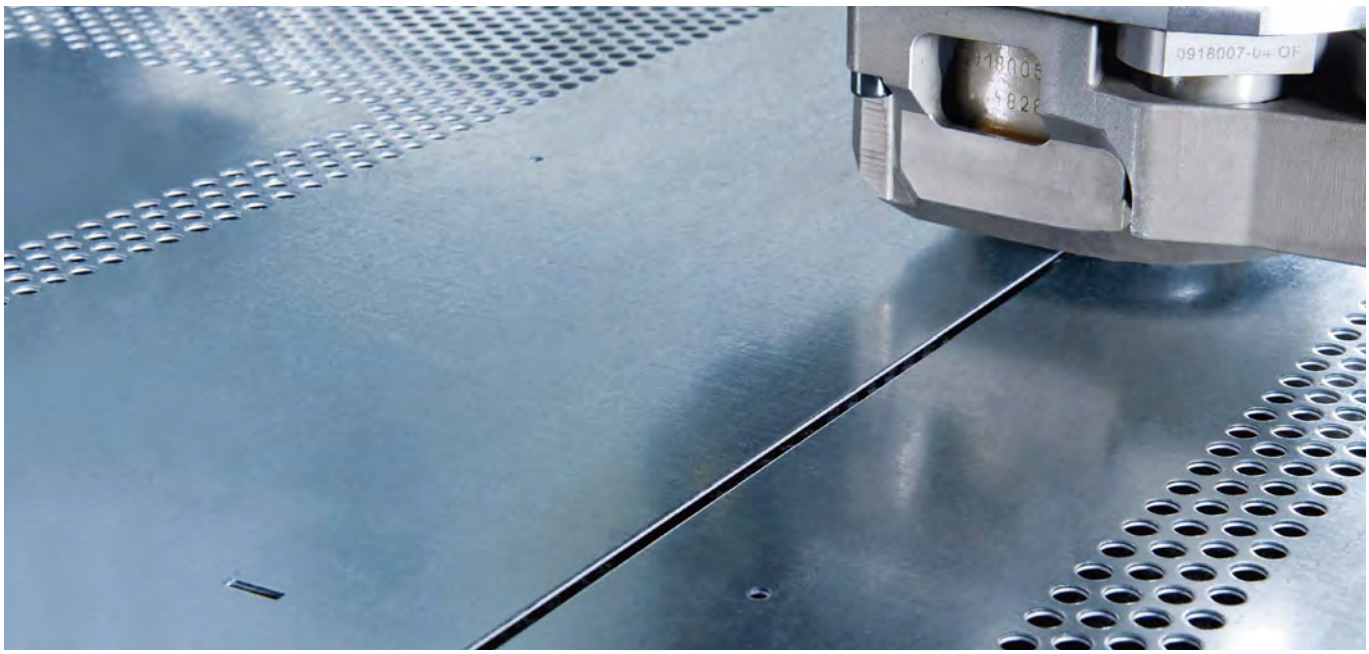
Perfect for every cut.

Cutting with TRUMPF tools.

One of the most important applications of a punching machine is to cut sheet metal. TRUMPF has the perfect tools for every requirement, regardless of whether it is traditional slitting contours, separating cuts on formed sections, or visible edges without nibbling marks. Cost-effective and versatile.

The slitting tool size 5 is ideal for the reliable removal of small parts. The part is tipped by the beveled die and is safely discharged through the part removal flap or part chute – simple and safe.

Our film slitting tool with ball tip (patent pending) cuts films perfectly. It cuts film flawlessly, leaving behind no scratches or imprints on the sheet, and for every conceivable contour.



Cutting

Slitting tool with interchangeable cutting blades

Description and application
The cost-effective universal tool for cutting sheet metal

Advantages
- Economical cutting due to interchangeable cutting blades
- Different cutting measurements and geometries create a range of options
- Highest level of productivity provided by cutting speeds of up to 26 m/min
- Maximum setup reliability with the integrated alignment ring

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Skeleton-free processing required for bi-level stripper
Sheet thickness s	1.0 - 3.0 mm
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Order forms	see p. 156

Item

Slitting punch with cutting blade

- Optional: longer tool life with coating

Order no.	EUR
699895	

Separating die with cutting blades

- Optional: with brush fields for low-scratch processing
- Includes 1 shim plate block

Order no.	EUR
699891	

Stripper

Order no.	EUR
see table	

Bi-level stripper

- For clamping and rotating large parts
- "Skeleton-free processing" machine option required

Order no.	EUR
see table	

Important ordering specifications
Machine, sheet thickness, material, slitting geometry, dimensions, options if required.

Slitting tool with interchangeable cutting blades

Prices

Slitting punch with cutting blade (rectangle)			Separating die with cutting blades (rectangle)		
Size in mm	Order no.	EUR	Size in mm	Order no.	EUR
5 x 30	699895		5 x 30	699891	
5 x 56			5 x 56		
5 x 76.20			5 x 76.20		

Stripper			Trapezoid stripper			Dovetail stripper		
Size in mm	Order no.	EUR	Size in mm	Order no.	EUR	Size in mm	Order no.	EUR
6 x 31	157059		6 x 31	157266		6 x 31	157272	
6 x 57	157060		6 x 57	157267		6 x 57	157273	
6 x 77.20	157058		6 x 77.20	157268		6 x 77.20	157274	

Bi-level stripper			Push-out stripper (spring-loaded)		
Size in mm	Order no.	EUR	Size in mm	Order no.	EUR
6 x 31	1648707		6 x 31	606514	
6 x 57	1648706		6 x 57	606527	
6 x 77.20	1648705		6 x 77.20	606539	

Important ordering information
Order no. for TC 240/TC 260 on request.

Cutting blades

Punch

Die

Slitting geometry, rectangle with corner radii

	Punch		Die	
Size in mm	Order no.	EUR	Order no.	EUR
5 x 30	699894		699890	
5 x 56				
5 x 76.20				

Dovetail microjoint

	Punch		Die	
Size in mm	Order no.	EUR	Order no.	EUR
5 x 30	699894		699890	
5 x 56				
5 x 76.20				

Trapezoid microjoint

	Punch		Die	
Size in mm	Order no.	EUR	Order no.	EUR
5 x 30	699894		699890	
5 x 56				
5 x 76.20				

Punch options

Coating		
MultiDur TiCN	MultiDur Performance	MultiDur Alu

Die options

Size in mm	Version with brush insert
5 x 30	
5 x 56	
5 x 76.20	

Accessories and single parts

Item	Order no.	EUR
Taper thread pin for punch	187769	
Cylindrical pin for punch	010782	
Cap screw for die	207494	
Shim plate 0.2/5 x 30; 5 x 56	207489	
Shim plate 0.3/5 x 30; 5 x 56	207490	
Shim plate 0.5/5 x 30; 5 x 56	207491	
Shim plate 0.2/5 x 76.20	106143	
Shim plate 0.3/5 x 76.20	106144	
Shim plate 0.5/5 x 76.20	106145	

Slitting tool for cutting close to formed sections

Description and application
Self-stripping tool for cutting close to formed sections

Advantages
- Outstanding separating cuts on formed sections with the self-stripping punch
- Tool available with urethane stripper or integrated steel presser foot as an option
- Punch version with roof shear to reduce punching force and noise
- Die with interchangeable cutting blades for flexible use

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.5 - 2.0 mm
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Order forms	see p. 156

Item

Solid slitting punch, complete

- With urethane stripper
- Also available in trapezoid or dovetail form

Dimension	Order no.	EUR
5 x 56	699897	
5 x 76.2		

Solid slitting punch, single

- Also available in trapezoid or dovetail form

Dimension	Order no.	EUR
5 x 56	699896	
5 x 76.2		

Slitting punch with interchangeable cutting blade

- With steel presser foot and interchangeable springs
- Also available in trapezoid or dovetail form

Dimension	Order no.	EUR
5 x 56	699895	

Separating die with interchangeable cutting blades

- Optional: with brush fields for low-scratch processing
- Includes 1 shim plate block

Dimension	Order no.	EUR
5 x 56	699891	
5 x 76.2		

Important ordering specifications
Machine, sheet thickness, material, slitting geometry, dimensions, options if required.

Punch options

Coating		
MultiDur TiCN	MultiDur Performance	MultiDur Alu

Accessories and single parts

Item		
Name	Order no.	EUR
Spring element 5 x 56	103090	
Spring element 5 x 76.2	103123	
Stop screw	538560	
Compression spring 20 x 10 x 25, red	362900	
Compression spring 20 x 10 x 25, blue	362901	
Compression spring 10 x 5 x 25, red	362902	

MultiShear

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiShear
Sheet thickness s	0.5 - 3.0 mm
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Order forms	see p. 156

Description and application
The innovative TRUMPF slitting tool for flawless edge quality

Advantages
- Outstanding edge quality without nibble marks due to patented cutting technology
- Cutting blades with special coating result in long tool life
- Dies with brush inserts mean low-scratch production
- Bi-level stripper for cutting close to formed sections, available as an option

Item

Complete tool

Order no.	EUR
699362	

Punch

- Dimension: 5 x 76.2 mm
- Optional: longer tool life with coating

Order no.	EUR
699363	

Die

- With brush fields for low-scratch processing

Order no.	EUR
699364	

Stripper

- Also available as bi-level stripper

Order no.	EUR
699366	

Important ordering specifications
Machine, sheet thickness, material, dimensions, options if required. The "MultiShear" machine option is a prerequisite.

Die cutting blade

One piece

Sheet thickness s (in mm)	Order no.	EUR
0,5 / 1,0 / 1,5	699365	

Two pieces

Sheet thickness s (in mm)	Order no.	EUR
2.0 / 2.5 / 3.0	699365	

Punch options

Coating

MultiDur TiCN	MultiDur Performance	MultiDur Alu

Slitting tool 8 x 40 (thicker sheet metal)

Description and application
Reinforced version of the tool for cutting thick sheets

Advantages
- Ideal for sheet thicknesses over 3 mm due to the specially reinforced punch and die
- Punch version with roof shear to reduce punching force and noise
- Optional: special coating increases tool life

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	4.0 - 6.0 mm (depending on punching force of the machine)
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Punching thicker sheets	see p. 152
Order forms	see p. 156

Item

Slitting punch

- Reinforced version with roof shear

Version	Order no.	EUR
Oxidized	728258	
MultiDur TiCN	680648	

Separating die

- Reinforced version

Sheet thickness s in mm	Order no.	EUR
4.0	728956	
5.0	728967	
6.0	728981	

Stripper

- Standard version

Dimension in mm	Order no.	EUR
9 x 41	699822	

Important ordering specifications
Machine, sheet thickness, material, punch version.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Alignment ring for reinforced punch	201519	

MultiShear for trimming

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiShear
Sheet thickness s	0.5 - 3.0 mm
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Order forms	see p. 156

Description and application
The innovative slitting tool for flawless edge quality when trimming sheet metal blanks

Advantages
- Outstanding trimming edges without nibble marks due to patented cutting technology
- Cutting blades with special coating result in long tool life
- Dies with brush inserts mean low-scratch production

Item

Complete tool

Order no.	EUR
699384	

Punch

- With MultiDur Performance coating
- Dimension: 18 x 73 mm

Order no.	EUR
1641520	

Die

- With brush fields for low-scratch processing

Order no.	EUR
699386	

Stripper

Order no.	EUR
1641497	

Important ordering specifications
Machine, sheet thickness, material. The "MultiShear" machine option is a prerequisite.

Die cutting blade

One piece

Sheet thickness s (in mm)	Order no.	EUR
0.5 / 1.0 / 1.5	699387	

Two pieces

Sheet thickness s (in mm)	Order no.	EUR
2.0 / 2.5 / 3.0	699387	

Slitting tool size 5 for removing small parts

Description and application
The slitting tool from TRUMPF for reliable removal of small parts

Advantages
- The tool can be used for conventional separating cuts and for removing small parts
- No need to sort good parts from scrap because parts are removed through the part chute
- Reduced processing times since push-out process is not required
- Maximum process reliability through monitoring of the part removal process

Machine type	
TruPunch	3000 (S11), 5000 (S10)
TruMatic	7000 (K02)
Required machine option	Active die or descending die
Sheet thickness s	0.5 - 3.0 mm
Useful information	
Dimensions and regrinding	see p. 120
Cutting clearance	see p. 132
Tool life	see p. 134
Tool maintenance	see p. 136
Low-scratch/scratch-free processing	see p. 140
Edge quality	see p. 144
Cutting close to formed sections	see p. 147
Reliable removal	see p. 150
Order forms	see p. 156

Item

Complete tool

Order no.	EUR
On request	

Punch

Order no.	EUR
On request	

Die

Order no.	EUR
On request	

Stripper

Order no.	EUR
On request	

Important ordering specifications
Machine, sheet thickness, material. The "active die" or "descending die" machine option is a prerequisite.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Tool cartridge size 5	1500495	
Adapter (for stripper)	1633067	

Film slitting tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Engraving
Sheet thickness s	0.5 - 8.0 mm
Max. film thickness	0.15 mm
Useful information	
Tool maintenance	see p. 136

Description
The tool (patent pending) cuts protective films on sheet metal using a machine

Advantages
- Flawless cutting without damaging the sheet metal, due to the spring-loaded punch
- Long tool life due to hard-wearing ball tip
- Large spring area in the tool provides flexibility when working with different film thicknesses
- Tool design enables the smallest cutting contours

Item

Complete tool

Order no.	EUR
1360352	

Punch

Order no.	EUR
1360350	

Die

Order no.	EUR
1482571	

Stripper

- Round 20.0 mm

Order no.	EUR
159496	

Important ordering specifications
Machine, order no., the "engraving" machine option is a prerequisite.

Accessories and single parts

Item

Name	Order no.	EUR
Ball tip	1668396	
Conversion kit	1668776	

Forming:

Punching in three dimensions.

Forming with TRUMPF tools.

Our tools allow you to create not only punches, but forms as well, meaning that you can create forms in the metal similar to as if it were plastic. Therefore, TRUMPF tools offer complete, reliable processing on one machine.

There are many possibilities in addition to standard forming. The application examples at the end of this chapter are only a small sample of what is possible. There are no limits to your ideas.

The new tools size 5 allow for longer and higher sections to be formed in one single stroke. Extra-large forms are also possible without the "active die" option.

From A-Z: From alignment tools to Z-bending tools, we have everything you need for your components. For example, our deburring tools ensure that parts come out of punching as well as of punching and laser cutting machines burr-free. The resulting outstanding part quality eliminates the need for manual finishing in a separate work cycle.

Forming

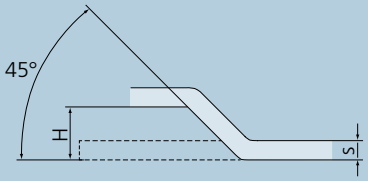
Stepping tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Form height H	1.0 - 5.0 mm
Angle α	45°
Useful information	
Tool maintenance	see p. 136
Cutting close to formed sections	see p. 147
Particularly high/large formed sections	see p. 148
Order forms	see p. 156

Description
Tool for producing any form length in nibbling mode

Advantages
- Can be used to create both straight and curved forms of any length
- Cost-effective tool due to its simple construction
- Reduced cost per part because the entire process is completed on one machine

Application examples
For bracing sheet metal, sheet metal facades, e.g. in housing construction. Also well suited for circular forms that cannot be created using a bending machine.



Item

Complete tool

Order no.	EUR
699200	

Punch

Order no.	EUR
699201	

Die

Order no.	EUR
699202	

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Folding height and permissible sheet thickness

Folding height H (in mm)	Permissible sheet thickness s (in mm)
1.0	1.0
1.5	1.0 - 1.5
2.0	1.0 - 2.0
2.5	1.0 - 2.5
3.0	1.0 - 3.0
4.0	1.0 - 3.0
5.0	1.0 - 3.0

Important ordering information
Stepping tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Roller offsetting tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Roller technology
Sheet thickness s	
Steel	0.8 - 2.0 mm
Stainless steel	0.8 - 1.5 mm
Aluminum	0.8 - 2.5 mm
Forming height H	1.5 / 3.0 mm
Travel speed	up to max. positioning speed
Minimum travel radius	25 mm
Angle α	45°
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for producing continuous forms using roller forming

Advantages
- Roller technology delivers the highest processing speed
- Can be used to create both straight and curved forms of any length
- Outstanding part quality with no visible marks from forming

Application examples
For bracing sheet metal, sheet metal facades, e.g. in housing construction. Also well suited for circular folds that cannot be created using a bending machine.

Item

Complete tool

Order no.	EUR
699368	

Spare roller, top

Order no.	EUR
699371	

Spare roller, bottom

Order no.	EUR
699372	

Important ordering specifications
Machine, sheet thickness, material, dimensions. The "roller technology" machine option is a prerequisite..

Important ordering information
Roller offsetting tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Pat. Wilson

Countersink tool (upper side of the sheet)

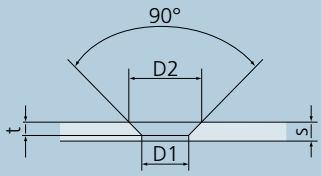
Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 4.0 mm

Useful information	
Tool maintenance	see p. 136
Cutting close to formed sections	see p. 147
Order forms	see p. 156

Description
Tool for non-cutting production of countersinks for screw and rivet heads

Advantages
- Outstanding process quality with the integrated presser foot
- Interchangeable components make the tool extremely versatile
- Many special geometries available on request

Application examples
Fixing technology, countersinks for screws and rivets.



Item

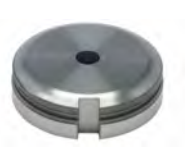
Complete tool

Order no.	EUR
699335	

Punch

Order no.	EUR
699336	

Die



Order no.	EUR
699337	

Punch insert

Order no.	EUR
699338	

Important ordering specifications
Machine, sheet thickness, material, version, and dimensions of the countersink.

Countersink

Countersink form A: Countersunk screws DIN EN ISO 2009 (“slotted”) and DIN EN ISO 7046-1 (“cross recess”)			Countersink form F: Hexagon socket countersunk head screws DIN EN ISO 10642		
A	**D2**	**Permissible sheet thickness s (in mm)**	**F**	**D2**	**Permissible sheet thickness s (in mm)**
2.5	5.9	1.0 - 3.0	-	-	-
3	6.7	1.0 - 3.0	3	7.1	1.0 - 3.0
4	8.8	1.5 - 3.0	4	9.4	1.5 - 3.0
5	10.6	1.5 - 4.0	5	11.7	1.5 - 4.0
6	12.7	2.0 - 4.0	6	14	2.0 - 4.0
8	16.7	2.0 - 4.0	8	18.5	2.0 - 4.0

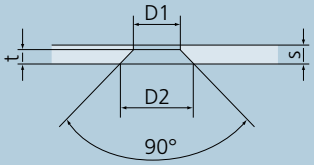
Important ordering information
Countersink tools are always designed for a specific sheet thickness. The countersink depth t is no more than 75% of the sheet thickness. When the countersink is changed, the punch insert, presser foot, and die must also be replaced. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Presser foot	699339	
Spring element	152545	

Countersink tool (underside of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 4.0 mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Order forms	see p. 156



Description
Tool for non-cutting production of countersinks for screw and rivet heads

Advantages
- Outstanding process quality with the integrated presser foot
- Interchangeable components make the tool extremely versatile
- Many special geometries available on request

Application examples
Fixing technology, countersinks for screws and rivets.

Item

Complete tool		Punch		Die		Die insert	
							
Order no.	**EUR**	**Order no.**	**EUR**	**Order no.**	**EUR**	**Order no.**	**EUR**
699916		699917		699918		699919	

Important ordering specifications
Machine, sheet thickness, material, version, and dimensions of the countersink.

Countersink

Countersink form A: Countersunk screws DIN EN ISO 2009 (“slotted”) and DIN EN ISO 7046-1 (“cross recess”)			Countersink form F: Hexagon socket countersunk head screws DIN EN ISO 10642		
A	**D2**	**Permissible sheet thickness s (in mm)**	**F**	**D2**	**Permissible sheet thickness s (in mm)**
2.5	5.9	1.0 - 3.0	-	-	-
3	6.7	1.0 - 3.0	3	7.1	1.5 - 3.0
4	8.8	1.5 - 3.0	4	9.4	1.5 - 3.0
5	10.6	1.5 - 4.0	5	11.7	1.5 - 4.0
6	12.7	2.0 - 4.0	6	14	2.0 - 4.0
8	16.7	2.0 - 4.0	8	18.5	2.0 - 4.0

Important ordering information
Countersink tools are always designed for a specific sheet thickness. The countersink depth t is no more than 75% of the sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Die ejector cylinder, single	699920	
Spring element	152745	

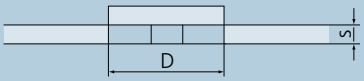
Knock-out tool

Description
Connects punching slugs to the sheet metal with one or several tab – the slugs can be snapped off if required

Advantages
- Tool for round or other geometries
- Available in versions to knock out upward or downward
- Available as a tool for multiple knock outs

Application examples
Switch cabinet construction, housing construction, cable bushings.

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 2.0 mm
Diameter D	15 - 45 mm
Number of tabs	2
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Cutting close to formed sections	see p. 147
Order forms	see p. 156



Item

Complete tool

Order no.	EUR
699293	

Punch

Order no.	EUR
699294	

Die

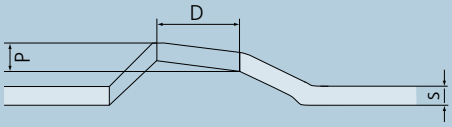
Order no.	EUR
699295	

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
Knock-out tools are always designed for a specific sheet thickness. Please use our order forms for your request, from p. 156.

Thread punch tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.8 - 1.5 mm
Useful information	
Tool maintenance	see p. 136
Cutting close to formed sections	see p. 147
Order forms	see p. 156



Description
Tool for producing thread stampings

Advantages
- Cost-effective connecting technology for thin sheet metal
- Formed sections are produced in just two work cycles: pre-punching and forming
- Available for sheet metal screws in accordance with DIN or for special measurements

Application examples
Connecting metal sheets together using a sheet metal screw.

Item

Complete tool	Punch	Die	Die insert
			
Order no. **EUR**	**Order no.** **EUR**	**Order no.** **EUR**	**Order no.** **EUR**
699933	699934	699936	699937

Important ordering specifications
Machine, sheet thickness, material, dimensions, and tool version (punching upward or downward).

Thread and pitch

Thread D	Pitch P	Sheet thickness s (in mm)
3.3 / 3.5	1.3	0.8 - 1.2
3.9	1.4	0.9 - 1.3
4.2	1.4	0.9 - 1.3
4.8	1.6	1.0 - 1.5

Important ordering information
Thread punch tools are always designed for a specific sheet thickness. Screws with metric threads cannot be used for screw fittings. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Punch (without alignment ring)	699935	
Spring element for punching upward	609712	
Spring element for punching downward	609720	
Spring element for die	105732	

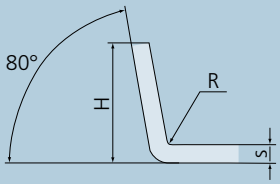
Flanging tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 2.5 mm
Flange height H	max. 7.0 mm
Useful information	
Tool maintenance	see p. 136
Cutting close to formed sections	see p. 147
Particularly high/large formed sections	see p. 148
Order forms	see p. 156

Description
Tool for producing any flange length in nibbling mode

Advantages
- Can be used to create both straight and curved flanges of any length
- Cost-effective tool due to its simple construction
- Reduced cost per part because the entire process is completed on one machine
- Continuous operation mode means flexible geometries

Application examples
Large extrusions, countersinks, weld extrusions, and for bracing sheet edges in nibbling mode.



Item

Complete tool

Order no.	EUR
699203	

Punch

Order no.	EUR
699204	

Die

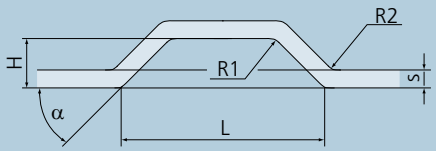
Order no.	EUR
699205	

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
Flanging tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Bridge tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.8 - 2.5 mm
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148
Order forms	see p. 156



Description
Tool for cutting and forming bridges

Advantages
- Increased processing speed since punching and forming operations are performed in a single stroke
- Broad product range e.g. double bridges
- Tool is self-stripping and has interchangeable wear parts

Application examples
Plug-in units, ventilation slots, spacers, card holders, and cable guides. Can also be used to join sheets together on the front side using sheet metal screws.

Item

Complete tool

Order no.	EUR
On request	

Punch

Order no.	EUR
On request	

Die

Order no.	EUR
On request	

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
Bridge tools are always designed for a specific sheet thickness. Please use our order forms for your request, from p. 156.

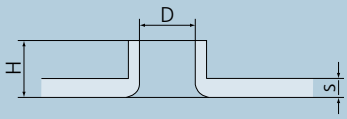
Extrusion tool (upward)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Thread sizes for tapping	M2.5 - M10
Forming height H	2 x sheet thickness s, max. 5.0 mm
Useful information	
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148
Order forms	see p. 156

Description
Tool for producing extrusions

Advantages
- Tool for preparing tapping in thin sheets and for many other applications
- Available in a range of standard sizes
- Coated die insert results in long tool life and high process reliability
- Adapted for the original tapping tool from TRUMPF

Application examples
Extruded holes as an alternative to insert elements, cable guides, safety steps, or fasteners. Guide for small tubes, e.g. heat exchanger.



Item

Complete tool	Punch	Die	Die insert
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699921	699922	699923	699925

Important ordering specifications
Machine, sheet thickness, material, diameter D, application (tapping or thread cutting in accordance with DIN 7952).

Extrusion and thread size

Size	Permissible sheet thicknesses s (in mm) for tapping	Extrusion diameter D for tapping	Permissible sheet thicknesses s (in mm) for thread cutting	Extrusion diameter D for thread cutting
M2.5	1.0 / 1.5	2.30	1.0 - 1.5	2.10
M3	1.0 / 1.5 / 2.0	2.80	1.0 - 1.5	2.55
M4	1.0 / 1.5 / 2.0 /2.5	3.70	1.0 - 2.0	3.35
M5	1.0 / 1.5 / 2.0 / 2.5 / 3.0	4.65	1.0 - 2.0	4.25
M6	1.0 / 1.5 / 2.0 / 2.5 / 3.0	5.55	1.5 - 2.5	5.10
M8	1.5 / 2.0 / 2.5 / 3.0	7.40	2.0 - 2.5	6.80
M10	1.5 / 2.0 / 2.5 / 3.0	9.30	2.0 - 2.5	8.50

Important ordering information
Extrusion tools are always designed for a specific sheet thickness. A special die is required for thread size M10. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

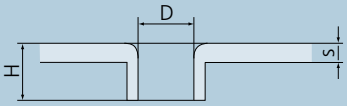
Item

Name	Order no.	EUR
Extrusion punch, single	699924	
Spring element for punch M2.5 - M8	157289	
Spring element for punch M10	157295	

Name	Order no.	EUR
Spring element for die	729576	
Die ejector cylinder	729562	
Die ejector cylinder (fitted)	612276	

Extrusion tool (downward)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.8 - 2.0 mm
Thread sizes for tapping	M2.5 - M6
Forming height H	max. 2 x sheet thickness s
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156



Description
Tool for producing extrusions

Advantages
- Tool for preparing tappings in thin sheets and for many other applications
- Available in a range of standard sizes
- Die insert is coated resulting in long tool life and high process reliability
- Adapted to the original tapping tool from TRUMPF

Application examples
Extruded holes as an alternative to insert elements, cable guides, safety steps, or fasteners. Guide for small tubes, e.g. heat exchanger.

Item

Complete tool

Order no.	EUR
699206	

Punch

Order no.	EUR
699207	

Die

Order no.	EUR
699208	

Extrusion punch, single

Order no.	EUR
699209	

Important ordering specifications
Machine, sheet thickness, material, diameter D, application (tapping or thread cutting in accordance with DIN 7952).

Extrusion and thread size

Size	Permissible sheet thicknesses s (in mm) for tapping	Extrusion diameter D for tapping	Permissible sheet thicknesses s (in mm) for thread cutting	Extrusion diameter D for thread cutting
M2.5	1.0 / 1.5	2.30	0.8 - 1.5	2.10
M3	1.0 / 1.5 / 2.0	2.80	0.8 - 1.5	2.55
M4	1.0 / 1.5 / 2.0	3.70	1.0 - 2.0	3.35
M5	1.0 / 1.5 / 2.0	4.65	1.0 - 2.0	4.25
M6	1.0 / 1.5 / 2.0	5.55	1.0 - 2.0	5.10

Important ordering information
Extrusion tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item

Name	Order no.	EUR
Guide bushing	699210	
Extrusion die, single	699211	
Ejector cylinder	699212	

Name	Order no.	EUR
Spring element for punch (hollow spring element)	093928	
Spring element for die	094107	

Deburring MultiTool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiTool
Sheet thickness s	0.8 - 2.5 mm
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Patent pending tool technology for deburring small inner contours in corners and radii

Advantages
- Shorter production times because the entire process is completed on one machine
- Die inserts are adjusted to the sheet thickness, to ensure burrs are neatly flattened
- Wide range of deburring geometries increases flexibility

Application examples
Safe mounting edges.

Item

Complete tool

Order no.	EUR
699348	

Punch

Order no.	EUR
699349	

Die

- Includes die inserts

Order no.	EUR
699350	

Thrust piece

- Steel: all materials between 0.8 - 2.5 mm, particularly film-coated sheet metal
- Plastic: sheets between 1.0 - 2.5 mm processed without imprints

Order no.	EUR
699351	

Important ordering specifications
Machine, sheet thickness, material, type of engagement pin. The "MultiTool" machine option is a prerequisite.

