

M **MATRIX**
TOOLS
TOOLS FOR PUNCHING



**THICK TURRET
PUNCHING**

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Matrix S.r.l. was founded in 1982 in Schio, near Vicenza, with the goal of creating tooling and equipment for sheet metal processing.

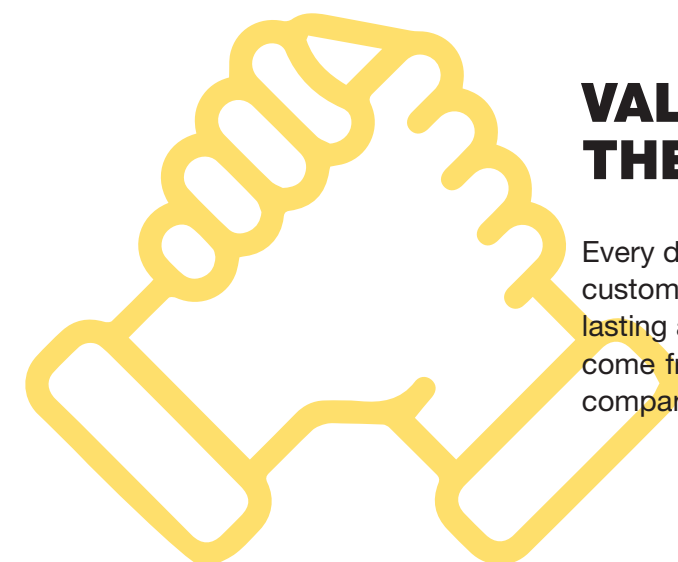
The relationships of trust built up with longstanding punching-shearing machine brands encouraged Matrix to invest in a new product range: **thick-turret tools for sheet metal punching and forming.**



Today, Matrix has **40 employees**, and has been part of the Salvagnini Group since 2017.

The company's market is global, with **its products present** from Mexico to India, Turkey to Australia.

A result achieved thanks to the special features that have always set Matrix apart: flexibility, speed, and a **customer-centric approach.**

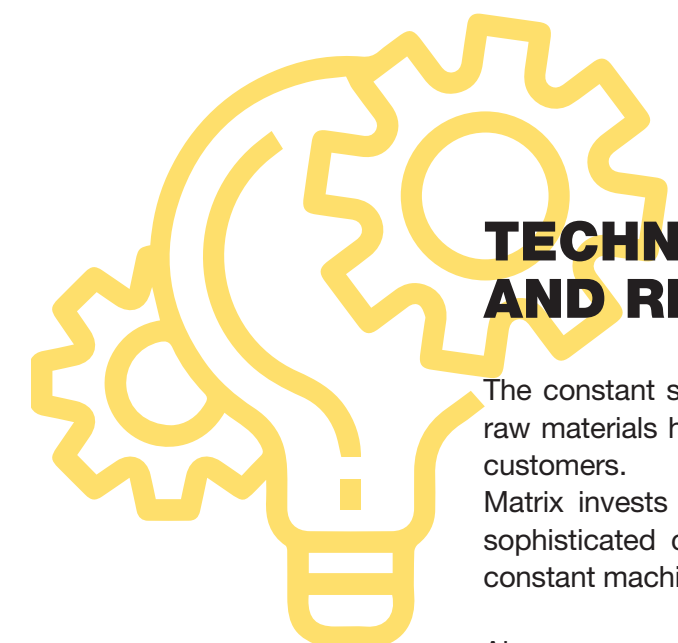
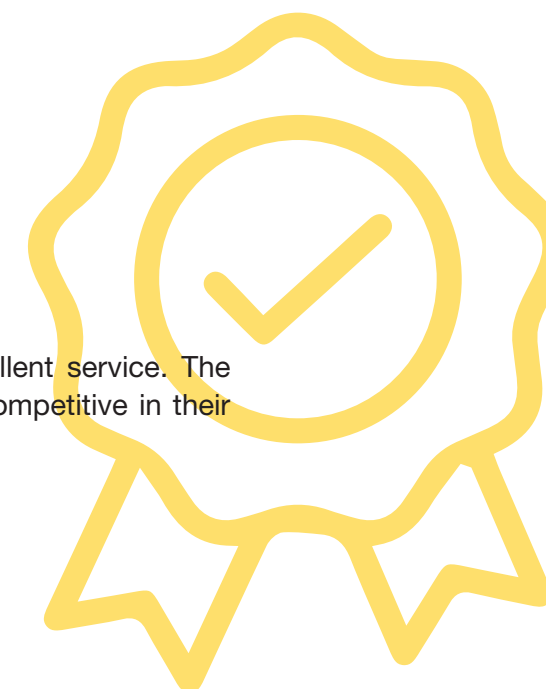


VALUE LIES IN THE TEAM

Every day Matrix's energy and expertise transform customers' needs into immediate and long-lasting added value. The tools produced by Matrix come from decades of experience and reflect the company's pioneering spirit.

EVERY CUSTOMER IS SPECIAL

Matrix aims to go beyond product quality and excellent service. The company's mission is to make its customers more competitive in their own sector.



TECHNOLOGY AND RELIABILITY

The constant search for improvement and the use of excellent raw materials help us to establish lasting cooperation with our customers.

Matrix invests in the most advanced and reliable technology: sophisticated control systems, latest-generation software and constant machinery upgrading.

Always an eye on the future.

THICK TURRET

Matrix's Thick Turret line arose from the need to have a range of top quality, high-performance punching tools available in a short time. **The B, C, D and E punch-holders** for the **classic integral punch** or in the innovative **iEM insert** version, with traditional or guided strippers. The guided stripper is recommended for heavy-duty machining (high tonnage and/or thickness) or for small punches that require stroke guidance for greater precision and rigidity.

The line is the result of decades of experience in the sector and is compatible with the tools most commonly used on the market.

Designed to facilitate the choice by offering a complete and long-lasting product that can be sharpened as and when necessary. Maximum efficiency is achieved by using the innovative iEM inserts.



PREMIUM AND CLASSIC SERIES PUNCH-HOLDERS

Maximum compatibility.

Matrix has developed two series of punch-holders for the Thick Turret line. Both can use the new iEM inserts, directly in the punch-holder or via the specific adapters.

The **Premium Series** punch-holder is compatible with the most common tool types on the market. Flexible, simple and universal, it guarantees high performance and can be adjusted up to 12 mm. The Premium Series is also available for Amada style tools, both standard and Air Blow (AB), and for W90 tools.

The **Classic Series** punch-holder was developed by Matrix to meet the needs of customers looking for maximum cost-effectiveness. It is available in both lubricated and non-lubricated versions, and is compatible with both standard and Air Blow Amada style punches. The best choice for heavy-duty machining.



IEM INSERTS AND ADAPTERS THICK TURRET C,D AND E STATIONS

- The iEM insert system guarantees the highest performance and cost-effective tool management.
- The iEM inserts combine system sturdiness with convenience. The guided stripper is the ideal option for heavy-duty or very precise machining.
- The insert-holder adapters are manufactured from suitably treated steel so as to resist the stress present during machining and to maximize tool life.
- The inserts offer significant savings when purchasing spare parts and changing shape, as well as the same reliability and precision as traditional integral punches.
- The 180° rotation of the shape increases the possibilities for orienting the insert with respect to the standard punch, thus giving customers maximum flexibility.
- For perfect compatibility, the dimensions of both the adapter with insert and those of the cutting part (diameter/maximum diagonal 31.7 mm) remain the same as those of the integral punch

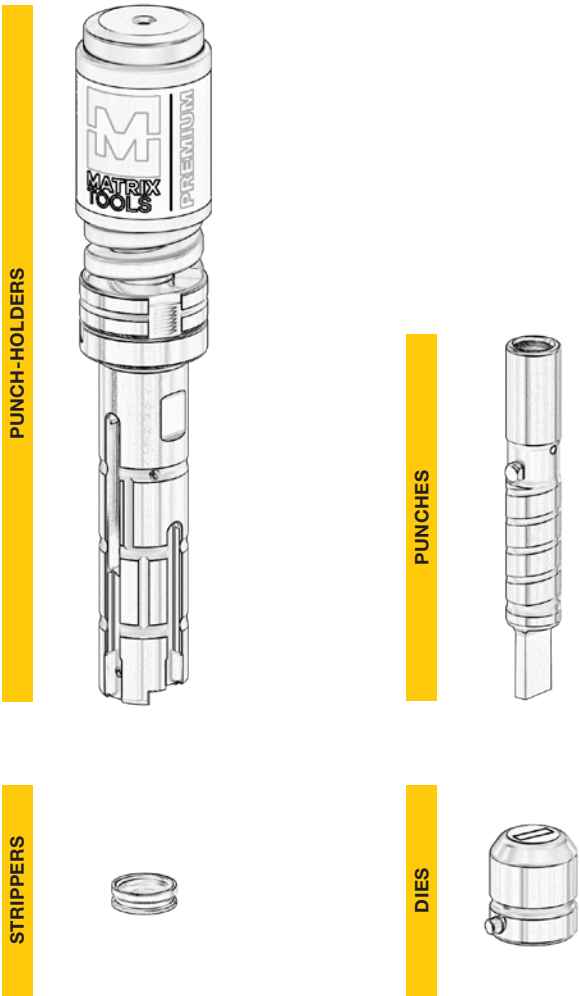
FEATURES OF THE THICK TURRET LINE	PREMIUM	CLASSIC
Maximum punch sharpening	11 mm	11 mm
Maximum die sharpening	2,5 mm	2,5 mm
Hardened punch-guide for a longer life	•	•
Punch coatings available	•	•
Slug-free technology available on dies	•	•
Sharpening on punch blade	•	•
Internal and external tool lubrication	•	•
Possibility for automatic lubrication	•	•
Possibility for automatic lubrication (AirBlow system)	•	•
Slots in punch-guide for round and 0°, 90° and 135° shaped tools	•	•
iEM interchangeable inserts (B to F)	•	•
Heavy duty spring units	•	•
Light duty spring units	•	•
Possibility for rapid adjustment without shims (A and B)	•	•
Possibility for rapid adjustment without shims (C to F)	•	•
Plastic strippers (A and B)	•	•
Plastic strippers (C to F)	•	•
Closed guides with integrated stripper (A and B)	•	•
Round and shaped tools in the same punch-holder	•	•
Punch-guide release with button	•	•
Punch-guide with interchangeable strippers	•	•
Guided strippers for greater precision (B to F)	•	•
Specific “close to clamp” punch-holders	•	•
Adapter for Trumpf tools	•	•
Possibility for rapid adjustment without shims (C to F)	•	•
Rapid stripper release (C to E)	•	•

Unmatched flexibility and simplicity with high performance

The Premium punch-holders guarantee maximum performance and durability, with continuous adjustment of the punch height up to 12 mm.

