



**Innovation Is
Our Tool**

SWISS  QUALITY

URMA MX Milling



**Précision et rapidité en un :
La dernière génération de fraises à surfacer.**

Precision and speed in one:

The latest generation of face milling.

Présentation de la gamme de fraisage

Overview Milling Portfolio

Milling Key Facts

Fraises à surfacer
Face milling cutter

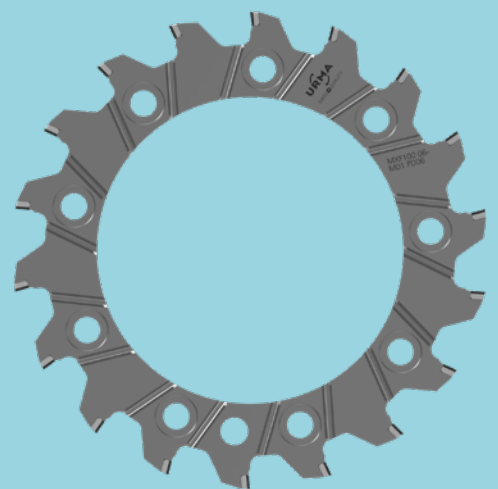
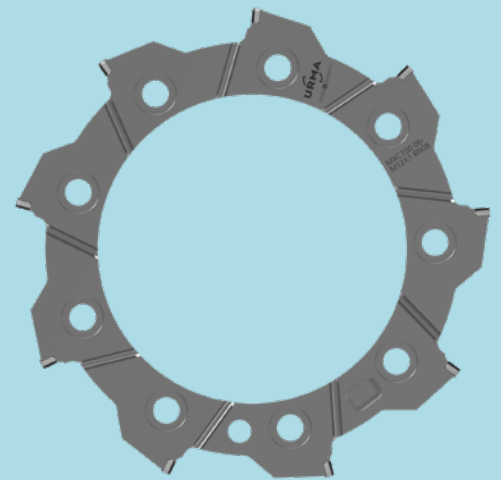
Système de changement rapide RX
Quick-change system RX

Conception modulaire
Modular design

**Lame de fraisage en carbure monobloc
équipée**
Tipped solid carbide milling cutter

Géométries standard et spéciales
Standard and dedicated geometries

Diamètre
Diameter
50 mm, 63 mm, 80 mm, 100 mm, 125 mm



MX boronite

à partir de la page 8
from page 8

Matériaux de coupe
Cutting materials

CBN

Groupe de matériaux
Material group

K

H

SM

Nombre de dents
Number of teeth

$\varnothing 50 = 5 / \varnothing 63 = 6 / \varnothing 80 = 8 /$
 $\varnothing 100 = 9 / \varnothing 125 = 10$

Finition et ébauche
Finishing and roughing

ap 0.05 – 1.00 mm

MX diamond

à partir de la page 28
from page 28

Matériaux de coupe
Cutting materials

PKD

Groupe de matériaux
Material group

N

O

Nombre de dents
Number of teeth

$\varnothing 50 = 10 / \varnothing 63 = 12 / \varnothing 80 = 16 /$
 $\varnothing 100 = 18 / \varnothing 125 = 20$

Finition et ébauche
Finishing and roughing

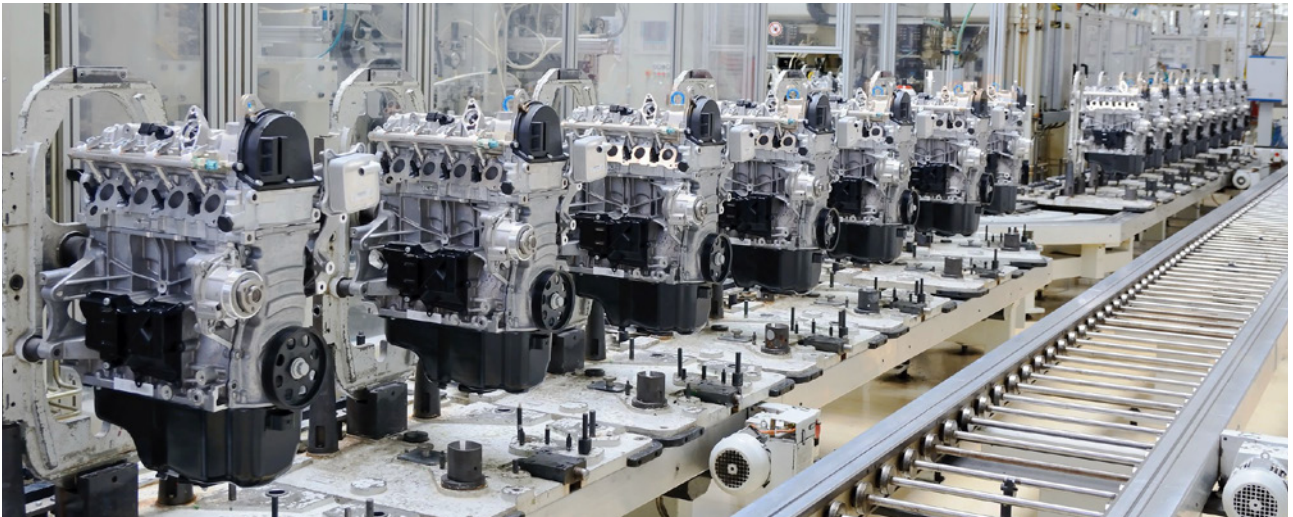
ap 0.05 – 4.00 mm

URMA Milling

MX boronite

Automobile

Automotive



Exigences

- Précision
- Sécurité du processus
- Manipulation simple
- Productivité

Exemple d'application "Collecteur d'échappement"

Matériau: EN-GJL-250

Requirements

- Precision
- Process reliability
- Simple handling
- Productivity

Example of an "Exhaust Manifold" Application

Material: EN-GJL-250

Données d'application

Application Data

vc	1'500	m/min
fz	0.1	mm
z	9	
vf	4'300	mm/min
ap	1	mm
ae	68	mm
Ra	0.45	µm
Ø	100	mm



Industrie mécanique

Machine Building Industry



Exigences

- Précision
- Sécurité du processus
- Coût optimisé
- Manipulation simple

Exemple d'application "Plaque de moule"

Matériau: 1.2842 / 52HRC

Requirements

- Precision
- Process reliability
- Low costs
- Simple handling

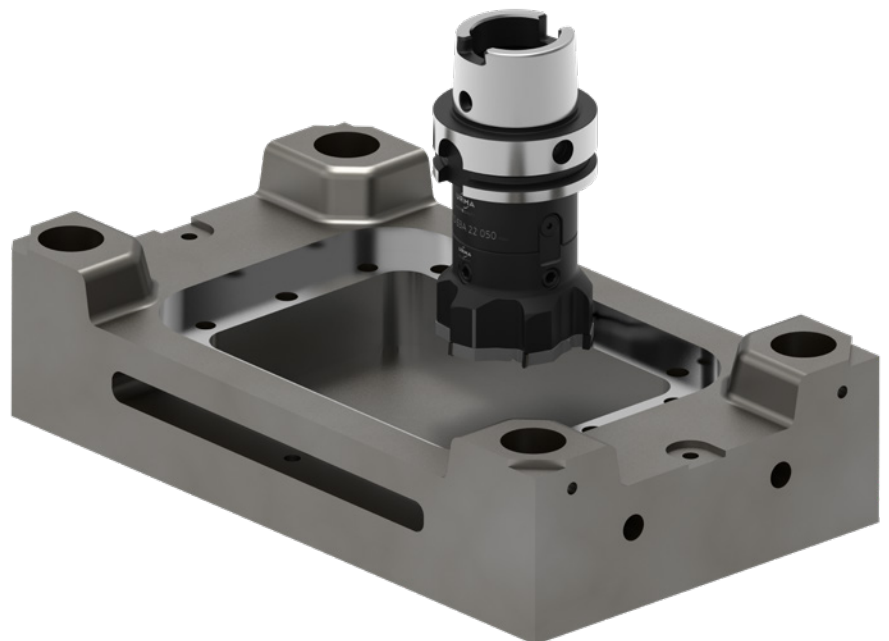
Example of a "Mold Plate" Application

Material: 1.2842 / 52HRC

Données d'application

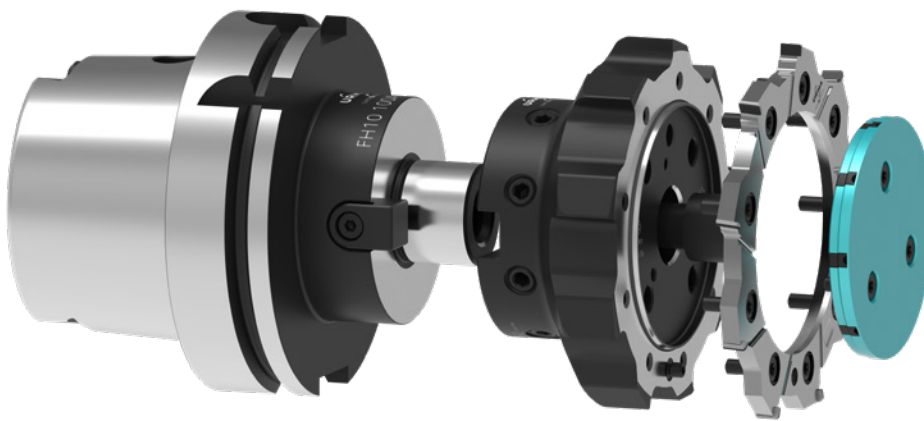
Application Data

vc	150	m/min
fz	0.1	mm
z	6	
vf	55	mm/min
ap	0.3	mm
ae	20	mm
Ra	0.4	µm
Ø	63	mm



Vos avantages avec MX boronite

Your Advantages with MX boronite

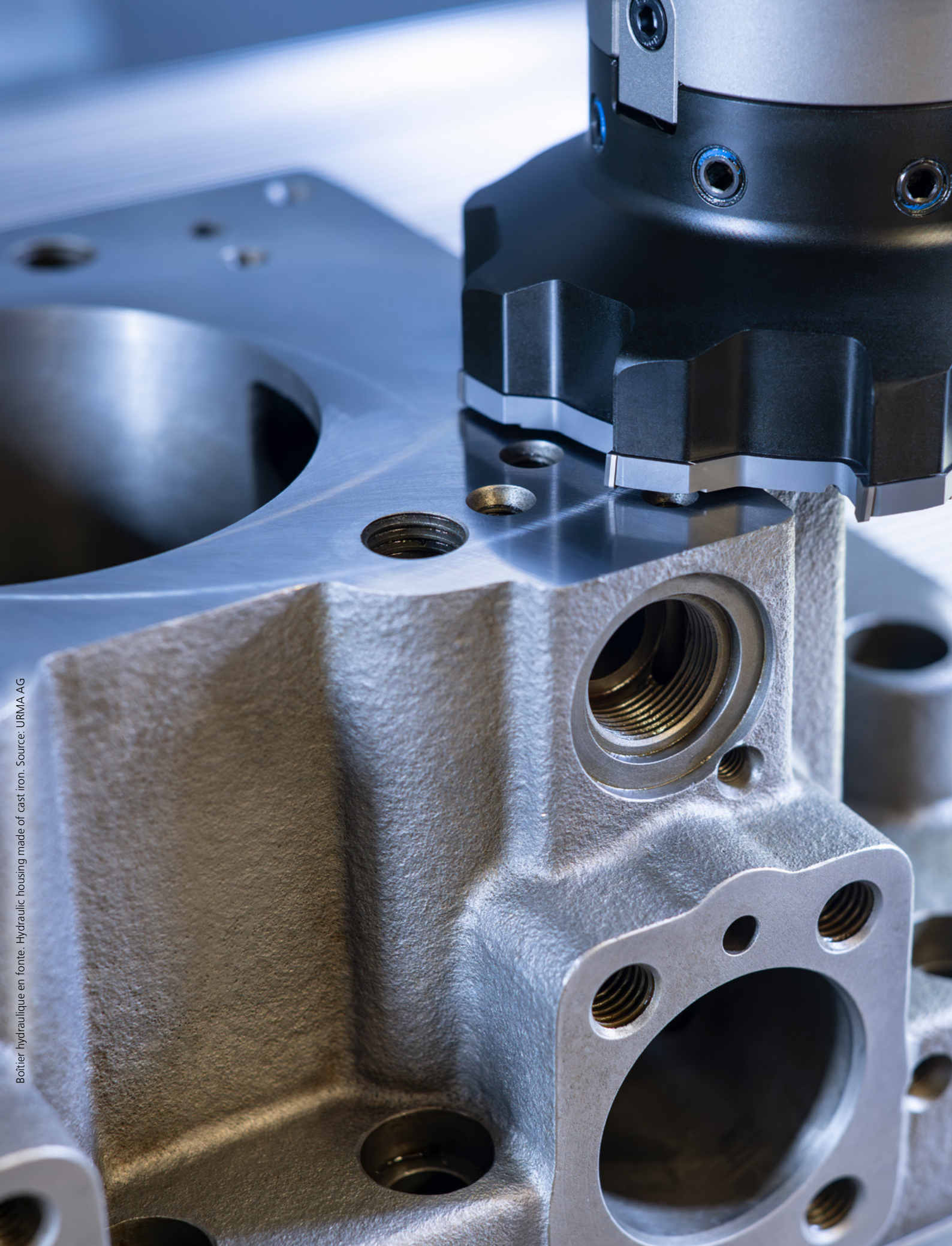


Caractéristiques principales

- Diamètre 50 mm/63 mm/ 80 mm/100 mm/125 mm
- Haute précision et maniabilité optimisée grâce à la conception RX
- Géométrie de coupe à haut rendement permettant une réduction des temps de cycle
- Fraise carbure monobloc à haute rigidité. dotée de plaquettes CBN
- Montage direct sans réglage