Die insert

- Triangle for inner contours with angle ≥ 45°< 90°
- Square designed for cutting with MultiShear or slitting tool
- Round for bore holes ≥ 5 mm and oblong

	Form	Sheet thickness s (mm)	Order no.	EUR
	Triangle	0.8 - 1.4	699352	
		1.5 - 2.5		
	Square	0.8 - 1.4		
		1.5 - 2.5		
	Round	0.8 - 1.4		
		1.5 - 2.5		

Roller deburring tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Roller technology
Sheet thickness s	0.8 - 4.0 mm
Minimum travel radius	20 mm
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Patented tool technology for deburring punched contours

Advantages
- Shorter production times because the entire process is completed on one machine
- Roller geometries are adjusted to the sheet thickness, to ensure burrs are neatly flattened
- Very flexible due to interchangeable rollers for every requirement

Application examples
Safe mounting edges.

Item

Complete tool

Order no.	EUR
699327	

Cylindrical steel roller, top

- Can be used with sheet thicknesses 0.8 - 4.0 mm

Order no.	EUR
699330	

Back-tapered steel roller, top

- Processing with reduced chance of imprints

Order no.	EUR
699330	

Plastic roller, top

- Processing with no imprints

Order no.	EUR
699330	

Important ordering specifications
Machine, sheet thickness, material, roller option. The "roller technology" machine option is a prerequisite.

Spare roller, bottom

Sheet thickness s (mm)	Order no.	EUR
0.8 - 1.4	699331	
1.5 - 2.5		
2.6 - 4.0		

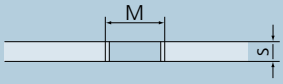
Tapping tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 R, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Tapping
Sheet thickness s (tapping in a level sheet)	
M2.5 - M5	1.5 - 5.0 mm
M6 - M10	3.0 - 8.0 mm
Metric threads	
Type I	M2; M2.5; M3; M3.5; M4; M5
Type II	M6; M8; M10
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
The reliable TRUMPF tool for non-cutting thread production using a punching machine

Advantages
- Cost per part is reduced because entire process is completed on one machine
- High level of resistance due to stress-hardening of the material
- Can be used for a variety of thread dimensions
- Many thread options are available for a diverse range of requirements

Application examples
Fixing sheet metal components using metric screws.



Item

Complete tool

- Includes die for upward extrusions
- A special die is required for thread size M10

Order no.	EUR
699214	

Tapping module

Order no.	EUR
699216	

Tap 6HX

- Standard tolerance 6HX
- Price for thread size M2 and M10 on request

Order no.	EUR
699217	

Important ordering specifications
Machine, sheet thickness, material, thread size. The "tapping" machine option is a prerequisite.

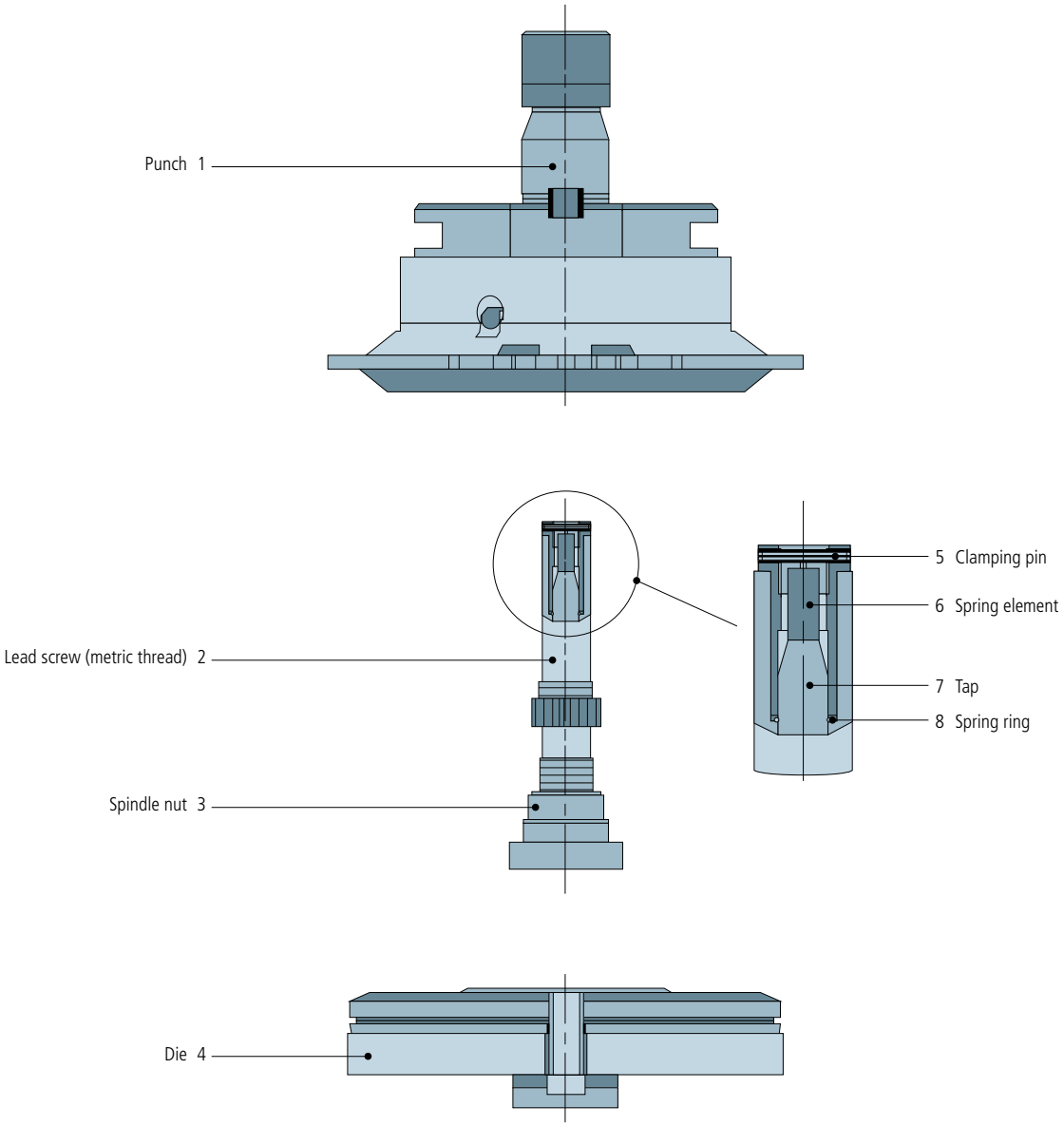
Important ordering information
The standard version for tapping has it to a tolerance of 6HX. This is also available to tolerances of 6G, 6E, 7G, and in Inch on request. A special die is required for thread size M10.

Accessories and single parts

Item

Name	Order no.	EUR
Tapping die for upward extrusions	699220	
Tapping die for upward and downward extrusions (only up to thread size M8)	699220	
Tapping die for M10	171311	
Special cartridge for TC 240 R, TC 260 R	201781	

Tapping tool



Accessories and single parts

Item				
	Name	Quantity	Order no.	EUR
1)	Punch	1	699215	
2)	Lead screw (metric thread)	1	699218	
3)	Spindle nut	1	699219	
4)	Die	1	699220	
5)	Clamping pin	1	111352	
6)	Spring element	1	169337	
7)	Tap	1	699217	
8)	Spring ring	1	111353	

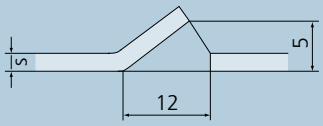
Louver tool (single louvers)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.8 - 2.5 mm
Dimensions	12 x 5 x 60 mm
Useful information	
Tooling accessories	see p. 104
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148
Order forms	see p. 156

Description
Tool for producing ventilation louvers in a single stroke

Advantages
- Outstanding form quality because cutting and forming are performed in a single stroke
- Can be used for a variety of sheet thicknesses with the revolving punch cutting blades
- Interchangeable die inserts make the tool economical

Application examples
Ventilation technology, switch cabinet construction, chiller construction, covers for electrical devices.



Item

Complete tool		Punch		Die		Louver insert for die	
							
Order no.	**EUR**	**Order no.**	**EUR**	**Order no.**	**EUR**	**Order no.**	**EUR**
699222		699223		699224		093951	

Important ordering specifications
Machine, sheet thickness, material.

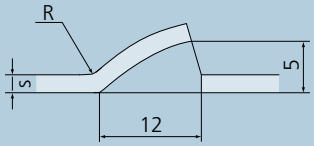
Important ordering information
Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Cutting blade for punch	093948	
Spring element for punch	093950	
Spring element for die (4 required)	093952	

Louver tool (continuous louvers)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.8 - 3.0 mm
Dimensions	12 x 5 mm
Useful information	
Tooling accessories	see p. 104
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156



Description
Tool for producing ventilation louvers, with variable lengths, using nibbling mode

Advantages
- Louvers of any length can be produced using continuous operation
- Cost-effective tool due to its simple construction
- Interchangeable die inserts make the tool economical

Application examples
Ventilation technology, switch cabinet construction, chiller construction, covers for electrical devices.

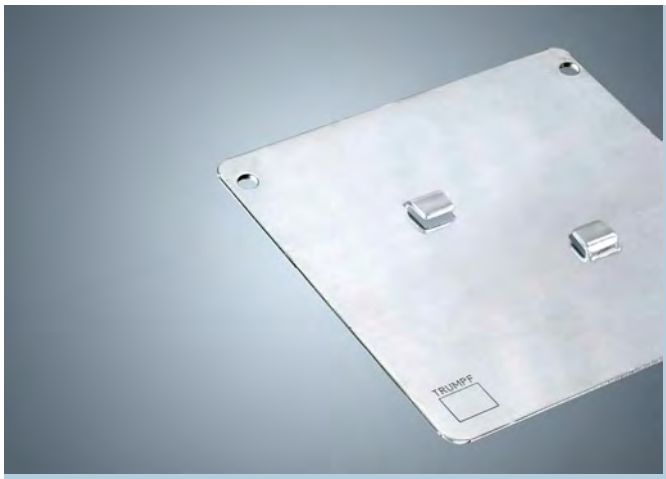
Item

Complete tool	Punch	Die	Louver cutting insert for die
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699229	699230	699231	069539

Important ordering specifications
Machine, sheet thickness, material.

Important ordering information
Continuous louver cutting tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Bracket tool

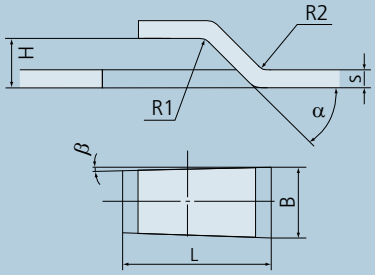


Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.5 - 2.5 mm
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for cutting and forming flanges

Advantages
- Flanges are created in a single stroke
- Interchangeable forming inserts make the tool economical
- Broad product range for every requirement

Application examples
Stops, card holders, cable clamps, connection technology, mounting built-in parts, fastening, and tool clamping.



Item

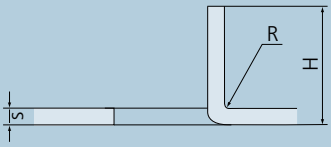
Complete tool	Punch	Die
		
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
On request	On request	On request

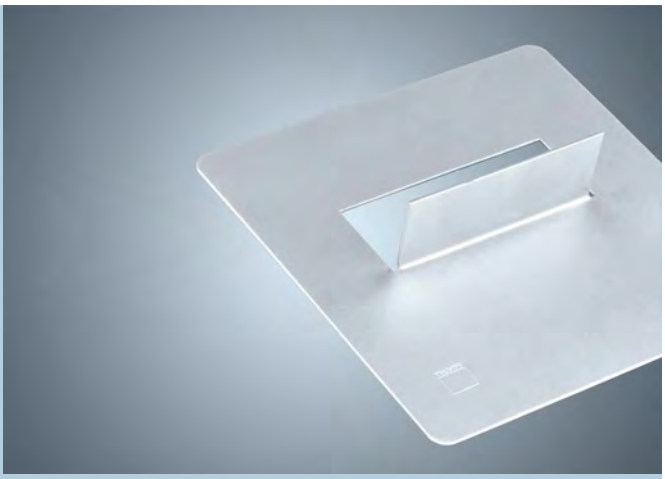
Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
Bracket tools are always designed for a specific sheet thickness. Please use our order forms for your request, from p. 156.

MultiBend tool

Machine type	
TruPunch	1000. 2020. 3000. 5000
TruMatic	3000. 6000. 7000
TC	1000 R. 2000 R. 2020 R. 3000 R. 3000 L. 5000 R. 6000 L
Required machine option	MultiBend
Sheet thickness s	1.0 - 2.0 mm
Bend height H	10 - 25 mm
Bending lengths	55 mm
Bending angle	up to 90° ±1°
Useful information	
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156





Description
Tool for producing 90° bends using a punching machine

Advantages
- 90° bends in a variety of lengths up to 55 mm
- Reduced cost per part because enitre process is completed on one machine – an additional process on the press brake is not required
- Bends are produced without imprints because a bending roller is used in the die
- Also available with a reinforcing bead

Application examples
Complete processing of door locks and lock cases, creating small bends in large blanks or parts, complete processing of brackets, e.g. fixtures.

Item

Complete tool

- Bending length 90 mm, price on request

Order no.	EUR
699235	

Punch

- With bending bar

Order no.	EUR
699236	

Die

Order no.	EUR
699237	

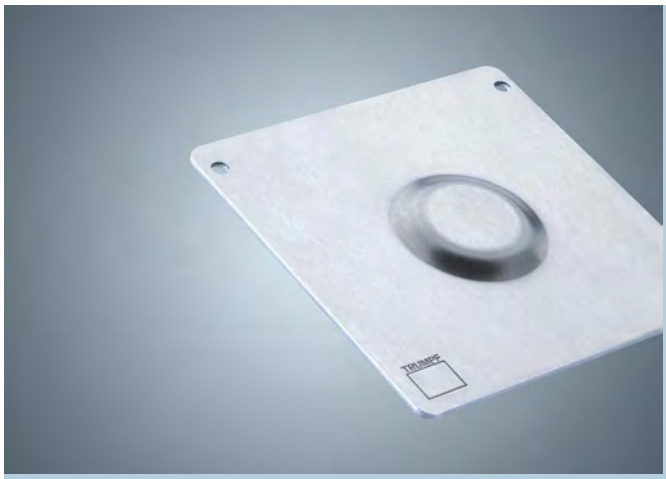
Important ordering specifications
Machine, sheet thickness, material, dimensions. The "MultiBend" machine option is a prerequisite.

Important ordering information
There are two versions of bending rollers, one for sheets between 1.0 and 1.5 mm thick and one for sheets that are 2.0 mm thick. The size of the bending roller must be set to the corresponding size before the bending process begins. Price for MultiBend tool with a different bending length on request.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Bending roller for die	699238	
Bending bar, single	699239	
Die ejector cylinder	688788	

Cup tool

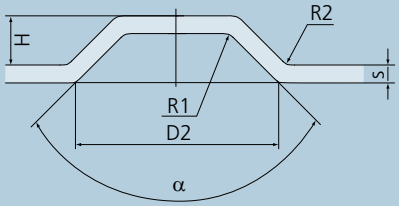


Description
Tool for producing a cup form

Advantages
- A wide range of forms and dimensions are available
- Produced specifically to your requirements
- Cost-effective tool due to its simple design

Application examples
Spacers, tread plates, housing feet, braces, screw countersinks, fluid outlets, design.

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Height H	0.5 - 5.0 mm
Diameter D2	5.0 - 40.0 mm
Angle α	90° - 179°
Useful information	
Tooling accessories	see p. 104
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148
Order forms	see p. 156



Item

Complete tool

Size	Order no.	EUR
1	699991	
2		

Punch

Size	Order no.	EUR
1	699992	
2		

Die

Size	Order no.	EUR
1	699993	
2		

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Dimensions

Size	Diameter D2 (in mm)
Size 1	5.00 - 15.00
Size 2	15.01 - 40.00

Important ordering information
Cup tools are always designed for a specific sheet thickness. Other dimensions on request. Please use our order forms from p. 156.

Roller pinching tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Roller technology
Sheet thickness s	
Steel	0.8 - 2.0 mm
Stainless steel	0.8 - 1.5 mm
Aluminum	0.8 - 2.5 mm
Travel speed	up to max. positioning speed
Minimum travel radius	500 mm (chamfered laser edge: 15 mm)
Angle α	
Cutting	60°
Bending by hand	95°
Chamfered laser edge	120°
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for chamfering slitting edges on TruMatic machines with a laser cut

Advantages
- Laser cut contours can be deburred on the machine without requiring an additional manual work cycle
- Indentations can also be created as a predetermined breaking point or for bending by hand
- Extremely flexible due to the large number of available rollers

Application examples
Chamfering laser cut edges, one-sided pinching to prepare for sharp-edged bending, part break line, preparation for bending by hand.

Item

Complete tool

Order no.	EUR
699376	

Spare roller, top

Order no.	EUR
699379	

Spare roller, bottom

Order no.	EUR
699380	

Important ordering specifications
Machine, sheet thickness, material, angle **α**. The "roller technology" machine option is a prerequisite.

Application

Application	Material	Sheet thickness s (in mm)	Note
Cutting	Steel, stainless steel	0.8 - 2.0	
	Aluminum	0.8 - 2.5	
Bending by hand	Steel, stainless steel	0.8 - 2.0	
	Aluminum	0.8 - 2.5	
Chamfered laser edge	Steel, stainless steel, aluminum	0.8 - 8.0	TruMatic 6000, 7000
	Steel, stainless steel, aluminum	0.8 - 4.4	TruMatic 3000

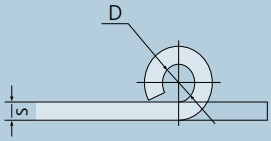
Pat. Wilson

Hinge tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s and diameter D	
1.0 mm	4.0 / 5.0 / 6.0 mm
1.5 mm	5.0 / 6.0 mm
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool set for producing a hinge

Advantages
- Workpieces, including the hinge, are produced using the punching machine
- Cost advantages because there is no need to purchase hinges, fixtures, or assembly services
- The tool can be used in a variety of ways on the component



Item

Complete tool

Order no.	EUR
699242	

Lever for tool 1

Order no.	EUR
699244	

Die insert for tool 1

Order no.	EUR
508747	

Spring element for tool 2

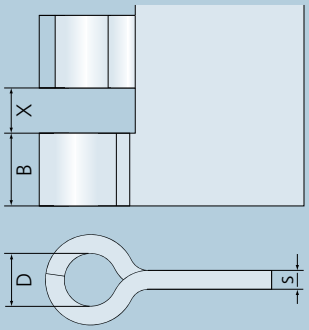
Order no.	EUR
508755	

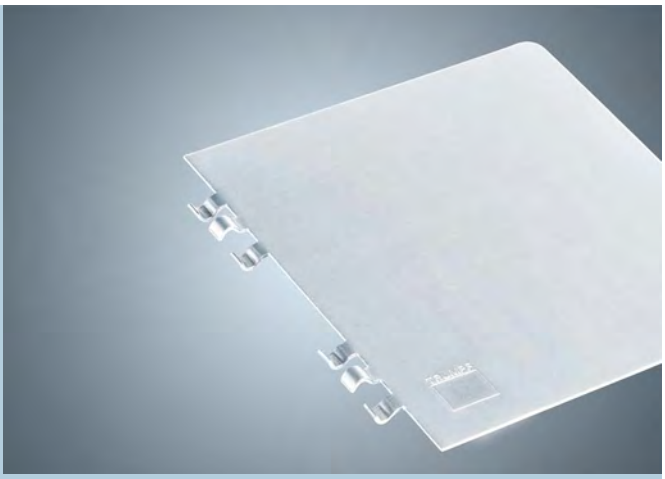
Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
A hinge is produced using two tools and four work steps. Hinge tools are always designed for a specific sheet thickness and a specific diameter. Other dimensions on request.
Please use our order forms from p. 156.

Hinge tool for multiple hinges

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 2.0 mm
Useful information	
Tooling accessories	see p. 104
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148
Order forms	see p. 156





Description
Produces the upper and lower shell for hinges in a single stroke

Advantages
- Considerable reduction in processing time because several formed sections are produced in a single stroke
- Saves a tool station on the machine
- Simple programming in TruTops

Item

Complete tool	Punch	Die
		
Order no. **EUR**	**Order no.** **EUR**	**Order no.** **EUR**
On request	On request	On request

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Important ordering information
Hinge tools for multiple hinges are always designed for a specific sheet thickness and a specific diameter. Please use our order forms for your request, from p. 156.

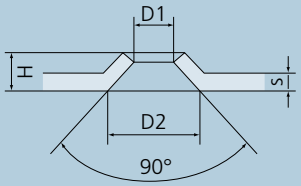
Countersink forming tool (upward)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.5 - 3.0 mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for producing countersinks in accordance with DIN 74 and EN ISO 15065

Advantages
- Available for different screw dimensions
- Large support area for the screw head even in thin sheet metal when the head is completely flush
- Interchangeable components make the tool highly versatile

Application examples
Countersink for countersunk screws, safety steps, water outlets, non-skid protection, loading ramps.



Item

Complete tool	Punch	Die	Die insert
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699947	699948	699949	699950

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Thread size and diameter

Thread size	Diameter D2 (in mm)
M2.5	5.9
M3	7.1
M4	9.4
M5	11.7
M6	14.0
M8	18.5
M10	23.0

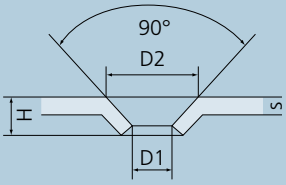
Important ordering information
Countersink forming tools are always designed for a specific sheet thickness and a specific countersink diameter. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Spring element for die M2.5 - M6	105732	
Spring element for die M8 - M10	105733	

Countersink forming tool (downward)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.5 - 2.5 mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Order forms	see p. 156

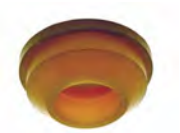


Description
Tool for producing countersinks in accordance with DIN 74 and EN ISO 15065

Advantages
- Available for different screw dimensions
- Large support area for the screw head even in thin sheet metal when the head is completely flush
- Cutting and forming in a single stroke

Application examples
Countersink for countersunk screws, safety steps, water outlets, non-skid protection, loading ramps.

Item

Complete tool	Punch	Die	Spring element for punch
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699251	699252	699253	157291

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Thread size and diameter

Thread size	Diameter D2 (in mm)
M2.5	5.9
M3	7.1
M4	9.4
M5	11.7
M6	14.0

Important ordering information
Countersink forming tools are always designed for a specific sheet thickness and a specific countersink diameter. Other dimensions on request. Please use our order forms from p. 156.

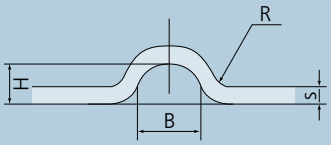
Beading tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for producing continuous beads in nibbling mode

Advantages
- Cost-effective tool due to its simple construction
- Reduced cost per part because the entire process is completed on one machine
- High level of geometry flexibility due to continuous operation mode
- Reduced material costs because thinner sheet metal can be used

Application examples
For bracing sheet metal, guiding fluids or cables, inserting seals (round profile) for covers or doors.



Item

Complete tool

Size	Order no.	EUR
1	699256	
2		

Punch

Size	Order no.	EUR
1	699257	
2		

Die

Size	Order no.	EUR
1	699258	
2		

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Dimensions

Size	Available dimensions H x W (in mm)
Size 1	2.0 x 4.0
	3.0 x 6.0
Size 2	3.0 x 6.0
	4.0 x 8.0
	5.0 x 10.0

Important ordering information
Beading tools are always designed for a specific sheet thickness and specific beading dimensions. Other dimensions on request. Please use our order forms from p. 156.

Roller beading tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Roller technology
Sheet thickness s	
Steel	0.8 - 2.0 mm
Stainless steel	0.8 - 1.5 mm
Aluminum	0.8 - 2.5 mm
Dimensions H x W (in mm)	2.5 x 5 / 3 x 6
Travel speed	up to max. positioning speed
Minimum travel radius	20 mm
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for producing beads using roller technology

Advantages
- Fast processing speed due to roller technology
- Roller processing results in outstanding part quality with no nibble marks
- Reduced material costs because thinner sheet metal can be used
- "Gradual forming" option reduces approach marks

Application examples
For bracing sheet metal, guiding fluids or cables, inserting seals (round profile) for covers or doors.

Item

Complete tool

Order no.	EUR
699354	

Spare roller, top

Order no.	EUR
699357	

Spare roller, bottom

Order no.	EUR
699358	

Important ordering specifications
Machine, sheet thickness, material, dimensions. The "roller technology" machine option is a prerequisite.

Important ordering information
Roller beading tools are always designed for a specific sheet thickness and specific bead dimensions. Other dimensions on request. Please use our order forms from p. 156.

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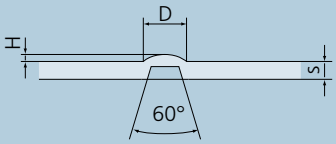
Weld boss tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	0.63 - 3.2 mm
Useful information	
Tool maintenance	see p. 136
Order forms	see p. 156

Description
Tool for forming weld boss

Advantages
- Cost-effective weld preparation
- Forming complies with DIN 8519
- Interchangeable components make the tool highly versatile

Application examples
For fastening spacers and as preparation for projection welding (in accordance with DIN 8519), design, safety steps.



Item

Complete tool	Punch	Die	Die insert
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699912	699914	699913	699915

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Diameter and forming height

Diameter D (in mm)	Sheet thickness s (in mm)	Forming height H
2.5	0.63 - 1.00	0.63
3.2	0.63 - 1.60	0.80
4.0	1.00 - 2.50	1.00
5.0	1.60 - 2.50	1.25
6.3	2.50 - 3.20	1.60

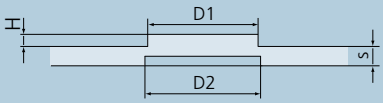
Important ordering information
Weld boss tool are always designed for a specific sheet thickness range. Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Spring element for die	103469	

Center boss tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Forming height	up to 0.5 x s
Useful information	
Tooling accessories	see p. 104
Tool Data Import	see p. 133
Tool maintenance	see p. 136
Order forms	see p. 156



Description
Tool for cutting and forming a shear tab

Advantages
- Cost-effective production of fastening points and stops
- Many special shapes available, in addition to round
- Highly flexible due to height-adjustable forming insert (up to max. 0.5 x sheet thickness s)

Application examples
For centering or creating spacers on components, safety steps, positioning aid for spot welding (fixture may be omitted).

Item

Complete tool	Punch	Die	Piercing punch for die
			
Order no. / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**	**Order no.** / **EUR**
699905	699906	699907	699910

Important ordering specifications
Machine, sheet thickness, material, dimensions.

Inside diameter and outside diameter

Inside diameter D2 (in mm)	Outside diameter D1 (in mm)
2.0	1.9
3.0	2.9
4.0	3.9
5.0	4.9
6.0	5.9

Important ordering information
Other dimensions on request. Please use our order forms from p. 156.

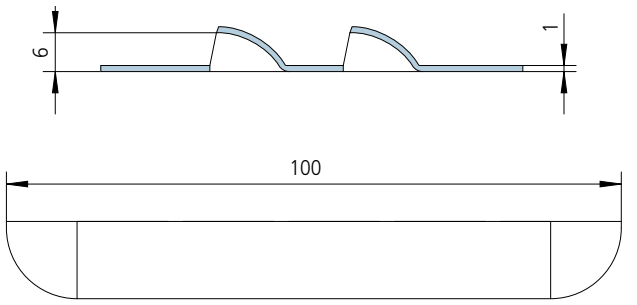
Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Single punch without spring element and alignment ring	699908	
Spring element for punch	157288	
Spring element for die	103469	

Tools size 5

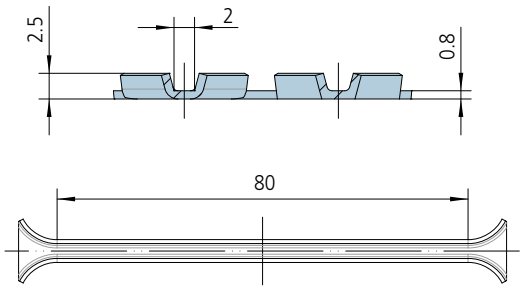
Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Useful information	
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148

Louver tool size 5



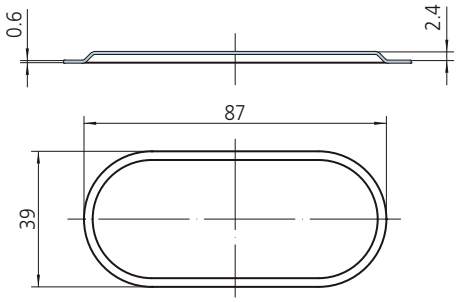
Order no.	EUR
On request	

Card guide tool size 5



Order no.	EUR
On request	

Cup tool oblong size 5



Order no.	EUR
On request	

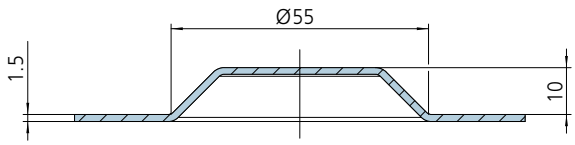
Important ordering specifications
Drawing in common CAD format (e.g. DXF), machine, sheet thickness, material.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Tool cartridge size 5	1500495	

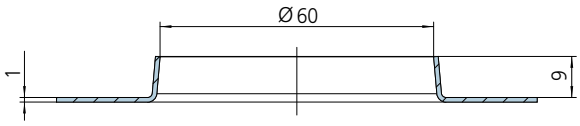
Tools for the active die

Machine type	
TruPunch	5000 (S10)
TruMatic	7000 (K02)
Required machine option	Active die
Useful information	
Tool maintenance	see p. 136
Particularly high/large formed sections	see p. 148



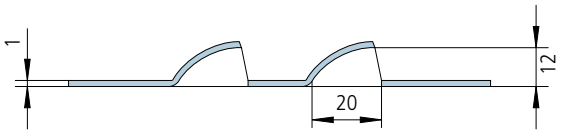
Order no.	EUR
On request	

Cup tool size 5 (active die)



Order no.	EUR
On request	

Extrusion tool size 5 (active die)



Order no.	EUR
On request	

Louver tool (active die)

Important ordering specifications
Drawing in common CAD format (e.g. DXF), machine, sheet thickness, material. "Active die" machine option is a prerequisite.

