

# UP2DATE

## Maximálny výkon a produktivita!

Vynikajúca presnosť obvodovej hádzavosti aj tlmenie vibrácií vďaka modernej technológii hydraulického upínania.

### ... A NIEKOĽKO ĎALŠÍCH PRODUKTOV

- ▲ nástrčná fréza **MaxiMill – 273-08** si Vás získa maximálnou možnou rýchlosťou posuvu pri hrubovaní
- ▲ ekonomické a trvalo udržateľné vŕtanie vďaka vysokej efektívnosti systému vŕtania **WPC – Change** s vymeniteľnými britovými dosťčkami

Skupina CERATIZIT sa špecializuje na strojárské riešenia s vysokou technologickou kvalitou pre výrobu rezných nástrojov a výrobkov z tvrdých materiálov.

**Tooling a Sustainable Future**

[ceratizit.com](http://ceratizit.com)



**CERATIZIT**  
GROUP

## Srdečne vítame!



Objednávajúte jednoducho bez byrokracie

### **Zákaznícky servis**

Bezplatné telefonovanie

0800 606 666

On-line

[info.slovensko@ceratizit.com](mailto:info.slovensko@ceratizit.com)



Jednoduchšie to nejde

### **Objednávajúte v Online E-shope**

<https://cuttingtools.ceratizit.com>



Servisné a technické poradenstvo na mieste

### **Váš osobný technik**

Vaše zákaznícke číslo



# HyPower: názov hovorí za všetko



**WNT**

## Dve nové vysokotlakové upínacie puzdrá s maximálnou upínacou silou

Naše portfólio hydraulických upínacích puzdiel dopĺňame o dva vysoko výkonné nástrojové držiaky s vynikajúcou presnosťou obvodovej hádzavosti a optimálnym tlmením vibrácií:

- ▲ **HyPower – Rough** pre náročné hrubovacie operácie
- ▲ **HyPower – Access 4,5°** pre optimálny prístup v oblasti obrábania



Ďalšie informácie o produkte nájdete na  
→ strane **48–61**



[cutting.tools/sk/sk/hypower](https://cutting.tools/sk/sk/hypower)

# HyPower – Rough

Maximálny výkon pri hrubovaní

## Použitie

- ▲ pre vysoko dynamické frézovanie
- ▲ lepšie výsledky pri používaní nástrojov so stopkou HA
- ▲ maximálna procesná bezpečnosť aj v prípade vysoko kvalitných obrobkov
- ▲ vývoj bol zameraný na splnenie požiadaviek rôznych tržných segmentov (napr. výroba nástrojov a foriem, letectvo a kozmonautika, automobilový priemysel)



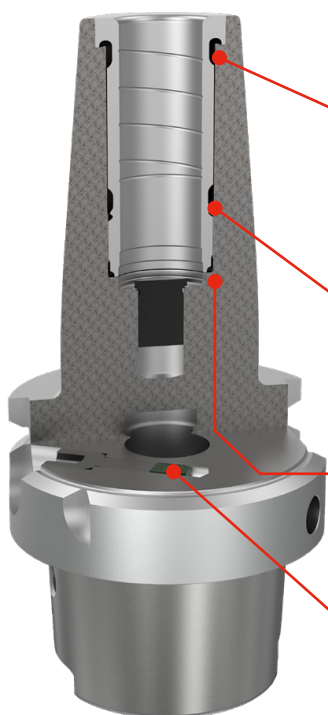
odolnosť voči teplotám do 210° C

## Výhody / Použitie

- ▲ optimálna odolnosť voči vysokým teplotám (80 °C – 210 °C)
- ▲ aj v prípade dlhých frézovacích cyklov (> 240 minút)
- ▲ garantuje vysoko výkonné frézovanie - až 33.000 otáčok za minútu
- ▲ maximálna procesná bezpečnosť a životnosť vďaka priemyselnému designu, ktorý získal prestížne ocenenie
- ▲ geometrické a funkčné vlastnosti sú navzájom skvele vyladené



## Maximálny výkon a produktivita



Nová konštrukcia komory umožňuje zmenu smeru pôsobiacich síl u kritického spájkovaného spoja (tlakové namiesto ťahového zaťaženia). Pri obrábaní je tak prípustné podstatne vyššie radiálne zaťaženie.

Nová konštrukcia komory podstatne zvyšuje tepelnú odolnosť tejto technológie (až 80 °C aj pri frézovaní trvajúcich do 240 minút).

Spájkovaný spoj obsahuje pre prípad opakovaného náhleho zmŕšťenia núdzové odľahčenie, čím sa zabráni eventuálnemu poraneniu.

Tesniaci systém vybavený dvojitou chlopňou zásadne predlžuje životnosť hydraulického upínacieho puzdra (viac ako 10.000 upínacích cyklov pri testoch v laboratórnych podmienkach).

# HyPower – Access 4,5°

Precízne obrábanie náročných kontúr

## Použitie

- ▲ pre vystružovanie a vŕtanie aj pre dokončovacie frézovanie
- ▲ maximálna flexibilita pri obrábaní obrobkov s náročnými kontúrami
- ▲ vývoj bol zameraný na splnenie požiadaviek rôznych priemyselných odvetví (napr. výroba nástrojov a foriem, letectvo a kozmonautika, automobilový priemysel)



originálny rozmer tepelne zmäšťovacieho upínača

## Výhody / Použitie

- ▲ ponúka originálne rozmery tepelne zmäšťovacieho upínača (kontúra DIN s 4,5°), užívateľsky prívetivé dimenzovanie systému
- ▲ maximálna procesná bezpečnosť a životnosť vďaka priemyselnému designu, ktorý získal prestížne ocenenie
- ▲ geometrické a funkčné vlastnosti sú navzájom skvele vyladené
- ▲ zaisťuje optimálnu kvalitu povrchu, boduje vďaka svojej jednoduchej manipulácii

## Vhodné hydraulické upínacie puzdrá pre najrôznejšie spôsoby obrábania!

Vyššie rezné parametre pre dosiahnutie vyššej produktivity a jednoduchšej manipulácii?

Celý rad vysokotlakových upínacích puzdier **HyPower** a rad hydraulických upínacích puzdier **HyTens** spoločnosti CERATIZIT garantujú jednoduché a procesne bezpečné upínanie nástrojov určených pre akéhokoľvek obrábanie.



Naše kompletne portfólio hydraulických upínacích puzdier nájdete na:  
[cutting.tools/sk/sk/toolholders](https://cutting.tools/sk/sk/toolholders)

### HyPower – Vysokotlakové upínacie puzdro

|                    |                                                                                                             |     |    |   |
|--------------------|-------------------------------------------------------------------------------------------------------------|-----|----|---|
| <b>Rough</b>       | Frézovanie s veľkými silami > hrubovanie                                                                    | ▽▽▽ | ▽▽ | ▽ |
| <b>Complus</b>     | Univerzálny upínač                                                                                          | ▽▽▽ | ▽▽ | ▽ |
| <b>Access 3°</b>   | Optimálna prístupnosť                                                                                       | ▽▽▽ |    |   |
| <b>Access 4,5°</b> | Optimálny prístup vďaka rovnakej kolíznej kontúre ako u upínača pre tepelné upínanie, najnovšie technológie | ▽▽▽ | ▽▽ |   |

### HyTens – Hydraulický upínač

|                |                                                            |     |    |  |
|----------------|------------------------------------------------------------|-----|----|--|
| <b>Fit</b>     | Univerzálny upínač                                         | ▽▽▽ | ▽▽ |  |
| <b>Turn</b>    | Perfektné riešenie pre sústruženie                         | ▽▽▽ | ▽▽ |  |
| <b>Compact</b> | Naša cenovo prijateľná alternatíva k univerzálnemu upínaču | ▽▽▽ | ▽▽ |  |

|                    |     |              |    |                           |   |            |
|--------------------|-----|--------------|----|---------------------------|---|------------|
| Hlavné použitie    | ▽▽▽ | Dokončovanie | ▽▽ | Hrubovanie / dokončovanie | ▽ | Hrubovanie |
| Vedľajšie použitie | ▽▽▽ |              | ▽▽ |                           | ▽ |            |



# Udržateľnosť a efektivita v jednom!

Krátke prípravné časy a minimálna  
spotreba materiálu vďaka vŕtaciemu  
systému s vymeniteľnými doštičkami

**WNT**

## Efektívne vŕtanie vďaka vymeniteľným doštičkám

### **WPC – Change to umožňuje**

Nízkonákladové a napriek tomu vysoko kvalitné obrábanie nie je možné realizovať?  
Ako by nie, náš systém WPC – Change a príslušné vymeniteľné doštičky WPC – Change UNI to dokazujú.  
Za týmto účelom sme spojili prednosti nášho vysoko výkonného vŕtáka WPC s flexibilitou rýchlovýmenného  
systému - pre skrátenie prípravného času a minimálnu spotrebu materiálu.



[cutting.tools/sk/sk/wpc-change](https://cutting.tools/sk/sk/wpc-change)

## Výhody / Použitie

- ▲ vytváranie precíznych otvorov s Ø 14–30 mm a hĺbkou 3xD a 5xD na akomkoľvek stroji
- ▲ cenovo atraktívny systém vŕtania s vymeniteľnými doštičkami
- ▲ držiak odolný proti opotrebeniu je možné používať opakovane
- ▲ univerzálne použitie
- ▲ výmenu bitu je možné vykonávať v stroji
- ▲ vymeniteľná doštička WPC – Change je ideálnou voľbou pre obrábanie ocelí a liatiny

“

WPC – Change predstavuje doplnenie nášho portfólia, pričom teraz ponúkame ekonomický a udržateľný vŕtací systém s vymeniteľnými doštičkami s **veľmi efektívnou prevádzkou** a univerzálnym využitím.

**Manuel Keller, produktový manažér pre sortiment vŕtacích nástrojov**

”



Ďalšie informácie o produkte nájdete na  
→ strane 12–15

## Plusové body pre trvalú udržateľnosť

Vďaka výmennej reznej doštičke je systém WPC – Change navyše mimoriadne šetrný na využívanie zdrojov a taktiež vysoko hospodárny. Tvrdokov sa nakoniec obmedzuje iba na vymeniteľnú doštičku. Ten, kto sa obáva nižšieho výkonu, si nemusí robiť starosti: Systém WPC – Change je rovnako výkonný ako porovnateľný analogický produkt z tvrdokovu.





# Fréza vyladená až po zuby

Nástrčková čelná fréza MaxiMill 273-08 ponúka maximálnu rýchlosť posuvu



**CERATIZIT**

[cutting.tools/sk/sk/maximill-273](https://cutting.tools/sk/sk/maximill-273)

## MaxiMill 273-08 – turbo v hrubovaní sa Vám dostane pod kožu

Nástrčná čelná fréza so 16 reznými hranami na jednej vymeniteľnej doštičke

Osvedčená Nástrčná čelná fréza MaxiMill 273 CERATIZIT sa môže tešiť na prírastok: Aby sme vyhověli požiadavkám trhu s ohľadom na hrubovanie ocelí a oceľové liatiny prostredníctvom ekonomického a výkonného nástrojového systému, došlo teraz k optimalizácii hĺbky rezu  $a_p$  do 5 mm, popr. 6 mm. Preto vďaka svojim obojstranne použiteľným oktagonálnym frézovacím doštičkám teraz fréza MaxiMill 273-08 posúva súčasné ekonomické štandardy.



Ďalšie informácie o produkte nájdete na  
→ strane 42–47



## Nástrojový systém CERATIZIT MaxiMill 273-08 so sebou prináša všetky dôležité kritériá pre nástroje na čelné frézovanie:

- ▲ maximálny počet rezných hrán
- ▲ stabilita
- ▲ efektívnosť
- ▲ nižšie rezné sily
- ▲ nižšie vibrácie
- ▲ čistý povrch obrobenku

### Správa z testu – MaxiMill 273-08

**Proces** Frézovanie (čelné frézovanie)

**Materiál** Sivá liatina

**Chladenie** Nie

#### POČET OBROBENÝCH KUSOV

CERATIZIT 304

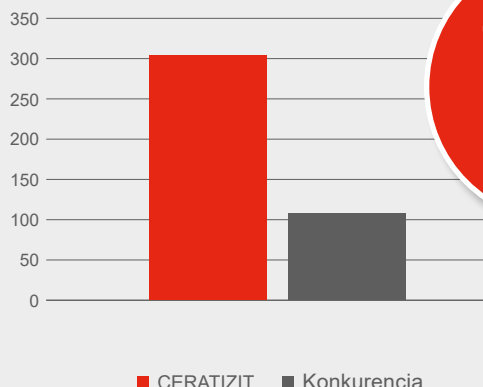
Konkurencia 108

#### REZNÁ HLĚBKA [MM]

CERATIZIT 5

Konkurencia 3

Počet obrobených kusov

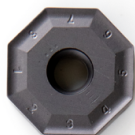


**+ 180 %**

dlhšia ako  
dvojnásobná  
životnosť

Kompletná séria fréz MaxiMill 273 je spojením precíznosti, vysokých rezných rýchlostí, dlhej životnosti nástrojov a hladkého povrchu. Ideálna konštelácia pre efektívne čelné frézovanie!

### Hrubovacie a hrubovacie/dokončovacie obrábanie



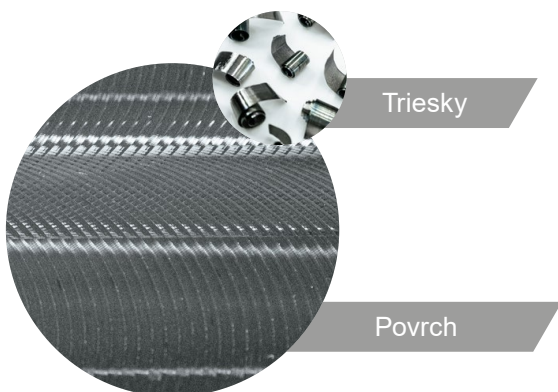
#### doštička -08

Hrubovacie a  
hrubovacie/  
dokončovacie obrábanie



#### doštička -06

Hrubovacie a  
hrubovacie/  
dokončovacie obrábanie



#### Hrubovanie

(DOŠTIČKA -08)

#### Rezné parametre

$V_c$  200

$a_e$  70%

$a_p$  mm 6

$f_z$  mm 0,3

### Hrubovacie/dokončovacie a dokončovacie obrábanie



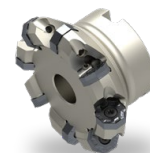
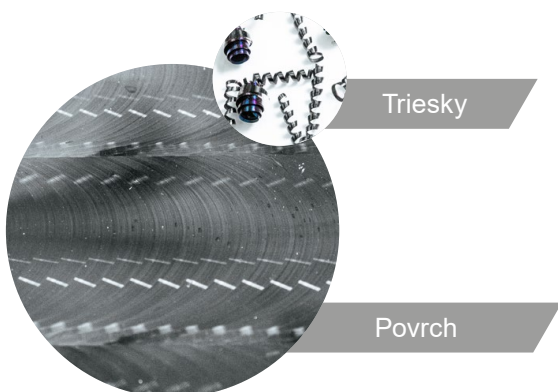
#### doštička -06

Hrubovacie a  
hrubovacie/  
dokončovacie obrábanie



#### doštička -06

Masterfinish  
Dokončovacie



#### Hrubovanie / dokončovacie

(DOŠTIČKA -06 A DOŠTIČKA  
-06 MASTERFINISH)

#### Rezné parametre

$V_c$  200

$a_e$  70%

$a_p$  mm 3

$f_z$  mm 0,3



# WPC – Change

## Obsah

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- 12 WPC – Change – vrták s výmennou hlavou
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### **KOMET** Vrtáky s vymeniteľnými doštičkami

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- 16 SOGX -21 – vymeniteľné britové doštičky pre KUB Pentron / KUB Pentron CS

### **CERATIZIT** Sústružnícke nože s vymeniteľnými doštičkami

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- 18–22 CTCM – negatívne vymeniteľné britové doštičky
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### **CERATIZIT** Multifunkčné nástroje – EcoCut

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- 32 EcoCut – HSK-T
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- 34 MonsterMill NCR – rádiusová fréza
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# MaxiMill 273-08

## **CERATIZIT** Frézy s vymeniteľnými doštičkami

- 42      **MaxiMill 273-08 – nástrčná fréza**
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## **WNT** Upínače a príslušenstvo

- 48–50      **HyPower Rough – SK / BT / HSK-A**
- 51–53      **HyPower Access 4,5° – SK / BT / HSK-A**
- 54–57      HyPower Complus – SK / BT / BT-FC / HSK-A
- 58      HyTens Fit – HSK-A
- 59      Držiaky pre štvorcovú stopku – DirectCooling – PSC
- 61      Rukoväť easyTorque®

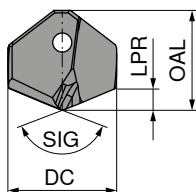
## HyPower Rough & Access 4,5°



## WPC – Vymeniteľná doštička pre vrtáky s vymeniteľnými doštičkami

## Rozsah dodávky:

Vymeniteľná doštička (upínacie skrutky sa musia event. objednať samostatne)



11 910 ...  
EUR  
TS

| DC <sub>m7</sub><br>mm | OAL<br>mm | LPR<br>mm | S<br>mm | EUR<br>TS    |
|------------------------|-----------|-----------|---------|--------------|
| 14,0                   | 12,8      | 7,73      | 5,00    | 89,75 14000  |
| 14,1                   | 12,8      | 7,73      | 5,00    | 89,75 14100  |
| 14,2                   | 12,8      | 7,73      | 5,00    | 89,75 14200  |
| 14,3                   | 12,8      | 7,73      | 5,00    | 89,75 14300  |
| 14,4                   | 12,8      | 7,73      | 5,00    | 89,75 14400  |
| 14,5                   | 13,1      | 7,84      | 5,00    | 89,75 14500  |
| 14,6                   | 13,1      | 7,84      | 5,00    | 89,75 14600  |
| 14,7                   | 13,1      | 7,84      | 5,00    | 89,75 14700  |
| 14,8                   | 13,1      | 7,84      | 5,00    | 91,13 14800  |
| 14,9                   | 13,1      | 7,84      | 5,00    | 91,13 14900  |
| 15,0                   | 13,4      | 7,95      | 5,00    | 91,13 15000  |
| 15,1                   | 13,4      | 7,95      | 5,00    | 91,13 15100  |
| 15,2                   | 13,4      | 7,95      | 5,00    | 91,13 15200  |
| 15,3                   | 13,4      | 7,95      | 5,00    | 91,13 15300  |
| 15,4                   | 13,4      | 7,95      | 5,00    | 91,13 15400  |
| 15,5                   | 13,7      | 8,05      | 5,00    | 91,13 15500  |
| 15,6                   | 13,7      | 8,05      | 5,00    | 91,13 15600  |
| 15,7                   | 13,7      | 8,05      | 5,00    | 91,13 15700  |
| 15,8                   | 13,7      | 8,05      | 5,00    | 96,67 15800  |
| 15,9                   | 13,7      | 8,05      | 5,00    | 96,67 15900  |
| 16,0                   | 14,4      | 9,06      | 5,80    | 96,67 16000  |
| 16,1                   | 14,4      | 9,06      | 5,80    | 96,67 16100  |
| 16,2                   | 14,4      | 9,06      | 5,80    | 96,67 16200  |
| 16,3                   | 14,4      | 9,06      | 5,80    | 96,67 16300  |
| 16,4                   | 14,4      | 9,06      | 5,80    | 96,67 16400  |
| 16,5                   | 14,7      | 9,17      | 5,80    | 96,67 16500  |
| 16,6                   | 14,7      | 9,17      | 5,80    | 96,67 16600  |
| 16,7                   | 14,7      | 9,17      | 5,80    | 96,67 16700  |
| 16,8                   | 14,7      | 9,17      | 5,80    | 98,98 16800  |
| 16,9                   | 14,7      | 9,17      | 5,80    | 98,98 16900  |
| 17,0                   | 15,0      | 9,28      | 5,80    | 98,98 17000  |
| 17,1                   | 15,0      | 9,28      | 5,80    | 98,98 17100  |
| 17,2                   | 15,0      | 9,28      | 5,80    | 98,98 17200  |
| 17,3                   | 15,0      | 9,28      | 5,80    | 98,98 17300  |
| 17,4                   | 15,0      | 9,28      | 5,80    | 98,98 17400  |
| 17,5                   | 15,3      | 9,39      | 5,80    | 98,98 17500  |
| 17,6                   | 15,3      | 9,39      | 5,80    | 98,98 17600  |
| 17,7                   | 15,3      | 9,39      | 5,80    | 98,98 17700  |
| 17,8                   | 15,3      | 9,39      | 5,80    | 101,29 17800 |
| 17,9                   | 15,3      | 9,39      | 5,80    | 101,29 17900 |
| 18,0                   | 16,3      | 10,19     | 6,50    | 101,29 18000 |
| 18,1                   | 16,3      | 10,19     | 6,50    | 101,29 18100 |
| 18,2                   | 16,3      | 10,19     | 6,50    | 101,29 18200 |
| 18,3                   | 16,3      | 10,19     | 6,50    | 101,29 18300 |
| 18,4                   | 16,3      | 10,19     | 6,50    | 101,29 18400 |
| 18,5                   | 16,6      | 10,30     | 6,50    | 101,29 18500 |
| 18,6                   | 16,6      | 10,30     | 6,50    | 101,29 18600 |
| 18,7                   | 16,6      | 10,30     | 6,50    | 101,29 18700 |
| 18,8                   | 16,6      | 10,30     | 6,50    | 104,28 18800 |
| 18,9                   | 16,6      | 10,30     | 6,50    | 104,28 18900 |
| 19,0                   | 16,9      | 10,41     | 6,50    | 104,28 19000 |
| 19,1                   | 16,9      | 10,41     | 6,50    | 104,28 19100 |
| 19,2                   | 16,9      | 10,41     | 6,50    | 104,28 19200 |
| 19,3                   | 16,9      | 10,41     | 6,50    | 104,28 19300 |
| 19,4                   | 16,9      | 10,41     | 6,50    | 104,28 19400 |
| 19,5                   | 17,2      | 10,52     | 6,50    | 104,28 19500 |
| 19,6                   | 17,2      | 10,52     | 6,50    | 104,28 19600 |
| 19,7                   | 17,2      | 10,52     | 6,50    | 104,28 19700 |
| 19,8                   | 17,2      | 10,52     | 6,50    | 107,72 19800 |
| 19,9                   | 17,2      | 10,52     | 6,50    | 107,72 19900 |

11 910 ...

EUR  
TS

| DC <sub>m7</sub><br>mm | OAL<br>mm | LPR<br>mm | S<br>mm | EUR<br>TS    |
|------------------------|-----------|-----------|---------|--------------|
| 20,0                   | 18,2      | 11,33     | 7,20    | 107,72 20000 |
| 20,1                   | 18,2      | 11,33     | 7,20    | 107,72 20100 |
| 20,2                   | 18,2      | 11,33     | 7,20    | 107,72 20200 |
| 20,3                   | 18,2      | 11,33     | 7,20    | 107,72 20300 |
| 20,4                   | 18,2      | 11,33     | 7,20    | 107,72 20400 |
| 20,5                   | 18,5      | 11,43     | 7,20    | 107,72 20500 |
| 20,6                   | 18,5      | 11,43     | 7,20    | 107,72 20600 |
| 20,7                   | 18,5      | 11,43     | 7,20    | 107,72 20700 |
| 20,8                   | 18,5      | 11,43     | 7,20    | 110,73 20800 |
| 20,9                   | 18,5      | 11,43     | 7,20    | 110,73 20900 |
| 21,0                   | 18,8      | 11,54     | 7,20    | 110,73 21000 |
| 21,1                   | 18,8      | 11,54     | 7,20    | 110,73 21100 |
| 21,2                   | 18,8      | 11,54     | 7,20    | 110,73 21200 |
| 21,3                   | 18,8      | 11,54     | 7,20    | 110,73 21300 |
| 21,4                   | 18,8      | 11,54     | 7,20    | 110,73 21400 |
| 21,5                   | 19,1      | 11,65     | 7,20    | 110,73 21500 |
| 21,6                   | 19,1      | 11,65     | 7,20    | 110,73 21600 |
| 21,7                   | 19,1      | 11,65     | 7,20    | 110,73 21700 |
| 21,8                   | 19,1      | 11,65     | 7,20    | 113,32 21800 |
| 21,9                   | 19,1      | 11,65     | 7,20    | 113,32 21900 |
| 22,0                   | 20,2      | 12,56     | 7,90    | 113,32 22000 |
| 22,1                   | 20,2      | 12,56     | 7,90    | 113,32 22100 |
| 22,2                   | 20,2      | 12,56     | 7,90    | 113,32 22200 |
| 22,3                   | 20,2      | 12,56     | 7,90    | 113,32 22300 |
| 22,4                   | 20,2      | 12,56     | 7,90    | 113,32 22400 |
| 22,5                   | 20,5      | 12,67     | 7,90    | 113,32 22500 |
| 22,6                   | 20,5      | 12,67     | 7,90    | 113,32 22600 |
| 22,7                   | 20,5      | 12,67     | 7,90    | 113,32 22700 |
| 22,8                   | 20,5      | 12,67     | 7,90    | 117,62 22800 |
| 22,9                   | 20,5      | 12,67     | 7,90    | 117,62 22900 |
| 23,0                   | 20,8      | 12,78     | 7,90    | 117,62 23000 |
| 23,1                   | 20,8      | 12,78     | 7,90    | 117,62 23100 |
| 23,2                   | 20,8      | 12,78     | 7,90    | 117,62 23200 |
| 23,3                   | 20,8      | 12,78     | 7,90    | 117,62 23300 |
| 23,4                   | 20,8      | 12,78     | 7,90    | 117,62 23400 |
| 23,5                   | 21,1      | 12,88     | 7,90    | 117,62 23500 |
| 23,6                   | 21,1      | 12,88     | 7,90    | 117,62 23600 |
| 23,7                   | 21,1      | 12,88     | 7,90    | 117,62 23700 |
| 23,8                   | 21,1      | 12,88     | 7,90    | 123,95 23800 |
| 23,9                   | 21,1      | 12,88     | 7,90    | 123,95 23900 |
| 24,0                   | 22,1      | 13,69     | 8,60    | 123,95 24000 |
| 24,1                   | 22,1      | 13,69     | 8,60    | 123,95 24100 |
| 24,2                   | 22,1      | 13,69     | 8,60    | 123,95 24200 |
| 24,3                   | 22,1      | 13,69     | 8,60    | 123,95 24300 |
| 24,4                   | 22,1      | 13,69     | 8,60    | 123,95 24400 |
| 24,5                   | 22,4      | 13,80     | 8,60    | 123,95 24500 |
| 24,6                   | 22,4      | 13,80     | 8,60    | 123,95 24600 |
| 24,7                   | 22,4      | 13,80     | 8,60    | 123,95 24700 |
| 24,8                   | 22,4      | 13,80     | 8,60    | 131,08 24800 |
| 24,9                   | 22,4      | 13,80     | 8,60    | 131,08 24900 |
| 25,0                   | 22,7      | 13,91     | 8,60    | 131,08 25000 |
| 25,1                   | 22,7      | 13,91     | 8,60    | 131,08 25100 |
| 25,2                   | 22,7      | 13,91     | 8,60    | 131,08 25200 |
| 25,3                   | 22,7      | 13,91     | 8,60    | 131,08 25300 |
| 25,4                   | 22,7      | 13,91     | 8,60    | 131,08 25400 |
| 25,5                   | 23,0      | 14,02     | 8,60    | 131,08 25500 |
| 25,6                   | 23,0      | 14,02     | 8,60    | 131,08 25600 |
| 25,7                   | 23,0      | 14,02     | 8,60    | 131,08 25700 |
| 25,8                   | 23,0      | 14,02     | 8,60    | 137,86 25800 |
| 25,9                   | 23,0      | 14,02     | 8,60    | 137,86 25900 |
| 26,0                   | 24,1      | 14,92     | 9,40    | 137,86 26000 |
| 26,5                   | 24,4      | 15,03     | 9,40    | 137,86 26500 |
| 27,0                   | 24,7      | 15,14     | 9,40    | 148,26 27000 |
| 27,5                   | 25,0      | 15,25     | 9,40    | 148,26 27500 |
| 28,0                   | 25,3      | 15,36     | 9,40    | 148,26 28000 |
| 28,5                   | 25,6      | 15,47     | 9,40    | 154,60 28500 |
| 29,0                   | 25,9      | 15,57     | 9,40    | 154,60 29000 |
| 29,5                   | 26,2      | 15,68     | 9,40    | 160,36 29500 |
| 30,0                   | 26,2      | 15,49     | 9,40    | 160,36 30000 |

|   |   |
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| P | • |
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→ v. strana 14

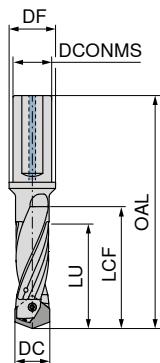
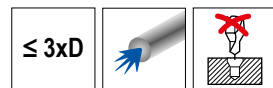
Pri výmene doštičky, prosím, dodržujte uvedený ťažavací moment.