Key Points

- Diameter 50 mm/63 mm/ 80 mm/100 mm/125 mm
- High precision and easy handling based on the very reliable RX-technology
- Significant savings thanks to high-performance cutting
- Highest rigidity thanks to CBN tipped solid carbide cutting ring
- No adjustment efforts for the customer



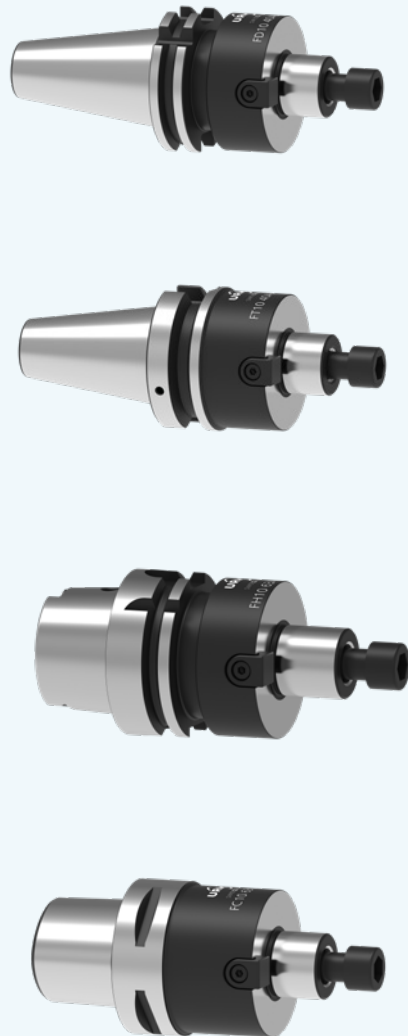
Boîtier hydraulique en fonte. Hydraulic housing made of cast iron. Source: URMA AG

Fraisage URMA MX boronite

URMA Milling MX boronite

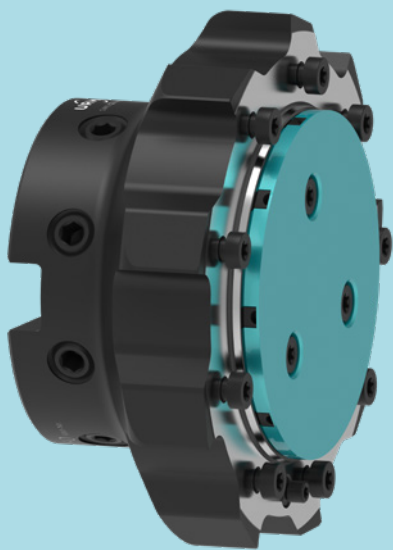
Porte-fraises
Adaptors

Page 15



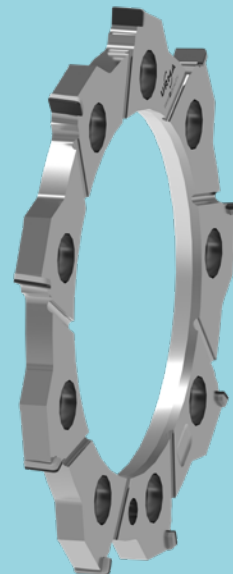
Fraises à tenons
Cutter Body

Page 14



Fraises
Milling Cutter

Page 14



Fraises

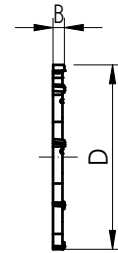
Milling Cutter



Fraises

Milling Cutter

System Size	Order Number	d	B	z	kg	Geometry	Grade	Stock
MXC050	MXC50 06-M12X1 BN08	50	6	5	0.07	M12X1	BN08	●
MXC063	MXC63 06-M12X1 BN08	63	6	6	0.09	M12X1	BN08	●
MXC080	MXC80 06-M12X1 BN08	80	6	8	0.15	M12X1	BN08	●
MXC100	MXC100 06-M12X1 BN08	100	6	9	0.20	M12X1	BN08	●
MXC125	MXC125 06-M12X1 BN08	125	6	10	0.39	M12X1	BN08	●



Fraises à tenons

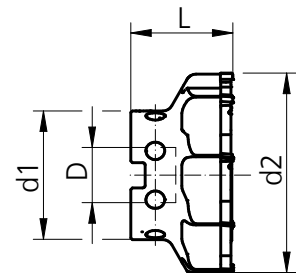
Cutter Body



Fraise à tenons en Acier

Cutter Body Steel

System Size	Order Number	L	D	d1	d2	kg	Stock
MXC050	MXU50 16 040	40	16	38	49	0.29	●
MXC063	MXU63 22 045	45	22	48	62	0.57	●
MXC080	MXU80 27 050	50	27	63	79	1.07	●
MXC100	MXU100 27 050	50	27	63	99	1.48	●
MXC125	MXU125 32 055	55	32	78	124	2.55	●



Pièces détachées pour fraises à tenons à la page 24 – 25

Spare parts blade carrier on page 24 – 25

z Nombre de dents
Number of teeth

● En stock
On stock

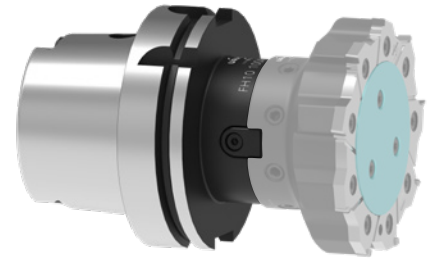
▲ Disponibilité à court terme
Short-term availability

○ Disponibilité sur demande
Availability on request

Toutes les dimensions sont mm
All dimensions in mm

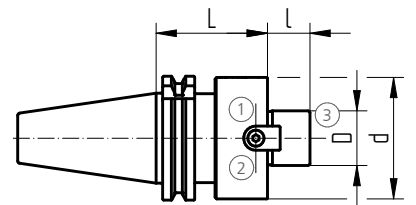
Porte-fraises

Adaptors



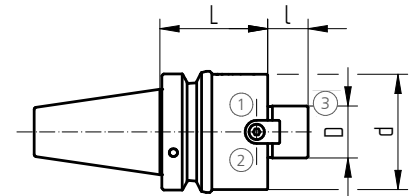
DIN 69871 - AD/B

System Size	L	I	D	d	kg	Order Number	Stock
SK40	55	17	16	38	1.13	FD10 40AB 16 055	●
SK40	55	19	22	48	1.38	FD10 40AB 22 055	●
SK40	55	21	27	60	1.65	FD10 40AB 27 055	●
SK40	60	24	32	78	2.15	FD10 40AB 32 060	●
SK50	55	17	16	38	2.86	FD10 50AB 16 055	●
SK50	55	19	22	48	3.82	FD10 50AB 22 055	●
SK50	55	21	27	60	4.00	FD10 50AB 27 055	●
SK50	55	24	32	78	4.05	FD10 50AB 32 055	●



MAS-BT JIS 6339 - AD

System Size	L	I	D	d	kg	Order Number	Stock
BT30	40	17	16	39	0.58	FT10 30A 16 040	●

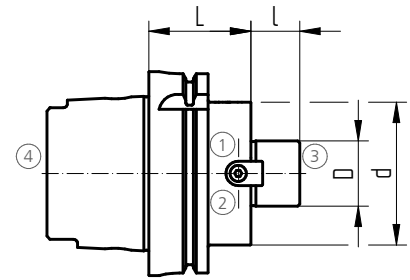


MAS-BT JIS 6339 - AD/B

System Size	L	I	D	d	kg	Order Number	Stock
BT40	55	17	16	38	1.19	FT10 40AB 16 055	●
BT40	55	19	22	48	1.38	FT10 40AB 22 055	●
BT40	55	21	27	60	1.65	FT10 40AB 27 055	●
BT40	60	24	32	78	2.15	FT10 40AB 32 060	●
BT50	55	17	16	38	3.71	FT10 50AB 16 055	●
BT50	55	19	22	48	3.82	FT10 50AB 22 055	●
BT50	55	21	27	60	4.00	FT10 50AB 27 055	●
BT50	55	24	32	78	4.05	FT10 50AB 32 055	●

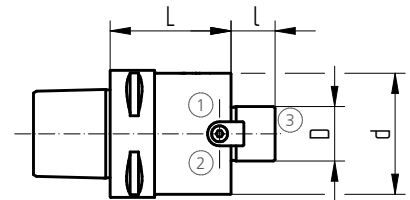
DIN 69893-HSK-A

System Size	L	I	D	d	kg	Order Number	Stock
HSK63	50	17	16	38	0.87	FH10 63A 16 050	●
HSK63	50	19	22	48	1.05	FH10 63A 22 050	●
HSK63	60	21	27	60	1.40	FH10 63A 27 060	●
HSK63	60	24	32	78	1.75	FH10 63A 32 060	●
HSK100	50	17	16	38	2.21	FH10 100A 16 050	●
HSK100	50	19	22	48	2.35	FH10 100A 22 050	●
HSK100	50	21	27	60	2.57	FH10 100A 27 050	●
HSK100	50	24	32	78	2.95	FH10 100A 32 050	●



ISO 26623-1-PSC

System Size	L	I	D	d	kg	Order Number	Stock
PSC 63	50	17	16	38	1.08	FC10 63 16 050	●
PSC 63	50	19	22	48	1.24	FC10 63 22 050	●
PSC 63	60	21	27	60	1.70	FC10 63 27 060	●
PSC 63	60	24	32	78	2.20	FC10 63 32 060	●



Pièces de rechange

Spare Parts Adaptors

D	①	②	③
16*	Z00 70 16 01	C00 22 60	52 01 16
16	Z00 70 16	C00 22 31	C00 22 06
22	Z00 70 22	C00 22 05	C00 24 46
27	Z00 70 27	C00 22 07	C00 24 04
32	Z00 70 32	C00 22 13	C00 24 47

*Compatible uniquement avec les formats BT30

*For BT30 adaptors only

Tube d'arrosage

Coolant Tube

Size	④
63	H00 63 01
100	H00 100 01

Accessoires

Accessories

Disque de contrôle de planéité

Axial Run-Out Indicating Insert

System Size	D	B	Order Number	Stock
MX050	50	6	MXP050	●
MX063	63	6	MXP063	●
MX080	80	6	MXP080	●
MX100	100	6	MXP100	●
MX125	125	6	MXP125	●

Tournevis

Screw Driver

System Size	Dimension	Couple de serrage/Torque	Order Number	Stock
MX050	T8	1,5 Nm	G00 40 12	▲
MX063	T10	3 Nm	G00 40 18	▲
MX080	T10	3 Nm	G00 40 18	▲
MX100	T15	3,5 Nm	G00 40 13	▲
MX125	T15	3,5 Nm	G00 40 13	▲



Clé à douilles et Douille six pans

Hex Bit Socket

System Size	Dimension	Couple de serrage/Torque	Order Number	Stock
MX050	SW5	10 – 100 Nm	G00 40 60	▲
MX063 – MX125	SW8 / SW10 / SW14	40 – 200 Nm	G00 40 40	▲
MX050	SW5	35 Nm	G00 40 45	▲
MX063	SW8	80 Nm	G00 40 44	▲
MX080	SW10	85 Nm	G00 40 43	▲
MX100	SW10	85 Nm	G00 40 43	▲
MX125	SW14	160Nm	G00 40 42	▲



Instruments de mesure

Measuring Device

Type	Description	Order Number	Stock
Twin T10	Instrument de mesure électronique, piles incl. Electronic measuring instrument, batteries incl.	04430013	○
LRC 6, AA	Piles (3 pièces) Batteries (3 pieces)	04768002	○
GT 31	Palpeur à levier Lever probe	03210802	○
MGA	Bras articulé magnétique Magnetic articulated arm	01639022	○



GT 31



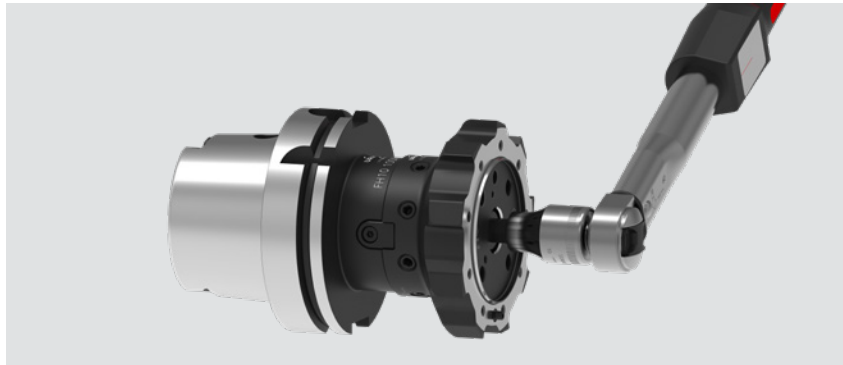
Twin T10



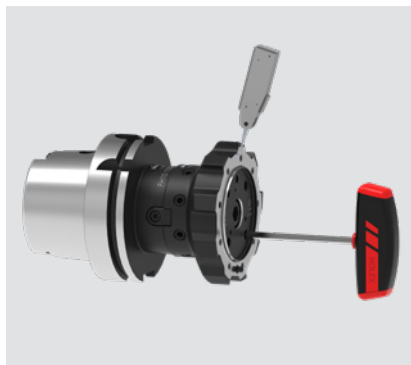
MGA

Réglage initial

Initial Setup



- 1** **Assembler l'outil.**
Assemble the tool.