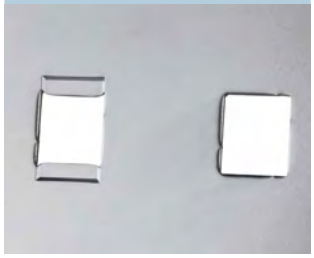
Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Tool cartridge size 5	1500495	

Application examples of forming

Countersinks

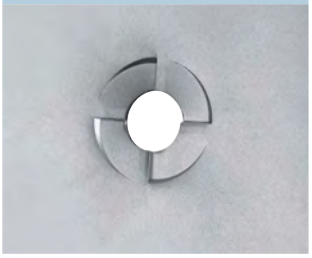
1. Countersink, flat



2. Countersink, rectangle

3. Countersink, serrated

4. Countersink, serrated



Knock-outs

5. Knock-out, oblong

6. Knock-out, double

7. Knock-out, form

8. Knock-out, form

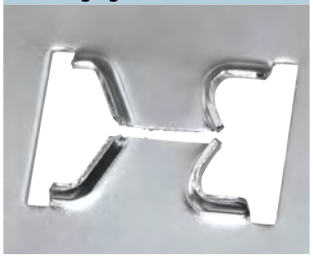
Flangings

9. Flanging, extrusion

10. Flanging, extrusion

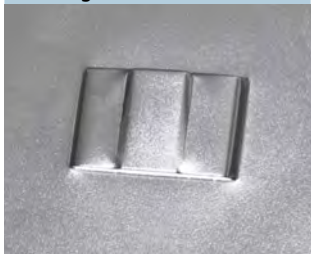
11. Flanging, edge

12. Flanging, form



Bridges

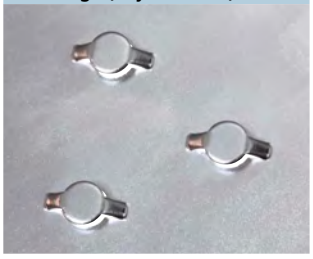
13. Bridge with offset



14. Bridge (thread)

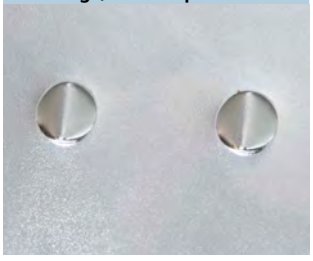
15. Bridge (hinge)

16. Bridge (bayonet lock)



17. Bridge, roof shape

18. Bridge, roof shape



19. Double bridge

20. Bridge, roof shape

Application examples of forming

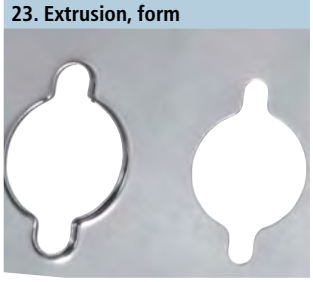
Card guides

21. Card guide

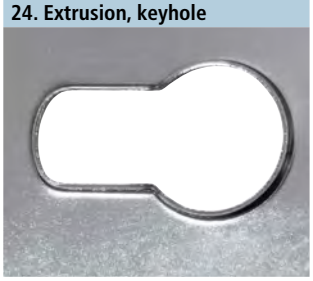
22. Card guide

Extrusions

23. Extrusion, form



24. Extrusion, keyhole



25. Extrusion, serrated

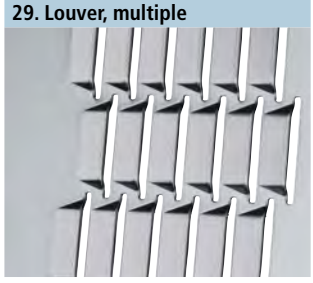
26. Extrusion (grip protection)

27. Extrusion, form

28. Extrusion, oblong

Louvers

29. Louver, multiple



30. Louver, trapezoid

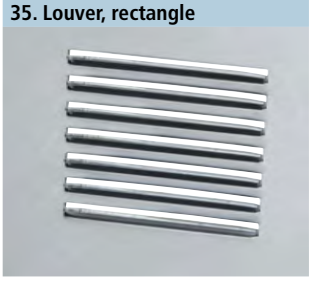
31. Louver, rectangle

32. Louver, trapezoid

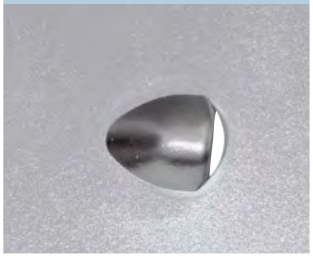
33. Louver, rectangle

34. Louver, round

35. Louver, rectangle

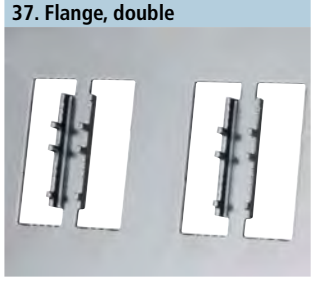


36. Louver, form



Flanges

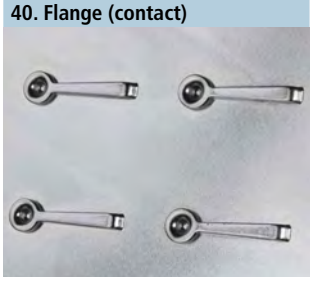
37. Flange, double



38. Flange, form

39. Flange, form

40. Flange (contact)



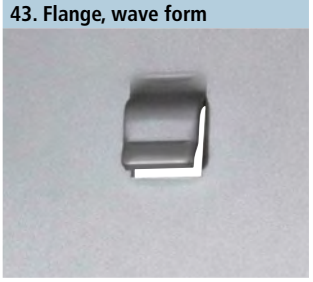
Application examples of forming

Flanges

41. Flange, offset

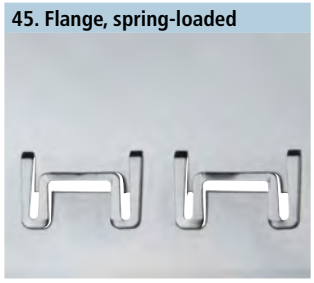
42. Flange, wave form

43. Flange, wave form

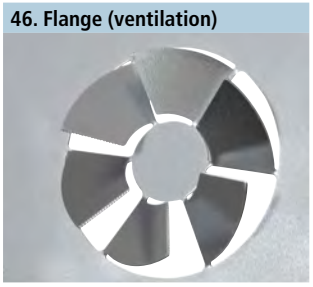


44. Flange, form

45. Flange, spring-loaded

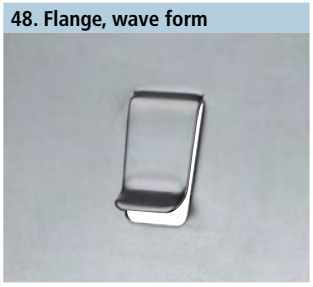


46. Flange (ventilation)



47. Flange, oblong

48. Flange, wave form



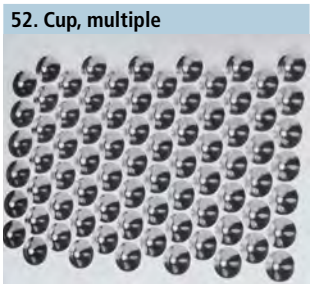
Cups

49. Cup, square

50. Cup with thread punch

51. Cup, funnel form

52. Cup, multiple



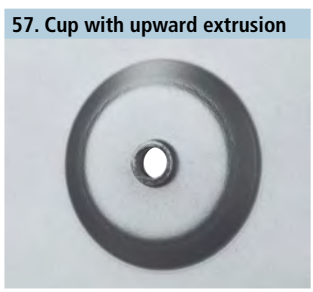
53. Cup, hexagon

54. Cup with holes

55. Cup, spherical

56. Cup, hexagon

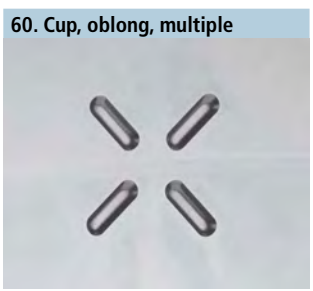
57. Cup with upward extrusion



58. Cup with downward extrusion

59. Cup, hole

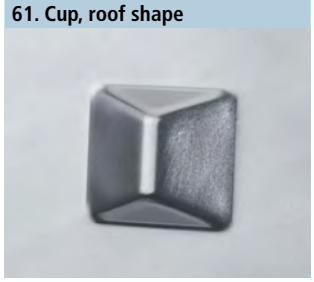
60. Cup, oblong, multiple



Application examples of forming

Cups

61. Cup, roof shape



62. Cup, hexagon

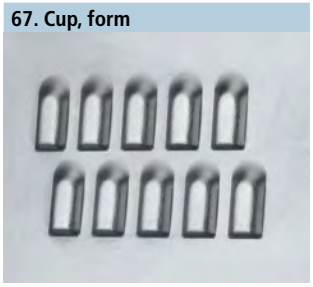
63. Cup, pyramid

64. Cup, form

65. Cup, rectangle

66. Cup with extrusion

67. Cup, form

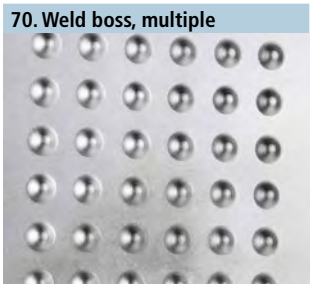


68. Cup, oblong

Weld bosses

69. Weld boss

70. Weld boss, multiple



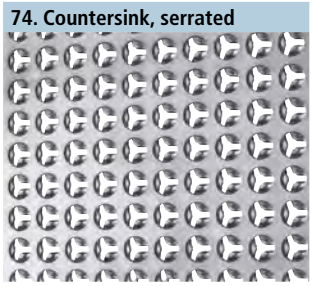
Countersinks

71. Countersink, teardrop

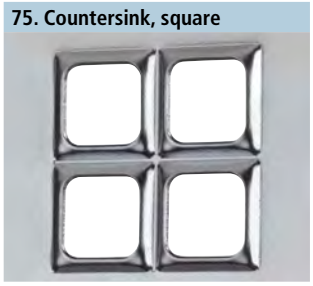
72. Countersink, safety steps

73. Countersink, round

74. Countersink, serrated



75. Countersink, square

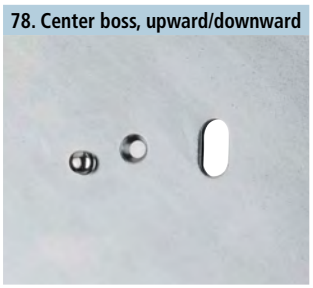


76. Countersink, square hole

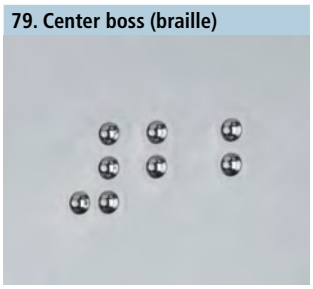
Center bosses

77. Center boss, rectangle

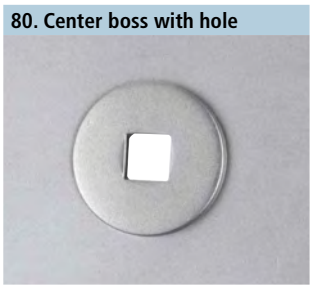
78. Center boss, upward/downward



79. Center boss (braille)



80. Center boss with hole



Marking:

Always recognizable.

Marking with TRUMPF tools.

Whether it is delicate images or company logos, serial numbers, the year of manufacture, or a batch number; with tools from TRUMPF you can easily mark your components in a way tailored to your needs.

It is becoming increasingly important to identify sheet metal parts for production, legal, or quality assurance purposes. As different as the identification markings can be, they all have one thing in common; they create transparency and document the responsibility of the part manufacturer.

And regardless of how diverse your requirements or applications are, TRUMPF has the perfect solution for marking your components.

Marking

Center punch tool (upper side of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 8.0 mm
Center punch angle	60° / 90° / 120°
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for creating center punches

Advantages
- Cost-effective tool due to its simple construction
- Interchangeable center punch pin makes the tool economical
- Used for positioning and centering for subsequent manual processing and mounting

Item

Punch

Order no.	EUR
699261	

Die size 1

- Without bore hole

Order no.	EUR
213906	

Spare center punch pin

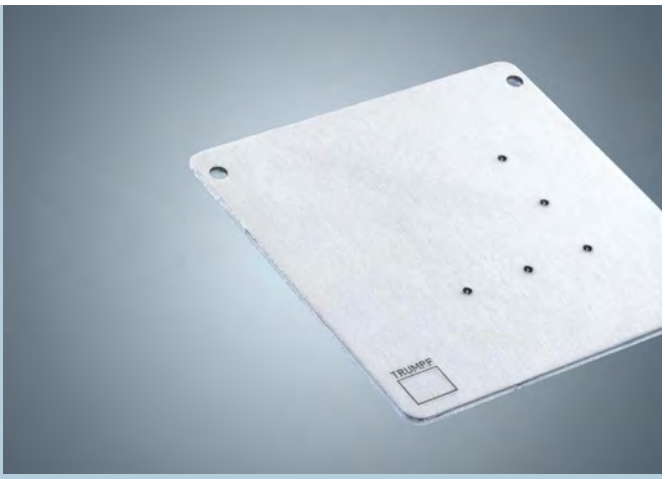
Order no.	EUR
699262	

Important ordering specifications
Machine, sheet thickness, material, center punch angle.

Important ordering information
The theoretical center punch depth is 0.3 - 0.8 mm, depending on the machine type and sheet thickness tolerance. The center punch depth can be improved using ram adjustment. Other dimensions on request. Please use our order forms from p. 156.

Center punch tool (underside of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 8.0 mm
Center punch angle	60° / 90° / 120°
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156



Description and application
Tool for creating center punches

Advantages
- Cost-effective tool due to its simple construction
- Interchangeable center punch pin makes the tool economical
- Used for positioning and centering for subsequent manual processing and mounting

Item

Complete tool

Order no.	EUR
699927	

Punch

Order no.	EUR
699928	

Die

Order no.	EUR
699929	

Spare center punch pin

Order no.	EUR
699930	

Important ordering specifications
Machine, sheet thickness, material, center punch angle.

Important ordering information
The theoretical center punch depth is 0.5 - 0.8 mm, depending on the machine type and sheet thickness tolerance. The center punch depth can be improved using ram adjustment.
Other dimensions on request. Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Spring element for die	103469	

Engraving tool

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Engraving
Sheet thickness s	1.0 - 8.0 mm
Depth and width of engraving	0.2 mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for versatile marking of sheet metal parts in path mode

Advantages
- Non-cutting marking results in outstanding inscription quality
- Engraving needle made from wear-resistant material guarantees long tool life
- Maximum contour versatility due to a narrow line width, e.g. for delicate engravings

Item

Complete tool

Order no.	EUR
1482545	

Punch

Order no.	EUR
1482544	

Die

Order no.	EUR
1482571	

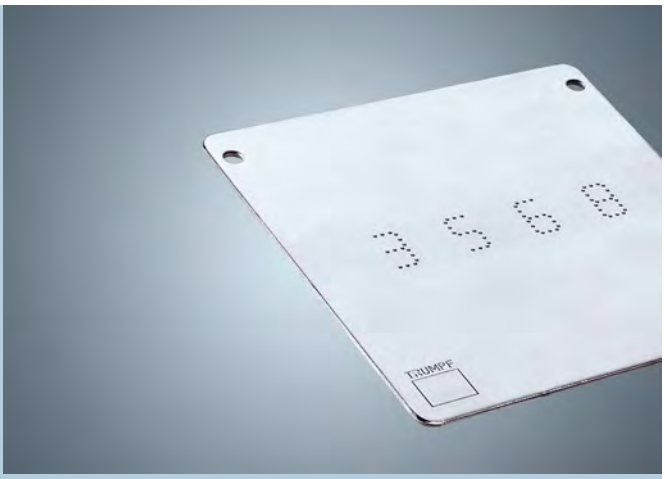
Engraving needle

Order no.	EUR
1482543	

Important ordering specifications
Machine, sheet thickness, material. The "engraving" machine option is a prerequisite.

Marking tool (upper side of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Engraving/quick beading
Sheet thickness s	0.5 - 8.0 mm
Marking depth	0.2 $^{\pm 0.05}$ mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156



Description and application
Tool for versatile marking of sheet metal parts

Advantages
- Fast processing speed in engraving mode
- Can be used with all sheet thicknesses
- Cost-effective tool due to its simple construction

Item

Complete tool

Order no.	EUR
720252	

Punch

Order no.	EUR
721501	

Die size 1

- Without bore hole

Order no.	EUR
213906	

Round stripper

- D = 20 mm

Order no.	EUR
159496	

Important ordering specifications
Machine, sheet thickness, material. The "engraving/quick beading" machine option is a prerequisite.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Replacement marking pin	209003	

Embossing tool – line

Description and application
Tool for embossing numbers and letters in a digital-style font, and for embossing lines and corners for positioning mounting parts

Advantages
- Parts can be marked with flexibility using a wide range of letters and numbers
- Ideal for marking consecutive serial numbers
- Tool can be used for imprinting on the upper side or underside of the sheet

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 8.0 mm
Line length L	3.0 / 4.0 / 5.0 / 6.0 / 8.0 mm
Embossing depth	0.5 $^{+0.1}$ mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Item

Complete tool

Order no.	EUR
699265	

Punch

Order no.	EUR
699266	

Die size 1

- Without bore hole

Order no.	EUR
213906	

Stripper

- D = 32 mm

Order no.	EUR
161335	

Important ordering specifications
Machine, sheet thickness, material, line length.

Embossing tool – symbol (upper side of the sheet)

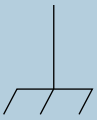
Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 3.0 mm
Symbol size	4.0 / 5.0 / 6.0 / 8.0 / 10.0 / 12.0 mm
Font size/embossing depth	
	0.3 $^{+0.1\ mm}$ (A5 - A6)
	0.5 $^{+0.1\ mm}$ (A8 - A12)
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Grounding symbol

Protective ground symbol

Noiseless ground

Chassis ground



Description and application
Tool for embossing individual symbols or logos

Advantages
- Many standard symbols available in different dimensions
- Tool can be used for upper side and underside of the sheet
- Customized symbols and logos can be produced on request

Item

Complete tool

Order no.	EUR
699269	

Punch

Order no.	EUR
699270	

Die size 1

- Without bore hole

Order no.	EUR
213906	

Stripper

- D = 32 mm

Order no.	EUR
161335	

Important ordering specifications
Machine, sheet thickness, material, symbol, symbol size, embossing depth if necessary.

Important ordering information
The nominal size does not correspond to the actual size of the embossing symbol. The actual size is derived from the "primary standard" according to DIN 40011. Other dimensions on request.
Please use our order forms from p. 156.

Embossing tool – symbol (underside of the sheet)

Description and application
Tool for embossing individual symbols or logos

Advantages
- Many standard symbols available in different dimensions
- Tool can be used for upper side and underside of the sheet
- Customized symbols and logos can be produced on request

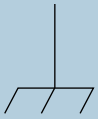
Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 240 R, 260 L, 260 R, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s	1.0 - 6.0 mm
Size of the symbol	4.0 / 5.0 / 6.0 / 8.0 / 10.0 / 12.0 mm
Font size/embossing depth	
	$0.3^{+0.1}$ mm (A5 - A6)
	$0.5^{+0.1}$ mm (A8 - A12)
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Grounding symbol

Protective ground symbol

Noiseless ground

Chassis ground



Item

Complete tool

Order no.	EUR
699953	

Punch for sheet thickness 1.0 - 3.9 mm

Order no.	EUR
653652	

Punch for sheet thickness 4.0 - 6.0 mm

Order no.	EUR
653654	

Die

Order no.	EUR
699955	

Important ordering specifications
Machine, sheet thickness, material, symbol, symbol size, embossing depth if necessary.

Important ordering information
The nominal size does not correspond to the actual size of the embossing symbol. The actual size is derived from the "primary standard" according to DIN 40011. Other dimensions on request.
Please use our order forms from p. 156.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Die insert, single	699956	

Embossing tool – numbers and letters (upper side of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	190 R, 200 R, 240 L, 260 L, 500 R, 600 L, 1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Sheet thickness s s	
	1.0 - 6.0 mm
	1.0 - 8.0 mm (TruPunch 5000/TC5000R, TruMatic 6000/TC6000L, TruMatic 7000)
Font size (according to DIN 1451-B)	A3 / A4 / A5
Embossing depth	0.3 - 0.5 $^{+0.1}$ mm
Useful information	
Tooling accessories	see p. 104
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for marking components with a fixed character string

Advantages
- Interchangeable embossing inserts ensure maximum versatility
- Many standard font sizes in stock
- Tool can be used for imprinting on the upper side or underside of the sheet

Item

Complete tool

- Complete (incl. blank types)

Order no.	EUR
699273	

Punch

- Complete (incl. blank types)

Order no.	EUR
699274	

Die size 2

- Without bore hole

Order no.	EUR
060766	

Important ordering specifications
Machine, sheet thickness, material, font size.

Important ordering information
Also available for TC 240 R and TC 260 R on request: this requires a height-adjustable die (order no. 075571) and a setup cartridge (order no. 201781).
The quantity of numbers that can be placed in the holder is determined by the font size.

Embossing inserts

Item		
Name	**Order no.**	**EUR**
Numbers 0-9 (single)	699275	
Letters A-Z/Ä, Ö, Ü (single)	699275	
Special characters / - . (single)	699275	
Blank types/spaces (single)	699275	
Set of numbers 0-9, A3	540668	
Set of numbers 0-9, A4	540672	
Set of numbers 0-9, A5	540677	

Embossing MultiTool Easy Type

Description and application
The TRUMPF innovation for embossing the alphabet and all numbers with a single tool

Advantages
- Just one tool with five inserts is required for embossing the alphabet and numbers
- TruTops support makes programming as simple as possible
- Different letter sizes are available

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiTool
Sheet thickness s	0.5 - 8.0 mm
Font size	4 / 5 / 6 / 8 / 10 mm
Embossing depth	max. 0.4 mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Item

Complete tool

- Including embossing inserts and stripper

Order no.	EUR
699283	

Punch

- Including embossing inserts

Order no.	EUR
699284	

Individual embossing insert

Order no.	EUR
699285	

Die size 2

- Without bore hole

Order no.	EUR
060766	

Important ordering specifications
Machine, sheet thickness, material, font size. The "MultiTool" machine option is a prerequisite.
Single embossing insert: machine, sheet thickness, material, letter height, slot number in MultiTool.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Stripper	629161	

Embossing MultiTool 10-station (upper side of the sheet)

Machine type	
TruPunch	1000, 2020, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 2000 R, 2020 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	MultiTool
Sheet thickness s	
	0.5 - 6.0 mm
	1.0 - 8.0 mm (TruPunch 5000/TC5000R, TruMatic 6000/TC6000L, TruMatic 7000)
Font size	4 mm
Embossing depth	0.5 $^{+0.1}$ mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for versatile embossing in MultiTool mode

Advantages
- The tool has 10 embossing inserts that can be actuated individually for flexible and fast embossing
- Simple programming in TruTops
- Many standard and special characters are available

Item

Punch adapter

- Without embossing inserts

Order no.	EUR
630593	

Die size 2

- Without bore hole

Order no.	EUR
060766	

Stripper

Order no.	EUR
641046	

Important ordering specifications
Machine, sheet thickness, material, selection of embossing inserts (see below). The "MultiTool" machine option is a prerequisite.

Embossing inserts

Item		
Name	**Order no.**	**EUR**
Numbers 0-9 (single)	699279	
Letters A-Z (single)	699279	
Special characters / - . (single)	699279	

Embossing MultiTool 12-station (upper side of the sheet)

Machine type	
TruPunch	190 R, 200 R, 500 R, 600 L
Required machine option	MultiTool
Sheet thickness s	1.0 - 4.0 mm
Font size	4 mm
Embossing depth	0.5 $^{+0.1}$ mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for versatile embossing in MultiTool mode

Advantages
- Tool has 12 embossing inserts that can be actuated individually for flexible and fast embossing
- Simple programming in TruTops
- Many standard and special characters are available

Item

Punch adapter

- Without embossing inserts

Order no.	EUR
075559	

Die size 2

- Without bore hole

Order no.	EUR
060766	

Round stripper

- D = 80 mm

Order no.	EUR
066235	

Important ordering specifications
Machine, sheet thickness, material, selection of embossing inserts (see below). The "MultiTool" machine option is a prerequisite.

Important ordering information
Also available for TC 240 R and TC 260 R on request: this requires a height-adjustable die (order no. 075571) and a setup cartridge (order no. 201781).

Embossing inserts

Item

Name	Order no.	EUR
Numbers 0-9 (single)	699279	
Letters A-Z (single)	699279	
Special characters / - . (single)	699279	

Calibration tool

Machine type	
TruPunch	1000, 3000, 5000
TruMatic	3000, 6000, 7000
TC	1000 R, 3000 R, 3000 L, 5000 R, 6000 L
Required machine option	Adaptive stroke calibration
Sheet thickness s	0.5 - 8.0 mm
Accuracy	± 0.03 mm
Useful information	
Tool maintenance	see p. 136
Embossing quality	see p. 146
Order forms	see p. 156

Description and application
Tool for measuring the exact sheet thickness – patented process that compensates for any variations in the sheet thickness

Advantages
- Tool setup with integrated alignment ring and die carrier provide outstanding positioning accuracy and repeatability
- Rejects and manual intervention are eliminated because the tool automatically compensates for variations in the sheet thickness

Item

Complete tool

Order no.	EUR
1312897	

Punch

Order no.	EUR
1312892	

Die

Order no.	EUR
1312844	

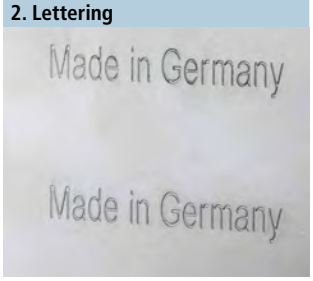
Important ordering specifications
Machine, sheet thickness, material. The "adaptive stroke calibration" machine option is a prerequisite.

Application examples of marking

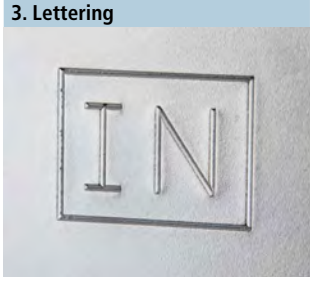
Embossing

1. Lettering

2. Lettering

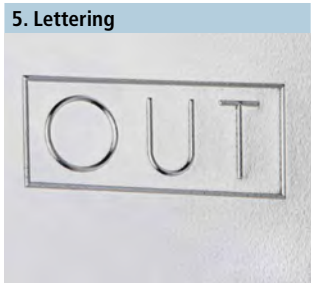


3. Lettering



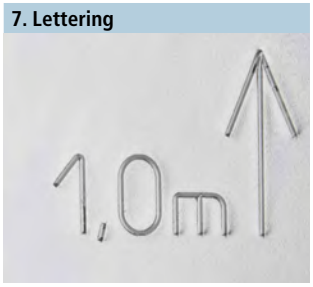
4. Warning

5. Lettering

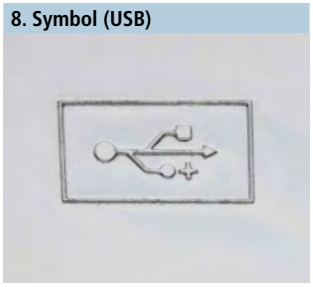


6. Lettering

7. Lettering

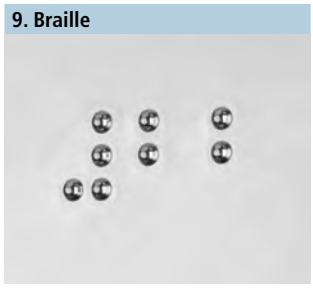


8. Symbol (USB)

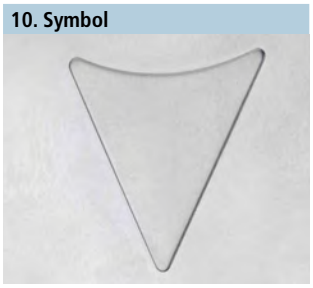


Embossed forms

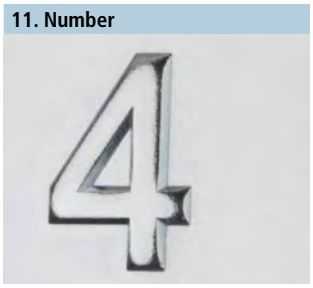
9. Braille



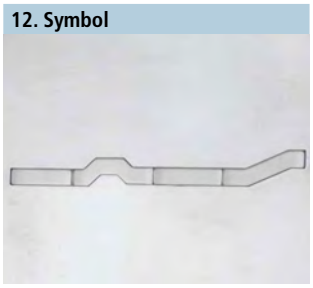
10. Symbol



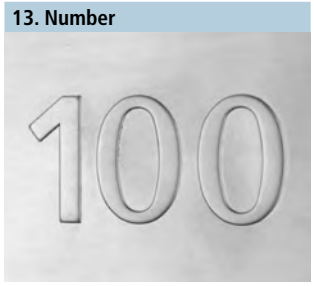
11. Number



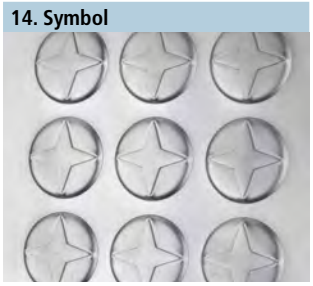
12. Symbol



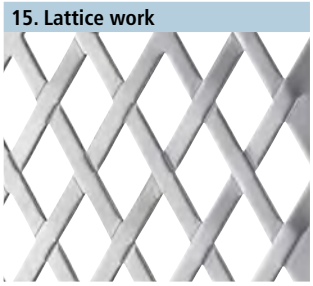
13. Number



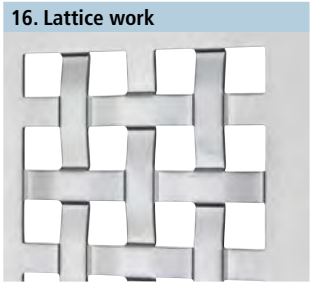
14. Symbol



15. Lattice work

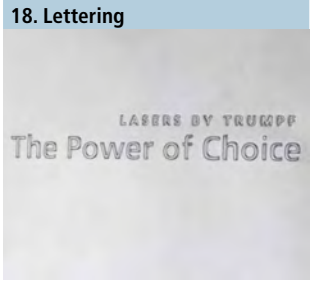


16. Lattice work

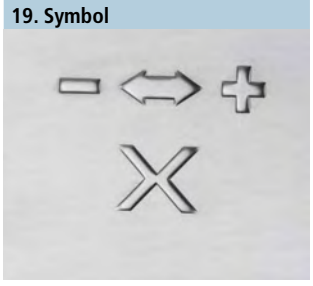


17. Protective ground symbol

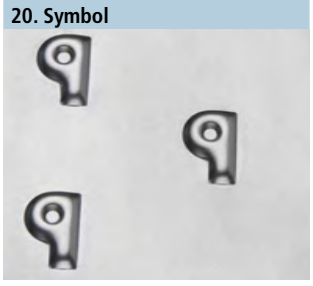
18. Lettering



19. Symbol



20. Symbol



Accessories:

Everything to do with punching.