## WPC – Držák pre vrták s vymeniteľnými doštičkami

- ▲ jednoduchá manipulácia
- ▲ výmenu doštičky je možné vykonávať v stroji
- ▲ precízne a stabilné lôžko doštičky, upínanie pomocou skrutky Torx Plus®

### Rozsah dodávky:

Držiak vr. upínacej skrutky



### 11 903 ...

| DC<br>mm      | DCONMS<br>mm | OAL<br>mm | LCF<br>mm | LU<br>mm | DF<br>mm | Uťahovací moment<br>Nm | EUR<br>TT |       |
|---------------|--------------|-----------|-----------|----------|----------|------------------------|-----------|-------|
| 14,00 - 14,49 | 16           | 108,9     | 50,8      | 43,5     | 20       | 0.9                    | 264,40    | 14000 |
| 14,50 - 14,99 | 16           | 111,0     | 52,5      | 45,0     | 20       | 0.9                    | 264,40    | 14500 |
| 15,00 - 15,49 | 20           | 115,1     | 54,3      | 46,5     | 25       | 0.9                    | 264,40    | 15000 |
| 15,50 - 15,99 | 20           | 117,2     | 56,0      | 48,0     | 25       | 0.9                    | 264,40    | 15500 |
| 16,00 - 16,49 | 20           | 119,3     | 57,8      | 49,5     | 25       | 1.2                    | 290,10    | 16000 |
| 16,50 - 16,99 | 20           | 121,4     | 59,5      | 51,0     | 25       | 1.2                    | 290,10    | 16500 |
| 17,00 - 17,49 | 20           | 123,5     | 61,3      | 52,5     | 25       | 1.2                    | 290,10    | 17000 |
| 17,50 - 17,99 | 20           | 125,6     | 63,0      | 54,0     | 25       | 1.2                    | 290,10    | 17500 |
| 18,00 - 18,49 | 20           | 127,7     | 64,8      | 55,5     | 25       | 2.2                    | 309,28    | 18000 |
| 18,50 - 18,99 | 20           | 129,8     | 66,5      | 57,0     | 25       | 2.2                    | 309,28    | 18500 |
| 19,00 - 19,49 | 25           | 137,9     | 68,3      | 58,5     | 30       | 2.2                    | 309,28    | 19000 |
| 19,50 - 19,99 | 25           | 140,0     | 70,0      | 60,0     | 30       | 2.2                    | 309,28    | 19500 |
| 20,00 - 20,49 | 25           | 142,1     | 71,8      | 61,5     | 30       | 2.2                    | 328,47    | 20000 |
| 20,50 - 20,99 | 25           | 144,2     | 73,5      | 63,0     | 30       | 2.2                    | 328,47    | 20500 |
| 21,00 - 21,49 | 25           | 146,3     | 75,3      | 64,5     | 30       | 2.2                    | 357,25    | 21000 |
| 21,50 - 21,99 | 25           | 148,4     | 77,0      | 66,0     | 30       | 2.2                    | 362,41    | 21500 |
| 22,00 - 22,49 | 25           | 150,5     | 78,8      | 67,5     | 30       | 3.2                    | 367,46    | 22000 |
| 22,50 - 22,99 | 25           | 152,6     | 80,5      | 69,0     | 30       | 3.2                    | 372,50    | 22500 |
| 23,00 - 23,49 | 25           | 154,7     | 82,3      | 70,5     | 30       | 3.2                    | 377,78    | 23000 |
| 23,50 - 23,99 | 25           | 156,8     | 84,0      | 72,0     | 30       | 3.2                    | 382,83    | 23500 |
| 24,00 - 24,49 | 32           | 162,9     | 85,8      | 73,5     | 39       | 5                      | 387,87    | 24000 |
| 24,50 - 24,99 | 32           | 165,0     | 87,5      | 75,0     | 39       | 5                      | 393,03    | 24500 |
| 25,00 - 25,49 | 32           | 167,1     | 89,3      | 76,5     | 39       | 5                      | 398,07    | 25000 |
| 25,50 - 25,99 | 32           | 169,2     | 91,0      | 78,0     | 39       | 5                      | 403,24    | 25500 |
| 26,00 - 26,49 | 32           | 171,3     | 92,8      | 79,5     | 39       | 6                      | 408,28    | 26000 |
| 26,50 - 26,99 | 32           | 173,4     | 94,5      | 81,0     | 39       | 6                      | 413,44    | 26500 |
| 27,00 - 27,49 | 32           | 175,5     | 96,3      | 82,5     | 39       | 6                      | 418,49    | 27000 |
| 27,50 - 27,99 | 32           | 177,6     | 98,0      | 84,0     | 39       | 6                      | 423,53    | 27500 |
| 28,00 - 28,49 | 32           | 179,7     | 99,8      | 85,5     | 39       | 6                      | 428,81    | 28000 |
| 28,50 - 28,99 | 32           | 181,8     | 101,5     | 87,0     | 39       | 6                      | 433,86    | 28500 |
| 29,00 - 29,49 | 32           | 183,9     | 103,3     | 88,5     | 39       | 6                      | 438,90    | 29000 |
| 29,50 - 30,00 | 32           | 186,0     | 105,0     | 90,0     | 39       | 6                      | 444,06    | 29500 |



Skrutkovač

### 80 950 ...

#### Náhradné diely DC

|               | EUR<br>Y7 |     |
|---------------|-----------|-----|
| 14,00 - 15,99 | 7,25      | 060 |
| 16,00 - 17,99 | 7,25      | 060 |
| 18,00 - 21,99 | 7,80      | 062 |
| 22,00 - 23,99 | 7,80      | 062 |
| 24,00 - 25,99 | 8,29      | 063 |
| 26,00 - 30,00 | 9,19      | 064 |

Výmenná vložka  
TORX®

### 80 950 ...

|          | EUR<br>Y7 |     |
|----------|-----------|-----|
| T08 - IP | 5,84      | 043 |
| T08 - IP | 5,84      | 043 |
| T10 - IP | 6,46      | 053 |
| T10 - IP | 6,46      | 053 |
| T15 - IP | 6,46      | 054 |
| T20 - IP | 6,46      | 055 |



Momentový skrutkovač

### 80 950 ...

|              | EUR<br>Y7 |     |
|--------------|-----------|-----|
| 0,5 - 2,0 Nm | 146,03    | 191 |
| 0,5 - 2,0 Nm | 146,03    | 191 |
| 2,0 - 7,0 Nm | 162,01    | 193 |
| 2,0 - 7,0 Nm | 162,01    | 193 |
| 2,0 - 7,0 Nm | 162,01    | 193 |
| 2,0 - 7,0 Nm | 162,01    | 193 |



Upínacia skrutka

### 11 950 ...

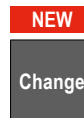
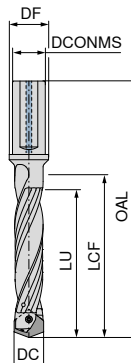
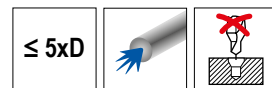
|                | EUR<br>TT |       |
|----------------|-----------|-------|
| M2,2x13 - 08IP | 15,32     | 00100 |
| M2,5x15 - 08IP | 17,67     | 00200 |
| M3,0x17 - 10IP | 19,00     | 00300 |
| M3,5x21 - 10IP | 19,00     | 00400 |
| M4,0x23 - 15IP | 20,74     | 00500 |
| M4,5x25 - 20IP | 23,02     | 00600 |

## WPC – Držiak pre vrták s vymeniteľnými doštičkami

- ▲ jednoduchá manipulácia
- ▲ výmenu doštičky je možné vykonávať v stroji
- ▲ precízne a stabilné lôžko doštičky, upínanie pomocou skrutky Torx Plus®

### Rozsah dodávky:

Držiak vr. upínacej skrutky



### 11 905 ...

| DC<br>mm      | DCONMS<br>mm | OAL<br>mm | LCF<br>mm | LU<br>mm | DF<br>mm | Uťahovací moment<br>Nm | EUR<br>TT |       |
|---------------|--------------|-----------|-----------|----------|----------|------------------------|-----------|-------|
| 14,00 - 14,49 | 16           | 137,9     | 79,8      | 72,5     | 20       | 0.9                    | 286,53    | 14000 |
| 14,50 - 14,99 | 16           | 141,0     | 82,5      | 75,0     | 20       | 0.9                    | 286,53    | 14500 |
| 15,00 - 15,49 | 20           | 146,1     | 85,3      | 77,5     | 25       | 0.9                    | 286,53    | 15000 |
| 15,50 - 15,99 | 20           | 149,2     | 88,0      | 80,0     | 25       | 0.9                    | 286,53    | 15500 |
| 16,00 - 16,49 | 20           | 152,3     | 90,8      | 82,5     | 25       | 1.2                    | 311,99    | 16000 |
| 16,50 - 16,99 | 20           | 155,4     | 93,5      | 85,0     | 25       | 1.2                    | 311,99    | 16500 |
| 17,00 - 17,49 | 20           | 158,5     | 96,3      | 87,5     | 25       | 1.2                    | 311,99    | 17000 |
| 17,50 - 17,99 | 20           | 161,6     | 99,0      | 90,0     | 25       | 1.2                    | 311,99    | 17500 |
| 18,00 - 18,49 | 20           | 164,7     | 101,8     | 92,5     | 25       | 2.2                    | 331,91    | 18000 |
| 18,50 - 18,99 | 20           | 167,8     | 104,5     | 95,0     | 25       | 2.2                    | 331,91    | 18500 |
| 19,00 - 19,49 | 25           | 176,9     | 107,3     | 97,5     | 30       | 2.2                    | 331,91    | 19000 |
| 19,50 - 19,99 | 25           | 180,0     | 110,0     | 100,0    | 30       | 2.2                    | 331,91    | 19500 |
| 20,00 - 20,49 | 25           | 183,1     | 112,8     | 102,5    | 30       | 2.2                    | 350,60    | 20000 |
| 20,50 - 20,99 | 25           | 186,2     | 115,5     | 105,0    | 30       | 2.2                    | 350,60    | 20500 |
| 21,00 - 21,49 | 25           | 189,3     | 118,3     | 107,5    | 30       | 2.2                    | 380,49    | 21000 |
| 21,50 - 21,99 | 25           | 192,4     | 121,0     | 110,0    | 30       | 2.2                    | 385,53    | 21500 |
| 22,00 - 22,49 | 25           | 195,5     | 123,8     | 112,5    | 30       | 3.2                    | 390,57    | 22000 |
| 22,50 - 22,99 | 25           | 198,6     | 126,5     | 115,0    | 30       | 3.2                    | 395,74    | 22500 |
| 23,00 - 23,49 | 25           | 201,7     | 129,3     | 117,5    | 30       | 3.2                    | 400,90    | 23000 |
| 23,50 - 23,99 | 25           | 204,8     | 132,0     | 120,0    | 30       | 3.2                    | 405,94    | 23500 |
| 24,00 - 24,49 | 32           | 211,9     | 134,8     | 122,5    | 39       | 5                      | 411,11    | 24000 |
| 24,50 - 24,99 | 32           | 215,0     | 137,5     | 125,0    | 39       | 5                      | 416,15    | 24500 |
| 25,00 - 25,49 | 32           | 218,1     | 140,3     | 127,5    | 39       | 5                      | 421,31    | 25000 |
| 25,50 - 25,99 | 32           | 221,2     | 143,0     | 130,0    | 39       | 5                      | 426,49    | 25500 |
| 26,00 - 26,49 | 32           | 224,3     | 145,8     | 132,5    | 39       | 6                      | 431,52    | 26000 |
| 26,50 - 26,99 | 32           | 227,4     | 148,5     | 135,0    | 39       | 6                      | 436,56    | 26500 |
| 27,00 - 27,49 | 32           | 230,5     | 151,3     | 137,5    | 39       | 6                      | 441,73    | 27000 |
| 27,50 - 27,99 | 32           | 233,6     | 154,0     | 140,0    | 39       | 6                      | 446,90    | 27500 |
| 28,00 - 28,49 | 32           | 236,7     | 156,8     | 142,5    | 39       | 6                      | 451,94    | 28000 |
| 28,50 - 28,99 | 32           | 239,8     | 159,5     | 145,0    | 39       | 6                      | 456,98    | 28500 |
| 29,00 - 29,49 | 32           | 242,9     | 162,3     | 147,5    | 39       | 6                      | 462,15    | 29000 |
| 29,50 - 30,00 | 32           | 246,0     | 165,0     | 150,0    | 39       | 6                      | 467,19    | 29500 |



## Orientačné rezné parametre – WPC – Change

|                  |                                                      |       |                              | 11 910 ...                                   |         |           |           |           |
|------------------|------------------------------------------------------|-------|------------------------------|----------------------------------------------|---------|-----------|-----------|-----------|
|                  | Materiálová podskupina                               | Index | Pevnosť<br>N/mm²* / HB / HRC | s vnút. chlad.<br><br>v <sub>c</sub> (m/min) | UNI     |           |           |           |
|                  |                                                      |       |                              |                                              | Ø 14–16 | > Ø 16–20 | > Ø 20–25 | > Ø 25–30 |
|                  |                                                      |       |                              |                                              |         |           |           |           |
| P                | Nelegovaná oceľ                                      | P.1.1 | 420 N/mm² / 125 HB           | 100                                          | 0,22    | 0,25      | 0,28      | 0,32      |
|                  |                                                      | P.1.2 | 640 N/mm² / 190 HB           | 100                                          | 0,27    | 0,31      | 0,35      | 0,39      |
|                  |                                                      | P.1.3 | 840 N/mm² / 250 HB           | 100                                          | 0,27    | 0,31      | 0,35      | 0,39      |
|                  |                                                      | P.1.4 | 910 N/mm² / 270 HB           | 90                                           | 0,25    | 0,28      | 0,32      | 0,35      |
|                  |                                                      | P.1.5 | 1010 N/mm² / 300 HB          | 90                                           | 0,25    | 0,28      | 0,32      | 0,35      |
|                  | Nízkolegovaná oceľ                                   | P.2.1 | 610 N/mm² / 180 HB           | 100                                          | 0,25    | 0,28      | 0,32      | 0,35      |
|                  |                                                      | P.2.2 | 930 N/mm² / 275 HB           | 100                                          | 0,25    | 0,28      | 0,32      | 0,35      |
|                  |                                                      | P.2.3 | 1010 N/mm² / 300 HB          | 100                                          | 0,25    | 0,28      | 0,32      | 0,35      |
|                  |                                                      | P.2.4 | 1200 N/mm² / 375 HB          | 80                                           | 0,21    | 0,24      | 0,27      | 0,30      |
|                  | Vysokolegovaná oceľ a vysokolegovaná nástrojová oceľ | P.3.1 | 680 N/mm² / 200 HB           | 70                                           | 0,20    | 0,22      | 0,25      | 0,28      |
|                  |                                                      | P.3.2 | 1100 N/mm² / 300 HB          | 70                                           | 0,18    | 0,21      | 0,24      | 0,26      |
|                  |                                                      | P.3.3 | 1300 N/mm² / 400 HB          | 60                                           | 0,17    | 0,19      | 0,22      | 0,24      |
|                  | Nehrdzavajúca oceľ                                   | P.4.1 | 680 N/mm² / 200 HB           | 55                                           | 0,17    | 0,19      | 0,22      | 0,24      |
|                  |                                                      | P.4.2 | 1010 N/mm² / 300 HB          | 55                                           | 0,17    | 0,19      | 0,22      | 0,24      |
| M                | Nehrdzavajúca oceľ                                   | M.1.1 | 610 N/mm² / 180 HB           |                                              |         |           |           |           |
|                  |                                                      | M.2.1 | 300 HB                       |                                              |         |           |           |           |
|                  |                                                      | M.3.1 | 780 N/mm² / 230 HB           |                                              |         |           |           |           |
| K                | Sivá liatina                                         | K.1.1 | 350 N/mm² / 180 HB           | 110                                          | 0,37    | 0,42      | 0,47      | 0,53      |
|                  |                                                      | K.1.2 | 500 N/mm² / 260 HB           | 100                                          | 0,31    | 0,35      | 0,39      | 0,44      |
|                  | Tvárna liatina                                       | K.2.1 | 540 N/mm² / 160 HB           | 100                                          | 0,37    | 0,42      | 0,47      | 0,53      |
|                  |                                                      | K.2.2 | 845 N/mm² / 250 HB           | 90                                           | 0,31    | 0,35      | 0,39      | 0,44      |
|                  | Temperovaná liatina                                  | K.3.1 | 440 N/mm² / 130 HB           | 100                                          | 0,37    | 0,42      | 0,47      | 0,53      |
|                  |                                                      | K.3.2 | 780 N/mm² / 230 HB           | 90                                           | 0,31    | 0,35      | 0,39      | 0,44      |
| N                | Hliník – tvárna zliatina                             | N.1.1 | 60 HB                        |                                              |         |           |           |           |
|                  |                                                      | N.1.2 | 340 N/mm² / 100 HB           |                                              |         |           |           |           |
|                  | Hliník – zlievarenská zliatina                       | N.2.1 | 250 N/mm² / 75 HB            |                                              |         |           |           |           |
|                  |                                                      | N.2.2 | 300 N/mm² / 90 HB            |                                              |         |           |           |           |
|                  |                                                      | N.2.3 | 440 N/mm² / 130 HB           |                                              |         |           |           |           |
|                  | Meď a zliatiny meď (bronz / mosadz)                  | N.3.1 | 375 N/mm² / 110 HB           |                                              |         |           |           |           |
|                  |                                                      | N.3.2 | 300 N/mm² / 90 HB            |                                              |         |           |           |           |
|                  |                                                      | N.3.3 | 340 N/mm² / 100 HB           |                                              |         |           |           |           |
| Zliatiny horčíka | N.4.1                                                | 70 HB |                              |                                              |         |           |           |           |
| S                | Žiaruvzdorné zliatiny                                | S.1.1 | 680 N/mm² / 200 HB           |                                              |         |           |           |           |
|                  |                                                      | S.1.2 | 950 N/mm² / 280 HB           |                                              |         |           |           |           |
|                  |                                                      | S.2.1 | 840 N/mm² / 250 HB           |                                              |         |           |           |           |
|                  |                                                      | S.2.2 | 1180 N/mm² / 350 HB          |                                              |         |           |           |           |
|                  |                                                      | S.2.3 | 1080 N/mm² / 320 HB          |                                              |         |           |           |           |
|                  | Zliatiny titánu                                      | S.3.1 | 400 N/mm²                    |                                              |         |           |           |           |
|                  |                                                      | S.3.2 | 1050 N/mm² / 320 HB          |                                              |         |           |           |           |
|                  |                                                      | S.3.3 | 1400 N/mm² / 410 HB          |                                              |         |           |           |           |
| H                | Kalená oceľ                                          | H.1.1 | 46–55 HRC                    |                                              |         |           |           |           |
|                  |                                                      | H.1.2 | 56–60 HRC                    |                                              |         |           |           |           |
|                  |                                                      | H.1.3 | 61–65 HRC                    |                                              |         |           |           |           |
|                  |                                                      | H.1.4 | 66–70 HRC                    |                                              |         |           |           |           |
|                  | Tvrdená liatina                                      | H.2.1 | 400 HB                       |                                              |         |           |           |           |
|                  | Kalená liatina                                       | H.3.1 | 55 HRC                       |                                              |         |           |           |           |
| O                | Nekovové materiály                                   | O.1.1 | ≤ 150 N/mm²                  |                                              |         |           |           |           |
|                  |                                                      | O.1.2 | ≤ 100 N/mm²                  |                                              |         |           |           |           |
|                  |                                                      | O.2.1 | ≤ 1000 N/mm²                 |                                              |         |           |           |           |
|                  |                                                      | O.2.2 | ≤ 1000 N/mm²                 |                                              |         |           |           |           |
|                  |                                                      | O.3.1 |                              |                                              |         |           |           |           |

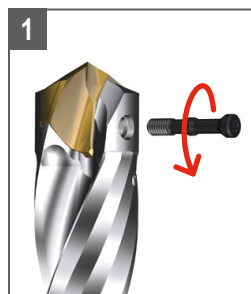
\* pevnosť v ťahu



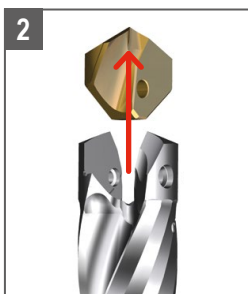
Rezné parametre sú značne závislé na vonkajších podmienkach, ako je napríklad stabilita upnutia nástroja a obrobní, materiál a typ stroja! Uvádzané hodnoty predstavujú možné rezné parametre, ktoré sa v závislosti na konkrétnej aplikácii musia upraviť smerom hore alebo dole!

# Pokyny pre používanie vrtákov s vymeniteľnými doštičkami WPC – Change

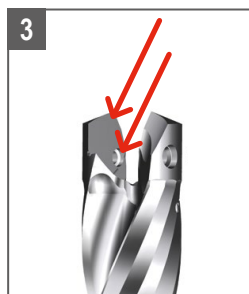
## Montáž vymeniteľnej doštičky



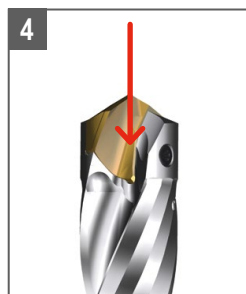
1  
Upínaciu skrutku povolte skrutkovačom TORX PLUS® S v smere proti otáčaniu hodinových ručičiek (skrutkovač nie je súčasťou dodávky).



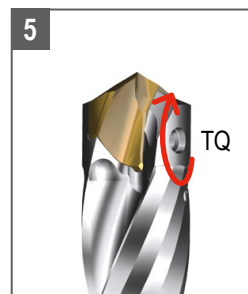
2  
Vymeniteľnú doštičku vyberte z lôžka.



3  
Lôžko doštičky a závit pre skrutku vyčistite pomocou stlačeného vzduchu.



4  
Do lôžka vložte novú vymeniteľnú doštičku.



5  
Zo správnej strany vložte upínaciu skrutku a v smere otáčania hodinových ručičiek ju dotiahnite na vopred stanovený ťahovací moment. Dodržujte intervaly pre výmenu upínacích skrutiek!

## Pokyny

- ▲ Používajte iba vymeniteľné doštičky s priemerom v rozsahu stanovenom pre konkrétny držiak.
- ▲ Upínacia skrutka sa musí po každej piatej výmene vymeniteľnej doštičky taktiež vymeniť.
- ▲ Ťahovací moment a artiklové číslo upínacej skrutky sú uvedené na držiaku.
- ▲ Používajte iba originálne náhradné diely.

## Upínacie skrutky a ťahovacie momenty

| Rozsah priemerov | Artikel č.<br>Upínacia skrutka | Torx | Ťahovací moment<br>TQ |
|------------------|--------------------------------|------|-----------------------|
| 14,00–15,99 mm   | 11 950 00100                   | 08IP | 0,9 Nm                |
| 16,00–17,99 mm   | 11 950 00200                   | 08IP | 1,2 Nm                |
| 18,00–21,99 mm   | 11 950 00300                   | 10IP | 2,2 Nm                |
| 22,00–23,99 mm   | 11 950 00400                   | 10IP | 3,2 Nm                |
| 24,00–25,99 mm   | 11 950 00500                   | 15IP | 5,0 Nm                |
| 26,00–30,00 mm   | 11 950 00600                   | 20IP | 6,0 Nm                |

## Pokyny k technológii vrtania



Vrtanie do plna



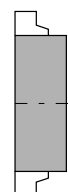
Vrtanie vo zväzku: Musí sa zabezpečiť stabilné upnutie zväzkov so zachovaním minimálnych vzdialeností.



Pri navrtávaní šikmých plôch < 3° znížte posuv o cca 50 %.  
V prípade šikmého zachádzania do otvoru > 3° sa musí vopred vykonať čelné zahĺbenie.



V prípade šikmého vychádzania z otvoru < 3° znížte posuv o cca 50 %.  
Obrábanie šikmých plôch > 3° pri vychádzaní z otvoru sa neodporúča.



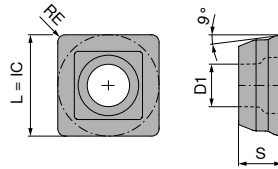
V prípade obrábania pomocou pevného nástroja (sústruhu) sa musí dbať na presnú stredovú polohu nástroja vzhľadom na os rotácie obrobku. Maximálne prípustné prednastavenie ± 0,02 mm.



Za účelom dosiahnutia optimálnych výsledkov sa odporúča používať výlučne nástroj s vnútorným chladením. Odporúčený minimálny tlak chladiaceho média by mal činiť 12 barov.

