





Wiercenie w pełnym materiale i obróbka otworów

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## WNT \ Performance

Markowe narzędzia klasy Premium, gwarantujące najwyższą wydajność.

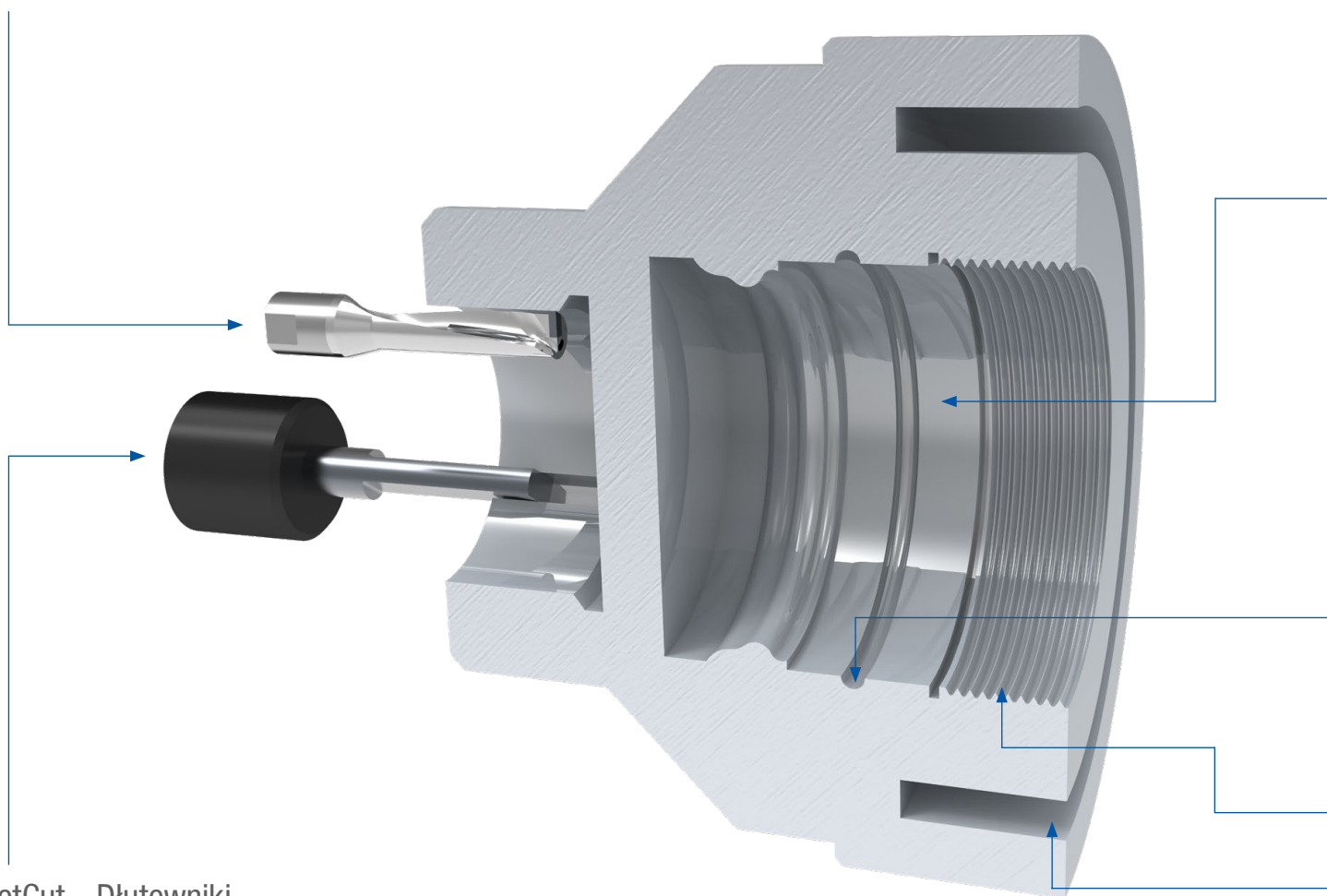
Linia narzędzi **WNT Performance** obejmuje markowe narzędzia klasy Premium, odznaczające się wyjątkową wydajnością, co czyni je narzędziami do zadań specjalnych. Jeżeli w procesie produkcji najważniejsze są wydajność i wynik, polecamy wybrać właśnie produkty klasy Premium z tej linii narzędzi.

## Toolfinder

### EcoCut Mini

od Ø 2 mm

Płytki i oprawki zaciskowe znajdują Państwo w → **rozdziale 10 – Narzędzia wielofunkcyjne – EcoCut i FreeTurn**



### SlotCut – Dłutowniki

Noże oprawkowe + oprawka zaciskowa DIN138

54-57

## Wykaz elementów systemu

## UltraMini



- ▲ od Ø 0,5 mm
- ▲ elastyczny system
- ▲ szlifowane płytki
- ▲ wysoka powtarzalność
- ▲ doprowadzenie chłodziwa do krawędzi skrawającej

## MiniCut



- ▲ od Ø 7,8 mm
- ▲ stabilne złącze 3-żebrowe
- ▲ łatwe w użyciu
- ▲ doprowadzenie chłodziwa do krawędzi skrawającej
- ▲ dokładne pozycjonowanie krawędzi skrawających

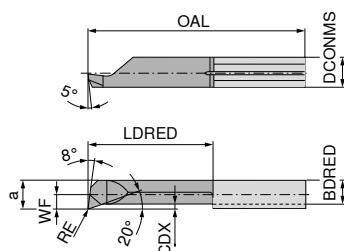
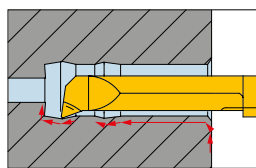
## SlotCut



- ▲ dłutowanie rowków bezpośrednio na obrabiarce
- ▲ możliwość zastosowania od Ø 6 mm
- ▲ niewielkie obciążenie obrabiarki
- ▲ różne klasy tolerancji

|                      |                                                        | UltraMini |       |       |       |       |       |       |       |       |       |       | MiniCut |       |       |       |       |       |
|----------------------|--------------------------------------------------------|-----------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|---------|-------|-------|-------|-------|-------|
| Średnica otworu w mm |                                                        |           | ≥ 0,5 | ≥ 2   | ≥ 2,4 | ≥ 2,8 | ≥ 3   | ≥ 4   | ≥ 5   | ≥ 6   | ≥ 8   | ≥ 16  |         | ≥ 8   | ≥ 9   | ≥ 11  | ≥ 14  | ≥ 16  |
|                      | Wytaczanie i kopiowanie                                |           | 4-7   | 4-7   | 4-7   | 4-7   |       | 4-7   | 4-7   | 4-7   |       |       |         | 35    | 35    | 35    | 35    | 35    |
|                      | Wytaczanie i kopiowanie – toczenie materiałów twardych |           |       | 8     |       | 8     |       | 8     | 8     | 8     |       |       |         | 36    |       | 36    | 36    | 36    |
|                      | Wytaczanie z wysokim posuwem                           |           |       | 10    |       |       | 10    | 10    | 10    | 10    |       |       |         |       |       |       |       |       |
|                      | Wytaczanie i kopiowanie – superstop                    |           |       | 9     |       | 9     |       | 9     | 9     | 9     |       |       |         |       |       |       |       |       |
|                      | Wytaczanie                                             |           |       |       |       | 11    |       | 11    | 11    |       |       |       |         | 37    | 37    | 37    | 37    | 37    |
|                      | Toczenie wsteczne                                      |           |       |       |       |       | 12    | 12    | 12    | 12    |       |       |         | 38    | 38    | 38    | 38    |       |
|                      | Wytaczanie i fazowanie                                 |           |       |       |       |       |       |       | 13    | 13    |       |       |         | 38    | 38    | 38    | 38    |       |
|                      | Wstępne toczenie rowków i fazowanie                    |           |       |       |       |       |       | 13    | 13    | 13    |       |       |         | 39    | 39    | 39    | 39    | 39    |
|                      | Toczenie rowków                                        |           |       | 14-16 |       |       | 14-16 | 14-16 | 14-16 | 14-16 |       |       |         | 40+41 | 40+41 | 40+41 | 40+41 | 40+41 |
|                      | Podcięcia wewnętrzne                                   |           |       | 17    |       | 17    |       | 17    | 17    | 17    |       |       |         | 42    | 42    | 42    | 42    | 42    |
|                      | Toczenie rowków i kopiowanie                           |           |       |       |       |       |       | 18    | 18    | 18    |       |       |         | 43    | 43    | 43    | 43    | 43    |
|                      | Toczenie gwintów wewnętrznych                          |           |       |       | 19-21 |       |       | 19-21 | 19-21 | 19-21 |       |       |         | 44-47 | 44-47 | 44-47 | 44-47 | 44-47 |
|                      | Toczenie rowków czołowych                              |           |       |       |       |       |       |       | 22-27 | 22-27 | 22-27 | 22-27 |         | 48+49 | 48+49 | 48+49 | 48+49 | 48+49 |
|                      |                                                        |           |       |       |       |       |       |       |       |       |       |       |         |       |       |       |       |       |
| Pasujące oprawki     |                                                        |           | 30-34 |       |       |       |       |       |       |       |       |       |         | 50-53 |       |       |       |       |
| Zestawy              |                                                        |           | 28+29 |       |       |       |       |       |       |       |       |       |         | 49    |       |       |       |       |

## UltraMini – Noże oprawkowe do wytaczania i kopiowania



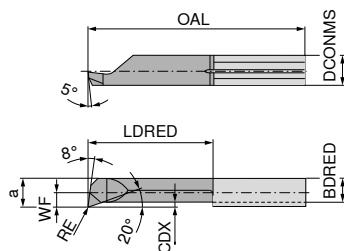
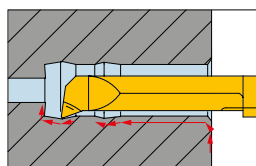
Rysunki pokazują wykonanie prawe



| Oznaczenie    | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaciskowa Standard | lewe<br>73 005 ... |     | prawe<br>73 004 ... |     | lewe<br>73 005 ... |     | prawe<br>73 004 ... |     |
|---------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|----------------------------|--------------------|-----|---------------------|-----|--------------------|-----|---------------------|-----|
|               |                            |          |            |         |           |             |           |             |          |                            | EUR<br>Y5          |     | EUR<br>Y5           |     | EUR<br>Y5          |     | EUR<br>Y5           |     |
| R/L 050.05-2  | 4                          |          | 0,5        | 0,4     | 20        | 2           | 0,03      | 0,32        | 0,02     | 645.00...D                 | 31,93              | 500 | 31,93               | 500 |                    |     |                     |     |
| R/L 050.06-2  | 4                          |          | 0,6        | 0,5     | 20        | 2           | 0,05      | 0,40        | 0,04     | 645.00...D                 | 31,93              | 510 | 31,93               | 510 |                    |     |                     |     |
| R/L 050.06-3  | 4                          |          | 0,6        | 0,5     | 20        | 3           | 0,05      | 0,40        | 0,04     | 645.00...D                 | 32,87              | 511 | 32,87               | 511 |                    |     |                     |     |
| R/L 050.08-4  | 4                          |          | 0,8        | 0,7     | 20        | 4           | 0,05      | 0,60        | 0,04     | 645.00...D                 |                    |     |                     |     | 33,22              | 812 | 33,22               | 812 |
| R/L 050.1-8   | 4                          |          | 1,0        | 0,9     | 22        | 8           | 0,10      | 0,75        | 0,05     | 645.00...D                 |                    |     |                     |     | 32,87              | 813 | 32,87               | 813 |
| R/L 050.15-5  | 4                          |          | 1,5        | 1,3     | 19        | 5           | 0,10      | 1,15        | 0,05     | 645.00...D                 | 30,43              | 515 | 30,43               | 515 |                    |     |                     |     |
| R/L 050.15-10 | 4                          |          | 1,5        | 1,3     | 24        | 10          | 0,10      | 1,15        | 0,05     | 645.00...D                 | 31,13              | 516 | 31,13               | 516 |                    |     |                     |     |
| R/L 050.15-12 | 4                          |          | 1,5        | 1,3     | 26        | 12          | 0,10      | 1,15        | 0,05     | 645.00...D                 |                    |     |                     |     | 32,87              | 818 | 32,87               | 818 |
| R/L 050.2-5   | 4                          |          | 2,0        | 1,7     | 19        | 5           | 0,10      | 1,50        | 0,05     | 645.00...D                 | 27,65              | 520 | 27,65               | 520 |                    |     |                     |     |
| R/L 050.2-10  | 4                          |          | 2,0        | 1,7     | 24        | 10          | 0,10      | 1,50        | 0,05     | 645.00...D                 | 28,22              | 521 | 28,22               | 521 |                    |     |                     |     |
| R/L 050.2-15  | 4                          |          | 2,0        | 1,7     | 29        | 15          | 0,10      | 1,50        | 0,05     | 645.00...D                 | 29,85              | 522 | 29,85               | 522 |                    |     |                     |     |
| R/L 050.3-10  | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,20      | 2,30        | 0,10     | 645.00...D                 | 29,75              | 531 | 29,75               | 531 |                    |     |                     |     |
| R/L 050.3-16  | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,20      | 2,30        | 0,10     | 645.00...D                 | 30,21              | 530 | 30,21               | 530 |                    |     |                     |     |
| R/L 050.3-20  | 4                          | 0,6      | 2,8        | 2,6     | 34        | 20          | 0,20      | 2,30        | 0,10     | 645.00...D                 | 31,83              | 532 | 31,83               | 532 |                    |     |                     |     |
| R/L 050.35-10 | 4                          | 1,1      | 3,5        | 3,1     | 24        | 10          | 0,25      | 2,80        | 0,10     | 645.00...D                 |                    |     |                     |     | 26,04              | 835 | 26,04               | 835 |
| R/L 050.35-16 | 4                          | 1,1      | 3,5        | 3,1     | 30        | 16          | 0,25      | 2,80        | 0,10     | 645.00...D                 |                    |     |                     |     | 27,43              | 836 | 27,43               | 836 |
| R/L 050.35-20 | 4                          | 1,1      | 3,5        | 3,1     | 34        | 20          | 0,25      | 2,80        | 0,10     | 645.00...D                 |                    |     |                     |     | 32,98              | 837 | 32,98               | 837 |
| R/L 050.35-24 | 4                          | 1,1      | 3,5        | 3,1     | 38        | 24          | 0,25      | 2,80        | 0,10     | 645.00...D                 |                    |     |                     |     | 36,10              | 838 | 36,10               | 838 |
| R/L 050.4-10  | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,30      | 3,00        | 0,10     | 645.00...D                 | 29,98              | 541 | 29,98               | 541 | 29,98              | 841 | 29,98               | 841 |
| R/L 050.4-16  | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,30      | 3,00        | 0,10     | 645.00...D                 | 30,43              | 540 | 30,43               | 540 | 30,43              | 840 | 30,43               | 840 |
| R/L 050.4-20  | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,30      | 3,00        | 0,10     | 645.00...D                 | 31,93              | 542 | 31,93               | 542 | 31,93              | 842 | 31,93               | 842 |
| R/L 050.4-24  | 4                          | 1,5      | 4,0        | 3,5     | 38        | 24          | 0,30      | 3,00        | 0,10     | 645.00...D                 | 34,61              | 545 | 34,61               | 545 | 34,61              | 845 | 34,61               | 845 |
| R/L 050.4-28  | 4                          | 1,5      | 4,0        | 3,5     | 42        | 28          | 0,30      | 3,00        | 0,10     | 645.00...D                 | 38,54              | 546 | 38,54               | 546 | 38,54              | 846 | 38,54               | 846 |
| R/L 050.5-10  | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 28,12              | 551 | 28,12               | 551 | 28,12              | 851 | 28,12               | 851 |
| R/L 050.5-15  | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 30,56              | 552 | 30,56               | 552 | 30,56              | 852 | 30,56               | 852 |
| R/L 050.5-20  | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 31,35              | 550 | 31,35               | 550 | 31,35              | 850 | 31,35               | 850 |
| R/L 050.5-25  | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 35,52              | 553 | 35,52               | 553 | 35,52              | 853 | 35,52               | 853 |
| R/L 050.5-30  | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 38,54              | 554 | 38,54               | 554 | 38,54              | 854 | 38,54               | 854 |
| R/L 050.5-35  | 5                          | 1,9      | 5,0        | 4,4     | 50        | 35          | 0,50      | 3,80        | 0,15     | 645.00...D                 | 42,01              | 556 | 42,01               | 556 | 42,01              | 856 | 42,01               | 856 |
| R/L 050.5-40  | 5                          | 1,9      | 5,0        | 4,4     | 55        | 40          | 0,50      | 3,80        | 0,15     | 645.00...D                 |                    |     |                     |     | 47,22              | 857 | 47,22               | 857 |
| R/L 050.6-15  | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 30,90              | 561 | 30,90               | 561 | 30,90              | 861 | 30,90               | 861 |
| R/L 050.6-22  | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 32,17              | 560 | 32,17               | 560 | 32,17              | 860 | 32,17               | 860 |
| R/L 050.6-25  | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 35,66              | 562 | 35,66               | 562 | 35,66              | 862 | 35,66               | 862 |
| R/L 050.6-30  | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 39,11              | 563 | 39,11               | 563 | 39,11              | 863 | 39,11               | 863 |
| R/L 050.6-35  | 6                          | 2,3      | 6,0        | 5,3     | 50        | 35          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 42,01              | 564 | 42,01               | 564 | 42,01              | 864 | 42,01               | 864 |
| R/L 050.6-42  | 6                          | 2,3      | 6,0        | 5,3     | 57        | 42          | 0,50      | 4,50        | 0,15     | 676.00...D                 | 46,87              | 565 | 46,87               | 565 | 46,87              | 865 | 46,87               | 865 |
| R/L 050.7-20  | 7                          | 2,8      | 6,8        | 6,3     | 35        | 20          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 32,29              | 572 | 32,29               | 572 | 32,29              | 872 | 32,29               | 872 |
| R/L 050.7-25  | 7                          | 2,8      | 6,8        | 6,3     | 40        | 25          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 40,51              | 573 | 40,51               | 573 | 40,51              | 873 | 40,51               | 873 |
| R/L 050.7-30  | 7                          | 2,8      | 6,8        | 6,3     | 45        | 30          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 41,20              | 574 | 41,20               | 574 | 41,20              | 874 | 41,20               | 874 |
| R/L 050.7-35  | 7                          | 2,8      | 7,0        | 6,3     | 50        | 35          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 42,69              | 575 | 42,69               | 575 | 42,69              | 875 | 42,69               | 875 |
| R/L 050.7-40  | 7                          | 2,8      | 7,0        | 6,3     | 55        | 40          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 47,45              | 576 | 47,45               | 576 | 47,45              | 876 | 47,45               | 876 |
| R/L 050.7-45  | 7                          | 2,8      | 7,0        | 6,3     | 60        | 45          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 50,34              | 577 | 50,34               | 577 | 50,34              | 877 | 50,34               | 877 |
| R/L 050.7-50  | 7                          | 2,8      | 7,0        | 6,3     | 65        | 50          | 0,60      | 5,50        | 0,15     | 676.00...D                 | 54,27              | 578 | 54,27               | 578 | 54,27              | 878 | 54,27               | 878 |
| P             |                            |          |            |         |           |             |           |             |          |                            | ●                  |     | ●                   |     | ●                  |     | ●                   |     |
| M             |                            |          |            |         |           |             |           |             |          |                            | ●                  |     | ●                   |     | ●                  |     | ●                   |     |
| K             |                            |          |            |         |           |             |           |             |          |                            | ●                  |     | ●                   |     | ●                  |     | ●                   |     |
| N             |                            |          |            |         |           |             |           |             |          |                            | ●                  |     | ●                   |     | ●                  |     | ●                   |     |
| S             |                            |          |            |         |           |             |           |             |          |                            | ○                  |     | ○                   |     | ●                  |     | ●                   |     |
| H             |                            |          |            |         |           |             |           |             |          |                            | ○                  |     | ○                   |     | ●                  |     | ●                   |     |
| O             |                            |          |            |         |           |             |           |             |          |                            | ●                  |     | ●                   |     | ●                  |     | ●                   |     |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania i kopiowania



Rysunki pokazują wykonanie prawe



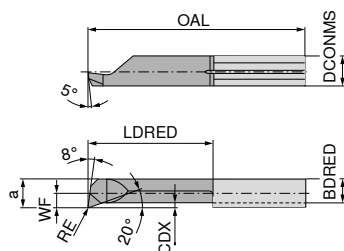
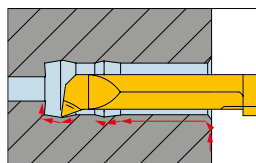
lewe

prawe

| Oznaczenie   | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zacisko-<br>wa Standard | 73 005 ... |     | 73 004 ... |     |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|------------|-----|------------|-----|
|              |                            |          |            |         |           |             |           |             |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 050.2-5  | 4                          |          | 2,0        | 1,7     | 19        | 5           | 0,1       | 1,5         | 0,05     | 645.00...D                      | 22,79      | 020 | 22,79      | 020 |
| R/L 050.2-10 | 4                          |          | 2,0        | 1,7     | 24        | 10          | 0,1       | 1,5         | 0,05     | 645.00...D                      | 23,37      | 021 | 23,37      | 021 |
| R/L 050.2-15 | 4                          |          | 2,0        | 1,7     | 29        | 15          | 0,1       | 1,5         | 0,05     | 645.00...D                      | 25,11      | 022 | 25,11      | 022 |
| R/L 050.3-10 | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 23,03      | 031 | 23,03      | 031 |
| R/L 050.3-16 | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 25,00      | 030 | 25,00      | 030 |
| R/L 050.3-20 | 4                          | 0,6      | 2,8        | 2,6     | 34        | 20          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 27,43      | 032 | 27,43      | 032 |
| R/L 050.4-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 23,26      | 041 | 23,26      | 041 |
| R/L 050.4-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 25,11      | 040 | 25,11      | 040 |
| R/L 050.4-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 26,27      | 042 | 26,27      | 042 |
| R/L 050.5-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 23,37      | 051 | 23,37      | 051 |
| R/L 050.5-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 25,35      | 052 | 25,35      | 052 |
| R/L 050.5-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 26,50      | 050 | 26,50      | 050 |
| R/L 050.5-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 30,79      | 053 | 30,79      | 053 |
| R 050.5-30   | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 0,5       | 3,8         | 0,05     | 645.00...D                      |            |     | 32,75      | 054 |
| L 050.5-30   | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 32,75      | 054 |            |     |
| R/L 050.6-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 25,46      | 061 | 25,46      | 061 |
| R/L 050.6-22 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 27,07      | 060 | 27,07      | 060 |
| R/L 050.6-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 31,24      | 062 | 31,24      | 062 |
| R/L 050.6-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 33,67      | 063 | 33,67      | 063 |
| R/L 050.7-20 | 7                          | 2,8      | 6,8        | 6,3     | 35        | 20          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 27,21      | 072 | 27,21      | 072 |
| R/L 050.7-25 | 7                          | 2,8      | 6,8        | 6,3     | 40        | 25          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 31,83      | 073 | 31,83      | 073 |
| R/L 050.7-30 | 7                          | 2,8      | 6,8        | 6,3     | 45        | 30          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 36,34      | 074 | 36,34      | 074 |
| P            |                            |          |            |         |           |             |           |             |          |                                 |            |     |            |     |
| M            |                            |          |            |         |           |             |           |             |          |                                 |            |     |            |     |
| K            |                            |          |            |         |           |             |           |             |          |                                 |            |     |            |     |
| N            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| S            |                            |          |            |         |           |             |           |             |          |                                 |            |     |            |     |
| H            |                            |          |            |         |           |             |           |             |          |                                 |            |     |            |     |
| O            |                            |          |            |         |           |             |           |             |          |                                 |            | ●   |            | ●   |