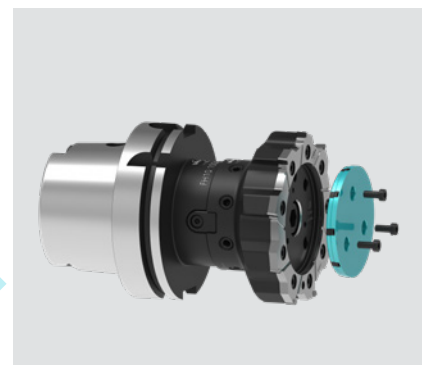
- 2** **Contrôler la planéité.**
Run-out adjustment.

- 3** **Nettoyer l'interface**
Clean the interface.



- 4** **Monter la fraise.**
Assemble new cutting ring.

- 5** **Monter le flasque d'arrosage**
Assemble the coolant disk.

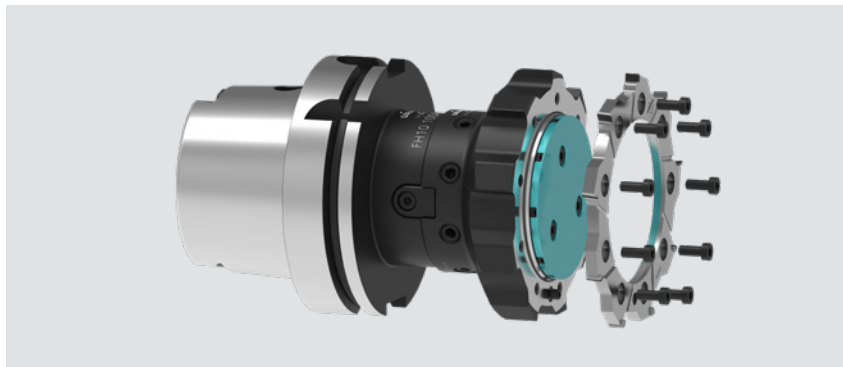


- 6** **Usinage du composant.**
Machining the component.



Changement de disque de fraisage

Changing Cutting Ring

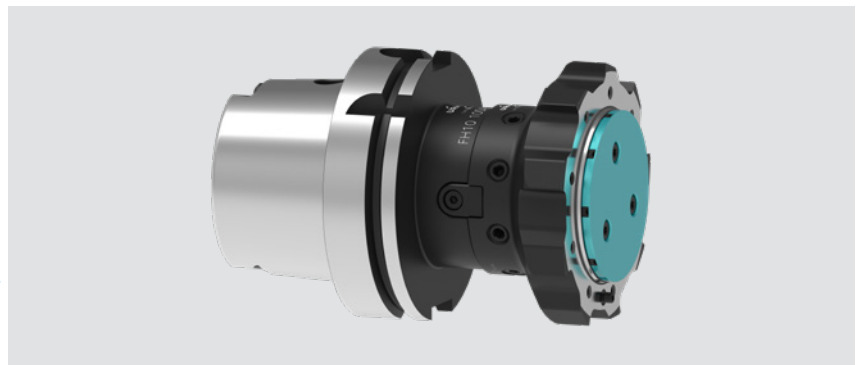


1 Dévisser et démonter la fraise.

Remove the cutting ring.

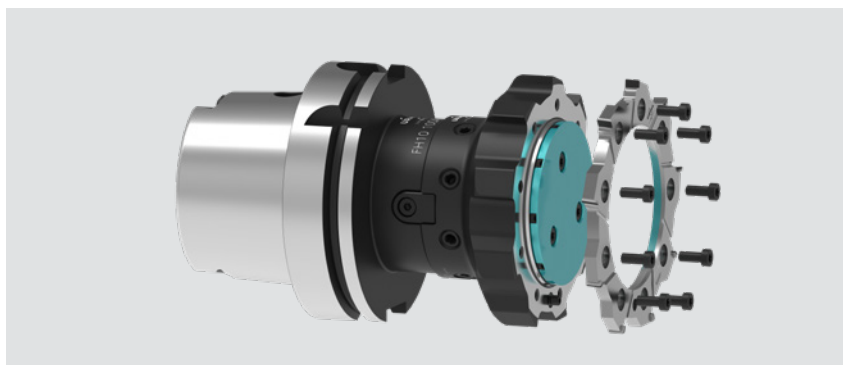
2 Nettoyer l'interface.

Clean the interface.



3 Monter et visser la fraise.

Assemble new cutting ring.



4 Usinage du composant.

Machining the component.



Tableau comparatif des matériaux

Material Comparison Table

Fontes

Cast Irons

ISO	UMC	Description	Description	Rm [N/mm ²]	HB	Kc1.1	mc	DIN Nr.	Exemple/Example
K	K1	Fontes grises	Grey cast irons	< 300	< 90	1100	0.25	0.6025	EN-GJL-250 (GG25)
	K2	Fontes grises	Grey cast irons	> 300	> 90	1300	0.27	0.6035	EN-GJL-350 (GG35)
	K3	Fontes ductiles, Fontes malléables	Ductile cast irons, Malleable cast irons	< 500	< 150	900	0.25	0.7040	EN-GJS-400-15 (GGG40)
	K4	Fontes ductiles, Fontes malléables	Ductile cast irons, Malleable cast irons	< 800	< 210	1400	0.28	0.7060	EN-GJS-600-3 (GGG60)
	K5	Fontes ductiles traitée	Austempered ductile irons	< 1100	< 325	1500	0.32		EN-GJS-1000-5
	K6	Fontes à graphite compacté	Compacted graphite irons	300 – 500	90 – 150				EN-GJV-400
	K7	Fontes lamellaires austénitiques	Austenitic lamellar cast irons	< 400				0.6655	GGL-NiCuCr 15 6 2
	K8	Fontes sphéroïdale austénitique, graphite et ductile	Austenitic spheroidal graphite and ductile iron	300 – 600	90 – 180			0.7673	EN-GJSA-XNiMn23-4

Aciers trempés

Hardened Steels

ISO	UMC	Description	Description	Rm [N/mm ²]	HB	Kc1.1	mc	DIN Nr.	Exemple/Example
H	H1	Aciers de cémentation, aciers traités therm., aciers pour roulements, aciers à outils	Case hardening steels, heat-treatable steels, bearing steels, tool steels	1450 – 1800	< 520	3300	0.22		HRC 45 – 52
	H2	Aciers de cémentation, aciers traités therm., Aciers pour roulements, aciers à outils	Case hardening steels, heat-treatable steels, bearing steels, tool steels	1800 – 2100	520 – 600	4100	0.22		HRC 53 – 57
	H3	Aciers de cémentation, aciers traités therm., aciers pour roulements, aciers à outils, aciers rapides (HSS)	Case hardening steels, heat-treatable steels, bearing steels, tool steels, high-speed steels	> 2100	> 600	4700	0.22		HRC 58 – 62

Matériaux métallurgiques en poudre

Powder Metallurgical Materials

ISO	UMC	Description	Description	Rm [N/mm ²]	HB	Kc1.1	mc	DIN Nr.	Exemple/Example
SM	SM1	Matériaux faiblement alliés frittés	Low alloyed sintered materials	200 – 450	< 135	3300	0.22		Sint-D11 / C11
	SM2	Matériaux moyennement alliés frittés avec Ni < 7%	Medium alloyed sintered materials with Ni < 7%	400 – 600	120 – 180	4100	0.22		Sint-D31 / C31
	SM3	Matériaux fortement alliés frittés avec Cr et Ni > 7%	High alloyed sintered materials with Cr and Ni > 7%	400 – 600	120 – 180	4700	0.22		"Sint-D40 / C40 (AISI 316)"

Données de coupe

Cutting Data

Fers à couler

Cast Irons

ISO	UMC	Grade	vc	fz	ap max.	Liquide de refroidissement Coolant
K	K1	BN08	800 – 1500 – 2000	0.05 – 0.15 – 0.3	1.5	dry
	K2					
	K3	BN08	150 – 200 – 300	0.05 – 0.15 – 0.3	1.5	wet
	K4		150 – 200 – 250			
	K5	BN08	100 – 150 – 200	0.05 – 0.1 – 0.15	1	
	K6		150 – 200 – 250			
	K7	BN08	N/A	N/A	N/A	N/A
	K8					

Aciers trempés

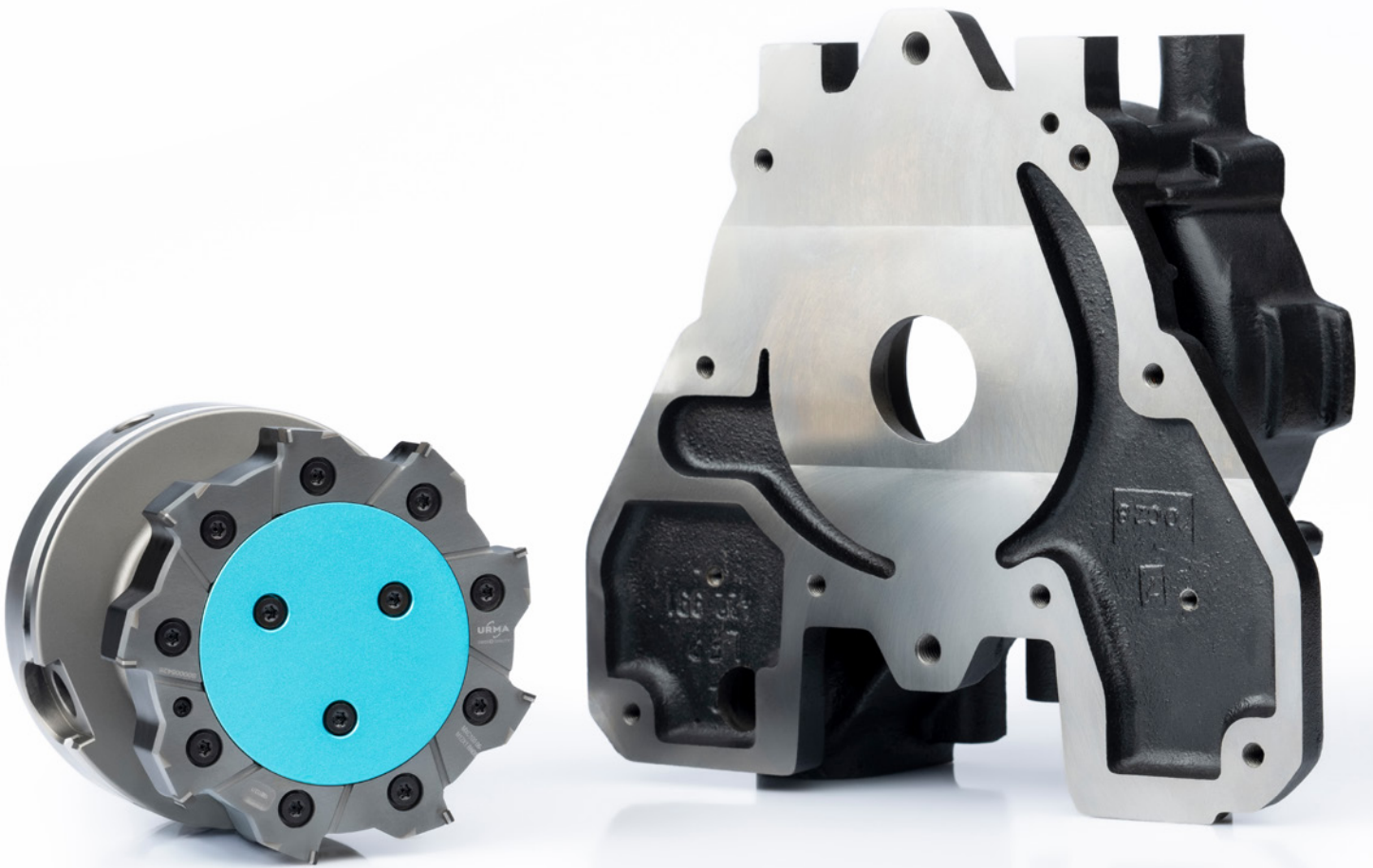
Hardened Steels

ISO	UMC	Grade	vc	fz	ap max.	Liquide de refroidissement Coolant
H	H1	BN08	150 – 200 – 250	0.05 – 0.1 – 0.15	0.5	dry
	H2	BN08	100 – 150 – 200			
	H3	BN08	70 – 120 – 150			