## SOGX

| Označenie   | L<br>mm | IC<br>mm | D1<br>mm | S<br>mm |
|-------------|---------|----------|----------|---------|
| SOGX 0402.. | 4,8     | 4,8      | 2,05     | 2,20    |
| SOGX 0502.. | 5,5     | 5,5      | 2,30     | 2,40    |
| SOGX 0602.. | 6,2     | 6,2      | 2,60     | 2,75    |
| SOGX 07T2.. | 7,1     | 7,1      | 2,60     | 2,97    |
| SOGX 0803.. | 8,0     | 8,0      | 2,85     | 3,40    |
| SOGX 09T3.. | 8,9     | 8,9      | 3,40     | 3,90    |
| SOGX 1004.. | 9,8     | 9,8      | 4,10     | 4,20    |
| SOGX 1104.. | 10,9    | 10,9     | 4,10     | 4,50    |
| SOGX 1204.. | 12,0    | 12,0     | 5,20     | 4,80    |
| SOGX 1305.. | 13,2    | 13,2     | 5,20     | 5,20    |



## SOGX

| ISO    | KOMET označenie  | RE<br>mm | SOGX<br>10 820 ... |       | SOGX<br>10 820 ... |       |
|--------|------------------|----------|--------------------|-------|--------------------|-------|
|        |                  |          | EUR<br>1A/3#       |       | EUR<br>1A/3#       |       |
| 040204 | W80 10210.047935 | 0,4      |                    |       | 19,30              | 50421 |
| 040204 | W80 10210.048430 | 0,4      | 19,30              | 00421 | 19,41              | 50521 |
| 050204 | W80 12210.047935 | 0,4      |                    |       | 19,55              | 50621 |
| 050204 | W80 12210.048430 | 0,4      | 19,41              | 00521 | 19,66              | 50721 |
| 060206 | W80 18210.067935 | 0,6      |                    |       | 19,80              | 50821 |
| 060206 | W80 18210.068430 | 0,6      | 19,55              | 00621 | 20,54              | 50921 |
| 07T208 | W80 20210.087935 | 0,8      |                    |       | 21,16              | 51021 |
| 07T208 | W80 20210.088430 | 0,8      | 19,66              | 00721 | 21,79              | 51121 |
| 080308 | W80 24210.087935 | 0,8      |                    |       | 22,91              | 51221 |
| 080308 | W80 24210.088430 | 0,8      | 19,80              | 00821 | 26,65              | 51321 |
| 09T308 | W80 28210.087935 | 0,8      |                    |       |                    |       |
| 09T308 | W80 28210.088430 | 0,8      | 20,54              | 00921 |                    |       |
| 100408 | W80 32210.087935 | 0,8      |                    |       |                    |       |
| 100408 | W80 32210.088430 | 0,8      | 21,16              | 01021 |                    |       |
| 110408 | W80 38210.087935 | 0,8      |                    |       |                    |       |
| 110408 | W80 38210.088430 | 0,8      | 21,79              | 01121 |                    |       |
| 120408 | W80 42210.087935 | 0,8      |                    |       |                    |       |
| 120408 | W80 42210.088430 | 0,8      | 22,91              | 01221 |                    |       |
| 130508 | W80 46210.087935 | 0,8      |                    |       |                    |       |
| 130508 | W80 46210.088430 | 0,8      | 26,65              | 01321 |                    |       |
| P      |                  |          | ●                  |       | ●                  |       |
| M      |                  |          | ●                  |       | ●                  |       |
| K      |                  |          | ●                  |       | ●                  |       |
| N      |                  |          | ○                  |       | ○                  |       |
| S      |                  |          | ●                  |       | ●                  |       |
| H      |                  |          | ○                  |       |                    |       |
| O      |                  |          |                    |       | ○                  |       |



Vhodné držáky a parametre posuvu (KUB Pentron a KUB Pentron CS) nájdete v hlavnom katalógu 2023 → kapitola 3 – Vrtáky s vymeniteľnými doštičkami



## Orientačné rezné hodnoty

|   |                                                            |       |                                         | 10 820 ...           |               |
|---|------------------------------------------------------------|-------|-----------------------------------------|----------------------|---------------|
|   | Materiálová podskupina                                     | Index | Pevnosť<br>N/mm <sup>2</sup> / HB / HRC | -21<br>BK8430        | -21<br>BK7935 |
|   |                                                            |       |                                         | v <sub>c</sub> m/min |               |
|   |                                                            |       |                                         |                      |               |
| P | Nelegovaná oceľ                                            | P.1.1 | 420 N/mm <sup>2</sup> / 125 HB          | 260                  | 250           |
|   |                                                            | P.1.2 | 640 N/mm <sup>2</sup> / 190 HB          | 260                  | 220           |
|   |                                                            | P.1.3 | 840 N/mm <sup>2</sup> / 250 HB          | 270                  | 270           |
|   |                                                            | P.1.4 | 910 N/mm <sup>2</sup> / 270 HB          | 250                  | 250           |
|   |                                                            | P.1.5 | 1010 N/mm <sup>2</sup> / 300 HB         | 270                  | 200           |
|   | Nízkolegovaná oceľ                                         | P.2.1 | 610 N/mm <sup>2</sup> / 180 HB          | 270                  | 270           |
|   |                                                            | P.2.2 | 930 N/mm <sup>2</sup> / 275 HB          | 260                  | 260           |
|   |                                                            | P.2.3 | 1010 N/mm <sup>2</sup> / 300 HB         | 180                  | 160           |
|   |                                                            | P.2.4 | 1200 N/mm <sup>2</sup> / 375 HB         | 150                  | 130           |
|   | Vysokolegovaná oceľ a<br>vysokolegovaná<br>nástrojová oceľ | P.3.1 | 680 N/mm <sup>2</sup> / 200 HB          | 160                  | 140           |
|   |                                                            | P.3.2 | 1100 N/mm <sup>2</sup> / 300 HB         | 130                  | 120           |
|   |                                                            | P.3.3 | 1300 N/mm <sup>2</sup> / 400 HB         | 120                  | 110           |
|   | Nehrdzajúca oceľ                                           | P.4.1 | 680 N/mm <sup>2</sup> / 200 HB          | 180                  | 150           |
|   |                                                            | P.4.2 | 1010 N/mm <sup>2</sup> / 300 HB         | 130                  | 120           |
| M | Nehrdzajúca oceľ                                           | M.1.1 | 610 N/mm <sup>2</sup> / 180 HB          | 150                  | 160           |
|   |                                                            | M.2.1 | 300 HB                                  | 150                  | 160           |
|   |                                                            | M.3.1 | 780 N/mm <sup>2</sup> / 230 HB          | 140                  | 150           |
| K | Sivá liatina                                               | K.1.1 | 350 N/mm <sup>2</sup> / 180 HB          | 160                  | 150           |
|   |                                                            | K.1.2 | 500 N/mm <sup>2</sup> / 260 HB          | 120                  | 120           |
|   | Tvárna liatina                                             | K.2.1 | 540 N/mm <sup>2</sup> / 160 HB          | 160                  | 150           |
|   |                                                            | K.2.2 | 845 N/mm <sup>2</sup> / 250 HB          | 100                  | 90            |
|   | Temperovaná liatina                                        | K.3.1 | 440 N/mm <sup>2</sup> / 130 HB          | 120                  | 110           |
|   |                                                            | K.3.2 | 780 N/mm <sup>2</sup> / 230 HB          | 100                  | 90            |
| N | Hliník – tvárna zliatina                                   | N.1.1 | 60 HB                                   | 400                  | 400           |
|   |                                                            | N.1.2 | 340 N/mm <sup>2</sup> / 100 HB          | 400                  | 400           |
|   | Hliník – zlievarenská zliatina                             | N.2.1 | 250 N/mm <sup>2</sup> / 75 HB           | 250                  | 250           |
|   |                                                            | N.2.2 | 300 N/mm <sup>2</sup> / 90 HB           | 250                  | 250           |
|   |                                                            | N.2.3 | 440 N/mm <sup>2</sup> / 130 HB          | 230                  | 230           |
|   | Meď a<br>zliatiny medi<br>(bronz / mosadz)                 | N.3.1 | 375 N/mm <sup>2</sup> / 110 HB          | 200                  | 200           |
|   |                                                            | N.3.2 | 300 N/mm <sup>2</sup> / 90 HB           | 220                  | 220           |
|   |                                                            | N.3.3 | 340 N/mm <sup>2</sup> / 100 HB          | 330                  | 330           |
|   | Zliatiny horčíka                                           | N.4.1 | 70 HB                                   | 200                  | 200           |
| S | Žiaruvzdorné<br>zliatiny                                   | S.1.1 | 680 N/mm <sup>2</sup> / 200 HB          | 60                   | 60            |
|   |                                                            | S.1.2 | 950 N/mm <sup>2</sup> / 280 HB          | 50                   | 50            |
|   |                                                            | S.2.1 | 840 N/mm <sup>2</sup> / 250 HB          | 60                   | 60            |
|   |                                                            | S.2.2 | 1180 N/mm <sup>2</sup> / 350 HB         | 50                   | 50            |
|   |                                                            | S.2.3 | 1080 N/mm <sup>2</sup> / 320 HB         | 30                   | 30            |
|   | Zliatiny titánu                                            | S.3.1 | 400 N/mm <sup>2</sup>                   | 100                  | 100           |
|   |                                                            | S.3.2 | 1050 N/mm <sup>2</sup> / 320 HB         | 80                   | 80            |
|   |                                                            | S.3.3 | 1400 N/mm <sup>2</sup> / 410 HB         | 50                   | 50            |
| H | Kalená oceľ                                                | H.1.1 | 46–55 HRC                               | 100                  |               |
|   |                                                            | H.1.2 | 56–60 HRC                               | 80                   |               |
|   |                                                            | H.1.3 | 61–65 HRC                               | 50                   |               |
|   |                                                            | H.1.4 | 66–70 HRC                               |                      |               |
|   | Tvrdená liatina                                            | H.2.1 | 400 HB                                  | 100                  |               |
| O | Kalená liatina                                             | H.3.1 | 55 HRC                                  | 80                   |               |
|   |                                                            | O.1.1 | ≤ 150 N/mm <sup>2</sup>                 |                      | 100           |
|   |                                                            | O.1.2 | ≤ 100 N/mm <sup>2</sup>                 |                      | 100           |
|   |                                                            | O.2.1 | ≤ 1000 N/mm <sup>2</sup>                |                      |               |
|   |                                                            | O.2.2 | ≤ 1000 N/mm <sup>2</sup>                |                      | 100           |
|   |                                                            | O.3.1 |                                         |                      | 100           |

\* pevnosť v ťahu



Detailný popis sort nájdete v hlavnom katalógu  
2023 → kapitola 3 – Vrtáky s vymeniteľnými  
doštičkami



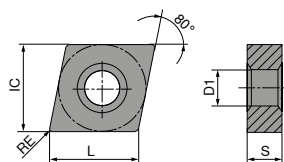
**BK7935 -21** odporúčame výlučne pre použitie na  
obvodovom brite!



V prípade stacionárneho vrtáka a rotujúceho obrobku sa vytvára pro vrtání priechodných dier kruhový výstrižok s ostrými hranami.  
Dodržujte bezpečnostné predpisy. Proti odlietavajúcim trieskam zabezpečte stroj ochranným krytom.

## CNMG

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| CNMG 1204.. | 12,9    | 4,76    | 5,16     | 12,70    |
| CNMG 1606.. | 16,1    | 6,35    | 6,35     | 15,87    |
| CNMG 1906.. | 19,3    | 6,35    | 7,94     | 19,05    |



## CNMG

| ISO      | RE<br>mm |  |   |   |
|----------|----------|--|---|---|
| 120408EN | 0,8      |  |   |   |
| 120412EN | 1,2      |  |   |   |
| 160612EN | 1,2      |  |   |   |
| 190612EN | 1,2      |  |   |   |
| 190616EN | 1,6      |  |   |   |
| P        |          |  | ○ | ○ |
| M        |          |  | ● | ● |
| K        |          |  |   |   |
| N        |          |  |   |   |
| S        |          |  | ○ | ○ |
| H        |          |  |   |   |
| O        |          |  |   |   |

NEW

-42  
CTCM130

DRAGONSKIN

M  
CNMG

75 030 ...

EUR  
1A/08  
14,30

33000

NEW

-M70  
CTCM130

DRAGONSKIN

M  
CNMG

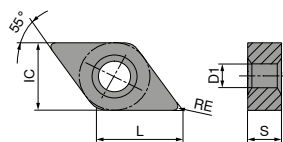
75 037 ...

EUR  
1A/08  
14,30

33000

## DNMG

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| DNMG 1104.. | 11,6    | 4,76    | 3,81     | 9,52     |
| DNMG 1504.. | 15,5    | 4,76    | 5,16     | 12,70    |
| DNMG 1506.. | 15,5    | 6,35    | 5,16     | 12,70    |



## DNMG

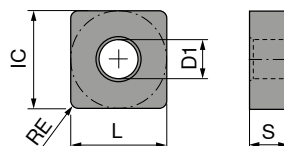
| ISO      | RE<br>mm |  |   |   |
|----------|----------|--|---|---|
| 110404EN | 0,4      |  |   |   |
| 110408EN | 0,8      |  |   |   |
| 150404EN | 0,4      |  |   |   |
| 150408EN | 0,8      |  |   |   |
| 150604EN | 0,4      |  |   |   |
| 150608EN | 0,8      |  |   |   |
| P        |          |  | ○ | ○ |
| M        |          |  | ● | ● |
| K        |          |  |   |   |
| N        |          |  |   |   |
| S        |          |  | ○ | ○ |
| H        |          |  |   |   |
| O        |          |  |   |   |

| NEW                    | NEW                    |
|------------------------|------------------------|
| <b>-M42</b><br>CTCM130 | <b>-M70</b><br>CTCM130 |
| DRAGONSKIN             | DRAGONSKIN             |
|                        |                        |
|                        |                        |
| <b>M</b><br>DNMG       | <b>M</b><br>DNMG       |
| <b>75 027 ...</b>      | <b>75 038 ...</b>      |
| EUR<br>1A/08           | EUR<br>1A/08           |
| 15,26 30400            | 15,26 30600            |
| 15,26 30600            |                        |
| 18,49 31600            |                        |
| 18,49 31800            |                        |
| 20,03 32800            |                        |
| 20,03 33000            |                        |



## SNMG

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| SNMG 1204.. | 12,70   | 4,76    | 5,16     | 12,70    |
| SNMG 1906.. | 19,05   | 6,35    | 7,94     | 19,05    |



## SNMG

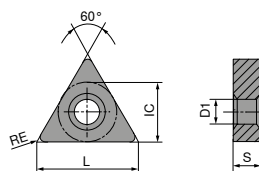
| ISO      | RE<br>mm |
|----------|----------|
| 120408EN | 0,8      |
| 120412EN | 1,2      |
| 190616EN | 1,6      |
| P        |          |
| M        |          |
| K        |          |
| N        |          |
| S        |          |
| H        |          |
| O        |          |

| NEW                    | NEW                    |
|------------------------|------------------------|
| <b>-M42</b><br>CTCM130 | <b>-M70</b><br>CTCM130 |
| DRAGONSKIN             | DRAGONSKIN             |
|                        |                        |
|                        |                        |
| <b>M</b><br>SNMG       | <b>M</b><br>SNMG       |
| <b>75 034 ...</b>      | <b>75 039 ...</b>      |
| EUR<br>1A/08           | EUR<br>1A/08           |
| 14,56 31800            | 14,56 31800            |
| 14,56 32000            | 14,56 32000            |
|                        | 32,63 34600            |

|   |   |   |
|---|---|---|
| P | ○ | ○ |
| M | ● | ● |
| K |   |   |
| N |   |   |
| S | ○ | ○ |
| H |   |   |
| O |   |   |

# TNMG

| Oznaczenie  | L    | S    | D1   | IC    |
|-------------|------|------|------|-------|
|             | mm   | mm   | mm   | mm    |
| TNMG 1604.. | 16,5 | 4,76 | 3,81 | 9,52  |
| TNMG 2204.. | 22,0 | 4,76 | 5,16 | 12,70 |

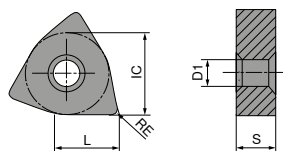


# TNMG

| ISO      | RE<br>mm | EUR<br>1A/08 | EUR<br>1A/08 |       |
|----------|----------|--------------|--------------|-------|
| 160404EN | 0,4      | 12,76        | 31600        |       |
| 160408EN | 0,8      | 12,76        | 31800        | 12,76 |
| 160412EN | 1,2      |              |              | 32000 |
|          |          |              |              |       |
| 220412EN | 1,2      |              |              | 17,23 |
|          |          |              |              | 33200 |
| P        |          |              | ○            | ○     |
| M        |          |              | ●            | ●     |
| K        |          |              |              |       |
| N        |          |              |              |       |
| S        |          |              | ○            | ○     |
| H        |          |              |              |       |
| O        |          |              |              |       |

## WNMG

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| WNMG 0604.. | 6,5     | 4,76    | 3,81     | 9,52     |
| WNMG 0804.. | 8,6     | 4,76    | 5,16     | 12,70    |



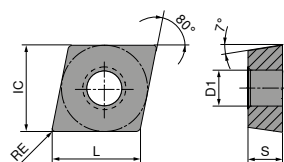
## WNMG

| ISO      | RE<br>mm |  |  |  |  |  |  |  |  |
|----------|----------|--|--|--|--|--|--|--|--|
| 060404EN | 0,4      |  |  |  |  |  |  |  |  |
| 060408EN | 0,8      |  |  |  |  |  |  |  |  |
| 080404EN | 0,4      |  |  |  |  |  |  |  |  |
| 080408EN | 0,8      |  |  |  |  |  |  |  |  |
| 080412EN | 1,2      |  |  |  |  |  |  |  |  |
| P        |          |  |  |  |  |  |  |  |  |
| M        |          |  |  |  |  |  |  |  |  |
| K        |          |  |  |  |  |  |  |  |  |
| N        |          |  |  |  |  |  |  |  |  |
| S        |          |  |  |  |  |  |  |  |  |
| H        |          |  |  |  |  |  |  |  |  |
| O        |          |  |  |  |  |  |  |  |  |

| NEW                    | NEW                    |
|------------------------|------------------------|
| <b>-M42</b><br>CTCM130 | <b>-M70</b><br>CTCM130 |
| DRAGONSKIN             | DRAGONSKIN             |
|                        |                        |
|                        |                        |
| <b>M</b><br>WNMG       | <b>M</b><br>WNMG       |
| <b>75 036 ...</b>      | <b>75 041 ...</b>      |
| EUR<br>1A/08           | EUR<br>1A/08           |
| 12,46 30400            | 12,46 30600            |
| 12,46 30600            |                        |
| 15,69 31600            |                        |
| 15,69 31800            | 15,69 31800            |
| 15,69 32000            | 15,69 32000            |

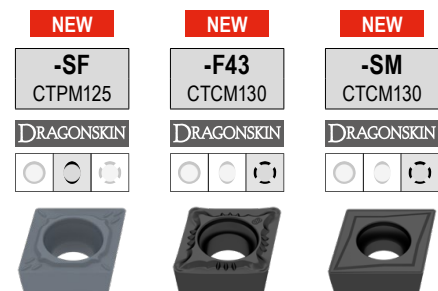
## CCMT

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| CCMT 0602.. | 6,4     | 2,38    | 2,8      | 6,35     |
| CCMT 09T3.. | 9,7     | 3,97    | 4,4      | 9,52     |
| CCMT 1204.. | 12,9    | 4,76    | 5,5      | 12,70    |



## CCMT

| ISO      | RE<br>mm |
|----------|----------|
| 060204EN | 0,4      |
| 09T304EN | 0,4      |
| 09T308EN | 0,8      |
| 120404EN | 0,4      |
| 120408EN | 0,8      |



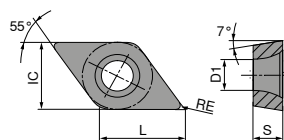
| F                          | F                          | M                                        |
|----------------------------|----------------------------|------------------------------------------|
| CCMT                       | CCMT                       | CCMT                                     |
| 75 042 ...                 | 75 031 ...                 | 75 047 ...                               |
| EUR<br>1A/08               | EUR<br>1A/08               | EUR<br>1A/08                             |
| 9,74 20400                 | 12,15 31600<br>12,15 31800 | 9,74 30400<br>12,15 31600<br>12,15 31800 |
| 17,10 32800<br>17,10 33000 |                            |                                          |

|   |   |   |   |
|---|---|---|---|
| P | ○ | ○ | ○ |
| M | ● | ● | ● |
| K |   |   |   |
| N |   |   |   |
| S |   | ○ | ○ |
| H |   |   |   |
| O |   |   |   |



## DCMT / DCGT

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| DC.T 0702.. | 7,75    | 2,38    | 2,8      | 6,35     |
| DCMT 11T3.. | 11,60   | 3,97    | 4,4      | 9,52     |

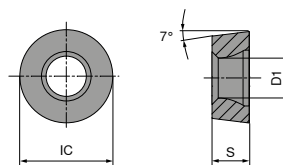


## DCGT / DCMT

|          |          | NEW            |  | NEW            |  | NEW             |  | NEW            |  | NEW            |  |
|----------|----------|----------------|--|----------------|--|-----------------|--|----------------|--|----------------|--|
|          |          | -SF<br>CTPM125 |  | -SF<br>CTPM125 |  | -F43<br>CTCM130 |  | -SM<br>CTPM125 |  | -SM<br>CTCM130 |  |
|          |          | DRAGONSKIN     |  | DRAGONSKIN     |  | DRAGONSKIN      |  | DRAGONSKIN     |  | DRAGONSKIN     |  |
|          |          |                |  |                |  |                 |  |                |  |                |  |
|          |          |                |  |                |  |                 |  |                |  |                |  |
|          |          | F<br>DCGT      |  | F<br>DCMT      |  | F<br>DCMT       |  | M<br>DCMT      |  | M<br>DCMT      |  |
|          |          | 75 043 ...     |  | 75 044 ...     |  | 75 032 ...      |  | 75 048 ...     |  | 75 048 ...     |  |
|          |          | EUR<br>1A/08   |  | EUR<br>1A/08   |  | EUR<br>1A/08    |  | EUR<br>1A/08   |  | EUR<br>1A/08   |  |
| ISO      | RE<br>mm | 17,35          |  | 9,74           |  | 9,74            |  |                |  | 9,74           |  |
| 070202EN | 0,2      | 20200          |  | 20400          |  | 30200           |  |                |  | 30400          |  |
| 070204EN | 0,4      |                |  |                |  | 30400           |  |                |  | 30600          |  |
| 070208EN | 0,8      |                |  |                |  |                 |  |                |  |                |  |
| 11T302EN | 0,2      |                |  |                |  | 31400           |  |                |  |                |  |
| 11T304EN | 0,4      |                |  | 21600          |  | 31600           |  |                |  | 31600          |  |
| 11T308EN | 0,8      |                |  | 21800          |  | 31800           |  | 21800          |  | 31800          |  |
| P        |          | ○              |  | ○              |  | ○               |  | ○              |  | ○              |  |
| M        |          | ●              |  | ●              |  | ●               |  | ●              |  | ●              |  |
| K        |          |                |  |                |  |                 |  |                |  |                |  |
| N        |          |                |  |                |  |                 |  |                |  |                |  |
| S        |          |                |  |                |  | ○               |  |                |  | ○              |  |
| H        |          |                |  |                |  |                 |  |                |  |                |  |
| O        |          |                |  |                |  |                 |  |                |  |                |  |

## RCMT

| Označenie   | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|----------|----------|
| RCMT 2507.. | 7,94    | 7,2      | 25       |



## RCMT

| ISO      | RE<br>mm |
|----------|----------|
| 2507MOSN | 12,5     |

|   |   |
|---|---|
| P | ○ |
| M | ● |
| K |   |
| N |   |
| S |   |
| H |   |
| O |   |

NEW

-SM

CTPM125

DRAGONSKIN



M

RCMT

75 221 ...

EUR

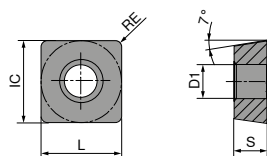
1A/08

50,30

26200

## SCMT

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| SCMT 09T3.. | 9,52    | 3,97    | 4,4      | 9,52     |
| SCMT 1204.. | 12,70   | 4,76    | 5,5      | 12,70    |



## SCMT

NEW

-SM

CTPM125

DRAGONSKIN



M

SCMT

75 049 ...