→ v, strona 59

## UltraMini – Noże oprawkowe do wytaczania i kopiowania

▲ z promieniem naroża  $\leq 0,05$  mm

Rysunki pokazują wykonanie prawe

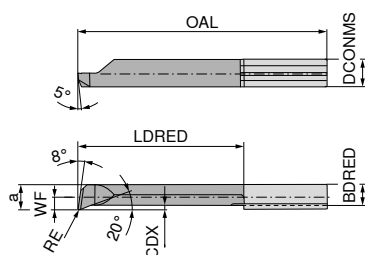
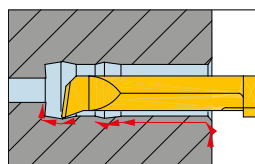


| Oznaczenie   | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaciskowa Standard | lewe       |     | prawe      |     | lewe       |     | prawe      |     |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|----------------------------|------------|-----|------------|-----|------------|-----|------------|-----|
|              |                            |          |            |         |           |             |           |             |          |                            | 73 021 ... |     | 73 020 ... |     | 73 023 ... |     | 73 022 ... |     |
|              |                            |          |            |         |           |             |           |             |          |                            | EUR Y5     |     | EUR Y5     |     | EUR Y5     |     | EUR Y5     |     |
| R/L 053.3-10 | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,2       | 2,3         | 0,03     | 645.00...D                 | 31,71      | 310 | 31,71      | 310 |            |     |            |     |
| R/L 053.3-16 | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,2       | 2,3         | 0,03     | 645.00...D                 | 33,33      | 316 | 33,33      | 316 |            |     |            |     |
| R/L 053.3-20 | 4                          | 0,6      | 2,8        | 2,6     | 34        | 20          | 0,2       | 2,3         | 0,03     | 645.00...D                 | 39,35      | 320 | 39,35      | 320 |            |     |            |     |
| R/L 053.4-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,3       | 3,0         | 0,03     | 645.00...D                 | 31,71      | 410 | 31,71      | 410 |            |     |            |     |
| R/L 053.4-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,3       | 3,0         | 0,03     | 645.00...D                 | 33,33      | 416 | 33,33      | 416 |            |     |            |     |
| R/L 053.4-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,3       | 3,0         | 0,03     | 645.00...D                 | 37,61      | 420 | 37,61      | 420 |            |     |            |     |
| R/L 053.4-24 | 4                          | 1,5      | 4,0        | 3,5     | 38        | 24          | 0,3       | 3,0         | 0,03     | 645.00...D                 | 41,66      | 424 | 41,66      | 424 |            |     |            |     |
| R/L 053.4-28 | 4                          | 1,5      | 4,0        | 3,5     | 42        | 28          | 0,3       | 3,0         | 0,03     | 645.00...D                 | 46,06      | 428 | 46,06      | 428 |            |     |            |     |
| R/L 055.2-10 | 4                          |          | 2,0        | 1,7     | 24        | 10          | 0,1       | 1,5         | 0,05     | 645.00...D                 |            |     |            |     | 32,52      | 210 | 32,52      | 210 |
| R/L 055.2-15 | 4                          |          | 2,0        | 1,7     | 29        | 15          | 0,1       | 1,5         | 0,05     | 645.00...D                 |            |     |            |     | 34,03      | 215 | 34,03      | 215 |
| R/L 055.2-5  | 4                          |          | 2,0        | 1,7     | 19        | 5           | 0,1       | 1,5         | 0,05     | 645.00...D                 |            |     |            |     | 31,83      | 205 | 31,83      | 205 |
| R/L 055.3-10 | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,2       | 2,3         | 0,05     | 645.00...D                 |            |     |            |     | 31,71      | 310 | 31,71      | 310 |
| R/L 055.3-16 | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,2       | 2,3         | 0,05     | 645.00...D                 |            |     |            |     | 33,33      | 316 | 33,33      | 316 |
| R/L 055.3-20 | 4                          | 0,6      | 2,8        | 2,6     | 34        | 20          | 0,2       | 2,3         | 0,05     | 645.00...D                 |            |     |            |     | 39,35      | 320 | 39,35      | 320 |
| R/L 055.4-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,3       | 3,0         | 0,05     | 645.00...D                 |            |     |            |     | 31,71      | 410 | 31,71      | 410 |
| R/L 055.4-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,3       | 3,0         | 0,05     | 645.00...D                 |            |     |            |     | 33,33      | 416 | 33,33      | 416 |
| R/L 055.4-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,3       | 3,0         | 0,05     | 645.00...D                 |            |     |            |     | 37,61      | 420 | 37,61      | 420 |
| R/L 055.4-24 | 4                          | 1,5      | 4,0        | 3,5     | 38        | 24          | 0,3       | 3,0         | 0,05     | 645.00...D                 |            |     |            |     | 41,66      | 424 | 41,66      | 424 |
| R/L 055.4-28 | 4                          | 1,5      | 4,0        | 3,5     | 42        | 28          | 0,3       | 3,0         | 0,05     | 645.00...D                 |            |     |            |     | 46,06      | 428 | 46,06      | 428 |
| R/L 055.5-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 29,75      | 510 | 29,75      | 510 |
| R/L 055.5-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 31,71      | 515 | 31,71      | 515 |
| R/L 055.5-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 35,99      | 520 | 35,99      | 520 |
| R/L 055.5-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 40,51      | 525 | 40,51      | 525 |
| R/L 055.5-30 | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 45,36      | 530 | 45,36      | 530 |
| R/L 055.5-35 | 5                          | 1,9      | 5,0        | 4,4     | 50        | 35          | 0,5       | 3,8         | 0,05     | 645.00...D                 |            |     |            |     | 49,99      | 535 | 49,99      | 535 |
| R/L 055.6-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 31,71      | 615 | 31,71      | 615 |
| R/L 055.6-22 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 35,99      | 622 | 35,99      | 622 |
| R/L 055.6-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 40,51      | 625 | 40,51      | 625 |
| R/L 055.6-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 45,36      | 630 | 45,36      | 630 |
| R/L 055.6-35 | 6                          | 2,3      | 6,0        | 5,3     | 50        | 35          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 49,99      | 635 | 49,99      | 635 |
| R/L 055.6-42 | 6                          | 2,3      | 6,0        | 5,3     | 57        | 42          | 0,5       | 4,5         | 0,05     | 676.00...D                 |            |     |            |     | 55,55      | 642 | 55,55      | 642 |
| P            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| M            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| K            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| N            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| S            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| H            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |
| O            |                            |          |            |         |           |             |           |             |          |                            | •          |     | •          |     | •          |     | •          |     |

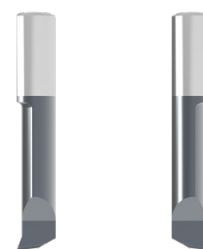
→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania i kopiowania

▲ z łamaczem wióra



Rysunki pokazują wykonanie prawe



lewe

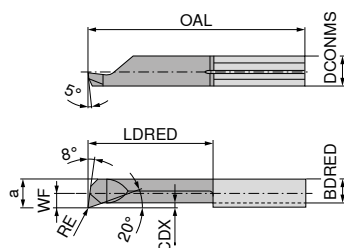
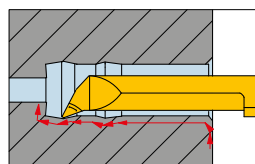
prawe

| Oznaczenie    | DCONMS <sub>hg</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BRED<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard | 73 017 ... |     | 73 016 ... |     |
|---------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|------------|----------|---------------------------------|------------|-----|------------|-----|
|               |                            |          |            |         |           |             |           |            |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 050.4-10C | 4                          | 1,5      | 4          | 3,5     | 24        | 10          | 0,3       | 3,0        | 0,2      | 645.00..-D                      | 25,81      | 410 | 25,81      | 410 |
| R/L 050.4-16C | 4                          | 1,5      | 4          | 3,5     | 30        | 16          | 0,3       | 3,0        | 0,2      | 645.00..-D                      | 27,07      | 416 | 27,07      | 416 |
| R/L 050.4-20C | 4                          | 1,5      | 4          | 3,5     | 34        | 20          | 0,3       | 3,0        | 0,2      | 645.00..-D                      | 31,02      | 420 | 31,02      | 420 |
| R/L 050.4-24C | 4                          | 1,5      | 4          | 3,5     | 38        | 24          | 0,3       | 3,0        | 0,2      | 645.00..-D                      | 34,61      | 424 | 34,61      | 424 |
| R/L 050.4-28C | 4                          | 1,5      | 4          | 3,5     | 42        | 28          | 0,3       | 3,0        | 0,2      | 645.00..-D                      | 38,54      | 428 | 38,54      | 428 |
| R/L 050.5-10C | 5                          | 1,9      | 5          | 4,4     | 25        | 10          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 24,19      | 510 | 24,19      | 510 |
| R/L 050.5-15C | 5                          | 1,9      | 5          | 4,4     | 30        | 15          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 25,81      | 515 | 25,81      | 515 |
| R/L 050.5-20C | 5                          | 1,9      | 5          | 4,4     | 35        | 20          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 29,63      | 520 | 29,63      | 520 |
| R/L 050.5-25C | 5                          | 1,9      | 5          | 4,4     | 40        | 25          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 33,56      | 525 | 33,56      | 525 |
| R/L 050.5-30C | 5                          | 1,9      | 5          | 4,4     | 45        | 30          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 37,84      | 530 | 37,84      | 530 |
| R/L 050.5-35C | 5                          | 1,9      | 5          | 4,4     | 50        | 35          | 0,5       | 3,8        | 0,2      | 645.00..-D                      | 42,01      | 535 | 42,01      | 535 |
| R/L 050.6-15C | 6                          | 2,3      | 6          | 5,3     | 30        | 15          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 25,81      | 615 | 25,81      | 615 |
| R/L 050.6-22C | 6                          | 2,3      | 6          | 5,3     | 37        | 22          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 29,63      | 622 | 29,63      | 622 |
| R/L 050.6-25C | 6                          | 2,3      | 6          | 5,3     | 40        | 25          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 33,56      | 625 | 33,56      | 625 |
| R/L 050.6-30C | 6                          | 2,3      | 6          | 5,3     | 45        | 30          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 37,84      | 630 | 37,84      | 630 |
| R/L 050.6-35C | 6                          | 2,3      | 6          | 5,3     | 50        | 35          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 42,01      | 635 | 42,01      | 635 |
| R/L 050.6-42C | 6                          | 2,3      | 6          | 5,3     | 57        | 42          | 0,5       | 4,5        | 0,2      | 676.00..-D                      | 46,87      | 642 | 46,87      | 642 |
| R/L 050.7-20C | 7                          | 2,8      | 7          | 6,3     | 35        | 20          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 29,85      | 720 | 29,85      | 720 |
| R/L 050.7-25C | 7                          | 2,8      | 7          | 6,3     | 40        | 25          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 33,90      | 725 | 33,90      | 725 |
| R/L 050.7-30C | 7                          | 2,8      | 7          | 6,3     | 45        | 30          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 38,30      | 730 | 38,30      | 730 |
| R/L 050.7-35C | 7                          | 2,8      | 7          | 6,3     | 50        | 35          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 42,69      | 735 | 42,69      | 735 |
| R/L 050.7-40C | 7                          | 2,8      | 7          | 6,3     | 55        | 40          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 47,45      | 740 | 47,45      | 740 |
| R/L 050.7-45C | 7                          | 2,8      | 7          | 6,3     | 60        | 45          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 50,34      | 745 | 50,34      | 745 |
| R/L 050.7-50C | 7                          | 2,8      | 7          | 6,3     | 65        | 50          | 0,6       | 5,5        | 0,2      | 676.00..-D                      | 54,27      | 750 | 54,27      | 750 |
| P             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| M             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| K             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| N             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| S             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| H             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |
| O             |                            |          |            |         |           |             |           |            |          |                                 |            | •   |            | •   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania i kopiowania – toczenie materiałów twardych

▲ 46 do 65 HRC



Rysunki pokazują wykonanie prawe



lewe

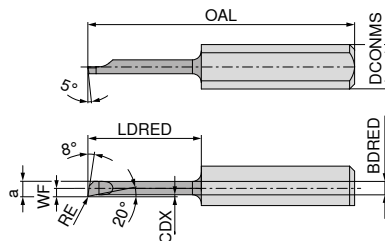
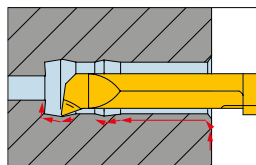
prawe

| Oznaczenie   | DCONMS <sub>HS</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard | 73 025 ... |     | 73 024 ... |     |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|------------|-----|------------|-----|
|              |                            |          |            |         |           |             |           |             |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 050.2-5  | 4                          |          | 2,0        | 1,7     | 19        | 5           | 0,1       | 1,5         | 0,05     | 645.00...D                      | 38,54      | 920 | 38,54      | 920 |
| R/L 050.2-10 | 4                          |          | 2,0        | 1,7     | 24        | 10          | 0,1       | 1,5         | 0,05     | 645.00...D                      | 39,23      | 921 | 39,23      | 921 |
| R/L 050.2-15 | 4                          |          | 2,0        | 1,7     | 29        | 15          | 0,1       | 1,5         | 0,05     | 645.00...D                      | 40,73      | 922 | 40,73      | 922 |
| R/L 050.3-10 | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 38,42      | 931 | 38,42      | 931 |
| R/L 050.3-16 | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 40,05      | 930 | 40,05      | 930 |
| R/L 050.3-20 | 4                          | 0,6      | 2,8        | 2,6     | 34        | 20          | 0,2       | 2,3         | 0,10     | 645.00...D                      | 45,82      | 932 | 45,82      | 932 |
| R/L 050.4-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 38,42      | 941 | 38,42      | 941 |
| R/L 050.4-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 40,05      | 940 | 40,05      | 940 |
| R/L 050.4-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 44,08      | 942 | 44,08      | 942 |
| R/L 050.4-24 | 4                          | 1,5      | 4,0        | 3,5     | 38        | 24          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 47,92      | 945 | 47,92      | 945 |
| R/L 050.4-28 | 4                          | 1,5      | 4,0        | 3,5     | 42        | 28          | 0,3       | 3,0         | 0,10     | 645.00...D                      | 52,08      | 946 | 52,08      | 946 |
| R/L 050.5-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 37,25      | 951 | 37,25      | 951 |
| R/L 050.5-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 39,00      | 952 | 39,00      | 952 |
| R/L 050.5-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 43,17      | 950 | 43,17      | 950 |
| R/L 050.5-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 47,45      | 953 | 47,45      | 953 |
| R/L 050.5-30 | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 51,95      | 954 | 51,95      | 954 |
| R/L 050.5-35 | 5                          | 1,9      | 5,0        | 4,4     | 50        | 35          | 0,5       | 3,8         | 0,15     | 645.00...D                      | 56,36      | 956 | 56,36      | 956 |
| R/L 050.6-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 39,57      | 961 | 39,57      | 961 |
| R/L 050.6-22 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 43,74      | 960 | 43,74      | 960 |
| R/L 050.6-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 48,03      | 962 | 48,03      | 962 |
| R/L 050.6-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 52,53      | 963 | 52,53      | 963 |
| R/L 050.6-35 | 6                          | 2,3      | 6,0        | 5,3     | 50        | 35          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 57,06      | 964 | 57,06      | 964 |
| R/L 050.6-42 | 6                          | 2,3      | 6,0        | 5,3     | 57        | 42          | 0,5       | 4,5         | 0,15     | 676.00...D                      | 62,15      | 965 | 62,15      | 965 |
| R/L 050.7-20 | 7                          | 2,8      | 6,8        | 6,3     | 35        | 20          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 44,22      | 972 | 44,22      | 972 |
| R/L 050.7-25 | 7                          | 2,8      | 6,8        | 6,3     | 40        | 25          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 48,72      | 973 | 48,72      | 973 |
| R/L 050.7-30 | 7                          | 2,8      | 6,8        | 6,3     | 45        | 30          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 53,47      | 974 | 53,47      | 974 |
| R/L 050.7-35 | 7                          | 2,8      | 6,8        | 6,3     | 50        | 35          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 57,97      | 975 | 57,97      | 975 |
| R/L 050.7-40 | 7                          | 2,8      | 6,8        | 6,3     | 55        | 40          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 63,30      | 976 | 63,30      | 976 |
| R/L 050.7-45 | 7                          | 2,8      | 6,8        | 6,3     | 60        | 45          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 66,32      | 977 | 66,32      | 977 |
| R/L 050.7-50 | 7                          | 2,8      | 6,8        | 6,3     | 65        | 50          | 0,6       | 5,5         | 0,15     | 676.00...D                      | 70,48      | 978 | 70,48      | 978 |
| P            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| M            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| K            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| N            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| S            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |
| H            |                            |          |            |         |           |             |           |             |          |                                 |            | ●   |            | ●   |
| O            |                            |          |            |         |           |             |           |             |          |                                 |            | ○   |            | ○   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania i kopiowania

▲ specjalne do superstopów



Rysunki pokazują wykonanie prawe

| Oznaczenie     | DCONMS <sub>HS</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard |
|----------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|
| R/L M050.05-2  | 4                          | 0,20     | 0,5        | 0,40    | 20        | 2           | 0,02      | 0,02        | 0,02     | 645.00...D                      |
| R/L M050.08-4  | 4                          | 0,35     | 0,8        | 0,70    | 20        | 4           | 0,08      | 0,03        | 0,02     | 645.00...D                      |
| R/L M050.1-5   | 4                          | 0,40     | 1,0        | 0,90    | 20        | 5           | 0,05      | 0,05        | 0,02     | 645.00...D                      |
| R/L M050.1-7   | 4                          | 0,40     | 1,0        | 0,90    | 22        | 7           | 0,05      | 0,05        | 0,02     | 645.00...D                      |
| R/L M050.15-5  | 4                          | 0,60     | 1,5        | 1,15    | 19        | 5           | 0,08      | 0,08        | 0,02     | 645.00...D                      |
| R/L M050.15-10 | 4                          | 0,60     | 1,5        | 1,15    | 24        | 10          | 0,08      | 0,08        | 0,02     | 645.00...D                      |
| R/L M050.2-5   | 4                          | 0,80     | 2,0        | 1,70    | 19        | 5           | 0,08      | 0,08        | 0,02     | 645.00...D                      |
| R/L M050.2-10  | 4                          | 0,80     | 2,0        | 1,70    | 24        | 10          | 0,08      | 0,08        | 0,02     | 645.00...D                      |
| R/L M050.25-5  | 4                          | 0,20     | 2,5        | 2,20    | 19        | 5           | 0,10      | 0,10        | 0,02     | 645.00...D                      |
| R/L M050.25-10 | 4                          | 0,20     | 2,5        | 2,20    | 24        | 10          | 0,10      | 0,10        | 0,02     | 645.00...D                      |
| R/L M050.3-10  | 4                          | 0,60     | 3,0        | 2,60    | 24        | 10          | 0,15      | 0,15        | 0,02     | 645.00...D                      |
| R/L M050.3-16  | 4                          | 0,60     | 3,0        | 2,60    | 30        | 16          | 0,15      | 0,15        | 0,02     | 645.00...D                      |
| R/L M050.35-10 | 4                          | 1,10     | 3,5        | 3,10    | 24        | 10          | 0,17      | 0,17        | 0,02     | 645.00...D                      |
| R/L M050.35-16 | 4                          | 1,10     | 3,5        | 3,10    | 30        | 16          | 0,17      | 0,17        | 0,02     | 645.00...D                      |
| R/L M050.35-20 | 4                          | 1,10     | 3,5        | 3,10    | 34        | 20          | 0,17      | 0,17        | 0,02     | 645.00...D                      |
| R/L M050.4-10  | 4                          | 1,50     | 4,0        | 3,50    | 24        | 10          | 0,20      | 0,20        | 0,02     | 645.00...D                      |
| R/L M050.4-16  | 4                          | 1,50     | 4,0        | 3,50    | 30        | 16          | 0,20      | 0,20        | 0,02     | 645.00...D                      |
| R/L M050.4-20  | 4                          | 1,50     | 4,0        | 3,50    | 34        | 20          | 0,20      | 0,20        | 0,02     | 645.00...D                      |
| R/L M050.4-24  | 4                          | 1,50     | 4,0        | 3,50    | 38        | 24          | 0,20      | 0,20        | 0,02     | 645.00...D                      |

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



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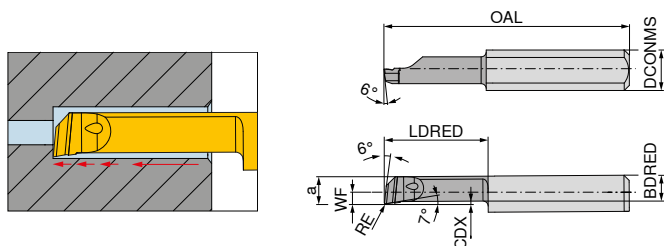
|       |     |       |     |
|-------|-----|-------|-----|
| 39,47 | 052 | 39,47 | 052 |
| 40,62 | 082 | 40,62 | 082 |
| 37,50 | 102 | 37,50 | 102 |
| 38,54 | 103 | 38,54 | 103 |
| 37,50 | 151 | 37,50 | 151 |
| 38,54 | 154 | 38,54 | 154 |
| 31,83 | 201 | 31,83 | 201 |
| 32,75 | 204 | 32,75 | 204 |
| 31,83 | 251 | 31,83 | 251 |
| 32,75 | 254 | 32,75 | 254 |
| 31,83 | 304 | 31,83 | 304 |
| 33,56 | 307 | 33,56 | 307 |
| 31,83 | 350 | 31,83 | 350 |
| 33,56 | 353 | 33,56 | 353 |
| 40,28 | 354 | 40,28 | 354 |
| 31,83 | 400 | 31,83 | 400 |
| 33,56 | 403 | 33,56 | 403 |
| 38,30 | 404 | 38,30 | 404 |
| 42,69 | 406 | 42,69 | 406 |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania

▲ z łamaczem wióra

▲ Wytaczanie z wysokim posuwem



Rysunki pokazują wykonanie prawe

| Oznaczenie    | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zacisko-<br>wa Standard |
|---------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|
| R/L X050.1-5  | 4                          |          | 1,0        | 0,90    | 20        | 5           | 0,03      | 0,85        | 0,05     | 645.00..-D                      |
| R/L X050.15-7 | 4                          |          | 1,5        | 1,35    | 22        | 7           | 0,05      | 1,25        | 0,10     | 645.00..-D                      |
| R/L X050.2-5  | 4                          |          | 2,0        | 1,80    | 19        | 5           | 0,10      | 1,60        | 0,15     | 645.00..-D                      |
| R/L X050.2-10 | 4                          |          | 2,0        | 1,80    | 24        | 10          | 0,10      | 1,60        | 0,05     | 645.00..-D                      |
| R/L X050.2-10 | 4                          |          | 2,0        | 1,80    | 24        | 10          | 0,10      | 1,60        | 0,15     | 645.00..-D                      |
| R/L X050.3-10 | 4                          | 0,7      | 3,0        | 2,70    | 24        | 10          | 0,15      | 2,55        | 0,05     | 645.00..-D                      |
| R/L X050.3-10 | 4                          | 0,7      | 3,0        | 2,70    | 24        | 10          | 0,15      | 2,55        | 0,20     | 645.00..-D                      |
| R/L X050.3-16 | 4                          | 0,7      | 3,0        | 2,70    | 30        | 16          | 0,15      | 2,55        | 0,05     | 645.00..-D                      |
| R/L X050.3-16 | 4                          | 0,7      | 3,0        | 2,70    | 30        | 16          | 0,15      | 2,55        | 0,10     | 645.00..-D                      |
| R/L X050.3-16 | 4                          | 0,7      | 3,0        | 2,70    | 30        | 16          | 0,15      | 2,55        | 0,20     | 645.00..-D                      |
| R/L X050.4-10 | 4                          | 1,6      | 4,0        | 3,60    | 24        | 10          | 0,20      | 3,20        | 0,10     | 645.00..-D                      |
| R/L X050.4-10 | 4                          | 1,6      | 4,0        | 3,60    | 24        | 10          | 0,20      | 3,20        | 0,20     | 645.00..-D                      |
| R/L X050.4-16 | 4                          | 1,6      | 4,0        | 3,60    | 30        | 16          | 0,20      | 3,20        | 0,05     | 645.00..-D                      |
| R/L X050.4-16 | 4                          | 1,6      | 4,0        | 3,60    | 30        | 16          | 0,20      | 3,20        | 0,10     | 645.00..-D                      |
| R/L X050.4-16 | 4                          | 1,6      | 4,0        | 3,60    | 30        | 16          | 0,20      | 3,20        | 0,20     | 645.00..-D                      |
| R/L X050.4-24 | 4                          | 1,6      | 4,0        | 3,60    | 38        | 24          | 0,20      | 3,20        | 0,10     | 645.00..-D                      |
| R/L X050.4-24 | 4                          | 1,6      | 4,0        | 3,60    | 38        | 24          | 0,20      | 3,20        | 0,20     | 645.00..-D                      |
| R/L X050.5-15 | 5                          | 2,1      | 5,0        | 4,60    | 30        | 15          | 0,30      | 4,05        | 0,05     | 645.00..-D                      |
| R/L X050.5-15 | 5                          | 2,1      | 5,0        | 4,60    | 30        | 15          | 0,30      | 4,05        | 0,10     | 645.00..-D                      |
| R/L X050.5-15 | 5                          | 2,1      | 5,0        | 4,60    | 30        | 15          | 0,30      | 4,05        | 0,20     | 645.00..-D                      |
| R/L X050.5-25 | 5                          | 2,1      | 5,0        | 4,60    | 40        | 25          | 0,30      | 4,05        | 0,10     | 645.00..-D                      |
| R/L X050.5-25 | 5                          | 2,1      | 5,0        | 4,60    | 40        | 25          | 0,30      | 4,05        | 0,20     | 645.00..-D                      |
| R/L X050.5-30 | 5                          | 2,1      | 5,0        | 4,60    | 45        | 30          | 0,30      | 4,05        | 0,10     | 645.00..-D                      |
| R/L X050.5-30 | 5                          | 2,1      | 5,0        | 4,60    | 45        | 30          | 0,30      | 4,05        | 0,20     | 645.00..-D                      |
| R/L X050.6-15 | 6                          | 2,5      | 6,0        | 5,50    | 30        | 15          | 0,40      | 4,90        | 0,05     | 676.00..-D                      |
| R/L X050.6-15 | 6                          | 2,5      | 6,0        | 5,50    | 30        | 15          | 0,40      | 4,90        | 0,10     | 676.00..-D                      |
| R/L X050.6-15 | 6                          | 2,5      | 6,0        | 5,50    | 30        | 15          | 0,40      | 4,90        | 0,20     | 676.00..-D                      |
| R/L X050.6-22 | 6                          | 2,5      | 6,0        | 5,50    | 37        | 22          | 0,40      | 4,90        | 0,20     | 676.00..-D                      |
| R/L X050.6-30 | 6                          | 2,5      | 6,0        | 5,50    | 45        | 30          | 0,40      | 4,90        | 0,20     | 676.00..-D                      |
| R/L X050.6-35 | 6                          | 2,5      | 6,0        | 5,50    | 50        | 35          | 0,40      | 4,90        | 0,20     | 676.00..-D                      |
| R/L X050.6-50 | 6                          | 2,5      | 6,0        | 5,50    | 65        | 50          | 0,40      | 4,90        | 0,20     | 676.00..-D                      |
| R/L X050.7-25 | 7                          | 3,0      | 7,0        | 6,50    | 40        | 25          | 0,50      | 5,90        | 0,20     | 676.00..-D                      |
| R/L X050.7-30 | 7                          | 3,0      | 7,0        | 6,50    | 45        | 30          | 0,50      | 5,90        | 0,20     | 676.00..-D                      |

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



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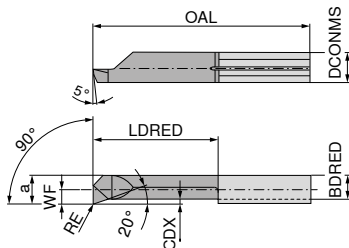
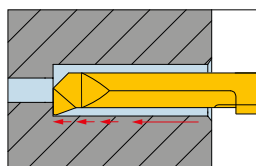
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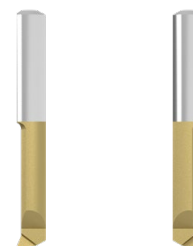
|       |     |       |     |
|-------|-----|-------|-----|
| 35,52 | 121 | 35,52 | 121 |
| 40,62 | 233 | 40,62 | 233 |
| 30,90 | 245 | 30,90 | 245 |
| 31,71 | 215 | 31,71 | 215 |
| 31,71 | 241 | 31,71 | 241 |
| 30,79 | 341 | 30,79 | 341 |
| 30,79 | 347 | 30,79 | 347 |
| 32,52 | 371 | 32,52 | 371 |
| 32,52 | 373 | 32,52 | 373 |
| 32,52 | 377 | 32,52 | 377 |
| 30,79 | 403 | 30,79 | 403 |
| 30,79 | 407 | 30,79 | 407 |
| 32,52 | 431 | 32,52 | 431 |
| 32,52 | 433 | 32,52 | 433 |
| 32,52 | 437 | 32,52 | 437 |
| 41,32 | 463 | 41,32 | 463 |
| 41,32 | 467 | 41,32 | 467 |
| 30,79 | 511 | 30,79 | 511 |
| 30,79 | 513 | 30,79 | 513 |
| 30,79 | 517 | 30,79 | 517 |
| 40,15 | 543 | 40,15 | 543 |
| 40,15 | 547 | 40,15 | 547 |
| 45,36 | 553 | 45,36 | 553 |
| 45,36 | 557 | 45,36 | 557 |
| 30,79 | 611 | 30,79 | 611 |
| 30,79 | 613 | 30,79 | 613 |
| 30,79 | 617 | 30,79 | 617 |
| 35,42 | 637 | 35,42 | 637 |
| 45,36 | 657 | 45,36 | 657 |
| 50,22 | 667 | 50,22 | 667 |
| 62,50 | 697 | 62,50 | 697 |
| 40,73 | 747 | 40,73 | 747 |
| 45,94 | 757 | 45,94 | 757 |

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## UltraMini – Noże oprawkowe do wytaczania



Rysunki pokazują wykonanie prawe



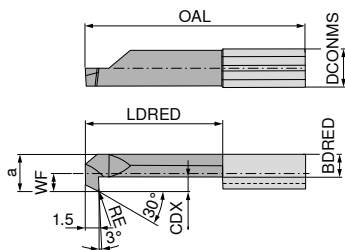
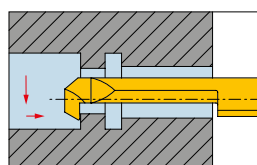
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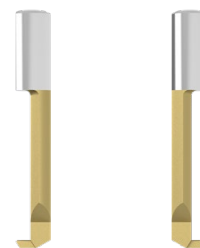
| Oznaczenie   | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard | 73 015 ...<br>EUR<br>Y5 | 541 | 73 014 ...<br>EUR<br>Y5 | 541 |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 090.3-10 | 4                          | 0,6      | 2,8        | 2,6     | 24        | 10          | 0,2       | 2,3         | 0,2      | 645.00..-D                      | 27,43                   | 541 | 27,43                   | 541 |
| R/L 090.3-16 | 4                          | 0,6      | 2,8        | 2,6     | 30        | 16          | 0,2       | 2,3         | 0,2      | 645.00..-D                      | 29,04                   | 542 | 29,04                   | 542 |
| R/L 090.4-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,3       | 3,0         | 0,2      | 645.00..-D                      | 27,43                   | 545 | 27,43                   | 545 |
| R/L 090.4-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,3       | 3,0         | 0,2      | 645.00..-D                      | 29,04                   | 546 | 29,04                   | 546 |
| R/L 090.5-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 0,5       | 3,8         | 0,2      | 645.00..-D                      | 27,43                   | 550 | 27,43                   | 550 |
| R/L 090.5-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,5       | 3,8         | 0,2      | 645.00..-D                      | 29,04                   | 551 | 29,04                   | 551 |
| R/L 090.5-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,5       | 3,8         | 0,2      | 645.00..-D                      | 31,71                   | 552 | 31,71                   | 552 |
| P            |                            |          |            |         |           |             |           |             |          |                                 |                         | ●   |                         | ●   |
| M            |                            |          |            |         |           |             |           |             |          |                                 |                         | ●   |                         | ●   |
| K            |                            |          |            |         |           |             |           |             |          |                                 |                         | ●   |                         | ●   |
| N            |                            |          |            |         |           |             |           |             |          |                                 |                         | ●   |                         | ●   |
| S            |                            |          |            |         |           |             |           |             |          |                                 |                         | ○   |                         | ○   |
| H            |                            |          |            |         |           |             |           |             |          |                                 |                         | ○   |                         | ○   |
| O            |                            |          |            |         |           |             |           |             |          |                                 |                         | ●   |                         | ●   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania wstecznego



Rysunki pokazują wykonanie prawe



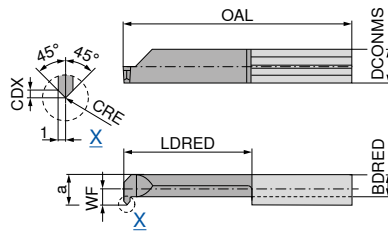
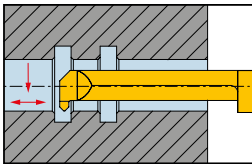
lewe

prawe

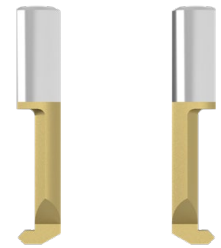
| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard | 73 013 ...<br>EUR<br>Y5 | 73 012 ...<br>EUR<br>Y5 |
|-----------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|-------------------------|-------------------------|
| R/L 080.0003-15 | 4                          | 0,6      | 3          | 2,6     | 29        | 15          | 0,5       | 2,0         | 0,10     | 645.00..-D                      | 31,48                   | 31,48                   |
| R/L 080.0003-20 | 4                          | 0,6      | 3          | 2,6     | 34        | 20          | 0,5       | 2,0         | 0,10     | 645.00..-D                      | 37,50                   | 37,50                   |
| R/L 080.0004-15 | 4                          | 1,5      | 4          | 3,5     | 29        | 15          | 0,8       | 2,4         | 0,15     | 645.00..-D                      | 31,48                   | 31,48                   |
| R/L 080.0004-25 | 4                          | 1,5      | 4          | 3,5     | 39        | 25          | 0,8       | 2,4         | 0,15     | 645.00..-D                      | 35,99                   | 35,99                   |
| R/L 080.0005-20 | 5                          | 1,9      | 5          | 4,4     | 35        | 20          | 1,0       | 3,3         | 0,20     | 645.00..-D                      | 32,29                   | 32,29                   |
| R/L 080.0005-30 | 5                          | 1,9      | 5          | 4,4     | 45        | 30          | 1,0       | 3,3         | 0,20     | 645.00..-D                      | 33,45                   | 33,45                   |
| R/L 080.0006-20 | 6                          | 2,3      | 6          | 5,3     | 35        | 20          | 1,8       | 3,4         | 0,20     | 676.00..-D                      | 33,56                   | 33,56                   |
| R/L 080.0006-30 | 6                          | 2,3      | 6          | 5,3     | 45        | 30          | 1,8       | 3,4         | 0,20     | 676.00..-D                      | 40,28                   | 40,28                   |
| R/L 080.0007-20 | 7                          | 2,7      | 7          | 6,3     | 35        | 20          | 2,5       | 3,8         | 0,20     | 676.00..-D                      | 33,56                   | 33,56                   |
| R/L 080.0007-30 | 7                          | 2,7      | 7          | 6,3     | 45        | 30          | 2,5       | 3,8         | 0,20     | 676.00..-D                      | 40,28                   | 40,28                   |
| P               |                            |          |            |         |           |             |           |             |          |                                 | ●                       | ●                       |
| M               |                            |          |            |         |           |             |           |             |          |                                 | ●                       | ●                       |
| K               |                            |          |            |         |           |             |           |             |          |                                 | ●                       | ●                       |
| N               |                            |          |            |         |           |             |           |             |          |                                 | ●                       | ●                       |
| S               |                            |          |            |         |           |             |           |             |          |                                 | ○                       | ○                       |
| H               |                            |          |            |         |           |             |           |             |          |                                 | ○                       | ○                       |
| O               |                            |          |            |         |           |             |           |             |          |                                 | ●                       | ●                       |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do wytaczania i fazowania



Rysunki pokazują wykonanie prawe



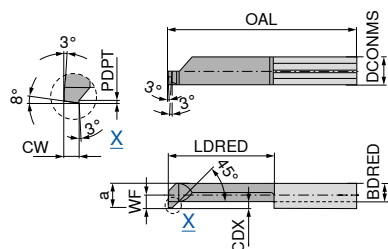
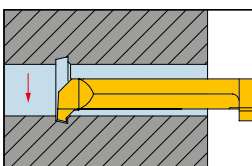
lewe

prawe

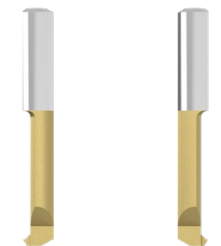
| Oznaczenie   | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | CRE<br>mm | oprawka zaci-<br>skowa Standard | 73 007 ...<br>EUR<br>Y5 | 551 | 73 006 ...<br>EUR<br>Y5 | 551 |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|-----------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 060.5-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,7       | 3,3         | 0,2       | 645.00...-D                     | 28,22                   | 551 | 28,22                   | 551 |
| R/L 060.5-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 0,7       | 3,3         | 0,2       | 645.00...-D                     | 29,85                   | 550 | 29,85                   | 550 |
| R/L 060.7-20 | 7                          | 2,7      | 6,8        | 6,3     | 35        | 20          | 0,7       | 3,8         | 0,2       | 676.00...-D                     | 33,10                   | 570 | 33,10                   | 570 |
| P            |                            |          |            |         |           |             |           |             |           |                                 |                         | ●   |                         | ●   |
| M            |                            |          |            |         |           |             |           |             |           |                                 |                         | ●   |                         | ●   |
| K            |                            |          |            |         |           |             |           |             |           |                                 |                         | ●   |                         | ●   |
| N            |                            |          |            |         |           |             |           |             |           |                                 |                         | ●   |                         | ●   |
| S            |                            |          |            |         |           |             |           |             |           |                                 |                         | ○   |                         | ○   |
| H            |                            |          |            |         |           |             |           |             |           |                                 |                         | ○   |                         | ○   |
| O            |                            |          |            |         |           |             |           |             |           |                                 |                         | ●   |                         | ●   |

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## UltraMini – Noże oprawkowe do wstępnego toczenia rowków i fazowania



Rysunki pokazują wykonanie prawe



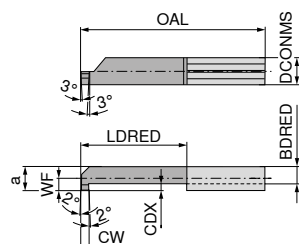
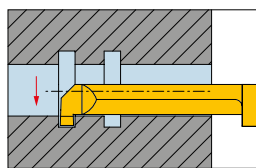
lewe

prawe

| Oznaczenie   | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | CW<br>mm | PDPT<br>mm | oprawka zaci-<br>skowa Standard | 73 009 ...<br>EUR<br>Y5 | 410 | 73 008 ...<br>EUR<br>Y5 | 410 |
|--------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|------------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 070.4-10 | 4                          | 1,5      | 4          | 3,5     | 25        | 10          | 0,8       | 2,4         | 1        | 0,2        | 645.00...-D                     | 28,01                   | 410 | 28,01                   | 410 |
| R/L 070.4-16 | 4                          | 1,5      | 4          | 3,5     | 30        | 16          | 0,8       | 2,4         | 1        | 0,2        | 645.00...-D                     | 28,81                   | 416 | 28,81                   | 416 |
| R/L 070.5-15 | 5                          | 1,9      | 5          | 4,4     | 30        | 15          | 1,0       | 3,3         | 1        | 0,2        | 645.00...-D                     | 28,36                   | 551 | 28,36                   | 551 |
| R/L 070.5-20 | 5                          | 1,9      | 5          | 4,4     | 35        | 20          | 1,0       | 3,3         | 1        | 0,2        | 645.00...-D                     | 31,02                   | 550 | 31,02                   | 550 |
| R/L 070.5-30 | 5                          | 1,9      | 5          | 4,4     | 45        | 30          | 1,0       | 3,3         | 1        | 0,2        | 645.00...-D                     | 39,00                   | 530 | 39,00                   | 530 |
| R/L 070.6-30 | 6                          | 2,3      | 6          | 5,3     | 45        | 30          | 1,0       | 4,2         | 1        | 0,2        | 676.00...-D                     | 39,00                   | 630 | 39,00                   | 630 |
| R/L 070.6-42 | 6                          | 2,3      | 6          | 5,3     | 57        | 42          | 1,0       | 4,2         | 1        | 0,2        | 676.00...-D                     | 45,60                   | 642 | 45,60                   | 642 |
| P            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ●   |                         | ●   |
| M            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ●   |                         | ●   |
| K            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ●   |                         | ●   |
| N            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ●   |                         | ●   |
| S            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ○   |                         | ○   |
| H            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ○   |                         | ○   |
| O            |                            |          |            |         |           |             |           |             |          |            |                                 |                         | ●   |                         | ●   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków



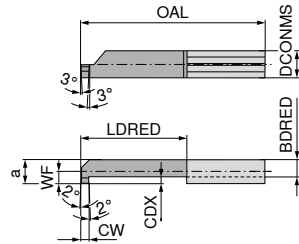
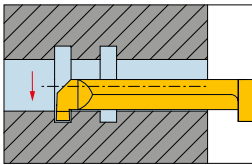
Rysunki pokazują wykonanie prawe