Accessories for TRUMPF tools.

To produce a flawless punching finish, it is crucial that the settings are exact and the tools are regularly reground. We provide you with the appropriate accessories to make setting up and maintaining your punching tools as convenient, time-saving, and effective as possible.

Our product range includes accessories for easy setup, such as our EasyUse shim, intelligent products for low-scratch processing, and additional equipment for all aspects of the punching process. The QuickSharp from TRUMPF ensures your tools are perfectly ground and the QuickSet ensures your punching tools have the correct settings. With the RTC tool cartridges, you and your machines can change tools in the blink of an eye.

Accessories

Tooling accessories

Alignment rings

Alignment ring size 0, 1

Order no.	EUR
072061	

Alignment ring size 2

Order no.	EUR
072062	

Alignment ring for reinforced punch

Order no.	EUR
201519	

Punch chuck

Punch chuck

- Size 0 (D = 6.0 mm)

Order no.	EUR
150159	

Punch chuck

- Size 0 (D = 10.5 mm)

Order no.	EUR
150162	

Intermediate rings

Intermediate ring

Order no.	EUR
060216	

Intermediate ring with brush insert

- To prevent scratches

Order no.	EUR
746088	

Intermediate ring with Ampco insert

- To prevent scratches

Order no.	EUR
1350349	

Tooling accessories

Adhesive pads

Adhesive pad for stripper

Order no.	EUR
260186	

Adhesive pad for intermediate ring

Order no.	EUR
260188	

Adhesive pad for die size 2

Order no.	EUR
260187	

Adhesive pad for separating die

Order no.	EUR
725432	

Adhesive pad for square die

Order no.	EUR
725512	

Other small parts

Lock spring for die keyway

■ 10 items

Order no.	EUR
055154	

Clamping pins for stripper

■ 10 items

Order no.	EUR
031429	

Tooling accessories

EasyUse shims

The EasyUse shims come complete with hole labeling (a hole corresponds to a thickness of 0.1 mm). This means that you can quickly and easily find the right shim to place underneath the reground die. Additional information on setup and tool maintenance can be found on page 136.

Set of shims size 1

Order no.	EUR
060067	

Shim 0.1 mm size 1

Order no.	EUR
059888	

Shim 0.3 mm size 1

Order no.	EUR
059890	

Shim 0.5 mm size 1

Order no.	EUR
059891	

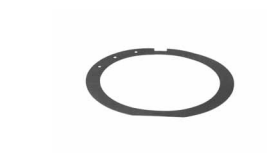
Set of shims size 2

Order no.	EUR
060068	

Shim 0.1 mm size 2

Order no.	EUR
059384	

Shim 0.3 mm size 2



Order no.	EUR
059385	

Shim 0.5 mm size 2

Order no.	EUR
059386	

Spring elements for punch size 1

Spring element for punch size 1 (short version)

	Order no.	EUR
Round	699840	
Square		
Rect-angle		
Oblong		

Spring element for punch size 1 (long version)

	Order no.	EUR
Round	699840	
Square		
Rect-angle		
Oblong		

Important ordering specifications
Machine, form, dimensions.

RTC tool cartridge

Application range	All tools size 0, 1, and 2
Specifications	
Weight (without tools)	0.6 kg
Material of die base	Fiber-reinforced plastic
Order information	
Order no.	1522218
EUR	

Description and application

The original standard tool cartridge from TRUMPF made from fiber-reinforced plastic, for maximum productivity and secure tool change

Advantages

- Low weight for high acceleration values and productivity
- Fast and secure changeover of punching tools
- Secure grip on tools due to the extra strong springs
- The cartridge arms have a special heat treatment, resulting in a longer tool life
- The machine is protected against overload
- Efficient handling due to the ergonomic handle
- Long tool life

Important ordering information
The RTC tool cartridge cannot be used with the TC 500 R with ToolMaster, TC 600 L with ToolMaster, TC 6000 L with ToolMaster, or TruMatic 6000 (K01) with ToolMaster. For these products, please use the steel tool cartridge – universal (order no. 1602725).

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Die carrier	0222137	
Storage medium (magnetic)	0909671	

Tool cartridge size 5

Application range	All tools size 5
Specifications	
Weight (without tools)	0.9 kg
Material of die base	Aluminum
Order information	
Order no.	1500495
EUR	

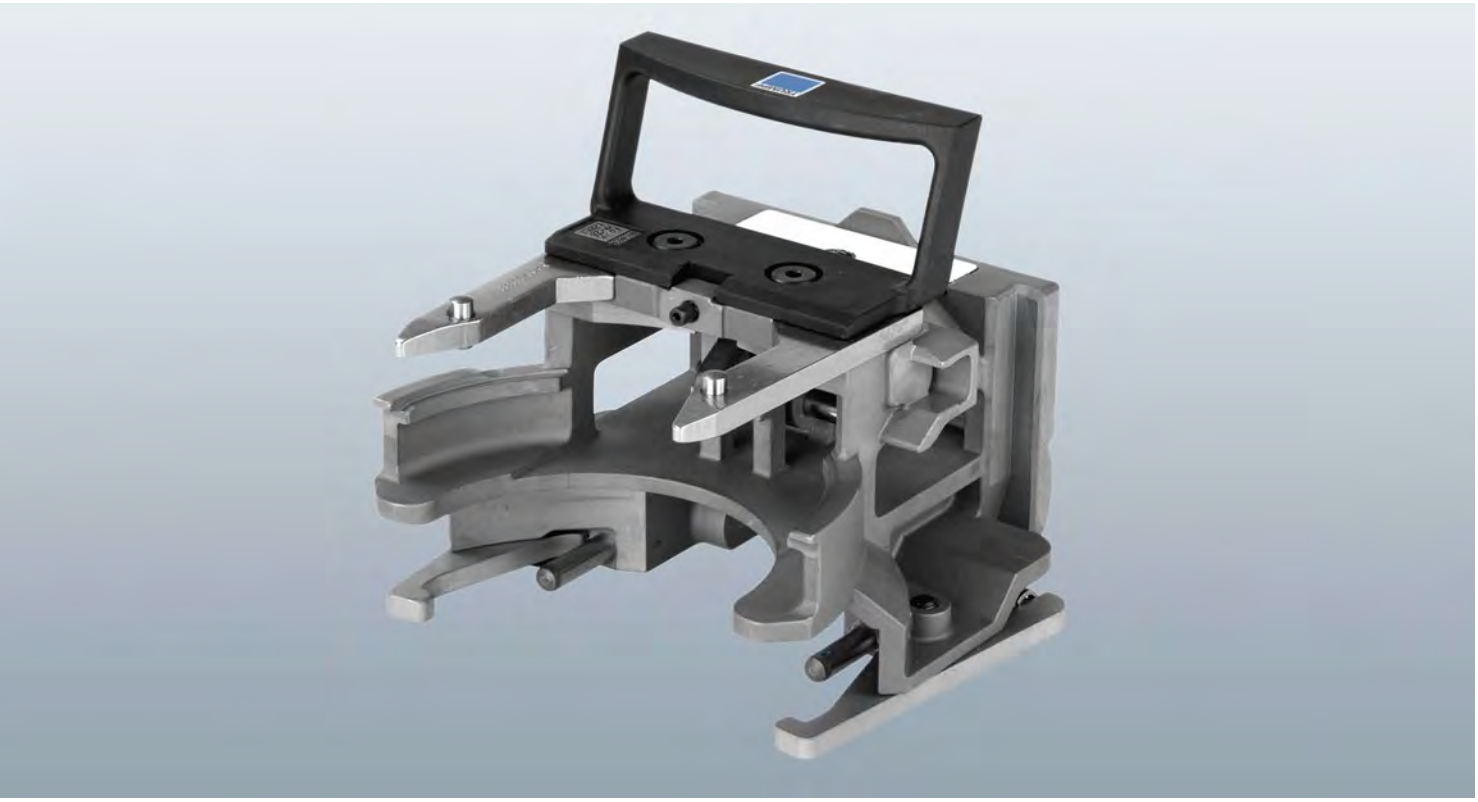
Description and application
The original tool cartridge from TRUMPF for the reliable setup of tools size 5

Advantages
- Highest acceleration values on the machine with reinforced retaining springs
- The cartridge arms are specially heat treated, resulting in a longer tool life
- High stability level for heavy tools size 5 due to the aluminum die base

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Adapter (for stripper)	1633067	
Storage medium (magnetic)	0909671	

Steel tool cartridge – universal



Application range	All tools size 0, 1, and 2
Specifications	
Weight (without tools)	2.3 kg
Material of die base	Steel
Order information	
Order no.	1602725
EUR	

Description and application
The original steel cartridge from TRUMPF, made from steel for secure tool change

Advantages
- Fast and secure changeover of punching tools
- Secure grip on tools due to the extra strong springs
- The cartridge arms are specially heat treated, resulting in a longer tool life
- Efficient handling with the ergonomic handle
- Long tool life

Important ordering information
Steel tool cartridge – universal is required for TC 500 R with ToolMaster, TC 600 L with ToolMaster, TC 6000 L with ToolMaster, and TruMatic 6000 (K01) with ToolMaster.

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Die carrier	0222137	
Storage medium (magnetic)	0909671	

QuickSet

Application range	
Tool type	All TRUMPF Punching Tools
Shear	flat, beveled (Whisper, roof)
Specifications	
Space requirements	315 x 310 mm
Weight	25 kg
Height	355 mm
Scope of delivery	
QuickSet	
Tool holder for stripper	
Supply and power cable (global use)	
Documentation	
Order information	
Order no.	984245
EUR	

Description and application

QuickSet enables punching tools to be set up quickly and accurately for increased tool life and maximum processing results

Advantages

- TRUMPF Punching Tools are set up quickly and reliably
- Precise coordination of punch and die
- Aligning the punch and alignment ring is simple
- Easily check the cutting clearance between the punch and die using a test stroke
- Punch length and regrind amount can be measured quickly and easily
- Penetration depth of the punch into the stripper is determined to avoid collisions

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
Tool holder for stripper	979815	

QuickSharp

Application range	
Tool type	All TRUMPF Punching Tools
Shear	flat, beveled (Whisper, roof)
Specifications	
Space requirements	630 x 780 mm
Weight	415 kg
Height	1,835 mm
Grinding area (ø x Z)	100 x 99.9 mm
Grinding wheel (ø)	125 mm (CBN)
Grinding drive RPM	4,600 RPM
Scope of delivery	
QuickSharp	
Punching fixture for Whisper shear with adjustment aid	
Pulling fixture	
Clamping fixture for reinforced dies	
10 paper band filters	
5 l cooling lubricant concentrate	
Adjustment aids	
Documentation	
Order information	
Order no.	358910
EUR	

Description and application

The fully automatic QuickSharp tool grinding device is the perfect solution for regrinding your TRUMPF Punching Tools

Advantages

- Simple, safe grinding process and user-friendly operation
- Outstanding surface finish with the front grinding process for tool long tool life
- Integrated clamping tool provides intelligent tool clamping
- Simple regrinding process, even for punches with shears such as the Whisper or roof shear
- Automatic tool length measurement

Accessories and single parts

Item

Name	Order no.	EUR
Boron grinding wheel	0032498	
5 l cooling lubricant concentrate	1645498	
Filter pack	1234583	
Corundum diamond	0038843	
Universal clamping fixture for grinding	1242673	

Name	Order no.	EUR
MultiShear punch adapter	1295486	
Stepped clamping fixture for MultiTool die	1247313	
Punch grinding fixture for Whispertool punch	1214030	

QuickGrind

Application range	
Tool type	All TRUMPF Punching Tools
Shear	flat, beveled (Whisper, roof)
Specifications	
Space requirements	520 x 820 mm
Weight	150 kg
Height	675 mm
Grinding wheel (ø)	125 mm (Crystallized Boron Nitride)
Grinding drive RPM	4,200 RPM
Scope of delivery	
QuickGrind	
1 hook wrench	
1 l cooling lubricant concentrate	
Documentation	
Order information	
Order no.	1250244
EUR	

Description and application
The easy-to-use QuickGrind manual tool grinding device for TRUMPF Punching Tools

Advantages
- Easy grinding process by manually placing and feeding the tool
- Integrated tool clamping for secure handling
- Low investment costs
- Punches with shears, such as the Whisper or roof, can also be reground

Accessories and single parts

Item		
Name	**Order no.**	**EUR**
1 l cooling lubricant concentrate	1651216	
Grinding wheel	0357935	
Strainer	0357933	

QuickPad

Application range	
Tool type	All TRUMPF strippers and dies size 1 and size 2
Specifications	
Space requirements	220 x 500 mm
Weight	22,5 kg
Height (incl. lever)	680 mm
Scope of delivery	
QuickPad	
Press-set for strippers	
Press-set for intermediate rings	
Press-set for dies	
Adhesive pads for strippers, dies, intermediate rings	
Documentation	
Order information	
Order no.	140637
EUR	

Description and application

The QuickPad pad attaching device for simple, secure attachment of adhesive pads to ensure low-scratch processing

Advantages

- Simple process for attaching adhesive pads to avoid scratches and imprints during punching
- Cost-effective solution for improving the surface finish
- Adhesive pads are accurately positioned on intermediate rings, dies, and strippers with special press-set devices
- Easy to operate

QuickLoad

Application range	
Tool type	All TRUMPF Punching Tools
Tool cartridges	RTC tool cartridge, tool cartridge size 5, steel tool cartridge – universal
Specifications	
Space requirements	455 x 295 mm
Weight	15.4 kg
Height	115 mm
Scope of delivery	
QuickLoad	
Documentation	
Order information	
Order no.	970221
EUR	

Description and application

QuickLoad enables tool cartridges to be set up quickly and securely with a punch, stripper, and die

Advantages

- Short setup times because it is easy to load the cartridge with a punch, stripper, and die
- Easy handling with pneumatic releasing device on the tool sets
- Treats sharpened tools gently
- Reduction in idle time due to time-saving setup in productive time

QuickMove

Application range	
Tool type	All TRUMPF Punching Tools
Tool cartridges	RTC tool cartridge, tool cartridge size 5, steel tool cartridge – universal
Specifications	
Number of cartridge stations	26
Space requirements	780 x 1.400 mm
Weight	63 kg
Height	1.400 mm
Max. load	180 kg
Scope of delivery	
QuickMove	
Documentation	
Order information	
Order no.	1264794
EUR	

Description and application

QuickMove enables tool cartridges that have already been set up to be transported quickly and conveniently from the setup station to the machine

Advantages

- Comprehensive overview of the tool cartridges with 26 numbered stations
- Simple loading and unloading of set up tool cartridges
- Easy to steer and position due to its ergonomic design
- Holder for setup plan and accompanying documents
- Integrated receivers for setup lever and allen wrench clamp
- Clean storage with oil absorbent fleece under the tool cartridge rack

Punching Tool Cabinet

Application range	
Tool type	All TRUMPF Punching Tools
Tool cartridges	RTC tool cartridge, tool cartridge size 5, steel tool cartridge – universal
Specifications	
Number of storage spaces	up to 700 punching tools
Space requirements	1,040 x 1,050 mm
Weight (without tools)	380 kg
Height	1,240 mm
Scope of delivery	
Punching Tool Cabinet	
4 shelves for punches size 1 and size 2	
4 shelves for dies size 1	
4 shelves for dies size 2 and strippers	
4 shelves for strippers	
2 shelves for forming tools and special tools	
2 shelves for tool cartridges	
3 shelves for punches size 0 and alignment rings	
2 shelves for cutting blades	
Documentation	
Order information	
Order no.	383987
EUR	

Description and application

The Punching Tool Cabinet is a place to store your tools clearly, cleanly, and in a space-saving way, providing more order and efficiency in production

Advantages

- Ergonomic tool handling with the perfectly designed apothecary cabinet
- Reduced setup times because tools are stored clearly and are easily accessible
- Safe and secure storage of tools with specially designed tool holders
- Moving the cabinet is quick and easy with the practical notches for forklifts
- Outstanding quality and maximum occupational safety due to a wheel load of up to 900 kg for each vertical pull-out compartment
- Dust-free storage means that tool cleaning time is reduced

Accessories and single parts

Item

Name	Order no.	EUR
Shelf for punches size 1 and size 2	383965	
Shelf for dies size 2 and strippers	383978	
Shelf for special tools and forming tools	383979	
Shelf for punches size 0 and alignment rings	383980	

Name	Order no.	EUR
Shelf for dies size 1	383981	
Shelf for strippers	383983	
Shelf for tool cartridges	383984	
Shelf for cutting blades	383985	

Consumables and additional equipment

Setup aids

Tool setup aid

- Setting up tool cartridges

Order no.	EUR
232090	

Tool adjustment aid

- Aligning punch and alignment ring

Order no.	EUR
937592	

Lever

- Removing the tools in the linear magazine

Order no.	EUR
259684	

Operating tool

- Removing a jammed die

Order no.	EUR
919978	

Punching and nibbling oil

Punching and nibbling oil - 500 ml spray

Order no.	EUR
111309	

Punching and nibbling oil - 1 l container

Order no.	EUR
111310	

Punching and nibbling oil - 10 l container

Order no.	EUR
111311	

Application range
Spray lubrication of punch and die for processing steel and stainless steel.

Akamin cutting oil

Akamin cutting oil - 1 l container

Order no.	EUR
125874	

Akamin cutting oil - 20 l container

Order no.	EUR
061461	

Application range
Spray lubrication of punch and die for processing aluminum and aluminum alloys.

Variocut C462 tapping oil

Variocut C462 - 1 l container

Order no.	EUR
116941	

Variocut C462 - 20 l container

Order no.	EUR
0116938	

Application range
Spray lubrication for tapping aluminum and aluminum alloys.

Variocut B30 tapping oil

Variocut B30 - 1 l container

Order no.	EUR
124302	

Variocut B30 - 20 l container

Order no.	EUR
113149	

Application range
Spray lubrication for tapping mild and stainless steel.

Useful information:

Knowing how.

Useful information on TRUMPF tools.

Different issues and problems occur during production. For example, how do you avoid scratches, or how can you increase the tool life of your tool?
In addition to answering these questions, this chapter contains important basic information on punching. Images, examples from experience, cutting clearance tables, and explanations on punch lengths and the correct stripper selection enable improved understanding of the punching process.

The diagram on the inside back cover of this catalog shows you which components are typically included in the tool system.

If you find that your question has not been answered, please contact us. We would be happy to help you.

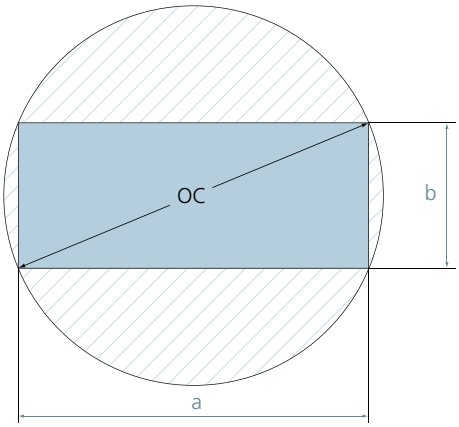
Useful information

Dimensions and regrinding

There are a number of important dimensions in the punching area. This doesn't just include the dimension of the cut geometry, but also the punch length and permissible reduction in the tool length caused by regrinding.

Outer circle

Outer circle (OC) using a rectangle as an example

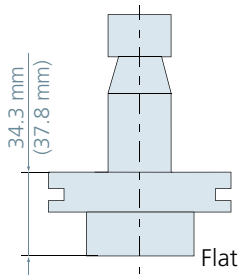


$$\text{Outer circle} = \sqrt{(a^2+b^2)}$$

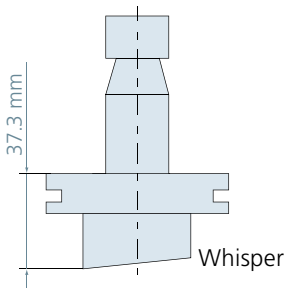
- The outer circle is the circle that is completely covered by the punching geometry.

Punch lengths

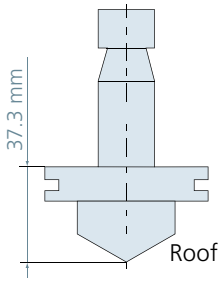
Punch lengths of different shear types



- Punch with flat cutting surface



- Punch with beveled cutting surface in Whisper form



- Punch with beveled cutting surface in roof form

Punches with flat cutting surfaces are available in the short version (34.3 mm) and in the long version (37.8 mm).
The length is measured from the upper edge of the alignment ring to the end of the tool. A punch with a length of 37.8 mm is advantageous because of the greater regrind amount and the faster stroke rate when the presser foot is active.
All current TRUMPF punching machines (e.g. TruPunch 1000) can be fitted with flat punches of both lengths; older machines (e.g. TC 500 R) can only be fitted with the shorter version.

Rule of thumb

The general rule of thumb is: punch width = at least sheet thickness s. For punch dimensions that are smaller than the sheet thickness using punches with a guided cutting edge is advised.

Regrinding

Regularly regrinding punching tools, for example using the QuickSharp (see chapter "Accessories"), ensures maximum edge quality and therefore, produces the best possible results in punching. This means that there are fewer problems with the stripper. In addition, tools that have been reground pre-emptively will last longer.

For a sharp cutting edge, the tool should be reground by between 0.1 and 0.25 mm using sufficient coolant. Cooling the tool well will prevent the build-up of grinding cracks and the annealing of the material. Using an oil stone to slightly sharpen the tool and demagnetize it after the grinding process is advised.

QuickSharp

As a general rule, tools that are not coated should be reground after 60,000 to 80,000 strokes and tools that have a coating should be reground after 120,000 strokes.

In addition, it is important to regularly check the following factors to determine the grinding requirements:

- **Cutting edges.** The tool should be reground if the radius is larger than 0.1 - 0.25 mm.
- **Punching noise.** If there are discernible changes in the punching noise, the tool should be checked and reground if necessary.
- **Punching power.** The punching result should be checked for excessive burr formation and if necessary, the tool should be reground.

The standard configuration for a punch is back-tapered with a clearance angle of 0.5° to reduce the retractive force. Cylindrical punches can also be ordered on request.

Regrind amounts

Tool	Tool component	Tool length (in mm)	Regrind amount (in mm)
Classic System	Punch, flat	34.3	3.0
	Punch, flat, long	37.8	6.5
	Punch, beveled (Whisper, roof)	37.3	3.0
	Die size 1	18.0	1.0
	Die size 2	20.0	1.0
MultiShear	Punch	44.2	2.8
MultiTool	Punch inserts	24.0	0.5
	Die inserts	14.0 (MultiTool 10-station: 10.0)	1.0
	Blanking die d = 72 mm	12.0	1.0
MultiUse	Punch insert	Flat: 28.3	6.0
		Beveled: 31.3	6.0
		Flat, long: 31.8	9.5
	Die insert	10.0	2.0
Slitting tool	Punch cutting blade	25.3	3.0
	Die cutting blade	5.0	1.0

Punching force and shear strength

The choice of punching force depends on a number of different factors. It depends on the sheet thickness and the length of the cutting edge, as well as the choice of shear on the punch.

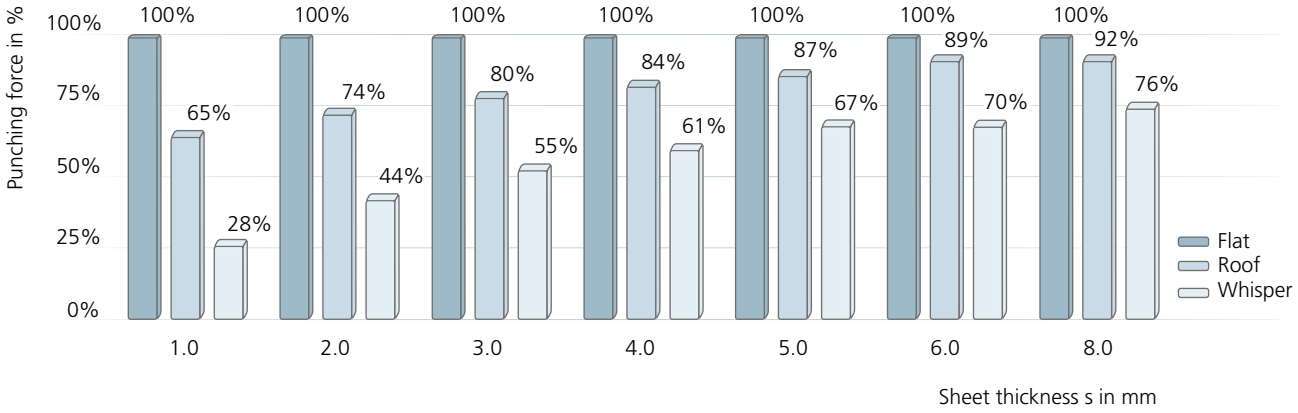
Beveled punches

Beveled punches are 3 mm longer than punches with flat cutting surfaces. The additional length comes from the bevel, which has a maximum angle of 5°. TRUMPF will create a bevel on a punch at no charge.

The use of beveled punches has considerable advantages if the outer circle of the punch is a certain size:

- Decreased sheet metal distortion as component tension is up to 20% lower
- Sound pressure level is reduced by up to 14 dB(A); this corresponds to a reduction in the sound pressure level by more than 50%
- Required punching force is reduced by up to 72%, depending on the sheet thickness

How the punch shear and sheet thickness affect the punching force:



Determining the theoretical punching force

The punching force F is determined using the following formula:

$$F = \frac{\text{Cutting edge length L (mm)} * \text{Sheet thickness s (mm)} * \text{Tensile strength RM of the material (N/mm²)}}{\text{Shear factor X (only for bevels)}}$$

This means:

Round punch:	**F = Π * Ø * s * RM / X**
Square punch:	**F = 4 * a * s * RM / X**
Rectangular/oblong punch:	**F = (a+b) * 2 * s * RM / X**

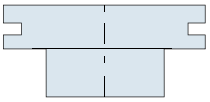
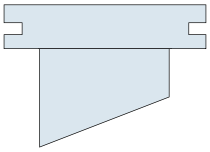
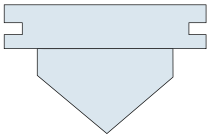
Overview of tensile strength RM:

Steel	approx. 400 N/mm²
Stainless steel	approx. 700 N/mm²
Aluminum	approx. 300 N/mm²

Key	
Π	Pi
s	Sheet thickness
a	Side dimension
RM	Tensile strength
X	Shear factor
Ø	Diameter

Punching force and shear strength

Shear factor

Sheet thickness s (in mm)	Shear factor flat X	Shear factor Whisper X	Shear factor roof X
			
1.0	1.00	3.50	1.53
1.5	1.00	2.66	1.44
2.0	1.00	2.25	1.35
2.5	1.00	2.00	1.30
3.0	1.00	1.83	1.25
3.5	1.00	1.71	1.11
4.0	1.00	1.62	1.19
5.0	1.00	1.50	1.15
6.0	1.00	1.41	1.12
8.0	1.00	1.31	1.08
10.0	1.00	1.25	approx. 1.00

Example:

Calculation of the required punching force for a square punch-out measuring 40 x 40 mm in 2 mm thick mild sheet.
A Whispertool punch is used.

$$\frac{4 \text{ x } 40 \text{ mm x } 2 \text{ mm x } 400 \text{ N/mm}^2}{2.25} = 56{,}889 \text{ N}$$

The reduced punching force is therefore F = 57 kN or 5.7 tons.