EUR  
1A/08

12,15 20600

17,10 21800

| ISO      | RE<br>mm |
|----------|----------|
| 09T308EN | 0,8      |
| 120408EN | 0,8      |

|   |   |
|---|---|
| P | ○ |
| M | ● |
| K |   |
| N |   |
| S |   |
| H |   |
| O |   |

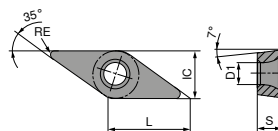
## TCMT

| ISO      | RE<br>mm | EUR<br>1A/08 | EUR<br>1A/08 |
|----------|----------|--------------|--------------|
| 090204EN | 0,4      |              | 9,56 20400   |
| 110204EN | 0,4      | 9,56 31600   | 9,56 21600   |
| 16T304EN | 0,4      | 13,82 32800  | 13,82 22800  |
| 16T308EN | 0,8      | 13,82 33000  | 13,82 23000  |
| 220408EN | 0,8      |              | 19,88 24200  |
| 220412EN | 1,2      |              | 19,88 24400  |
| P        |          | ○            | ○            |
| M        |          | ●            | ●            |
| K        |          |              |              |
| N        |          |              |              |
| S        |          | ○            |              |
| H        |          |              |              |
| O        |          |              |              |



## VCMT / VCGT

| Označenie   | L<br>mm | S<br>mm | D1<br>mm | IC<br>mm |
|-------------|---------|---------|----------|----------|
| VCGT 1103.. | 11,1    | 3,18    | 2,9      | 6,35     |
| VCMT 1604.. | 16,6    | 4,76    | 4,4      | 9,52     |



## VCGT / VCMT

| ISO      | RE<br>mm |
|----------|----------|
| 110302EN | 0,2      |
| 110304EN | 0,4      |
| 160404EN | 0,4      |
| 160408EN | 0,8      |

| NEW                   | NEW                   | NEW                   |
|-----------------------|-----------------------|-----------------------|
| <b>-SF</b><br>CTPM125 | <b>-SF</b><br>CTPM125 | <b>-SM</b><br>CTPM125 |
| DRAGONSKIN            | DRAGONSKIN            | DRAGONSKIN            |
|                       |                       |                       |
|                       |                       |                       |
| <b>F</b><br>VCGT      | <b>F</b><br>VCMT      | <b>M</b><br>VCMT      |
| <b>75 045 ...</b>     | <b>75 046 ...</b>     | <b>75 051 ...</b>     |
| EUR<br>1A/08          | EUR<br>1A/08          | EUR<br>1A/08          |
| 20,03 21400           |                       |                       |
| 20,03 21600           |                       |                       |
|                       | 20,03 22800           | 20,03 22800           |
|                       | 20,03 23000           | 20,03 23000           |

|   |  |  |  |
|---|--|--|--|
| P |  |  |  |
| M |  |  |  |
| K |  |  |  |
| N |  |  |  |
| S |  |  |  |
| H |  |  |  |
| O |  |  |  |

## Príklady materiálov k tabuľkám rezných parametrov

|   | Materiálová podskupina                               | Index | Zloženie / štruktúra / tepelné spracovanie |                    | Pevnosť<br>N/mm <sup>2</sup> / HB / HRC | Číslo<br>materiálu | Názov<br>materiálu         | Číslo<br>materiálu | Názov<br>materiálu |
|---|------------------------------------------------------|-------|--------------------------------------------|--------------------|-----------------------------------------|--------------------|----------------------------|--------------------|--------------------|
| P | Nelegovaná oceľ                                      | P.1.1 | < 0,15 % C                                 | žíhaná             | 420 N/mm <sup>2</sup> / 125 HB          | 1.0401             | C15                        | 1.1141             | Ck15               |
|   |                                                      | P.1.2 | < 0,45 % C                                 | žíhaná             | 640 N/mm <sup>2</sup> / 190 HB          | 1.1191             | C45E                       | 1.0718             | 9SMnPb28           |
|   |                                                      | P.1.3 |                                            | zušľachtená        | 840 N/mm <sup>2</sup> / 250 HB          | 1.1191             | C45E                       | 1.0535             | C55                |
|   |                                                      | P.1.4 | < 0,75 % C                                 | žíhaná             | 910 N/mm <sup>2</sup> / 270 HB          | 1.1223             | C60R                       | 1.0535             | C55                |
|   |                                                      | P.1.5 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.1223             | C60R                       | 1.0727             | 45S20              |
|   | Nízkolegovaná oceľ                                   | P.2.1 |                                            | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.2 |                                            | zušľachtená        | 930 N/mm <sup>2</sup> / 275 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.3 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   |                                                      | P.2.4 |                                            | zušľachtená        | 1200 N/mm <sup>2</sup> / 375 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   | Vysokolegovaná oceľ a vysokolegovaná nástrojová oceľ | P.3.1 |                                            | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4021             | X20Cr13                    | 1.4034             | X46Cr13            |
|   |                                                      | P.3.2 |                                            | zušľachtená        | 1100 N/mm <sup>2</sup> / 300 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   |                                                      | P.3.3 |                                            | zušľachtená        | 1300 N/mm <sup>2</sup> / 400 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   | Nehrdzavejúca oceľ                                   | P.4.1 | feritická / martenzitická                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4016             | X6Cr17                     | 1.2316             | X36CrMo16          |
|   |                                                      | P.4.2 | martenzitická                              | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.4112             | X90CrMoV18                 | 1.2316             | X36CrMo16          |
| M | Nehrdzavejúca oceľ                                   | M.1.1 | austenitická / austeniticko-feritická      | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.4301             | X5CrNi18-10                | 1.4571             | X6CrNiMoTi17-12-2  |
|   |                                                      | M.2.1 | austenitická                               | zušľachtená        | 300 HB                                  | 1.4841             | X15CrNiSi25-21             | 1.4539             | X1NiCrMoCu25-20-5  |
|   |                                                      | M.3.1 | austenitická / feritická (Duplex)          |                    | 780 N/mm <sup>2</sup> / 230 HB          | 1.4462             | X2CrNiMoN22-5-3            | 1.4501             | X2CrNiMoCuWN25-7-4 |
| K | Sivá liatina                                         | K.1.1 | perlitická / feritická                     |                    | 350 N/mm <sup>2</sup> / 180 HB          | 0.6010             | GG-10                      | 0.6025             | GG-25              |
|   |                                                      | K.1.2 | perlitická (martenzitická)                 |                    | 500 N/mm <sup>2</sup> / 260 HB          | 0.6030             | GG-30                      | 0.6045             | GG-45              |
|   | Tvárna liatina                                       | K.2.1 | feritická                                  |                    | 540 N/mm <sup>2</sup> / 160 HB          | 0.7040             | GGG-40                     | 0.7060             | GGG-60             |
|   |                                                      | K.2.2 | perlitická                                 |                    | 845 N/mm <sup>2</sup> / 250 HB          | 0.7070             | GGG-70                     | 0.7080             | GGG-80             |
|   | Temperovaná liatina                                  | K.3.1 | feritická                                  |                    | 440 N/mm <sup>2</sup> / 130 HB          | 0.8035             | GTW-35-04                  | 0.8045             | GTW-45             |
|   |                                                      | K.3.2 | perlitická                                 |                    | 780 N/mm <sup>2</sup> / 230 HB          | 0.8165             | GTS-65-02                  | 0.8170             | GTS-70-02          |
| N | Hliník – tvárna zliatina                             | N.1.1 | nezakaliteľná                              |                    | 60 HB                                   | 3.0255             | Al99,5                     | 3.3315             | AlMg1              |
|   |                                                      | N.1.2 | zakaliteľná                                | vytvrdená          | 340 N/mm <sup>2</sup> / 100 HB          | 3.1355             | AlCuMg2                    | 3.2315             | AlMgSi1            |
|   | Hliník – zlievarenská zliatina                       | N.2.1 | ≤ 12 % Si, nezakaliteľná                   |                    | 250 N/mm <sup>2</sup> / 75 HB           | 3.2581             | G-AlSi12                   | 3.2163             | G-AlSi9Cu3         |
|   |                                                      | N.2.2 | ≤ 12 % Si, zakaliteľná                     | vytvrdená          | 300 N/mm <sup>2</sup> / 90 HB           | 3.2134             | G-AlSi5Cu1Mg               | 3.2373             | G-AlSi9Mg          |
|   |                                                      | N.2.3 | > 12 % Si, nezakaliteľná                   |                    | 440 N/mm <sup>2</sup> / 130 HB          |                    | G-AlSi17Cu4Mg              |                    | G-AlSi18CuNiMg     |
|   | Meď a zliatiny medi (bronz / mosadz)                 | N.3.1 | automatové zliatiny, PB > 1 %              |                    | 375 N/mm <sup>2</sup> / 110 HB          | 2.0380             | CuZn39Pb2 (Ms58)           | 2.0410             | CuZn44Pb2          |
|   |                                                      | N.3.2 | CuZn, CuSnZn                               |                    | 300 N/mm <sup>2</sup> / 90 HB           | 2.0331             | CuZn15                     | 2.4070             | CuZn28Sn1As        |
|   |                                                      | N.3.3 | CuSn, bezolovnatá meď a elektrolytická meď |                    | 340 N/mm <sup>2</sup> / 100 HB          | 2.0060             | E-Cu57                     | 2.0590             | CuZn40Fe           |
|   | Zliatiny horčíka                                     | N.4.1 | horčík a zliatiny horčíka                  |                    | 70 HB                                   | 3.5612             | MgAl6Zn                    | 3.5312             | MgAl3Zn            |
| S | Žiaruvzdorné zliatiny                                | S.1.1 | základ Fe                                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4864             | X12NiCrSi 36-16            | 1.4865             | G-X40NiCrSi38-18   |
|   |                                                      | S.1.2 |                                            | vytvrdená          | 950 N/mm <sup>2</sup> / 280 HB          | 1.4980             | X6NiCrTiMoVB25-15-2        | 1.4876             | X10NiCrAlTi32-20   |
|   |                                                      | S.2.1 |                                            | žíhaná             | 840 N/mm <sup>2</sup> / 250 HB          | 2.4631             | NiCr20TiAl (Nimonic80A)    | 3.4856             | NiCr22Mo9Nb        |
|   |                                                      | S.2.2 | základ Ni alebo Co                         | vytvrdená          | 1180 N/mm <sup>2</sup> / 350 HB         | 2.4668             | NiCr19Nb5Mo3 (Inconel 718) | 2.4955             | NiFe25Cr20NbTi     |
|   |                                                      | S.2.3 |                                            | liata              | 1080 N/mm <sup>2</sup> / 320 HB         | 2.4765             | CoCr20W15Ni                | 1.3401             | G-X120Mn12         |
|   | Zliatiny titánu                                      | S.3.1 | čistý titán                                |                    | 400 N/mm <sup>2</sup>                   | 3.7025             | Ti99,8                     | 3.7034             | Ti99,7             |
|   |                                                      | S.3.2 | alfa + beta zliatiny                       | vytvrdená          | 1050 N/mm <sup>2</sup> / 320 HB         | 3.7165             | TiAl6V4                    | Ti-6246            | Ti-6Al-2Sn-4Zr-6Mo |
|   |                                                      | S.3.3 | beta zliatiny                              |                    | 1400 N/mm <sup>2</sup> / 410 HB         | Ti555.3            | Ti-5Al-5V-5Mo-3Cr          | R56410             | Ti-10V-2Fe-3Al     |
| H | Kalená oceľ                                          | H.1.1 |                                            | kalená a popúšťaná | 46–55 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.2 |                                            | kalená a popúšťaná | 56–60 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.3 |                                            | kalená a popúšťaná | 61–65 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.4 |                                            | kalená a popúšťaná | 66–70 HRC                               |                    |                            |                    |                    |
|   | Tvrdená liatina                                      | H.2.1 |                                            | liata              | 400 HB                                  |                    |                            |                    |                    |
|   | Kalená liatina                                       | H.3.1 |                                            | kalená a popúšťaná | 55 HRC                                  |                    |                            |                    |                    |
| O | Nekovové materiály                                   | O.1.1 | plasty, duroplastické                      |                    | ≤ 150 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.1.2 | plasty, termoplastické                     |                    | ≤ 100 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.2.1 | vystužené aramidovými vláknami             |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.2.2 | vystužené sklenými/uhľíkovými vláknami     |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.3.1 | grafit                                     |                    |                                         |                    |                            |                    |                    |

\* pevnosť v ťahu

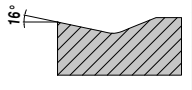
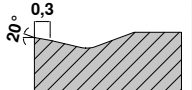
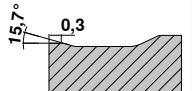
## Orientačné rezné hodnoty

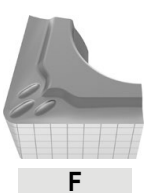
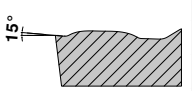
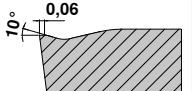
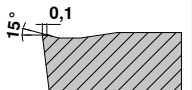
| Index | DRAGONSKIN    |         |
|-------|---------------|---------|
|       | CTPM125       | CTCM130 |
|       | $v_c$ (m/min) |         |
| P.1.1 | 200           | 185     |
| P.1.2 | 170           | 150     |
| P.1.3 | 140           | 125     |
| P.1.4 | 130           | 115     |
| P.1.5 | 120           | 100     |
| P.2.1 | 175           | 160     |
| P.2.2 | 130           | 110     |
| P.2.3 | 120           | 100     |
| P.2.4 | 80            | 60      |
| P.3.1 | 140           | 125     |
| P.3.2 | 100           | 80      |
| P.3.3 | 50            | 40      |
| P.4.1 | 140           | 125     |
| P.4.2 | 120           | 100     |
| M.1.1 | 140           | 125     |
| M.2.1 | 100           | 80      |
| M.3.1 | 130           | 110     |
| K.1.1 |               |         |
| K.1.2 |               |         |
| K.2.1 |               |         |
| K.2.2 |               |         |
| K.3.1 |               |         |
| K.3.2 |               |         |
| N.1.1 |               |         |
| N.1.2 |               |         |
| N.2.1 |               |         |
| N.2.2 |               |         |
| N.2.3 |               |         |
| N.3.1 |               |         |
| N.3.2 |               |         |
| N.3.3 |               |         |
| N.4.1 |               |         |
| S.1.1 |               | 35      |
| S.1.2 |               | 25      |
| S.2.1 |               | 20      |
| S.2.2 |               | 20      |
| S.2.3 |               | 20      |
| S.3.1 |               | 110     |
| S.3.2 |               | 65      |
| S.3.3 |               | 45      |
| H.1.1 |               |         |
| H.1.2 |               |         |
| H.1.3 |               |         |
| H.1.4 |               |         |
| H.2.1 |               |         |
| H.3.1 |               |         |
| O.1.1 |               |         |
| O.1.2 |               |         |
| O.2.1 |               |         |
| O.2.2 |               |         |
| O.3.1 |               |         |



Rezné parametre značne závisia od vonkajších podmienok, ako je napr. stabilita upnutia nástroja a obrobnku, materiál a typ stroja!  
Uvádzané parametre predstavujú možné rezné parametre, ktoré je možné v závislosti od pracovných podmienok prispôbiť o cca  $\pm 20\%$  !

## Bežné utváratele triesok / inštrukcie pre použitie

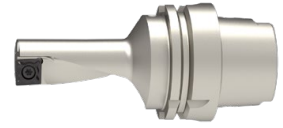
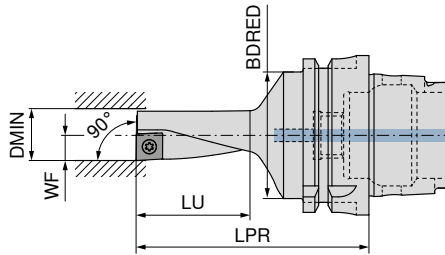
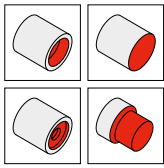
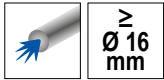
| Negatívne                            | Detail utvárateľov                                                                                                                            | Hladký rez                                                                         | Premenná hĺbka rezu                                                                | Prerušovaný rez                                                                    | Rez                                                                                  |                                                                                     | Geometria                            |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------|
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    | $a_p$<br>mm                                                                          | $f$<br>mm                                                                           |                                      |
| Hlavné použitie a vedľajšie použitie | -42<br>▲ utvárateľ triesky s extrémne mäkkým rezom<br>▲ pre malé a stredne veľké prísuvy<br>▲ vhodný na tenkostenné obrobky                   |   |   |   |   |  | CN..                                 |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |
|                                      | -M42<br>▲ pre stredné obrábanie nehrdzavejúcich ocelí<br>▲ ako vedľajšie použitie pre bežné ocele a superzliatiny                             |   |   |   |   |  | DN..<br>SN..<br>TN..<br>WN..         |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |
|                                      | -M70<br>▲ ľahké až stredné hrubovanie<br>▲ kôra na odliatku a okovy<br>▲ stabilná rezná hrana<br>▲ prerušovaný rez<br>▲ surové kusy a výkovky |  |  |  |  |  | CN..<br>DN..<br>SN..<br>TN..<br>WN.. |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |
|                                      |                                                                                                                                               |                                                                                    |                                                                                    |                                                                                    |                                                                                      |                                                                                     |                                      |

| Pozitívne                            | Detail utvárateľov                                                                                                                           | Hladký rez                                                                          | Premenná hĺbka rezu                                                                 | Prerušovaný rez                                                                     | Rez                                                                                   |                                                                                       | Geometria                                    |
|--------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------|
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     | $a_p$<br>mm                                                                           | $f$<br>mm                                                                             |                                              |
| Hlavné použitie a vedľajšie použitie | -SF<br>▲ dokončovacie sústruženie / sústruženie kontúr<br>▲ dobrá kontrola triesky<br>▲ vysoká kvalita povrchu<br>▲ nízke rezné sily         |  |  |  |  |  | CC..<br>DC..<br>VC..                         |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |
|                                      | -F43<br>▲ pre dokončovacie a stredne hrubé obrábanie všetkých nehrdzavejúcich ocelí, ocelí všeobecne a superzliatin                          |  |  |  |  |  | CC..<br>DC..<br>TC..                         |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |
|                                      | -SM<br>▲ stredne hrubé obrábanie<br>▲ univerzálne aplikácie<br>▲ stabilná rezná hrana<br>▲ premenná hĺbka rezu<br>▲ široké spektrum použitia |  |  |  |  |  | CC..<br>DC..<br>RC..<br>SC..<br>TC..<br>VC.. |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |
|                                      |                                                                                                                                              |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |                                              |

## EcoCut – HSK-T 2,25xD

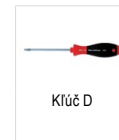
## Rozsah dodávky:

Základné teleso osadené upínacou skrutkou + 2 ks náhradných skrutiek a skrutkovač



Obrázky zobrazujú pravé prevedenie

| ISO označenie                | Upínač   | LPR<br>mm | LU<br>mm | BDRED<br>mm | WF<br>mm | DMIN<br>mm | Uťahovací moment<br>Nm | Vymeniteľná<br>doštička | NEW<br>ľavý<br>74 591 ... |       | NEW<br>pravý<br>74 590 ... |       |
|------------------------------|----------|-----------|----------|-------------|----------|------------|------------------------|-------------------------|---------------------------|-------|----------------------------|-------|
|                              |          |           |          |             |          |            |                        |                         | EUR<br>2D/80              |       | EUR<br>2D/80               |       |
| HSK-T 63 ECC 16 R/L 2,25D 08 | HSK-T 63 | 84        | 36,00    | 50          | 8,0      | 16         | 2,2                    | XC.T 0803..             | 381,08                    | 51637 | 381,08                     | 51637 |
| HSK-T 63 ECC 20 R/L 2,25D 10 | HSK-T 63 | 92        | 45,00    | 50          | 10,0     | 20         | 3,2                    | XC.T 10T3..             | 456,91                    | 52037 | 456,91                     | 52037 |
| HSK-T 63 ECC 25 R/L 2,25D 13 | HSK-T 63 | 104       | 56,25    | 50          | 12,5     | 25         | 5,0                    | XC.T 1304..             | 530,58                    | 52537 | 530,58                     | 52537 |
| HSK-T 63 ECC 32 R/L 2,25D 17 | HSK-T 63 | 120       | 72,00    | 50          | 16,0     | 32         | 5,0                    | XC.T 1705..             | 596,54                    | 53237 | 596,54                     | 53237 |



Kľúč D



Upínacia skrutka

Náhradné diely  
pre artikel č.

|                             | 80 950 ... |     | 70 950 ...   |     |
|-----------------------------|------------|-----|--------------|-----|
|                             | EUR<br>Y7  |     | EUR<br>2A/28 |     |
| 74 590 51637 / 74 591 51637 | 13,81      | 126 | 3,94         | 819 |
| 74 590 52037 / 74 591 52037 | 14,60      | 128 | 3,94         | 859 |
| 74 590 52537 / 74 590 53237 | 15,40      | 129 | 3,94         | 864 |
| 74 591 52537 / 74 591 53237 | 15,40      | 129 | 3,94         | 864 |



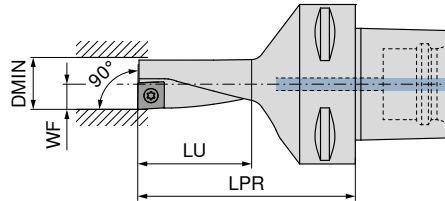
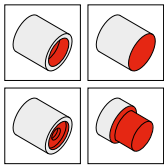
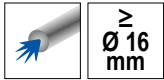
Vhodné vymeniteľné doštičky a rezné parametre nájdete v katalógu Nástrojový program → kapitola 10



## EcoCut – Classic PSC 2,25xD

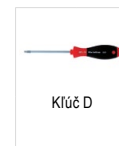
## Rozsah dodávky:

Základné teleso osadené upínacou skrutkou + 2 ks náhradných skrutiek a skrutkovač



Obrázky zobrazujú pravé prevedenie

| ISO označenie              | Upínač | LPR<br>mm | LU<br>mm | WF<br>mm | DMIN<br>mm | Uťahovací moment<br>Nm | Vymeniteľná<br>doštička | NEW<br>ľavý  |       | NEW<br>pravý |       |
|----------------------------|--------|-----------|----------|----------|------------|------------------------|-------------------------|--------------|-------|--------------|-------|
|                            |        |           |          |          |            |                        |                         | 74 591 ...   |       | 74 590 ...   |       |
|                            |        |           |          |          |            |                        |                         | EUR<br>2D/80 |       | EUR<br>2D/80 |       |
| PSC 50 ECC 16 R/L 2,25D 08 | PSC 50 | 70        | 36,00    | 8,0      | 16         | 2,2                    | XC.T 0803..             | 381,08       | 51694 | 381,08       | 51694 |
| PSC 50 ECC 20 R/L 2,25D 10 | PSC 50 | 81        | 45,00    | 10,0     | 20         | 3,2                    | XC.T 10T3..             | 456,91       | 52094 | 456,91       | 52094 |
| PSC 50 ECC 25 R/L 2,25D 13 | PSC 50 | 93        | 56,25    | 12,5     | 25         | 5,0                    | XC.T 1304..             | 530,58       | 52594 | 530,58       | 52594 |
| PSC 50 ECC 32 R/L 2,25D 17 | PSC 50 | 110       | 72,00    | 16,0     | 32         | 5,0                    | XC.T 1705..             | 596,54       | 53294 | 596,54       | 53294 |
| PSC 63 ECC 16 R/L 2,25D 08 | PSC 63 | 75        | 36,00    | 8,0      | 16         | 2,2                    | XC.T 0803..             | 381,08       | 51693 | 381,08       | 51693 |
| PSC 63 ECC 20 R/L 2,25D 10 | PSC 63 | 86        | 45,00    | 10,0     | 20         | 3,2                    | XC.T 10T3..             | 456,91       | 52093 | 456,91       | 52093 |
| PSC 63 ECC 25 R/L 2,25D 13 | PSC 63 | 97        | 56,25    | 12,5     | 25         | 5,0                    | XC.T 1304..             | 530,58       | 52593 | 530,58       | 52593 |
| PSC 63 ECC 32 R/L 2,25D 17 | PSC 63 | 114       | 72,00    | 16,0     | 32         | 5,0                    | XC.T 1705..             | 596,54       | 53293 | 596,54       | 53293 |



Kľúč D



Upínacia skrutka

Náhradné diely  
pre artikel č.

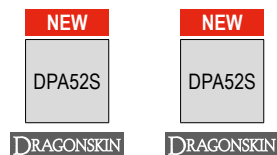
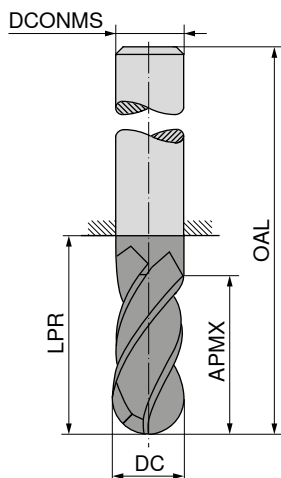
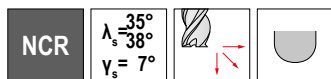
|                             | 80 950 ... |     | 70 950 ...   |     |
|-----------------------------|------------|-----|--------------|-----|
|                             | EUR<br>Y7  |     | EUR<br>2A/28 |     |
| 74 590 51694 / 74 590 51693 | 13,81      | 126 | 3,94         | 819 |
| 74 590 52094 / 74 590 52093 | 14,60      | 128 | 3,94         | 859 |
| 74 590 52594 / 74 590 53294 | 15,40      | 129 | 3,94         | 864 |
| 74 590 52593 / 74 590 53293 | 15,40      | 129 | 3,94         | 864 |
| 74 591 51694 / 74 591 51693 | 13,81      | 126 | 3,94         | 819 |
| 74 591 52094 / 74 591 52093 | 14,60      | 128 | 3,94         | 859 |
| 74 591 52594 / 74 591 53294 | 15,40      | 129 | 3,94         | 864 |
| 74 591 52593 / 74 591 53293 | 15,40      | 129 | 3,94         | 864 |



Vhodné vymeniteľné doštičky a rezné parametre nájdete v katalógu Nástrojový program → kapitola 10