| Oznaczenie      | DCONMS <sub>h6</sub> | WF  | DMIN | a   | OAL | LDRED | CDX | BDRED | CW  | oprawka zaci-<br>skowa Standard | lewe<br>73 003 ... |     | prawe<br>73 002 ... |     | lewe<br>73 003 ... |     | prawe<br>73 002 ... |     |
|-----------------|----------------------|-----|------|-----|-----|-------|-----|-------|-----|---------------------------------|--------------------|-----|---------------------|-----|--------------------|-----|---------------------|-----|
|                 |                      |     |      |     |     |       |     |       |     |                                 | EUR                |     | EUR                 |     | EUR                |     | EUR                 |     |
| R/L 004.0100-10 | 4                    | 1,5 | 4,0  | 3,5 | 24  | 10    | 0,8 | 2,4   | 1,0 | 645.00..-D                      | 21,77              | 040 | 21,77               | 040 | 26,96              | 540 | 26,96               | 540 |
| R/L 004.0100-16 | 4                    | 1,5 | 4,0  | 3,5 | 30  | 16    | 0,8 | 2,4   | 1,0 | 645.00..-D                      | 25,81              | 041 | 25,81               | 041 | 31,02              | 541 | 31,02               | 541 |
| R/L 004.0100-20 | 4                    | 1,5 | 4,0  | 3,5 | 34  | 20    | 0,8 | 2,4   | 1,0 | 645.00..-D                      | 29,40              | 042 | 29,40               | 042 | 35,07              | 542 | 35,07               | 542 |
| R/L 005.0100-10 | 5                    | 1,9 | 5,0  | 4,4 | 25  | 10    | 1,0 | 3,3   | 1,0 | 645.00..-D                      | 21,87              | 150 | 21,87               | 150 | 26,63              | 650 | 26,63               | 650 |
| R/L 005.0150-10 | 5                    | 1,9 | 5,0  | 4,4 | 25  | 10    | 1,0 | 3,3   | 1,5 | 645.00..-D                      | 21,87              | 154 | 21,87               | 154 | 26,63              | 654 | 26,63               | 654 |
| R/L 005.0200-10 | 5                    | 1,9 | 5,0  | 4,4 | 25  | 10    | 1,0 | 3,3   | 2,0 | 645.00..-D                      | 21,87              | 158 | 21,87               | 158 | 26,63              | 658 | 26,63               | 658 |
| R/L 005.0100-15 | 5                    | 1,9 | 5,0  | 4,4 | 30  | 15    | 1,0 | 3,3   | 1,0 | 645.00..-D                      | 26,04              | 151 | 26,04               | 151 | 30,66              | 651 | 30,66               | 651 |
| R/L 005.0150-15 | 5                    | 1,9 | 5,0  | 4,4 | 30  | 15    | 1,0 | 3,3   | 1,5 | 645.00..-D                      | 26,04              | 155 | 26,04               | 155 | 30,66              | 655 | 30,66               | 655 |
| R/L 005.0200-15 | 5                    | 1,9 | 5,0  | 4,4 | 30  | 15    | 1,0 | 3,3   | 2,0 | 645.00..-D                      | 26,04              | 159 | 26,04               | 159 | 30,66              | 659 | 30,66               | 659 |
| R/L 005.0100-20 | 5                    | 1,9 | 5,0  | 4,4 | 35  | 20    | 1,0 | 3,3   | 1,0 | 645.00..-D                      | 29,85              | 051 | 29,85               | 051 | 34,61              | 551 | 34,61               | 551 |
| R/L 005.0150-20 | 5                    | 1,9 | 5,0  | 4,4 | 35  | 20    | 1,0 | 3,3   | 1,5 | 645.00..-D                      | 29,85              | 052 | 29,85               | 052 | 35,19              | 552 | 35,19               | 552 |
| R/L 005.0200-20 | 5                    | 1,9 | 5,0  | 4,4 | 35  | 20    | 1,0 | 3,3   | 2,0 | 645.00..-D                      | 29,85              | 053 | 29,85               | 053 | 34,61              | 553 | 34,61               | 553 |
| R/L 005.0100-25 | 5                    | 1,9 | 5,0  | 4,4 | 40  | 25    | 1,0 | 3,3   | 1,0 | 645.00..-D                      | 33,10              | 152 | 33,10               | 152 | 37,84              | 652 | 37,84               | 652 |
| R/L 005.0150-25 | 5                    | 1,9 | 5,0  | 4,4 | 40  | 25    | 1,0 | 3,3   | 1,5 | 645.00..-D                      | 33,10              | 156 | 33,10               | 156 | 37,84              | 656 | 37,84               | 656 |
| R/L 005.0200-25 | 5                    | 1,9 | 5,0  | 4,4 | 40  | 25    | 1,0 | 3,3   | 2,0 | 645.00..-D                      | 33,10              | 250 | 33,10               | 250 | 38,20              | 750 | 38,20               | 750 |
| R/L 005.0100-30 | 5                    | 1,9 | 5,0  | 4,4 | 45  | 30    | 1,0 | 3,3   | 1,0 | 645.00..-D                      | 37,38              | 153 | 37,38               | 153 | 42,12              | 653 | 42,12               | 653 |
| R/L 005.0150-30 | 5                    | 1,9 | 5,0  | 4,4 | 45  | 30    | 1,0 | 3,3   | 1,5 | 645.00..-D                      | 37,38              | 157 | 37,38               | 157 | 42,12              | 657 | 42,12               | 657 |
| R/L 005.0200-30 | 5                    | 1,9 | 5,0  | 4,4 | 45  | 30    | 1,0 | 3,3   | 2,0 | 645.00..-D                      | 37,38              | 251 | 37,38               | 251 | 42,24              | 751 | 42,24               | 751 |
| R/L 005.0100-35 | 5                    | 1,9 | 5,0  | 4,4 | 50  | 35    | 1,0 | 3,3   | 1,0 | 645.00..-D                      |                    |     |                     |     | 44,08              | 680 | 44,08               | 680 |
| R/L 006.0100-10 | 6                    | 2,3 | 6,0  | 5,3 | 25  | 10    | 1,8 | 3,4   | 1,0 | 676.00..-D                      | 22,10              | 160 | 22,10               | 160 | 26,73              | 660 | 26,73               | 660 |
| R/L 006.0150-10 | 6                    | 2,3 | 6,0  | 5,3 | 25  | 10    | 1,8 | 3,4   | 1,5 | 676.00..-D                      | 22,10              | 164 | 22,10               | 164 | 26,73              | 664 | 26,73               | 664 |
| R/L 006.0200-10 | 6                    | 2,3 | 6,0  | 5,3 | 25  | 10    | 1,8 | 3,4   | 2,0 | 676.00..-D                      | 22,10              | 168 | 22,10               | 168 | 26,73              | 668 | 26,73               | 668 |
| R/L 006.0100-15 | 6                    | 2,3 | 6,0  | 5,3 | 30  | 15    | 1,8 | 3,4   | 1,0 | 676.00..-D                      | 26,39              | 161 | 26,39               | 161 | 30,90              | 661 | 30,90               | 661 |
| R/L 006.0150-15 | 6                    | 2,3 | 6,0  | 5,3 | 30  | 15    | 1,8 | 3,4   | 1,5 | 676.00..-D                      | 26,39              | 165 | 26,39               | 165 | 30,90              | 665 | 30,90               | 665 |
| R/L 006.0200-15 | 6                    | 2,3 | 6,0  | 5,3 | 30  | 15    | 1,8 | 3,4   | 2,0 | 676.00..-D                      | 26,39              | 169 | 26,39               | 169 | 30,90              | 669 | 30,90               | 669 |
| R/L 006.0100-22 | 6                    | 2,3 | 6,0  | 5,3 | 37  | 22    | 1,8 | 3,4   | 1,0 | 676.00..-D                      | 30,08              | 061 | 30,08               | 061 | 34,84              | 561 | 34,84               | 561 |
| R/L 006.0150-22 | 6                    | 2,3 | 6,0  | 5,3 | 37  | 22    | 1,8 | 3,4   | 1,5 | 676.00..-D                      | 30,08              | 062 | 30,08               | 062 | 34,84              | 562 | 34,84               | 562 |
| R/L 006.0200-22 | 6                    | 2,3 | 6,0  | 5,3 | 37  | 22    | 1,8 | 3,4   | 2,0 | 676.00..-D                      | 30,08              | 063 | 30,08               | 063 | 34,84              | 563 | 34,84               | 563 |
| R/L 006.0100-25 | 6                    | 2,3 | 6,0  | 5,3 | 40  | 25    | 1,8 | 3,4   | 1,0 | 676.00..-D                      | 33,45              | 162 | 33,45               | 162 | 38,20              | 662 | 38,20               | 662 |
| R/L 006.0150-25 | 6                    | 2,3 | 6,0  | 5,3 | 40  | 25    | 1,8 | 3,4   | 1,5 | 676.00..-D                      | 33,45              | 166 | 33,45               | 166 | 38,20              | 666 | 38,20               | 666 |
| R/L 006.0200-25 | 6                    | 2,3 | 6,0  | 5,3 | 40  | 25    | 1,8 | 3,4   | 2,0 | 676.00..-D                      | 33,45              | 260 | 33,45               | 260 | 38,20              | 760 | 38,20               | 760 |
| R/L 006.0100-30 | 6                    | 2,3 | 6,0  | 5,3 | 45  | 30    | 1,8 | 3,4   | 1,0 | 676.00..-D                      | 37,84              | 163 | 37,84               | 163 | 42,24              | 663 | 42,24               | 663 |
| R/L 006.0150-30 | 6                    | 2,3 | 6,0  | 5,3 | 45  | 30    | 1,8 | 3,4   | 1,5 | 676.00..-D                      | 37,84              | 167 | 37,84               | 167 | 42,24              | 667 | 42,24               | 667 |
| R/L 006.0200-30 | 6                    | 2,3 | 6,0  | 5,3 | 45  | 30    | 1,8 | 3,4   | 2,0 | 676.00..-D                      | 37,84              | 261 | 37,84               | 261 | 42,24              | 761 | 42,24               | 761 |
| R/L 006.0100-35 | 6                    | 2,3 | 6,0  | 5,3 | 50  | 35    | 1,8 | 3,4   | 1,0 | 676.00..-D                      |                    |     |                     |     | 44,08              | 682 | 44,08               | 682 |
| R/L 006.0150-35 | 6                    | 2,3 | 6,0  | 5,3 | 50  | 35    | 1,8 | 3,4   | 1,5 | 676.00..-D                      |                    |     |                     |     | 44,08              | 684 | 44,08               | 684 |
| R/L 006.0100-42 | 6                    | 2,3 | 6,0  | 5,3 | 57  | 42    | 1,8 | 3,4   | 1,0 | 676.00..-D                      |                    |     |                     |     | 48,60              | 685 | 48,60               | 685 |
| R/L 007.0100-10 | 7                    | 2,7 | 6,8  | 6,3 | 25  | 10    | 2,5 | 3,8   | 1,0 | 676.00..-D                      | 22,45              | 070 | 22,45               | 070 | 26,96              | 570 | 26,96               | 570 |
| R/L 007.0150-10 | 7                    | 2,7 | 6,8  | 6,3 | 25  | 10    | 2,5 | 3,8   | 1,5 | 676.00..-D                      | 22,45              | 075 | 22,45               | 075 | 26,96              | 575 | 26,96               | 575 |
| R/L 007.0200-10 | 7                    | 2,7 | 6,8  | 6,3 | 25  | 10    | 2,5 | 3,8   | 2,0 | 676.00..-D                      | 22,45              | 170 | 22,45               | 170 | 26,96              | 670 | 26,96               | 670 |
| R/L 007.0100-15 | 7                    | 2,7 | 6,8  | 6,3 | 30  | 15    | 2,5 | 3,8   | 1,0 | 676.00..-D                      | 26,63              | 071 | 26,63               | 071 | 31,24              | 571 | 31,24               | 571 |
| R/L 007.0150-15 | 7                    | 2,7 | 6,8  | 6,3 | 30  | 15    | 2,5 | 3,8   | 1,5 | 676.00..-D                      | 26,63              | 076 | 26,63               | 076 | 31,24              | 576 | 31,24               | 576 |
| R/L 007.0200-15 | 7                    | 2,7 | 6,8  | 6,3 | 30  | 15    | 2,5 | 3,8   | 2,0 | 676.00..-D                      | 26,63              | 171 | 26,63               | 171 | 31,24              | 671 | 31,24               | 671 |
| R/L 007.0100-22 | 7                    | 2,7 | 6,8  | 6,3 | 37  | 22    | 2,5 | 3,8   | 1,0 | 676.00..-D                      | 30,43              | 072 | 30,43               | 072 | 35,07              | 572 | 35,07               | 572 |
| R/L 007.0150-22 | 7                    | 2,7 | 6,8  | 6,3 | 37  | 22    | 2,5 | 3,8   | 1,5 | 676.00..-D                      | 30,43              | 077 | 30,43               | 077 | 35,07              | 577 | 35,07               | 577 |
| R/L 007.0200-22 | 7                    | 2,7 | 6,8  | 6,3 | 37  | 22    | 2,5 | 3,8   | 2,0 | 676.00..-D                      | 30,43              | 172 | 30,43               | 172 | 35,07              | 672 | 35,07               | 672 |
| R/L 007.0100-25 | 7                    | 2,7 | 6,8  | 6,3 | 40  | 25    | 2,5 | 3,8   | 1,0 | 676.00..-D                      | 33,67              | 073 | 33,67               | 073 | 38,65              | 573 | 38,65               | 573 |
| R/L 007.0150-25 | 7                    | 2,7 | 6,8  | 6,3 | 40  | 25    | 2,5 | 3,8   | 1,5 | 676.00..-D                      | 33,67              | 078 | 33,67               | 078 | 38,65              | 578 | 38,65               | 578 |
| R/L 007.0200-25 | 7                    | 2,7 | 6,8  | 6,3 | 40  | 25    | 2,5 | 3,8   | 2,0 | 676.00..-D                      | 33,67              | 173 | 33,67               | 173 | 38,65              | 673 | 38,65               | 673 |
| R/L 007.0100-30 | 7                    | 2,7 | 6,8  | 6,3 | 45  | 30    | 2,5 | 3,8   | 1,0 | 676.00..-D                      | 38,65              | 074 | 38,65               | 074 | 43,17              | 574 | 43,17               | 574 |
| R/L 007.0150-30 | 7                    | 2,7 | 6,8  | 6,3 | 45  | 30    | 2,5 | 3,8   | 1,5 | 676.00..-D                      | 38,65              | 079 | 38,65               | 079 | 43,17              | 579 | 43,17               | 579 |
| R/L 007.0200-30 | 7                    | 2,7 | 6,8  | 6,3 | 45  | 30    | 2,5 | 3,8   | 2,0 | 676.00..-D                      | 38,78              | 174 | 38,78               | 174 | 43,17              | 674 | 43,17               | 674 |
| R/L 007.0100-35 | 7                    | 2,7 | 7,0  | 6,3 | 50  | 35    | 2,5 | 3,8   | 1,0 | 676.00..-D                      |                    |     |                     |     | 44,45              | 688 | 44,45               | 688 |
| R/L 007.0150-35 | 7                    | 2,7 | 7,0  | 6,3 | 50  | 35    | 2,5 | 3,8   | 1,5 | 676.00..-D                      |                    |     |                     |     | 44,45              | 690 | 44,45               | 690 |
| R/L 007.0200-35 | 7                    | 2,7 | 7,0  | 6,3 | 50  | 35    | 2,5 | 3,8   | 2,0 | 676.00..-D                      |                    |     |                     |     | 44,45              | 692 | 44,45               | 692 |
| R/L 007.0100-40 | 7                    | 2,7 | 7,0  | 6,3 | 55  | 40    | 2,5 | 3,8   | 1,0 | 676.00..-D                      |                    |     |                     |     | 49,52              | 700 | 49,52               | 700 |
| R/L 007.0150-40 | 7                    | 2,7 | 7,0  | 6,3 | 55  | 40    | 2,5 | 3,8   | 1,5 | 676.00..-D                      |                    |     |                     |     | 49,52              | 702 | 49,52               | 702 |
| R/L 007.0100-45 | 7                    | 2,7 | 7,0  | 6,3 | 60  | 45    | 2,5 | 3,8   | 1,0 | 676.00..-D                      |                    |     |                     |     | 53,58              | 712 | 53,58               | 712 |
| R/L 007.0100-50 | 7                    | 2,7 | 7,0  | 6,3 | 65  | 50    | 2,5 | 3,8   | 1,0 | 676.00..-D                      |                    |     |                     |     | 57,39              | 714 | 57,39               | 714 |

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

## UltraMini – Noże oprawkowe do toczenia rowków



Rysunki pokazują wykonanie prawe



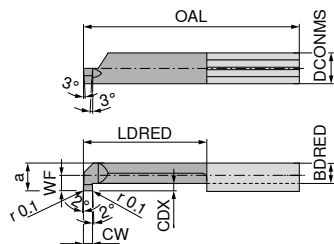
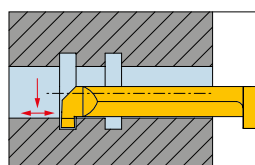
lewe

prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 003 ... |     | 73 002 ... |     |
|-----------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |          |            |         |           |             |           |             |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 002.0050-5  | 4                          |          | 2          | 1,8     | 19        | 5           | 0,4       | 1,2         | 0,5      | 645.00..-D                      | 32,52      | 820 | 32,52      | 820 |
| R/L 002.0050-10 | 4                          |          | 2          | 1,8     | 24        | 10          | 0,4       | 1,2         | 0,5      | 645.00..-D                      | 33,45      | 821 | 33,45      | 821 |
| R/L 002.0050-15 | 4                          |          | 2          | 1,8     | 29        | 15          | 0,4       | 1,2         | 0,5      | 645.00..-D                      | 36,68      | 822 | 36,68      | 822 |
| R/L 003.0070-5  | 4                          | 0,7      | 3          | 2,7     | 19        | 5           | 0,6       | 1,9         | 0,7      | 645.00..-D                      | 30,79      | 830 | 30,79      | 830 |
| R/L 003.0070-10 | 4                          | 0,7      | 3          | 2,7     | 24        | 10          | 0,6       | 1,9         | 0,7      | 645.00..-D                      | 34,71      | 831 | 34,71      | 831 |
| R/L 003.0070-16 | 4                          | 0,7      | 3          | 2,7     | 30        | 16          | 0,6       | 1,9         | 0,7      | 645.00..-D                      | 38,78      | 832 | 38,78      | 832 |
| P               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| M               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| K               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| N               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| S               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| H               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |
| O               |                            |          |            |         |           |             |           |             |          |                                 | •          | •   | •          | •   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków



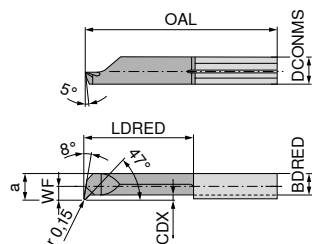
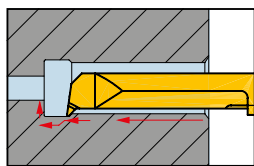
Rysunki pokazują wykonanie prawe

| Oznaczenie      | DCONMS <sub>ns</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 203 ... |     | 73 202 ... |     |
|-----------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |          |            |         |           |             |           |             |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 004M0100-10 | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,8       | 2,4         | 1,0      | 645.00..-D                      | 29,98      | 800 | 29,98      | 800 |
| R/L 004M0100-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,8       | 2,4         | 1,0      | 645.00..-D                      | 34,48      | 802 | 34,48      | 802 |
| R/L 004M0100-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,8       | 2,4         | 1,0      | 645.00..-D                      | 37,84      | 804 | 37,84      | 804 |
| R/L 005M0100-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 1,0       | 3,3         | 1,0      | 645.00..-D                      | 28,47      | 806 | 28,47      | 806 |
| R/L 005M0150-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 1,0       | 3,3         | 1,5      | 645.00..-D                      | 28,47      | 816 | 28,47      | 816 |
| R/L 005M0200-10 | 5                          | 1,9      | 5,0        | 4,4     | 25        | 10          | 1,0       | 3,3         | 2,0      | 645.00..-D                      | 28,47      | 826 | 28,47      | 826 |
| R/L 005M0100-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 1,0       | 3,3         | 1,0      | 645.00..-D                      | 32,64      | 808 | 32,64      | 808 |
| R/L 005M0150-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 1,0       | 3,3         | 1,5      | 645.00..-D                      | 32,64      | 818 | 32,64      | 818 |
| R/L 005M0200-15 | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 1,0       | 3,3         | 2,0      | 645.00..-D                      | 32,64      | 828 | 32,64      | 828 |
| R/L 005M0100-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 1,0      | 645.00..-D                      | 36,34      | 810 | 36,34      | 810 |
| R/L 005M0150-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 1,5      | 645.00..-D                      | 36,34      | 820 | 36,34      | 820 |
| R/L 005M0200-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 2,0      | 645.00..-D                      | 36,34      | 830 | 36,34      | 830 |
| R/L 005M0100-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 1,0       | 3,3         | 1,0      | 645.00..-D                      | 39,57      | 812 | 39,57      | 812 |
| R/L 005M0150-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 1,0       | 3,3         | 1,5      | 645.00..-D                      | 39,57      | 822 | 39,57      | 822 |
| R/L 005M0200-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 1,0       | 3,3         | 2,0      | 645.00..-D                      | 39,57      | 832 | 39,57      | 832 |
| R/L 005M0100-30 | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 1,0       | 3,3         | 1,0      | 645.00..-D                      | 43,86      | 814 | 43,86      | 814 |
| R/L 005M0150-30 | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 1,0       | 3,3         | 1,5      | 645.00..-D                      | 43,86      | 824 | 43,86      | 824 |
| R/L 005M0200-30 | 5                          | 1,9      | 5,0        | 4,4     | 45        | 30          | 1,0       | 3,3         | 2,0      | 645.00..-D                      | 43,86      | 834 | 43,86      | 834 |
| R/L 006M0100-10 | 6                          | 2,3      | 6,0        | 5,3     | 25        | 10          | 1,8       | 3,4         | 1,0      | 676.00..-D                      | 28,47      | 836 | 28,47      | 836 |
| R/L 006M0150-10 | 6                          | 2,3      | 6,0        | 5,3     | 25        | 10          | 1,8       | 3,4         | 1,5      | 676.00..-D                      | 28,47      | 846 | 28,47      | 846 |
| R/L 006M0200-10 | 6                          | 2,3      | 6,0        | 5,3     | 25        | 10          | 1,8       | 3,4         | 2,0      | 676.00..-D                      | 28,47      | 856 | 28,47      | 856 |
| R/L 006M0100-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 1,8       | 3,4         | 1,0      | 676.00..-D                      | 32,64      | 838 | 32,64      | 838 |
| R/L 006M0150-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 1,8       | 3,4         | 1,5      | 676.00..-D                      | 32,64      | 848 | 32,64      | 848 |
| R/L 006M0200-15 | 6                          | 2,3      | 6,0        | 5,3     | 30        | 15          | 1,8       | 3,4         | 2,0      | 676.00..-D                      | 32,64      | 858 | 32,64      | 858 |
| R/L 006M0100-20 | 6                          | 2,3      | 6,0        | 5,3     | 35        | 22          | 1,8       | 3,4         | 1,0      | 676.00..-D                      | 36,34      | 840 | 36,34      | 840 |
| R/L 006M0150-20 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 1,8       | 3,4         | 1,5      | 676.00..-D                      | 36,34      | 850 | 36,34      | 850 |
| R/L 006M0200-20 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 1,8       | 3,4         | 2,0      | 676.00..-D                      | 36,34      | 860 | 36,34      | 860 |
| R/L 006M0100-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 1,0      | 676.00..-D                      | 39,57      | 842 | 39,57      | 842 |
| R/L 006M0150-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 1,5      | 676.00..-D                      | 39,57      | 852 | 39,57      | 852 |
| R/L 006M0200-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 2,0      | 676.00..-D                      | 39,57      | 862 | 39,57      | 862 |
| R/L 006M0100-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 1,8       | 3,4         | 1,0      | 676.00..-D                      | 43,86      | 844 | 43,86      | 844 |
| R/L 006M0150-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 1,8       | 3,4         | 1,5      | 676.00..-D                      | 43,86      | 854 | 43,86      | 854 |
| R/L 006M0200-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 1,8       | 3,4         | 2,0      | 676.00..-D                      | 43,86      | 864 | 43,86      | 864 |
| R/L 007M0100-10 | 7                          | 2,7      | 6,8        | 6,3     | 25        | 10          | 2,5       | 3,7         | 1,0      | 676.00..-D                      | 28,47      | 866 | 28,47      | 866 |
| R/L 007M0150-10 | 7                          | 2,7      | 6,8        | 6,3     | 25        | 10          | 2,5       | 3,7         | 1,5      | 676.00..-D                      | 28,47      | 876 | 28,47      | 876 |
| R/L 007M0200-10 | 7                          | 2,7      | 6,8        | 6,3     | 25        | 10          | 2,5       | 3,7         | 2,0      | 676.00..-D                      | 28,47      | 886 | 28,47      | 886 |
| R/L 007M0100-15 | 7                          | 2,7      | 6,8        | 6,3     | 30        | 15          | 2,5       | 3,7         | 1,0      | 676.00..-D                      | 32,64      | 868 | 32,64      | 868 |
| R/L 007M0150-15 | 7                          | 2,7      | 6,8        | 6,3     | 30        | 15          | 2,5       | 3,7         | 1,5      | 676.00..-D                      | 32,64      | 878 | 32,64      | 878 |
| R/L 007M0200-15 | 7                          | 2,7      | 6,8        | 6,3     | 30        | 15          | 2,5       | 3,7         | 2,0      | 676.00..-D                      | 32,64      | 888 | 32,64      | 888 |
| R/L 007M0100-22 | 7                          | 2,7      | 6,8        | 6,3     | 37        | 22          | 2,5       | 3,7         | 1,0      | 676.00..-D                      | 36,34      | 870 | 36,34      | 870 |
| R/L 007M0150-22 | 7                          | 2,7      | 6,8        | 6,3     | 37        | 22          | 2,5       | 3,7         | 1,5      | 676.00..-D                      | 36,34      | 880 | 36,34      | 880 |
| R/L 007M0200-22 | 7                          | 2,7      | 6,8        | 6,3     | 37        | 22          | 2,5       | 3,7         | 2,0      | 676.00..-D                      | 36,34      | 890 | 36,34      | 890 |
| R/L 007M0100-25 | 7                          | 2,7      | 6,8        | 6,3     | 40        | 25          | 2,5       | 3,7         | 1,0      | 676.00..-D                      | 39,57      | 872 | 39,57      | 872 |
| R/L 007M0150-25 | 7                          | 2,7      | 6,8        | 6,3     | 40        | 25          | 2,5       | 3,7         | 1,5      | 676.00..-D                      | 39,57      | 882 | 39,57      | 882 |
| R/L 007M0200-25 | 7                          | 2,7      | 6,8        | 6,3     | 40        | 25          | 2,5       | 3,7         | 2,0      | 676.00..-D                      | 39,57      | 892 | 39,57      | 892 |
| R/L 007M0100-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,7         | 1,0      | 676.00..-D                      | 44,22      | 874 | 44,22      | 874 |
| R/L 007M0150-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,7         | 1,5      | 676.00..-D                      | 44,22      | 884 | 44,22      | 884 |
| R/L 007M0200-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,7         | 2,0      | 676.00..-D                      | 44,22      | 894 | 44,22      | 894 |