Punching force in relation to the punch type and sheet thickness

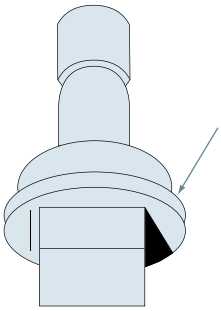
Punch type	Max. punching force	Max. sheet thickness		Material
		Punching	Nibbling	
Flat punch, size 0: up to 6 mm outer circle	50 kN	Mild steel: 2.0 mm Stainless steel: 1.5 mm	Not recommended	HSS HSS
Punch, size 0: 6 - 10 mm outer circle	50 kN	Mild steel: 6.0 mm Stainless steel: 3.0 mm	Mild steel: 3 mm Stainless steel: not recommended	HSS HSS
Flat punch, size 1: max. outer circle of 30 mm	200 kN	Up to maximum permissible sheet thickness of the machine	Up to maximum permissible sheet thickness of the machine	HSS
Flat punch, size 1 or 2: max. outer circle of 76.2 mm	300 kN	Up to maximum sheet thickness of the machine	Up to maximum sheet thickness of the machine	HSS, oxidized
Punch with bevel	200 kN	Up to maximum sheet thickness of the machine	If tensile strength is 400 N/mm², up to 3 mm If tensile strength is 800 N/mm², up to 2 mm	HSS

Punch selection

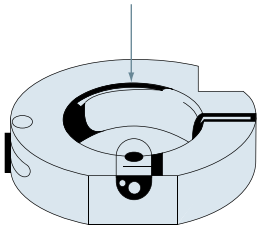
After the punch geometry has been selected you must decide whether the punch should be adjusted. Under certain conditions this is advantageous, especially when processing thick materials or when the punching force is high.

Reinforcement

A reinforced version of a punch and alignment ring



■ Punch with reinforced shoulder



■ Alignment ring with larger inside thread

Reinforced punches are used for punching forces over 200 kN, sheet thicknesses over 5 mm, and for punching or nibbling high-tensile sheets. As the punch is reinforced at the shoulder, the inside thread of the alignment ring is increased accordingly. The maximum outer circle is therefore, only 42 mm.

Guided cutting edge

A punch with a guided cutting edge is a special tool for punching and nibbling the smallest holes in sheet metal that is no more than 4 mm thick.

The application range of a punch with a guided cutting edge is dependent on the material and sheet thickness:

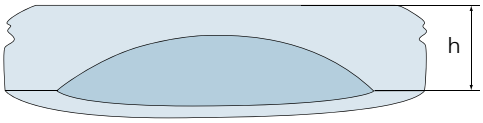
Material	Tensile strength	Minimum punch diameter
Stainless steel Chromium-nickel steel	700 N/mm²	1 x sheet thickness s
Mild steel	400 N/mm²	0.8 x sheet thickness s
Aluminum Aluminum alloy	300 N/mm²	0.6 x sheet thickness s

Die selection

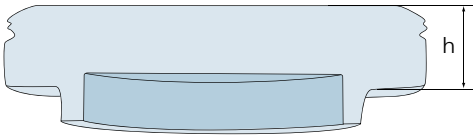
There are a variety of dies to choose from and picking the right one depends on the intended application. For example, when it comes to special shapes, keyways simplify the use ot the tool.

Die selection

Standard die



Reinforced die



Reinforced dies are available in addition to the standard version dies. The punch measurements, punching force, and sheet thickness determine which die is the correct one to use. This last factor is of particular importance: as the sheet thickness increases, a larger cutting gap is required between the punch and the die. All dies can be reground by up to 1 mm. If the die is reground by more than 1 mm, burrs form and there is a risk that the die might break. Because the clamping height is decreased, the die may become tilted and this can lead to dangers during processing. In the tool holder, shims (0.1/0.3/0.5 mm) are placed under the reground dies. TRUMPF also gives its standard dies a life-long guarantee if the die should break.
The correct die measurement depends on the cutting clearance and is calculated from the punch geometry and the sheet thickness (see chapter “Cutting clearance”).

Choosing the correct die depends on the punching force

Die size	Die version	Max. punching force (in kN)	Die height h (in mm)	Max. outer circle (in mm)
1	All	250	Up to 18.00	Up to 32.00
2	Standard	180	Up to 20.00	32.01 - 78.40
2	Reinforced	250	Up to 20.00	32.01 - 62.00

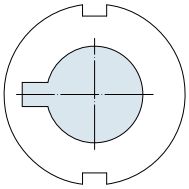
Keyway position

In contrast to symmetrical forms, every non-symmetrical form is equipped with several keyways. This ensures that the punch and die are correctly aligned with each other. It also makes programming easier because the die can be given a direction.

Die selection

Keyway position for forms 1-20

Form 1



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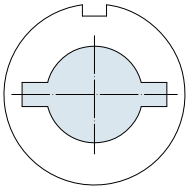

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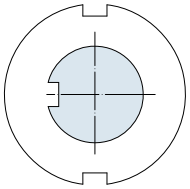

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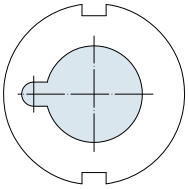

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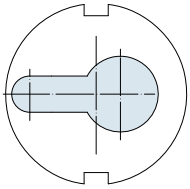

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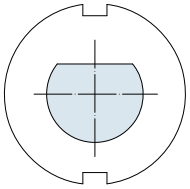

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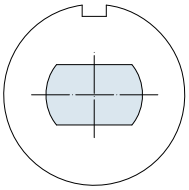

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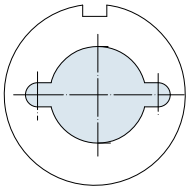

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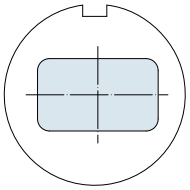

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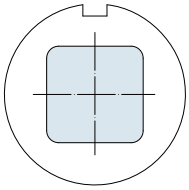

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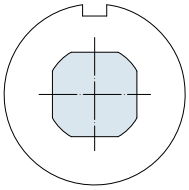

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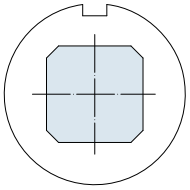

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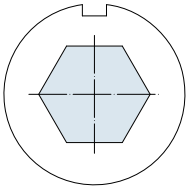

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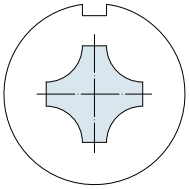

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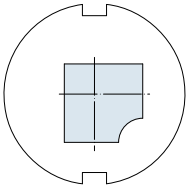

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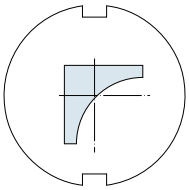

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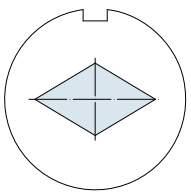

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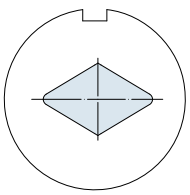

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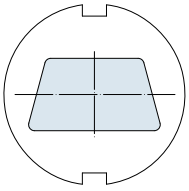

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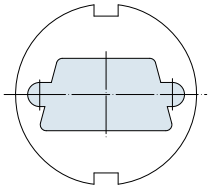

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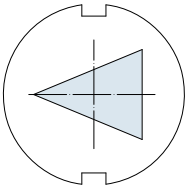
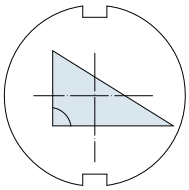


Keyway position for forms 21-40

Form 21



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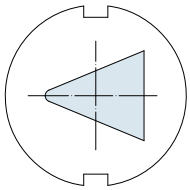

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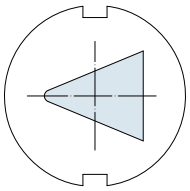

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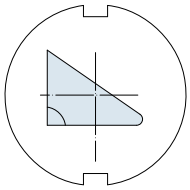

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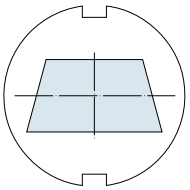

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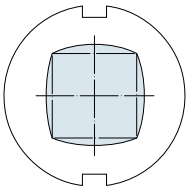

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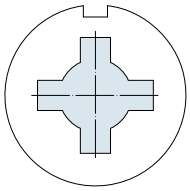

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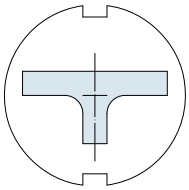

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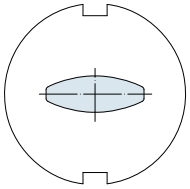

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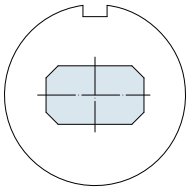

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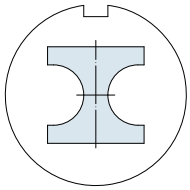

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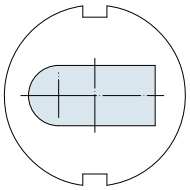

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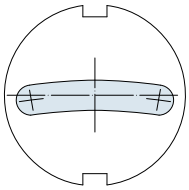

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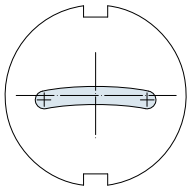

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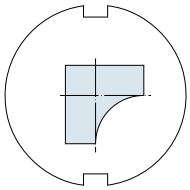

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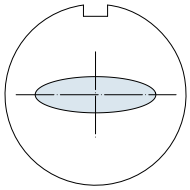

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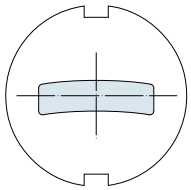

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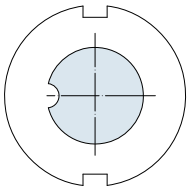

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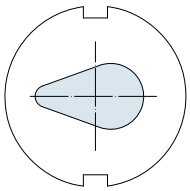

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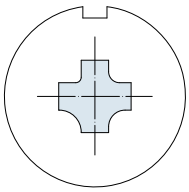


Stripper selection

Selecting the right stripper is important to ensure that the punching process runs smoothly, but it is also difficult because the right stripper is dependent on so many factors. The following tables and explanations will make it much easier to find the right stripper in the future.

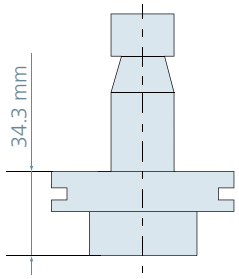
Determining the right stripper in 4 simple steps

1. Measure the length of the punch.
2. Determine the sheet thickness to be processed.
3. Identify the outer circle of the punch.
4. Using the table below, establish which stripper is needed.

1. Measuring the length of the punch

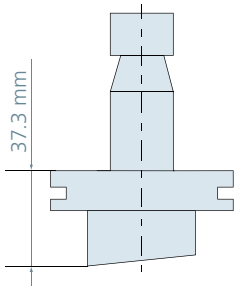
If the length of the punch has been decreased through regrinding, it must be measured again. The punch length is measured from the upper edge of the alignment ring to the end of the tool.

Punch length of a punch with flat cutting surface



QuickSet

Punch length of a punch with beveled cutting surface



It is particularly easy to determine the tool length by using the QuickSet tool setting device (see chapter "Accessories"). The new penetration depth of the punch must be entered into the machine control.

The value for the tool length takes you to the correct column in the stripper table. In this example, the punch length is **33.7 mm.**

Tool length (mm)	34,3 - 33,3								33,2 - 32,3								32,2 - 31,3							
	For low-scratch processing: select the programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	12	12	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31					14	14	14	31					14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

2. Determining the sheet thickness to be processed

The possible columns are narrowed down even further with the addition of the sheet thickness s that is to be processed. In this example, the sheet thickness is **3 mm.**

Tool length (mm)	34.3 - 33.3								33.2 - 32.3								32.2 - 31.3							
	For low-scratch processing: select the programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6,4	>6,4[3]	1	2	3	4	5	6	6,4	>6,4[3]	1	2	3	4	5	6	6,4	>6,4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	12	12	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31					14	14	14	31					14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

3. Identifying the outer circle of the punch

The outer circle of the punch takes you to the correct row in the table (for outer circle calculations, see chapter "Dimensions and regrinding"). In this example, the outer circle is **5 mm with a size 1 punch.**

Tool length (mm)	34.3 - 33.3								33.2 - 32.3								32.2 - 31.3							
	For low-scratch processing: select the programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6,4	>6,4[3]	1	2	3	4	5	6	6,4	>6,4[3]	1	2	3	4	5	6	6,4	>6,4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	12	12	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31					14	14	14	31					14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

4. Using the tables to establish which stripper is needed

The dimension of the stripper to be used can be found in the cell that has been determined using this method. In the example where the punch length is 33.7 mm, the punch dimension is 5 mm, and the sheet thickness is 3 mm, the stripper dimension required is **14 mm.**

Stripper selection

Table overview

If the stripper dimensions specified in the following tables are not observed, the stripper adapter may be damaged.

Stripper for flat, long punch (table A)

Tool length (mm)	37.8 - 33.8								36.7 - 35.8								35.7 - 34.8							
	For low-scratch processing: select the programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–					–	–	–	–					–	–	–	–
Needle punch 6.01 - 10.50							–	–						12	–	–					12	12	–	–
Punch 1.00 - 5.99					14	14	–	–				14	14	14	–	–			14	14	14	14	–	–
Punch 6.00 - 10.50							14	31						14	14	31					14	14	14	31
Punch 10.51 - 30.00[2]																31								31
Punch 30.01 - 40.00[2]																41								41
Punch 40.01 - 50.80[2]																52								52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

Stripper for flat, long punch (table B)

Tool length (mm)	34.7 - 33.8								33.7 - 32.8								32.7 - 31.8							
	For low-scratch processing: select the programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	31	31	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31				14	14	14	14	31					14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

Stripper selection

Table overview

If the stripper dimensions specified in the following tables are not observed, the stripper adapter may be damaged.

Stripper for beveled punch (Whisper form)

Tool length (mm)	37.3 - 36.3								36.2 - 35.3								35.2 - 34.3							
	For low-scratch processing: select programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	12	12	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31				14	14	14	14	31			14	14	14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

Stripper for flat punch

Tool length (mm)	34.3 - 33.3								33.2 - 32.3								32.2 - 31.3							
	For low-scratch processing: select programmed sheet thickness + 1 mm.[1]																							
Programmed sheet thickness s (mm)	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]	1	2	3	4	5	6	6.4	>6.4[3]
Punch-outer circle diameter (mm)	Min. stripper diameter (mm)																							
Needle punch up to 3.00	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–	7	7	7	–	–	–	–	–
Needle punch 3.01 - 6.00					–	–	–	–				7	–	–	–	–			7	7	–	–	–	–
Needle punch 6.01 - 10.50					12	12	–	–				12	12	12	–	–			12	12	12	12	–	–
Punch 1.00 - 5.99			14	14	14	14	–	–		14	14	14	14	14	–	–	14	14	14	14	14	14	–	–
Punch 6.00 - 10.50					14	14	14	31				14	14	14	14	31			14	14	14	14	14	31
Punch 10.51 - 30.00[2]								31						31	31	31					31	31	31	31
Punch 30.01 - 40.00[2]								41						41	41	41					41	41	41	41
Punch 40.01 - 50.80[2]								52						52	52	52					52	52	52	52
Punch 50.81 - 76.20[2]																								

[1] Example: Programmed sheet thickness 4 mm + 1 mm: select column 5 mm

[2] Applies to all special shapes

[3] Only for machines with sheet thickness > 6.4 mm

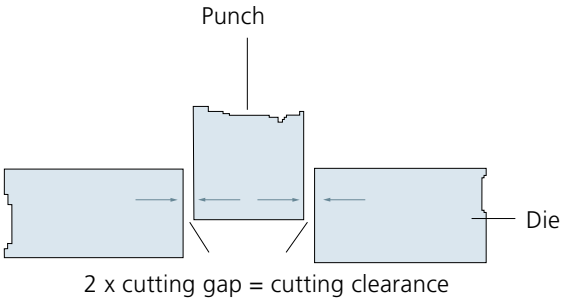
– Sheet thickness not permitted

Stripper dimension corresponds to punch dimension + 0.5 mm all the way around/+ 0.5 mm per side

Cutting clearance

The cutting clearance is important for determining the correct die dimension. The cutting clearance changes depending on the sheet thickness to be processed, meaning that the die dimension has to be adjusted.

Cutting clearance



The cutting clearance is the difference between the diameter of the punch and the diameter of the die. It is calculated from the cutting gap, or the distance between the cutting edges of the punch and the die. It is very important to have the correct cutting clearance for punching. If thick material is processed using a die that has excessive or insufficient cutting clearance, the cutting edge of the punch will be under a lot of pressure. This means that the tool life of the punch is reduced considerably because cutting edge can splinter.

Calculating the cutting clearance and die dimension

The cutting clearance is approx. 20% of the sheet thickness s.
Cutting clearance = 0.2 * sheet thickness s
Die dimension = (0.2 * sheet thickness s) + punch dimension

Example:

The sheet thickness s is 1 mm and the diameter of a round punch d is 10 mm. This gives the following die dimension:
(0.2 x 1.0 mm) + 10 mm = 10.2 mm

For a round punch where d = 10 mm, a die where d = 10.2 mm is needed if the sheet thickness is 1 mm.

A cutting clearance of 10% instead of 20% can also be selected to decrease burr formation.
However, this increases the required punching force as well as tool wear.

Tool Data Import

So that customized tools can be used as quickly and easily as possible, all the required tool data is stored on a practical USB flash drive. In this way, new tools can be set up in TruTops Punch in seconds.

Information and benefits

When ordering a special tool, all the data required for programming is stored on a USB flash drive and sent with the tool: tool parameters, technical information, and a tool data file. The tool data is automatically imported into TruTops tool management, which means that you can set up the new tool in TruTops Punch quickly and easily (available from version 4.1).

The Tool Data Import significantly shortens the programming time for parts that have to be processed using a special tool. This eliminates expensive errors and break-in periods on the machine, and there is no need to draw the tool geometry and measure the tool. All of the technical information is available in TruTops Punch. In addition, the geometric data is available in DXF format, for those who do not have TruTops Punch.

Tool life

The harder the surface of a punching tool, the longer the tool life. The high-quality MultiDur coatings from TRUMPF make your tools harder, more resistant, and improve the coefficients of friction. Consequently, a coating prevents the metal particles of the processed material from fusing to the surface of the tool and forming a built-up edge. If a built-up edge is created, particles could break off from the punch on the punch upstroke. These imperfections are contact surfaces that cause additional wear.

However, the protection that a coating offers remains intact even after several regrindings. During the punching process, the majority of the friction originates on the cutting part of the punch, where the coating is not affected by regrinding.

MultiDur TiCN (Titanium Carbo-Nitride)

This coating, which has been tried and tested over many years, is well suited for all TRUMPF Punching Tools. MultiDur TiCN is characterized by its outstanding toughness and durability as well as excellent wear resistance, without being brittle. The tool life is doubled. If the tool is used to punch mild steel, the period before the first regrinding can be doubled. And after regrinding, you can achieve better results as the level of wear is lower.

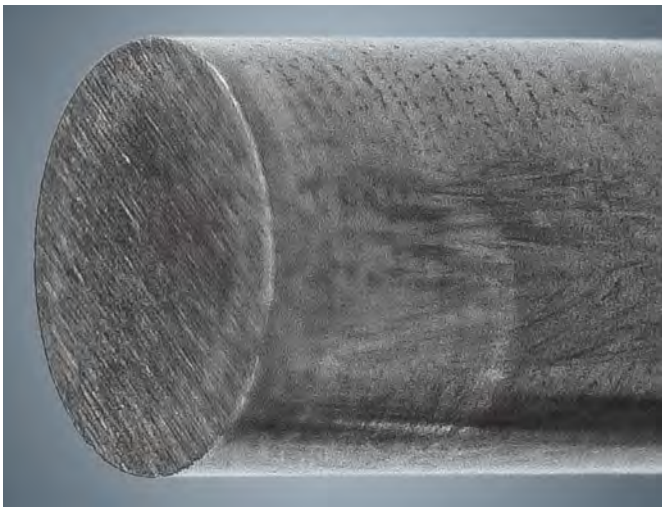
MultiDur Performance

The MultiDur Performance coating is also well suited for the entire punching tool portfolio from TRUMPF. It reduces friction between
the tool and the material and increases the oxidation resistance of the tool. Compared to tools that are coated with MultiDur TiCN, the level of wear is even lower and the tool life is increased by a factor of 4 in comparison with uncoated punches. In addition, less lubricant is required.

1 mm

Uncoated punch after 120,000 punching strokes in stainless steel using lubricants

1 mm



Punch with MultiDur Performance coating after 120,000 punching strokes in stainless steel using lubricants

MultiDur Alu

The MultiDur Alu coating is the perfect coating for processing non-ferrous metals, such as aluminum. It increases the sliding capability of the tool, ensuring that only a small amount of lubricant is needed, if any. The tool life of punches with this coating is increased by a factor of 5 in comparison with uncoated punches. In addition, the occurrence of fine material abrasion and built-up edges is minimized.

Other factors

The degree to which a tool's resistance to wear can increase depends on a number of factors. In addition to the coatings, the properties of the material also influence the tool life of a tool. Stainless and other high-strength steels really put a tool through its paces and can lead to noticeably faster wear in comparison with other engineering steels.

Special requirements often have to be taken into account when using customized tool materials. For special geometries or if a longer tool life is required with the same operating conditions, it is possible to use powder metallurgy tool steels as the punch material. These steels feature an excellent grindability and are very resistant to bending, pressure, and wear.

To increase the tool life of tools, the entire punch should always penetrate into the sheet metal. Our special trimming tools are perfect for trimming the edges of sheet metal if desired (see chapter "Edge quality").

Tool maintenance

Having the right tool maintenance regiment is important for ensuring a long tool life and for a precise and high-quality punching result.

QuickSharp

Regrinding

There are several factors that indicate that tools should be reground:

- The radius of the cutting edges is more than 0.1 - 0.25 mm
- The noise level when punching is noticeably high
- Excessive burring

The earlier a tool is reground, the less it has to be ground. Generally, 0.05 mm is sufficient for regular maintenance of punches and dies. During grinding it is important that there is sufficient cooling to ensure that the cutting edges do not anneal. The QuickSharp automatic grinding machine (see chapter "Accessories") makes grinding especially easy and safe. Using an oil stone to slightly sharpen the tool and demagnetize it after the grinding process is advised.

Setup

When setting up a punch, you must ensure that the punch cutting blades are precisely aligned with the alignment ring. It is also important to select the correct alignment ring size. For example, in the tool cartridge, a size 2 punch should be set up in a size 2 alignment ring. The QuickLoad tool cartridge loading device provides convenient set up (see chapter "Accessories").

EasyUse

When setting up a die it is important to check whether the die has been reground or not, as the shims need to be selected accordingly. The TRUMPF EasyUse tool, standard in the Classic System (patent pending), uses a regrind scale on the die to show how much a die has already been reground, without the need for remeasuring. The corresponding shims are just as easy to find with the hole labeling system. Several shims can be used to compensate for the regrind amount.

Fig.1: EasyUse die

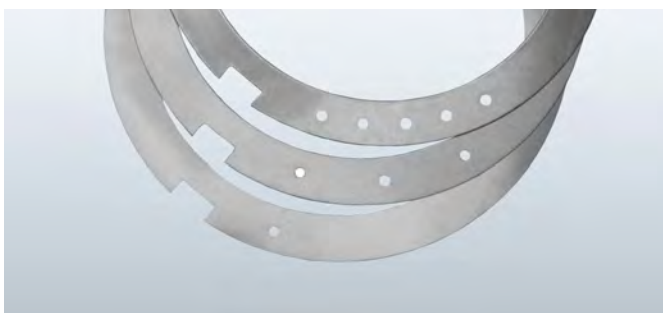


Fig.2: EasyUse shims

The correct shim is identified as follows:

1. **Read the regrind scale interval.**
   The value of the interval indicates the thickness of the shims required in tenths of a millimeter. Cf. fig. 1.
2. **Select the shims.**
   The shims have hole labeling. One hole corresponds to a thickness of 0.1 mm. Select the shims so that their thickness corresponds to the value that has been determined using the regrind scale of the die. Cf. fig. 2.

More tips

- A test stroke with the QuickSet device can check whether the die and punch are positioned for best results (see chapter "Accessories").
- When setting up the tool, it is important to ensure that the correct cutting clearance (see chapter "Cutting clearance") and the correct stripper (see chapter "Stripper selection") are selected.
- The TRUMPF QuickMove device (see chapter "Accessories") allows you to quickly and conveniently transport prepared tool cartridges from the set up station to the machine.

QuickSet

Lubrication

It is essential to have sufficient lubrication for punching and forming processes. However, excessive lubrication can result in fine material abrasion accumulation and can render the tool inoperative. TRUMPF provides the perfect lubricant for your application in a variety of container sizes.

Punching	
Material	**Suggested lubricants**
Steel and stainless steel	TRUMPF punching and nibbling oil
Aluminum and steel	Akamin cutting oil

Tapping	
Material	**Suggested lubricants**
Steel and stainless steel	Variocut B30
Aluminum and aluminum alloys	Variocut C462

Different lubrication intensities can be set on the machine. Increased lubrication is required in particular for processing stainless steel and aluminum to avoid wear and the occurrence of built-up edges. To find the ideal lubrication and/or the ideal lubricant for a specific tool and material, check the technical information for the corresponding forming tool.

Maintenance

Clearing material abrasion and lubricant residues from the tool during removal is advised. Minor damage on the tool can be removed by using an oil stone, for example. A visual inspection of the punch will reveal whether a built-up edge has formed. This edge should be removed. Forming tools, in particular the associated spring elements and ejectors in spring-loaded dies, should be continuously checked and kept free from built-up edges. The punch should then be lubricated, preferably with an oil that does not resinate. The die carrier and the adapter should also be regularly cleaned of dirt and material abrasions and lubricated. Spring elements in forming tools can wear out over time and as a result of dirt and heat production. If this happens, the spring elements should be replaced.

Storage

It is important to store tools in a clean and orderly manner. If the tools are not exposed to dirt then they will not begin to rust and the cutting edges will not be damaged. Conserving the tools with oil will also protect against rust. TRUMPF Punching Tool Cabinets (see chapter "Accessories") create the perfect conditions for storage. Specially designed tool holders carefully store the tools in a dust-free environment, reducing the cleaning times required for the tools.

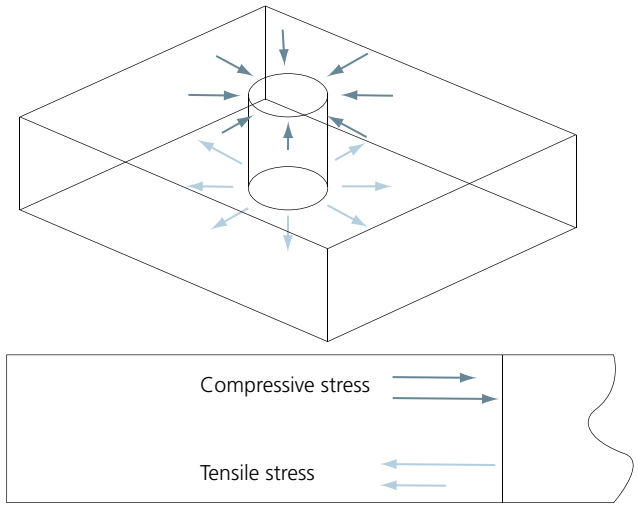
Punching Tool Cabinet

Sheet flatness

Unwanted deformations can occur in the sheets, particularly if a lot of geometries are punched very close to one another. These deformations then have to be corrected in a separate work cycle, which requires a great effort.

Uneven sheets

Tension when punching in sheet metal

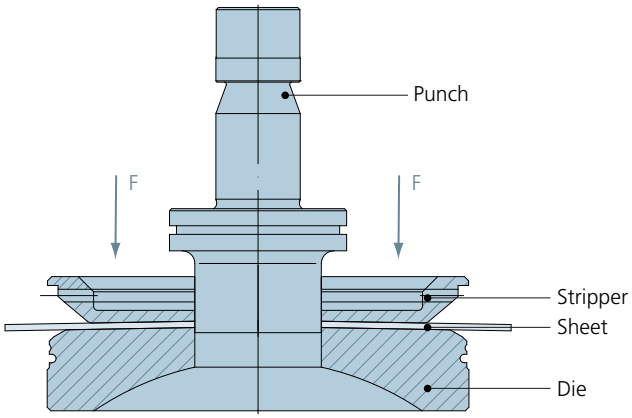


Tensile and compressive stress is generated in the sheet during the punching process. When the punch penetrates the sheet metal, the material on the upper side of the sheet is pulled into the cutting gap and is deformed in the process. This can lead to sheets that are uneven, particularly if a lot of punching strokes occur close together. However, formed sections pushed upward or downward also generate tension in the workpiece, which could severely affect the sheet flatness.

There are numerous approaches to counteracting uneven sheets: tools with a leveling effect, skillfully selected machining strategies, and the active presser foot.

Tools with leveling effect

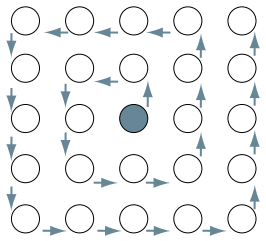
Leveling effect



Tools with leveling effect have a non-regrindable, spherical die and a concave stripper that is milled upward, which are individually adapted to the customer's workpieces. The punch is still a standard punch. It is important that the die and stripper are precisely aligned with each other. This means that the angle of both bevels needs to be exactly the same. This leveling effect generates counter stress in the sheet that limits the tension during the punching process. In this way, the sheet metal distortion can be minimized. Depending on the material, the angle of the die and stripper must be adjusted. Alternatively, the stripper can be milled cylindrically. Here, only the die has to be readjusted if there is a material change.