PREMIUM

PREMIUM A STATION / LUBRICATED



PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXFBS67200	KXFBS47200
PUNCHES		
Round	•	•
Shaped		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

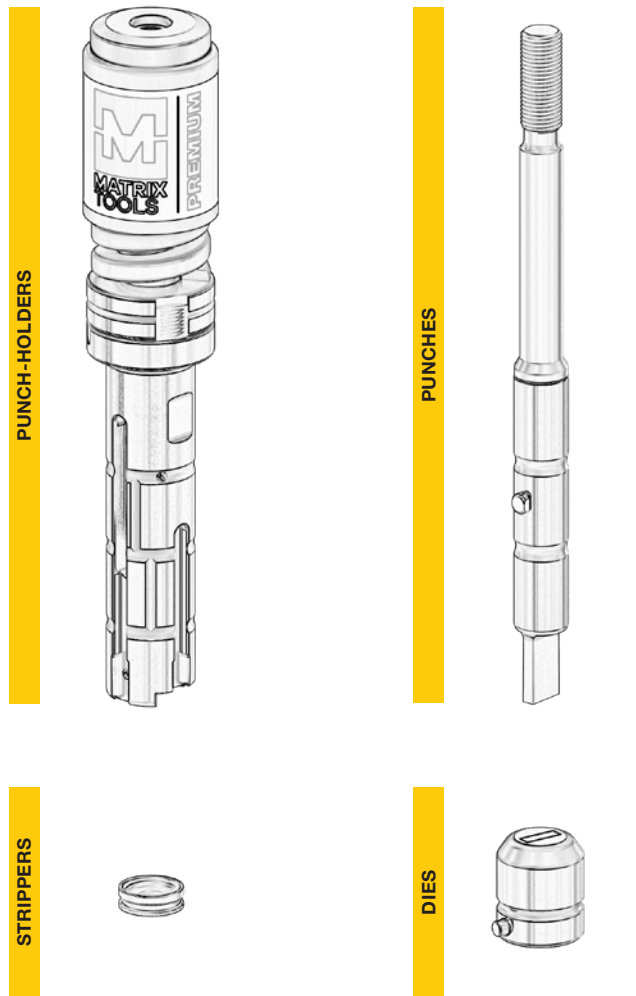
OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custom)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM

A STATION / STANDARD & AB

The Air Blow (AB) lubricated punch is available as an alternative to the standard one.



PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXFBS77200	KXFBS57200
PUNCHES		
Round STANDARD	•	•
Round AB	•	•
Shaped STANDARD		•
Shaped AB		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

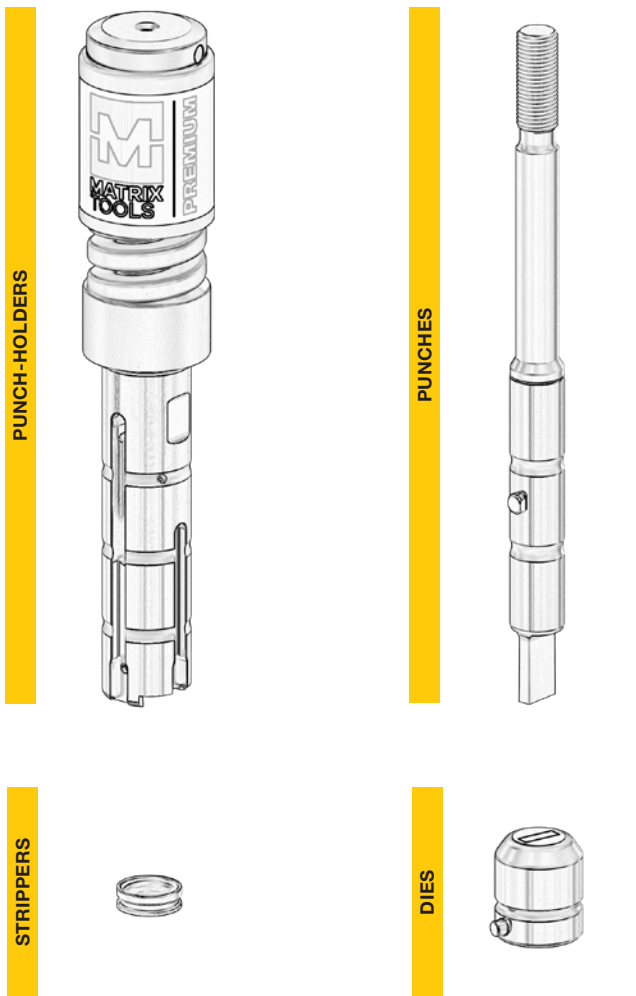
OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM

A/W90 & W90L STATION

The Premium punch-holders of A/W89 & W90L station guarantee maximum performance and durability with continuous punch height adjustment up to 7 mm. The lubricated punch (W90L) is available as an alternative to the standard one (W90).



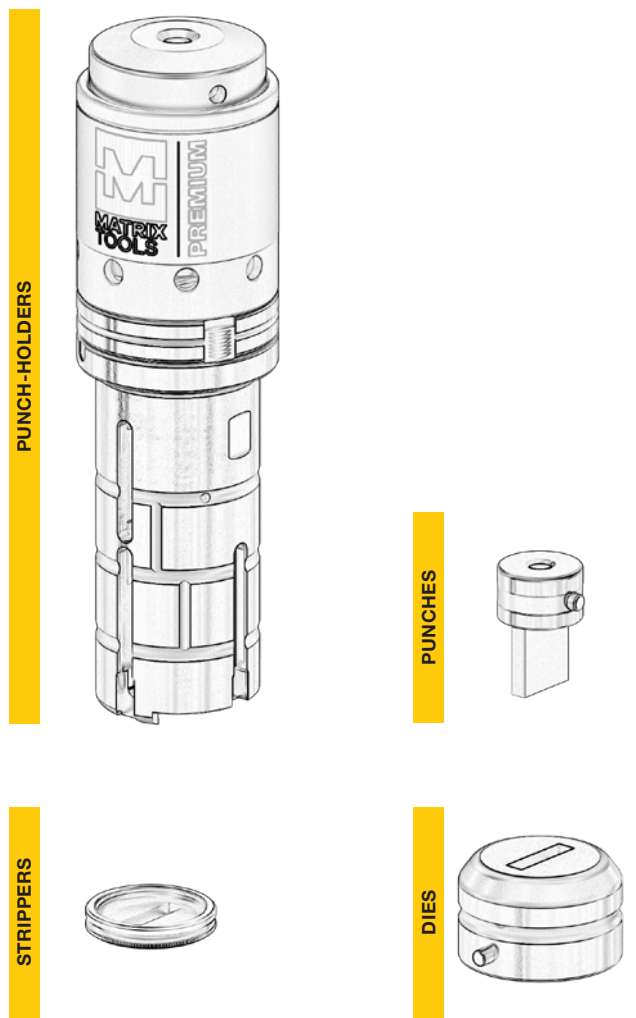
PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXF9697200	KXF9797200
PUNCHES		
Round W90	•	•
Round W90L	•	•
Shaped W90		•
Shaped W90L		•
STRIPPERS		
Round W90	•	•
Shaped W90		•
RESIN STRIPPER		
Round W90	•	•
Shaped W90		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
B STATION / IEM



PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXFBZH7200	KXFBZG7200
IEM INSERT		
Round	•	•
Shaped		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

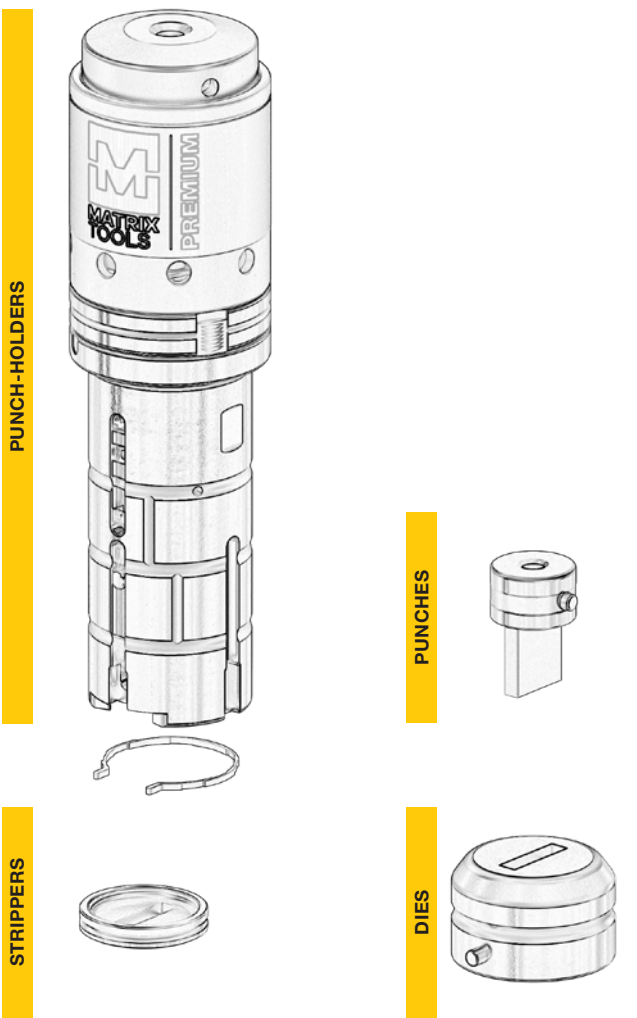
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
B STATION / GUIDED IEM

The guided stripper is the ideal option for heavy-duty or very precise machining.



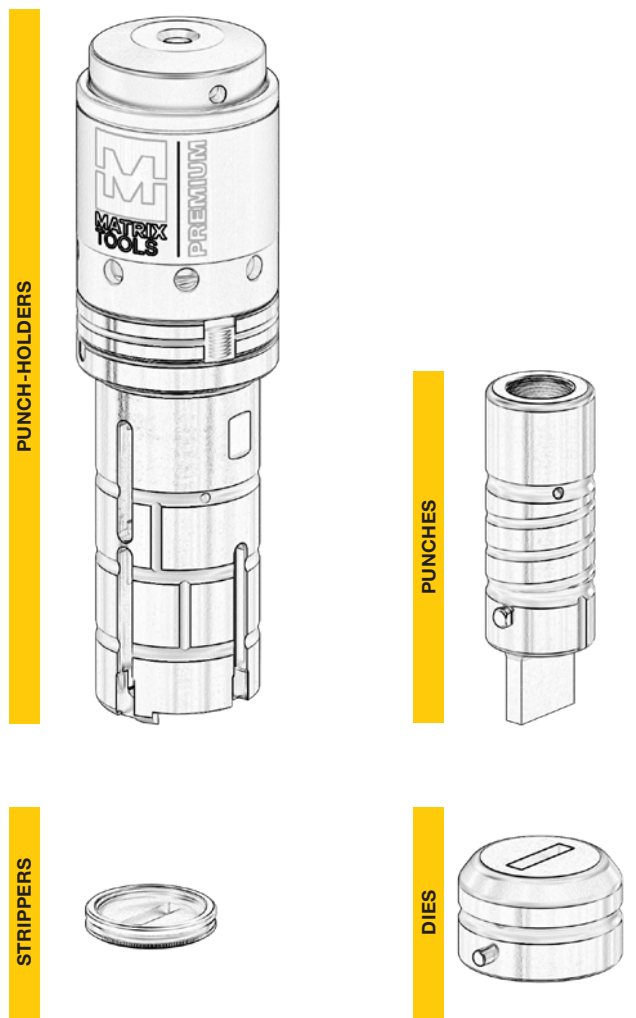
PUNCH-HOLDERS	Round and Shaped
Premium	KXFC267200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round guided	•
Shaped guided	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
B STATION / LUBRICATED



PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXFBZE7200	KXFBZD7200
PUNZONI		
Round	•	•
Shaped		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

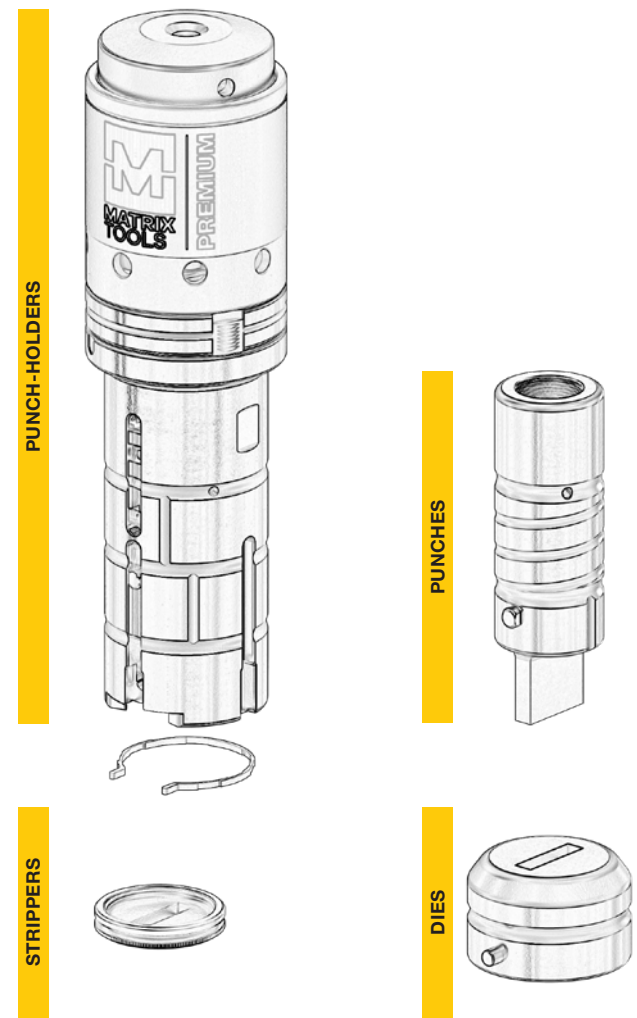
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
B STATION / LUBRICATED GUIDED

The guided stripper is the ideal option for heavy-duty or very precise machining.