**MonsterMill – Rádusová fréza**

Špecialista na obrábanie zliatin na báze niklu



dielenská norma

dielenská norma

**53 032 ...****53 033 ...**EUR  
V1EUR  
V1

59,73

02210

62,02

02410

55,79

03215

57,82

03415

55,79

04220

57,82

04420

56,93

05225

58,96

05425

55,02

06230

57,18

06430

72,94

08240

75,74

08440

95,05

10250

98,61

10450

149,70

12260

155,60

12460

236,30

16280

245,30

16480

| DC $\pm 0,01$<br>mm | APMX<br>mm | LPR<br>mm | OAL<br>mm | DCONMS $h_5$<br>mm | ZEFP |
|---------------------|------------|-----------|-----------|--------------------|------|
| 2                   | 4          | 18        | 54        | 6                  | 4    |
| 2                   | 4          | 44        | 80        | 6                  | 4    |
| 3                   | 5          | 18        | 54        | 6                  | 4    |
| 3                   | 5          | 44        | 80        | 6                  | 4    |
| 4                   | 8          | 18        | 54        | 6                  | 4    |
| 4                   | 8          | 44        | 80        | 6                  | 4    |
| 5                   | 9          | 18        | 54        | 6                  | 4    |
| 5                   | 9          | 44        | 80        | 6                  | 4    |
| 6                   | 10         | 18        | 54        | 6                  | 4    |
| 6                   | 10         | 44        | 80        | 6                  | 4    |
| 8                   | 12         | 22        | 58        | 8                  | 4    |
| 8                   | 12         | 64        | 100       | 8                  | 4    |
| 10                  | 14         | 26        | 66        | 10                 | 4    |
| 10                  | 14         | 60        | 100       | 10                 | 4    |
| 12                  | 16         | 28        | 73        | 12                 | 4    |
| 12                  | 16         | 55        | 100       | 12                 | 4    |
| 16                  | 20         | 34        | 82        | 16                 | 4    |
| 16                  | 20         | 52        | 100       | 16                 | 4    |

|   |  |   |
|---|--|---|
| P |  |   |
| M |  | ○ |
| K |  | ○ |
| N |  |   |
| S |  | ● |
| H |  |   |
| O |  |   |

## Príklady materiálov k tabuľkám rezných parametrov

|   | Materiálová podskupina                               | Index | Zloženie / štruktúra / tepelné spracovanie |                    | Pevnosť<br>N/mm <sup>2</sup> / HB / HRC | Číslo<br>materiálu | Názov<br>materiálu         | Číslo<br>materiálu | Názov<br>materiálu |
|---|------------------------------------------------------|-------|--------------------------------------------|--------------------|-----------------------------------------|--------------------|----------------------------|--------------------|--------------------|
| P | Nelegovaná oceľ                                      | P.1.1 | < 0,15 % C                                 | žíhaná             | 420 N/mm <sup>2</sup> / 125 HB          | 1.0401             | C15                        | 1.1141             | Ck15               |
|   |                                                      | P.1.2 | < 0,45 % C                                 | žíhaná             | 640 N/mm <sup>2</sup> / 190 HB          | 1.1191             | C45E                       | 1.0718             | 9SMnPb28           |
|   |                                                      | P.1.3 |                                            | zušľachtená        | 840 N/mm <sup>2</sup> / 250 HB          | 1.1191             | C45E                       | 1.0535             | C55                |
|   |                                                      | P.1.4 | < 0,75 % C                                 | žíhaná             | 910 N/mm <sup>2</sup> / 270 HB          | 1.1223             | C60R                       | 1.0535             | C55                |
|   |                                                      | P.1.5 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.1223             | C60R                       | 1.0727             | 45S20              |
|   | Nízkolegovaná oceľ                                   | P.2.1 |                                            | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.2 |                                            | zušľachtená        | 930 N/mm <sup>2</sup> / 275 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.3 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   |                                                      | P.2.4 |                                            | zušľachtená        | 1200 N/mm <sup>2</sup> / 375 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   | Vysokolegovaná oceľ a vysokolegovaná nástrojová oceľ | P.3.1 |                                            | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4021             | X20Cr13                    | 1.4034             | X46Cr13            |
|   |                                                      | P.3.2 |                                            | zušľachtená        | 1100 N/mm <sup>2</sup> / 300 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   |                                                      | P.3.3 |                                            | zušľachtená        | 1300 N/mm <sup>2</sup> / 400 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   | Nehrdzavajúca oceľ                                   | P.4.1 | feritická / martenzitická                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4016             | X6Cr17                     | 1.2316             | X36CrMo16          |
|   |                                                      | P.4.2 | martenzitická                              | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.4112             | X90CrMoV18                 | 1.2316             | X36CrMo16          |
| M | Nehrdzavajúca oceľ                                   | M.1.1 | austenitická / austeniticko-feritická      | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.4301             | X5CrNi18-10                | 1.4571             | X6CrNiMoTi17-12-2  |
|   |                                                      | M.2.1 | austenitická                               | zušľachtená        | 300 HB                                  | 1.4841             | X15CrNiSi25-21             | 1.4539             | X1NiCrMoCu25-20-5  |
|   |                                                      | M.3.1 | austenitická / feritická (Duplex)          |                    | 780 N/mm <sup>2</sup> / 230 HB          | 1.4462             | X2CrNiMoN22-5-3            | 1.4501             | X2CrNiMoCuWN25-7-4 |
| K | Sivá liatina                                         | K.1.1 | perlitická / feritická                     |                    | 350 N/mm <sup>2</sup> / 180 HB          | 0.6010             | GG-10                      | 0.6025             | GG-25              |
|   |                                                      | K.1.2 | perlitická (martenzitická)                 |                    | 500 N/mm <sup>2</sup> / 260 HB          | 0.6030             | GG-30                      | 0.6045             | GG-45              |
|   | Tvárna liatina                                       | K.2.1 | feritická                                  |                    | 540 N/mm <sup>2</sup> / 160 HB          | 0.7040             | GGG-40                     | 0.7060             | GGG-60             |
|   |                                                      | K.2.2 | perlitická                                 |                    | 845 N/mm <sup>2</sup> / 250 HB          | 0.7070             | GGG-70                     | 0.7080             | GGG-80             |
|   | Temperovaná liatina                                  | K.3.1 | feritická                                  |                    | 440 N/mm <sup>2</sup> / 130 HB          | 0.8035             | GTW-35-04                  | 0.8045             | GTW-45             |
|   |                                                      | K.3.2 | perlitická                                 |                    | 780 N/mm <sup>2</sup> / 230 HB          | 0.8165             | GTS-65-02                  | 0.8170             | GTS-70-02          |
| N | Hliník – tvárna zliatina                             | N.1.1 | nezakaliteľná                              |                    | 60 HB                                   | 3.0255             | Al99,5                     | 3.3315             | AlMg1              |
|   |                                                      | N.1.2 | zakaliteľná                                | vytvrdená          | 340 N/mm <sup>2</sup> / 100 HB          | 3.1355             | AlCuMg2                    | 3.2315             | AlMgSi1            |
|   | Hliník – zlievarenská zliatina                       | N.2.1 | ≤ 12 % Si, nezakaliteľná                   |                    | 250 N/mm <sup>2</sup> / 75 HB           | 3.2581             | G-AlSi12                   | 3.2163             | G-AlSi9Cu3         |
|   |                                                      | N.2.2 | ≤ 12 % Si, zakaliteľná                     | vytvrdená          | 300 N/mm <sup>2</sup> / 90 HB           | 3.2134             | G-AlSi5Cu1Mg               | 3.2373             | G-AlSi9Mg          |
|   |                                                      | N.2.3 | > 12 % Si, nezakaliteľná                   |                    | 440 N/mm <sup>2</sup> / 130 HB          |                    | G-AlSi17Cu4Mg              |                    | G-AlSi18CuNiMg     |
|   | Meď a zliatiny medi (bronz / mosadz)                 | N.3.1 | automatové zliatiny, PB > 1 %              |                    | 375 N/mm <sup>2</sup> / 110 HB          | 2.0380             | CuZn39Pb2 (Ms58)           | 2.0410             | CuZn44Pb2          |
|   |                                                      | N.3.2 | CuZn, CuSnZn                               |                    | 300 N/mm <sup>2</sup> / 90 HB           | 2.0331             | CuZn15                     | 2.4070             | CuZn28Sn1As        |
|   |                                                      | N.3.3 | CuSn, bezolovnatá meď a elektrolytická meď |                    | 340 N/mm <sup>2</sup> / 100 HB          | 2.0060             | E-Cu57                     | 2.0590             | CuZn40Fe           |
|   | Zliatiny horčíka                                     | N.4.1 | horčík a zliatiny horčíka                  |                    | 70 HB                                   | 3.5612             | MgAl6Zn                    | 3.5312             | MgAl3Zn            |
| S | Žiaruvzdorné zliatiny                                | S.1.1 | základ Fe                                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4864             | X12NiCrSi 36-16            | 1.4865             | G-X40NiCrSi38-18   |
|   |                                                      | S.1.2 |                                            | vytvrdená          | 950 N/mm <sup>2</sup> / 280 HB          | 1.4980             | X6NiCrTiMoVB25-15-2        | 1.4876             | X10NiCrAlTi32-20   |
|   |                                                      | S.2.1 |                                            | žíhaná             | 840 N/mm <sup>2</sup> / 250 HB          | 2.4631             | NiCr20TiAl (Nimonic80A)    | 3.4856             | NiCr22Mo9Nb        |
|   |                                                      | S.2.2 | základ Ni alebo Co                         | vytvrdená          | 1180 N/mm <sup>2</sup> / 350 HB         | 2.4668             | NiCr19Nb5Mo3 (Inconel 718) | 2.4955             | NiFe25Cr20NbTi     |
|   |                                                      | S.2.3 |                                            | liata              | 1080 N/mm <sup>2</sup> / 320 HB         | 2.4765             | CoCr20W15Ni                | 1.3401             | G-X120Mn12         |
|   | Zliatiny titánu                                      | S.3.1 | čistý titán                                |                    | 400 N/mm <sup>2</sup>                   | 3.7025             | Ti99,8                     | 3.7034             | Ti99,7             |
|   |                                                      | S.3.2 | alfa + beta zliatiny                       | vytvrdená          | 1050 N/mm <sup>2</sup> / 320 HB         | 3.7165             | TiAl6V4                    | Ti-6246            | Ti-6Al-2Sn-4Zr-6Mo |
|   |                                                      | S.3.3 | beta zliatiny                              |                    | 1400 N/mm <sup>2</sup> / 410 HB         | Ti555.3            | Ti-5Al-5V-5Mo-3Cr          | R56410             | Ti-10V-2Fe-3Al     |
| H | Kalená oceľ                                          | H.1.1 |                                            | kalená a popúšťaná | 46–55 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.2 |                                            | kalená a popúšťaná | 56–60 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.3 |                                            | kalená a popúšťaná | 61–65 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.4 |                                            | kalená a popúšťaná | 66–70 HRC                               |                    |                            |                    |                    |
|   | Tvrdená liatina                                      | H.2.1 |                                            | liata              | 400 HB                                  |                    |                            |                    |                    |
|   | Kalená liatina                                       | H.3.1 |                                            | kalená a popúšťaná | 55 HRC                                  |                    |                            |                    |                    |
| O | Nekovové materiály                                   | O.1.1 | plasty, duroplastické                      |                    | ≤ 150 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.1.2 | plasty, termoplastické                     |                    | ≤ 100 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.2.1 | vystužené aramidovými vláknami             |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.2.2 | vystužené sklenými/uhlikovými vláknami     |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.3.1 | grafit                                     |                    |                                         |                    |                            |                    |                    |

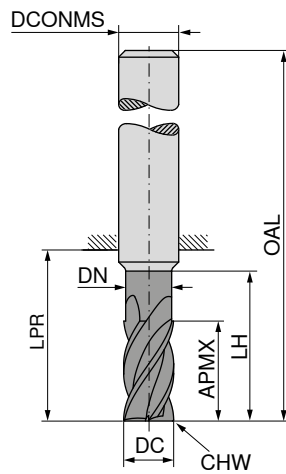
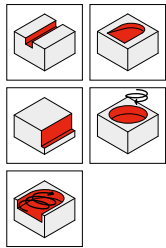
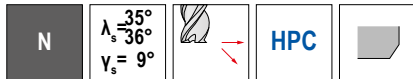
\* pevnosť v ťahu

## Orientačné rezné parametre – MonsterMill – NCR – rádiusové frézy

| Index | dlhá                | extra dlhá | a <sub>p,max.</sub> x DC | 53 032 ... / 53 033 ...             |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
|-------|---------------------|------------|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
|       |                     |            |                          | Ø DC (mm) =                         |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
|       |                     |            |                          | 2                                   |                                     | 3                                   |                                     | 4                                   |                                     | 5                                   |                                     | 6                                   |                                     | 8                                   |                                     |  |
|       |                     |            |                          | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC | a <sub>e</sub><br>0,01–0,02<br>x DC | a <sub>e</sub><br>0,03–0,05<br>x DC |  |
|       | f <sub>z</sub> (mm) |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.1.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.1.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.1.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.1.4 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.1.5 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.2.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.2.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.2.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.2.4 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.3.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.3.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.3.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.4.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| P.4.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| M.1.1 | 120                 | 90         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| M.2.1 | 100                 | 80         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| M.3.1 | 120                 | 90         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| K.1.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| K.1.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| K.2.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| K.2.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| K.3.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| K.3.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.1.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.1.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.2.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.2.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.2.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.3.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.3.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.3.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| N.4.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| S.1.1 | 60                  | 50         | 0.020                    | 0.015                               | 0.010                               | 0.025                               | 0.015                               | 0.030                               | 0.020                               | 0.040                               | 0.025                               | 0.050                               | 0.030                               | 0.060                               | 0.040                               |  |
| S.1.2 | 60                  | 50         | 0.020                    | 0.015                               | 0.010                               | 0.025                               | 0.015                               | 0.030                               | 0.020                               | 0.040                               | 0.025                               | 0.050                               | 0.030                               | 0.060                               | 0.040                               |  |
| S.2.1 | 50                  | 40         | 0.020                    | 0.015                               | 0.010                               | 0.025                               | 0.015                               | 0.030                               | 0.020                               | 0.040                               | 0.025                               | 0.050                               | 0.030                               | 0.060                               | 0.040                               |  |
| S.2.2 | 50                  | 40         | 0.020                    | 0.015                               | 0.010                               | 0.025                               | 0.015                               | 0.030                               | 0.020                               | 0.040                               | 0.025                               | 0.050                               | 0.030                               | 0.060                               | 0.040                               |  |
| S.2.3 | 50                  | 40         | 0.020                    | 0.015                               | 0.010                               | 0.025                               | 0.015                               | 0.030                               | 0.020                               | 0.040                               | 0.025                               | 0.050                               | 0.030                               | 0.060                               | 0.040                               |  |
| S.3.1 | 100                 | 80         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| S.3.2 | 90                  | 70         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| S.3.3 | 90                  | 70         | 0.020                    | 0.020                               | 0.015                               | 0.030                               | 0.020                               | 0.035                               | 0.025                               | 0.040                               | 0.030                               | 0.055                               | 0.040                               | 0.070                               | 0.050                               |  |
| H.1.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| H.1.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| H.1.3 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| H.1.4 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| H.2.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| H.3.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| O.1.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| O.1.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| O.2.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| O.2.2 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |
| O.3.1 |                     |            |                          |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |                                     |  |

|            | Index | 53 032 ... / 53 033 ...    |                            |                            |                            |                            |                            | ● 1. voľba<br>○ vhodná |              |                 |
|------------|-------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|------------------------|--------------|-----------------|
|            |       | Ø DC (mm) =                |                            |                            |                            |                            |                            | Emulzia                | Tlak. vzduch | Min. mn. maziva |
|            |       | 10                         |                            | 12                         |                            | 16                         |                            |                        |              |                 |
|            |       | $a_s$<br>0,01–0,02<br>x DC | $a_s$<br>0,03–0,05<br>x DC | $a_s$<br>0,01–0,02<br>x DC | $a_s$<br>0,03–0,05<br>x DC | $a_s$<br>0,01–0,02<br>x DC | $a_s$<br>0,03–0,05<br>x DC |                        |              |                 |
| $f_z$ (mm) |       |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.1.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.1.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.1.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.1.4 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.1.5 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.2.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.2.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.2.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.2.4 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.3.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.3.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.3.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.4.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | P.4.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | M.1.1 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              | ○               |
|            | M.2.1 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              | ○               |
|            | M.3.1 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              | ○               |
|            |       |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            |       |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            |       |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            |       |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.1.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.1.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.2.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.2.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.2.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.3.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.3.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.3.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | N.4.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | S.1.1 | 0.070                      | 0.050                      | 0.080                      | 0.060                      | 0.100                      | 0.080                      | ●                      |              |                 |
|            | S.1.2 | 0.070                      | 0.050                      | 0.080                      | 0.060                      | 0.100                      | 0.080                      | ●                      |              |                 |
|            | S.2.1 | 0.070                      | 0.050                      | 0.080                      | 0.060                      | 0.100                      | 0.080                      | ●                      |              |                 |
|            | S.2.2 | 0.070                      | 0.050                      | 0.080                      | 0.060                      | 0.100                      | 0.080                      | ●                      |              |                 |
|            | S.2.3 | 0.070                      | 0.050                      | 0.080                      | 0.060                      | 0.100                      | 0.080                      | ●                      |              |                 |
|            | S.3.1 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              |                 |
|            | S.3.2 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              |                 |
|            | S.3.3 | 0.080                      | 0.060                      | 0.090                      | 0.070                      | 0.120                      | 0.100                      | ●                      |              |                 |
|            | H.1.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | H.1.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | H.1.3 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | H.1.4 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | H.2.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | H.3.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | O.1.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | O.1.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | O.2.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | O.2.2 |                            |                            |                            |                            |                            |                            |                        |              |                 |
|            | O.3.1 |                            |                            |                            |                            |                            |                            |                        |              |                 |

## Stopková fréza



NEW

Ti1000



≈DIN 6527



54 078 ...

EUR  
V3/5C

| DC <sub>fs</sub><br>mm | APMX<br>mm | DN<br>mm | LH<br>mm | LPR<br>mm | OAL<br>mm | DCONMS <sub>h6</sub><br>mm | CHW<br>mm | ZEFP |              |
|------------------------|------------|----------|----------|-----------|-----------|----------------------------|-----------|------|--------------|
| 6                      | 19         | 5,8      | 24       | 26        | 62        | 6                          | 0,1       | 4    | 27,38 06200  |
| 8                      | 25         | 7,7      | 30       | 32        | 68        | 8                          | 0,2       | 4    | 35,36 08200  |
| 10                     | 31         | 9,7      | 38       | 40        | 80        | 10                         | 0,2       | 4    | 46,34 10200  |
| 12                     | 37         | 11,6     | 46       | 48        | 93        | 12                         | 0,2       | 4    | 73,67 12200  |
| 16                     | 49         | 15,5     | 58       | 60        | 108       | 16                         | 0,3       | 4    | 113,70 16200 |
| 20                     | 61         | 19,5     | 74       | 76        | 126       | 20                         | 0,3       | 4    | 171,50 20200 |

|   |   |
|---|---|
| P | • |
| M | • |
| K | • |
| N |   |
| S |   |
| H |   |
| O |   |



## Príklady materiálov k tabuľkám rezných parametrov

|   | Materiálová podskupina                               | Index | Zloženie / štruktúra / tepelné spracovanie |                    | Pevnosť<br>N/mm <sup>2</sup> / HB / HRC | Číslo<br>materiálu | Názov<br>materiálu         | Číslo<br>materiálu | Názov<br>materiálu |
|---|------------------------------------------------------|-------|--------------------------------------------|--------------------|-----------------------------------------|--------------------|----------------------------|--------------------|--------------------|
| P | Nelegovaná oceľ                                      | P.1.1 | < 0,15 % C                                 | žíhaná             | 420 N/mm <sup>2</sup> / 125 HB          | 1.0401             | C15                        | 1.1141             | Ck15               |
|   |                                                      | P.1.2 | < 0,45 % C                                 | žíhaná             | 640 N/mm <sup>2</sup> / 190 HB          | 1.1191             | C45E                       | 1.0718             | 9SMnPb28           |
|   |                                                      | P.1.3 |                                            | zušľachtená        | 840 N/mm <sup>2</sup> / 250 HB          | 1.1191             | C45E                       | 1.0535             | C55                |
|   |                                                      | P.1.4 | < 0,75 % C                                 | žíhaná             | 910 N/mm <sup>2</sup> / 270 HB          | 1.1223             | C60R                       | 1.0535             | C55                |
|   |                                                      | P.1.5 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.1223             | C60R                       | 1.0727             | 45S20              |
|   | Nízkolegovaná oceľ                                   | P.2.1 |                                            | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.2 |                                            | zušľachtená        | 930 N/mm <sup>2</sup> / 275 HB          | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6          |
|   |                                                      | P.2.3 |                                            | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   |                                                      | P.2.4 |                                            | zušľachtená        | 1200 N/mm <sup>2</sup> / 375 HB         | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6             |
|   | Vysokolegovaná oceľ a vysokolegovaná nástrojová oceľ | P.3.1 |                                            | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4021             | X20Cr13                    | 1.4034             | X46Cr13            |
|   |                                                      | P.3.2 |                                            | zušľachtená        | 1100 N/mm <sup>2</sup> / 300 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   |                                                      | P.3.3 |                                            | zušľachtená        | 1300 N/mm <sup>2</sup> / 400 HB         | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13            |
|   | Nehrdzavejúca oceľ                                   | P.4.1 | feritická / martenzitická                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4016             | X6Cr17                     | 1.2316             | X36CrMo16          |
|   |                                                      | P.4.2 | martenzitická                              | zušľachtená        | 1010 N/mm <sup>2</sup> / 300 HB         | 1.4112             | X90CrMoV18                 | 1.2316             | X36CrMo16          |
| M | Nehrdzavejúca oceľ                                   | M.1.1 | austenitická / austeniticko-feritická      | žíhaná             | 610 N/mm <sup>2</sup> / 180 HB          | 1.4301             | X5CrNi18-10                | 1.4571             | X6CrNiMoTi17-12-2  |
|   |                                                      | M.2.1 | austenitická                               | zušľachtená        | 300 HB                                  | 1.4841             | X15CrNiSi25-21             | 1.4539             | X1NiCrMoCu25-20-5  |
|   |                                                      | M.3.1 | austenitická / feritická (Duplex)          |                    | 780 N/mm <sup>2</sup> / 230 HB          | 1.4462             | X2CrNiMoN22-5-3            | 1.4501             | X2CrNiMoCuWN25-7-4 |
| K | Sivá liatina                                         | K.1.1 | perlitická / feritická                     |                    | 350 N/mm <sup>2</sup> / 180 HB          | 0.6010             | GG-10                      | 0.6025             | GG-25              |
|   |                                                      | K.1.2 | perlitická (martenzitická)                 |                    | 500 N/mm <sup>2</sup> / 260 HB          | 0.6030             | GG-30                      | 0.6045             | GG-45              |
|   | Tvárna liatina                                       | K.2.1 | feritická                                  |                    | 540 N/mm <sup>2</sup> / 160 HB          | 0.7040             | GGG-40                     | 0.7060             | GGG-60             |
|   |                                                      | K.2.2 | perlitická                                 |                    | 845 N/mm <sup>2</sup> / 250 HB          | 0.7070             | GGG-70                     | 0.7080             | GGG-80             |
|   | Temperovaná liatina                                  | K.3.1 | feritická                                  |                    | 440 N/mm <sup>2</sup> / 130 HB          | 0.8035             | GTW-35-04                  | 0.8045             | GTW-45             |
|   |                                                      | K.3.2 | perlitická                                 |                    | 780 N/mm <sup>2</sup> / 230 HB          | 0.8165             | GTS-65-02                  | 0.8170             | GTS-70-02          |
| N | Hliník – tvárna zliatina                             | N.1.1 | nezakaliteľná                              |                    | 60 HB                                   | 3.0255             | Al99,5                     | 3.3315             | AlMg1              |
|   |                                                      | N.1.2 | zakaliteľná                                | vytvrdená          | 340 N/mm <sup>2</sup> / 100 HB          | 3.1355             | AlCuMg2                    | 3.2315             | AlMgSi1            |
|   | Hliník – zlievarenská zliatina                       | N.2.1 | ≤ 12 % Si, nezakaliteľná                   |                    | 250 N/mm <sup>2</sup> / 75 HB           | 3.2581             | G-AlSi12                   | 3.2163             | G-AlSi9Cu3         |
|   |                                                      | N.2.2 | ≤ 12 % Si, zakaliteľná                     | vytvrdená          | 300 N/mm <sup>2</sup> / 90 HB           | 3.2134             | G-AlSi5Cu1Mg               | 3.2373             | G-AlSi9Mg          |
|   |                                                      | N.2.3 | > 12 % Si, nezakaliteľná                   |                    | 440 N/mm <sup>2</sup> / 130 HB          |                    | G-AlSi17Cu4Mg              |                    | G-AlSi18CuNiMg     |
|   | Meď a zliatiny medi (bronz / mosadz)                 | N.3.1 | automatové zliatiny, PB > 1 %              |                    | 375 N/mm <sup>2</sup> / 110 HB          | 2.0380             | CuZn39Pb2 (Ms58)           | 2.0410             | CuZn44Pb2          |
|   |                                                      | N.3.2 | CuZn, CuSnZn                               |                    | 300 N/mm <sup>2</sup> / 90 HB           | 2.0331             | CuZn15                     | 2.4070             | CuZn28Sn1As        |
|   |                                                      | N.3.3 | CuSn, bezolovnatá meď a elektrolytická meď |                    | 340 N/mm <sup>2</sup> / 100 HB          | 2.0060             | E-Cu57                     | 2.0590             | CuZn40Fe           |
|   | Zliatiny horčíka                                     | N.4.1 | horčík a zliatiny horčíka                  |                    | 70 HB                                   | 3.5612             | MgAl6Zn                    | 3.5312             | MgAl3Zn            |
| S | Žiaruvzdorné zliatiny                                | S.1.1 | základ Fe                                  | žíhaná             | 680 N/mm <sup>2</sup> / 200 HB          | 1.4864             | X12NiCrSi 36-16            | 1.4865             | G-X40NiCrSi38-18   |
|   |                                                      | S.1.2 |                                            | vytvrdená          | 950 N/mm <sup>2</sup> / 280 HB          | 1.4980             | X6NiCrTiMoVB25-15-2        | 1.4876             | X10NiCrAlTi32-20   |
|   |                                                      | S.2.1 |                                            | žíhaná             | 840 N/mm <sup>2</sup> / 250 HB          | 2.4631             | NiCr20TiAl (Nimonic80A)    | 3.4856             | NiCr22Mo9Nb        |
|   |                                                      | S.2.2 | základ Ni alebo Co                         | vytvrdená          | 1180 N/mm <sup>2</sup> / 350 HB         | 2.4668             | NiCr19Nb5Mo3 (Inconel 718) | 2.4955             | NiFe25Cr20NbTi     |
|   |                                                      | S.2.3 |                                            | liata              | 1080 N/mm <sup>2</sup> / 320 HB         | 2.4765             | CoCr20W15Ni                | 1.3401             | G-X120Mn12         |
|   | Zliatiny titánu                                      | S.3.1 | čistý titán                                |                    | 400 N/mm <sup>2</sup>                   | 3.7025             | Ti99,8                     | 3.7034             | Ti99,7             |
|   |                                                      | S.3.2 | alfa + beta zliatiny                       | vytvrdená          | 1050 N/mm <sup>2</sup> / 320 HB         | 3.7165             | TiAl6V4                    | Ti-6246            | Ti-6Al-2Sn-4Zr-6Mo |
|   |                                                      | S.3.3 | beta zliatiny                              |                    | 1400 N/mm <sup>2</sup> / 410 HB         | Ti555.3            | Ti-5Al-5V-5Mo-3Cr          | R56410             | Ti-10V-2Fe-3Al     |
| H | Kalená oceľ                                          | H.1.1 |                                            | kalená a popúšťaná | 46–55 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.2 |                                            | kalená a popúšťaná | 56–60 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.3 |                                            | kalená a popúšťaná | 61–65 HRC                               |                    |                            |                    |                    |
|   |                                                      | H.1.4 |                                            | kalená a popúšťaná | 66–70 HRC                               |                    |                            |                    |                    |
|   | Tvrdená liatina                                      | H.2.1 |                                            | liata              | 400 HB                                  |                    |                            |                    |                    |
|   | Kalená liatina                                       | H.3.1 |                                            | kalená a popúšťaná | 55 HRC                                  |                    |                            |                    |                    |
| O | Nekovové materiály                                   | O.1.1 | plasty, duroplastické                      |                    | ≤ 150 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.1.2 | plasty, termoplastické                     |                    | ≤ 100 N/mm <sup>2</sup>                 |                    |                            |                    |                    |
|   |                                                      | O.2.1 | vystužené aramidovými vláknami             |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.2.2 | vystužené sklenými/uhľíkovými vláknami     |                    | ≤ 1000 N/mm <sup>2</sup>                |                    |                            |                    |                    |
|   |                                                      | O.3.1 | grafit                                     |                    |                                         |                    |                            |                    |                    |