Machining strategy

Machining strategy from the inside out



■ Diagram of the swirl

The tension in the sheet can also be decreased by using a skillful machining strategy. A good even surface can be achieved with a sophisticated setting for producing the punches and formed sections in the sheet. However, there are no rules on how to do this. The right strategy can only be discovered through experience. It may be helpful to process the sheet metal in a swirl formation, working from the inside out.

Active presser foot

In addition to the approaches previously discussed, an active presser foot can also be used during processing to counteract the surface tension. On the upstroke of the punch as it pulls out of the sheet, the sheet is held steady by the stripper and is not pulled upward. Therefore, the sheet metal cannot become wedged with the punch when the punch returns to its working height.

With malleable materials such as copper or aluminum, the presser foot may also have the opposite effect as the presser foot pushes against the sheet and may result in the sheet metal sagging. This risk can be reduced on machines that have an adjustable presser foot pressure. To improve the positioning accuracy and the cut quality of the punches, the "delayed single stroke – precision stop" can also be activated on the machine.

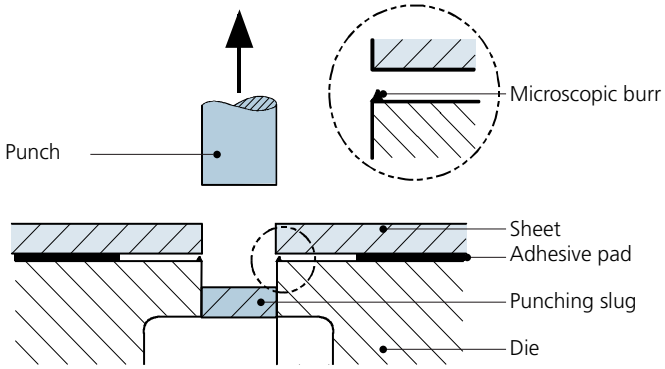
Low-scratch/scratch-free processing

The standards expected of the processed sheet metal surface finish are constantly increasing. Whether you are producing housings, facades or devices, TRUMPF offers a range of solutions for minimizing scratches and imprints during sheet processing. These solutions can be combined with an existing tool inventory.

Occurence of scratches

When punching a workpiece, the friction between machine parts, tools, and the workpiece can cause scratches to occur on the upper side and underside of the workpiece. A microscopic burr on the upper edge of the die is particularly critical as it can cause scratches. Size 1 dies should not protrude over the intermediate ring as the risk of scratching would be too high.

Occurrence of scratches



Avoiding scratches

Intermediate ring with Ampco insert

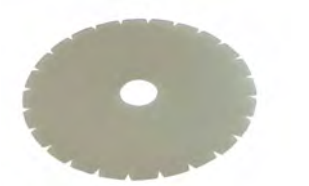
1. Ampco

The malleable and wear-resistant Ampco alloy, made from copper, aluminum, and tin, prevents scratches on the underside of the sheet due to its flexibility and lubricating effect.
Ampco alloys are particularly good at preventing scratches when used with intermediate rings for forming dies. The intermediate rings are supplied with an Ampco insert for thin sheets or with an Ampco lid for all sheet thicknesses. An ejector for forming tools is also available with this option.

Intermediate ring with brush insert

2. Brush inserts

Another possible method for reducing scratches on the underside of the sheet is to use brush inserts in dies and intermediate rings. They are flexible and are particularly well suited for use with thin sheet metal. As the brush inserts are approx. 1 mm higher than the upper edge of the tool, they prevent the tool surface from making direct contact with the sheet being processed.



Adhesive pad

3. Adhesive pads

Adhesive pads are pre-formed, self-adhesive films that are 0.3 mm thick. Different adhesive pads can be adhered to dies, intermediate rings (for the underside of the sheet), and strippers (for the upper side of the sheet). They prevent the formation of scratches and stripper imprints on the workpiece. They are a simple and inexpensive way to improve the surface finish on the workpiece. With the QuickPad pad attaching device from TRUMPF, adhesive pads can be applied without difficulty and without air bubbles (see chapter "Accessories"). Before applying the pad, the tool should be cleaned and all grease removed so that the adhesive pad sticks securely.

4. Specially coated stripper

The specially coated stripper prevents imprints and scratches from forming on the upper side of the sheet. When it is used as an active presser foot there are virtually no imprints compared to an uncoated standard stripper. The stripper has a permanent coating that is wear-resistant as a result of its smooth, dirt-repellent surface, and material abrasions have very little chance of sticking to the surface. The high-quality coating gently transfers the presser foot pressure to the sheet.

Specially coated stripper

5. Correct tool maintenance

Another measure that can be taken to avoid scratches is regular tool maintenance. If there are signs of wear, such as abrasions or damage to the tool lips, the punch and die must be reground on the grinding face to ensure that low-scratch processing can continue. The correct shims must then be placed underneath the reground die (see chapter "Tool maintenance").

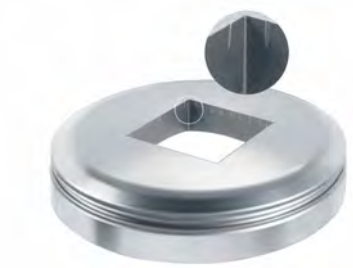
6. "Descending die" or "active die" machine option

By using the descending die or active die, sheet metal parts can be produced with an outstanding surface finish. As the descending or active die moves downward, there is no contact between the die and the sheet during the travel motion.

7. Slug retaining function

Slug retention dies prevent the punching slug from being pulled upward on the upstroke of the punch and the travel motion from scratching the sheet metal. During the punching stroke, the high forces exerted cause the material to enter small keyways in the die. If the punching slug on the punch is then pulled upward, it is held back by the keyways that are aligned in the opposite direction. Using beveled punches is another possibility. The use of slug retention dies is advised if the exhaust system on the machine is turned off to prevent scratching.

Warning: If you are working in nibbling mode, the slug retaining effect described is not possible.



Slug retention dies

8. Brush table

The use of brush tables prevents contact between the underside of the sheet and machine and tool parts and machine parts that cause scratches, in particular the die. The sheet slides along on the brushes. In contrast to tables that are equipped with ball rollers, where the ball tracks may show up on the underside of the sheet, the brush table does not leave an imprint.

Brush table

Tips for practice

Working with an active presser foot

Working with an active presser foot considerably reduces deformations in the sheet and therefore, reduces scratches. Using a specially coated stripper can prevent imprints from forming.

Elevated working height

Scratches on the upper side of the sheet that are caused by the stripper can be prevented by using an elevated working height (stripper is 1 mm higher).

Other measures

- The punch and die should be precisely aligned with one another to avoid burr formation (for example, by using the TRUMPF QuickSet device, see chapter "Accessories") and regularly reground (for example, by using the TRUMPF QuickSharp device, see chapter "Accessories").
- Cleaning table surfaces, brushes, and brush fields daily will prevent the formation of deposits that may cause scratches. Readjusting or replacing the brushes and brush fields as and when required is advised.
- Polishing the upper edges of dies and intermediate rings, and the underside of the stripper, will also help to prevent scratching.

Increasing dimensional accuracy

In some cases, it is necessary to ensure a particularly high level of accuracy, for example when producing boards or punches for joints. TRUMPF has a range of solutions for increasing accuracy.

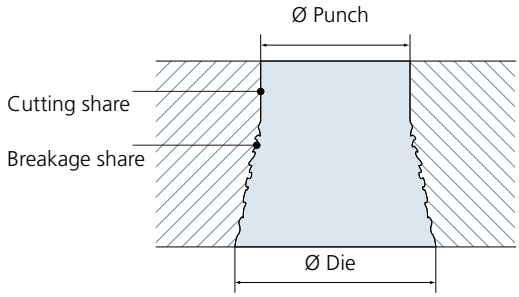
Restricted tool tolerance

TRUMPF Punching Tools are high-precision tools and are manufactured as standard with restricted tool tolerances. However, in particular circumstances it may be sensible to restrict the manufacturing tolerance of the punch and die even further. This is advised when processing thin sheet metal, for example, using very narrow cutting gaps.
The following table shows the manufacturing tolerances and restricted tolerances of standard tools for punches and dies.

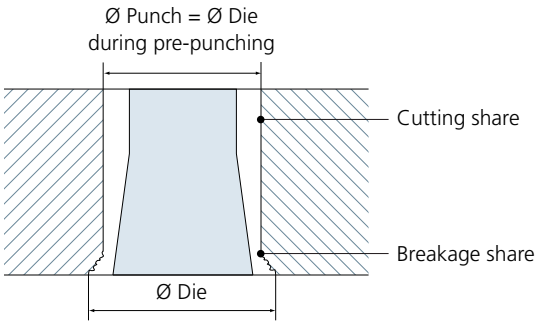
Manufacturing tolerances of standard tools (in mm)		Restricted tolerances (in mm)	
Punch	0.00	Punch	0.00
	- 0.03		- 0.01
Die	+ 0.05	Die	+ 0.03
	0.00		0.00

Punching precision fits

Cutting shares for normal punches in comparison with precision fits



■ Normal punch



■ Punching a precision fit

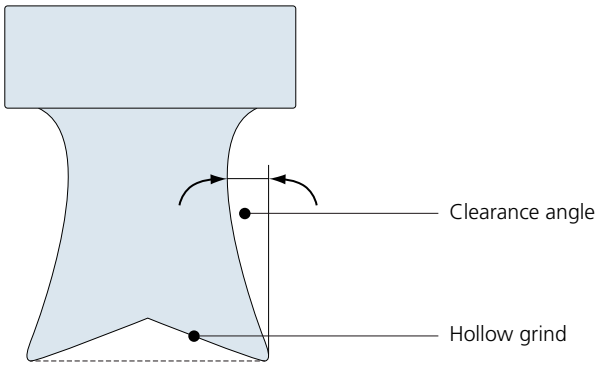
In addition to having the ability to restrict tolerances, TRUMPF offers another solution for high-precision punches: a special-purpose punch for precision fits. The tolerance class that can be achieved varies depending on the measurement range and is approx. H9/H10. The tolerance is also influenced by the sheet thickness and material quality. Precision fits are more exact as the cutting share is increased by the following values in comparison with normal punches:

	Normal punch	Punching a precision fit
Cutting share	33%	80%
Breakage share	67%	20%

Increasing dimensional accuracy

Operating principle

Special-purpose punch for precision fits (for post-punching)



To increase the cutting share when punching precision fits, the punching process must take place in two working steps.
A special-purpose punch with a particular structure for precision fits is required.

1. Pre-punching

The first work step consists of pre-punching using a standard punch where the diameter is reduced by the size of the cutting clearance (see chapter "Cutting clearance").

Pre-punching diameter d = punch dimension - cutting clearance

Example: Round 4 mm punch in 2 mm sheet, cutting clearance: 0.4 mm
Pre-punching diameter d = 4.0 mm - 0.4 mm = 3.6 mm

2. Post-punching

In the second work step, the special-purpose punch for precision fits is used for post-punching. A standard die with a cutting clearance of approx. 0.1- 0.2 mm can be used for this.
The special-purpose punch has a larger clearance angle and a hollow grind and, therefore, has an extremely sharp cutting edge, which is used to scrape out the hole.

Punch with integrated alignment ring

When processing sheet metal thicker than 2.5 mm or using nibbling mode, using a punch with an integrated alignment ring is advised. This prevents the punch from twisting in the event of off-center load and heavy pressure.

Edge quality

Sharp sheet edges present an injury risk and are particularly undesirable on visible edges. In these cases, it is often necessary to perform secondary processes to remove burrs. With its special tools, TRUMPF demonstrates how the edge quality can be improved with complete processing on TRUMPF punching as well as on punching and laser cutting machines.

MultiShear slitting tool

MultiShear slitting tool

When separating sheet metal parts, conventional slitting tools often create annoying nibble marks. By contrast, the MultiShear slitting tool for TruPunch and TruMatic machines, ensures exceptional edge quality and saves on costly secondary processes. The MultiShear can be used for outer and inner contours as well as for joint slitting cuts. The MultiShear die has brush inserts for low-scratch processing. When the sheet is moved, it slides across the brushes so that there is no direct contact between the sheet and the die. For cutting close to formed sections, a bi-level stripper is available. The edge quality is further improved by subsequently using a roller deburring tool (see next page).

MultiShear for trimming

The TRUMPF MultiShear for trimming is specially designed for trimming sheet edges without leaving marks.
When trimming with the MultiShear, the overlap, i.e. the separated sheet metal strip, should be at least 3 mm wide. An overlap of 10 mm is recommended. This ensures the lowest possible wear on the tool and the highest possible part quality. Compared with conventional tools for trimming, this small overlap saves on material and costs. In addition, the punch is supplied with a MultiDur Performance coating to prolong the tool life (see chapter "Tool life").

Trimming punch with bevel

Trimming punch with bevel

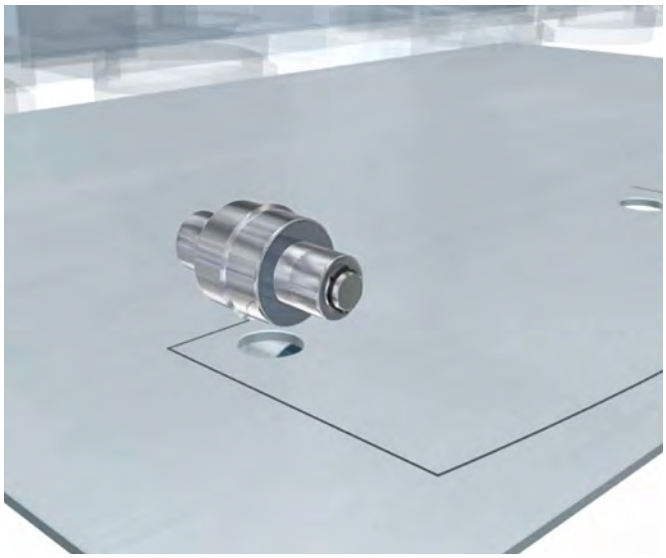
The trimming punch with bevel offers another option for trimming.
The geometry of the punch makes it stable and possible to use from all four sides.
The TRUMPF MultiDur TiCN coating also ensures that the punch is particularly resistant to wear and can, therefore, be used longer (see chapter "Tool life"). The integrated alignment ring prevents the punch from twisting during processing.

Edge quality

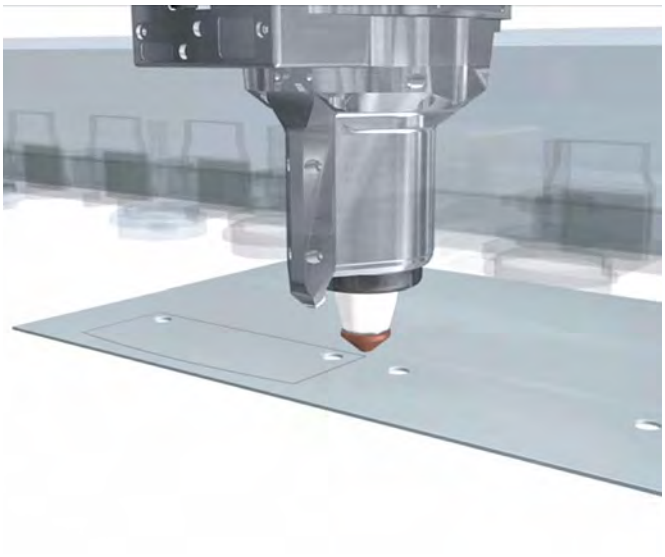
Chamfered laser edge

When producing laser edges, a chamfer is often required to round off the sharp 90° edges. This guarantees simple and safe handling.

With the "chamfered laser edge" function, this is easy to do. On TruMatic 6000 and TruMatic 7000 machines, laser edges can be quickly refined by using the roller pinching tool to chamfer, without having to adjust the laser parameters or perform secondary processes. First, a notch with a 120° angle is made in both sides of the sheet metal using a roller pinching tool. Then the laser separates the sheet by directing the cutting beam at the notch base. The result: a perfectly chamfered laser edge.



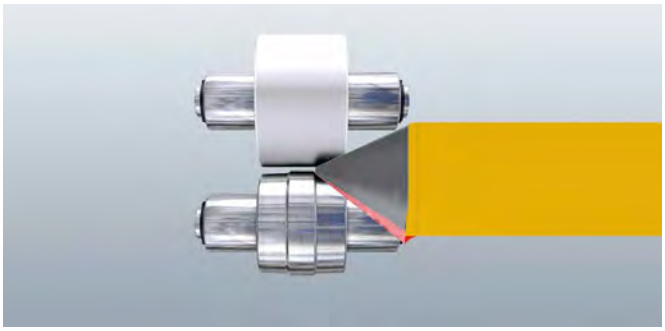
Notch. The roller pinching tool creates a 120° notch on both sides.



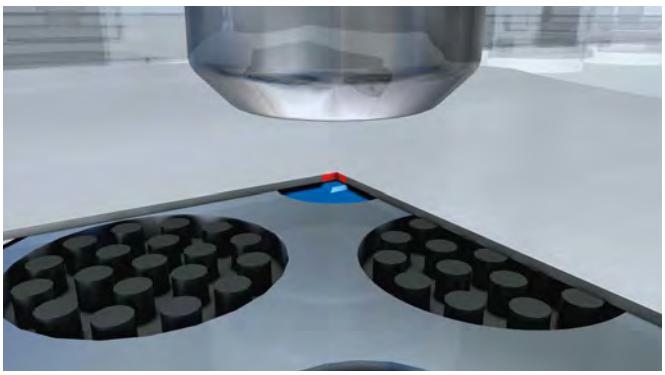
Laser cut. The cutting beam is directed at the notch base and perfectly separates the sheet by chamfering.

Deburring

With the roller deburring tool and the deburring MultiTool, you can produce virtually burr-free sheet metal parts directly on TRUMPF punching as well as on punching and laser cutting machines. The quick and gentle deburring process improves productivity and quality.
The roller deburring tool works quickly and accurately with maximum joint speed. It has a specially formed embossing roller that dislodges the burr and chamfers the edge. You can achieve an even better edge quality if the MultiShear slitting tool is used as well. For forms with radii smaller than 20 mm, the deburring MultiTool from TRUMPF with three integrated embossing inserts in the die can be used. This tool is used with a single stroke or in nibbling mode and dislodges the burr at the corners and small contours.



Roller deburring tool: the embossing roller (below) dislodges the burr (red) and chamfers the sheet edge (gray).



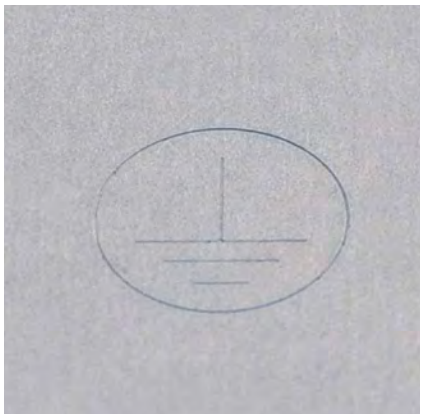
Deburring MultiTool: the embossing insert in the die dislodges the burr at the corner and chamfers the sheet edge.

Embossing quality

In practice, sheet thickness is rarely consistent and, according to DIN EN 10139, may even exhibit tolerances within a batch. Variations in the sheet thickness may negatively impact the forming and embossing processes and therefore, part quality. This means that imprinting and identification marks have to be made in the sheet at varying depths and the circumstances for formed sections vary as well. TRUMPF provides a simple solution with adaptive stroke calibration. You can determine the exact sheet thickness before processing and adjust the tool in use to the sheet thickness.

Adaptive stroke calibration

Imprinting too deep.



Imprinting too shallow.

Ideal imprinting – with adaptive stroke calibration.

Using adaptive stroke calibration and the calibration tool, TRUMPF punching machines as well as punching and laser cutting machines can determine the sheet thickness on their own, avoiding imprinting that is too deep or too shallow. After the measuring procedure, the machine accurately adjusts the dead center of the ram's movement to the measured sheet thickness. As soon as the calibration tool detects the sheet surface, the ram control on the machine recognizes the position of the ram. The ram stroke is then accurately calibrated. This achieves the best possible results in imprinting and forming. Sheet thickness tolerances are automatically compensated and from the outset, products are of the highest quality.
Another advantage: The processing result can be reproduced as required, even on other machines with adaptive stroke calibration.

Calibration tool

Adaptive stroke calibration with a calibration tool is worthwhile for the following processes:

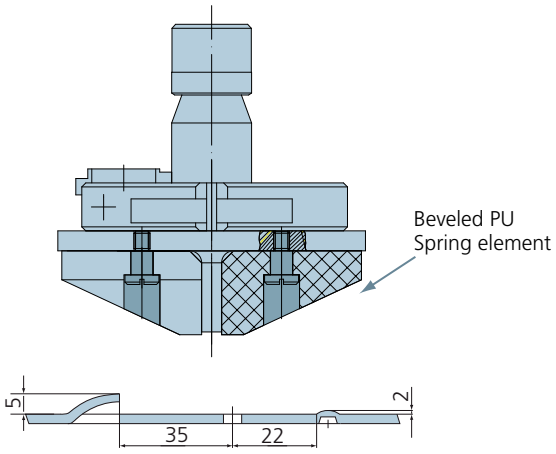
- Embossing tools: for a consistent embossing depth
- Forming tools: for a consistent forming height
- MultiShear: for a consistently good cutting quality
- MultiBend: for angles that always fit
- Roller pinching: for consistent predetermined breaking points

Cutting close to formed sections

It is often necessary to cut sheet metal parts close to formed sections. With the standard slitting tool, you will soon run into problems. If the cut is too close to the formed section, the workpiece or the tool could be damaged. For this reason, TRUMPF offers customized solutions for cutting close to formed sections, specifically a stripper with a spring element made from a special plastic (PU stripper) or the steel presser foot.

PU stripper

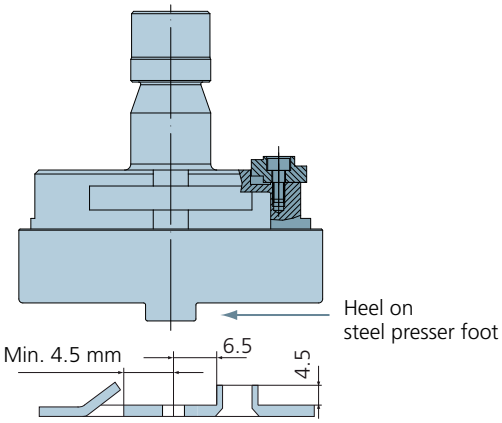
Slitting tool for cutting close to formed sections



The TRUMPF slitting tool for cutting close to formed sections has an integrated PU spring element that replaces the use of a standard stripper. The PU spring element takes on the stripper function. The bevel on the spring element means that it is possible to cut closer to an existing formed section than with a conventional slitting tool with a standard stripper. In addition to the standard PU spring element, TRUMPF offers spring elements for specific requirements that can be customized to your needs.

Steel presser foot

Slitting tool for cutting close to formed sections



To cut even closer to formed sections, a steel presser foot can be used. As the steel presser foot has a heel, it is possible to have a smaller clearance between the separating cut and the formed section. The steel presser foot works in a similar way to an active presser foot by pushing the sheet metal down on the upstroke. Specially adapted spring assemblies are available from TRUMPF.

Particularly high/large formed sections

At the customer's request, TRUMPF can produce forming tools with a new scale. Tools size 5 facilitate the formation of large formed sections in a single stroke and can be used on the new generation of punching as well as of punching and laser cutting machines, without additional machine options. This substantially increases the range of processing options.
The TRUMPF product range includes forming tools size 5 for the "active die" machine option, which enable you to expand the potential of TRUMPF machines even further.

Tried-and-tested punching and forming capabilities

Size 0	Size 1	Size 2
Punch outer circle no bigger than 10.5 mm	Punch outer circle no bigger than 30.0 mm	Punch outer circle no bigger than 76.2 mm

Enhanced size 5 forming capabilities

Size 5	Size 5 active die
Punch outer circle no bigger than 110.0 mm	Punch outer circle no bigger than 110.0 mm

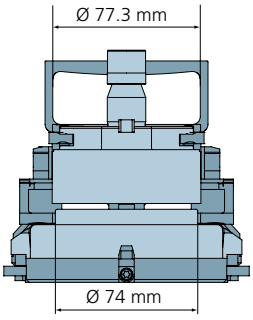
Louver tool size 5

Forming tools size 5

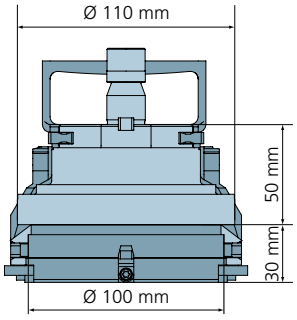
Punches have a limited outer circle size of 76.2 mm (size 2), which is contingent upon the structure of the punching machines. In addition, TRUMPF offers enhanced design capabilities in sheet metal for forming with tools size 5, meaning that punch dimensions up to 110 mm can be achieved. This is made possible by an enlarged installation space for the tools. **No new machine options** are required for forming tools size 5. The tools can be installed directly into your current machine with a tool cartridge size 5 (e.g. TruPunch 1000). The highest quality formed sections are achieved in a single stroke.

The maximum dimensions specified are for general guidance. Forming tools size 5 are always accurately customized to the requirements and produced after an individual consultation.

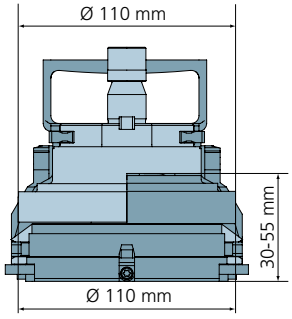
Enlarged installation spaces for tools size 5



■ Maximum dimensions, size 2



■ Maximum punch, size 5



■ Size 5 offers more flexibility for the die height in machines with the "active die" option

Particularly high/large formed sections

Active die

With the "active die" machine option and the appropriate forming tools, either size 2 or size 5, TRUMPF enables formed sections to be processed in heights never seen before. To produce the high formed sections, the die is lowered out of the formed section, enabling an active forming stroke to be performed from below. Since processing with an active die is designed for tools that do not have a beveled key tip, there is more room available for the tool design.
Aside from the forming process, the active die facilitates low-scratch punching and forming processes as it can be lowered automatically and cannot touch the sheet during positioning. This makes it even easier to perform forming processes close to a clamp.

Extrusion tool size 5 for the active die

Tool cartridge size 5

The construction of the tool cartridge size 5 differs from that on the smaller cartridges. With improved support, large tools can be used safely.
The die carrier is integrated into the die. The die itself is supported around the outside with a wide band on the cartridge. The punch with integrated alignment ring is held in place by a larger centering pin on the cartridge and by reinforced spring-loaded cartridge arms. These measures ensure that no standard tool size 2 can be set up in a cartridge designed for a tool size 5. Consequently, setup faults are eliminated.

Tool cartridge size 5

Reliable removal

Removing small parts may cause errors. Parts produced from thin sheets might catch, meaning parts removed using a chip tube may need to be sorted. TRUMPF offers a variety of solutions that can make the removal of small parts simple and safe.

Ejector MultiTool

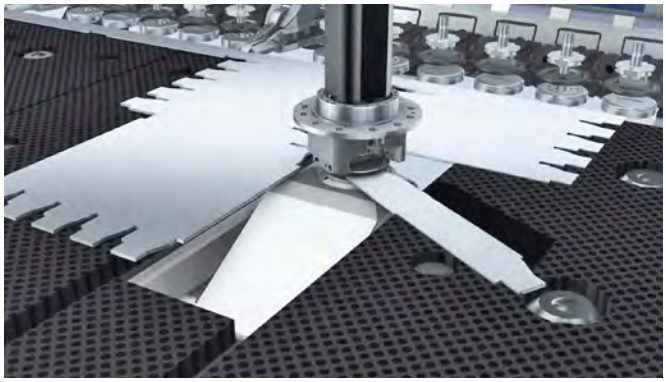
Ejector MultiTool

With small, laser-cut sheet metal parts that have complicated geometries, removal using a part removal flap or a laser console is often not possible. Here the ejector MultiTool excels. This tool for TRUMPF punching and laser cutting machines reliably cuts microjoints and pushes parts securely through the die into the punching console. To do this, the ejector punch is placed on the microjoint slat and cuts it in a single stroke. The stamp has five different round or square inserts. There is something to suit every part geometry, and a round or straight contour can be processed without requiring a tool change.

Bi-level stripper with clamping function for skeleton-free processing

Bi-level stripper with clamping function

The bi-level stripper enables sheet metal parts to be clamped and rotated between the die and the stripper during separation. The sheet metal parts can then be easily ejected through the part chute. Parts that deviate from the standard maximum width of 180 mm and maximum length of 500 mm can be ejected through a part chute with the help of the bi-level stripper.
The remainder strip can also be cut into smaller pieces and ejected through the bi-level stripper, meaning that it is no longer necessary to manually remove the remainder strip.

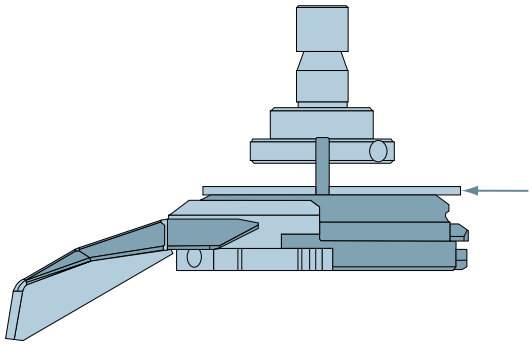


Clamping and rotating parts

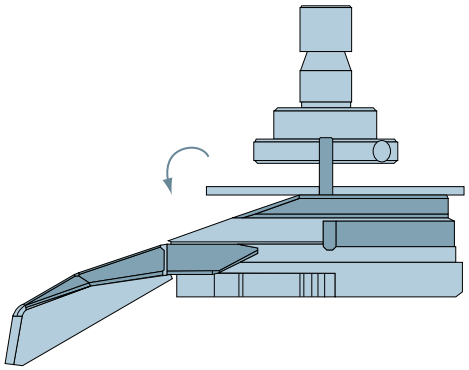
Reliable removal

Slitting tool size 5 for removing small parts

Push-out vs. tilt



- Until now, small parts have been pushed out.