PUNCH-HOLDERS	Round and Shaped
Premium	KXFBZF7200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round guided	•
Shaped guided	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

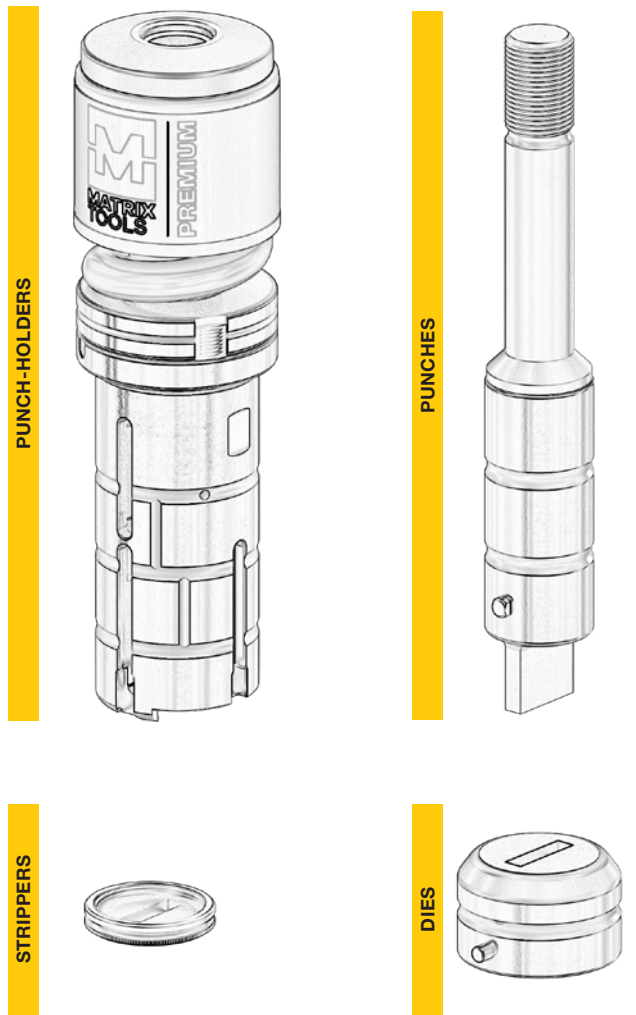
OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM

STAZIONE B / STANDARD, AB & IEM

The Air Blow (AB) lubricated punch is available as an alternative to the standard one.



PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXFBS97200	KXFBS87200
PUNZONI		
Round STANDARD	•	•
Round AB	•	•
Shaped STANDARD		•
Shaped AB		•
IEM INSERTS		
STANDARD Adapter (necessary)	KXFB3200009	
Adapter AB (necessary)	KXFB4200009	
Round	•	•
Shaped		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

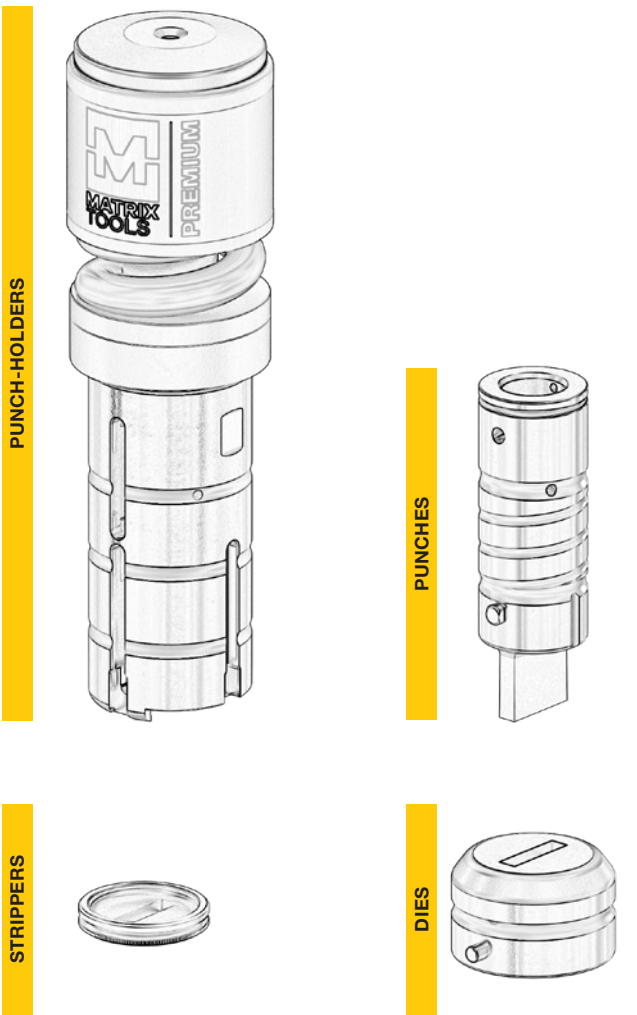
OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM

B STATION / W90, W90L & IEM

The lubricated punch (W90L) is available as an alternative to the standard (W90)



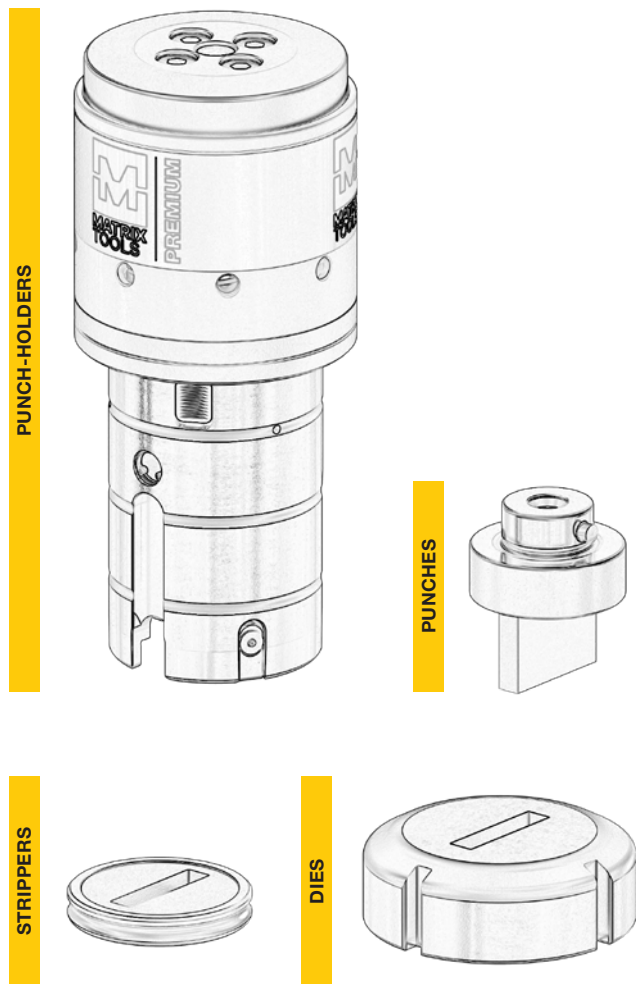
PUNCH-HOLDERS	For round only	Round and Shaped
Premium	KXF8297200	KXF8307200
PUNZONI		
Round W90	•	•
Round W90L	•	•
Shaped W90		•
Shaped W90L		•
IEM INSERTS		
Adapter W90 (necessary)	KXFB2200009	
Adapter W90L (necessary)	KXFB8200009	
Round	•	•
Shaped		•
STRIPPERS		
Round	•	•
Shaped		•
RESIN STRIPPER		
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
C STATION / IEM



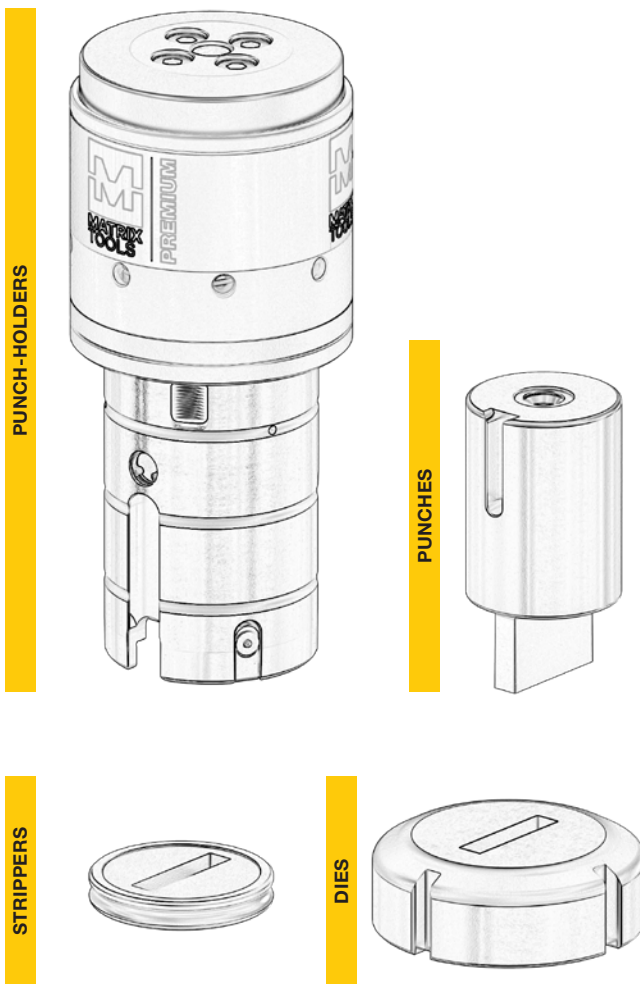
PUNCH-HOLDERS	Round and Shaped
Premium	KXFBZQ7200
Premium Fast	KXFBZL7200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
C STATION / STANDARD & IEM