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| K | • | • |
| N | • | • |
| S | • | • |
| H | • | • |
| O | • | • |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do podcięć wewnętrznych



Rysunki pokazują wykonanie prawe

TiN



TiN



TiAlN



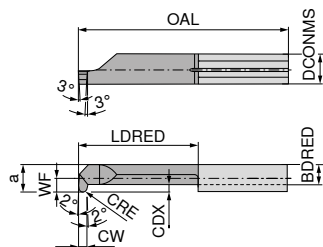
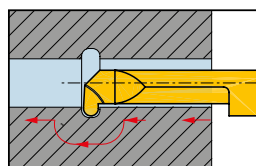
TiAlN



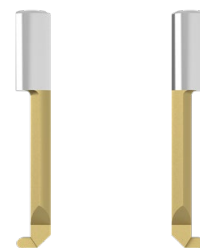
| Oznaczenie    | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | oprawka zacisko-<br>wa Standard | lewe<br>73 011 ... |     | prawe<br>73 010 ... |     | lewe<br>73 011 ... |     | prawe<br>73 010 ... |     |
|---------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|---------------------------------|--------------------|-----|---------------------|-----|--------------------|-----|---------------------|-----|
|               |                            |          |            |         |           |             |           |             |                                 | EUR<br>Y5          |     | EUR<br>Y5           |     | EUR<br>Y5          |     | EUR<br>Y5           |     |
| R/L 047.2-10  | 4                          |          | 2,0        | 1,7     | 24        | 10          | 0,4       | 1,2         | 645.00..-D                      |                    |     |                     |     | 29,98              | 221 | 29,98               | 221 |
| R/L 047.3-15  | 4                          | 0,6      | 2,8        | 2,6     | 29        | 15          | 0,6       | 1,9         | 645.00..-D                      |                    |     |                     |     | 31,24              | 231 | 31,24               | 231 |
| R/L 047.4-10  | 4                          | 1,5      | 4,0        | 3,5     | 24        | 10          | 0,6       | 2,8         | 645.00..-D                      |                    |     |                     |     | 28,59              | 241 | 28,59               | 241 |
| R/L 047.T4-20 | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,6       | 2,8         | 645.00..-D                      |                    |     |                     |     | 33,56              | 242 | 33,56               | 242 |
| R/L 047.4-20  | 4                          | 1,5      | 4,0        | 3,5     | 34        | 20          | 0,3       | 3,0         | 645.00..-D                      | 33,10              | 542 | 33,10               | 542 |                    |     |                     |     |
| R/L 047.5-15  | 5                          | 1,9      | 5,0        | 4,4     | 30        | 15          | 0,8       | 3,5         | 645.00..-D                      |                    |     |                     |     | 32,17              | 251 | 32,17               | 251 |
| R/L 047.T5-25 | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,8       | 3,5         | 645.00..-D                      |                    |     |                     |     | 34,03              | 252 | 34,03               | 252 |
| R/L 047.5-25  | 5                          | 1,9      | 5,0        | 4,4     | 40        | 25          | 0,5       | 3,8         | 645.00..-D                      | 33,67              | 552 | 33,67               | 552 |                    |     |                     |     |
| R/L 047.T6-22 | 6                          | 2,3      | 6,0        | 5,3     | 37        | 22          | 1,8       | 3,4         | 676.00..-D                      |                    |     |                     |     | 32,98              | 262 | 32,98               | 262 |
| R/L 047.T6-30 | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 1,8       | 3,4         | 676.00..-D                      |                    |     |                     |     | 34,84              | 263 | 34,84               | 263 |
| R/L 047.6-30  | 6                          | 2,3      | 6,0        | 5,3     | 45        | 30          | 0,5       | 4,5         | 676.00..-D                      | 34,48              | 562 | 34,48               | 562 |                    |     |                     |     |
| P             |                            |          |            |         |           |             |           |             |                                 |                    | ●   |                     | ●   |                    | ●   |                     | ●   |
| M             |                            |          |            |         |           |             |           |             |                                 |                    | ●   |                     | ●   |                    | ●   |                     | ●   |
| K             |                            |          |            |         |           |             |           |             |                                 |                    | ●   |                     | ●   |                    | ●   |                     | ●   |
| N             |                            |          |            |         |           |             |           |             |                                 |                    | ●   |                     | ●   |                    | ●   |                     | ●   |
| S             |                            |          |            |         |           |             |           |             |                                 |                    | ○   |                     | ○   |                    | ○   |                     | ○   |
| H             |                            |          |            |         |           |             |           |             |                                 |                    | ○   |                     | ○   |                    | ○   |                     | ○   |
| O             |                            |          |            |         |           |             |           |             |                                 |                    | ●   |                     | ●   |                    | ●   |                     | ●   |

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## UltraMini – Noże oprawkowe do toczenia rowków i kopiowania



Rysunki pokazują wykonanie prawe



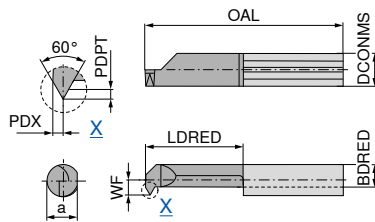
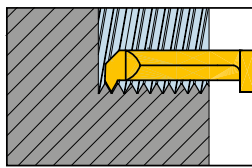
lewe

prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | CDX<br>mm | BDRED<br>mm | CW<br>mm | CRE<br>mm | oprawka zacisko-<br>wa Standard | 73 019 ...<br>EUR<br>Y5 | 564 | 73 018 ...<br>EUR<br>Y5 | 564 |
|-----------------|----------------------------|----------|------------|---------|-----------|-------------|-----------|-------------|----------|-----------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 006-0.75-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 1,5      | 0,75      | 676.00..-D                      | 34,71                   | 564 | 34,71                   | 564 |
| R/L 006-0.50-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 1,0      | 0,50      | 676.00..-D                      | 34,71                   | 562 | 34,71                   | 562 |
| R/L 006-1.00-25 | 6                          | 2,3      | 6,0        | 5,3     | 40        | 25          | 1,8       | 3,4         | 2,0      | 1,00      | 676.00..-D                      | 34,71                   | 566 | 34,71                   | 566 |
| R/L 005-1.00-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 2,0      | 1,00      | 645.00..-D                      | 34,03                   | 556 | 34,03                   | 556 |
| R/L 007-0.50-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,8         | 1,0      | 0,50      | 676.00..-D                      | 35,99                   | 572 | 35,99                   | 572 |
| R/L 005-0.75-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 1,5      | 0,75      | 645.00..-D                      | 34,03                   | 554 | 34,03                   | 554 |
| R/L 007-0.75-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,8         | 1,5      | 0,75      | 676.00..-D                      | 35,99                   | 574 | 35,99                   | 574 |
| R/L 005-0.50-20 | 5                          | 1,9      | 5,0        | 4,4     | 35        | 20          | 1,0       | 3,3         | 1,0      | 0,50      | 645.00..-D                      | 34,03                   | 552 | 34,03                   | 552 |
| R/L 007-1.00-30 | 7                          | 2,7      | 6,8        | 6,3     | 45        | 30          | 2,5       | 3,8         | 2,0      | 1,00      | 676.00..-D                      | 35,99                   | 576 | 35,99                   | 576 |
| R/L 004-0.50-16 | 4                          | 1,5      | 4,0        | 3,5     | 30        | 16          | 0,8       | 2,4         | 1,0      | 0,50      | 645.00..-D                      | 32,75                   | 541 | 32,75                   | 541 |
| P               |                            |          |            |         |           |             |           |             |          |           |                                 | ●                       |     | ●                       |     |
| M               |                            |          |            |         |           |             |           |             |          |           |                                 | ●                       |     | ●                       |     |
| K               |                            |          |            |         |           |             |           |             |          |           |                                 | ●                       |     | ●                       |     |
| N               |                            |          |            |         |           |             |           |             |          |           |                                 | ●                       |     | ●                       |     |
| S               |                            |          |            |         |           |             |           |             |          |           |                                 | ○                       |     | ○                       |     |
| H               |                            |          |            |         |           |             |           |             |          |           |                                 | ○                       |     | ○                       |     |
| O               |                            |          |            |         |           |             |           |             |          |           |                                 | ●                       |     | ●                       |     |

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## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil częściowy)



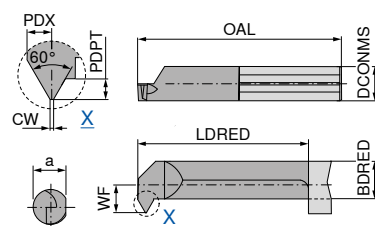
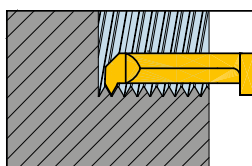
Rysunki pokazują wykonanie prawe



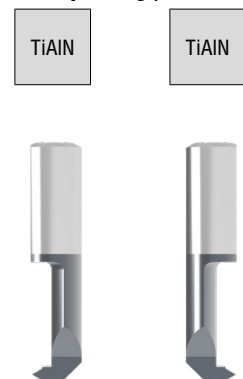
| Oznaczenie      | DCONMS <sub>ns</sub><br>mm | TP<br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | oprawka zacisko-<br>wa Standard | lewe       |     | prawe      |     | lewe       |     | prawe      |     |
|-----------------|----------------------------|----------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|---------------------------------|------------|-----|------------|-----|------------|-----|------------|-----|
|                 |                            |          |          |            |         |           |             |             |            |           |                                 | 73 101 ... |     | 73 100 ... |     | 73 101 ... |     | 73 100 ... |     |
|                 |                            |          |          |            |         |           |             |             |            |           |                                 | EUR        |     | EUR        |     | EUR        |     | EUR        |     |
| R/L 003.0105-8  | 4                          | 0,50     | 0,30     | 2,4        | 2,3     | 22        | 8           | 1,8         | 0,27       | 0,33      | 645.00...D                      | Y5         |     | Y5         |     | Y5         |     | Y5         |     |
| R/L 004.0408-15 | 4                          | 0,80     | 1,75     | 4,0        | 3,5     | 30        | 15          | 2,4         | 0,43       | 0,45      | 645.00...D                      |            |     |            |     | 30,32      | 551 | 30,32      | 551 |
|                 |                            |          |          |            |         |           |             |             |            |           |                                 |            |     |            |     | 31,59      | 552 | 31,59      | 552 |
| R/L 005.0510-15 | 5                          | 1,00     | 1,90     | 4,8        | 4,4     | 30        | 15          | 3,3         | 0,55       | 0,55      | 645.00...D                      | 29,40      | 545 | 29,40      | 545 |            |     |            |     |
| R/L 005.0510-20 | 5                          | 1,00     | 1,90     | 4,8        | 4,4     | 35        | 20          | 3,3         | 0,55       | 0,55      | 645.00...D                      | 29,63      | 544 | 29,63      | 544 |            |     |            |     |
| R/L 006.0612-15 | 6                          | 1,25     | 2,30     | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,68       | 0,65      | 676.00...D                      | 29,40      | 547 | 29,40      | 547 |            |     |            |     |
| R/L 006.0612-22 | 6                          | 1,25     | 2,30     | 6,0        | 5,3     | 37        | 22          | 3,4         | 0,68       | 0,65      | 676.00...D                      | 30,08      | 546 | 30,08      | 546 |            |     |            |     |
| R/L 006.0815-15 | 6                          | 1,50     | 2,30     | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,81       | 0,75      | 676.00...D                      | 29,40      | 549 | 29,40      | 549 |            |     |            |     |
| R/L 006.0815-22 | 6                          | 1,50     | 2,30     | 6,0        | 5,3     | 37        | 22          | 3,4         | 0,81       | 0,75      | 676.00...D                      | 30,08      | 548 | 30,08      | 548 |            |     |            |     |
| R/L 007.0815-15 | 7                          | 1,50     | 2,70     | 7,0        | 6,3     | 30        | 15          | 3,8         | 0,81       | 0,75      | 676.00...D                      | 30,08      | 550 | 30,08      | 550 |            |     |            |     |
| P               |                            |          |          |            |         |           |             |             |            |           |                                 |            | •   |            | •   |            | •   |            | •   |
| M               |                            |          |          |            |         |           |             |             |            |           |                                 |            | •   |            | •   |            | •   |            | •   |
| K               |                            |          |          |            |         |           |             |             |            |           |                                 |            | •   |            | •   |            | •   |            | •   |
| N               |                            |          |          |            |         |           |             |             |            |           |                                 |            | •   |            | •   |            | •   |            | •   |
| S               |                            |          |          |            |         |           |             |             |            |           |                                 |            | ○   |            | ○   |            | •   |            | •   |
| H               |                            |          |          |            |         |           |             |             |            |           |                                 |            | ○   |            | ○   |            | •   |            | •   |
| O               |                            |          |          |            |         |           |             |             |            |           |                                 |            | •   |            | •   |            | •   |            | •   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil pełny)



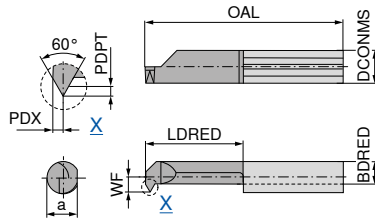
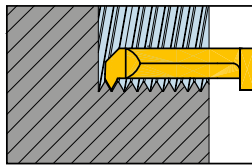
Rysunki pokazują wykonanie prawe



| Oznaczenie      | DCONMS <sub>ns</sub><br>mm | TP<br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | CW<br>mm | oprawka zacisko-<br>wa Standard | lewe       |     | prawe      |     |
|-----------------|----------------------------|----------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |          |          |            |         |           |             |             |            |           |          |                                 | 73 209 ... |     | 73 208 ... |     |
|                 |                            |          |          |            |         |           |             |             |            |           |          |                                 | EUR        |     | EUR        |     |
| R/L 105.0408-15 | 5                          | 0,80     | 1,9      | 4,8        | 4,4     | 30        | 15          | 3,3         | 0,43       | 0,50      | 0,10     | 645.00...D                      | 32,75      | 799 | 32,75      | 799 |
| R/L 105.510-15  | 5                          | 1,00     | 1,9      | 4,8        | 4,4     | 30        | 15          | 3,3         | 0,54       | 0,55      | 0,12     | 645.00...D                      | 33,45      | 800 | 33,45      | 800 |
| R/L 106.612-15  | 6                          | 1,25     | 2,3      | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,67       | 0,65      | 0,15     | 676.00...D                      | 33,45      | 802 | 33,45      | 802 |
| R/L 106.815-15  | 6                          | 1,50     | 2,3      | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,81       | 0,75      | 0,18     | 676.00...D                      | 33,45      | 804 | 33,45      | 804 |
| R/L 106.815-15  | 7                          | 1,50     | 2,7      | 7,0        | 6,3     | 30        | 15          | 3,8         | 0,81       | 0,75      | 0,18     | 676.00...D                      | 33,45      | 806 | 33,45      | 806 |
| P               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| M               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| K               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| N               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| S               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| H               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |
| O               |                            |          |          |            |         |           |             |             |            |           |          |                                 |            | •   |            | •   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil częściowy)



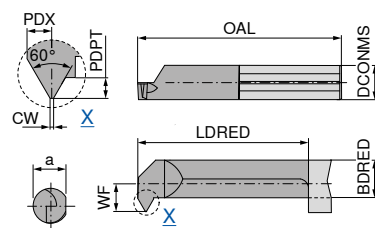
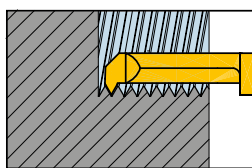
Rysunki pokazują wykonanie prawe



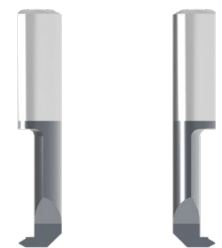
| Oznaczenie      | DCONMS <sub>ns</sub><br>mm | TP<br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | oprawka zacisko-<br>wa Standard | lewe<br>73 103 ... | prawe<br>73 102 ... | lewe<br>73 103 ... | prawe<br>73 102 ... |
|-----------------|----------------------------|----------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|---------------------------------|--------------------|---------------------|--------------------|---------------------|
|                 |                            |          |          |            |         |           |             |             |            |           |                                 | EUR<br>Y5          | EUR<br>Y5           | EUR<br>Y5          | EUR<br>Y5           |
| R/L 004.0105-10 | 4                          | 0,50     | 1,0      | 3,2        | 3,0     | 24        | 10          | 2,3         | 0,27       | 0,44      | 645.00...D                      |                    |                     | 29,85              | 509                 |
| R/L 004.0205-15 | 4                          | 0,50     | 1,5      | 4,0        | 3,5     | 30        | 15          | 2,4         | 0,27       | 0,35      | 645.00...D                      | 30,90              | 510                 | 30,90              | 510                 |
| R/L 005.0205-15 | 5                          | 0,50     | 1,9      | 5,0        | 4,4     | 30        | 15          | 3,3         | 0,27       | 0,35      | 645.00...D                      | 29,63              | 539                 | 29,63              | 539                 |
| R/L 005.0205-20 | 5                          | 0,50     | 1,9      | 5,0        | 4,4     | 35        | 20          | 3,3         | 0,27       | 0,35      | 645.00...D                      | 29,63              | 540                 | 29,63              | 540                 |
| R/L 005.0407-15 | 5                          | 0,75     | 1,9      | 5,0        | 4,4     | 30        | 15          | 3,3         | 0,40       | 0,45      | 645.00...D                      | 29,63              | 541                 | 29,63              | 541                 |
| R/L 005.0407-20 | 5                          | 0,75     | 1,9      | 5,0        | 4,4     | 35        | 20          | 3,3         | 0,40       | 0,45      | 645.00...D                      | 29,63              | 542                 | 29,63              | 542                 |
| R/L 006.0510-15 | 6                          | 1,00     | 2,3      | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,55       | 0,55      | 676.00...D                      | 29,63              | 543                 | 29,63              | 543                 |
| R/L 006.0510-22 | 6                          | 1,00     | 2,3      | 6,0        | 5,3     | 37        | 22          | 3,4         | 0,55       | 0,55      | 676.00...D                      | 29,63              | 544                 | 29,63              | 544                 |
| P               |                            |          |          |            |         |           |             |             |            |           |                                 | •                  | •                   | •                  | •                   |
| M               |                            |          |          |            |         |           |             |             |            |           |                                 | •                  | •                   | •                  | •                   |
| K               |                            |          |          |            |         |           |             |             |            |           |                                 | •                  | •                   | •                  | •                   |
| N               |                            |          |          |            |         |           |             |             |            |           |                                 | •                  | •                   | •                  | •                   |
| S               |                            |          |          |            |         |           |             |             |            |           |                                 | ○                  | ○                   | •                  | •                   |
| H               |                            |          |          |            |         |           |             |             |            |           |                                 | ○                  | ○                   | •                  | •                   |
| O               |                            |          |          |            |         |           |             |             |            |           |                                 | •                  | •                   | •                  | •                   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil pełny)



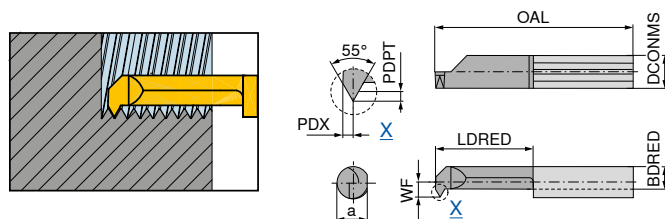
Rysunki pokazują wykonanie prawe



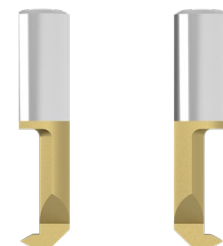
| Oznaczenie      | DCONMS <sub>ns</sub><br>mm | TP<br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | CW<br>mm | oprawka zacisko-<br>wa Standard | lewe<br>73 207 ... | prawe<br>73 206 ... |
|-----------------|----------------------------|----------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|----------|---------------------------------|--------------------|---------------------|
|                 |                            |          |          |            |         |           |             |             |            |           |          |                                 | EUR<br>Y5          | EUR<br>Y5           |
| R/L 104.0205-15 | 5                          | 0,50     | 1,5      | 4          | 3,5     | 30        | 15          | 2,4         | 0,27       | 0,35      | 0,06     | 645.00...D                      | 35,19              | 800                 |
| R/L 105.0205-15 | 5                          | 0,50     | 1,9      | 5          | 4,4     | 30        | 15          | 3,3         | 0,27       | 0,35      | 0,06     | 645.00...D                      | 33,56              | 802                 |
| R/L 105.0407-15 | 5                          | 0,75     | 1,9      | 5          | 4,4     | 30        | 15          | 3,3         | 0,40       | 0,45      | 0,09     | 645.00...D                      | 33,56              | 804                 |
| R/L 106.0510-15 | 6                          | 1,00     | 2,3      | 6          | 5,3     | 30        | 15          | 3,4         | 0,54       | 0,55      | 0,12     | 676.00...D                      | 33,56              | 806                 |
| P               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| M               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| K               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| N               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| S               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| H               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |
| O               |                            |          |          |            |         |           |             |             |            |           |          |                                 | •                  | •                   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil częściowy)



Rysunki pokazują wykonanie prawe



lewe

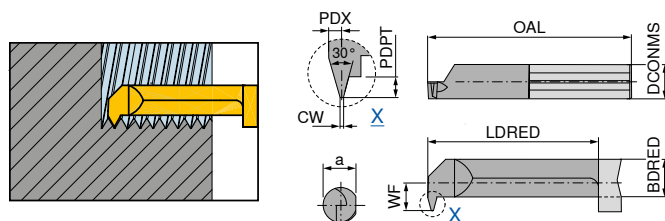
prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | TPI<br>1/" | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | oprawka zaci-<br>skowa Standard | 73 105 ...<br>EUR<br>Y5 | 552 | 73 104 ...<br>EUR<br>Y5 | 552 |
|-----------------|----------------------------|------------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 005.5548-15 | 5                          | 48 - 24    | 1,9      | 4,8        | 4,4     | 30        | 15          | 3,3         | 0,40       | 0,45      | 645.00..-D                      | 32,29                   | 552 | 32,29                   | 552 |
| R/L 006.5548-15 | 6                          | 48 - 24    | 2,3      | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,40       | 0,45      | 676.00..-D                      | 32,29                   | 562 | 32,29                   | 562 |
| R/L 006.5524-15 | 6                          | 24 - 16    | 2,3      | 6,0        | 5,3     | 30        | 15          | 3,4         | 0,81       | 0,75      | 676.00..-D                      | 32,29                   | 563 | 32,29                   | 563 |
| R/L 007.5524-15 | 7                          | 24 - 16    | 2,7      | 7,0        | 6,3     | 30        | 15          | 3,8         | 0,81       | 0,75      | 676.00..-D                      | 32,29                   | 572 | 32,29                   | 572 |
| P               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ●   |                         | ●   |
| M               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ●   |                         | ●   |
| K               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ●   |                         | ●   |
| N               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ●   |                         | ●   |
| S               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ○   |                         | ○   |
| H               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ○   |                         | ○   |
| O               |                            |            |          |            |         |           |             |             |            |           |                                 |                         | ●   |                         | ●   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia gwintów wewnętrznych (profil częściowy)