Matériaux métallurgiques frittés

Powder Metallurgical Materials

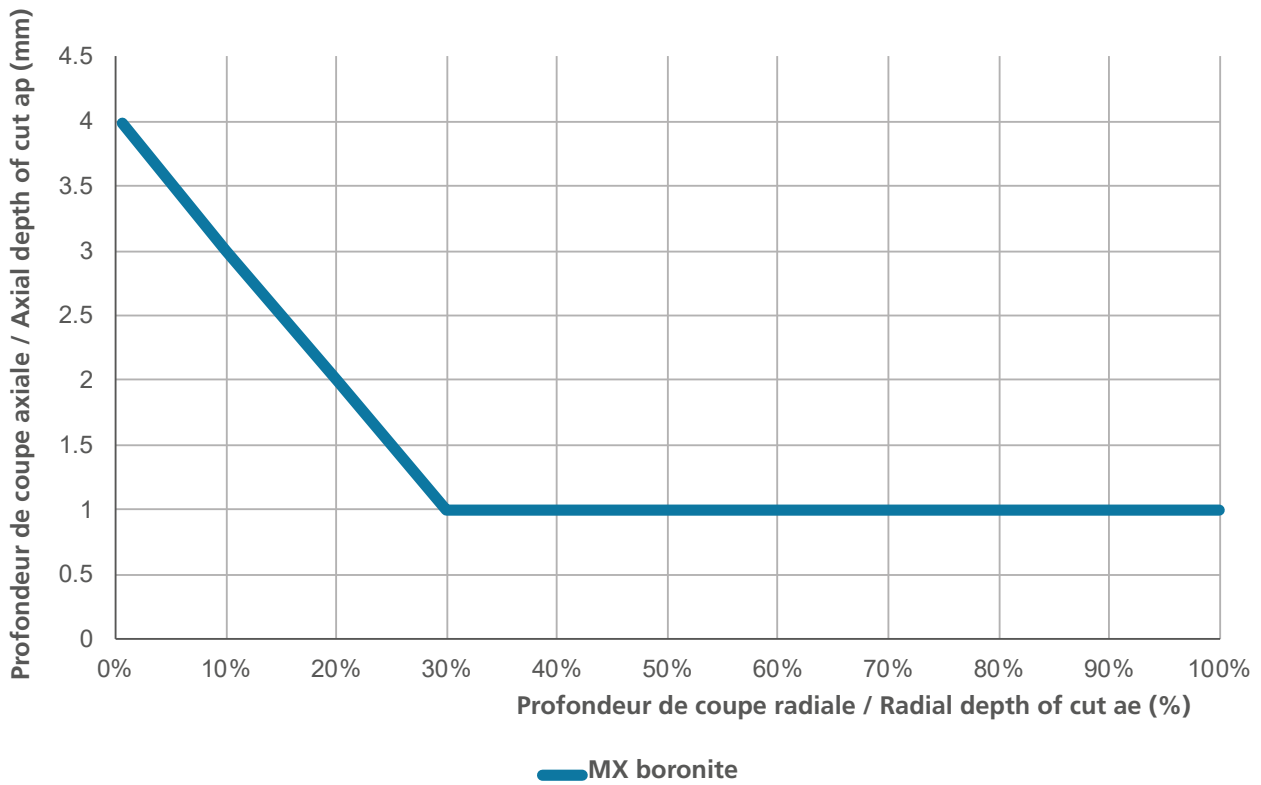
ISO	UMC	Grade	vc	fz	ap max.	Liquide de refroidissement Coolant
SM	SM1	BN08	100 – 200 – 250	0.05 – 0.15 – 0.3	1	dry
	SM2				0.5	
	SM3				0.5	



Corps de pompe à huile en fonte. Oil pump housing made of cast iron. Source: URMA AG

Ratio ae / ap

Ratio ae / ap



Vitesse maximale

Maximum Revolution

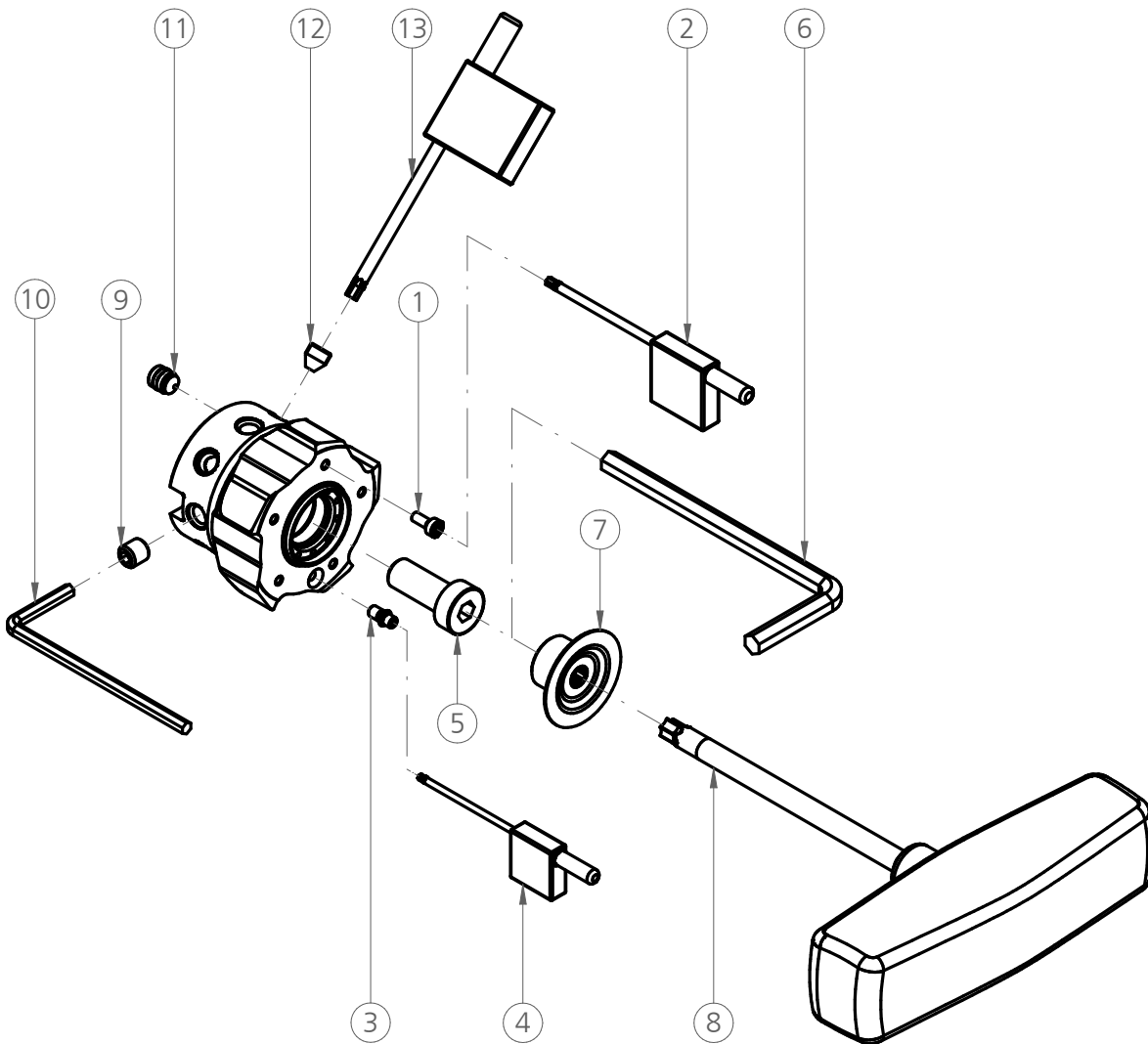
System Size	D	max. Vc	max. rpm
MXC050	50	2827 m/min	18000 1/min
MXC063	63	2968 m/min	15000 1/min
MXC080	80	3015 m/min	12000 1/min
MXC100	100	3141 m/min	10000 1/min
MXC125	125	3141 m/min	8000 1/min

Contrôlé et certifié en externe selon la norme DIN 15641

Externally tested and certified by DIN 15641

Pièces détachées

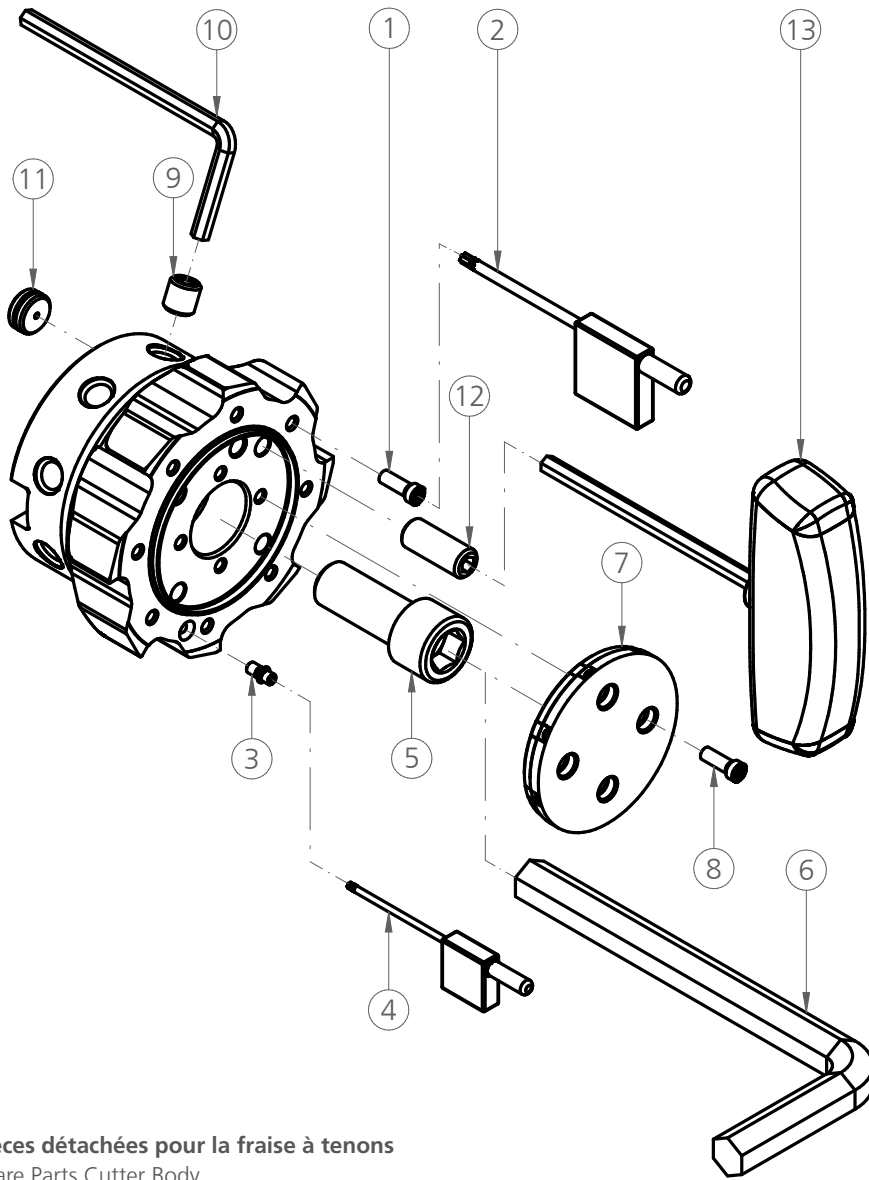
Spare parts



Pièces détachées pour la fraise à tenons

Spare Parts Cutter Body

System Size	①	②	③	④	⑤	⑥	
MXC050	C00 90 17	G00 20 02	C00 70 09	G00 20 01	C00 23 21	G00 02 06	
System Size	⑦	⑧	⑨	⑩	⑪	⑫	⑬
MXC050	Z90 17 05P	G00 20 29	M6	G00 02 04	ZA00 90 15	C00 70 10	G00 20 03



Pièces détachées pour la fraise à tenons
Spare Parts Cutter Body

System Size	①	②	③	④	⑤	⑥
MXC063	C00 70 04	G00 20 07	C00 70 09	G00 20 01	C00 22 64	G00 02 08
MXC080	C00 70 04	G00 20 07	C00 70 09	G00 20 01	C00 70 06	G00 02 09
MXC100	C00 70 05	G00 20 03	C00 70 08	G00 20 02	C00 70 06	G00 02 09
MXC125	C00 70 05	G00 20 03	C00 70 08	G00 20 02	C00 70 07	G00 02 16

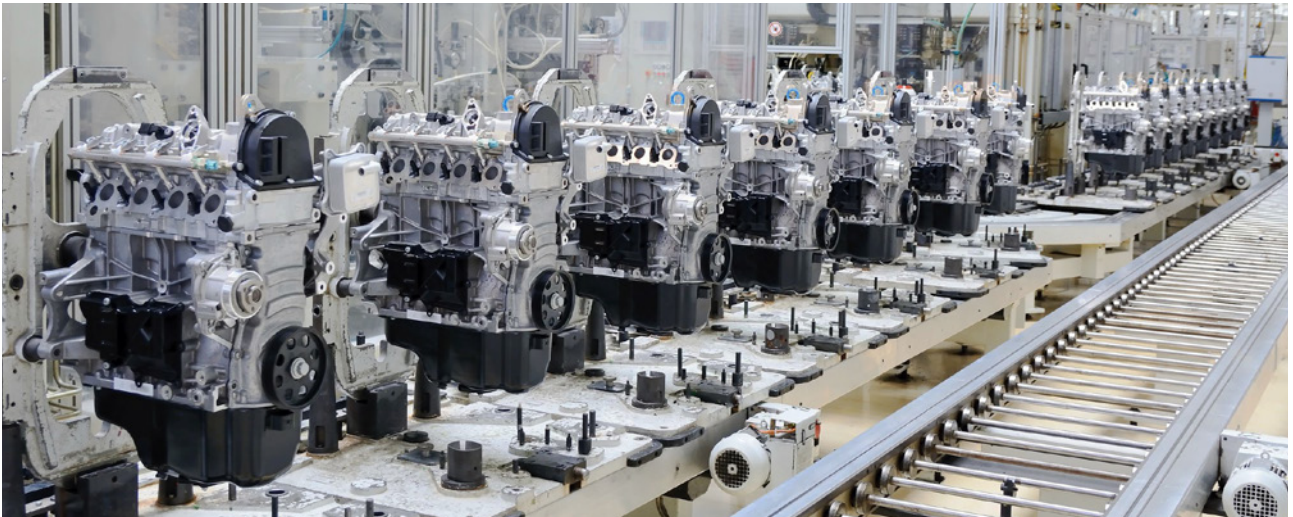
System Size	⑦	⑧	⑨	⑩	⑪	⑫	⑬
MXC063	Z90 16 06P	C00 70 04	ZA00 90 11	G00 02 05	ZA00 90 14	C00 70 01	G00 02 25
MXC080	Z90 16 08P	C00 70 04	ZA00 90 11	G00 02 05	ZA00 90 13	C00 70 02	G00 02 26
MXC100	Z90 16 10P	C00 70 05	ZA00 90 11	G00 02 05	ZA00 90 13	C00 70 02	G00 02 26
MXC125	Z90 16 12P	C00 70 05	ZA00 90 11	G00 02 05	ZA00 90 07	C00 70 03	G00 02 27