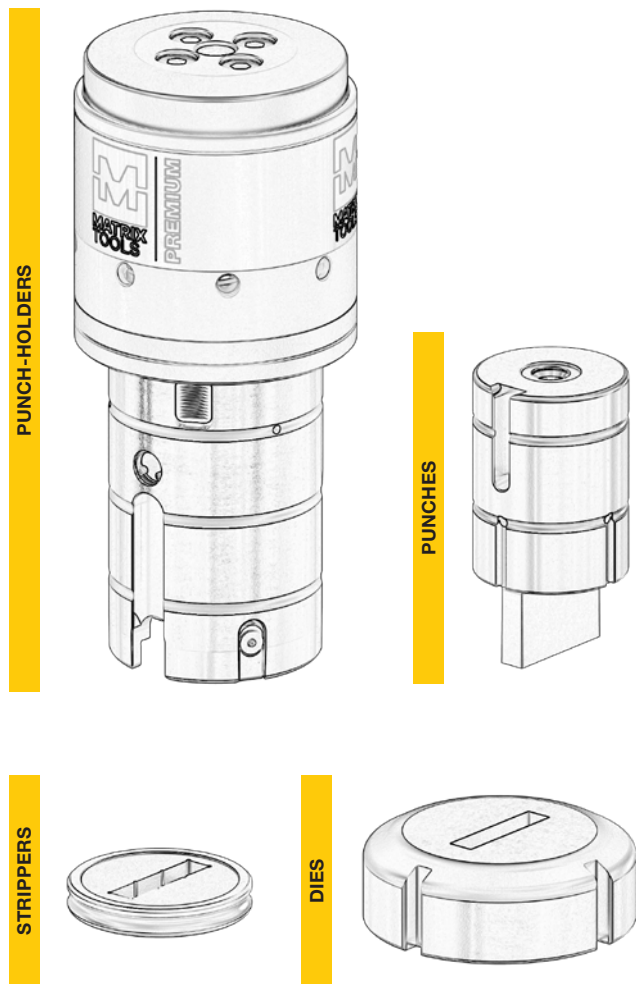
PUNCH-HOLDERS	Round and Shaped
Premium	KXFBZP7200
Premium Fast	KXFBZK7200
IEM INSERT	
STANDARD Adapter (necessary)	KXFBG5200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
C STATION / AB & IEM M14



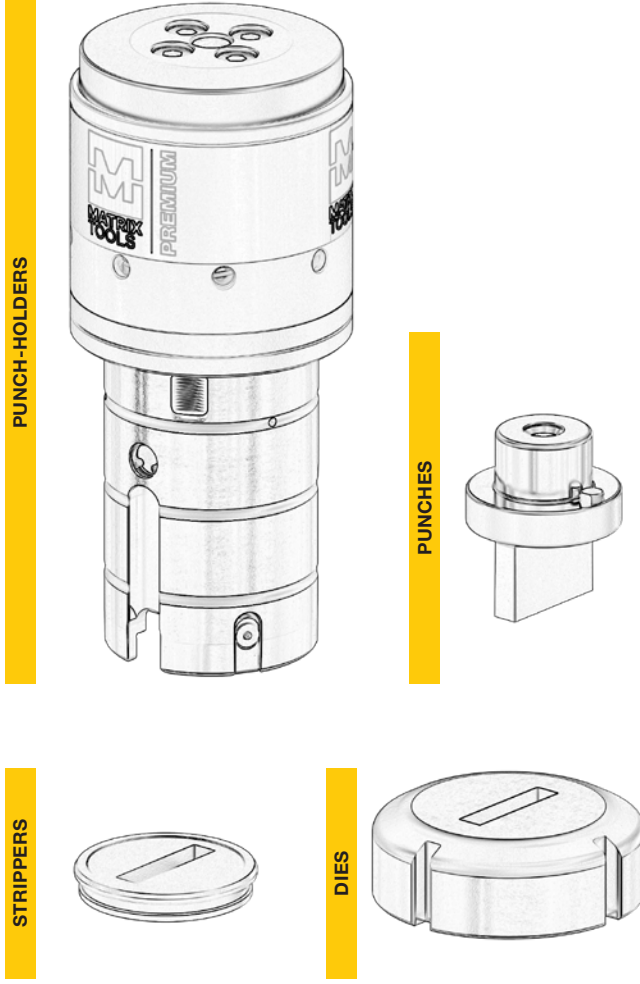
PUNCH-HOLDERS	Round and Shaped
Premium	KXFBZS7200
Premium Fast	KXFBZN7200
IEM INSERT	
STANDARD Adapter (necessary)	FBJ9200009
Round	•
Shaped	•
STRIPPERS	
Round AB	•
Round guided AB	•
Shaped AB	•
Shaped guided AB	•
RESIN STRIPPER	
Round AB	•
Shaped AB	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	KXF2277400
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
C STATION / W90



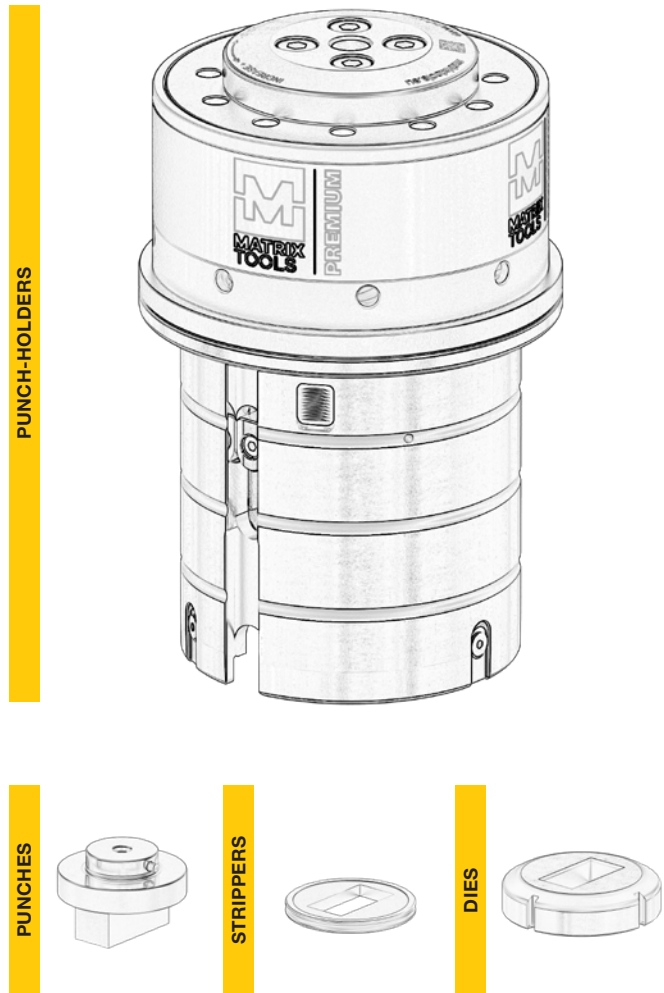
PUNCH-HOLDERS	Round and Shaped
Premium	KXFBZT7200
Premium Fast	KXFBZO7200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round W90	•
Shaped W90	•
RESIN STRIPPER	
Round W90	•
Shaped W90	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	KXF2277400
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

PREMIUM
D STATION / IEM

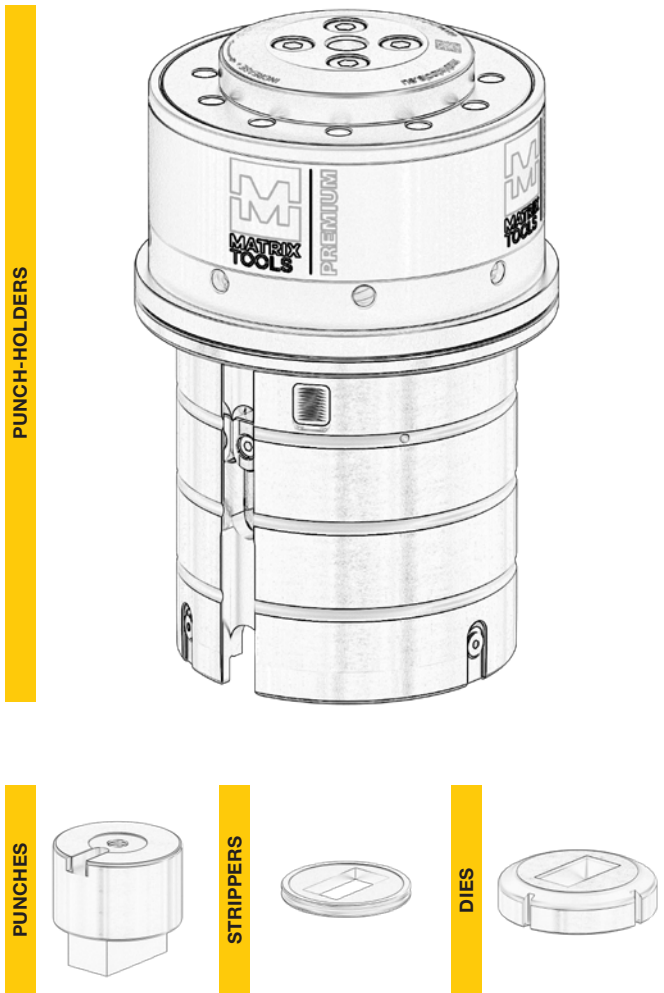


PUNCH-HOLDERS	Round and Shaped
Premium	KXFC017200
Premium Fast	KXFBZW7200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2347400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

*choose one only

PREMIUM
D STATION / STANDARD & IEM

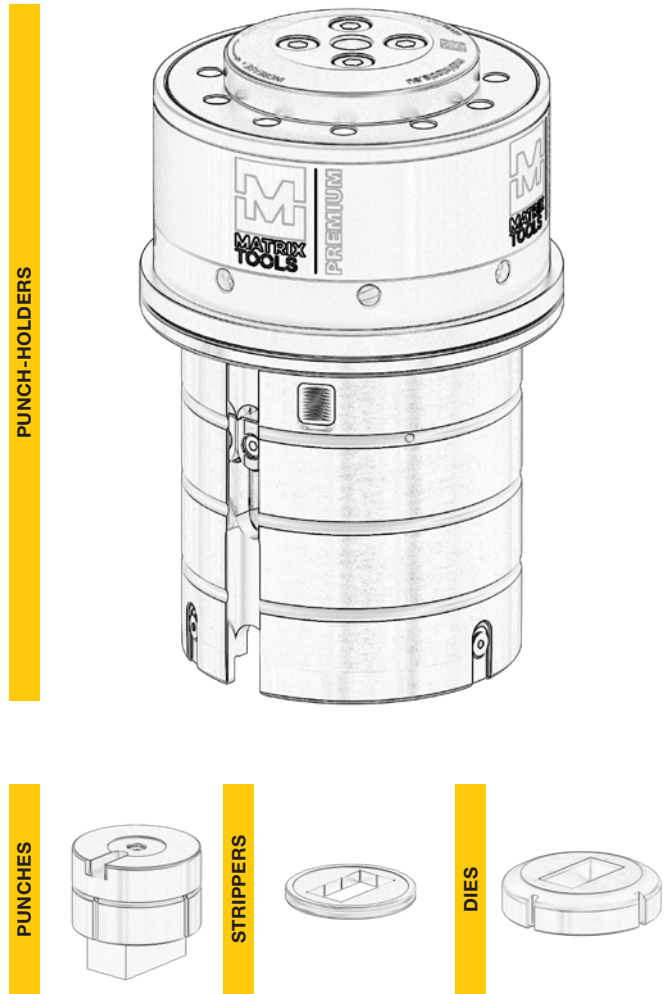


PUNCH-HOLDERS	Round and Shaped
Premium	KXFC007200
Premium Fast	KXFBZW7200
IEM INSERT	
STANDARD Adapter (necessary)	KXFBG7200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2347400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