\* pevnosť v ťahu

## Orientačné rezné parametre – stopková fréza

| Index | dlhá                   |                         | 54 078 ...                        |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
|-------|------------------------|-------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
|       | v <sub>c</sub> (m/min) | a <sub>p max</sub> x DC | Ø DC (mm) =                       |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
|       |                        |                         | 6                                 |                                   |                                   | 8                                 |                                   |                                   | 10                                |                                   |                                   | 12                                |                                   |                                   | 16                                |                                   |                                   |
|       |                        |                         | a <sub>e</sub><br>0,1–0,2<br>x DC | a <sub>e</sub><br>0,3–0,4<br>x DC | a <sub>e</sub><br>0,6–1,0<br>x DC | a <sub>e</sub><br>0,1–0,2<br>x DC | a <sub>e</sub><br>0,3–0,4<br>x DC | a <sub>e</sub><br>0,6–1,0<br>x DC | a <sub>e</sub><br>0,1–0,2<br>x DC | a <sub>e</sub><br>0,3–0,4<br>x DC | a <sub>e</sub><br>0,6–1,0<br>x DC | a <sub>e</sub><br>0,1–0,2<br>x DC | a <sub>e</sub><br>0,3–0,4<br>x DC | a <sub>e</sub><br>0,6–1,0<br>x DC | a <sub>e</sub><br>0,1–0,2<br>x DC | a <sub>e</sub><br>0,3–0,4<br>x DC | a <sub>e</sub><br>0,6–1,0<br>x DC |
|       |                        |                         | f <sub>z</sub> (mm)               |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| P.1.1 | 120                    | 1xDC                    | 0.048                             | 0.038                             | 0.024                             | 0.062                             | 0.050                             | 0.031                             | 0.075                             | 0.060                             | 0.038                             | 0.089                             | 0.071                             | 0.045                             | 0.110                             | 0.088                             | 0.055                             |
| P.1.2 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.1.3 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.1.4 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.1.5 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.2.1 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.2.2 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.2.3 | 110                    | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.2.4 | 95                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.3.1 | 95                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.3.2 | 95                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.3.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| P.4.1 | 70                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| P.4.2 | 60                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| M.1.1 | 70                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| M.2.1 | 70                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| M.3.1 | 70                     | 1xDC                    | 0.041                             | 0.033                             | 0.021                             | 0.054                             | 0.043                             | 0.027                             | 0.066                             | 0.053                             | 0.033                             | 0.079                             | 0.063                             | 0.040                             | 0.099                             | 0.079                             | 0.050                             |
| K.1.1 | 130                    | 1xDC                    | 0.078                             | 0.062                             | 0.039                             | 0.100                             | 0.080                             | 0.050                             | 0.122                             | 0.098                             | 0.061                             | 0.144                             | 0.115                             | 0.072                             | 0.177                             | 0.142                             | 0.089                             |
| K.1.2 | 120                    | 1xDC                    | 0.078                             | 0.062                             | 0.039                             | 0.100                             | 0.080                             | 0.050                             | 0.122                             | 0.098                             | 0.061                             | 0.144                             | 0.115                             | 0.072                             | 0.177                             | 0.142                             | 0.089                             |
| K.2.1 | 130                    | 1xDC                    | 0.058                             | 0.046                             | 0.029                             | 0.072                             | 0.058                             | 0.036                             | 0.086                             | 0.069                             | 0.043                             | 0.102                             | 0.082                             | 0.051                             | 0.124                             | 0.099                             | 0.062                             |
| K.2.2 | 120                    | 1xDC                    | 0.058                             | 0.046                             | 0.029                             | 0.072                             | 0.058                             | 0.036                             | 0.086                             | 0.069                             | 0.043                             | 0.102                             | 0.082                             | 0.051                             | 0.124                             | 0.099                             | 0.062                             |
| K.3.1 | 130                    | 1xDC                    | 0.078                             | 0.062                             | 0.039                             | 0.100                             | 0.080                             | 0.050                             | 0.122                             | 0.098                             | 0.061                             | 0.144                             | 0.115                             | 0.072                             | 0.177                             | 0.142                             | 0.089                             |
| K.3.2 | 130                    | 1xDC                    | 0.078                             | 0.062                             | 0.039                             | 0.100                             | 0.080                             | 0.050                             | 0.122                             | 0.098                             | 0.061                             | 0.144                             | 0.115                             | 0.072                             | 0.177                             | 0.142                             | 0.089                             |
| N.1.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.1.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.2.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.2.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.2.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.3.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.3.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.3.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| N.4.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.1.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.1.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.2.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.2.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.2.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.3.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.3.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| S.3.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.1.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.1.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.1.3 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.1.4 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.2.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| H.3.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| O.1.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| O.1.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| O.2.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| O.2.2 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |
| O.3.1 |                        |                         |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |                                   |



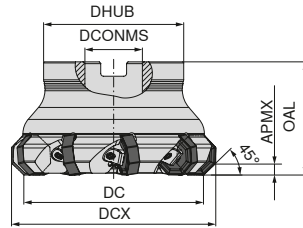
Uhol utápania po rampe a frézovanie po špirále (Helix) = 3°

V prípade  $a_p$  0,3xDC sa môžu použiť  $a_p$  = 3xDC.

|  | Index | 54 078 ...                        |                                   |                                   | ● 1. voľba<br>○ vhodná |              |                 |
|--|-------|-----------------------------------|-----------------------------------|-----------------------------------|------------------------|--------------|-----------------|
|  |       | Ø DC (mm) =<br>20                 |                                   |                                   | Emulzia                | Tlak. vzduch | Min. mn. maziva |
|  |       | a <sub>s</sub><br>0,1–0,2<br>x DC | a <sub>s</sub><br>0,3–0,4<br>x DC | a <sub>s</sub><br>0,6–1,0<br>x DC |                        |              |                 |
|  |       | f <sub>z</sub> (mm)               |                                   |                                   |                        |              |                 |
|  | P.1.1 | 0.123                             | 0.098                             | 0.062                             | ●                      | ●            | ○               |
|  | P.1.2 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.1.3 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.1.4 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.1.5 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.2.1 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.2.2 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.2.3 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.2.4 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.3.1 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.3.2 | 0.111                             | 0.089                             | 0.056                             | ●                      | ●            | ○               |
|  | P.3.3 |                                   |                                   |                                   |                        |              |                 |
|  | P.4.1 | 0.111                             | 0.089                             | 0.056                             | ●                      |              |                 |
|  | P.4.2 | 0.111                             | 0.089                             | 0.056                             | ●                      |              |                 |
|  | M.1.1 | 0.111                             | 0.089                             | 0.056                             | ●                      |              |                 |
|  | M.2.1 | 0.111                             | 0.089                             | 0.056                             | ●                      |              |                 |
|  | M.3.1 | 0.111                             | 0.089                             | 0.056                             | ●                      |              |                 |
|  | K.1.1 | 0.200                             | 0.160                             | 0.100                             |                        | ●            | ●               |
|  | K.1.2 | 0.200                             | 0.160                             | 0.100                             |                        | ●            | ●               |
|  | K.2.1 | 0.139                             | 0.111                             | 0.070                             |                        | ●            | ●               |
|  | K.2.2 | 0.139                             | 0.111                             | 0.070                             |                        | ●            | ●               |
|  | K.3.1 | 0.200                             | 0.160                             | 0.100                             |                        | ●            | ●               |
|  | K.3.2 | 0.200                             | 0.160                             | 0.100                             |                        | ●            | ●               |
|  | N.1.1 |                                   |                                   |                                   |                        |              |                 |
|  | N.1.2 |                                   |                                   |                                   |                        |              |                 |
|  | N.2.1 |                                   |                                   |                                   |                        |              |                 |
|  | N.2.2 |                                   |                                   |                                   |                        |              |                 |
|  | N.2.3 |                                   |                                   |                                   |                        |              |                 |
|  | N.3.1 |                                   |                                   |                                   |                        |              |                 |
|  | N.3.2 |                                   |                                   |                                   |                        |              |                 |
|  | N.3.3 |                                   |                                   |                                   |                        |              |                 |
|  | S.1.1 |                                   |                                   |                                   |                        |              |                 |
|  | S.1.2 |                                   |                                   |                                   |                        |              |                 |
|  | S.2.1 |                                   |                                   |                                   |                        |              |                 |
|  | S.2.2 |                                   |                                   |                                   |                        |              |                 |
|  | S.2.3 |                                   |                                   |                                   |                        |              |                 |
|  | S.3.1 |                                   |                                   |                                   |                        |              |                 |
|  | S.3.2 |                                   |                                   |                                   |                        |              |                 |
|  | S.3.3 |                                   |                                   |                                   |                        |              |                 |
|  | H.1.1 |                                   |                                   |                                   |                        |              |                 |
|  | H.1.2 |                                   |                                   |                                   |                        |              |                 |
|  | H.1.3 |                                   |                                   |                                   |                        |              |                 |
|  | H.1.4 |                                   |                                   |                                   |                        |              |                 |
|  | H.2.1 |                                   |                                   |                                   |                        |              |                 |
|  | H.3.1 |                                   |                                   |                                   |                        |              |                 |
|  | O.1.1 |                                   |                                   |                                   |                        |              |                 |
|  | O.1.2 |                                   |                                   |                                   |                        |              |                 |
|  | O.2.1 |                                   |                                   |                                   |                        |              |                 |
|  | O.2.2 |                                   |                                   |                                   |                        |              |                 |
|  | O.3.1 |                                   |                                   |                                   |                        |              |                 |

## MaxiMill – 273-08 Nástrčná fréza

▲ 16 rezných hrán na doštičku

 $\kappa = 45^\circ$ 

NEW

NEW

| Označenie        | DC<br>mm | DCX<br>mm | ZNF | APMX<br>mm | OAL<br>mm | DCONMS <sub>H6</sub><br>mm | DHUB<br>mm | Uťahovací moment<br>Nm | Vymeniteľná<br>doštička | 50 779 ...   |                     | 50 779 ...   |                     |
|------------------|----------|-----------|-----|------------|-----------|----------------------------|------------|------------------------|-------------------------|--------------|---------------------|--------------|---------------------|
|                  |          |           |     |            |           |                            |            |                        |                         | EUR<br>2B/40 |                     | EUR<br>2B/40 |                     |
| A273.63.R.05-08  | 63       | 76,7      | 5   | 5          | 50        | 22                         | 48         | 5                      | ONKU 0806               | 571,00       | 06300               |              |                     |
| A273.63.R.06-08  | 63       | 76,7      | 6   | 5          | 50        | 22                         | 48         | 5                      | ONKU 0806               |              |                     | 834,00       | 16300 <sup>1)</sup> |
| A273.80.R.06-08  | 80       | 93,7      | 6   | 5          | 50        | 27                         | 58         | 5                      | ONKU 0806               | 694,00       | 08000               |              |                     |
| A273.80.R.08-08  | 80       | 93,7      | 8   | 5          | 50        | 27                         | 58         | 4                      | ONKU 0806               |              |                     | 1.054,00     | 18000 <sup>1)</sup> |
| A273.100.R.07-08 | 100      | 113,7     | 7   | 5          | 63        | 32                         | 78         | 5                      | ONKU 0806               | 722,00       | 10000               |              |                     |
| A273.100.R.09-08 | 100      | 113,7     | 9   | 5          | 63        | 32                         | 78         | 4                      | ONKU 0806               |              |                     | 1.098,00     | 20000 <sup>1)</sup> |
| A273.125.R.08-08 | 125      | 138,7     | 8   | 5          | 63        | 40                         | 88         | 5                      | ONKU 0806               | 840,00       | 12500               |              |                     |
| A273.125.R.11-08 | 125      | 138,7     | 11  | 5          | 63        | 40                         | 88         | 4                      | ONKU 0806               |              |                     | 1.365,00     | 22500 <sup>1)</sup> |
| A273.160.R.10-08 | 160      | 173,7     | 10  | 5          | 63        | 40                         | 98         | 5                      | ONKU 0806               | 1.300,00     | 16000 <sup>3)</sup> |              |                     |
| A273.160.R.14-08 | 160      | 173,7     | 14  | 5          | 63        | 40                         | 98         | 4                      | ONKU 0806               |              |                     | 1.660,00     | 26000 <sup>2)</sup> |

1) prevedenie s upínacím klinom

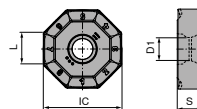
2) prevedenie s upínacím klinom, bez vnútorného privádzania chladiaceho média / so 4 závitovými otvormi M12 na čele, Ø rozst. kruž. = 66,7 mm

3) so 4 závitovými otvormi M12 na čele, Ø rozst. kruž. = 66,7 mm / bez vnútorného privádzania chladiaceho média

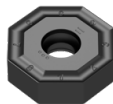
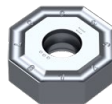
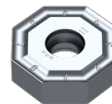
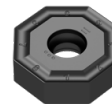
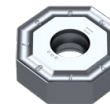
| Náhradné diely<br>pre artikel č. | Výmenná vložka<br>TORX® |     | Skrutka upínacieho<br>klinu |     | Upínacie klin |     | Kľúč D    |     | Pasta<br>Molykote |     | Upínacia skrutka |     | Rukoväť<br>TorqueVario®-S |     |
|----------------------------------|-------------------------|-----|-----------------------------|-----|---------------|-----|-----------|-----|-------------------|-----|------------------|-----|---------------------------|-----|
|                                  | EUR<br>Y7               |     | EUR<br>2A/28                |     | EUR<br>2A/28  |     | EUR<br>Y7 |     | EUR<br>2A/28      |     | EUR<br>2A/28     |     | EUR<br>Y7                 |     |
| 50 779 06300                     | 6,46                    | 055 |                             |     |               |     | 15,40     | 129 | 5,48              | 303 |                  |     | 162,01                    | 193 |
| 50 779 16300                     | 5,84                    | 036 | 7,39                        | 844 | 29,48         | 845 | 11,39     | 113 | 5,48              | 303 | 5,30             | 821 | 162,01                    | 193 |
| 50 779 08000                     | 6,46                    | 055 |                             |     |               |     | 15,40     | 129 | 5,48              | 303 | 5,30             | 821 | 162,01                    | 193 |
| 50 779 18000                     | 5,84                    | 036 | 7,39                        | 844 | 29,48         | 845 | 11,39     | 113 | 5,48              | 303 |                  |     | 162,01                    | 193 |
| 50 779 10000                     | 6,46                    | 055 |                             |     |               |     | 15,40     | 129 | 5,48              | 303 | 5,30             | 821 | 162,01                    | 193 |
| 50 779 20000                     | 5,84                    | 036 | 7,39                        | 844 | 29,48         | 845 | 11,39     | 113 | 5,48              | 303 |                  |     | 162,01                    | 193 |
| 50 779 12500                     | 6,46                    | 055 |                             |     |               |     | 15,40     | 129 | 5,48              | 303 | 5,30             | 821 | 162,01                    | 193 |
| 50 779 22500                     | 5,84                    | 036 | 7,39                        | 844 | 29,48         | 845 | 11,39     | 113 | 5,48              | 303 |                  |     | 162,01                    | 193 |
| 50 779 16000                     | 6,46                    | 055 |                             |     |               |     | 15,40     | 129 | 5,48              | 303 | 5,30             | 821 | 162,01                    | 193 |
| 50 779 26000                     | 5,84                    | 036 | 7,39                        | 844 | 29,48         | 845 | 11,39     | 113 | 5,48              | 303 |                  |     | 162,01                    | 193 |

## ONKU

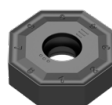
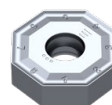
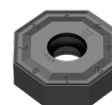
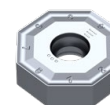
| Označenie   | IC<br>mm | D1<br>mm | L<br>mm | S<br>mm |
|-------------|----------|----------|---------|---------|
| ONKU 0806.. | 22       | 5,8      | 8,45    | 6,45    |



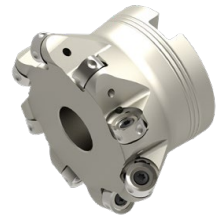
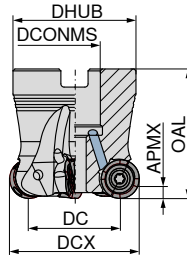
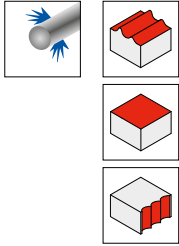
## ONKU

|          |          |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
|----------|----------|-----------------------------------------------------------------------------------|---|-----------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|-------------------------------------------------------------------------------------|---|
|          |          | NEW                                                                               |   | NEW                                                                               |   | NEW                                                                                 |   | NEW                                                                                 |   | NEW                                                                                 |   |
|          |          | -M50<br>CTCP230                                                                   |   | -M50<br>CTPP235                                                                   |   | -M50<br>CTPM240                                                                     |   | -M50<br>CTCK215                                                                     |   | -M50<br>CTPK220                                                                     |   |
|          |          | DRAGONSKIN                                                                        |   | DRAGONSKIN                                                                        |   | DRAGONSKIN                                                                          |   | DRAGONSKIN                                                                          |   | DRAGONSKIN                                                                          |   |
|          |          |  |   |  |   |  |   |  |   |  |   |
|          |          | ONKU                                                                              |   | ONKU                                                                              |   | ONKU                                                                                |   | ONKU                                                                                |   | ONKU                                                                                |   |
|          |          | 51 163 ...                                                                        |   | 51 163 ...                                                                        |   | 51 163 ...                                                                          |   | 51 163 ...                                                                          |   | 51 163 ...                                                                          |   |
|          |          | EUR                                                                               |   | EUR                                                                               |   | EUR                                                                                 |   | EUR                                                                                 |   | EUR                                                                                 |   |
|          |          | 1B/61                                                                             |   | 1B/61                                                                             |   | 1B/61                                                                               |   | 1B/61                                                                               |   | 1B/61                                                                               |   |
|          |          | 31,40                                                                             |   | 31,40                                                                             |   | 31,40                                                                               |   | 31,40                                                                               |   | 31,40                                                                               |   |
|          |          | 00800                                                                             |   | 10800                                                                             |   | 20800                                                                               |   | 50800                                                                               |   | 60800                                                                               |   |
| ISO      | RE<br>mm |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| 080608SN | 0,8      |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| P        |          |                                                                                   | ● |                                                                                   | ● |                                                                                     | ○ |                                                                                     |   |                                                                                     |   |
| M        |          |                                                                                   |   |                                                                                   | ○ |                                                                                     | ● |                                                                                     |   |                                                                                     |   |
| K        |          |                                                                                   | ○ |                                                                                   | ○ |                                                                                     |   |                                                                                     | ● |                                                                                     | ● |
| N        |          |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| S        |          |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| H        |          |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |
| O        |          |                                                                                   |   |                                                                                   |   |                                                                                     |   |                                                                                     |   |                                                                                     |   |

## ONKU

|          |          |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
|----------|----------|-------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------|---|---------------------------------------------------------------------------------------|---|
|          |          | NEW                                                                                 |   | NEW                                                                                   |   | NEW                                                                                   |   | NEW                                                                                   |   |
|          |          | -R50<br>CTCP230                                                                     |   | -R50<br>CTPP235                                                                       |   | -R50<br>CTCK215                                                                       |   | -R50<br>CTPK220                                                                       |   |
|          |          | DRAGONSKIN                                                                          |   | DRAGONSKIN                                                                            |   | DRAGONSKIN                                                                            |   | DRAGONSKIN                                                                            |   |
|          |          |  |   |  |   |  |   |  |   |
|          |          | ONKU                                                                                |   | ONKU                                                                                  |   | ONKU                                                                                  |   | ONKU                                                                                  |   |
|          |          | 51 164 ...                                                                          |   | 51 164 ...                                                                            |   | 51 164 ...                                                                            |   | 51 164 ...                                                                            |   |
|          |          | EUR                                                                                 |   | EUR                                                                                   |   | EUR                                                                                   |   | EUR                                                                                   |   |
|          |          | 1B/61                                                                               |   | 1B/61                                                                                 |   | 1B/61                                                                                 |   | 1B/61                                                                                 |   |
|          |          | 31,40                                                                               |   | 31,40                                                                                 |   | 31,40                                                                                 |   | 31,40                                                                                 |   |
|          |          | 00800                                                                               |   | 10800                                                                                 |   | 50800                                                                                 |   | 60800                                                                                 |   |
| ISO      | RE<br>mm |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
| 080608SN | 0,8      |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
| P        |          |                                                                                     | ● |                                                                                       | ● |                                                                                       |   |                                                                                       |   |
| M        |          |                                                                                     |   |                                                                                       | ○ |                                                                                       |   |                                                                                       |   |
| K        |          |                                                                                     | ○ |                                                                                       | ○ |                                                                                       | ● |                                                                                       | ● |
| N        |          |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
| S        |          |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
| H        |          |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |
| O        |          |                                                                                     |   |                                                                                       |   |                                                                                       |   |                                                                                       |   |

## MaxiMill – 252 Nástrčná fréza



NEW

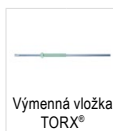
50 689 ...

| Označenie        | DC<br>mm | DCX<br>mm | ZNF | APMX<br>mm | OAL<br>mm | DCONMS<br>mm | DHUB<br>mm | Uťahovací moment<br>Nm | Vymeniteľná<br>doštička | EUR<br>2B/40 |       |
|------------------|----------|-----------|-----|------------|-----------|--------------|------------|------------------------|-------------------------|--------------|-------|
| A252.40.R.05-10  | 30       | 40        | 5   | 2,5        | 40        | 16           | 38         | 2                      | RNHU 1004..             | 502,83       | 140   |
| A252.42.R.05-10  | 32       | 42        | 5   | 2,5        | 40        | 16           | 38         | 2                      | RNHU 1004..             | 576,63       | 142   |
| A252.50.R.06-10  | 40       | 50        | 6   | 2,5        | 40        | 22           | 43         | 2                      | RNHU 1004..             | 597,84       | 150   |
| A252.52.R.07-10  | 42       | 52        | 7   | 2,5        | 40        | 22           | 43         | 2                      | RNHU 1004..             | 649,34       | 152   |
| A252.63.R.08-10  | 53       | 63        | 8   | 2,5        | 40        | 22           | 48         | 2                      | RNHU 1004..             | 735,90       | 16300 |
| A252.80.R.10-10  | 70       | 80        | 10  | 2,5        | 50        | 27           | 58         | 2                      | RNHU 1004..             | 837,10       | 18000 |
| A252.40.R.04-12  | 28       | 40        | 4   | 3,0        | 40        | 16           | 38         | 3,2                    | RNHU 1205..             | 461,94       | 240   |
| A252.50.R.05-12  | 38       | 50        | 5   | 3,0        | 40        | 22           | 43         | 3,2                    | RNHU 1205..             | 560,89       | 250   |
| A252.52.R.05-12  | 40       | 52        | 5   | 3,0        | 40        | 22           | 43         | 3,2                    | RNHU 1205..             | 562,21       | 252   |
| A252.63.R.06-12  | 51       | 63        | 6   | 3,0        | 40        | 22           | 48         | 3,2                    | RNHU 1205..             | 692,86       | 263   |
| A252.66.R.07-12  | 54       | 66        | 7   | 3,0        | 40        | 22           | 48         | 3,2                    | RNHU 1205..             | 729,82       | 266   |
| A252.80.R.08-12  | 68       | 80        | 8   | 3,0        | 50        | 27           | 58         | 3,2                    | RNHU 1205..             | 797,16       | 280   |
| A252.100.R.10-12 | 88       | 100       | 10  | 3,0        | 50        | 32           | 78         | 3,2                    | RNHU 1205..             | 948,68       | 30000 |
| A252.125.R.12-12 | 113      | 125       | 12  | 3,0        | 63        | 40           | 88         | 3,2                    | RNHU 1205..             | 1.147,64     | 32500 |

## Náhradné diely

Vymeniteľná doštička

|                          |      |     |      |     |       |     |       |     |      |     |      |     |        |     |
|--------------------------|------|-----|------|-----|-------|-----|-------|-----|------|-----|------|-----|--------|-----|
| RNHU 1004.. (Ø40 – Ø80)  | 6,46 | 053 |      |     | 14,20 | 127 |       |     | 5,48 | 303 | 3,85 | 710 | 157,96 | 192 |
| RNHU 1205.. (Ø40)        | 6,46 | 054 | 4,80 | 040 | 14,60 | 128 | 15,61 | 151 | 5,48 | 303 | 3,99 | 839 | 157,96 | 192 |
| RNHU 1205.. (Ø50 – Ø125) | 6,46 | 054 |      |     | 14,60 | 128 |       |     | 5,48 | 303 | 3,99 | 839 | 157,96 | 192 |

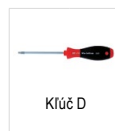
Výmenná vložka  
TORX®

80 950 ...



Upínací klúč T

80 397 ...



Klúč D

80 950 ...



Silová skrutka

70 950 ...

Pasta  
Molykote

70 950 ...



Upínacia skrutka

70 950 ...

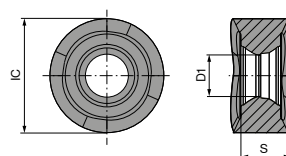
Rukoväť  
TorqueVario®-S

80 950 ...