▲ Gwint trapezowy DIN 103



Rysunki pokazują wykonanie prawe



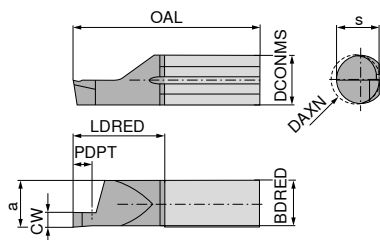
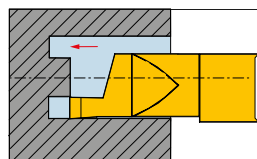
lewe

prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | TP<br>mm | WF<br>mm | DMIN<br>mm | a<br>mm | OAL<br>mm | LDRED<br>mm | BDRED<br>mm | PDPT<br>mm | PDX<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 211 ...<br>EUR<br>Y5 | 222 | 73 210 ...<br>EUR<br>Y5 | 222 |
|-----------------|----------------------------|----------|----------|------------|---------|-----------|-------------|-------------|------------|-----------|----------|---------------------------------|-------------------------|-----|-------------------------|-----|
| R/L 007.1220-22 | 7                          | 2        | 2,8      | 7          | 6,3     | 37        | 22          | 3,8         | 1,25       | 0,75      | 0,6      | 676.00..-D                      | 40,96                   | 222 | 40,96                   | 222 |
| R/L 007.1220-30 | 7                          | 2        | 2,8      | 7          | 6,3     | 45        | 30          | 3,8         | 1,25       | 0,75      | 0,6      | 676.00..-D                      | 49,52                   | 230 | 49,52                   | 230 |
| R/L 007.1730-22 | 7                          | 3        | 2,8      | 7          | 6,3     | 37        | 22          | 3,8         | 1,75       | 1,10      | 1,0      | 676.00..-D                      | 40,96                   | 322 | 40,96                   | 322 |
| R/L 007.1730-30 | 7                          | 3        | 2,8      | 7          | 6,3     | 45        | 30          | 3,8         | 1,75       | 1,10      | 1,0      | 676.00..-D                      | 49,52                   | 330 | 49,52                   | 330 |
| P               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| M               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| K               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| N               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| S               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| H               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |
| O               |                            |          |          |            |         |           |             |             |            |           |          |                                 |                         | ●   |                         | ●   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych



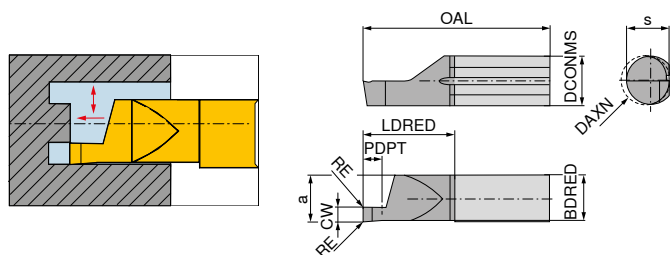
Rysunki pokazują wykonanie prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | BDRED<br>mm | CW<br>mm | oprawka zacisko-<br>wa Standard | lewe<br>73 051 ... |     | prawe<br>73 050 ... |     | lewe<br>73 053 ... |     | prawe<br>73 052 ... |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|-------------|----------|---------------------------------|--------------------|-----|---------------------|-----|--------------------|-----|---------------------|-----|
|                 |                            |         |            |         |           |             |            |             |          |                                 | EUR<br>Y5          |     | EUR<br>Y5           |     | EUR<br>Y5          |     | EUR<br>Y5           |     |
| R/L 010.1006-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 1,5        | 4,9         | 1,0      | 676.00..-D                      | 32,87              | 561 | 32,87               | 561 | 32,87              | 561 | 32,87               | 561 |
| R/L 010.1506-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 2,0        | 4,9         | 1,5      | 676.00..-D                      | 32,87              | 563 | 32,87               | 563 | 32,87              | 563 | 32,87               | 563 |
| R/L 010.1008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 1,5        | 5,6         | 1,0      | 676.00..-D                      | 33,67              | 571 | 33,67               | 571 | 33,67              | 571 | 33,67               | 571 |
| R/L 010.1008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 1,5        | 5,6         | 1,0      | 676.00..-D                      | 35,99              | 671 | 35,99               | 671 | 35,99              | 671 | 35,99               | 671 |
| R/L 010.1008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 1,5        | 5,6         | 1,0      | 676.00..-D                      | 37,84              | 771 | 37,84               | 771 | 37,84              | 771 | 37,84               | 771 |
| R/L 010.1508-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 2,5        | 5,6         | 1,5      | 676.00..-D                      | 33,67              | 573 | 33,67               | 573 | 33,67              | 573 | 33,67               | 573 |
| R/L 010.1508-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 2,5        | 5,6         | 1,5      | 676.00..-D                      | 35,99              | 673 | 35,99               | 673 | 35,99              | 673 | 35,99               | 673 |
| R/L 010.1508-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 2,5        | 5,6         | 1,5      | 676.00..-D                      | 37,84              | 773 | 37,84               | 773 | 37,84              | 773 | 37,84               | 773 |
| R/L 010.2008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 3,0        | 5,6         | 2,0      | 676.00..-D                      | 33,67              | 575 | 33,67               | 575 | 33,67              | 575 | 33,67               | 575 |
| R/L 010.2008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 3,0        | 5,6         | 2,0      | 676.00..-D                      | 35,99              | 675 | 35,99               | 675 | 35,99              | 675 | 35,99               | 675 |
| R/L 010.2008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 3,0        | 5,6         | 2,0      | 676.00..-D                      | 37,84              | 775 | 37,84               | 775 | 37,84              | 775 | 37,84               | 775 |
| R/L 010.2508-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 3,5        | 5,6         | 2,5      | 676.00..-D                      | 33,67              | 577 | 33,67               | 577 | 33,67              | 577 | 33,67               | 577 |
| R/L 010.2508-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 3,5        | 5,6         | 2,5      | 676.00..-D                      | 35,99              | 677 | 35,99               | 677 | 35,99              | 677 | 35,99               | 677 |
| R/L 010.2508-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 3,5        | 5,6         | 2,5      | 676.00..-D                      | 37,84              | 777 | 37,84               | 777 | 37,84              | 777 | 37,84               | 777 |
| R/L 010.3008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 3,5        | 5,6         | 3,0      | 676.00..-D                      | 33,67              | 579 | 33,67               | 579 | 33,67              | 579 | 33,67               | 579 |
| R/L 010.3008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 3,5        | 5,6         | 3,0      | 676.00..-D                      | 35,99              | 679 | 35,99               | 679 | 35,99              | 679 | 35,99               | 679 |
| R/L 010.3008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 3,5        | 5,6         | 3,0      | 676.00..-D                      | 37,84              | 779 | 37,84               | 779 | 37,84              | 779 | 37,84               | 779 |
| P               |                            |         |            |         |           |             |            |             |          |                                 | •                  |     | •                   |     | •                  |     | •                   |     |
| M               |                            |         |            |         |           |             |            |             |          |                                 | •                  |     | •                   |     | •                  |     | •                   |     |
| K               |                            |         |            |         |           |             |            |             |          |                                 | •                  |     | •                   |     | •                  |     | •                   |     |
| N               |                            |         |            |         |           |             |            |             |          |                                 | •                  |     | •                   |     | •                  |     | •                   |     |
| S               |                            |         |            |         |           |             |            |             |          |                                 | ○                  |     | ○                   |     | •                  |     | •                   |     |
| H               |                            |         |            |         |           |             |            |             |          |                                 | ○                  |     | ○                   |     | •                  |     | •                   |     |
| O               |                            |         |            |         |           |             |            |             |          |                                 | •                  |     | •                   |     | •                  |     | •                   |     |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych

▲ z zaokrąglonym narożem



Rysunki pokazują wykonanie prawe



lewe

prawe

| Oznaczenie      | DCONMS <sub>16</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | BDRED<br>mm | CW<br>mm | RE<br>mm | oprawka zaci-<br>skowa Standard | 73 253 ... |     | 73 252 ... |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|-------------|----------|----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |         |            |         |           |             |            |             |          |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 510M1008-10 | 5                          | 4,3     | 5          | 6,3     | 26        | 11          | 2          | 4,0         | 1,0      | 0,05     | 645.00..-D                      | 38,88      | 510 | 38,88      | 510 |
| R/L 510M1008-20 | 5                          | 4,3     | 5          | 6,3     | 35        | 20          | 2          | 4,0         | 1,0      | 0,05     | 645.00..-D                      | 41,08      | 610 | 41,08      | 610 |
| R/L 510M1508-10 | 5                          | 4,3     | 5          | 6,3     | 26        | 11          | 3          | 4,0         | 1,5      | 0,05     | 645.00..-D                      | 38,88      | 515 | 38,88      | 515 |
| R/L 510M1508-20 | 5                          | 4,3     | 5          | 6,3     | 35        | 20          | 3          | 4,0         | 1,5      | 0,05     | 645.00..-D                      | 41,08      | 615 | 41,08      | 615 |
| R/L 510M2008-10 | 5                          | 4,3     | 5          | 6,3     | 26        | 11          | 4          | 4,0         | 2,0      | 0,05     | 645.00..-D                      | 38,88      | 520 | 38,88      | 520 |
| R/L 510M2008-20 | 5                          | 4,3     | 5          | 6,3     | 35        | 20          | 4          | 4,0         | 2,0      | 0,05     | 645.00..-D                      | 41,08      | 620 | 41,08      | 620 |
| R/L 010M1008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 2          | 5,6         | 1,0      | 0,10     | 676.00..-D                      | 39,81      | 800 | 39,81      | 800 |
| R/L 010M1008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 2          | 5,6         | 1,0      | 0,10     | 676.00..-D                      | 42,01      | 810 | 42,01      | 810 |
| R/L 010M1008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 2          | 5,6         | 1,0      | 0,10     | 676.00..-D                      | 43,97      | 820 | 43,97      | 820 |
| R/L 010M1508-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 3          | 5,6         | 1,5      | 0,10     | 676.00..-D                      | 39,81      | 802 | 39,81      | 802 |
| R/L 010M1508-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 3          | 5,6         | 1,5      | 0,10     | 676.00..-D                      | 42,01      | 812 | 42,01      | 812 |
| R/L 010M1508-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 3          | 5,6         | 1,5      | 0,10     | 676.00..-D                      | 43,97      | 822 | 43,97      | 822 |
| R/L 010M2008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 4          | 5,6         | 2,0      | 0,10     | 676.00..-D                      | 39,81      | 804 | 39,81      | 804 |
| R/L 010M2008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 4          | 5,6         | 2,0      | 0,10     | 676.00..-D                      | 42,01      | 814 | 42,01      | 814 |
| R/L 010M2008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 4          | 5,6         | 2,0      | 0,10     | 676.00..-D                      | 43,97      | 824 | 43,97      | 824 |
| R/L 010M2508-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 5          | 5,6         | 2,5      | 0,10     | 676.00..-D                      | 39,81      | 806 | 39,81      | 806 |
| R/L 010M2508-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 5          | 5,6         | 2,5      | 0,10     | 676.00..-D                      | 42,01      | 816 | 42,01      | 816 |
| R/L 010M2508-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 5          | 5,6         | 2,5      | 0,10     | 676.00..-D                      | 43,97      | 826 | 43,97      | 826 |
| R/L 010M3008-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 6          | 5,6         | 3,0      | 0,10     | 676.00..-D                      | 39,81      | 808 | 39,81      | 808 |
| R/L 010M3008-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 6          | 5,6         | 3,0      | 0,10     | 676.00..-D                      | 42,01      | 818 | 42,01      | 818 |
| R/L 010M3008-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 6          | 5,6         | 3,0      | 0,10     | 676.00..-D                      | 43,97      | 828 | 43,97      | 828 |
| P               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| M               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| K               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| N               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| S               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| H               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |
| O               |                            |         |            |         |           |             |            |             |          |          |                                 | •          |     | •          |     |

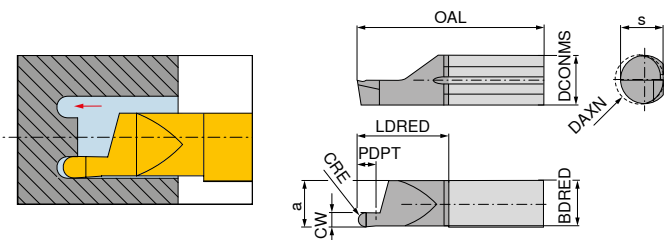
→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych (pełny promień)



TiAlN

TiAlN



Rysunki pokazują wykonanie prawe



lewe

prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | BDRED<br>mm | CW<br>mm | CRE<br>mm | oprawka zaci-<br>skowa Standard | 73 059 ... |     | 73 058 ... |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|-------------|----------|-----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |         |            |         |           |             |            |             |          |           |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 610.1005-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 2          | 4,9         | 1,0      | 0,50      | 676.00..-D                      | 39,57      | 071 | 39,57      | 071 |
| R/L 610.1005-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 2          | 4,9         | 1,0      | 0,50      | 676.00..-D                      | 41,90      | 171 | 41,90      | 171 |
| R/L 610.1608-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 3          | 4,9         | 1,6      | 0,80      | 676.00..-D                      | 39,57      | 073 | 39,57      | 073 |
| R/L 610.1608-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 3          | 4,9         | 1,6      | 0,80      | 676.00..-D                      | 41,90      | 173 | 41,90      | 173 |
| R/L 610.2010-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 4          | 4,9         | 2,0      | 1,00      | 676.00..-D                      | 39,57      | 075 | 39,57      | 075 |
| R/L 610.2010-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 4          | 4,9         | 2,0      | 1,00      | 676.00..-D                      | 41,90      | 175 | 41,90      | 175 |
| R/L 610.2512-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 5          | 4,9         | 2,5      | 1,25      | 676.00..-D                      | 39,57      | 077 | 39,57      | 077 |
| R/L 610.2512-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 5          | 4,9         | 2,5      | 1,25      | 676.00..-D                      | 41,90      | 177 | 41,90      | 177 |
| R/L 610.3015-10 | 6                          | 5,2     | 6          | 5,3     | 26        | 11          | 6          | 4,9         | 3,0      | 1,50      | 676.00..-D                      | 39,57      | 079 | 39,57      | 079 |
| R/L 610.3015-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 6          | 4,9         | 3,0      | 1,50      | 676.00..-D                      | 41,90      | 179 | 41,90      | 179 |
|                 |                            |         |            |         |           |             |            |             |          |           |                                 |            |     |            |     |
| R/L 010.1005-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 2          | 5,6         | 1,0      | 0,50      | 676.00..-D                      | 38,78      | 571 | 38,78      | 571 |
| R/L 010.1005-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 2          | 5,6         | 1,0      | 0,50      | 676.00..-D                      | 40,96      | 671 | 40,96      | 671 |
| R/L 010.1608-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 3          | 5,6         | 1,6      | 0,80      | 676.00..-D                      | 38,78      | 573 | 38,78      | 573 |
| R/L 010.1608-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 3          | 5,6         | 1,6      | 0,80      | 676.00..-D                      | 40,96      | 673 | 40,96      | 673 |
| R/L 010.2010-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 4          | 5,6         | 2,0      | 1,00      | 676.00..-D                      | 38,78      | 575 | 38,78      | 575 |
| R/L 010.2010-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 4          | 5,6         | 2,0      | 1,00      | 676.00..-D                      | 40,96      | 675 | 40,96      | 675 |
| R/L 010.2512-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 5          | 5,6         | 2,5      | 1,25      | 676.00..-D                      | 38,78      | 577 | 38,78      | 577 |
| R/L 010.2512-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 5          | 5,6         | 2,5      | 1,25      | 676.00..-D                      | 40,96      | 677 | 40,96      | 677 |
| R/L 010.3015-10 | 7                          | 5,9     | 8          | 6,3     | 26        | 11          | 6          | 5,6         | 3,0      | 1,50      | 676.00..-D                      | 38,78      | 579 | 38,78      | 579 |
| R/L 010.3015-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 6          | 5,6         | 3,0      | 1,50      | 676.00..-D                      | 40,96      | 679 | 40,96      | 679 |
|                 |                            |         |            |         |           |             |            |             |          |           |                                 |            |     |            |     |
| P               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| M               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| K               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| N               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| S               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| H               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |
| O               |                            |         |            |         |           |             |            |             |          |           |                                 | •          |     | •          |     |

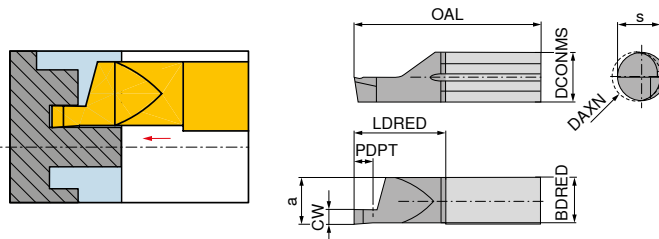
→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych w czopach



TiAlN

TiAlN



Rysunki pokazują wykonanie prawe



lewe



prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | BDRED<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 061 ...<br>EUR<br>Y5 | 73 060 ...<br>EUR<br>Y5 |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|-------------|----------|---------------------------------|-------------------------|-------------------------|
| R/L 620.1006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 2          | 4,9         | 1,0      | 676.00..-D                      | 40,96 561               | 40,96 561               |
| R/L 620.1506-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 3          | 4,9         | 1,5      | 676.00..-D                      | 40,96 563               | 40,96 563               |
| R/L 620.2006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 4          | 4,9         | 2,0      | 676.00..-D                      | 40,96 565               | 40,96 565               |
| R/L 620.2506-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 5          | 4,9         | 2,5      | 676.00..-D                      | 40,96 567               | 40,96 567               |
| R/L 620.3006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 6          | 4,9         | 3,0      | 676.00..-D                      | 40,96 569               | 40,96 569               |
| P               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| M               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| K               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| N               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| S               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| H               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| O               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |

→ v<sub>c</sub> strona 59

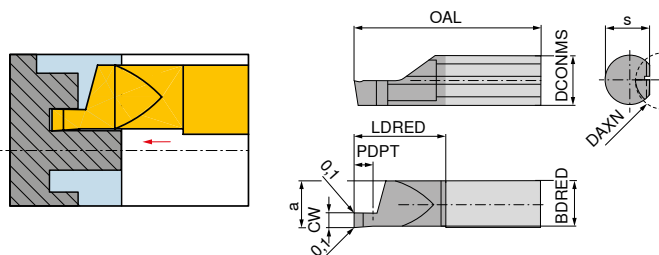
## UltraMini – Noże oprawkowe do toczenia rowków czołowych w czopach

▲ z zaokrąglonym narożem



TiAlN

TiAlN



Rysunki pokazują wykonanie prawe



lewe



prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | BDRED<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 261 ...<br>EUR<br>Y5 | 73 260 ...<br>EUR<br>Y5 |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|-------------|----------|---------------------------------|-------------------------|-------------------------|
| R/L 620M1006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 2          | 4,9         | 1,0      | 676.00..-D                      | 42,48 800               | 42,48 800               |
| R/L 620M1506-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 3          | 4,9         | 1,5      | 676.00..-D                      | 42,48 802               | 42,48 802               |
| R/L 620M2006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 4          | 4,9         | 2,0      | 676.00..-D                      | 42,48 804               | 42,48 804               |
| R/L 620M2506-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 5          | 4,9         | 2,5      | 676.00..-D                      | 42,48 806               | 42,48 806               |
| R/L 620M3006-20 | 6                          | 5,2     | 6          | 5,3     | 35        | 20          | 6          | 4,9         | 3,0      | 676.00..-D                      | 42,48 808               | 42,48 808               |
| P               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| M               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| K               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| N               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| S               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| H               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |
| O               |                            |         |            |         |           |             |            |             |          |                                 | •                       | •                       |