*choose one only

PREMIUM
D STATION / AB & IEM M14

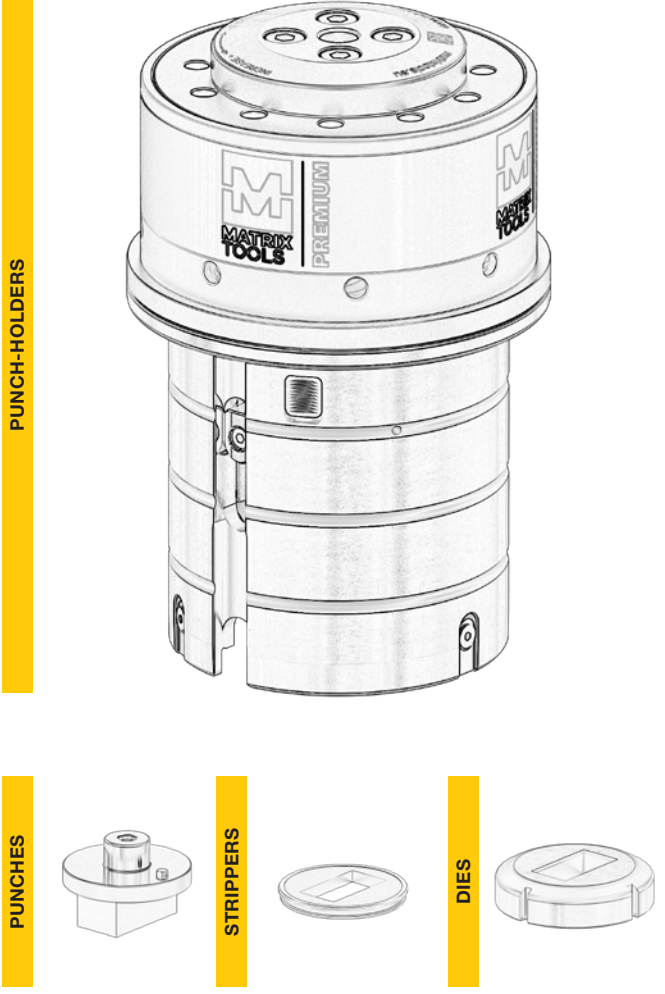


PUNCH-HOLDERS (THREAD M14)	Round and Shaped
Premium	KXFC037200
Premium Fast	KXFBZY7200
PUNZONI	
Round AB M14	•
Shaped AB M14	•
IEM INSERTS	
AB M14 Adapter (necessary)	•
Round	•
Shaped	•
STRIPPERS	
Round AB	•
Round guided AB	•
Shaped AB	•
Shaped guided AB	•
RESIN STRIPPER	
Round AB	•
Shaped AB	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2347400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	
*choose one only		

PREMIUM
D STATION / W90

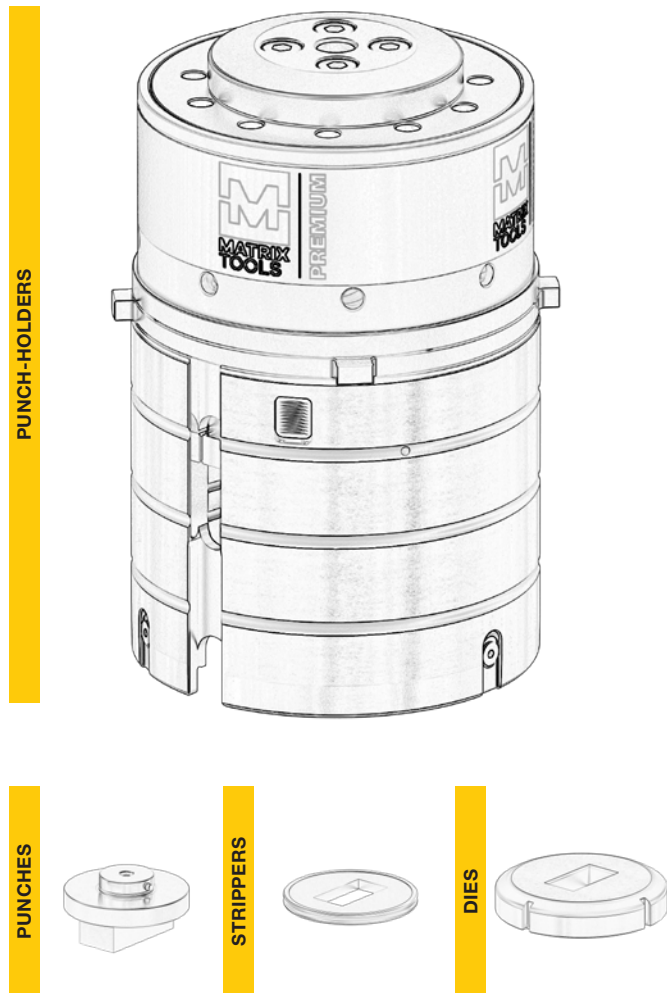


PUNCH-HOLDERS	Round and Shaped
Premium	KXFC047200
Premium Fast	KXFBZZ7200
PUNCHES	
Round W90	•
Shaped W90	•
STRIPPERS	
Round W90	•
Shaped W90	•
RESIN STRIPPER	
Round W90	•
Shaped W90	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2347400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	
*choose one only		

PREMIUM
E STATION / IEM

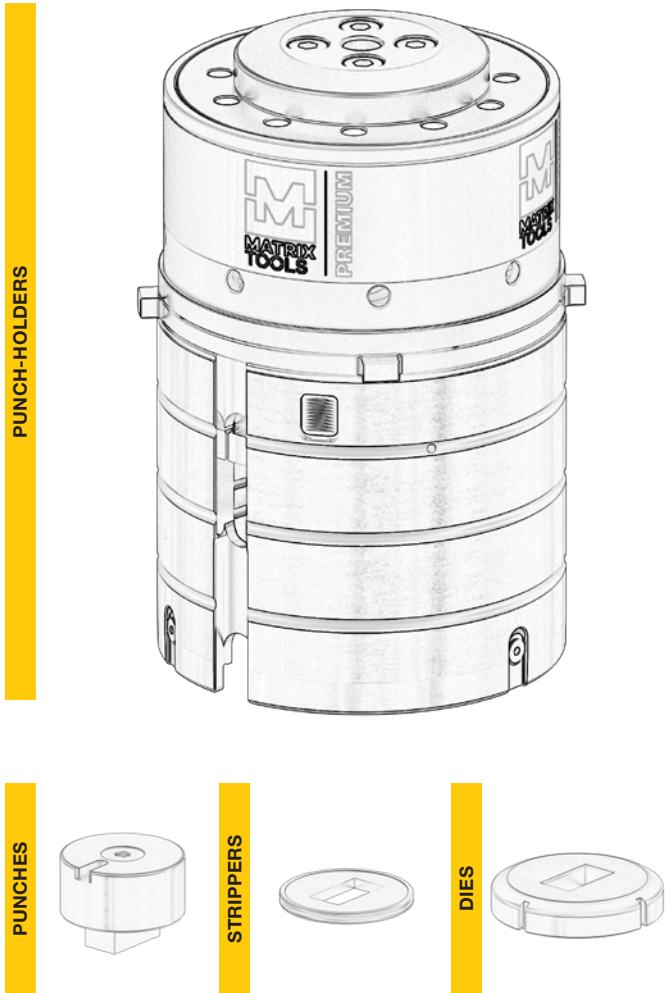


PUNCH-HOLDERS	Round and Shaped
Premium	KXFC147200
Premium Fast	KXFC097200
IEM INSERT	
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2417400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

*choose one only

PREMIUM
E STATION / STANDARD & IEM

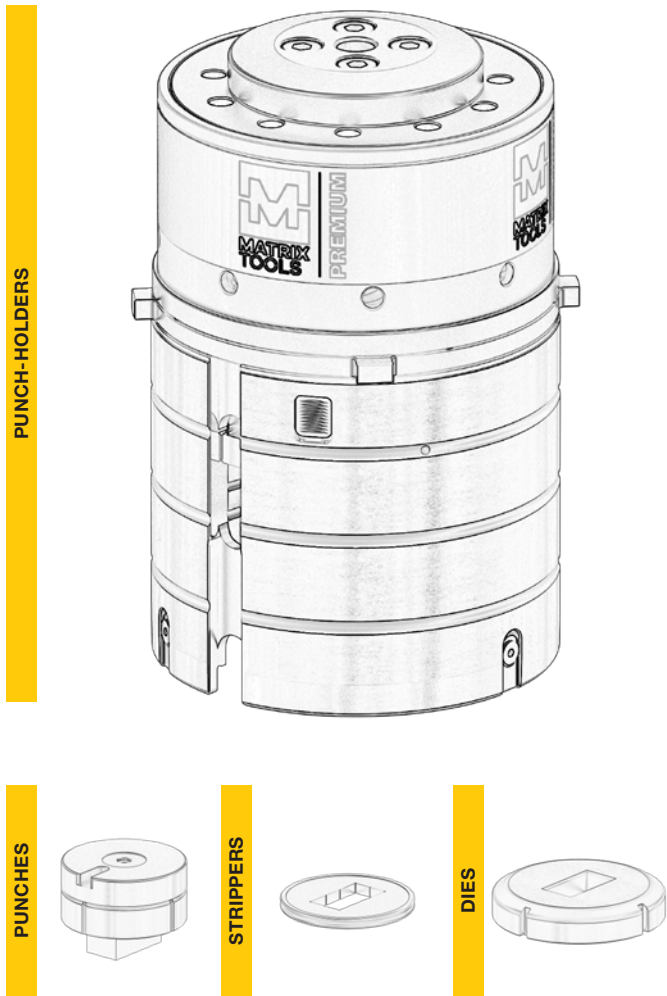


PUNCH-HOLDERS	Round and Shaped
Premium	KXFC137200
Premium Fast	KXFC087200
PUNCHES	
Round	•
Shaped	•
IEM INSERTS	
STANDARD Adapter (necessary)	KXFB6200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2417400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

*choose one only

PREMIUM
E STATION / AB & IEM M14

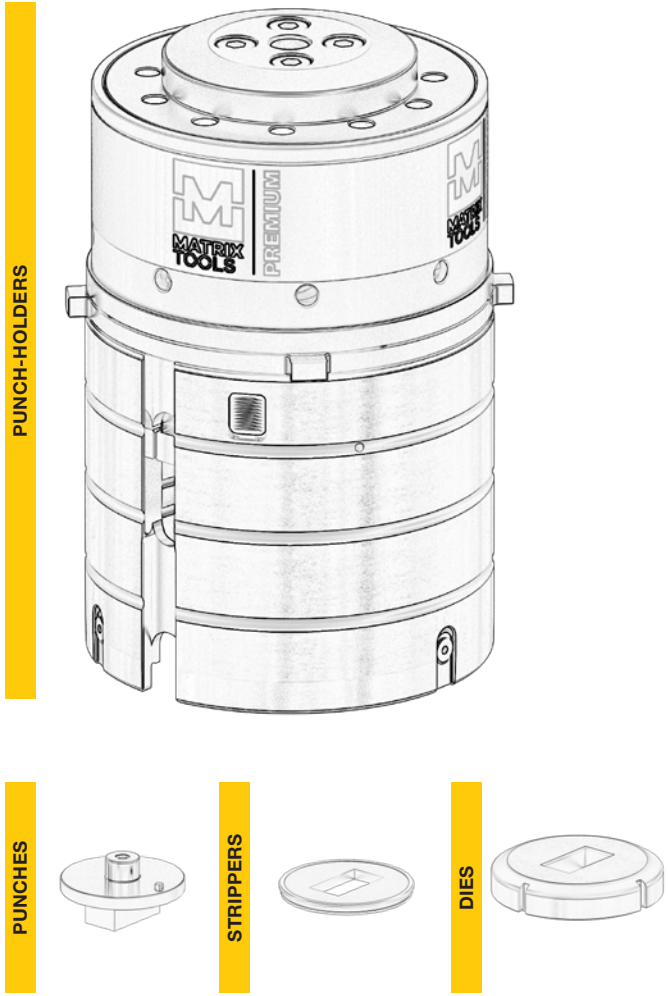


PUNCH-HOLDERS (THREAD M14)	Round and Shaped
Premium	KXFC167200
Premium Fast	KXFC117200
PUNCHES	
Round AB M14	•
Shaped AB M14	•
IEM INSERTS	
AB M14 Adapter (necessary)	KXFBN9200009
Round	•
Shaped	•
STRIPPERS	
Round AB	•
Round guided AB	•
Shaped AB	•
Shaped guided AB	•
RESIN STRIPPER	
Round AB	•
Shaped AB	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2417400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	
*choose one only		