URMA Milling

MX diamond

Automobile

Automotive



Exigences

- Précision
- Fiabilité du processus
- Facilité d'utilisation
- Productivité

Exemple d'application "Boîte à transmission automatique"

Material: G-ALSi7

Requirements

- Precision
- Process reliability
- Simple handling
- Productivity

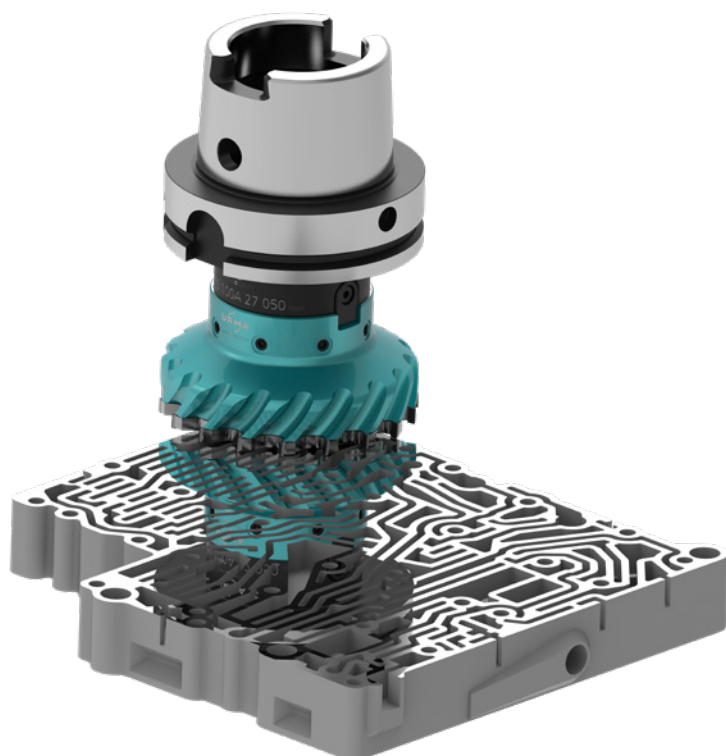
Example of a "Slider box automatic transmission"

Material: G-ALSi7

Données d'application

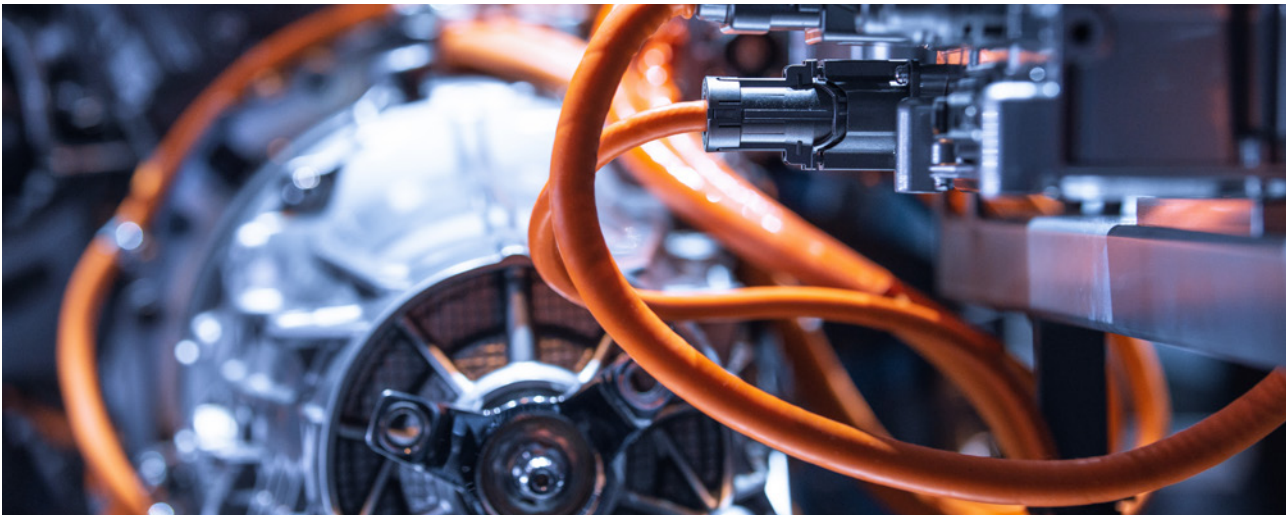
Application Data

vc	3'500	m/min
fz	0.15	mm
z	20	
vf	26'700	mm/min
ap	1	mm
ae	110	mm
Ra	0.35	µm
Ø	125	mm



Mobilité électrique

E-Mobility



Exigences

- Précision
- Fiabilité du processus
- Coûts réduits
- Facilité d'utilisation

Carter de stator pour moteur électrique

Material: G-ALSi9

Requirements

- Precision
- Process reliability
- Low costs
- Simple handling

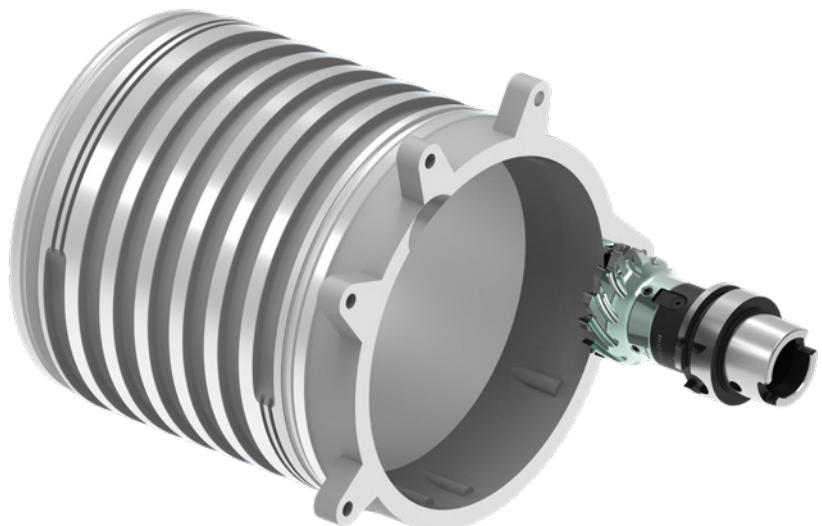
Example of a "Electric Motor Stator Housing"

Material: G-ALSi9

Données d'application

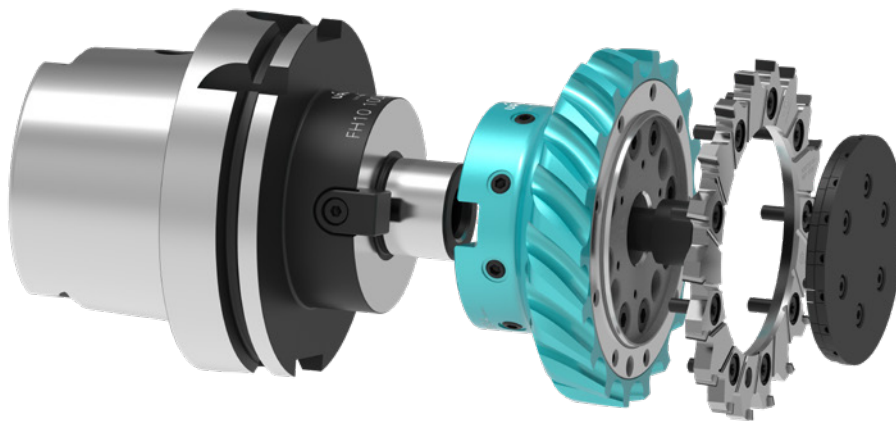
Application Data

vc	4'000	m/min
fz	0.2	mm
z	12	
vf	48'500	mm/min
ap	1	mm
ae	25-50	mm
Ra	0.4	µm
Ø	63	mm



Vos avantages avec MX diamond

Your Advantages with MX diamond

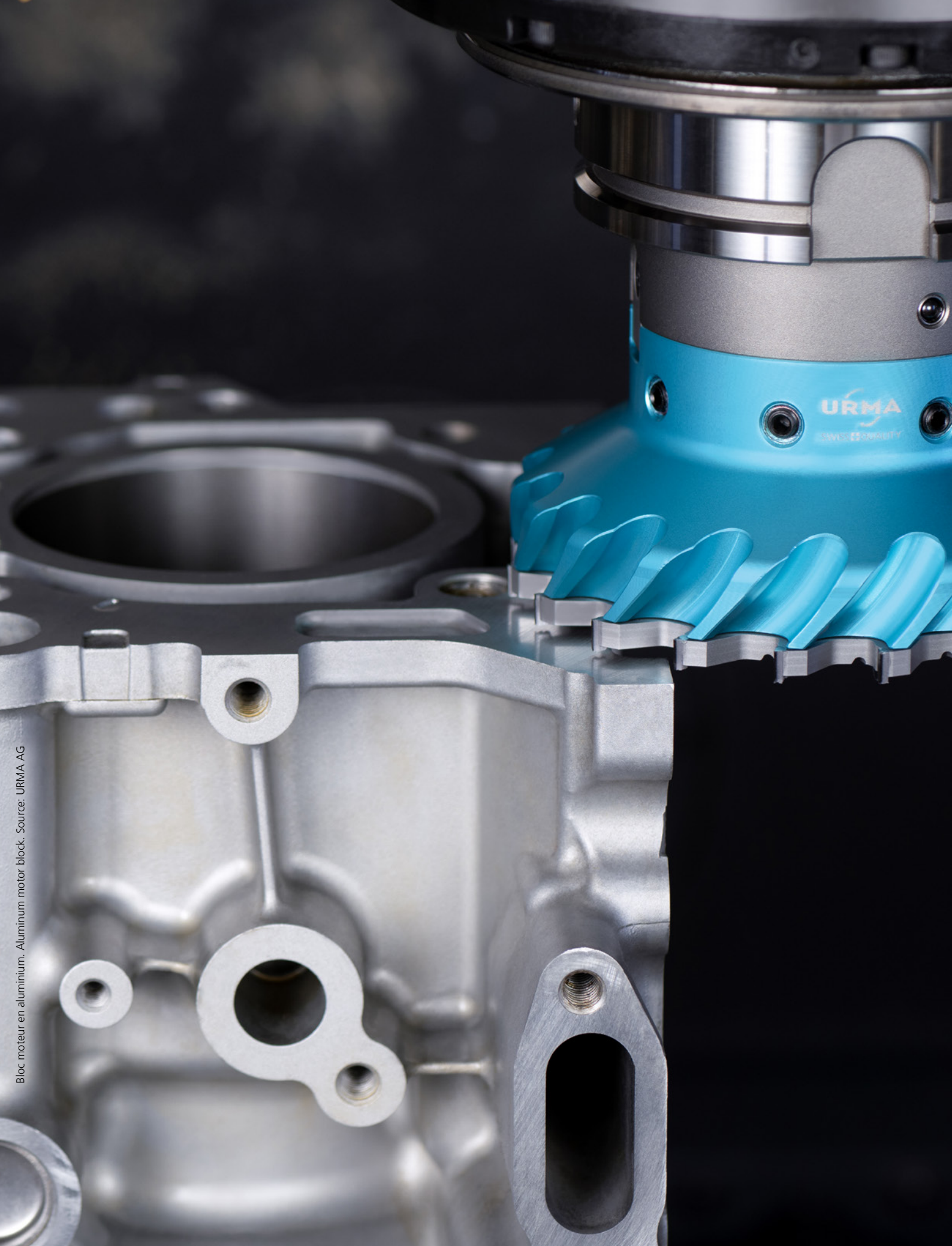


Caractéristiques principales

- Diamètre 50 mm/63 mm/80 mm/100 mm/125 mm
- Haute précision et maniabilité optimisée grâce à la conception RX
- Des économies importantes avec une géométrie de coupe innovante et de haute performance
- Excellente stabilité des inserts PCD grâce au disque en carbure
- Montage direct sans réglage
- Reconditionnement simple et rapide des plaquettes PCD usagées

Key Points

- Diameter 50 mm/63 mm/80 mm/100 mm/125 mm
- High precision and easy handling based on the very reliable RX-technology
- Significant savings thanks to high-performance cutting
- Highest rigidity thanks to PCD tipped solid carbide cutting ring
- No adjustment efforts for the customer



Bloc moteur en aluminium. Aluminium motor block. Source: URMA AG

Fraises URMA MX diamond

URMA Milling MX diamond

Porte-fraises
Adaptors

Page 36 – 37

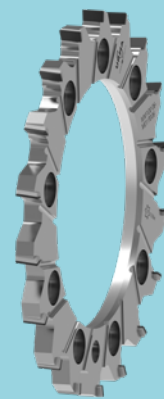
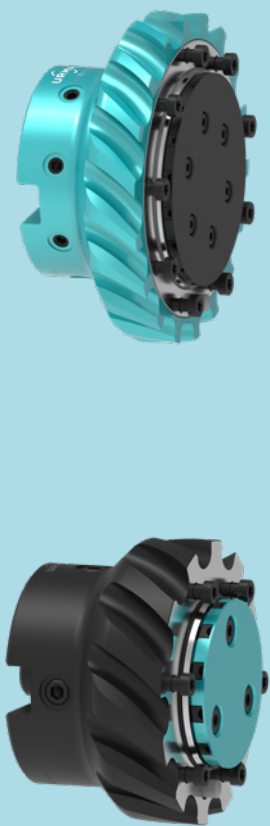