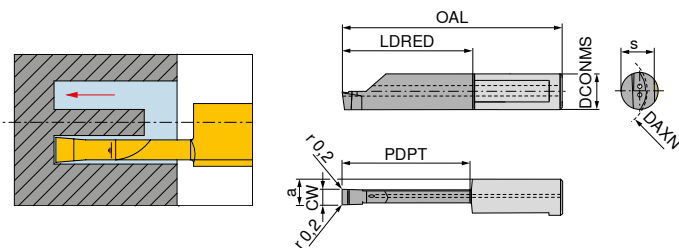
→ v<sub>c</sub> strona 59

12

# UltraMini – Noże oprawkowe do toczenia rowków czołowych

▲ do 70 bar

▲ podwójny kanał chłodzący



Rysunki pokazują wykonanie prawe



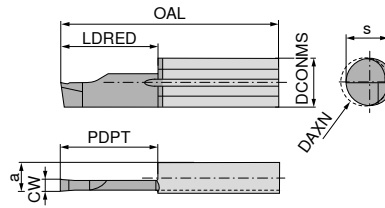
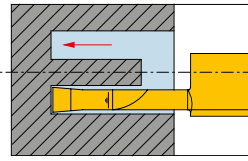
lewe

prawe

| Oznaczenie      | DCONMS <sub>16</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | CW<br>mm | oprawka zaci-<br>skowa Standard | 73 263 ... |     | 73 262 ... |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|----------|---------------------------------|------------|-----|------------|-----|
|                 |                            |         |            |         |           |             |            |          |                                 | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L 012.0200-10 | 8                          | 5,00    | 12         | 7,3     | 30        | 10          | 10         | 2,0      | 687.00..D                       | 54,62      | 700 | 54,62      | 700 |
| R/L 012.0200-15 | 8                          | 5,00    | 12         | 7,3     | 35        | 15          | 15         | 2,0      | 687.00..D                       | 55,32      | 702 | 55,32      | 702 |
| R/L 012.0250-10 | 8                          | 5,25    | 12         | 7,3     | 30        | 10          | 10         | 2,5      | 687.00..D                       | 54,62      | 704 | 54,62      | 704 |
| R/L 012.0250-20 | 8                          | 5,25    | 12         | 7,3     | 40        | 20          | 20         | 2,5      | 687.00..D                       | 56,01      | 706 | 56,01      | 706 |
| R/L 016.0300-10 | 8                          | 5,50    | 16         | 7,3     | 30        | 10          | 10         | 3,0      | 687.00..D                       | 55,66      | 800 | 55,66      | 800 |
| R/L 016.0300-20 | 8                          | 5,50    | 16         | 7,3     | 40        | 20          | 20         | 3,0      | 687.00..D                       | 57,16      | 802 | 57,16      | 802 |
| R/L 020.0300-25 | 8                          | 5,50    | 20         | 7,3     | 45        | 25          | 25         | 3,0      | 687.00..D                       | 57,87      | 804 | 57,87      | 804 |
| R/L 020.0300-30 | 8                          | 5,50    | 20         | 7,3     | 50        | 30          | 30         | 3,0      | 687.00..D                       | 57,87      | 806 | 57,87      | 806 |
| R/L 020.0300-35 | 8                          | 5,50    | 20         | 7,3     | 55        | 35          | 35         | 3,0      | 687.00..D                       | 59,36      | 808 | 59,36      | 808 |
| R/L 020.0300-40 | 8                          | 5,50    | 20         | 7,3     | 60        | 40          | 40         | 3,0      | 687.00..D                       | 59,36      | 810 | 59,36      | 810 |
| R/L 016.0400-10 | 8                          | 6,00    | 16         | 7,3     | 30        | 10          | 10         | 4,0      | 687.00..D                       | 55,66      | 812 | 55,66      | 812 |
| R/L 016.0400-20 | 8                          | 6,00    | 16         | 7,3     | 40        | 20          | 20         | 4,0      | 687.00..D                       | 57,16      | 814 | 57,16      | 814 |
| R/L 020.0400-25 | 8                          | 6,00    | 20         | 7,3     | 45        | 25          | 25         | 4,0      | 687.00..D                       | 57,87      | 816 | 57,87      | 816 |
| R/L 020.0400-30 | 8                          | 6,00    | 20         | 7,3     | 50        | 30          | 30         | 4,0      | 687.00..D                       | 57,87      | 818 | 57,87      | 818 |
| R/L 020.0400-35 | 8                          | 6,00    | 20         | 7,3     | 55        | 35          | 35         | 4,0      | 687.00..D                       | 59,36      | 820 | 59,36      | 820 |
| R/L 020.0400-40 | 8                          | 6,00    | 20         | 7,3     | 60        | 40          | 40         | 4,0      | 687.00..D                       | 59,36      | 822 | 59,36      | 822 |
| R/L 020.0500.20 | 8                          | 6,50    | 20         | 7,3     | 40        | 20          | 20         | 5,0      | 687.00..D                       | 55,66      | 824 | 55,66      | 824 |
| R/L 020.0500.25 | 8                          | 6,50    | 20         | 7,3     | 45        | 25          | 25         | 5,0      | 687.00..D                       | 56,48      | 826 | 56,48      | 826 |
| R/L 020.0500.30 | 8                          | 6,50    | 20         | 7,3     | 50        | 30          | 30         | 5,0      | 687.00..D                       | 56,48      | 828 | 56,48      | 828 |
| R/L 020.0500.35 | 8                          | 6,50    | 20         | 7,3     | 55        | 35          | 35         | 5,0      | 687.00..D                       | 57,87      | 830 | 57,87      | 830 |
| R/L 020.0500.40 | 8                          | 6,50    | 20         | 7,3     | 60        | 40          | 40         | 5,0      | 687.00..D                       | 57,87      | 832 | 57,87      | 832 |
| P               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| M               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| K               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| N               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| S               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| H               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |
| O               |                            |         |            |         |           |             |            |          |                                 |            | ●   |            | ●   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych



TiN

TiN

TiAlN

TiAlN



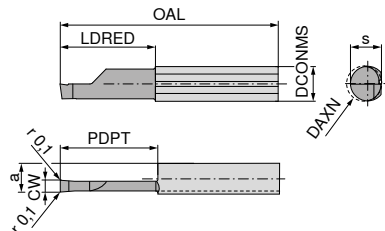
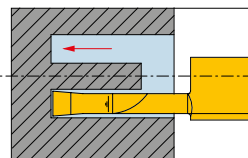
Rysunki pokazują wykonanie prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | CW<br>mm | oprawka zaciskowa Standard | lewe       |     | prawe      |     | lewe       |     | prawe      |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|----------|----------------------------|------------|-----|------------|-----|------------|-----|------------|-----|
|                 |                            |         |            |         |           |             |            |          |                            | 73 055 ... |     | 73 054 ... |     | 73 057 ... |     | 73 056 ... |     |
|                 |                            |         |            |         |           |             |            |          |                            | EUR Y5     |     | EUR Y5     |     | EUR Y5     |     | EUR Y5     |     |
| R/L 015.2515-20 | 7                          | 5,9     | 15         | 6,3     | 35        | 20          | 20         | 2,5      | 676.00..-D                 | 45,24      | 572 | 45,24      | 572 | 45,24      | 572 | 45,24      | 572 |
| R/L 015.3015-20 | 7                          | 5,9     | 15         | 6,3     | 35        | 20          | 20         | 3,0      | 676.00..-D                 | 45,24      | 574 | 45,24      | 574 | 45,24      | 574 | 45,24      | 574 |
| R/L 015.3015-30 | 7                          | 5,9     | 15         | 6,3     | 45        | 30          | 30         | 3,0      | 676.00..-D                 | 49,65      | 674 | 49,65      | 674 | 49,65      | 674 | 49,65      | 674 |
| P               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |            | •   |            | •   |
| M               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |            | •   |            | •   |
| K               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |            | •   |            | •   |
| N               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |            | •   |            | •   |
| S               |                            |         |            |         |           |             |            |          |                            |            | ○   |            | ○   |            | •   |            | •   |
| H               |                            |         |            |         |           |             |            |          |                            |            | ○   |            | ○   |            | •   |            | •   |
| O               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |            | •   |            | •   |

→ v<sub>c</sub> strona 59

## UltraMini – Noże oprawkowe do toczenia rowków czołowych

▲ z zaokrąglonym narożem



TiAlN

TiAlN



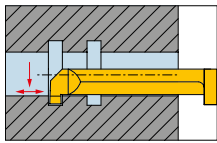
Rysunki pokazują wykonanie prawe

| Oznaczenie      | DCONMS <sub>h6</sub><br>mm | a<br>mm | DAXN<br>mm | s<br>mm | OAL<br>mm | LDRED<br>mm | PDPT<br>mm | CW<br>mm | oprawka zaciskowa Standard | lewe       |     | prawe      |     |
|-----------------|----------------------------|---------|------------|---------|-----------|-------------|------------|----------|----------------------------|------------|-----|------------|-----|
|                 |                            |         |            |         |           |             |            |          |                            | 73 257 ... |     | 73 256 ... |     |
|                 |                            |         |            |         |           |             |            |          |                            | EUR Y5     |     | EUR Y5     |     |
| R/L 015M2515-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 20         | 2,5      | 676.00..-D                 | 46,52      | 800 | 46,52      | 800 |
| R/L 015M3015-20 | 7                          | 5,9     | 8          | 6,3     | 35        | 20          | 20         | 3,0      | 676.00..-D                 | 46,52      | 802 | 46,52      | 802 |
| R/L 015M3015-30 | 7                          | 5,9     | 8          | 6,3     | 45        | 30          | 30         | 3,0      | 676.00..-D                 | 50,93      | 804 | 50,93      | 804 |
| P               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| M               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| K               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| N               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| S               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| H               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |
| O               |                            |         |            |         |           |             |            |          |                            |            | •   |            | •   |

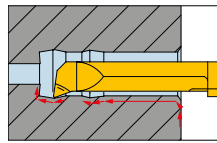
→ v<sub>c</sub> strona 59

## UltraMini – Zestaw: wcinanie, wytaczanie i fazowanie prawe

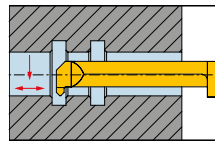
- ▲ Pełen asortyment narzędzi prawych  
▲ K10F – TiN



Toczenie rowków (E)



Wytaczanie (A)



Fazowanie (F)



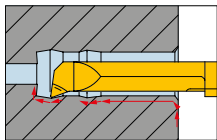
73 085 ...

| Narzędzie      | Oznaczenie    | Nr artykułu | Ø otworu<br>mm | Głębokość wiercenia<br>mm | Głębokość skrawania<br>mm | Szerokość skrawania<br>mm | sztuka | Rys. | EUR<br>Y5 |
|----------------|---------------|-------------|----------------|---------------------------|---------------------------|---------------------------|--------|------|-----------|
| Nóż tokarski   | R 004.0100-16 | 73 002 541  | 4              | 16                        | 0,8                       | 1,0                       | 1      | E    |           |
| Nóż tokarski   | R 005.0150-20 | 73 002 552  | 5              | 20                        | 1,0                       | 1,5                       | 1      | E    |           |
| Nóż tokarski   | R 005.0200-20 | 73 002 553  | 5              | 20                        | 1,0                       | 2,0                       | 1      | E    |           |
| Nóż tokarski   | R 006.0150-22 | 73 002 562  | 6              | 22                        | 1,8                       | 1,5                       | 1      | E    |           |
| Nóż tokarski   | R 006.0200-22 | 73 002 563  | 6              | 22                        | 1,8                       | 2,0                       | 1      | E    |           |
| Nóż tokarski   | R 050.3-16    | 73 004 530  | 3              | 16                        |                           |                           | 1      | A    | 492,90    |
| Nóż tokarski   | R 050.4-16    | 73 004 540  | 4              | 16                        |                           |                           | 1      | A    |           |
| Nóż tokarski   | R 050.5-20    | 73 004 550  | 5              | 20                        |                           |                           | 1      | A    |           |
| Nóż tokarski   | R 050.6-22    | 73 004 560  | 6              | 22                        |                           |                           | 1      | A    |           |
| Nóż tokarski   | R 060.5-20    | 73 006 550  | 5              | 20                        |                           |                           | 1      | F    |           |
| Oprawka        | 645.0016-D    | 73 080 164  |                |                           |                           |                           | 1      |      |           |
| Oprawka        | 676.0016-D    | 73 080 166  |                |                           |                           |                           | 1      |      |           |
| Klucz mocujący | 110.645       | 70 950 175  |                |                           |                           |                           | 1      |      |           |

999

## UltraMini – Zestaw: wytaczanie

- ▲ Pełen asortyment narzędzi prawych  
▲ K10F – TiN



73 085 ...

| Narzędzie      | Oznaczenie | Nr artykułu | Ø otworu<br>mm | Głębokość wiercenia<br>mm | sztuka | EUR<br>Y5 |
|----------------|------------|-------------|----------------|---------------------------|--------|-----------|
| Nóż tokarski   | R 050.3-16 | 73 004 530  | 3              | 16                        | 1      |           |
| Nóż tokarski   | R 050.4-16 | 73 004 540  | 4              | 16                        | 1      |           |
| Nóż tokarski   | R 050.5-20 | 73 004 550  | 5              | 20                        | 1      | 315,60    |
| Nóż tokarski   | R 050.6-22 | 73 004 560  | 6              | 22                        | 1      |           |
| Oprawka        | 645.0016-D | 73 080 164  |                |                           | 1      |           |
| Oprawka        | 676.0016-D | 73 080 166  |                |                           | 1      |           |
| Klucz mocujący | 110.645    | 70 950 175  |                |                           | 1      |           |

994

## UltraMini – Zestaw: oprawka



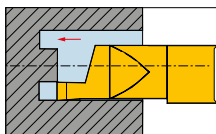
73 085 ...

| Narzędzie      | Oznaczenie | Nr artykułu | dla Ø noża tokarskiego<br>mm | sztuka | EUR<br>Y5 |
|----------------|------------|-------------|------------------------------|--------|-----------|
| Oprawka        | 645.0016-D | 73 080 164  | 3 / 4 / 5                    | 1      |           |
| Oprawka        | 676.0016-D | 73 080 166  | 6 / 7                        | 1      | 192,30    |
| Klucz mocujący | 110.645    | 70 950 175  |                              | 1      |           |

990

## UltraMini – Zestaw: wcinanie od czopa

- ▲ Pełen asortyment narzędzi prawych
- ▲ K10F – TiN



|                |               |             |                |                           |                           |                           |        | 73 085 ... |
|----------------|---------------|-------------|----------------|---------------------------|---------------------------|---------------------------|--------|------------|
| Narzędzie      | Oznaczenie    | Nr artykułu | Ø otworu<br>mm | Głębokość wiercenia<br>mm | Głębokość skrawania<br>mm | Szerokość skrawania<br>mm | sztuka | EUR<br>Y5  |
| Nóż tokarski   | R 010.1008-10 | 73 050 571  | 8              | 10                        | 1,5                       | 1,0                       | 1      |            |
| Nóż tokarski   | R 010.1508-10 | 73 050 573  | 8              | 10                        | 2,5                       | 1,5                       | 1      |            |
| Nóż tokarski   | R 010.2008-10 | 73 050 575  | 8              | 10                        | 3,0                       | 2,0                       | 1      | 245,80     |
| Nóż tokarski   | R 010.2508-20 | 73 050 677  | 8              | 20                        | 3,5                       | 2,5                       | 1      |            |
| Nóż tokarski   | R 010.3008-20 | 73 050 679  | 8              | 20                        | 3,5                       | 3,0                       | 1      |            |
| Oprawka        | 676.0016-D    | 73 080 166  |                |                           |                           |                           | 1      |            |
| Klucz mocujący | 110.645       | 70 950 175  |                |                           |                           |                           | 1      |            |

996

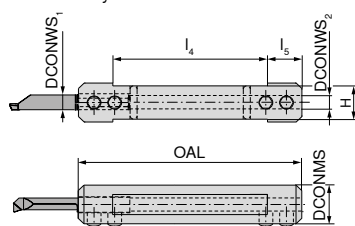
# UltraMini – standardowa oprawka zaciskowa do noży oprawkowych

▲ dwustronna

▲ obróbka otworów od Ø 0,5 mm

## Zakres dostawy:

Oprawka zaciskowa z kluczem inbusowym



| Oznaczenie   | DCONWS <sub>1</sub><br>mm | DCONWS <sub>2</sub><br>mm | DCONMS<br>mm | OAL<br>mm | l <sub>4</sub><br>mm | l <sub>5</sub><br>mm | H<br>mm | 73 080 ... |     |
|--------------|---------------------------|---------------------------|--------------|-----------|----------------------|----------------------|---------|------------|-----|
|              |                           |                           |              |           |                      |                      |         | EUR<br>Y5  |     |
| 687.0020-D   | 7                         | 8                         | 20,00        | 90        | 70                   | 10                   | 18,0    | 124,20     | 169 |
| 645.001905-D | 4                         | 5                         | 19,05        | 90        | 70                   | 10                   | 17,2    | 107,70     | 170 |
| 687.0016-D   | 7                         | 8                         | 16,00        | 75        | 55                   | 10                   | 14,0    | 116,70     | 168 |
| 645.0022-D   | 4                         | 5                         | 22,00        | 90        | 70                   | 10                   | 20,0    | 112,40     | 171 |
| 676.0020-D   | 6                         | 7                         | 20,00        | 90        | 70                   | 10                   | 18,0    | 103,30     | 167 |
| 645.00254-D  | 4                         | 5                         | 25,40        | 95        | 75                   | 10                   | 23,4    | 119,90     | 172 |
| 676.0016-D   | 6                         | 7                         | 16,00        | 75        | 55                   | 10                   | 14,0    | 95,90      | 166 |
| 676.001905-D | 6                         | 7                         | 19,05        | 90        | 70                   | 10                   | 17,2    | 107,70     | 173 |
| 645.0020-D   | 4                         | 5                         | 20,00        | 90        | 70                   | 10                   | 18,0    | 103,30     | 165 |
| 676.0022-D   | 6                         | 7                         | 22,00        | 90        | 70                   | 10                   | 20,0    | 112,40     | 174 |
| 645.0016-D   | 4                         | 5                         | 16,00        | 75        | 55                   | 10                   | 14,0    | 95,90      | 164 |
| 676.00254-D  | 6                         | 7                         | 25,40        | 95        | 75                   | 10                   | 23,4    | 119,90     | 175 |
| 645.0012-D   | 4                         | 5                         | 12,00        | 75        | 55                   | 10                   | 10,3    | 91,37      | 163 |



Klucz-I



Śruba zaciskowa

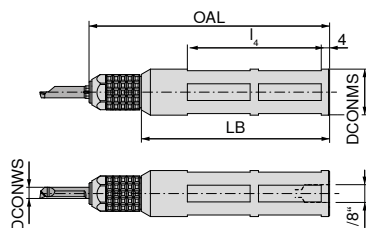
## Części zamienne Dla nr artykułu

|            |       | 70 950 ...   |     | 73 082 ... |          |
|------------|-------|--------------|-----|------------|----------|
|            |       | EUR<br>2A/28 |     | EUR<br>Y5  |          |
| 73 080 169 | SW2,5 | 2,57         | 175 | M6x6       | 3,91 014 |
| 73 080 170 | SW2,5 | 2,57         | 175 | M5x6       | 2,99 001 |
| 73 080 168 | SW2,5 | 2,57         | 175 | M6x6       | 3,91 014 |
| 73 080 171 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 167 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 172 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 166 | SW2,5 | 2,57         | 175 | M5x6       | 2,99 001 |
| 73 080 173 | SW2,5 | 2,57         | 175 | M5x6       | 2,99 001 |
| 73 080 165 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 174 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 164 | SW2,5 | 2,57         | 175 | M5x6       | 2,99 001 |
| 73 080 175 | SW2,5 | 2,57         | 175 | M5x8       | 3,91 008 |
| 73 080 163 | SW2,5 | 2,57         | 175 | M5x4       | 2,99 013 |

# UltraMini – szybkowymienna oprawka zaciskowa do noży oprawkowych

## Zakres dostawy:

oprawka zaciskowa, nakrętka mocująca i klin zaciskowy



|                 |        |                      |     |    |                | 73 089 ... |     |
|-----------------|--------|----------------------|-----|----|----------------|------------|-----|
| Oznaczenie      | DCONWS | DCONMS <sub>g6</sub> | OAL | LB | l <sub>k</sub> | EUR Y5     |     |
| UM600H.0012.4   | 4      | 12,00                | 115 | 90 | 64             | 233,30     | 124 |
| UM600H.0016.4   | 4      | 16,00                | 115 | 90 | 64             | 211,70     | 164 |
| UM600H.001905.4 | 4      | 19,05                | 115 | 90 | 64             | 226,80     | 194 |
| UM600H.0020.4   | 4      | 20,00                | 115 | 90 | 64             | 223,50     | 204 |
| UM600H.0022.4   | 4      | 22,00                | 115 | 90 | 64             | 227,80     | 224 |
| UM600H.0025.4   | 4      | 25,00                | 115 | 90 | 64             | 232,30     | 254 |
| UM600H.00254.4  | 4      | 25,40                | 115 | 90 | 64             | 236,60     | 264 |
| UM600H.0028.4   | 4      | 28,00                | 115 | 90 | 64             | 236,60     | 284 |
| UM600H.0012.5   | 5      | 12,00                | 115 | 90 | 64             | 233,30     | 125 |
| UM600H.0016.5   | 5      | 16,00                | 115 | 90 | 64             | 211,70     | 165 |
| UM600H.001905.5 | 5      | 19,05                | 115 | 90 | 64             | 226,80     | 195 |
| UM600H.0020.5   | 5      | 20,00                | 115 | 90 | 64             | 223,50     | 205 |
| UM600H.0022.5   | 5      | 22,00                | 115 | 90 | 64             | 227,80     | 225 |
| UM600H.0025.5   | 5      | 25,00                | 115 | 90 | 64             | 232,30     | 255 |
| UM600H.00254.5  | 5      | 25,40                | 115 | 90 | 64             | 236,60     | 265 |
| UM600H.0028.5   | 5      | 28,00                | 115 | 90 | 64             | 236,60     | 285 |
| UM600H.0012.6   | 6      | 12,00                | 115 | 90 | 64             | 233,30     | 126 |
| UM600H.0016.6   | 6      | 16,00                | 115 | 90 | 64             | 211,70     | 166 |
| UM600H.001905.6 | 6      | 19,05                | 115 | 90 | 64             | 226,80     | 196 |
| UM600H.0020.6   | 6      | 20,00                | 115 | 90 | 64             | 223,50     | 206 |
| UM600H.0022.6   | 6      | 22,00                | 115 | 90 | 64             | 227,80     | 226 |
| UM600H.0025.6   | 6      | 25,00                | 115 | 90 | 64             | 232,30     | 256 |
| UM600H.00254.6  | 6      | 25,40                | 115 | 90 | 64             | 236,60     | 266 |
| UM600H.0028.6   | 6      | 28,00                | 115 | 90 | 64             | 236,60     | 286 |
| UM600H.0012.7   | 7      | 12,00                | 115 | 90 | 64             | 233,30     | 127 |
| UM600H.0016.7   | 7      | 16,00                | 115 | 90 | 64             | 211,70     | 167 |
| UM600H.001905.7 | 7      | 19,05                | 115 | 90 | 64             | 226,80     | 197 |
| UM600H.0020.7   | 7      | 20,00                | 115 | 90 | 64             | 223,50     | 207 |
| UM600H.0022.7   | 7      | 22,00                | 115 | 90 | 64             | 227,80     | 227 |
| UM600H.0025.7   | 7      | 25,00                | 115 | 90 | 64             | 232,30     | 257 |
| UM600H.00254.7  | 7      | 25,40                | 115 | 90 | 64             | 236,60     | 267 |
| UM600H.0028.7   | 7      | 28,00                | 115 | 90 | 64             | 236,60     | 287 |

Unikać cięć ciągnących. Stosując wewnętrzne doprowadzenie chłodziwa należy zwrócić uwagę na odpowiednią siłę zacisku. Możliwość dociągnięcia kluczem.