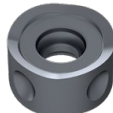
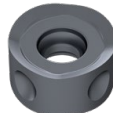


# RNHU

| Označenie   | IC<br>mm | D1<br>mm | S<br>mm |
|-------------|----------|----------|---------|
| RNHU 1004.. | 10       | 3,4      | 4,60    |
| RNHU 1205.. | 12       | 4,4      | 5,30    |



# RNHU

|          | NEW                                                                               |       | NEW                                                                               |       | NEW                                                                               |     | NEW                                                                                 |     | NEW                                                                                 |     | NEW                                                                                 |     |
|----------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-------|-----------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|-------------------------------------------------------------------------------------|-----|
|          | -M50<br>CTPP235                                                                   |       | -F50<br>CTPM240                                                                   |       | -M31<br>CTPM245                                                                   |     | -M32<br>CTPM245                                                                     |     | -M31<br>CTC5240                                                                     |     | -M31<br>CTC5240                                                                     |     |
|          | DRAGONSKIN                                                                        |       | DRAGONSKIN                                                                        |       | DRAGONSKIN                                                                        |     | DRAGONSKIN                                                                          |     | DRAGONSKIN                                                                          |     | DRAGONSKIN                                                                          |     |
|          |  |       |  |       |  |     |  |     |  |     |  |     |
|          | RNHU                                                                              |       | RNHU                                                                              |       | RNHU                                                                              |     | RNHU                                                                                |     | RNHU                                                                                |     | RNHU                                                                                |     |
|          | 51 130 ...                                                                        |       | 51 129 ...                                                                        |       | 51 106 ...                                                                        |     | 51 107 ...                                                                          |     | 50 520 ...                                                                          |     | 50 521 ...                                                                          |     |
| ISO      | EUR<br>1B/61                                                                      |       | EUR<br>1B/61                                                                      |       | EUR<br>1H/17                                                                      |     | EUR<br>1H/17                                                                        |     | EUR<br>1H/17                                                                        |     | EUR<br>1H/17                                                                        |     |
| 1004M4ER | 22,96                                                                             | 12000 | 22,96                                                                             | 42000 | 31,05                                                                             | 470 | 31,05                                                                               | 470 | 31,05                                                                               | 550 |                                                                                     |     |
| 1205M4ER |                                                                                   |       | 24,86                                                                             | 42500 | 34,01                                                                             | 475 | 34,01                                                                               | 475 |                                                                                     |     | 34,01                                                                               | 552 |
| 1205M4SR | 24,86                                                                             | 12500 |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     |     |                                                                                     |     |
| P        |                                                                                   | ●     |                                                                                   | ○     |                                                                                   | ●   |                                                                                     | ●   |                                                                                     |     |                                                                                     |     |
| M        |                                                                                   | ○     |                                                                                   | ●     |                                                                                   | ●   |                                                                                     | ●   |                                                                                     |     |                                                                                     |     |
| K        |                                                                                   | ○     |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     |     |                                                                                     |     |
| N        |                                                                                   |       |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     |     |                                                                                     |     |
| S        |                                                                                   |       |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     | ●   |                                                                                     | ●   |
| H        |                                                                                   |       |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     |     |                                                                                     |     |
| O        |                                                                                   |       |                                                                                   |       |                                                                                   |     |                                                                                     |     |                                                                                     |     |                                                                                     |     |

## Orientačné rezné hodnoty

| Orientačné rezné hodnoty |                                                      |                                         |                                                                        | CTCP230                                                                           |                                                                                   | CTPP235                                                                           |                                                                                   | CTPM240                                                                           |                                                                                   | CTPM245                                                                           |                                                                                     | CTCK215                                                                             |                                                                                     | CTPK220                                                                             |                                                                                     | CTC5240                                                                             |                                                                                     |                                                                                     |
|--------------------------|------------------------------------------------------|-----------------------------------------|------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|                          |                                                      |                                         |                                                                        | DRAGONSKIN                                                                        |                                                                                   | DRAGONSKIN                                                                        |                                                                                   | DRAGONSKIN                                                                        |                                                                                   | DRAGONSKIN                                                                        |                                                                                     | DRAGONSKIN                                                                          |                                                                                     | DRAGONSKIN                                                                          |                                                                                     | DRAGONSKIN                                                                          |                                                                                     |                                                                                     |
|                          |                                                      |                                         |                                                                        |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Materiálová podskupina   | Index                                                | Pevnosť<br>N/mm <sup>2</sup> / HB / HRC | Rezný materiál tvrdý (v <sub>c</sub> ↑) → húževnatý (v <sub>c</sub> ↓) |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      |                                         | v <sub>c</sub> (m/min)                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| P                        | Nelegovaná oceľ                                      | P.1.1                                   | 420 N/mm <sup>2</sup> / 125 HB                                         | 286                                                                               | 150                                                                               | 246                                                                               | 137                                                                               | 226                                                                               | 141                                                                               | 244                                                                               | 139                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.1.2                                   | 640 N/mm <sup>2</sup> / 190 HB                                         | 242                                                                               | 133                                                                               | 208                                                                               | 121                                                                               | 188                                                                               | 126                                                                               | 207                                                                               | 124                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.1.3                                   | 840 N/mm <sup>2</sup> / 250 HB                                         | 202                                                                               | 118                                                                               | 172                                                                               | 106                                                                               | 152                                                                               | 112                                                                               | 173                                                                               | 109                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.1.4                                   | 910 N/mm <sup>2</sup> / 270 HB                                         | 189                                                                               | 112                                                                               | 160                                                                               | 101                                                                               | 140                                                                               | 107                                                                               | 161                                                                               | 104                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.1.5                                   | 1010 N/mm <sup>2</sup> / 300 HB                                        | 169                                                                               | 105                                                                               | 143                                                                               | 94                                                                                | 123                                                                               | 100                                                                               | 144                                                                               | 97                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Nízkolegovaná oceľ                                   | P.2.1                                   | 610 N/mm <sup>2</sup> / 180 HB                                         | 249                                                                               | 136                                                                               | 214                                                                               | 123                                                                               | 194                                                                               | 128                                                                               | 212                                                                               | 126                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.2.2                                   | 930 N/mm <sup>2</sup> / 275 HB                                         | 185                                                                               | 111                                                                               | 157                                                                               | 100                                                                               | 137                                                                               | 106                                                                               | 158                                                                               | 103                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.2.3                                   | 1010 N/mm <sup>2</sup> / 300 HB                                        | 169                                                                               | 105                                                                               | 143                                                                               | 94                                                                                | 123                                                                               | 100                                                                               | 144                                                                               | 97                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | P.2.4                                   | 1200 N/mm <sup>2</sup> / 375 HB                                        | 118                                                                               | 85                                                                                | 98                                                                                | 76                                                                                | 78                                                                                | 83                                                                                | 101                                                                               | 78                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Vysokolegovaná oceľ a vysokolegovaná nástrojová oceľ | P.3.1                                   | 680 N/mm <sup>2</sup> / 200 HB                                         | 140                                                                               | 87                                                                                | 121                                                                               | 97                                                                                | 126                                                                               | 105                                                                               | 155                                                                               | 107                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| P.3.2                    |                                                      | 1100 N/mm <sup>2</sup> / 300 HB         | 90                                                                     | 55                                                                                | 108                                                                               | 83                                                                                | 112                                                                               | 95                                                                                | 143                                                                               | 93                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| P.3.3                    |                                                      | 1300 N/mm <sup>2</sup> / 400 HB         | 40                                                                     | 22                                                                                | 96                                                                                | 69                                                                                | 98                                                                                | 85                                                                                | 131                                                                               | 79                                                                                |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Nehrdzavajúca oceľ       | P.4.1                                                | 680 N/mm <sup>2</sup> / 200 HB          | 140                                                                    | 87                                                                                | 121                                                                               | 97                                                                                | 126                                                                               | 105                                                                               | 155                                                                               | 107                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | P.4.2                                                | 1010 N/mm <sup>2</sup> / 300 HB         | 115                                                                    | 71                                                                                | 114                                                                               | 90                                                                                | 119                                                                               | 100                                                                               | 149                                                                               | 100                                                                               |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| M                        | Nehrdzavajúca oceľ                                   | M.1.1                                   | 610 N/mm <sup>2</sup> / 180 HB                                         |                                                                                   |                                                                                   | 121                                                                               | 97                                                                                | 126                                                                               | 105                                                                               | 155                                                                               | 107                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | M.2.1                                   | 300 HB                                                                 |                                                                                   |                                                                                   | 108                                                                               | 83                                                                                | 112                                                                               | 95                                                                                | 143                                                                               | 93                                                                                  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | M.3.1                                   | 780 N/mm <sup>2</sup> / 230 HB                                         |                                                                                   |                                                                                   | 117                                                                               | 93                                                                                | 121                                                                               | 102                                                                               | 152                                                                               | 103                                                                                 |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| K                        | Sivá liatina                                         | K.1.1                                   | 350 N/mm <sup>2</sup> / 180 HB                                         | 310                                                                               | 190                                                                               | 160                                                                               | 110                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 360                                                                                 | 210                                                                                 | 320                                                                                 | 190                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | K.1.2                                   | 500 N/mm <sup>2</sup> / 260 HB                                         | 160                                                                               | 100                                                                               | 150                                                                               | 110                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 220                                                                                 | 130                                                                                 | 170                                                                                 | 100                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                          | Tvárna liatina                                       | K.2.1                                   | 540 N/mm <sup>2</sup> / 160 HB                                         | 200                                                                               | 120                                                                               | 150                                                                               | 110                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 230                                                                                 | 140                                                                                 | 210                                                                                 | 130                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | K.2.2                                   | 845 N/mm <sup>2</sup> / 250 HB                                         | 130                                                                               | 80                                                                                | 150                                                                               | 110                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 160                                                                                 | 100                                                                                 | 140                                                                                 | 90                                                                                  |                                                                                     |                                                                                     |                                                                                     |
|                          | Temperovaná liatina                                  | K.3.1                                   | 440 N/mm <sup>2</sup> / 130 HB                                         | 190                                                                               | 115                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 250                                                                                 | 150                                                                                 | 200                                                                                 | 120                                                                                 |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | K.3.2                                   | 780 N/mm <sup>2</sup> / 230 HB                                         | 160                                                                               | 100                                                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     | 210                                                                                 | 130                                                                                 | 170                                                                                 | 100                                                                                 |                                                                                     |                                                                                     |                                                                                     |
| N                        | Hliník – tvárna zliatina                             | N.1.1                                   | 60 HB                                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.1.2                                   | 340 N/mm <sup>2</sup> / 100 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Hliník – zlievarenská zliatina                       | N.2.1                                   | 250 N/mm <sup>2</sup> / 75 HB                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.2.2                                   | 300 N/mm <sup>2</sup> / 90 HB                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.2.3                                   | 440 N/mm <sup>2</sup> / 130 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.2.3                                   | 440 N/mm <sup>2</sup> / 130 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Meď a zliatiny meď (bronz / mosadz)                  | N.3.1                                   | 375 N/mm <sup>2</sup> / 110 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.3.2                                   | 300 N/mm <sup>2</sup> / 90 HB                                          |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | N.3.3                                   | 340 N/mm <sup>2</sup> / 100 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| Zliatiny horčíka         | N.4.1                                                | 70 HB                                   |                                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| S                        | Žiaruvzdorné zliatiny                                | S.1.1                                   | 680 N/mm <sup>2</sup> / 200 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 80                                                                                  |                                                                                     |
|                          |                                                      | S.1.2                                   | 950 N/mm <sup>2</sup> / 280 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 70                                                                                  |                                                                                     |
|                          |                                                      | S.2.1                                   | 840 N/mm <sup>2</sup> / 250 HB                                         |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 35                                                                                  |                                                                                     |
|                          |                                                      | S.2.2                                   | 1180 N/mm <sup>2</sup> / 350 HB                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 25                                                                                  |                                                                                     |
|                          |                                                      | S.2.3                                   | 1080 N/mm <sup>2</sup> / 320 HB                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 30                                                                                  |                                                                                     |
|                          | Zliatiny titánu                                      | S.3.1                                   | 400 N/mm <sup>2</sup>                                                  |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 80                                                                                  |                                                                                     |
|                          |                                                      | S.3.2                                   | 1050 N/mm <sup>2</sup> / 320 HB                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 50                                                                                  |                                                                                     |
|                          |                                                      | S.3.3                                   | 1400 N/mm <sup>2</sup> / 410 HB                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     | 40                                                                                  |                                                                                     |
| H                        | Kalená oceľ                                          | H.1.1                                   | 46–55 HRC                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | H.1.2                                   | 56–60 HRC                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | H.1.3                                   | 61–65 HRC                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | H.1.4                                   | 66–70 HRC                                                              |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Tvrdená liatina                                      | H.2.1                                   | 400 HB                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          | Kalená liatina                                       | H.3.1                                   | 55 HRC                                                                 |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| O                        | Nekovové materiály                                   | O.1.1                                   | ≤ 150 N/mm <sup>2</sup>                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | O.1.2                                   | ≤ 100 N/mm <sup>2</sup>                                                |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | O.2.1                                   | ≤ 1000 N/mm <sup>2</sup>                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | O.2.2                                   | ≤ 1000 N/mm <sup>2</sup>                                               |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|                          |                                                      | O.3.1                                   |                                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

\* pevnosť v ťahu



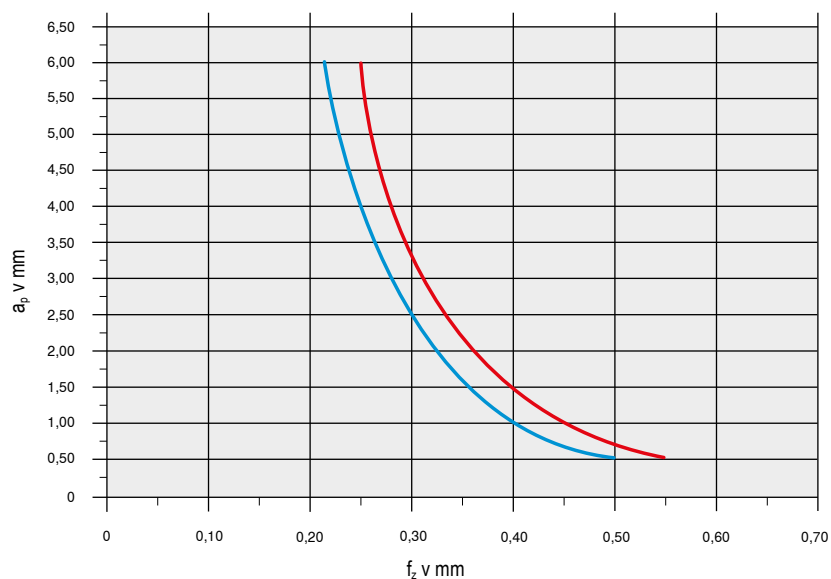
Rezné parametre značne závisia od vonkajších podmienok, ako je napr. stabilita upnutia nástroja a obrobní, materiál a typ stroja! Uvádzané parametre predstavujú možné rezné parametre, ktoré je možné v závislosti od pracovných podmienok prispôsobiť o cca **±20%** !

## Systém MaxiMill 273-08

## Počiatočné parametre



ONKU



| Materiál |       |                   | Vymeniteľná doštička |         | $v_c$ m/min | Chladienie         |
|----------|-------|-------------------|----------------------|---------|-------------|--------------------|
| Oceľ     | P.4.1 | 40CrMnMoS 8-6     | ONKU 080608SR-M50    | CTPP235 | 180         | Obrábanie za sucha |
| Liatina  | K.1.1 | EN-GJL-250 (GG25) | ONKU 080608SR-R50    | CTCK215 | 250         | Obrábanie za sucha |



Detailný prehľad rezných rýchlostí pre jednotlivé materiály nájdete na → strane 46

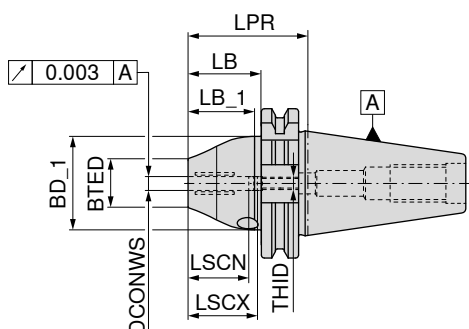
Počínajúc  $v_c > 400$  m/min sa musí nástroj vyvážiť!

## HyPower – Rough

- ▲ vysokotlakové upínacie puzdro - špecialista na frézovanie
- ▲ ideálna voľba pre aplikácie HSC a HPC
- ▲ vysoká odolnosť proti teplotám
- ▲ na vyžiadanie i s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD/B  
G 2,5 n<sub>max</sub> 25000

84 254 ...

| Upínač | DCONWS | LPR  | BTED | BD_1 | LB_1 | LB   | LSCX | LSCN | THID  |                     |
|--------|--------|------|------|------|------|------|------|------|-------|---------------------|
|        | mm     | mm   | mm   | mm   | mm   | mm   | mm   | mm   | mm    |                     |
| SK 40  | 6      | 50,0 | 26   | 42   | 27,1 | 30,9 | 37   | 27   | M5    | EUR Y8 366,00 10679 |
| SK 40  | 8      | 50,0 | 28   | 42   | 27,1 | 30,9 | 37   | 27   | M6    | EUR Y8 366,00 10879 |
| SK 40  | 10     | 50,0 | 30   | 42   | 27,1 | 30,9 | 41   | 31   | M8x1  | EUR Y8 366,00 11079 |
| SK 40  | 12     | 50,0 | 32   | 49   | 27,1 | 30,9 | 46   | 36   | M10x1 | EUR Y8 366,00 11279 |
| SK 40  | 16     | 64,5 | 38   | 49   | 41,6 | 45,4 | 49   | 39   | M12x1 | EUR Y8 366,00 11679 |
| SK 40  | 20     | 64,5 | 38   | 49   | 41,6 | 45,4 | 51   | 41   | M16x1 | EUR Y8 366,00 12079 |



Upínací klíč T



Upínacia skrutka



Dorazová skrutka IK

### Náhradné diely DCONWS

| 6  | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M5x12,5 - SW2,5  | 9,95  | 418 |  |
|----|-----|------|-----|--------|------|-------|------------------|-------|-----|--|
| 8  | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3    | 9,95  | 419 |  |
| 10 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3  | 9,95  | 420 |  |
| 12 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M10x1x13,5 - SW5 | 9,95  | 421 |  |
| 16 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M12x1x13,5 - SW5 | 9,95  | 422 |  |
| 20 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M16x1x13,5 - SW8 | 11,47 | 424 |  |

### Príslušenstvo



→ 57,59



→ 278

Upínacie čapy

Ostatný

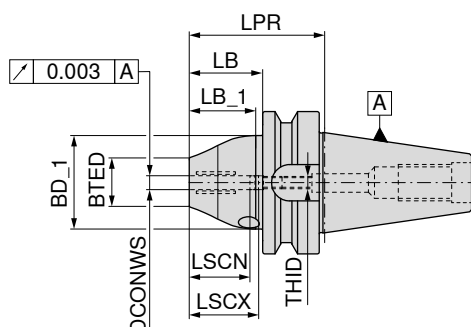
Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Rough

- ▲ vysokotlakové upínacie puzdro - špecialista na frézovanie
- ▲ ideálna voľba pre aplikácie HSC a HPC
- ▲ vysoká odolnosť proti teplotám
- ▲ na vyžiadanie i s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



AD/B  
G 2,5 n<sub>max</sub> 25000

84 254 ...

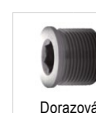
| Upínač | DCONWS | LPR  | BTED | BD_1 | LB_1 | LB   | LSCX | LSCN | THID  | EUR    |       |
|--------|--------|------|------|------|------|------|------|------|-------|--------|-------|
| BT 40  | 6      | 58,0 | 26   | 42   | 27,2 | 33,0 | 37   | 27   | M5    | 366,00 | 10669 |
| BT 40  | 8      | 58,0 | 28   | 42   | 27,2 | 33,0 | 37   | 27   | M6    | 366,00 | 10869 |
| BT 40  | 10     | 58,0 | 30   | 42   | 27,2 | 33,0 | 41   | 31   | M8x1  | 366,00 | 11069 |
| BT 40  | 12     | 58,0 | 32   | 49   | 27,2 | 33,0 | 46   | 36   | M10x1 | 366,00 | 11269 |
| BT 40  | 16     | 72,5 | 38   | 49   | 41,7 | 47,5 | 49   | 38   | M12x1 | 366,00 | 11669 |
| BT 40  | 20     | 72,5 | 38   | 49   | 41,7 | 47,5 | 51   | 41   | M16x1 | 366,00 | 12069 |



Upínací klíč T



Upínacia skrutka



Dorazová skrutka IK

### Náhradné diely DCONWS

|    |     |     |      |     |        |      |       |                  |       |     |
|----|-----|-----|------|-----|--------|------|-------|------------------|-------|-----|
| 6  | SW5 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M5x12,5 - SW2,5  | 9,95  | 418 |
| 8  |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3    | 9,95  | 419 |
| 10 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 12 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 16 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 20 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo



→ 108+109



→ 278

Upínacie čapy

Ostatný

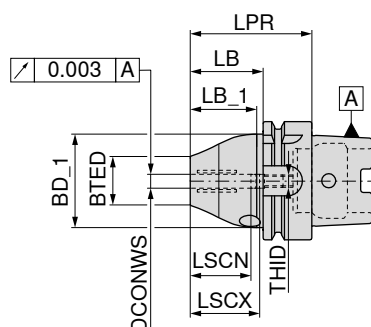
Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Rough

- ▲ vysokotlakové upínacie puzdro - špecialista na frézovanie
- ▲ ideálna voľba pre aplikácie HSC a HPC
- ▲ vysoká odolnosť proti teplotám
- ▲ na vyžiadanie i s čipom Balluff

### Rozsah dodávky:

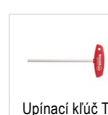
Základné teleso vrátane dorazovej skrutky a upínacej skrutky



AD  
G 2,5 n<sub>max</sub> 25000

84 254 ...

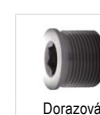
| Upínač    | DCONWS<br>mm | LPR<br>mm | BTED<br>mm | BD_1<br>mm | LB_1<br>mm | LB<br>mm | LSCX<br>mm | LSCN<br>mm | THID | EUR<br>Y8 |       |
|-----------|--------------|-----------|------------|------------|------------|----------|------------|------------|------|-----------|-------|
| HSK-A 63  | 6            | 65        | 26         | 50,0       | 35,2       | 39       | 37         | 27         | M5   | 370,00    | 10657 |
| HSK-A 63  | 8            | 65        | 28         | 50,0       | 35,2       | 39       | 37         | 27         | M6   | 370,00    | 10857 |
| HSK-A 63  | 10           | 75        | 30         | 50,0       | 45,2       | 49       | 41         | 31         | M8x1 | 370,00    | 11057 |
| HSK-A 63  | 12           | 75        | 32         | 52,5       | 45,2       | 49       | 46         | 36         | M8x1 | 370,00    | 11257 |
| HSK-A 63  | 16           | 79        | 38         | 52,5       | 49,2       | 53       | 49         | 39         | M8x1 | 370,00    | 11657 |
| HSK-A 63  | 20           | 79        | 38         | 52,5       | 49,2       | 53       | 51         | 41         | M8x1 | 370,00    | 12057 |
| HSK-A 100 | 6            | 73        | 26         | 50,0       | 40,2       | 44       | 37         | 27         | M5   | 505,00    | 10655 |
| HSK-A 100 | 8            | 73        | 28         | 50,0       | 40,2       | 44       | 37         | 27         | M6   | 505,00    | 10855 |
| HSK-A 100 | 10           | 83        | 30         | 50,0       | 50,2       | 54       | 41         | 31         | M8x1 | 505,00    | 11055 |
| HSK-A 100 | 12           | 83        | 32         | 52,5       | 50,2       | 54       | 46         | 36         | M8x1 | 505,00    | 11255 |
| HSK-A 100 | 16           | 87        | 38         | 52,5       | 54,2       | 58       | 49         | 39         | M8x1 | 505,00    | 11655 |
| HSK-A 100 | 20           | 87        | 38         | 52,5       | 54,2       | 58       | 51         | 41         | M8x1 | 505,00    | 12055 |



Upínací klíč T



Upínacia skrutka



Dorazová skrutka IK

### Náhradné diely DCONWS

|    |     |      |     |        |      |       |                 |      |     |
|----|-----|------|-----|--------|------|-------|-----------------|------|-----|
| 6  | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M5x12,5 - SW2,5 | 9,95 | 418 |
| 8  | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3   | 9,95 | 419 |
| 10 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3 | 9,95 | 420 |
| 12 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3 | 9,95 | 420 |
| 16 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3 | 9,95 | 420 |
| 20 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3 | 9,95 | 420 |

### Príslušenstvo



→ 152



→ 278

Sada pre prívod chladiaceho média

Ostatný

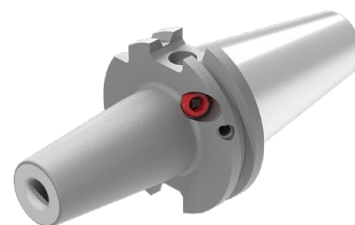
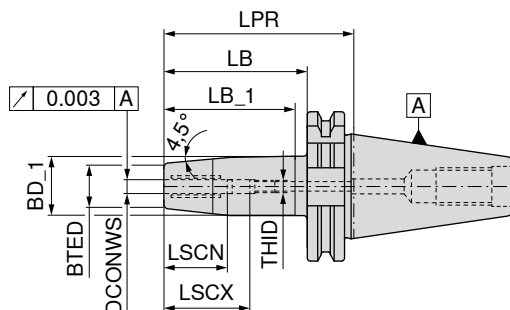
Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Access 4,5°

- ▲ vysokotlakové upínacie puzdro so štíhlou kontúrou, originálne rozmery tepelne zmäšťovacieho upínača 4,5°
- ▲ špecialista na vystružovanie a vŕtanie
- ▲ ideálna voľba pre výrobu nástrojov a foriem
- ▲ na vyžiadanie i s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



AD/B  
G 2,5 n<sub>max</sub> 25000

84 255 ...

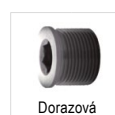
| Upínač | DCONWS<br>mm | LPR<br>mm | BTED<br>mm | BD_1<br>mm | LB_1<br>mm | LB<br>mm | LSCX<br>mm | LSCN<br>mm | THID  | EUR<br>Y8 |       |
|--------|--------------|-----------|------------|------------|------------|----------|------------|------------|-------|-----------|-------|
| SK 40  | 6            | 80        | 21         | 27         | 55,7       | 60,9     | 37         | 27         | M5    | 438,00    | 10679 |
| SK 40  | 8            | 80        | 21         | 27         | 55,7       | 60,9     | 37         | 27         | M6    | 438,00    | 10879 |
| SK 40  | 10           | 80        | 24         | 32         | 55,7       | 60,9     | 41         | 31         | M8x1  | 438,00    | 11079 |
| SK 40  | 12           | 80        | 24         | 32         | 55,7       | 60,9     | 46         | 36         | M10x1 | 438,00    | 11279 |
| SK 40  | 16           | 80        | 27         | 34         | 55,8       | 60,9     | 49         | 39         | M12x1 | 438,00    | 11679 |
| SK 40  | 20           | 80        | 33         | 42         | 57,2       | 60,9     | 51         | 41         | M16x1 | 438,00    | 12079 |



Upínací klúč T



Upínacia skrutka



Dorazová skrutka IK

### Náhradné diely DCONWS

|    |     |     |      |     |        |      |       |                  |       |     |
|----|-----|-----|------|-----|--------|------|-------|------------------|-------|-----|
| 6  | SW5 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M5x12,5 - SW2,5  | 9,95  | 418 |
| 8  |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3    | 9,95  | 419 |
| 10 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 12 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 16 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 20 |     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo



→ 57,59



→ 278

Upínacie čapy

Ostatný

Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

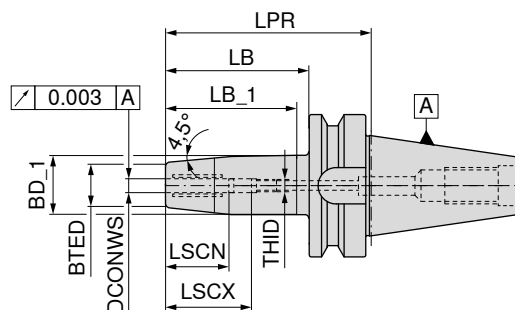


## HyPower – Access 4,5°

- ▲ vysokotlakové upínacie puzdro so štíhlou kontúrou, originálne rozmery tepelne zmäšťovacieho upínača 4,5°
- ▲ špecialista na vystružovanie a vŕtanie
- ▲ ideálna voľba pre výrobu nástrojov a foriem
- ▲ na vyžiadanie i s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD/B  
G 2,5 n<sub>max</sub> 25000

84 255 ...