Fraises à tenons
Cutter Body

Page 35

Fraises
Milling Cutter

Page 34



Fraises

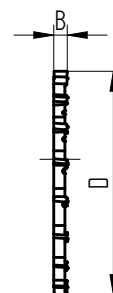
Milling Cutter



Fraises

Milling Cutter

System Size	Order Number	d	B	z	kg	Geometry	Grade	Stock
MXF050	MXF50 06-M01 PD06	50	6	10	0.08	M01	PD06	●
MXF063	MXF63 06-M01 PD06	63	6	12	0.09	M01	PD06	●
MXF080	MXF80 06-M01 PD06	80	6	16	0.15	M01	PD06	●
MXF100	MXF100 06-M01 PD06	100	6	18	0.21	M01	PD06	●
MXF125	MXF125 06-M01 PD06	125	6	20	0.39	M01	PD06	●



Fraise (géométrie sans bavure)

Milling Cutter (Burr-Free geometry)

System Size	Order Number	d	B	z	kg	Geometry	Grade	Stock
MXF050	MXF50 06-C01 PD06	50	6	10	0.08	C01	PD06	●
MXF063	MXF63 06-C01 PD06	63	6	12	0.09	C01	PD06	●
MXF080	MXF80 06-C01 PD06	80	6	16	0.15	C01	PD06	●
MXF100	MXF100 06-C01 PD06	100	6	18	0.21	C01	PD06	●
MXF125	MXF125 06-C01 PD06	125	6	20	0.39	C01	PD06	●

z Nombre de dents
Number of teeth

● En stock
On stock

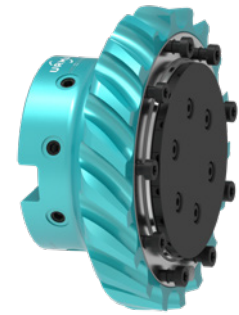
▲ Disponibilité à court terme
Short-term availability

○ Disponibilité sur demande
Availability on request

Toutes les dimensions sont mm
All dimensions in mm

Fraises à tenons

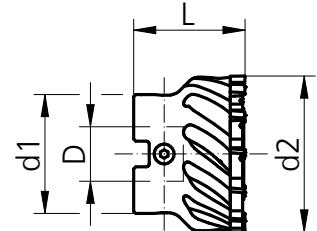
Cutter Body



Fraise à tenons en Acier

Cutter Body Steel

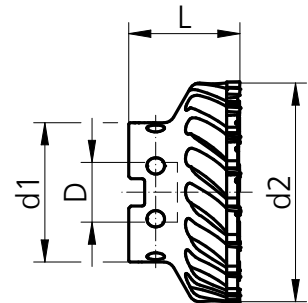
System Size	Order Number	L	D	d1	d2	kg	Stock
MXF050	MXK50 16 040	40	16	38	49	0.3	●
MXF063	MXK63 22 045	45	22	48	62	0.6	●
MXF080	MXK80 27 050	50	27	63	79	1.09	●



Fraise à tenons en Aluminium

Cutter Body Aluminium

System Size	Order Number	L	D	d1	d2	kg	Stock
MXF100	MXKL100 27 050A	50	27	63	99	0.95	●
MXF125	MXKL125 32 055A	55	32	78	124	1.52	●

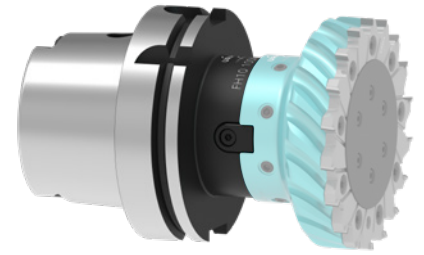


Pièces détachées pour Fraises à tenons page 38 – 39

Spare parts blade carrier on page 38 – 39

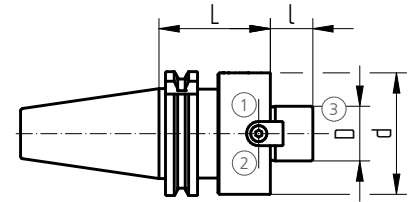
Porte-fraises

Adaptors



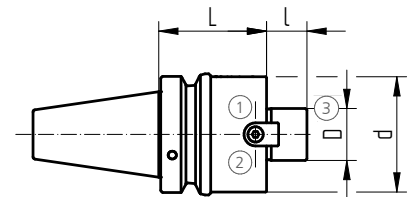
DIN 69874 – AD/B

System Size	L	I	D	d	kg	Order Number	Stock
SK40	55	17	16	38	1.13	FD10 40AB 16 055	●
SK40	55	19	22	48	1.38	FD10 40AB 22 055	●
SK40	55	21	27	60	1.65	FD10 40AB 27 055	●
SK40	60	24	32	78	2.15	FD10 40AB 32 060	●
SK50	55	17	16	38	2.86	FD10 50AB 16 055	●
SK50	55	19	22	48	3.82	FD10 50AB 22 055	●
SK50	55	21	27	60	4.00	FD10 50AB 27 055	●
SK50	55	24	32	78	4.05	FD10 50AB 32 055	●



MAS-BT JIS 6339 - AD

System Size	L	I	D	d	kg	Order Number	Stock
BT30	40	17	16	39	0.58	FT10 30A 16 040	●

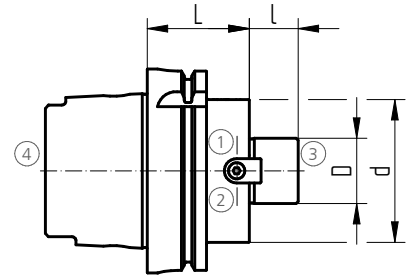


MAS-BT JIS 6339 – AD/B

System Size	L	I	D	d	kg	Order Number	Stock
BT40	55	17	16	38	1.19	FT10 40AB 16 055	●
BT40	55	19	22	48	1.38	FT10 40AB 22 055	●
BT40	55	21	27	60	1.65	FT10 40AB 27 055	●
BT40	60	24	32	78	2.15	FT10 40AB 32 060	●
BT50	55	17	16	38	3.71	FT10 50AB 16 055	●
BT50	55	19	22	48	3.82	FT10 50AB 22 055	●
BT50	55	21	27	60	4.00	FT10 50AB 27 055	●
BT50	55	24	32	78	4.05	FT10 50AB 32 055	●

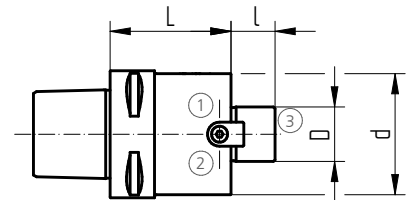
DIN 69893-HSK-A

System Size	L	I	D	d	kg	Order Number	Stock
HSK63	50	17	16	38	0.87	FH10 63A 16 050	●
HSK63	50	19	22	48	1.05	FH10 63A 22 050	●
HSK63	60	21	27	60	1.40	FH10 63A 27 060	●
HSK63	60	24	32	78	1.75	FH10 63A 32 060	●
HSK100	50	17	16	38	2.21	FH10 100A 16 050	●
HSK100	50	19	22	48	2.35	FH10 100A 22 050	●
HSK100	50	21	27	60	2.57	FH10 100A 27 050	●
HSK100	50	24	32	78	2.95	FH10 100A 32 050	●



ISO 26623-1-PSC

System Size	L	I	D	d	kg	Order Number	Stock
PSC 63	50	17	16	38	1.08	FC10 63 16 050	●
PSC 63	50	19	22	48	1.24	FC10 63 22 050	●
PSC 63	60	21	27	60	1.70	FC10 63 27 060	●
PSC 63	60	24	32	78	2.20	FC10 63 32 060	●



Pièces de rechange

Spare Parts

D	①	②	③
16*	Z00 70 16 01	C00 22 60	52 01 16
16	Z00 70 16	C00 22 31	C00 22 06
22	Z00 70 22	C00 22 05	C00 24 46
27	Z00 70 27	C00 22 07	C00 24 04
32	Z00 70 32	C00 22 13	C00 24 47