PREMIUM
E STATION / W90



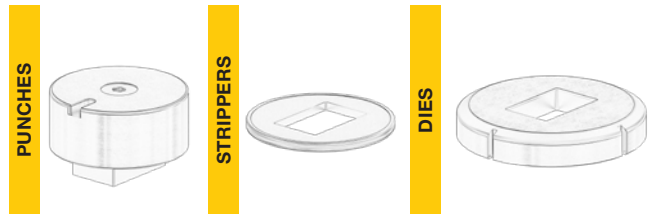
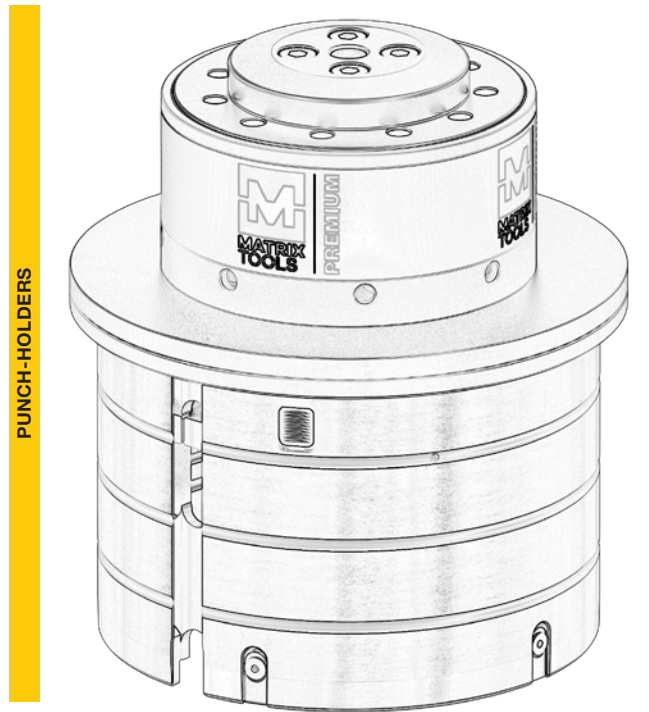
PUNCH-HOLDERS	Round and Shaped
Premium	KXFC177200
Premium Fast	KXFC127200
PUNCHES	
Round	•
Shaped	•
STRIPPERS	
Round W90	•
Shaped W90	•
RESIN STRIPPER	
Round W90	•
Shaped W90	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2417400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	
*choose one only		

PREMIUM

F STATION / STANDARD



PUNCH-HOLDERS (THREAD M14)	Round and Shaped
Premium	KXFC207200
PUNCHES	
Round	•
Shaped	•
STRIPPERS	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Reinforced dies		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only



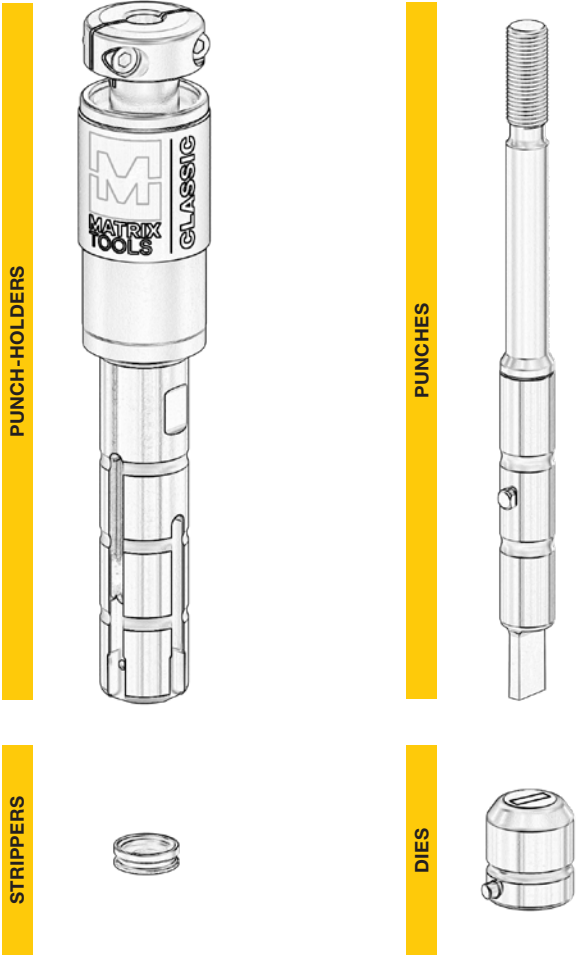
Top value even for heavy-duty jobs.

The Classic punch-holders with closed guides, with or without lubrication, with punch height fixed or adjustable, have been developed to guarantee maximum convenience.

CLASSIC

CLASSIC A STATION / STANDARD & AB

The Air Blow (AB) lubricated punch is available as an alternative to the standard one.



PUNCH-HOLDERS	Round	Shaped
Classic	•	•
Classic Regolabile	•	•
PUNCHES		
Round STANDARD	•	•
Round AB	•	•
Shaped STANDARD		•
Shaped AB		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)		
0.5 mm shim (x3)		
1.0 mm shim (x3)		

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

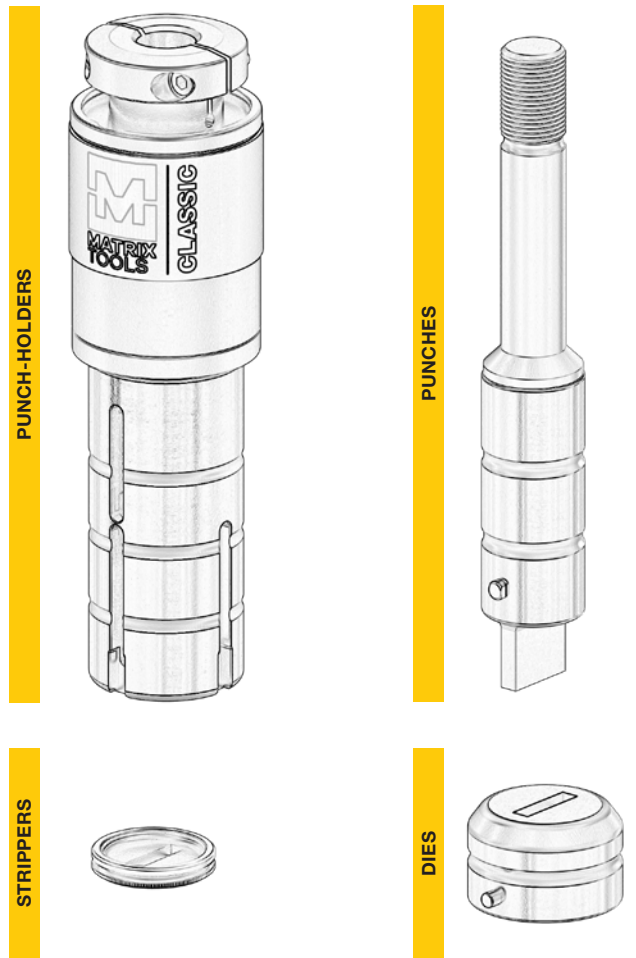
OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

CLASSIC

B STATION / STANDARD, AB & iEM

The Air Blow (AB) lubricated punch is available as an alternative to the standard one.



PUNCH-HOLDERS	Round	Shaped
Classic	•	•
Classic Regolabile	•	•
PUNCHES		
Round STANDARD	•	•
Round AB	•	•
Shaped STANDARD		•
Shaped AB		•
IEM INSERTS		
STANDARD Adapter (necessary)	KXFBI3200009	
Adapter AB (necessary)	KXFBI4200009	
Round	•	•
Shaped		•
DIES		
Round	•	•
Shaped		•
DIE SHIM KIT		
0.3 mm shim (x3)	KXF2187400	
0.5 mm shim (x3)		
1.0 mm shim (x3)		

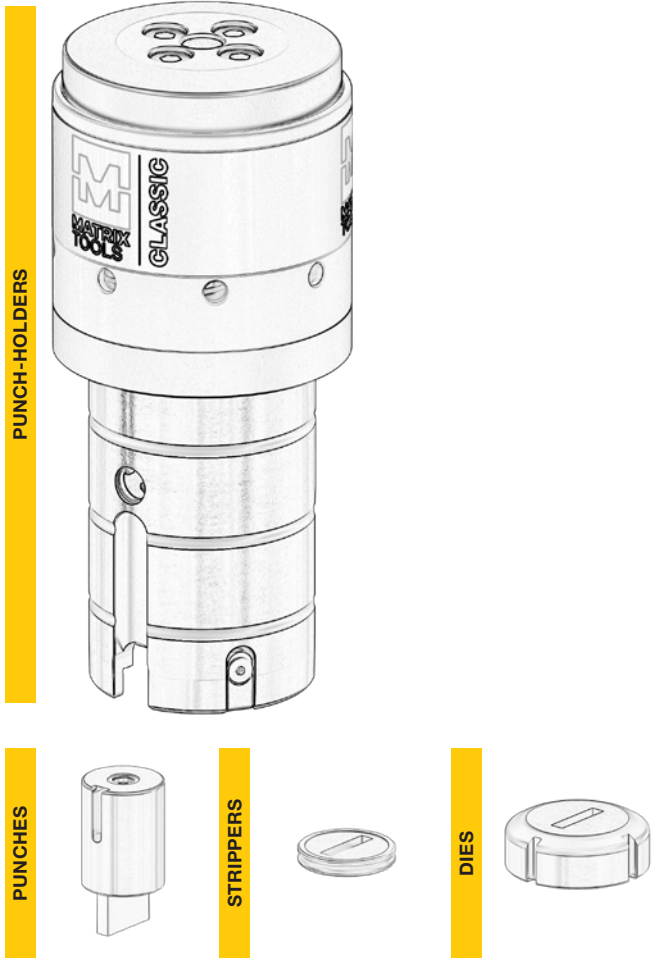
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

CLASSIC

C STATION / STANDARD & iEM



PUNCH-HOLDERS	Round and Shaped
Classic	KXFBZU7200
PUNCHES	
Round	•
Shaped	•
IEM INSERTS	
STANDARD Adapter (necessary)	KXFBG5200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	KXF2277400
0.5 mm shim (x3)	
1.0 mm shim (x3)	