EUR  
Y8

| Upínač | DCONWS<br>mm | LPR<br>mm | BTED<br>mm | BD_1<br>mm | LB_1<br>mm | LB<br>mm | LSCX<br>mm | LSCN<br>mm | THID  |              |
|--------|--------------|-----------|------------|------------|------------|----------|------------|------------|-------|--------------|
| BT 40  | 6            | 90        | 21         | 27         | 57,7       | 80       | 37         | 27         | M5    | 438,00 10669 |
| BT 40  | 8            | 90        | 21         | 27         | 57,7       | 80       | 37         | 27         | M6    | 438,00 10869 |
| BT 40  | 10           | 90        | 24         | 32         | 57,7       | 80       | 41         | 31         | M8x1  | 438,00 11069 |
| BT 40  | 12           | 90        | 24         | 32         | 57,7       | 80       | 46         | 36         | M10x1 | 438,00 11269 |
| BT 40  | 16           | 90        | 27         | 34         | 57,2       | 80       | 49         | 39         | M12x1 | 438,00 11669 |
| BT 40  | 20           | 90        | 33         | 42         | 57,5       | 80       | 51         | 41         | M16x1 | 438,00 12069 |



Upínací klíč T

80 397 ...

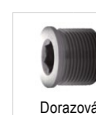
EUR  
Y7



Upínacia skrutka

83 950 ...

EUR  
Y8



Dorazová  
skrutka IK

83 950 ...

EUR  
Y7

### Náhradné diely DCONWS

| DCONWS | SW5 | EUR  | 050 | M10x12 | EUR  | 55000 | M5x12,5 - SW2,5  | EUR   | 418 |
|--------|-----|------|-----|--------|------|-------|------------------|-------|-----|
| 6      | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3    | 9,95  | 419 |
| 8      | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 10     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 12     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 16     | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo



→ 108+109



→ 278

Upínacie čapy

Ostatný

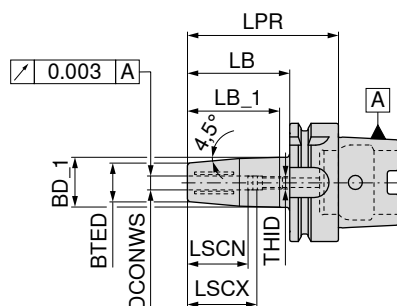
Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Access 4,5°

- ▲ vysokotlakové upínacie puzdro so štíhlou kontúrou, originálne rozmery tepelne zmŕšťovacieho upínača 4,5°
- ▲ špecialista na vystružovanie a vŕtanie
- ▲ ideálna voľba pre výrobu nástrojov a foriem
- ▲ na vyžiadanie i s čipom Balluff

## Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky

AD  
G 2,5 n<sub>max</sub> 25000

84 255 ...

| Upínač    | DCONWS | LPR | BTED | BD_1 | LB_1 | LB | LSCX | LSCN | THID  |  | EUR    |       |
|-----------|--------|-----|------|------|------|----|------|------|-------|--|--------|-------|
|           | mm     | mm  | mm   | mm   | mm   | mm | mm   | mm   | mm    |  | Y8     |       |
| HSK-A 63  | 6      | 80  | 21   | 27   | 48,9 | 54 | 37   | 27   | M5    |  | 450,00 | 10657 |
| HSK-A 63  | 8      | 80  | 21   | 27   | 48,9 | 54 | 37   | 27   | M6    |  | 450,00 | 10857 |
| HSK-A 63  | 10     | 85  | 24   | 32   | 53,7 | 59 | 41   | 31   | M8x1  |  | 450,00 | 11057 |
| HSK-A 63  | 12     | 90  | 24   | 32   | 58,6 | 64 | 46   | 36   | M10x1 |  | 450,00 | 11257 |
| HSK-A 63  | 16     | 95  | 27   | 34   | 63,1 | 69 | 49   | 39   | M12x1 |  | 450,00 | 11657 |
| HSK-A 63  | 20     | 100 | 33   | 42   | 68,9 | 74 | 51   | 41   | M16x1 |  | 450,00 | 12057 |
| HSK-A 100 | 6      | 85  | 21   | 27   | 38,7 | 56 | 37   | 27   | M5    |  | 582,00 | 10655 |
| HSK-A 100 | 8      | 85  | 21   | 27   | 38,7 | 56 | 37   | 27   | M6    |  | 582,00 | 10855 |
| HSK-A 100 | 10     | 90  | 24   | 32   | 53,7 | 61 | 41   | 31   | M8x1  |  | 582,00 | 11055 |
| HSK-A 100 | 12     | 95  | 24   | 32   | 58,6 | 66 | 46   | 36   | M10x1 |  | 582,00 | 11255 |
| HSK-A 100 | 16     | 100 | 27   | 34   | 63,1 | 71 | 49   | 39   | M12x1 |  | 582,00 | 11655 |
| HSK-A 100 | 20     | 105 | 33   | 42   | 68,9 | 76 | 51   | 41   | M16x1 |  | 582,00 | 12055 |



Upínací klíč T



Upínacia skrutka



Dorazová skrutka IK

80 397 ...

83 950 ...

83 950 ...

Náhradné diely  
pre artikel č.

|              |     |      |     |        |      |       |                  |       |     |
|--------------|-----|------|-----|--------|------|-------|------------------|-------|-----|
| 84 255 10657 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M5x12,5 - SW2,5  | 9,95  | 418 |
| 84 255 10857 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M6x12,5 - SW3    | 9,95  | 419 |
| 84 255 11057 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 84 255 11257 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 84 255 11657 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 84 255 12057 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M16x1x13,5 - SW5 | 11,47 | 423 |
| 84 255 10655 | SW5 | 5,20 | 050 | M10x10 | 5,85 | 55100 | M5x12,5 - SW2,5  | 9,95  | 418 |
| 84 255 10855 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M6x12,5 - SW3    | 9,95  | 419 |
| 84 255 11055 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 84 255 11255 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 84 255 11655 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 84 255 12055 | SW5 | 5,20 | 050 | M10x12 | 7,20 | 55000 | M16x1x13,5 - SW5 | 11,47 | 423 |

## Príslušenstvo



→ 152



→ 278

Sada pre prívod chladiaceho média

Ostatný

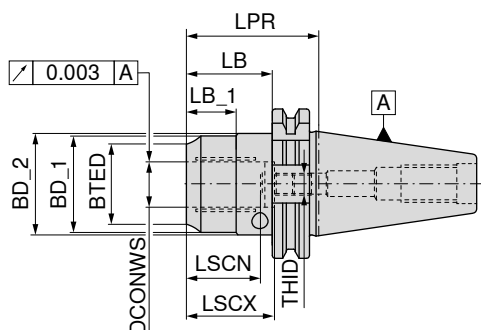
Príslušenstvo nájdete v eKatalógu  
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Complus

- ▲ vysokotlakové upínacie puzdro, krátke a stabilné prevedenie
- ▲ pre TK a HSS stopky s toleranciou h6 či lepšou
- ▲ k dispozícii aj s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD/B  
G 2,5 n<sub>max</sub> 25000

83 427 ...

| Upínač | DCONWS | LPR  | BTED | BD_1 | BD_2 | LB   | LB_1 | LSCX | LSCN | THID       | EUR |       |
|--------|--------|------|------|------|------|------|------|------|------|------------|-----|-------|
| SK 40  | 32     | 81,0 | 57   | 63   | 70   | 61,9 | 26   | 61   | 51   | M16x1x13,5 | Y8  | 13279 |
| SK 50  | 20     | 64,5 | 38   | 49   |      | 38,4 |      | 51   | 41   | M16x1x13,5 | Y8  | 12078 |
| SK 50  | 32     | 81,0 | 57   | 68   | 72   | 54,9 | 35   | 61   | 51   | M16x1x13,5 | Y8  | 13278 |



80 397 ...



83 950 ...



83 950 ...

### Náhradné diely pre artikel č.

|              | SW5 | EUR  |     | M10x1x14 | EUR  |     | M16x1x13,5 - SW8 | EUR   |     |
|--------------|-----|------|-----|----------|------|-----|------------------|-------|-----|
| 83 427 13279 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 427 12078 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 427 13278 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo

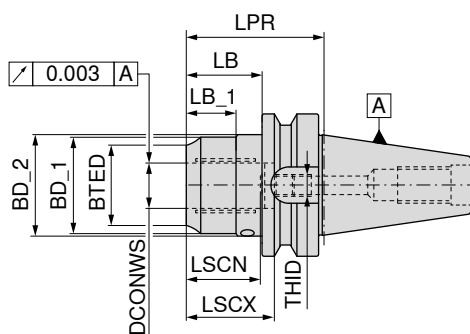
|                                                                                          |                                   |         |
|------------------------------------------------------------------------------------------|-----------------------------------|---------|
| → 276                                                                                    | → 57, 59                          | → 278   |
| Redukčné puzdro                                                                          | Sada pre prívod chladiaceho média | Ostatný |
| Príslušenstvo nájdete v eKatalógu<br>→ kapitola 16, Nástrojové držiaky a rotačné upínače |                                   |         |

## HyPower – Complus

- ▲ vysokotlakové upínacie puzdro, krátke a stabilné prevedenie
- ▲ pre TK a HSS stopky s toleranciou h6 či lepšou
- ▲ k dispozícii aj s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD/B  
G 2,5 n<sub>max</sub> 25000

83 513 ...

| Upínač | DCONWS | LPR  | BTED | BD_1 | BD_2 | LB   | LB_1 | LSCX | LSCN | THID       |  |  |
|--------|--------|------|------|------|------|------|------|------|------|------------|--|--|
|        | mm     | mm   | mm   | mm   | mm   | mm   | mm   | mm   | mm   |            |  |  |
| BT 40  | 32     | 90,0 | 54   | 63   |      | 65,0 |      | 61   | 51   | M16x1x13,5 |  |  |
| BT 50  | 20     | 83,5 | 38   | 49   |      | 48,5 |      | 51   | 41   | M16x1x13,5 |  |  |
| BT 50  | 32     | 90,0 | 57   | 68   | 72   | 55,0 | 35   | 61   | 51   | M16x1x13,5 |  |  |

EUR

Y8

288,30

13269

358,30

12068

358,30

13268



80 397 ...

83 950 ...

83 950 ...

### Náhradné diely pre artikel č.

|              |     | EUR  |     |          | EUR  |     |                  | EUR   |     |
|--------------|-----|------|-----|----------|------|-----|------------------|-------|-----|
| 83 513 13269 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 513 12068 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 513 13268 | SW5 | 5,20 | 050 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo

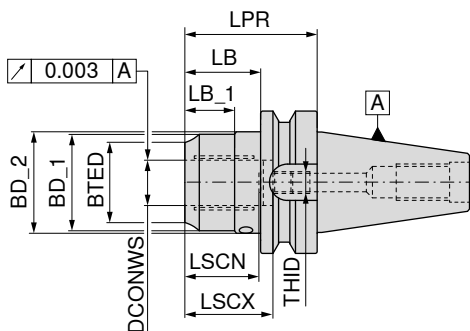
|                                                                                          |                                   |         |
|------------------------------------------------------------------------------------------|-----------------------------------|---------|
| → 276                                                                                    | → 108+109                         | → 278   |
| Redukčné puzdro                                                                          | Sada pre prívod chladiaceho média | Ostatný |
| Príslušenstvo nájdete v eKatalógu<br>→ kapitola 16, Nástrojové držiaky a rotačné upínače |                                   |         |

## HyPower – Complus

- ▲ vysokotlakové upínacie puzdro, krátke a stabilné prevedenie – BT-FC
- ▲ s čelnou styčnou plochou
- ▲ pre TK a HSS stopky s toleranciou h6 či lepšou
- ▲ k dispozícii aj s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD

G 2,5 n<sub>max</sub> 25000

83 527 ...

EUR

Y8

310,00 13274

| Upínač   | DCONWS<br>mm | LPR<br>mm | BTED<br>mm | BD_1<br>mm | BD_2<br>mm | LB<br>mm | LB_1<br>mm | LSCX<br>mm | LSCN<br>mm | THID       |
|----------|--------------|-----------|------------|------------|------------|----------|------------|------------|------------|------------|
| BT-FC 40 | 32           | 90,0      | 54         | 62         | 63         | 64,0     | 48         | 61         | 51         | M16x1x13,5 |
| BT-FC 50 | 20           | 83,5      | 38         | 49         |            | 47,0     |            | 51         | 41         | M16x1x13,5 |
| BT-FC 50 | 32           | 90,0      | 57         | 68         | 72         | 53,5     | 35         | 61         | 51         | M16x1x13,5 |



Upínacia skrutka

83 950 ...

EUR

Y7

5,25 429



Dorazová skrutka IK

83 950 ...

EUR

Y7

11,47 424

### Náhradné diely pre artikel č.

|              |          |      |     |                  |       |     |
|--------------|----------|------|-----|------------------|-------|-----|
| 83 527 13274 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 527 12073 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |
| 83 527 13273 | M10x1x14 | 5,25 | 429 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo



→ 276

Redukčné puzdro



→ 108+109

Sada pre prívod chladiaceho média



→ 278

Ostatný

Príslušenstvo nájdete v eKatalógu

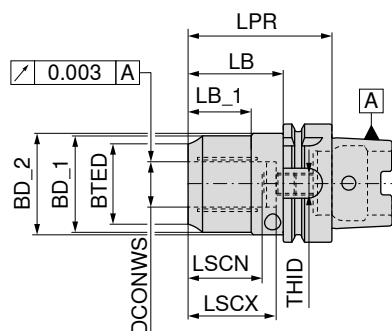
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyPower – Complus

- ▲ vysokotlakové upínacie puzdro, krátke a stabilné prevedenie
- ▲ pre TK a HSS stopky s toleranciou h6 či lepšou
- ▲ k dispozícii aj s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



NEW



AD  
G 2,5 n<sub>max</sub> 25000

83 722 ...

| Upínač    | DCONWS | LPR | BTED | BD_1 | BD_2 | LB_1 | LB | LSCX | LSCN | THID  |  |
|-----------|--------|-----|------|------|------|------|----|------|------|-------|--|
| HSK-A 63  | 32     | 105 | 54   | 63   | 52,5 | 55   | 79 | 61   | 51   | M16x1 |  |
| HSK-A 100 | 20     | 85  | 38   | 49   | 52,5 | 36   | 56 | 51   | 41   | M8x1  |  |
| HSK-A 100 | 32     | 100 | 57   | 68   | 72,0 | 42   | 71 | 61   | 51   | M8x1  |  |

EUR

Y8

313,70

13257

424,10

12055

424,10

13255



Upínacia skrutka



Dorazová skrutka IK

83 950 ...

EUR

Y7

14,55

158

14,55

158

14,55

158

83 950 ...

EUR

Y7

9,95

420

9,95

420

11,47

424

### Náhradné diely pre artikel č.

|              |          |       |     |                  |       |     |
|--------------|----------|-------|-----|------------------|-------|-----|
| 83 722 12055 | M10x1x10 | 14,55 | 158 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 83 722 13255 | M10x1x10 | 14,55 | 158 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 83 722 13257 | M10x1x10 | 14,55 | 158 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo



→ 276



→ 152



→ 278

Redukčné puzdro

Sada pre prívod chladiaceho média

Ostatný

Príslušenstvo nájdete v eKatalógu

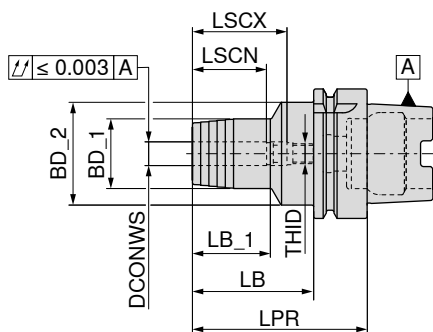
→ kapitola 16, Nástrojové držiaky a rotačné upínače

## HyTens – Fit

- ▲ hydraulické upínacie puzdro, krátke a štíhle prevedenie
- ▲ pre TK a HSS stopky s toleranciou h6 alebo lepšou
- ▲ k dispozícii aj s čipom Balluff

### Rozsah dodávky:

Základné teleso vrátane dorazovej skrutky a upínacej skrutky



AD  
G 2,5  $n_{\max}$  25000

83 726 ...

|        | Upínač    | DCONWS | LPR | BD_1 | BD_2 | LB_1 | LB | LSCX | LSCN | THID  | EUR    |       |
|--------|-----------|--------|-----|------|------|------|----|------|------|-------|--------|-------|
| Krátky | HSK-A 100 | 6      | 75  | 26   | 50   | 26   | 46 | 37   | 27   | M5    | 587,00 | 10655 |
|        | HSK-A 100 | 8      | 75  | 28   | 50   | 26   | 46 | 37   | 27   | M6    | 587,00 | 10855 |
|        | HSK-A 100 | 10     | 90  | 30   | 50   | 42   | 61 | 41   | 31   | M8x1  | 587,00 | 11055 |
|        | HSK-A 100 | 12     | 95  | 32   | 50   | 47   | 66 | 46   | 36   | M10x1 | 587,00 | 11255 |
|        | HSK-A 100 | 16     | 100 | 38   | 50   | 53   | 71 | 49   | 39   | M12x1 | 587,00 | 11655 |
|        | HSK-A 100 | 20     | 105 | 42   | 50   | 59   | 76 | 51   | 41   | M16x1 | 587,00 | 12055 |
|        | HSK-A 100 | 25     | 110 | 57   | 63   | 62   | 81 | 57   | 47   | M16x1 | 587,00 | 12555 |
|        | HSK-A 100 | 32     | 110 | 63   | 67   | 62   | 81 | 61   | 51   | M16x1 | 587,00 | 13255 |



Upínacia skrutka



Dorazová skrutka IK

83 950 ...

83 950 ...

### Náhradné diely DCONWS

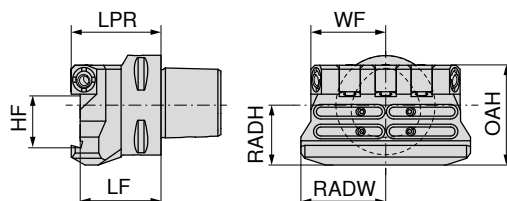
|         |          |      |     |                  |       |     |
|---------|----------|------|-----|------------------|-------|-----|
| 6       | M8x1x10  | 6,73 | 439 | M5x12,5 - SW2,5  | 9,95  | 418 |
| 8       | M10x1x12 | 6,73 | 440 | M6x12,5 - SW3    | 9,95  | 419 |
| 10      | M10x1x12 | 6,73 | 440 | M8x1x13,5 - SW3  | 9,95  | 420 |
| 12      | M10x1x12 | 6,73 | 440 | M10x1x13,5 - SW5 | 9,95  | 421 |
| 16      | M10x1x12 | 6,73 | 440 | M12x1x13,5 - SW5 | 9,95  | 422 |
| 20 - 32 | M10x1x12 | 6,73 | 440 | M16x1x13,5 - SW8 | 11,47 | 424 |

### Príslušenstvo

|                                                                                          |       |                                   |       |         |       |
|------------------------------------------------------------------------------------------|-------|-----------------------------------|-------|---------|-------|
|                                                                                          | → 276 |                                   | → 152 |         | → 278 |
| Redukčné puzdro                                                                          |       | Sada pre prívod chladiaceho média |       | Ostatný |       |
| Príslušenstvo nájdete v eKatalógu<br>→ kapitola 16, Nástrojové držiaky a rotačné upínače |       |                                   |       |         |       |



## MonoClamp – Držiak pre upichovacie planžety PSC GX/LX/FX/SX so systémom DirectCooling



NEW

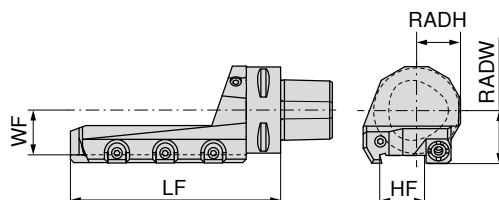


radiálny

84 617 ...

| Upínač | LF<br>mm | LPR<br>mm | WF<br>mm | HF<br>mm | OAH<br>mm | RADW<br>mm | RADH<br>mm | Pre upichovacie<br>planžety | EUR    |       |
|--------|----------|-----------|----------|----------|-----------|------------|------------|-----------------------------|--------|-------|
| PSC 40 | 40,5     | 45        | 37,5     | 26       | 50        | 42,5       | 30         | XLCF N 26...                | 641,50 | 62695 |
| PSC 50 | 40,5     | 45        | 37,5     | 26       | 50        | 42,5       | 30         | XLCF N 26...                | 641,50 | 62694 |
| PSC 63 | 45,5     | 50        | 40,0     | 32       | 57        | 45,0       | 35         | XLCF N 32...                | 719,10 | 63293 |

## MonoClamp – Držiak pre upichovacie planžety PSC GX/LX/FX/SX so systémom DirectCooling



Obrázky zobrazujú pravé prevedenia



NEW



ľavý

84 617 ...

EUR  
Y8

641,50

32695

NEW



pravý

84 617 ...

EUR  
Y8

641,50

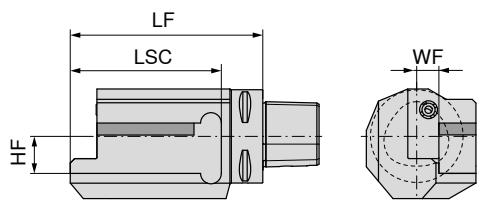
22695

| Upínač | LF<br>mm | WF<br>mm | HF<br>mm | RADW<br>mm | RADH<br>mm | Pre upichovacie<br>planžety | EUR    |       | EUR    |       |
|--------|----------|----------|----------|------------|------------|-----------------------------|--------|-------|--------|-------|
| PSC 40 | 122      | 21       | 26       | 31         | 20,5       | XLCF N 26...                | 641,50 | 32695 | 641,50 | 22695 |
| PSC 50 | 122      | 26       | 26       | 31         | 22,5       | XLCF N 26...                | 641,50 | 32694 | 641,50 | 22694 |
| PSC 63 | 160      | 32       | 32       | 37         | 25,5       | XLCF N 32...                | 719,10 | 33293 | 719,10 | 23293 |

## Držiak pre štvorcovú stopku PSC 0° so systémom DirectCooling

▲ vhodný pre upínacie držiaky s PSC 40 HF = 20 mm / PSC 63 HF = 20 / 25 mm

▲ týchto parametrov HF je možné dosiahnuť odstránením upínacieho bloku



Obrázky zobrazujú pravé prevedenia



NEW



ľavý

84 616 ...

EUR  
Y8

481,60

32593

NEW



pravý

84 616 ...

EUR  
Y8

481,60

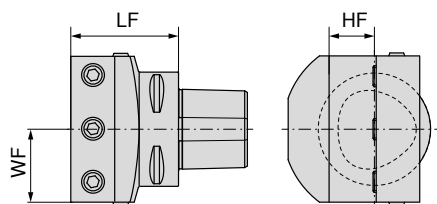
22593

| Upínač | LF<br>mm | WF<br>mm | LSC<br>mm | HF<br>mm | EUR    |       | EUR    |       |
|--------|----------|----------|-----------|----------|--------|-------|--------|-------|
| PSC 63 | 130      | 15       | 102       | 20 / 25  | 481,60 | 32593 | 481,60 | 22593 |
| PSC 80 | 130      | 20       | 102       | 25       | 537,20 | 32586 | 537,20 | 22586 |

## Držiak pre štvorcovú stopku PSC 90° so systémom DirectCooling

▲ vhodný pre upínacie držiaky s PSC 40 HF = 20 mm / PSC 63 HF = 20 / 25 mm

▲ týchto parametrov HF je možné dosiahnuť odstránením upínacieho bloku



NEW



neutrálny

84 616 ...

| Upínač | LF<br>mm | WF<br>mm | HF<br>mm |
|--------|----------|----------|----------|
| PSC 40 | 55       | 40       | 20       |
| PSC 63 | 71       | 40       | 20 / 25  |

EUR  
Y8

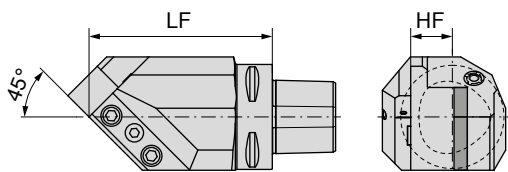
463,70 62095

481,60 62593

## Držiak pre štvorcovú stopku PSC 45° so systémom DirectCooling

▲ vhodný pre upínacie držiaky s PSC 40 HF = 20 mm / PSC 63 HF = 20 / 25 mm

▲ týchto parametrov HF je možné dosiahnuť odstránením upínacieho bloku



Obrázky zobrazujú pravé prevedenia

NEW



ľavý

84 616 ...

EUR  
Y8

506,10 12094

639,00 12593

NEW



pravý

84 616 ...

EUR  
Y8

506,10 02094

639,00 02593

| Upínač | LF<br>mm | HF<br>mm |
|--------|----------|----------|
| PSC 50 | 85       | 20       |
| PSC 63 | 110      | 20 / 25  |

## Rukoväť easyTorque®

- ▲ s fixne nastaveným dotiahovacím momentom
- ▲ úroveň:  $\pm 10\%$
- ▲ bity je možné upínať iba v univerzálnom držiaku



NEW

80 024 ...

| TQX<br>Nm | DRVS<br>mm | BD<br>mm | OAL<br>mm | WT<br>kg | EUR<br>Y7 |       |
|-----------|------------|----------|-----------|----------|-----------|-------|
| 0,5       | 4          | 34       | 130       | 0,950    | 48,77     | 00500 |
| 0,6       | 4          | 34       | 130       | 0,950    | 48,77     | 00600 |
| 0,9       | 4          | 34       | 130       | 0,940    | 48,77     | 00900 |
| 1,1       | 4          | 34       | 130       | 0,101    | 48,77     | 01100 |
| 1,2       | 4          | 34       | 130       | 0,990    | 48,77     | 01200 |
| 1,4       | 4          | 34       | 130       | 0,101    | 48,77     | 01400 |
| 2,0       | 4          | 34       | 130       | 0,101    | 50,96     | 02000 |
| 2,5       | 4          | 34       | 130       | 0,106    | 50,96     | 02500 |
| 3,0       | 4          | 34       | 130       | 0,104    | 50,96     | 03000 |
| 3,8       | 4          | 34       | 130       | 0,105    | 50,96     | 03800 |
| 4,0       | 4          | 34       | 130       | 0,105    | 52,23     | 04000 |
| 4,5       | 4          | 34       | 130       | 0,105    | 52,23     | 04500 |
| 5,0       | 4          | 34       | 130       | 0,105    | 52,23     | 05000 |

## Technické informácie

### Prenositelné krútiace momenty pre HyPower

| Upínací priemer       | 6  | 8  | 10 | 12  | 14  | 16  | 18  | 20  | mm |
|-----------------------|----|----|----|-----|-----|-----|-----|-----|----|
| HyPower – Rough       | 22 | 47 | 85 | 130 | 240 | 350 | 430 | 520 | Nm |
| HyPower – Access 4,5° | 18 | 35 | 60 | 90  | 130 | 200 | 250 | 330 | Nm |





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