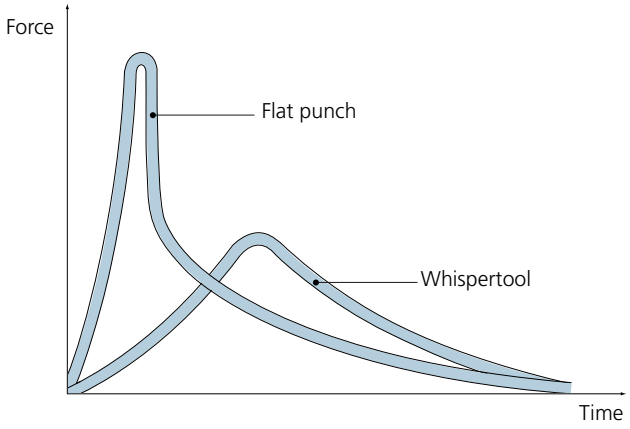
- However, with the slitting tool size 5, small parts can now be tipped by the die and safely ejected.

The slitting tool size 5 greatly simplifies the removal of small parts. The part is tipped by the bevel on the die and is safely removed through the part removal flap or part chute.
However, the slitting tool size 5 for removing small parts also has other functions. It can be used for cutting, as is usual, or for clamping and rotating in combination with the bi-level stripper for skeleton-free processing (see previous page). This simplifies processing on all machines that have an active or descending die.

Slitting tool size 5 for removing small parts

Punching thicker sheets

When processing sheets that are thicker than 3 mm, high punching forces are created which could reduce the tool life of the tool and machine. The punching forces can be decreased with a bevel. The reinforced punch and die versions make the tool more stable. Diameters that are smaller than the sheet thickness can be achieved with a punch that has a guided cutting edge.



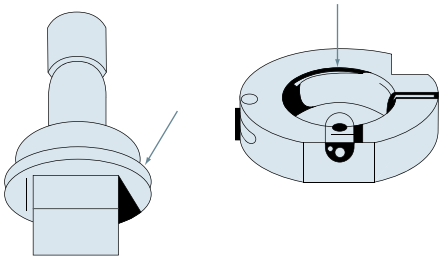
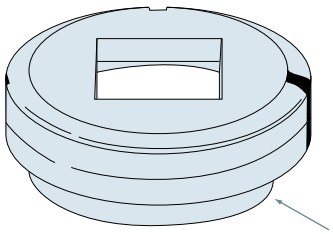
Force/time diagram

Bevel for reducing punching force

Beveled punches reduce the punching force that is required for processing thicker sheets (see chapter "Punching force and shear strength"). Depending on the sheet thickness, the punching force required can be reduced by up to 72% compared to a flat tool. As the surface of the punch penetrates more slowly into the sheet due to the bevel, the force progresses over a longer period of time and only a fraction of the original punching force needs to be applied.

Reinforced version

If the sheet metal is particularly thick, has a high tensile strength, or is made of heavy-duty steel, using reinforced versions of tools is advised to increase the stability and avoid tool breakage. In many cases it is sufficient to just use a reinforced die.

	Punch with reinforced shoulder and alignment ring with larger inside thread	**Reinforced die**
		
Maximum outer circle	■ 42.0 mm	■ 62.0 mm
Application range	■ Dependent on material, sheet thicker than 3 mm ■ For punching and nibbling mode in high-tensile sheets ■ For punching forces from 150 kN ■ For awkward punching geometries	
Result	■ Prevention of tool breakage in the event of punching forces that are too high	

Punching thicker sheets

Punch with guided cutting edge

If you are using punch dimensions that are smaller than the thickness of the material, it is worth using punches that have a guided cutting edge. These are specially designed for punching the smallest holes in sheet metal that is no more than 4 mm thick. The application range of a punch with guided cutting edge depends on the material and the sheet thickness:

Material	Tensile strength	Minimum punch diameter
Stainless steel, chromium-nickel-steel	700 N/mm²	1 x sheet thickness s
Mild steel	400 N/mm²	0.8 x sheet thickness s
Aluminum, aluminum alloy	300 N/mm²	0.6 x sheet thickness s

Coatings

When punching thicker sheets, a high level of friction is generated between the punch and sheet. This causes the tools to wear out quickly. By using coatings (see chapter "Tool life"), the friction between the punch and sheet metal can be reduced, increasing the tool life of the tool considerably.

Punching thinner sheets

Particular challenges arise when punching very thin sheet metal that is no thicker than 0.5 mm. On the one hand, the sheet can be pulled upward by the force of the upstroke during punching; on the other hand, the small cutting clearance required for thin sheets means that the punch and die have to be accurately positioned in the center. TRUMPF has a range of solutions for these challenges.

Slug retention die

Slug retention die

A slug retention die prevents the punching slug from being pulled upward on the upstroke of the punch. This die can be used for the entire punching process. However, this kind of die is particularly recommended for use when processing sheets that are less than 1 mm thick as it prevents the punching slug from catching on the sheet. During the punching stroke, the material "flows" into small keyways in the slug retention die because of the high force exerted. If the punching slug on the punch is then pulled upward, it stays in position in the keyways that are aligned in the opposite direction. It is also possible to use beveled tools such as the Whispertool.

Slug retention dies can also be used for low-scratch processing if the exhaust system on the machine is switched off (see chapter "Low-scratch processing").

Warning: the slug retention effect does not work in nibbling mode.

Fitted stripper

A stripper with the maximum dimensions is used as standard with a MultiTool. This can cause thin sheets to be pulled upward on the upstroke, creating imprints on the sheet.
Using a fitted stripper that is precisely adjusted to the geometry of the MultiTool inserts means that unwanted imprints can be avoided.

Punching non-metallic materials

For some applications, conventional sheet metal is not appropriate and non-metallic materials need to be processed instead.
These can also be processed efficiently on TRUMPF machines and using TRUMPF Punching Tools.
Since it is not necessary to move to another machine and use different tools, non-metallic materials represent an attractive option.
New customers and orders can be acquired and the efficiency of the machinery increases.
To ensure that the interaction between the new material, the machine, and the tool is the best that it can be,
an in-depth consultation is required. TRUMPF specialists have helpful experience in this field.

Application examples

Material type	Application	Feature	Solution
Composite panel	Interior lining in vehicle cabs	Combination of tensile material and elasticity	Punch a plastic layer between two aluminum layers
Wood	Connecting elements in furniture construction without fins, with minimal waste	The wood fibers must be broken before punching	Imprint a contour and break the fiber pattern in a single stroke
Plastic	Profile supports with small diameters for radiotherapy	Plastically deformable material at low temperatures	Burr-free holes in thermoplastic material with a cluster tool and special die geometry
Laminate panel	Ceiling lining	Flawless visual effect without burr formation using low number of punching strokes	Process a laminate panel made from synthetic resin coated paper using a cluster tool with narrow cutting clearance
Polyurethane	Sieve bottoms	Flexible material	Process in a clamping frame, special tools with negative cutting gap

Order forms:

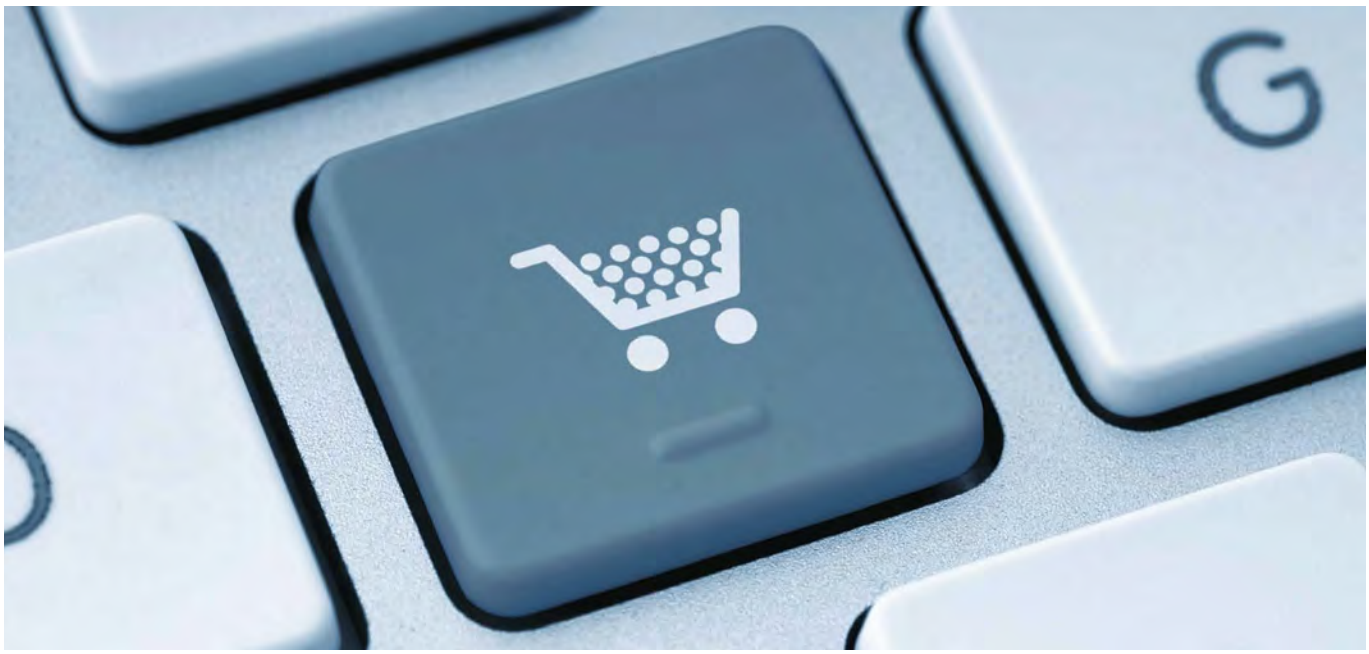
Ordering made easy.

Order forms for TRUMPF tools.

A convenient and easy ordering process is essential for ensuring that your tool is delivered on time. In this chapter, you will find request and order forms that will simplify the ordering process for you. Special forms, e.g. for defining and ordering a forming tool, provide additional supporting information.

Have you thought of everything? Our check list in the front inside cover of the catalog provides helpful tips. Please consider the "important ordering specifications" on each product page as well.

Whether it is by e-mail, phone, fax, or online, we would be happy to advise you promptly and professionally.



Order forms

Standard punching tools

TRUMPF Werkzeugmaschinen GmbH + Co. KG
Fax: +49 7156 303-31150

Company:	**Order no.:**
	Date:
	Page:
Customer number:	**Machine type:**
Contact person:	**Material:**
Phone:	**Sheet thickness s in mm:**
Fax:	**Delivery date:**

☐ Order ☐ Request

Quantity	Name					Form					Dimension	Coating MultiDur	Punch shear			Reinforced version	MultiTool	MultiUse	Price
	Punch											TiCN,							
	Size 0	Size 1	Size 2	Die	Stripper					1 - 40	a, b, d, e, l, R, α	Performance, Alu	Flat	Whisper	Roof		4-, 5-, 6-, 10-station		EUR

For accessory parts and special tools, please see separate ordering list

Comments

TRUMPF Werkzeugmaschinen GmbH + Co. KG
Hermann-Dreher-Strasse 20 · 70839 Gerlingen · Germany
E-mail: export.tooling@de.trumpf.com
Fax: +49 7156 303-31150

Order form

Accessories + special tools

TRUMPF Werkzeugmaschinen GmbH + Co. KG
Fax: +49 7156 303-31150

Company:	**Order no.:**
	Date:
	Page:
Customer number:	**Machine type:**
Contact person:	**Material:**
Phone:	**Sheet thickness s in mm:**
Fax:	**Delivery date:**

☐ Order ☐ Request

Quantity	Name	Dimension (mm)	Order no.	Price/item in EUR

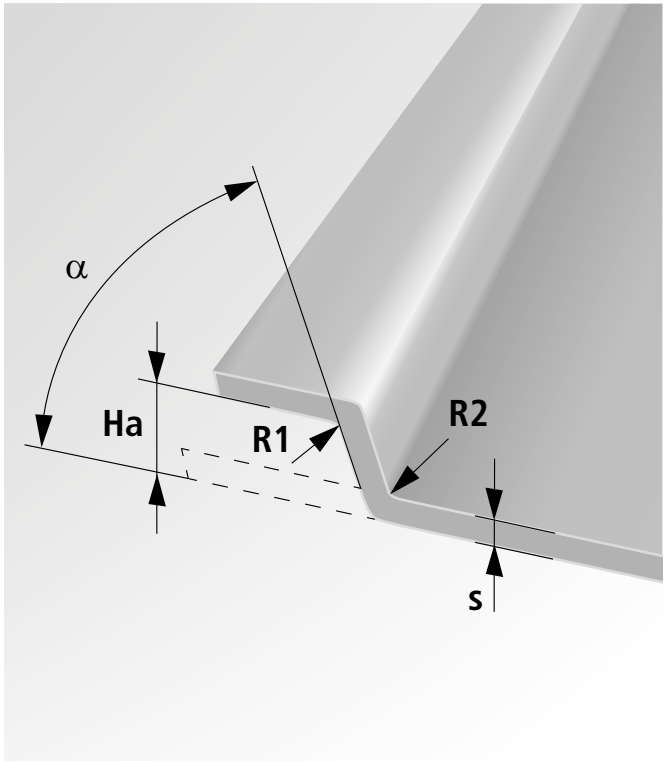
Comments

TRUMPF Werkzeugmaschinen GmbH + Co. KG
Hermann-Dreher-Strasse 20 · 70839 Gerlingen · Germany
E-mail: export.tooling@de.trumpf.com
Fax: +49 7156 303-31150

Stepping tool

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Version:	☐ Continuous process tool ☐ Roller tool
Please note:	For roller tools, the "roller technology" machine option is required
Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Folding height Ha:	mm
Angle α:	°
Radii:	☐ R1: mm ☐ R2: mm ☐ To be determined by TRUMPF.
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

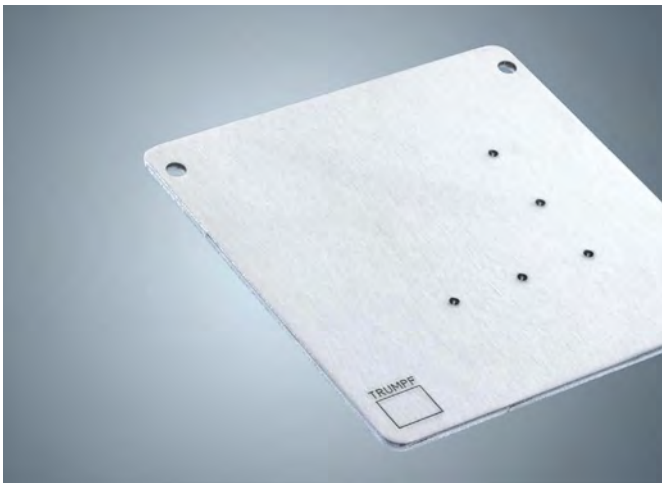
If arc segments are stepped, please include a drawing in a popular CAD format (e.g. DXF).

Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

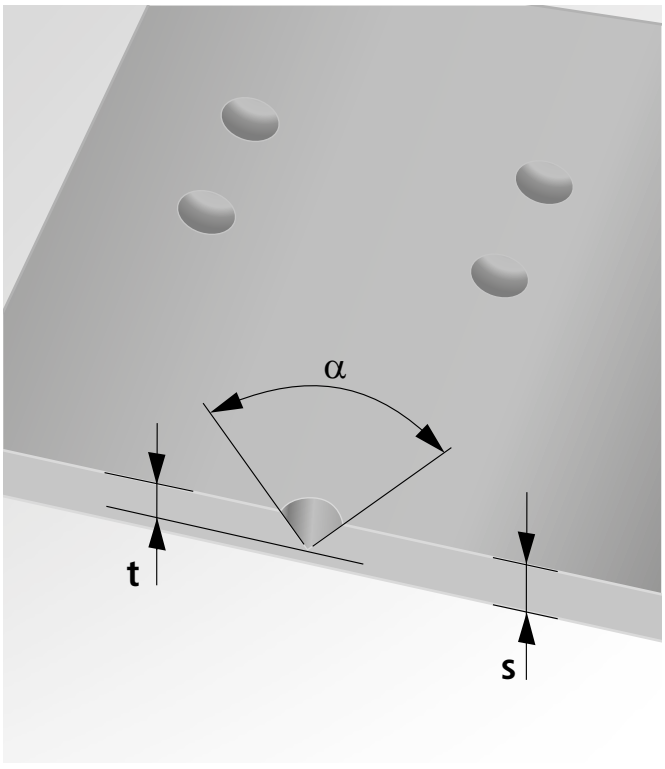
Center punch tool

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Center punch depth t:	mm
Angle α:	°
Embossing direction:	☐ from above ☐ from below



Are there other formed sections within a 50 mm radius?

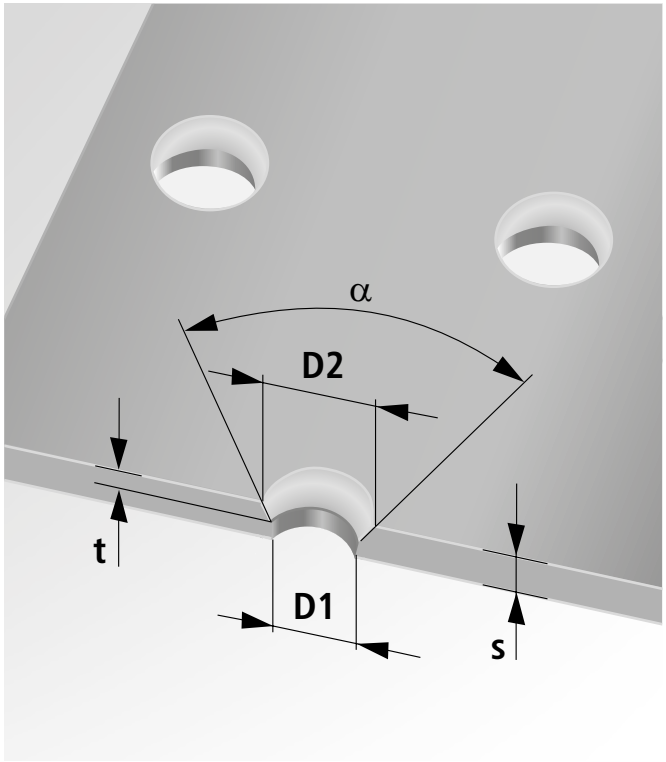
☐ no ☐ yes (please include a sketch)

Sketch/comments

Countersink tool

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Diameter:	D1: mm D2: mm
Countersink depth t (max. 75% of sheet thickness s):	mm
Angle α:	°
Embossing direction:	☐ from above ☐ from below

Are there other formed sections within a 50 mm radius?

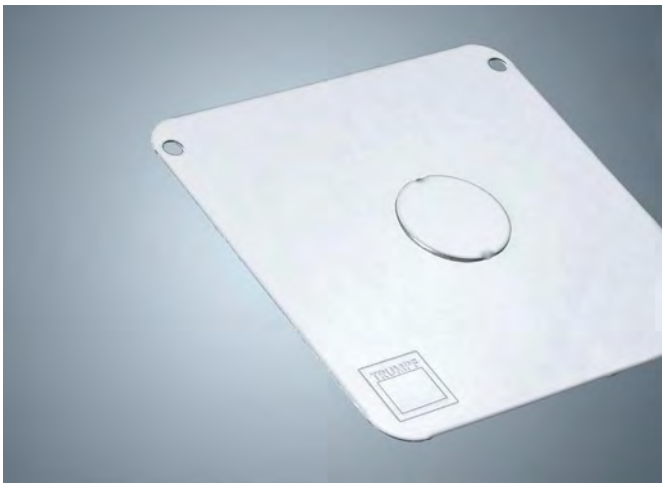
☐ no ☐ yes (please include a sketch)

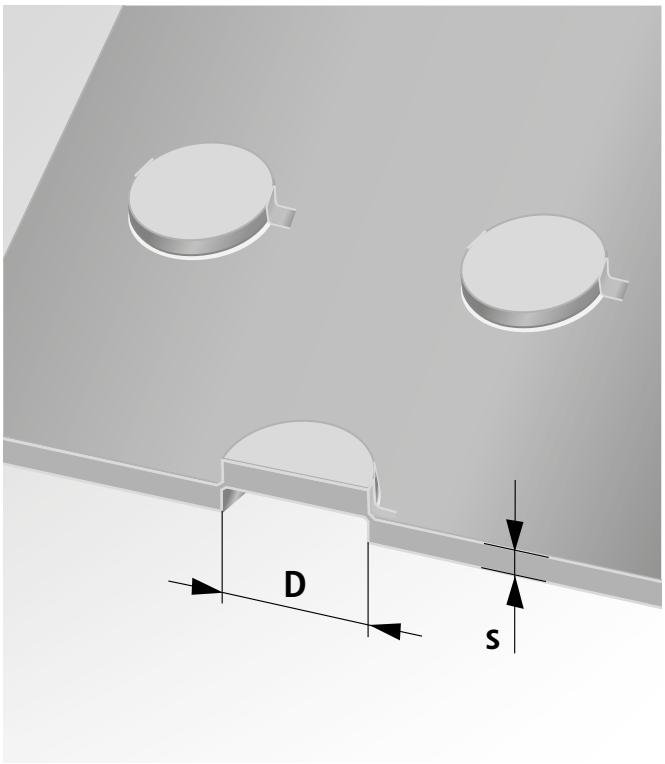
Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Knock-out tool

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	





Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Diameter D:	mm
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

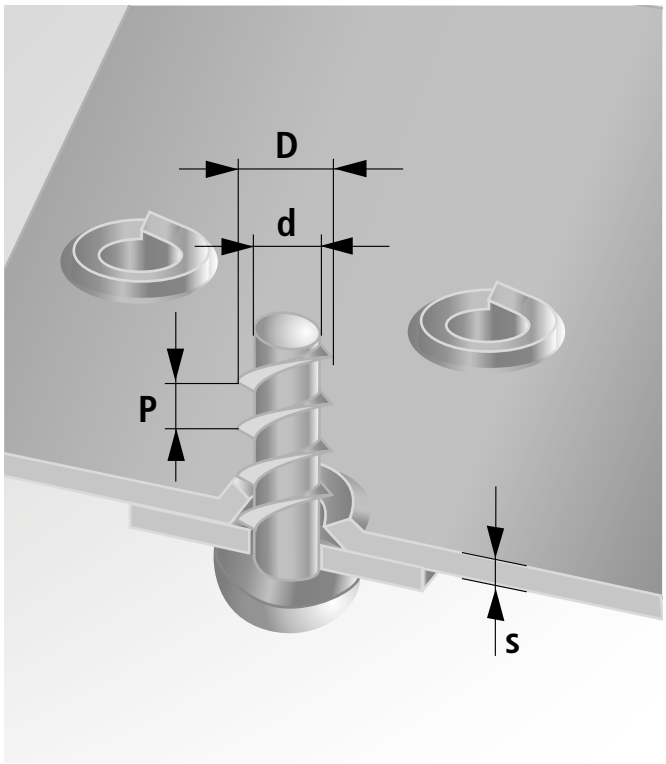
Recommendation: version with 2 tabs

Sketch/comments

Thread punch tool

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Pitch P:	mm (min. 1 x sheet thickness s)
Thread size D:	mm
Core diameter d:	mm
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

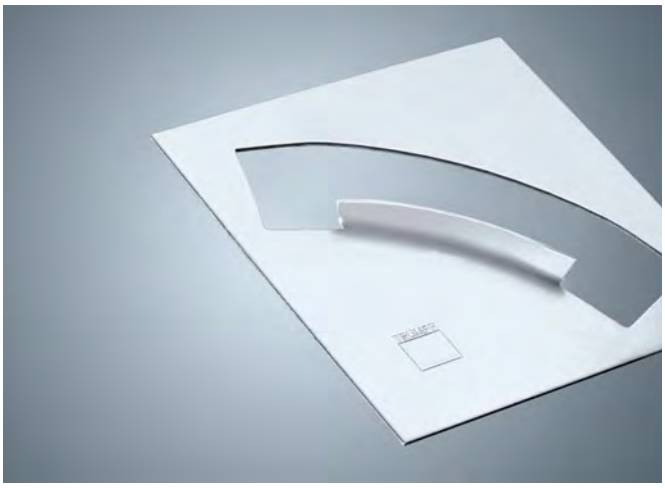
Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Flanging tool



Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

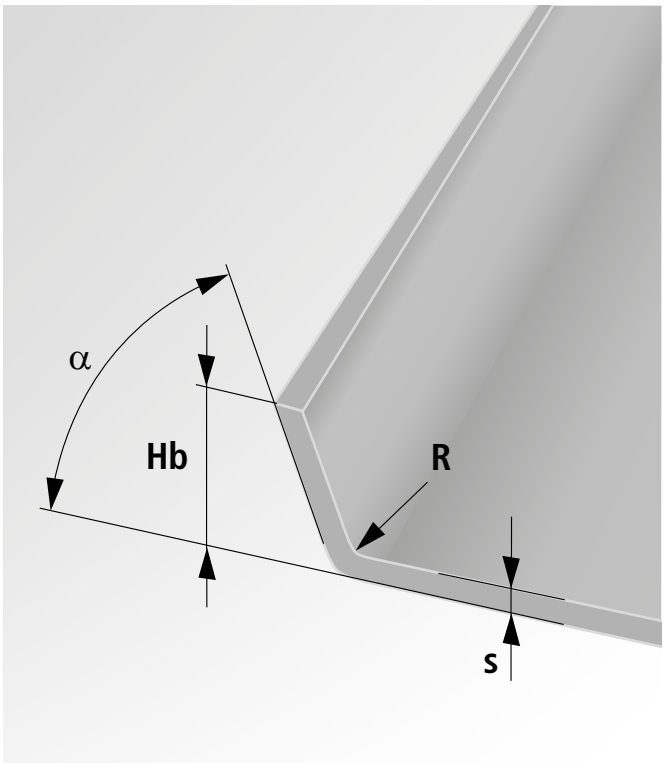
Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height Hb:	mm
Angle α:	°
Radius:	☐ R: mm ☐ To be determined by TRUMPF.
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

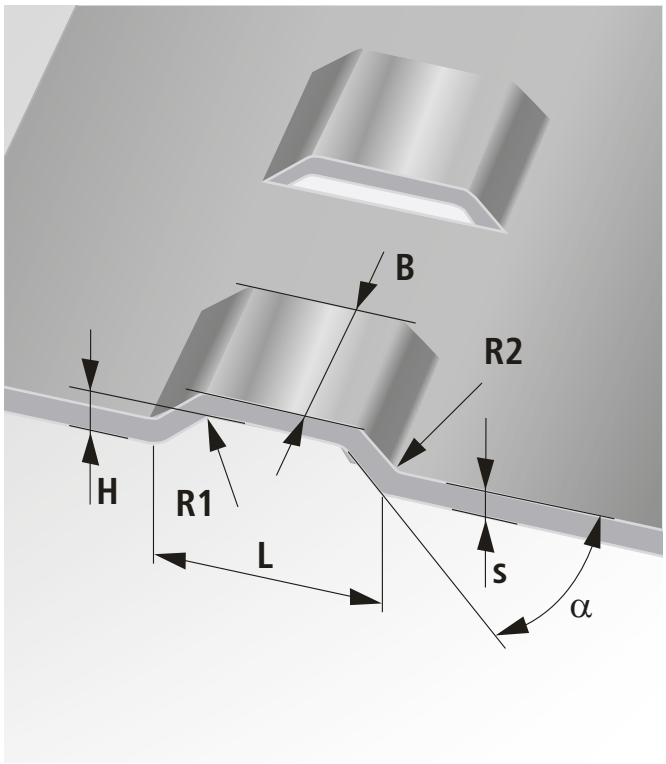
☐ no ☐ yes (please include a sketch)

If arc segments are flanged, please include a sketch.