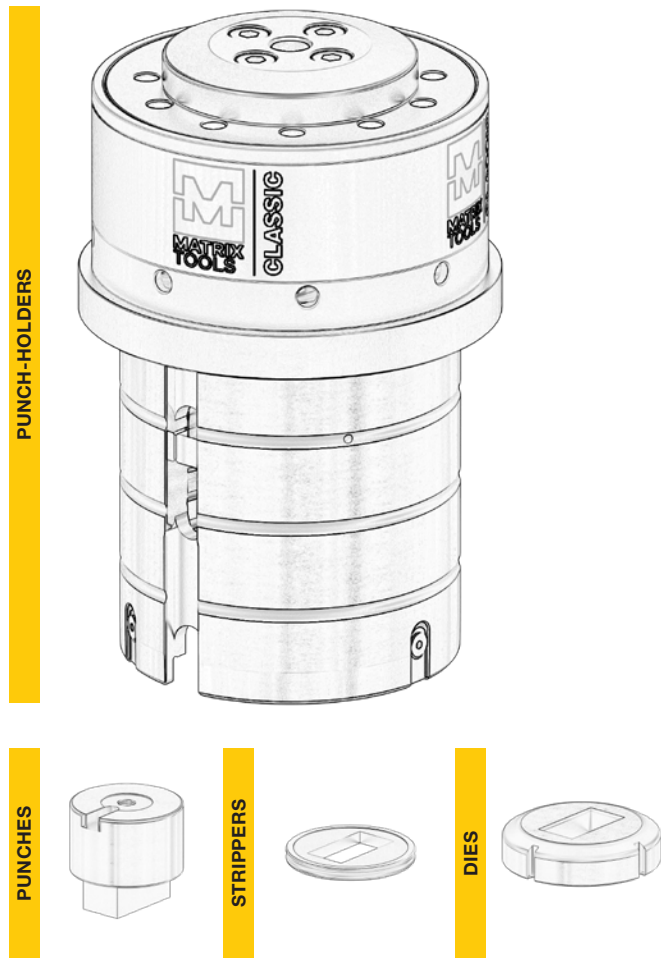
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

CLASSIC

D STATION / STANDARD & iEM



PUNCH-HOLDERS	Round and Shaped
Classic	KXFC077200
PUNCHES	
Round	•
Shaped	•
IEM INSERTS	
STANDARD Adapter (necessary)	KXFBG7200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	KXF2347400

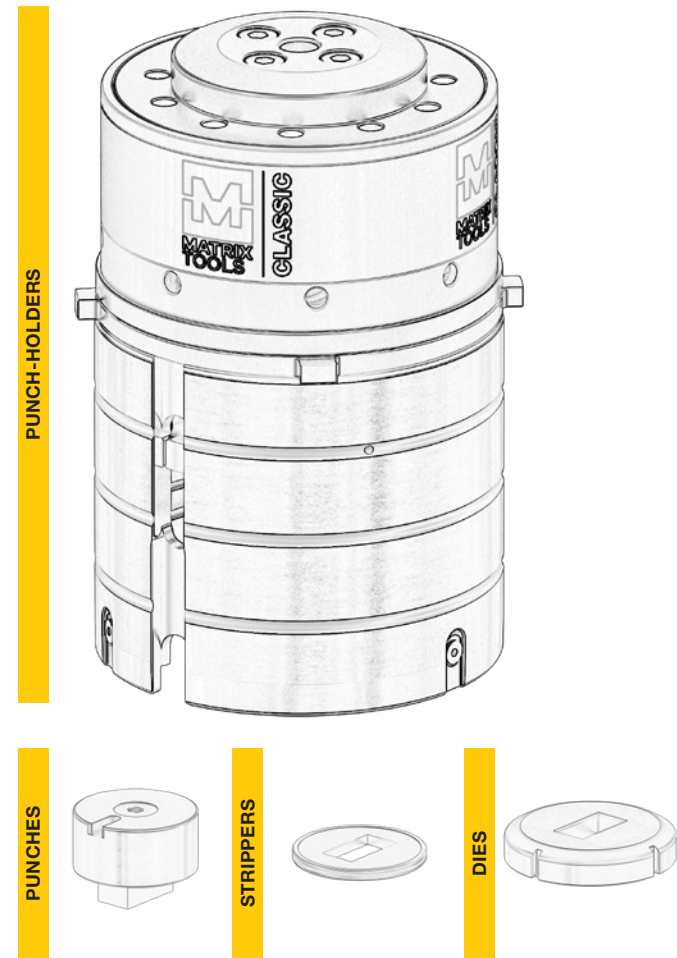
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

CLASSIC

E STATION / STANDARD & iEM



PUNCH-HOLDERS	Round and Shaped
Classic	KXFC197200
PUNCHES	
Round	•
Shaped	•
IEM INSERTS	
STANDARD Adapter (necessary)	KXFB6200009
Round	•
Shaped	•
STRIPPERS	
Round	•
Round guided	•
Shaped	•
Shaped guided	•
RESIN STRIPPER	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•
DIE SHIM KIT	
0.3 mm shim (x3)	
0.5 mm shim (x3)	
1.0 mm shim (x3)	KXF2417400

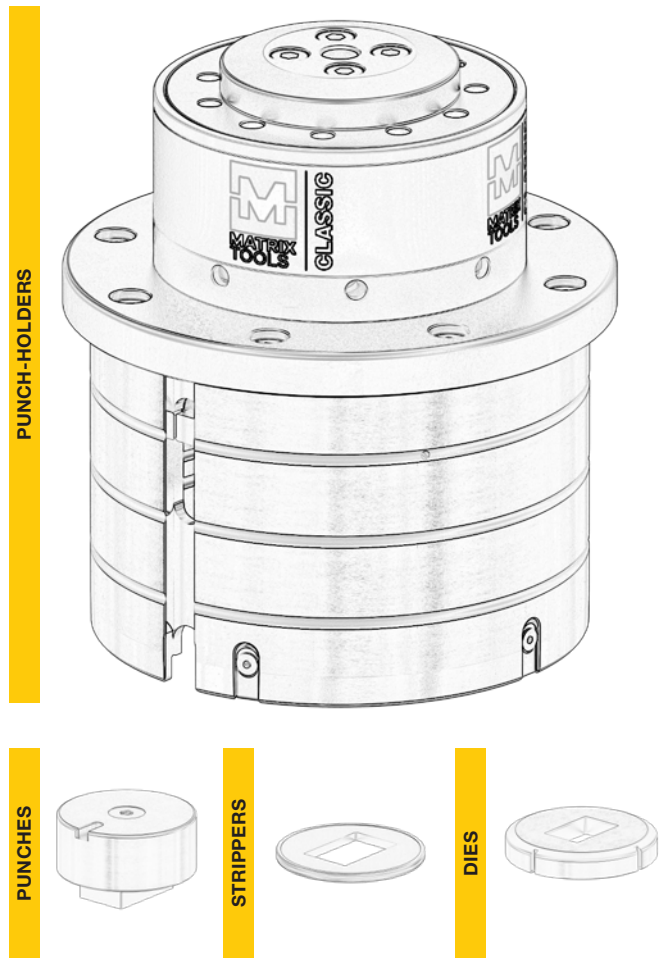
OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

CLASSIC

F STATION / STANDARD



PUNCH-HOLDERS	Round and Shaped
Classic	KXFC217200
PUNCHES	
Round	•
Shaped	•
STRIPPERS	
Round	•
Shaped	•
DIES	
Round	•
Shaped	•

OPTIONS	Included	Extra
General		
Radiussed angles	•	
Increased rake angle		•
Non-standard tool rotation		•
Punch sharpening		•
Dies with three references		•
Small tools		
Diameter or short side less than 4 mm (punches only)		•
Diameter or short side less than 1.5 mm (punches, dies and strippers)		•
Dimensions smaller than the belonging station		
B Station (only for punches)	•	
C to F Stations (only for punches)		•

OPTIONS	Included	Extra
Surface coating for punches*		
Type A (titanium nitride)		•
Type B (titanium aluminum nitride)		•
Type C (custum)		•
Slug-free dies *		
Without NT slug-free technology	•	
PT Positive Taper	•	
ST slug-free technology	•	
LT slug-free technology	•	
SC slug-free technology - Slug Catcher (Type 2)		•
SA slug-free technology	•	

*choose one only

ITEM UNIVERSAL ADAPTERS

The value of iEM inserts is universal.

They can be used in any B station punch-holder using standard, Air Blow (AB), lubricated, W90 and W90 lubricated insert-holder adapters.

UNIVERSAL ITEM ADAPTERS FOR PUNCHES		
B STATION	Standard adapter	Code KXFBI3200009
	AB Adapter (Air Blow)	Code KXFBI4200009
	Lubricated adapters	Code KXFBG3200009
	W90 Adapter	Code KXFBI2200009
	W90L Adapter (Lubricated)	Code KXFBL8200009
C STATION	Standard adapter	Code KXFBG5200009
	AB M14 Adapter (Air Blow)	Code KXFBJ9200009
D STATION	Standard adapter	Code KXFBG7200009
	AB M14 Adapter (Air Blow)	Code KXFBK0200009
E STATION	Standard adapter	Code KXFBL6200009
	AB M14 Adapter (Air Blow)	Code KXFBN9200009



iEM adapters

STANDARD ADAPTERS

STANDARD ADAPTERS FOR PUNCH HOLDERS AND DIES		CODE
B STATION	Adapter for A Station Punch-holders	KXF2186100
	Adapter for A Station Dies	KXF2186300
C STATION	Adapter for B Station Punch-holders	KXF2276100
	Adapter for B Station Dies	KXF2276300
D STATION	Adapter for B Station Punch-holders	KXF2346100
	Adapter for B Station Dies	KXF2346300
	Adapter for C Station Punch-holders	KXF2346800
	Adapter for C Station Dies	KXF2346400
	Adapter for C Station Heavy Duty Dies	KXF2346404
E STATION	Adapter for B Station Punch-holders	KXFAH06100
	Adapter for B Station Dies	KXFAH06300
	Adapter for C Station Punch-holders	KXFAH06800
	Adapter for C Station Dies	KXFAH06400
F STATION	Adapter for D Station Punch-holders	KXF4866100
	Adapter for D Station Dies	KXF4866300
	Adapter for E Station Punch-holders	KXF4866800
	Adapter for E Station Dies	KXF4866400

CENTERING TOOLS

It is key to keep the punch-holders and tools in order, and also ensure the punching machine to be perfectly centered. Specific, high-precision tools for the most common stations solve maintenance problems quickly and simply, aligning the upper and lower turrets.

CENTERING TOOLS		
A STATION	Centering Punch and Die Set	Code KXFACP7800
B STATION	Centering Punch and Die Set	Code KXFAT77800
C STATION	Centering Punch and Die Set	Code KXFAT87800
D STATION	Centering Punch and Die Set	Code KXFAT97800

STANDARD SPRINGS
LIGHT DUTY



CODE	STATION	PRE-LOADING AT REST	STROKE 6 MM
KXA0903326.404	B	3900 N	8150 N
KXA0903326.379	C	3560 N	8910 N
KXA0903326.439	D	9130 N	22820 N



CODE	STATION	PRE-LOADING AT REST	STROKE 6 MM
KXA0903325.404	B	2270 N	4750 N
KXA0903325.379	C	2600 N	6490 N
KXA0903325.439	D	6860 N	17160 N



CODE	STATION	PRE-LOADING AT REST	STROKE 6 MM
KXA0903324.404	B	1150 N	2400 N
KXA0903324.379	C	1160 N	2900 N
KXA0903324.439	D	3020 N	7550 N

PARTING TOOLS

Tools designed to make the most common punching jobs cheaper, with the possibility to replace only the cutting inserts, keeping the support elements. Guided strippers are supplied with these tools to reduce wear and increase system rigidity.