*Compatible uniquement avec les formats BT30

*Pour les porte-fraises BT30 uniquement

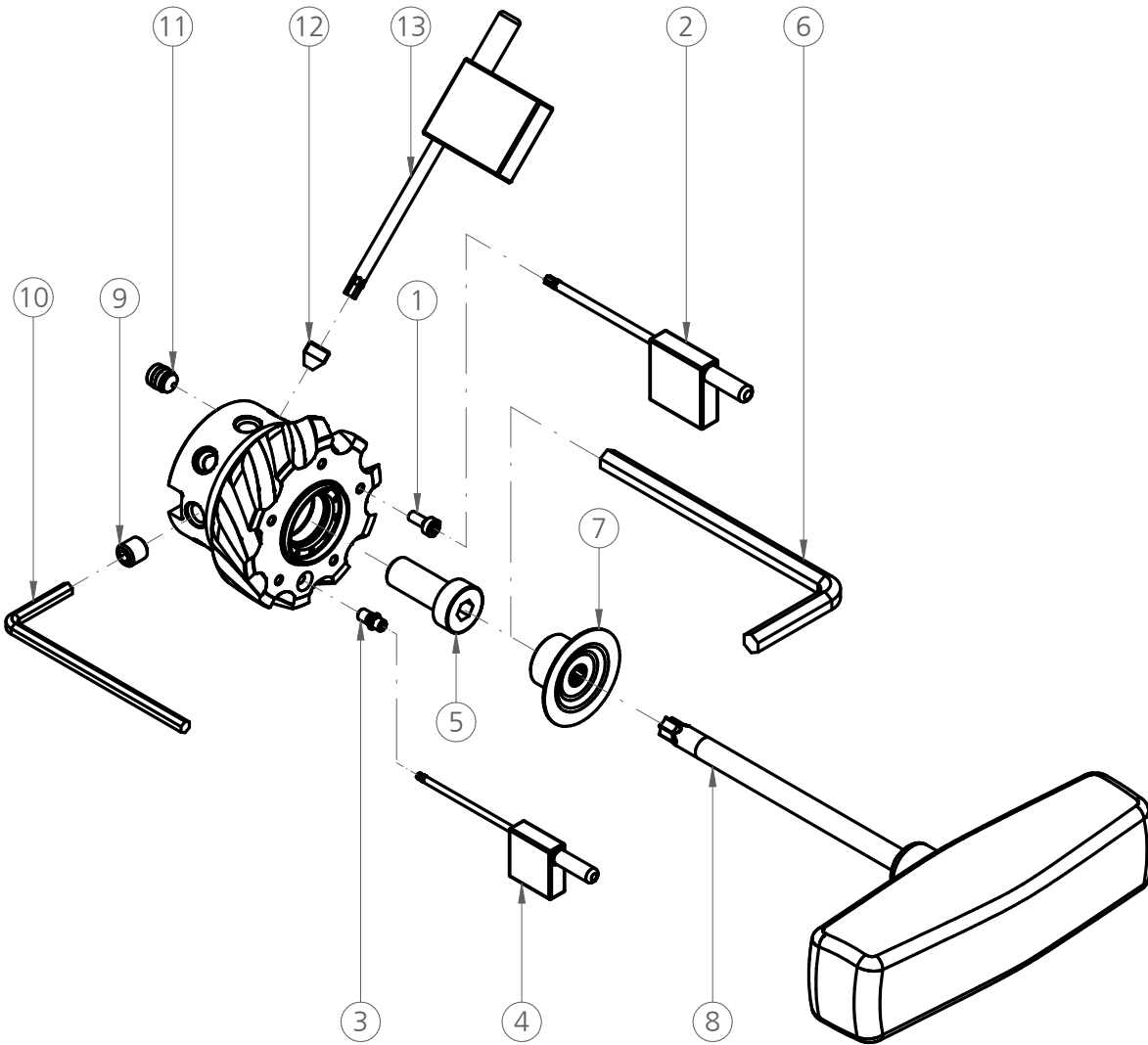
Tube d'arrosage

Coolant Tube

Size	④
63	H00 63 01
100	H00 100 01

Ersatzteile

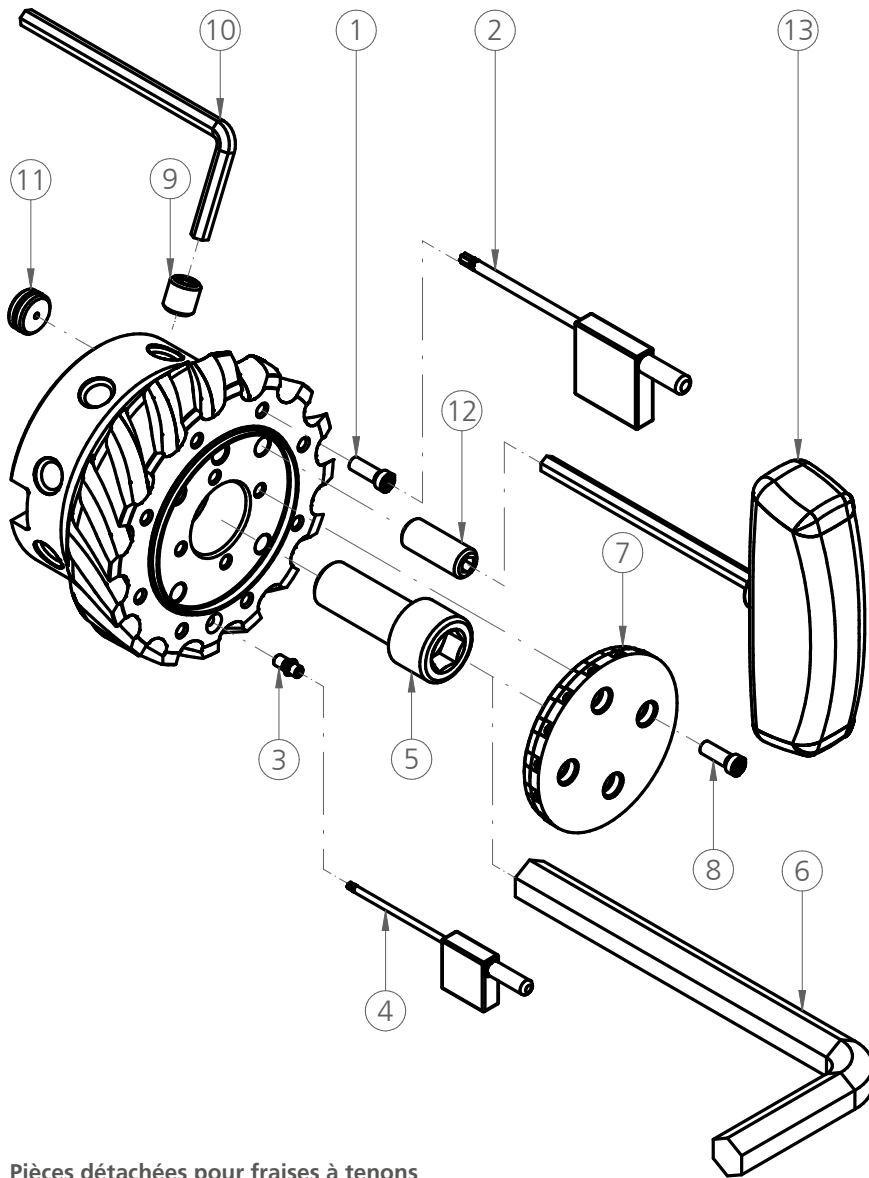
Spare parts



Pièces détachées pour fraises à tenons

Spare Parts Cutter Body

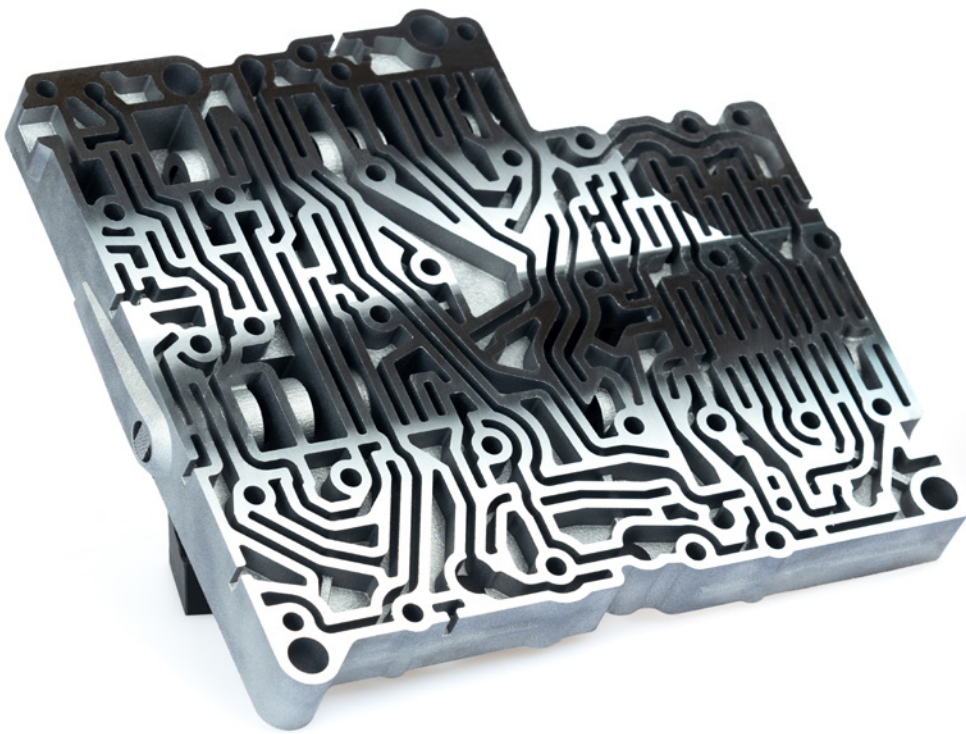
System Size	①	②	③	④	⑤	⑥	
MXF050	C00 90 17	G00 20 02	C00 70 09	G00 20 01	C00 23 21	G00 02 06	
System Size	⑦	⑧	⑨	⑩	⑪	⑫	⑬
MXF050	Z90 17 05P	G00 20 29	M6	G00 02 04	ZA00 90 15	C00 70 10	G00 20 03



Pièces détachées pour fraises à tenons
Spare Parts Cutter Body

System Size	①	②	③	④	⑤	⑥
MXF063	C00 70 04	G00 20 07	-	G00 20 01	C00 22 64	G00 02 08
MXF080	C00 70 04	G00 20 07	C00 70 09	G00 20 01	C00 70 06	G00 02 09
MXF100	C00 70 05	G00 20 03	-	G00 20 02	C00 70 06	G00 02 09
MXF125	C00 70 05	G00 20 03	-	G00 20 02	C00 70 07	G00 02 16

System Size	⑦	⑧	⑨	⑩	⑪	⑫	⑬
MXF063	Z90 15 06P	C00 70 04	ZA00 90 11	G00 02 05	ZA00 90 14	C00 70 01	G00 02 25
MXF080	Z90 15 08P	C00 70 04	ZA00 90 11	G00 02 05	ZA00 90 13	C00 70 02	G00 02 26
MXF100	Z90 15 10	C00 70 05	ZA00 90 11	G00 02 05	ZA00 90 13	C00 70 02	G00 02 26
MXF125	Z90 15 12	C00 70 05	ZA00 90 11	G00 02 05	ZA00 90 07	C00 70 03	G00 02 27



Caisson coulissant en aluminium. Aluminium transmission valve body. Source: URMA AG

Accessoires

Accessories

Disque de contrôle de planéité

Axial Run-Out Indicating Insert

System Size	D	B	Order Number	Stock
MX050	50	6	MXP050	●
MX063	63	6	MXP063	●
MX080	80	6	MXP080	●
MX100	100	6	MXP100	●
MX125	125	6	MXP125	●

Tournevis

Screw Driver

System Size	Dimension	Couple de serrage/Torque	Order Number	Stock
MX050	T8	1,5 Nm	G00 40 12	▲
MX063	T10	3 Nm	G00 40 18	▲
MX080	T10	3 Nm	G00 40 18	▲
MX100	T15	3,5 Nm	G00 40 13	▲
MX125	T15	3,5 Nm	G00 40 13	▲



Clé à douilles et Douille six pans

Hex Bit Socket

System Size	Dimension	Couple de serrage/Torque	Order Number	Stock
MX050	SW5	10 – 100 Nm	G00 40 60	▲
MX063 – MX125	SW8 / SW10 / SW14	40 – 200 Nm	G00 40 40	▲
MX050	SW5	35 Nm	G00 40 45	▲
MX063	SW8	80 Nm	G00 40 44	▲
MX080	SW10	85 Nm	G00 40 43	▲
MX100	SW10	85 Nm	G00 40 43	▲
MX125	SW14	160 Nm	G00 40 42	▲



Instruments de mesure

Measuring Device

Type	Description	Order Number	Stock
Twin T10	Instrument de mesure électronique, piles incluses Electronic measuring instrument, batteries incl.	04430013	○
LRC 6, AA	Batteries (3 pièces) Batteries (3 pieces)	04768002	○
GT 31	Palpeur à levier Lever probe	03210802	○
MGA	Bars articulé magnétique Magnetic articulated arm	01639022	○



GT 31



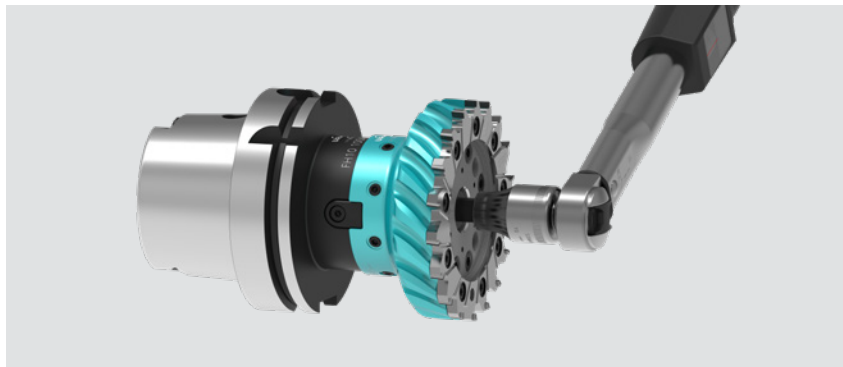
Twin T10



MGA

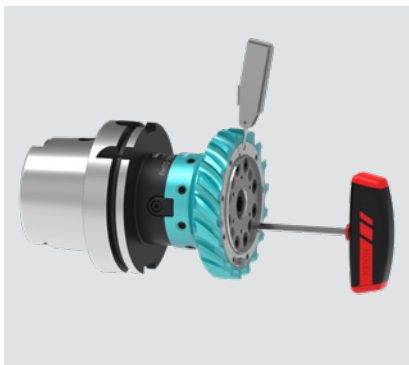
Réglage initial

Initial Setup



1 Assembler l'outi.

Assemble the tool.



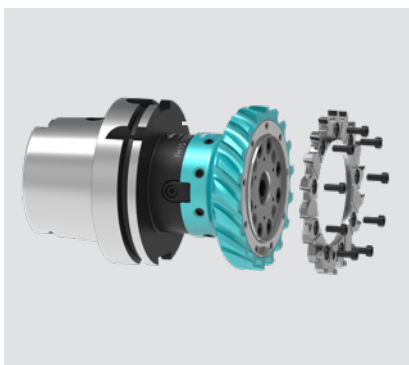
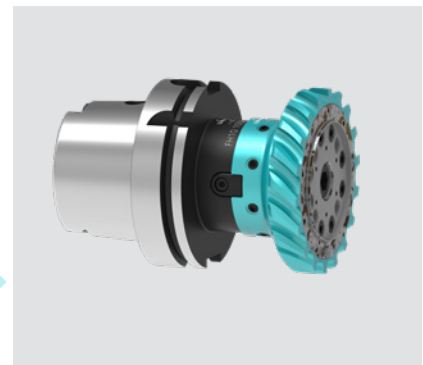
2 Contrôler la planéité.

Run-out adjustment.

Nettoyer l'interface.

Clean the interface.

3



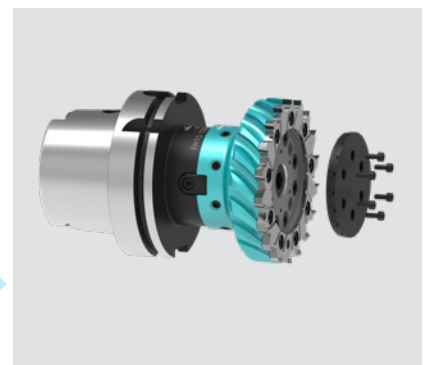
4 Monter la fraise.

Assemble new cutting ring.

Monter le flasque d'arrosage.

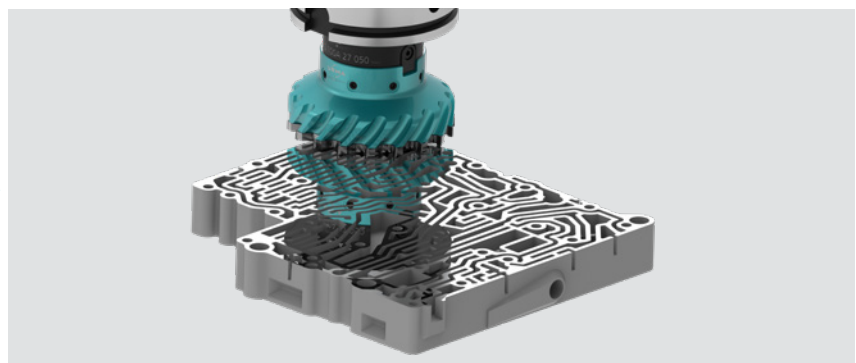
Assemble the coolant disk.

5



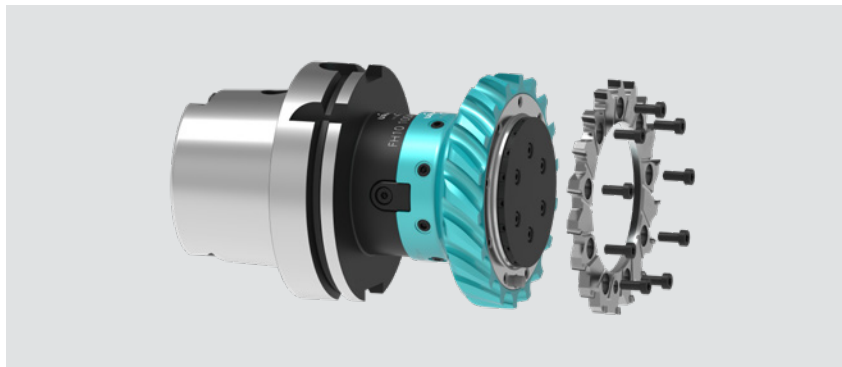
6 Usinage du composant.

Machining the component.