Sketch/comments

Bridge tool



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technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:			
Material:	☐ ST ☐ SS ☐ AL ☐ _____		
Sheet thickness s:	mm	Height H:	mm
Length L:	mm	Width B:	mm
Angle α:	°		
Radii:	☐ R1: mm ☐ R2: mm ☐ To be determined by TRUMPF.		
Forming direction:	☐ upward ☐ downward		

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

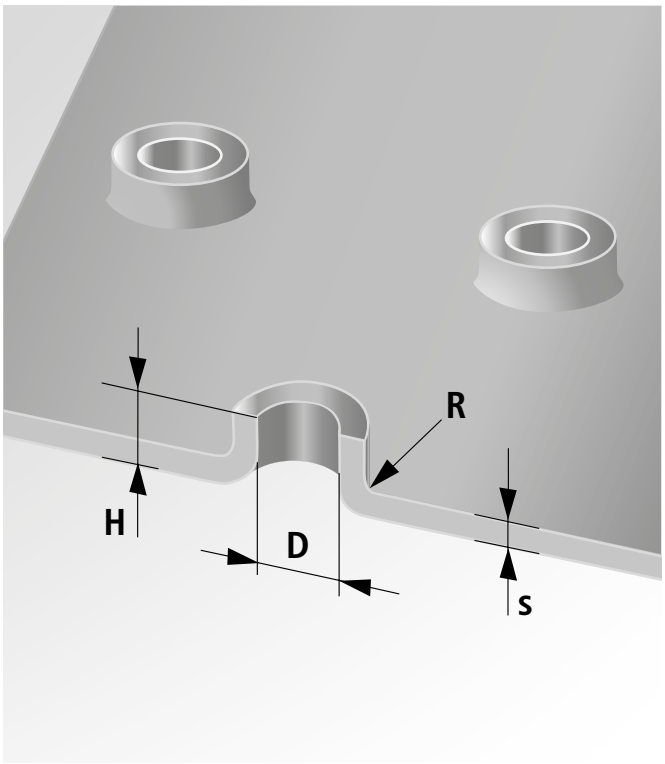
☐ no ☐ yes (please include a sketch)

Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Extrusion tool

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height H:	mm
Diameter D:	mm
Radius:	☐ R: mm ☐ To be determined by TRUMPF.
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include sketch)

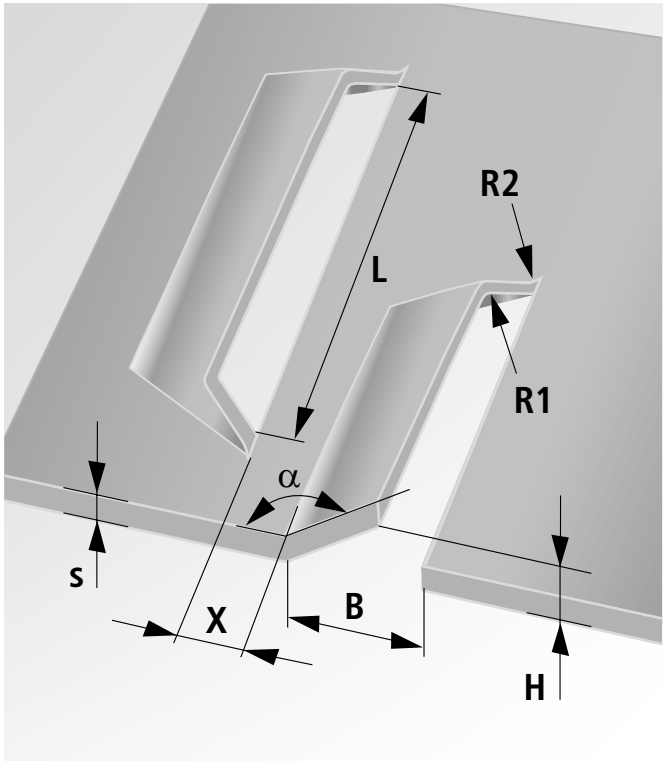
Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include sketch)

☐ Tapping ☐ Thread cutting

Sketch/comments

Louver tool (single louvers)



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technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:			
Material:	☐ ST ☐ SS ☐ AL ☐ _____		
Sheet thickness s:	mm	Height H:	mm
Length L:	mm	Width B:	mm
Angle α:	°		
Distance X:	mm		
Radii:	☐ R1: mm ☐ R2: mm ☐ To be determined by TRUMPF.		
Forming direction:	☐ upward ☐ downward		

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

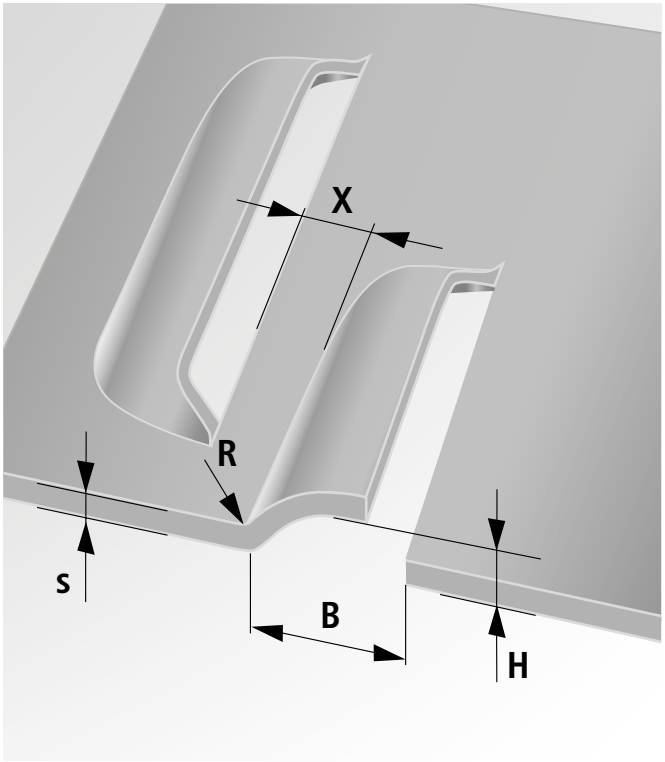
TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Louver tool (continuous louvers)

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height H:	mm
Width B:	mm
Distance X:	mm
Radius:	☐ R: mm ☐ To be determined by TRUMPF.
Forming direction:	☐ upward ☐ downward



Are there other formed sections within a 50 mm radius?

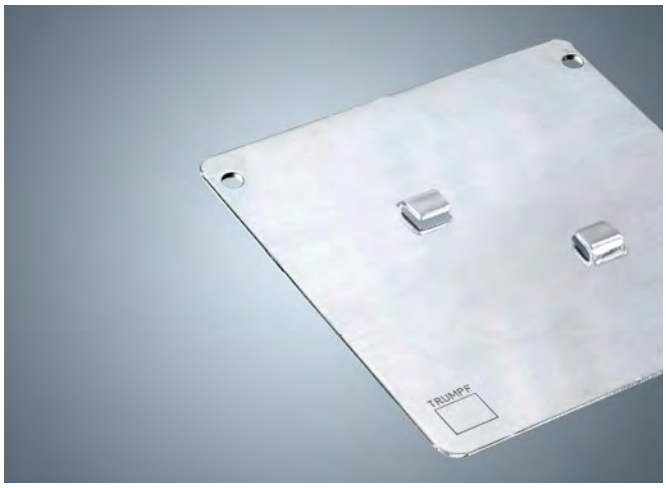
☐ no ☐ yes (please include a sketch)

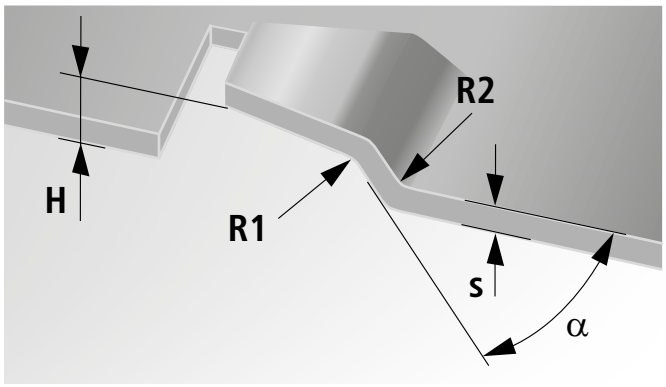
Is the formed section close to the edge of the sheet?

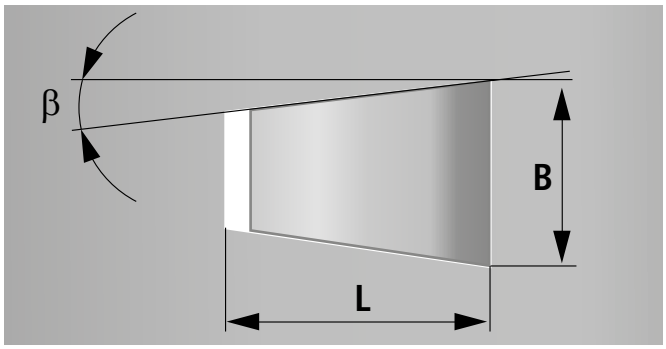
☐ no ☐ yes (please include a sketch)

Sketch/comments

Bracket tool







TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:			
Material:	☐ ST ☐ SS ☐ AL ☐ _____		
Sheet thickness s:	mm	Height H:	mm
Length L:	mm	Width B:	mm
Angle α:	°	Angle β: (2° recommended)	°
Radii:	☐ R1: mm ☐ R2: mm ☐ To be determined by TRUMPF.		
Forming direction:	☐ upward ☐ downward		

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

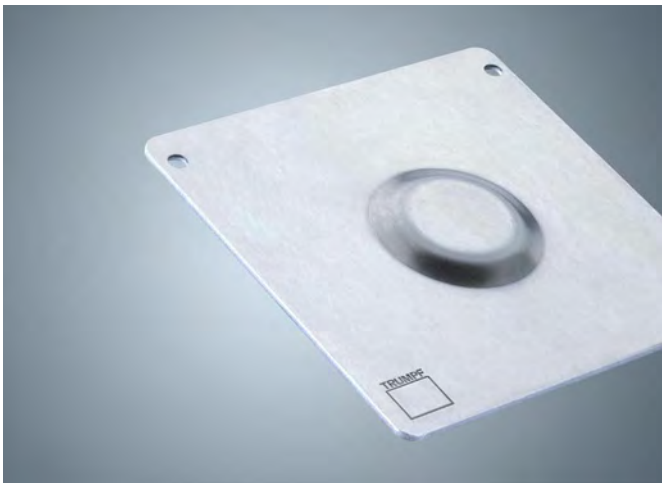
Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

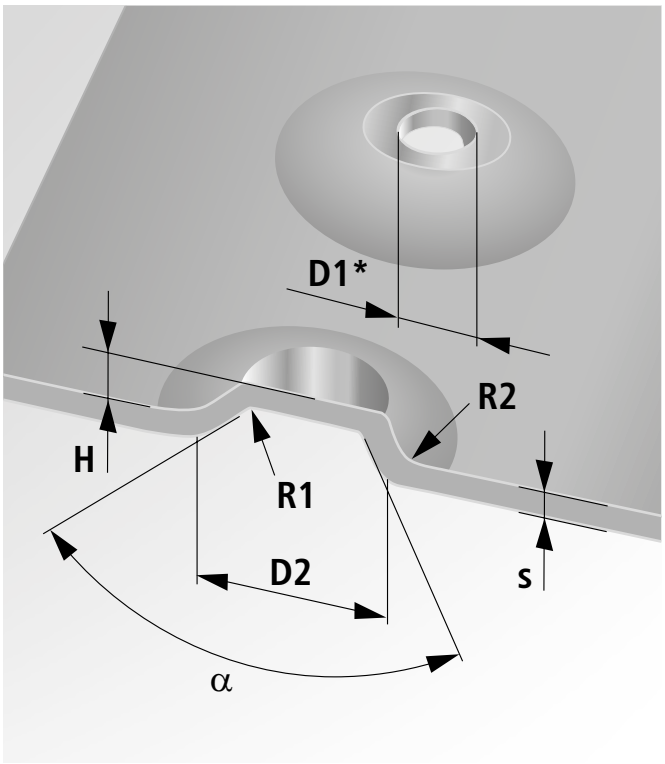
Cup tool



Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:				
Material:	☐ ST ☐ SS ☐ AL ☐ _____			
Sheet thickness s:		mm	Height H:	mm
Diameter:	D1*):	mm	D2:	mm
Angle α:		°		
Radii:	☐ R1: mm ☐ R2: mm ☐ To be determined by TRUMPF.			
Forming direction:	☐ upward ☐ downward			



Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

*) If a punched hole D1 is required, please specify the diameter.

Sketch/comments

Embossing tool

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Outer circle K:	mm
Embossing direction:	☐ from above ☐ from below

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

If available, please send us the logo/symbol as a DXF file.

Sketch/comments

TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Embossing forming tool

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Outer circle K:	mm

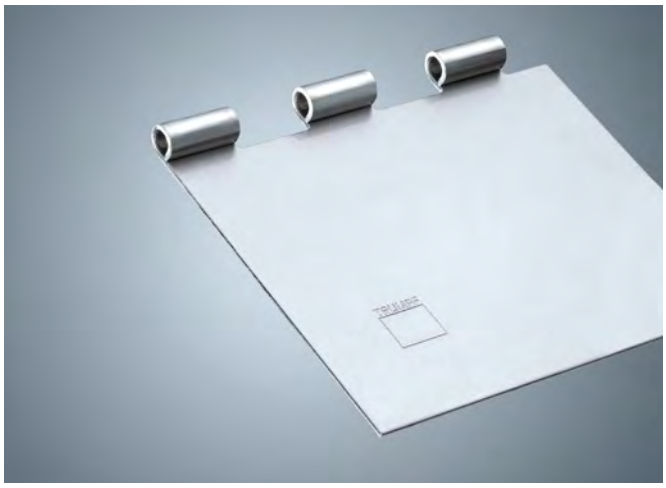
Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

If available, please send us the logo/symbol as a DXF file.

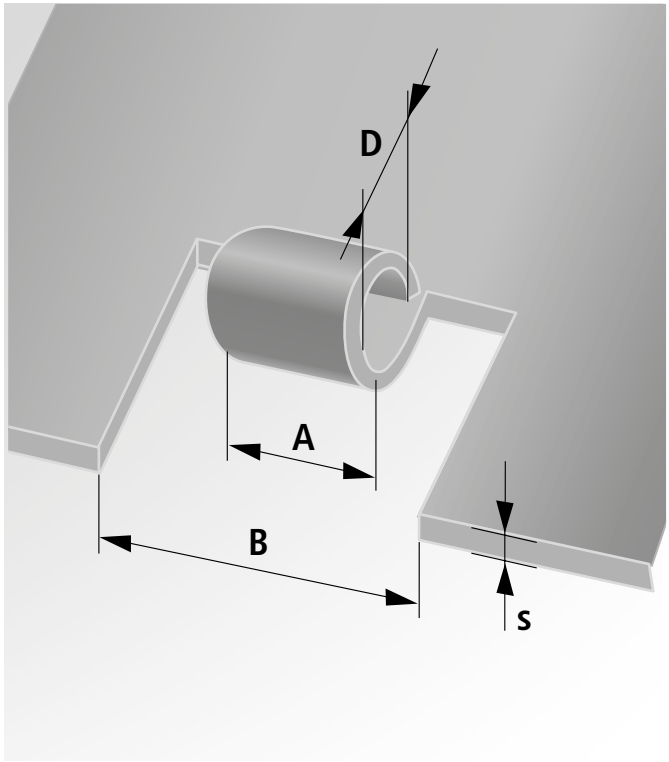
Sketch/comments

Hinge tool



TRUMPF
technik.tooling@de.trumpf.com
Fax: +49 7156 303-30310

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Diameter D:	mm
Hinge length A:	mm
Width B:	mm

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

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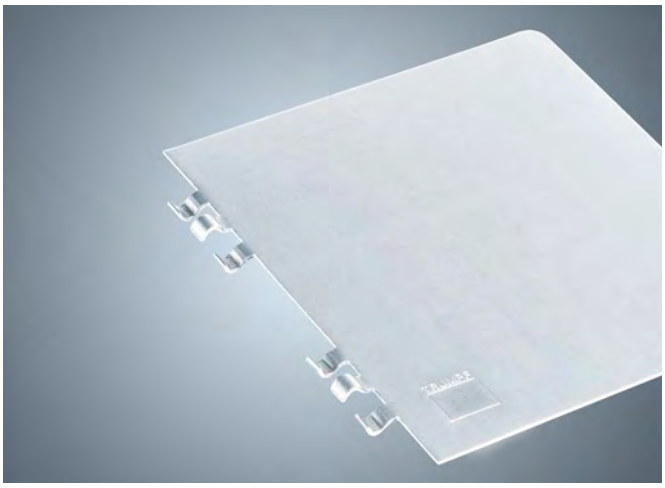
Hinge tool for multiple hinges



Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

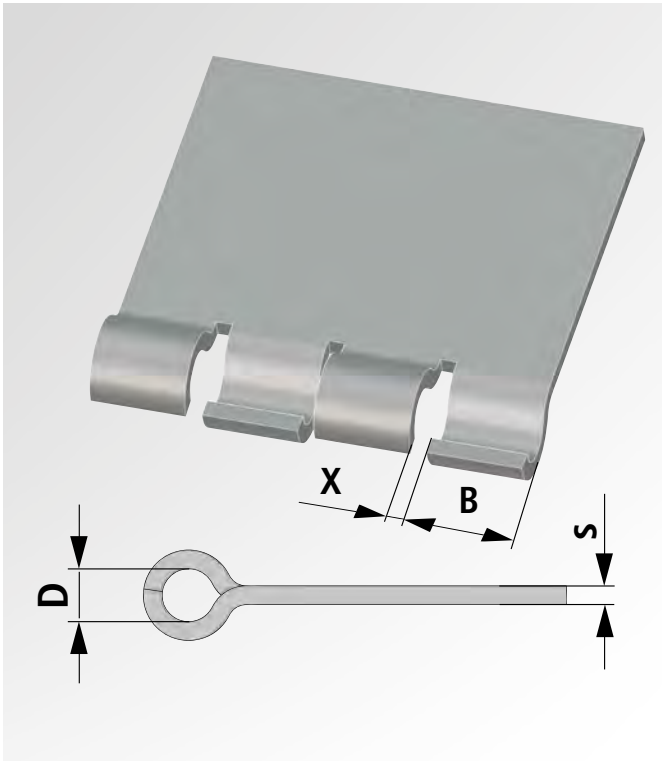
Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Diameter D:	mm
Width B:	mm
Distance X:	mm

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)



Sketch/comments

Countersink forming tool

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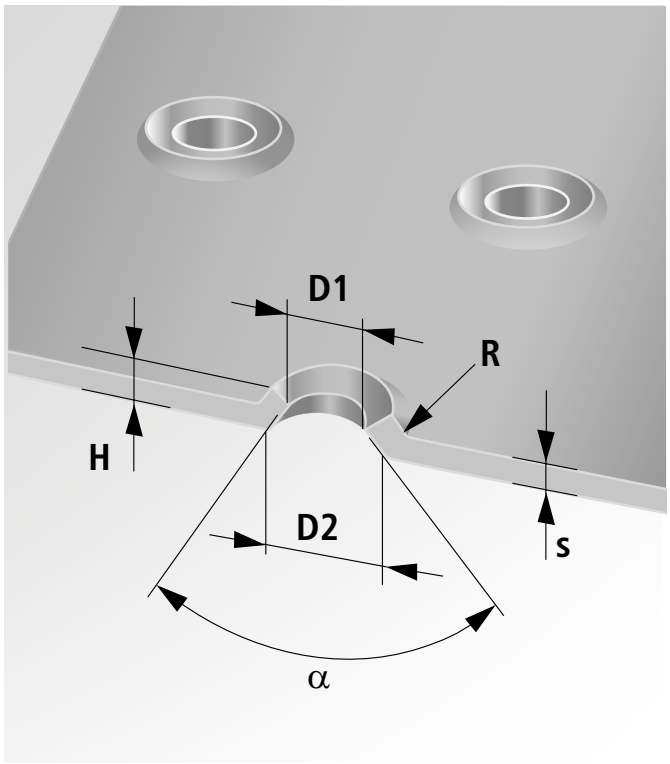

Important specifications (please provide as much detail as possible)

Machine type:				
Material:	☐ ST ☐ SS ☐ AL ☐ _____			
Sheet thickness s:	mm	Height H:	mm	
Diameter:	D1: mm	D2: mm		
Angle α:	°			
Radius:	☐ R: mm ☐ To be determined by TRUMPF.			
Forming direction:	☐ upward	☐ downward		

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

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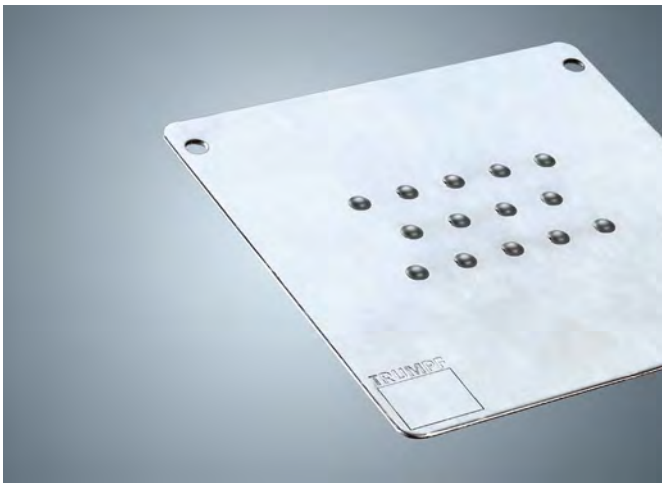
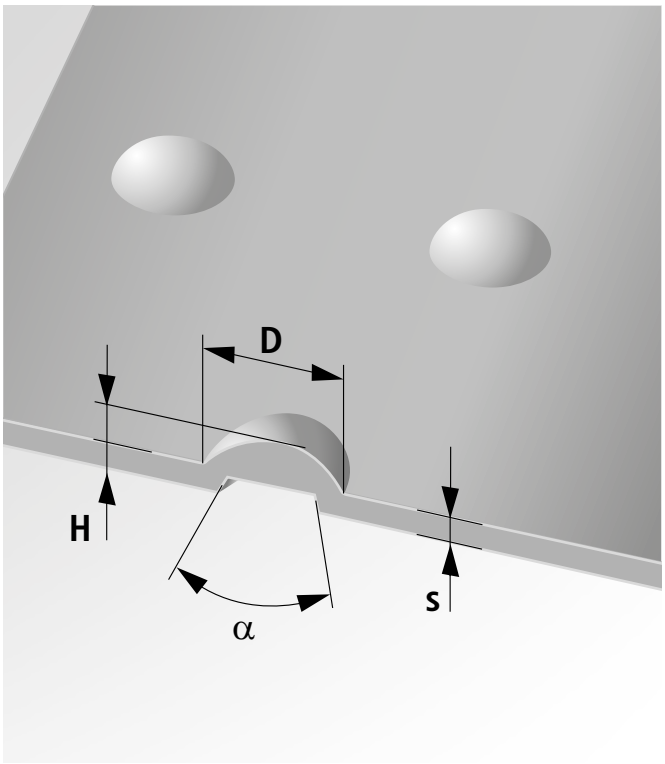
Weld boss tool



Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height H:	mm
Diameter D:	mm
Angle α:	☐ ° ☐ Standard 60°
Forming direction:	☐ upward

Are there other formed sections within a 50 mm radius?

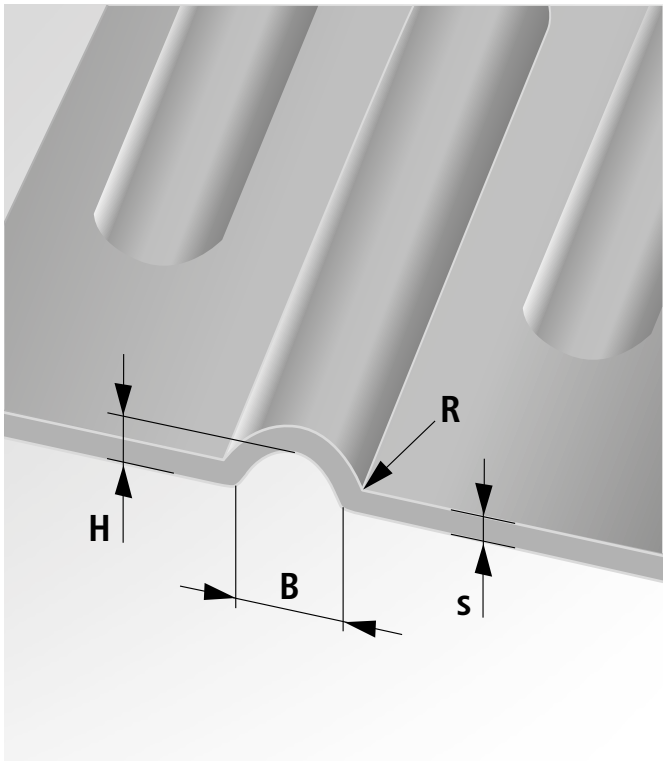
☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

Beading tool



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Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	

Important specifications (please provide as much detail as possible)

Version:	☐ Continuous process tool ☐ Roller tool
Please note: For roller tools, the "roller technology" machine option is required	
Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height H:	mm
Width B:	mm
Radius:	☐ R: mm ☐ To be determined by TRUMPF.
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

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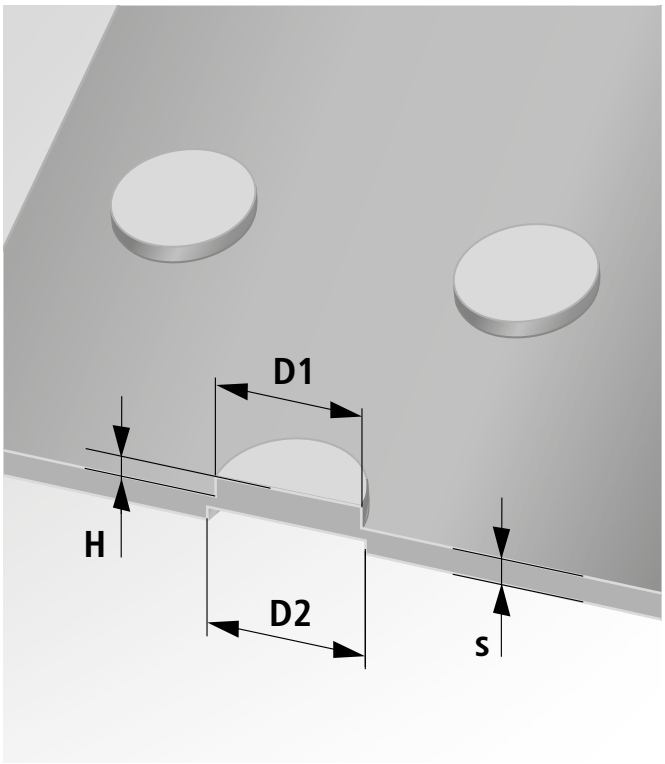
Center boss tool

Company:	
Customer number:	
Street:	
Zip code/city:	
Contact person:	
Phone:	
E-mail:	
Fax:	
Date:	



Important specifications (please provide as much detail as possible)

Machine type:	
Material:	☐ ST ☐ SS ☐ AL ☐ _____
Sheet thickness s:	mm
Height H:	mm (max. 0.5 x sheet thickness s)
Diameter:	D1: mm D2: mm
Forming direction:	☐ upward ☐ downward

Are there other formed sections within a 50 mm radius?

☐ no ☐ yes (please include a sketch)

Is the formed section close to the edge of the sheet?

☐ no ☐ yes (please include a sketch)

Sketch/comments

General information

Terms of delivery

For delivery of the products listed in this catalog, the applicable terms of delivery stipulated by the supplying TRUMPF company or its representative are decisive. TRUMPF or its representative would be happy to provide you with these terms.

Price validity

Prices valid as of June 1, 2013. From this date onward, old price lists are no longer valid.
Prices are shown without sales tax at the statutory rate.
TRUMPF reserves the right to change prices.

Service

TRUMPF offers a repair and regrinding service. Please contact your national representative.

We recommend that you use only original spare parts and original accessories from TRUMPF. This will ensure that your tool works flawlessly and that the guarantee claim is approved in the event of a problem.

ISO certification

All products listed in this catalog are manufactured in our production facilities that are certified in accordance with ISO 9001.

Subject to change

The data contained within this catalog is subject to change, errors, and printing errors; any liability is excluded. Technical data in particular is subject to change without prior notification. Individual features may vary depending on country-specific factors.

Images are not exact and may contain minor deviations from the original.

All specifications without guarantee.

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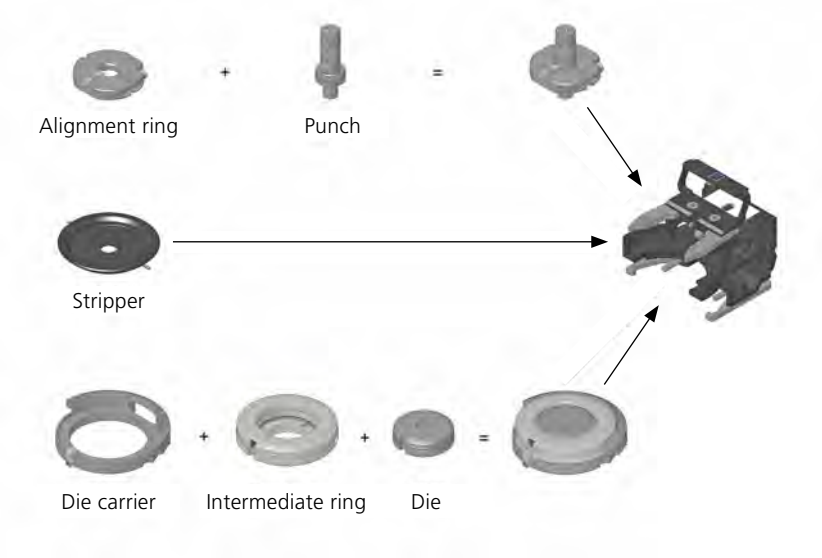
Structure of TRUMPF Punching Tools



Alignment ring

The alignment ring is available in three different versions.

Punch

Punches are available in three different sizes (size 0, 1, and 2).

Punch chuck

The punch chuck is available in two different sizes and is used with size 0 punches. It has the same clamping diameter as all other punches.

Stripper

The outside diameter of the stripper is 100 mm.

Die

Dies are available in two different sizes (size 1 and 2).
Size 1 can be used in the same way as size 2 with the help of an intermediate ring.

Tool cartridge

Both die sizes are used with the same tool cartridge and the same die carrier. An intermediate ring is used for holding size 1 dies.

TRUMPF is certified according to ISO 9001:2008
(for additional information see www.trumpf.com/en/company/quality)

Ident. no. EN_201306_Web - Specifications subject to change without notice

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