ITEM	STANDARD (C, D AND E)	CLOSE TO CLAMP (D AND E)
Punch-holder		•
Insert-holder shank	•	•
AB insert-holder shank	•	
Rectangular cutting insert	•	•
Dove-tail cutting insert	•	•
Trapezoidal cutting insert	•	•
Slot cutting insert	•	•
Rectangular guided stripper	•	•
Dove-tail guided stripper	•	•
Trapezoidal guided stripper	•	•
Slot guided stripper	•	•
AB rectangular guided stripper	•	
AB dove-tail guided stripper	•	
AB trapezoidal guided stripper	•	
AB slot guided stripper	•	
Rectangular die	•	
Dove-tail die	•	
Trapezoidal die	•	
Slot die	•	
“D” rectangular die		•
“D” dove-tail die		•
“D” trapezoidal die		•
“D” slot die		•
“Double D” rectangular die		•
“Double D” dove-tail die		•
“Double D” trapezoidal die		•
“Double D” slot die		•
“Double D” lower insert-holder		•
Rectangular lower cutting insert		•
Dove-tail lower cutting insert		•
Trapezoidal lower cutting insert		•
Slot lower cutting insert		•

MAXIMUM DIAGONALS OF TOOLS

A STATION	B STATION	C STATION	D STATION	E STATION	F STATION
12.7 mm	31.7 mm	50.8 mm	88.9 mm	114.3 mm	153.5 mm

SHARPENING OPTIONS

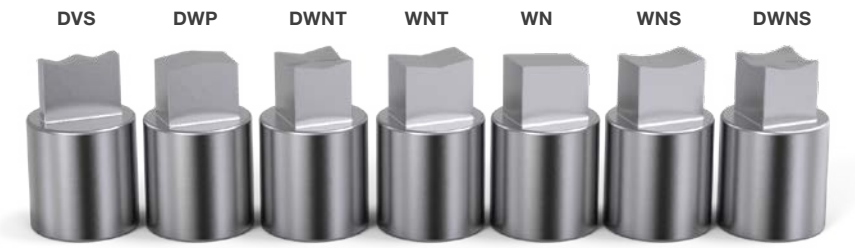
With **whisper sharpening**, the face of the punch has different geometries. This offers the following benefits:

- Reduced noise
- Reduced vibration and kickback in all machine components
- Reduced slug pulling
- Reduced tonnage
- Easy extraction
- Reduced sheet distortion

Using tools with special sharpening requires greater penetration into the die. This increases the load on the punchholder springs.

The following types of sharpening are the most common:

- **DVS** for parting tools on thick material;
- **DWP** for thick material and balanced loads;
- **DWNT** for thin material and nibbling with large punch figures;
- **WNT** for thin material and nibbling with small punch figures;
- **WN** for thick material and very rigid and fast machines;
- **WNS** with the same features as type WNT, leaves fewer marks on the sheet metal and extends the punch life;
- **DWNS** with the same features as type DWNT, leaves fewer marks on the sheet metal and extends the punch life.



GENERIC TONNAGE
CALCULATION FORMULA

		MATERIAL	K MATERIAL*
$F(kN) = \frac{P \times S \times K \times R}{1000}$	P = perimeter of the figure	Aluminum (soft)	150 N/mm ²
	S = thickness of the material in mm	Aluminum (hard)	250 N/mm ²
	K = shear strength of the material	Copper and brass	250 N/mm ²
	R = reduction factor for standard sharpening	Mild steel	350 N/mm ²
		Stainless steel	600 N/mm ²

Example: $\frac{40 \text{ (perimeter of 10 mm square)} \times 2 \text{ (material thickness)} \times 600 \text{ (K factor for stainless steel)} \times 0.6 \text{ (R for DWP)}}{1000} = 28,8 \text{ kN}$

* The table shows average coefficients for commercially available sheet metal. To calculate a specific tonnage, the exact type of material must be known.

EFFECT OF PUNCH SHARPENING
ON TONNAGE

The table below illustrates the reduction in tonnage resulting from standard-depth DWP sharpening.

Material thickness (mm)	1	1,5	2	2,5	3	4	5	6
Reduction factor (R)	0.4	0.5	0.6	0.65	0.75	0.80	0.85	0.90

This is one of the first rules to apply. As punching is a cutting process, lubrication in the processing area is essential for success. Lubrication plays a very important role in punching machines and, in particular, in punching tools. When the punch passes through the material to be cut, small amounts of this material may adhere to the surface of the punch.

Appropriate lubrication increases tool life by significantly reducing both friction, and thus overheating, and material accumulation on the punch. Should lubrication be a problem for any reason, punches with a coating suitable for the type of material used are the best solution.

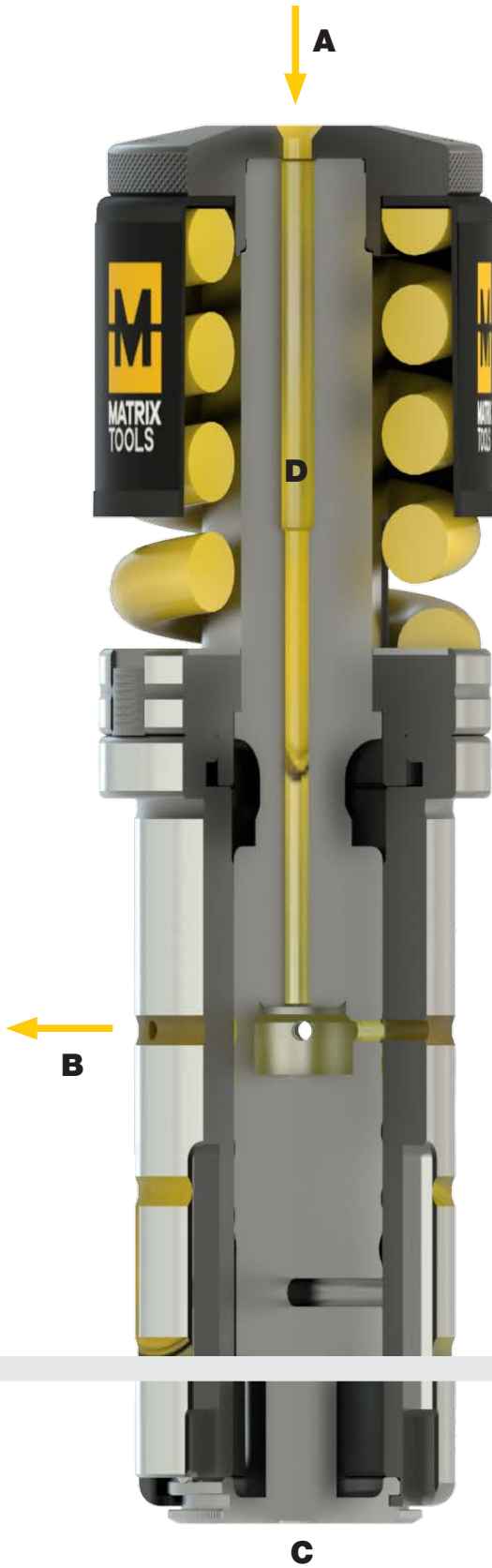
On machines without an automatic lubrication system, fill the hole in the middle with oil for sliding surfaces on a daily basis and whenever you change the setup.

When you insert a punch in the punch-holder, it is also advisable to lightly grease the punch rod with graphite grease.

Failure to do so will cause excessive wear on the punch-holders.

The diagram on the right, valid for A and B stations, shows the areas affected by the presence of lubricant.

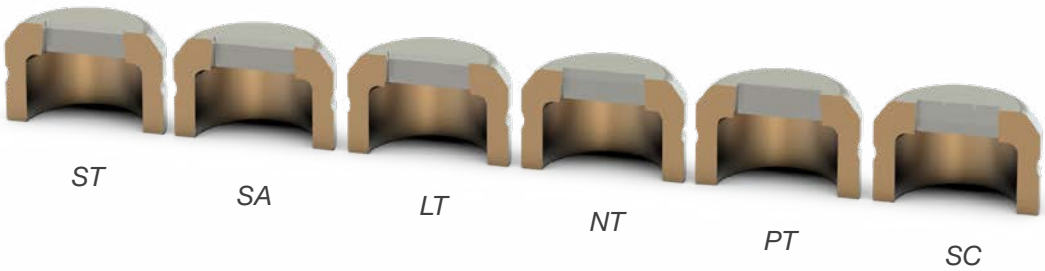
LUBRICATION:
INDISPENSABLE



- A** Hole for adding lubricant
- B** Hole that allows the lubricant to reach the contact area between the outside walls of the punch-holder and the seat in the punching machine
- C** The lubricant also reaches the cutting part of the punch, improving shearing and extraction
- D** Lubricant tank

SLUG-FREE TECHNOLOGY

Slug-pulling during the punching process can create problems at various levels, from simple but costly downtime to damage to tools or the workpiece. For this reason, MATRIX dies come with a variety of devices for minimizing the problem according to the processing concerned. MATRIX always recommends the choice of die best suited to the customer's needs



DIE CLEARANCE AS A PERCENTAGE OF THICKNESS

























Material	Thickness range	Minimum or Blanking**	Standard	Maximum
Aluminum Copper Brass 100 to 280 N/mm ²	Up to 1.4 mm	8%	14%	16%
	From to 1.5 mm - 3.0 mm	10%	18%	20%
	From 3.1 mm	12%	20%	24%
Mild steel 281 to 580 N/mm ²	Up to 2.4 mm	15%	18%	20%
	From to 2.5 mm - 4.4 mm	18%	22%	25%
	From 4.5 mm	20%	25%	30%
Stainless steel Above 581 N/mm ²	Up to 1.4 mm	15%	20%	22%
	From to 1.5 mm - 2.4 mm	18%	22%	25%
	From 2.5 mm	20%	25%	28%

When choosing how much clearance to apply, reference must also be made to the actual shear strength and not just to the type of material.
**Blanking: when the part to be obtained is the scrap

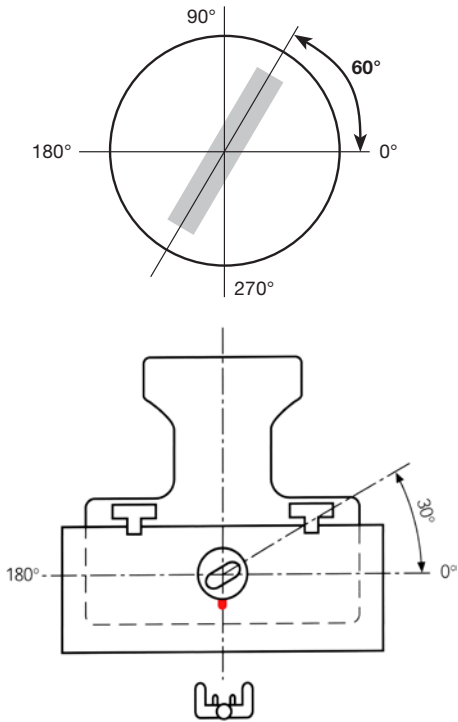
MATRIX TEMPLATE CODES

01	08	2Q	2R	45	49
42	52	47	43	55	56
57	44	58	59	41	60
62	61	62	09	63	64
65	6C	66	67	68	69
70	71	72	73	74	75
76	77	78	79	80	81
82	83	9R	11	84	85
86	87	88	89	90	46
91	92	93	94	95	96

REFERENCES AND ORIENTATION

	A and B STATIONS	C, D, E AND F STATIONS	iEM INSERTS B STATIONS	iEM INSERTS C, D AND E STATION	W90 A AND B STATIONS	W90 C, D, E AND F STATIONS
PUNCHES	 	 	 	 	 	 
DIES	 	 	 	 	 	 

TOP VIEW OF THE DIE
CARTESIAN COORDINATE SYSTEM





MADE IN ITALY



matrixtools.eu

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