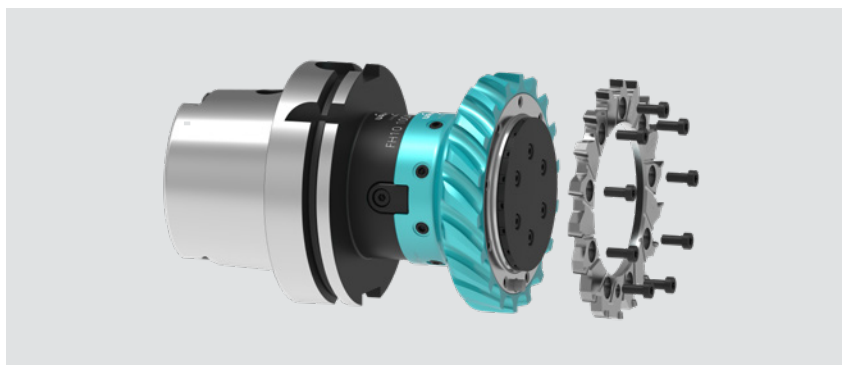
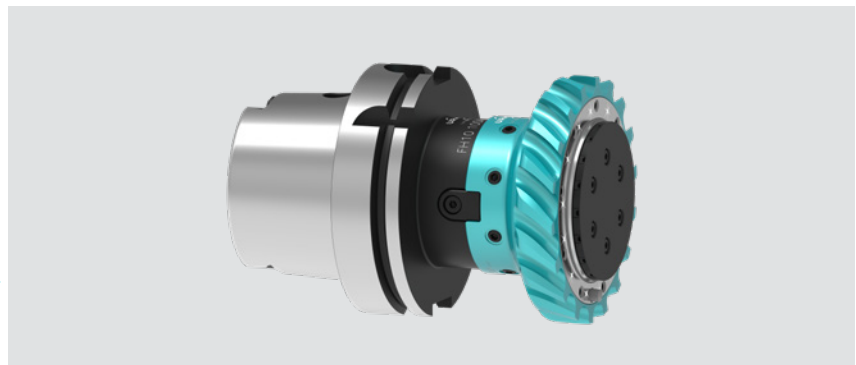
Changement de disque de fraisage

Changing Cutting Ring



- 1 Dévisser et démonter la fraise.**
Remove the cutting ring.

- 2 Nettoyer l'interface.**
Clean the interface.



- 3 Monter et visser la fraise.**
Assemble new cutting ring.

- 4 Usinage du composant**
Machining the component.

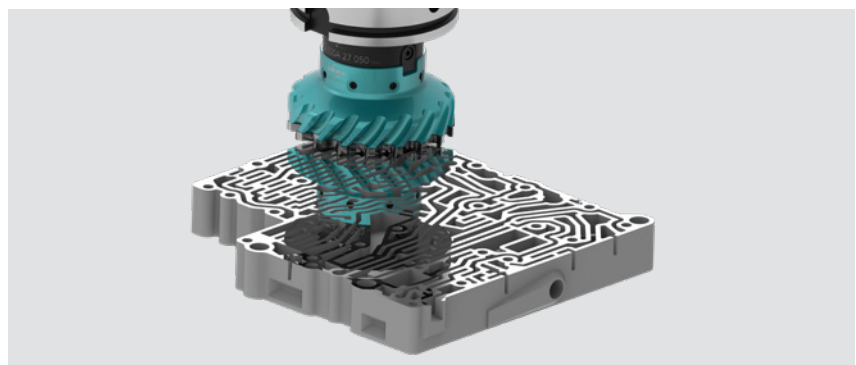


Tableau comparatif des matériaux

Material Comparison Table

Métaux non ferreux

Non-ferrous metals

ISO	UMC	Description	Description	Rm [N/mm ²]	HB	Kc1.1	mc	DIN Nr.	Exemple/Example
N	N1	Alliage d'aluminium corroyés avec Si < 2%	Aluminum wrought alloy with Si < 2%	< 300	< 150	600	0.23	3.3535	AlMg3
	N2	Alliages d'aluminium avec Si < 7%	Aluminum alloys, Si < 7%	< 400	< 120	700	0.25	3.2152	AlSi6Cu4
	N3	Alliages d'aluminium avec Si > 8% < 15% et alliages de magnésium	Aluminum alloys 8% < Si < 15% and alloys Magnesium	< 400	< 120	700	0.25	3.2163 3.2581	AlSi9Cu3 AlSi12
	N4	Alliages d'aluminium avec Si > 15%	Aluminum alloys, Si > 15%	> 400	> 120	800	0.25		AlSi17Cu4Mg
	N5	Alliage de cuivre usinable	Copper alloys, good machinability	< 700	< 210	800	0.2	2.0401 2.1090	CuZn39Pb3 CuSn7Zn4Pb7-C
	N6	Alliage de cuivre Plus difficile à usiner	Copper alloys, more difficult machinability	> 500	> 150	1100	0.25	2.0966	CuAl10Ni5Fe4

Matières plastiques et composites

Composite Materials

ISO	UMC	Description	Description	Rm [N/mm ²]	HB	Kc1.1	mc	DIN Nr.	Exemple/Example
O	O1	Thermoplastiques Plastiques	Thermoplastic polymers			150	0.26		Polyamid 6 (PA 6) Polyoxymethylen (POM)
	O2	Plastiques thermodurcisables	Thermosetting plastics			150	0.26		Epoxyharze (EP)
	O3	Plastiques avec < 50% de verre	Reinforced plastics with < 50% glass fibers			300	0.26		Polyamid 6 mit 30% GF (PA 6 GF 30)
	O4	Fibres de verre, de carbone, d'aramide renforcés	Glass fiber-, carbon fiber- and aramid reinforced plastics			300	0.26		GFK CFK

Conditions de coupe

Cutting Data

ISO	UMC	Grade	VC	fz
N	N1	PD06	2000 – 3500 – 5000	0.05 – 0.15 – 0.3
	N2			
	N3	PD06	1500 – 2500 – 3500	0.05 – 0.15 – 0.3
	N4			
	N5			
	N6	PD06	1000 – 1800 – 2500	0.05 – 0.15 – 0.3

ISO	UMC	Grade	VC	fz
O	O1	PD06	500 – 800 – 1000	0.05 – 0.15 – 0.3
	O2			
	O3	PD06	300 – 600 – 800	0.05 – 0.15 – 0.3
	O4			

Vitesse maximale

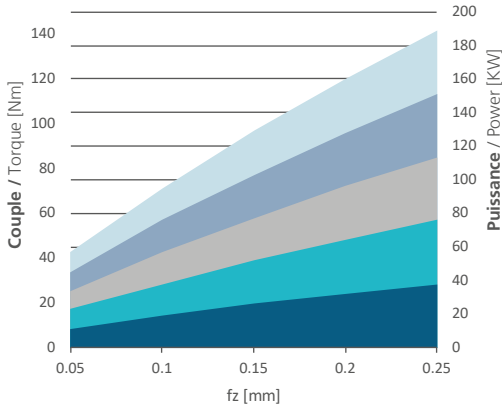
Maximum Revolution

System Size	D	max. Vc	max. rpm
MXF050	50	3926 m/min	25000 1/min
MXF063	63	4948 m/min	25000 1/min
MXF080	80	5026 m/min	20000 1/min
MXF100	100	4712 m/min	15000 1/min
MXF125	125	4712 m/min	12000 1/min

Couple / puissance requise

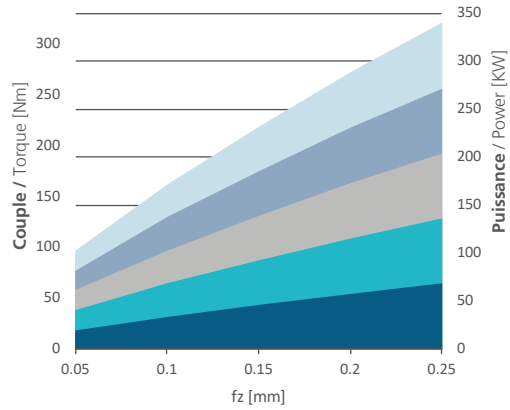
Torque And Power Requirements

Diamètre de fraisage Ø50
Milling Cutter Ø50



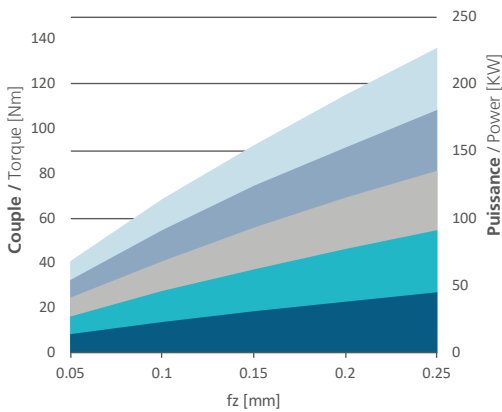
Ø50 / z = 10 / ae = 50mm / AlMgSi1 / vc = 3000m/min

Diamètre de fraisage Ø100
Milling Cutter Ø100



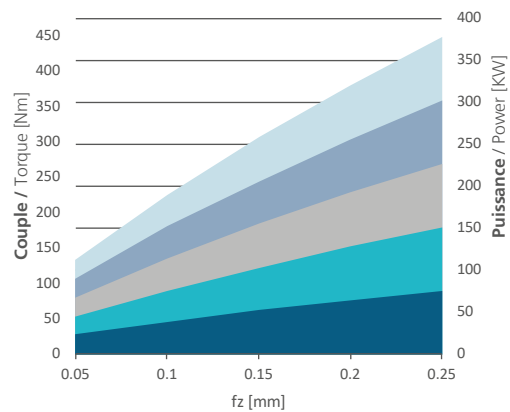
Ø100 / z = 18 / ae = 100mm / AlMgSi1 / vc = 3000m/min

Diamètre de fraisage Ø63
Milling Cutter Ø63



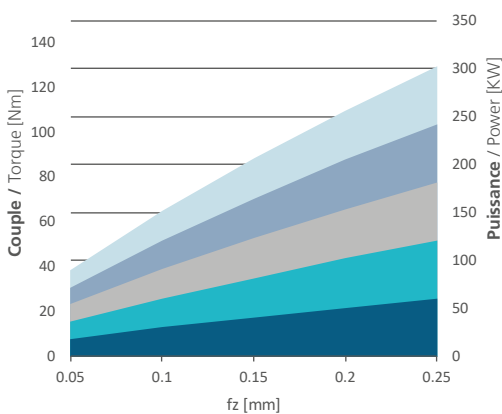
Ø63 / z = 12 / ae = 63mm / AlMgSi1 / vc = 3000m/min

Diamètre de fraisage Ø125
Milling Cutter Ø125



Ø125 / z = 20 / ae = 125mm / AlMgSi1 / vc = 3000m/min

Diamètre de fraisage Ø80
Milling Cutter Ø80



Ø63 / z = 12 / ae = 63mm / AlMgSi1 / vc = 3000m/min

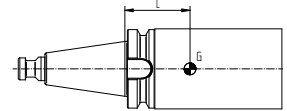
- ap 5 mm
- ap 4 mm
- ap 3 mm
- ap 2 mm
- ap 1 mm

Etude d'usinage – Fraisage

Machining Study – Milling



Expéditeur * Sender		Numéro	
Société End User Company		Distributeur Distributor	
Adresse Address		Contact commercial Sales Contact	
Machine Machine-Tool			
Modèle et Type Manufacturer and Model		Max. Avance Max. Feed Rate mm/min.	Max. Vitesse de broche tr/min Max. Spindle Speed rpm
Horizontal * Horizontal <input type="checkbox"/>	Vertical * Vertical <input type="checkbox"/>	Puissance de broche Spindle Power kW	
Interface de broche * Spindle Holder	Grandeurs * Size	Exécution * Execution	Max. Poids de l'outil Max. Tool Weight
DIN 69893-HSK <input type="checkbox"/>	20 <input type="checkbox"/> 25 <input type="checkbox"/>	A <input type="checkbox"/>	kg
DIN 69871 <input type="checkbox"/>	30 <input type="checkbox"/> 32 <input type="checkbox"/>	B <input type="checkbox"/>	Max. Longueur de l'outil Max. Tool Length
MAS-BT <input type="checkbox"/>	40 <input type="checkbox"/> 50 <input type="checkbox"/>	C <input type="checkbox"/>	mm
ISO 26623-PSC <input type="checkbox"/>	63 <input type="checkbox"/> 80 <input type="checkbox"/>	D <input type="checkbox"/>	Max. Couple Max. Overturning Moment
<input type="checkbox"/>	100 <input type="checkbox"/>	E <input type="checkbox"/>	Nm
<input type="checkbox"/>			
Lubrification Lubricant			
Huile * Oil <input type="checkbox"/>	LQM * 1) MLS 1) <input type="checkbox"/>	Emulsion * Emulsion <input type="checkbox"/>	Taux de mélange (en %) Ratio of Mixture (in %)
Arrosage interne * Intern. Coolant Supply <input type="checkbox"/>			Pression du liquide de refroidissement * Coolant Pressure (bar)
Pièces à usiner Workpiece			
Désignation Designation	N° de matière * Material Number	Traitement (Dureté) * Treatment Condition (Hardness)	
Exigences d'usinage Machining Requirements			
Longueur d'outil minimale Minimum Tool Length (OAL)	Contours interférents Interfering contours	mm	Métré: Allowance:
Qualité de surface (µm) * Surface Quality (µm)	<input type="checkbox"/> //		R_a <input type="checkbox"/> R_z <input type="checkbox"/> R_t <input type="checkbox"/>
Date * Date			Production annuelle: Annual Production:
Remarques Notes			Délai de la demande: Urgency:



* **Champs obligatoires**
Mandatory fields

1) **Lubrification en quantité minimale (LQM)**
Minimal lubrication system (mist coolant)

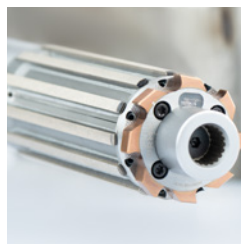
Annexe : Votre pan d'usinage *
Attachement: Your Application Sketch

Envoyez votre demande !
Request now!



URMA Tools

Reaming, Milling, Honing, Boring & Drilling





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