## Części zamienne DCONWS

|   |    | 73 950 ... |     | 73 950 ... |     |
|---|----|------------|-----|------------|-----|
|   |    | EUR Y5     |     | EUR Y5     |     |
| 4 | M4 | 52,17      | 104 | 33,59      | 111 |
| 5 | M5 | 52,17      | 105 | 33,59      | 111 |
| 6 | M6 | 52,17      | 106 | 33,59      | 111 |
| 7 | M7 | 52,17      | 107 | 33,59      | 111 |



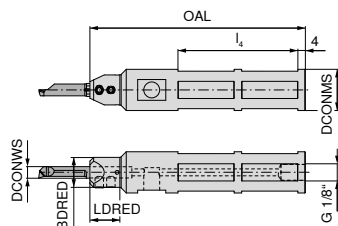
nakrętka  
mocująca  
UM600H



klin zaciskowy  
UM600H

# UltraMini – Oprawka mocująca do noży tokarskich

▲ Oprawki zaciskowe odpowiednie do wysokich ciśnień chłodziwa


**73 088 ...**

| Oznaczenie    | DCONWS | BDRED | DCONMS <sub>g8</sub> | OAL | LDRED | I <sub>4</sub> | EUR    |     |
|---------------|--------|-------|----------------------|-----|-------|----------------|--------|-----|
|               | mm     | mm    | mm                   | mm  | mm    | mm             | Y5     |     |
| UMST.0016.4   | 4      | 16    | 16,00                | 115 | 24    | 42             | 249,50 | 164 |
| UMST.001905.4 | 4      | 16    | 19,05                | 115 | 24    | 42             | 270,10 | 194 |
| UMST.0020.4   | 4      | 16    | 20,00                | 115 | 24    | 42             | 254,90 | 204 |
| UMST.0022.4   | 4      | 16    | 22,00                | 115 | 24    | 42             | 262,40 | 224 |
| UMST.00254.4  | 4      | 16    | 25,40                | 115 | 24    | 42             | 270,10 | 264 |
| UMST.0028.4   | 4      | 16    | 28,00                | 115 | 24    | 42             | 270,10 | 284 |
| UMST.0016.5   | 5      | 16    | 16,00                | 115 | 24    | 42             | 249,50 | 165 |
| UMST.001905.5 | 5      | 16    | 19,05                | 115 | 24    | 42             | 270,10 | 195 |
| UMST.0020.5   | 5      | 16    | 20,00                | 115 | 24    | 42             | 254,90 | 205 |
| UMST.0022.5   | 5      | 16    | 22,00                | 115 | 24    | 42             | 262,40 | 225 |
| UMST.00254.5  | 5      | 16    | 25,40                | 115 | 24    | 42             | 270,10 | 265 |
| UMST.0028.5   | 5      | 16    | 28,00                | 115 | 24    | 42             | 270,10 | 285 |
| UMST.0016.6   | 6      | 16    | 16,00                | 115 | 24    | 42             | 249,50 | 166 |
| UMST.001905.6 | 6      | 16    | 19,05                | 115 | 24    | 42             | 270,10 | 196 |
| UMST.0020.6   | 6      | 16    | 20,00                | 115 | 24    | 42             | 254,90 | 206 |
| UMST.0022.6   | 6      | 16    | 22,00                | 115 | 24    | 42             | 262,40 | 226 |
| UMST.00254.6  | 6      | 16    | 25,40                | 115 | 24    | 42             | 270,10 | 266 |
| UMST.0028.6   | 6      | 16    | 28,00                | 115 | 24    | 42             | 270,10 | 286 |
| UMST.0016.7   | 7      | 16    | 16,00                | 115 | 24    | 42             | 249,50 | 167 |
| UMST.001905.7 | 7      | 16    | 19,05                | 115 | 24    | 42             | 270,10 | 197 |
| UMST.0020.7   | 7      | 16    | 20,00                | 115 | 24    | 42             | 254,90 | 207 |
| UMST.0022.7   | 7      | 16    | 22,00                | 115 | 24    | 42             | 262,40 | 227 |
| UMST.00254.7  | 7      | 16    | 25,40                | 115 | 24    | 42             | 270,10 | 267 |
| UMST.0028.7   | 7      | 16    | 28,00                | 115 | 24    | 42             | 270,10 | 287 |
| UMST.0016.8   | 8      | 16    | 16,00                | 115 | 24    | 42             | 249,50 | 168 |
| UMST.001905.8 | 8      | 16    | 19,05                | 115 | 24    | 42             | 270,10 | 198 |
| UMST.0020.8   | 8      | 16    | 20,00                | 115 | 24    | 42             | 254,90 | 208 |
| UMST.0022.8   | 8      | 16    | 22,00                | 115 | 24    | 42             | 262,40 | 228 |
| UMST.00254.8  | 8      | 16    | 25,40                | 115 | 24    | 42             | 270,10 | 268 |
| UMST.0028.8   | 8      | 16    | 28,00                | 115 | 24    | 42             | 270,10 | 288 |

do 150 bar



Klucz -D



Śruba zaciskowa

**80 950 ...**
**73 950 ...**

 Części zamienne  
DCONWS

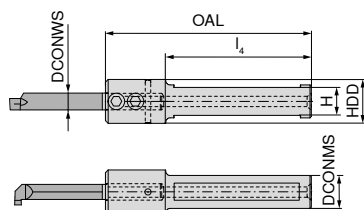
|   |     | EUR  |     |             | EUR  |     |
|---|-----|------|-----|-------------|------|-----|
|   |     | Y7   |     |             | Y5   |     |
| 4 | T10 | 7,26 | 104 | M5x0,5x6T10 | 5,05 | 050 |
| 5 | T10 | 7,26 | 104 | M5x0,5x6T10 | 5,05 | 050 |
| 6 | T10 | 7,26 | 104 | M5x0,5x6T10 | 5,05 | 050 |
| 7 | T10 | 7,26 | 104 | M5x0,5x6T10 | 5,05 | 050 |
| 8 | T10 | 7,26 | 104 | M5x0,5x6T10 | 5,05 | 050 |

# UltraMini – Oprawka mocująca do noży tokarskich

▲ jednostronna

## Zakres dostawy:

Oprawka zaciskowa z kluczem inbusowym



| Oznaczenie | DCONWS<br>mm | HDD<br>mm | DCONMS<br>mm | OAL<br>mm | l <sub>4</sub><br>mm | H<br>mm |
|------------|--------------|-----------|--------------|-----------|----------------------|---------|
| 640.0012-D | 4            | 16        | 12           | 75        | 53                   | 10,2    |
| 650.0012-D | 5            | 16        | 12           | 75        | 53                   | 10,2    |
| 660.0012-D | 6            | 16        | 12           | 75        | 53                   | 10,2    |
| 670.0012-D | 7            | 16        | 12           | 75        | 53                   | 10,2    |
| 680.0012-D | 8            | 16        | 12           | 75        | 53                   | 10,2    |

73 081 ...

EUR

Y5

127,40

264

127,40

265

127,40

266

127,40

267

127,40

268

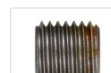
## Części zamienne

### DCONWS

|   |       |      |     |          |      |     |
|---|-------|------|-----|----------|------|-----|
| 4 | SW2,5 | 2,57 | 175 | M5x0,5x6 | 3,05 | 010 |
| 5 | SW2,5 | 2,57 | 175 | M5x0,5x6 | 3,05 | 010 |
| 6 | SW2,5 | 2,57 | 175 | M5x0,5x6 | 3,05 | 010 |
| 7 | SW2,5 | 2,57 | 175 | M5x0,5x6 | 3,05 | 010 |
| 8 | SW2,5 | 2,57 | 175 | M5x0,5x6 | 3,05 | 010 |



Klucz-I



Śruba zaciskowa

70 950 ...

EUR

2A/28

2,57

175

2,57

175

2,57

175

73 082 ...

EUR

Y5

3,05

010

3,05

010

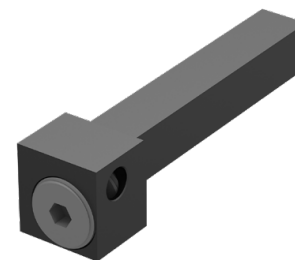
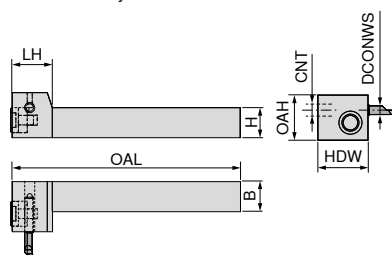
3,05

010

# UltraMini – Oprawka mocująca do noży tokarskich

## Zakres dostawy:

Oprawka zaciskowa z kluczem inbusowym



| Oznaczenie          | DCONWS<br>mm | OAL<br>mm | LH<br>mm | B<br>mm | HDW<br>mm | H<br>mm | OAH<br>mm | CNT | lewe       |     | prawe      |     |
|---------------------|--------------|-----------|----------|---------|-----------|---------|-----------|-----|------------|-----|------------|-----|
|                     |              |           |          |         |           |         |           |     | 73 083 ... |     | 73 084 ... |     |
| R/L .IK.UHCM.1212.4 | 4            | 90        | 17       | 12      | 20        | 12      | 18        | M5  | EUR<br>Y5  |     | EUR<br>Y5  |     |
| R/L .IK.UHCM.1212.5 | 5            | 90        | 17       | 12      | 20        | 12      | 18        | M5  | 162,00     | 124 | 162,00     | 124 |
| R/L .IK.UHCM.1212.6 | 6            | 90        | 17       | 12      | 20        | 12      | 21        | M5  | 162,00     | 126 | 162,00     | 126 |
| R/L .IK.UHCM.1212.7 | 7            | 90        | 17       | 12      | 20        | 12      | 21        | M5  | 162,00     | 127 | 162,00     | 127 |

1 Odpowiednie przyłącza chłodziwa można znaleźć w naszym katalogu narzędzi do głowic przesuwnych.

## Części zamienne

### DCONWS

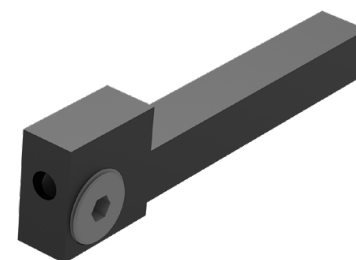
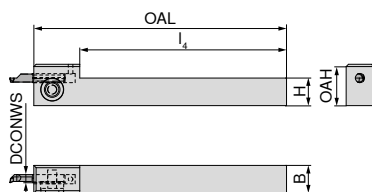
| 4 | 5 | 6 | 7 | SW5 | EUR<br>Y7 | 050 | UM 12 | EUR<br>Y5 | 011 |
|---|---|---|---|-----|-----------|-----|-------|-----------|-----|
|   |   |   |   | SW5 | 4,37      | 050 | UM 12 | 27,76     | 011 |
|   |   |   |   | SW5 | 4,37      | 050 | UM 16 | 27,76     | 012 |
|   |   |   |   | SW5 | 4,37      | 050 | UM 16 | 27,76     | 012 |



# UltraMini – Oprawka mocująca do noży tokarskich

## Zakres dostawy:

Oprawka zaciskowa z kluczem inbusowym



| Oznaczenie | DCONWS<br>mm | OAL<br>mm | I <sub>4</sub><br>mm | B<br>mm | H<br>mm | OAH<br>mm | 73 086 ... |     |
|------------|--------------|-----------|----------------------|---------|---------|-----------|------------|-----|
|            |              |           |                      |         |         |           | EUR<br>Y5  |     |
| UM.1010.4  | 4            | 100       | 75                   | 10      | 10      | 20        | 162,00     | 104 |
| UM.1010.5  | 5            | 100       | 75                   | 10      | 10      | 20        | 162,00     | 105 |
| UM.1212.4  | 4            | 100       | 75                   | 12      | 12      | 22        | 162,00     | 124 |
| UM.1212.5  | 5            | 100       | 75                   | 12      | 12      | 22        | 162,00     | 125 |
| UM.1212.6  | 6            | 100       | 75                   | 12      | 12      | 22        | 162,00     | 126 |

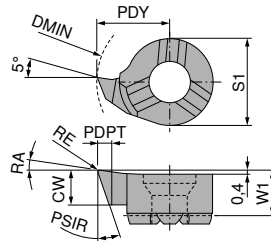
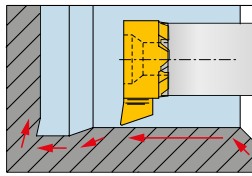
## Części zamienne

### DCONWS

| 4 | 5 | 6 | SW5 | EUR<br>Y7 | 050 | UM 12 | EUR<br>Y5 | 011 |
|---|---|---|-----|-----------|-----|-------|-----------|-----|
|   |   |   | SW5 | 4,37      | 050 | UM 12 | 27,76     | 011 |
|   |   |   | SW5 | 4,37      | 050 | UM 16 | 27,76     | 012 |



# MiniCut – Płytki do wytaczania i kopiowania



Rysunki pokazują wykonanie prawe

CW500

CW500

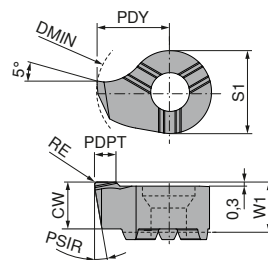
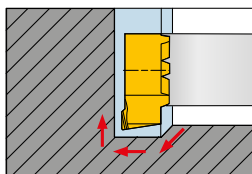


| Wielkość | Oznaczenie           | DMIN<br>mm | CW<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | PDPT<br>mm | PSIR<br>° | RA<br>° | lewe<br>73 324 ... |     | prawe<br>73 322 ... |     |
|----------|----------------------|------------|----------|----------|-----------|----------|----------|------------|-----------|---------|--------------------|-----|---------------------|-----|
|          |                      |            |          |          |           |          |          |            |           |         | EUR<br>Y5          |     | EUR<br>Y5           |     |
| 08       | 8,00. R/L .3,30.18°  | 7,8        | 3,3      | 3,5      | 4,65      | 6,0      | 0,20     | 0,6        | 18        | 8       | 18,40              | 033 | 18,40               | 033 |
|          | 8,00. R/L .3,50.18°  | 7,8        | 3,5      | 3,5      | 4,65      | 6,0      | 0,05     | 0,6        | 18        | 8       | 21,53              | 035 | 21,53               | 035 |
|          | 8,00. R/L .3,50.20°  | 7,8        | 3,5      | 3,5      | 4,65      | 6,0      | 0,20     | 0,6        | 20        | 20      | 20,82              | 135 | 20,82               | 135 |
| 09       | 9,00. R/L .3,60.18°  | 9,0        | 3,6      | 3,6      | 5,50      | 6,2      | 0,20     | 0,8        | 18        | 8       | 18,75              | 136 | 18,75               | 136 |
|          | 9,00. R/L .3,60.20°  | 9,0        | 3,6      | 3,6      | 5,50      | 6,2      | 0,20     | 0,8        | 20        | 20      | 21,19              | 236 | 21,19               | 236 |
| 11       | 9,80. R/L .3,90.18°  | 9,8        | 3,9      | 4,2      | 5,50      | 8,0      | 0,20     | 1,0        | 18        | 8       | 18,40              | 139 | 18,40               | 139 |
|          | 11,00. R/L .3,90.18° | 11,0       | 3,9      | 4,2      | 6,70      | 8,0      | 0,20     | 1,0        | 18        | 8       | 17,93              | 339 | 17,93               | 339 |
|          | 11,00. R/L .4,20.20° | 11,0       | 4,2      | 4,2      | 6,70      | 8,0      | 0,20     | 1,0        | 20        | 20      | 21,19              | 342 | 21,19               | 342 |
| 14       | 14,00. R/L .5,00.18° | 13,8       | 5,0      | 5,1      | 8,70      | 9,0      | 0,20     | 1,5        | 18        | 8       | 17,93              | 550 | 17,93               | 550 |
|          | 14,00. R/L .5,30.20° | 14,0       | 5,3      | 5,3      | 8,70      | 9,0      | 0,20     | 1,5        | 20        | 20      | 21,19              | 553 | 21,19               | 553 |
| 16       | 15,50. R/L .5,00.18° | 15,5       | 5,0      | 5,4      | 9,70      | 11,0     | 0,20     | 1,5        | 18        | 8       | 19,56              | 750 | 19,56               | 750 |
| P        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| M        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| K        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| N        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| S        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| H        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |
| O        |                      |            |          |          |           |          |          |            |           |         | •                  |     | •                   |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia kopiowego

▲ ze specjalnym łamaczem wióra



Rysunki pokazują wykonanie prawe

CW500

CW500

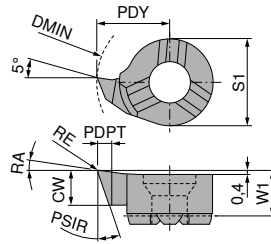
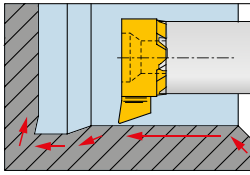


| Wielkość | Oznaczenie          | DMIN<br>mm | CW<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | PDPT<br>mm | PSIR<br>° | lewe<br>73 388 ... |       | prawe<br>73 386 ... |       |
|----------|---------------------|------------|----------|----------|-----------|----------|----------|------------|-----------|--------------------|-------|---------------------|-------|
|          |                     |            |          |          |           |          |          |            |           | EUR<br>Y5          |       | EUR<br>Y5           |       |
| 08       | 8,00. R/L .3,40.10° | 8          | 3,4      | 3,5      | 4,65      | 6,0      | 0,2      | 0,5        | 10        | 21,19              | 13400 | 21,19               | 13400 |
| 09       | 9,00. R/L .3,50.10° | 9          | 3,5      | 3,6      | 5,50      | 6,2      | 0,2      | 0,5        | 10        | 21,19              | 136   | 21,19               | 136   |
| 11       | 11,00. R .4,10.10°  | 11         | 4,1      | 4,2      | 6,70      | 8,0      | 0,2      | 0,5        | 10        | 21,19              | 14100 | 21,19               | 14100 |
| P        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| M        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| K        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| N        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| S        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| H        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |
| O        |                     |            |          |          |           |          |          |            |           |                    | •     |                     | •     |

→ v<sub>c</sub> strona 59

# MiniCut – Płytki CBN do toczenia kopiowego – toczenie materiałów twardych

▲ 56 do 65 HRC



Rysunki pokazują wykonanie prawe

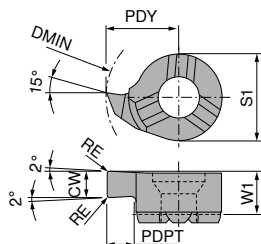
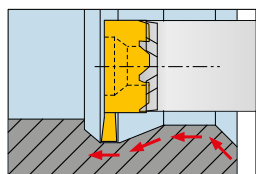
| Rysunki pokazują wykonanie prawe |                      |            |          |          |           |          |          |            |           |         | lewe<br>CBN |     | prawe<br>CBN |     |
|----------------------------------|----------------------|------------|----------|----------|-----------|----------|----------|------------|-----------|---------|-------------|-----|--------------|-----|
|                                  |                      |            |          |          |           |          |          |            |           |         | 73 368 ...  |     | 73 366 ...   |     |
| Wielkość                         | Oznaczenie           | DMIN<br>mm | CW<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | PDPT<br>mm | PSIR<br>° | RA<br>° | EUR<br>Y5   |     | EUR<br>Y5    |     |
| 08                               | 8,00. R/L .3,30.18°  | 7,8        | 3,3      | 3,5      | 4,65      | 6        | 0,2      | 0,39       | 18        | 8       | 86,24       | 033 | 86,24        | 033 |
| 11                               | 11,00. R/L .3,90.18° | 11,0       | 3,9      | 4,2      | 6,70      | 8        | 0,2      | 0,55       | 18        | 8       | 90,25       | 139 | 90,25        | 139 |
| 14                               | 14,00. R/L .5,00.18° | 13,8       | 5,0      | 5,3      | 8,70      | 9        | 0,2      | 0,69       | 18        | 8       | 95,58       | 550 | 95,58        | 550 |
| 16                               | 16,00. R/L .5,00.18° | 15,5       | 5,0      | 5,4      | 9,70      | 11       | 0,2      | 0,77       | 18        | 8       | 99,70       | 750 | 99,70        | 750 |
| P                                |                      |            |          |          |           |          |          |            |           |         |             |     |              |     |
| M                                |                      |            |          |          |           |          |          |            |           |         |             |     |              |     |
| K                                |                      |            |          |          |           |          |          |            |           |         |             |     |              |     |
| N                                |                      |            |          |          |           |          |          |            |           |         |             |     |              |     |
| S                                |                      |            |          |          |           |          |          |            |           |         |             | ○   | ○            |     |
| H                                |                      |            |          |          |           |          |          |            |           |         |             | ●   | ●            |     |
| O                                |                      |            |          |          |           |          |          |            |           |         |             |     |              |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do wytaczania

CWX500

CWX500

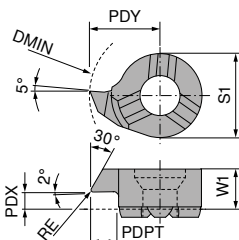
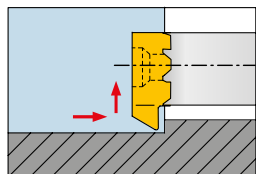


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie           | DMIN<br>mm | CW <sup>+0,05</sup><br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | CDX<br>mm | lewe               |     | prawe              |     |
|----------|----------------------|------------|---------------------------|------------|----------|-----------|----------|----------|-----------|--------------------|-----|--------------------|-----|
|          |                      |            |                           |            |          |           |          |          |           | 73 316 ...         |     | 73 314 ...         |     |
| 08       | 8,00. R/L .1,50.1,0  | 8          | 1,5                       | 1,0        | 3,3      | 4,8       | 6,0      | 0,2      | 0,2       | EUR<br>Y5<br>18,28 | 015 | EUR<br>Y5<br>18,28 | 015 |
|          | 8,00. R/L .2,00.1,0  | 8          | 2,0                       | 1,0        | 3,3      | 4,8       | 6,0      | 0,2      | 0,2       | 17,82              | 020 | 17,82              | 020 |
| 09       | 9,00. R/L .1,50.2,0  | 9          | 1,5                       | 2,0        | 3,6      | 5,5       | 6,2      | 0,2      | 0,2       | 20,49              | 115 | 20,49              | 115 |
|          | 9,00. R/L .1,50.3,0  | 10         | 1,5                       | 3,0        | 3,6      | 6,5       | 6,2      | 0,2      | 0,2       | 20,49              | 121 | 20,49              | 121 |
|          | 9,00. R/L .2,00.2,0  | 9          | 2,0                       | 2,0        | 3,6      | 5,5       | 6,2      | 0,2      | 0,2       | 18,18              | 120 | 18,18              | 120 |
|          | 9,00. R/L .2,00.3,0  | 10         | 2,0                       | 3,0        | 3,6      | 6,5       | 6,2      | 0,2      | 0,2       | 18,18              | 122 | 18,18              | 122 |
| 11       | 11,00. R/L .1,50.2,3 | 11         | 1,5                       | 2,3        | 4,2      | 6,7       | 8,0      | 0,2      | 0,2       | 19,56              | 315 | 19,56              | 315 |
|          | 11,00. R/L .2,00.2,3 | 11         | 2,0                       | 2,3        | 4,2      | 6,7       | 8,0      | 0,2      | 0,2       | 18,40              | 320 | 18,40              | 320 |
| 14       | 14,00. R/L .1,50.4,0 | 14         | 1,5                       | 4,0        | 5,3      | 9,0       | 9,0      | 0,2      | 0,2       | 17,93              | 515 | 17,93              | 515 |
|          | 14,00. R/L .1,50.5,5 | 16         | 1,5                       | 5,5        | 5,2      | 10,5      | 9,0      | 0,2      | 0,2       | 23,03              | 516 | 23,03              | 516 |
|          | 14,00. R/L .1,50.6,5 | 17         | 1,5                       | 6,5        | 5,2      | 11,5      | 9,0      | 0,2      | 0,2       | 23,03              | 517 | 23,03              | 517 |
|          | 14,00. R/L .2,00.4,0 | 14         | 2,0                       | 4,0        | 5,3      | 9,0       | 9,0      | 0,2      | 0,2       | 18,40              | 520 | 18,40              | 520 |
|          | 14,00. R/L .2,00.5,5 | 16         | 2,0                       | 5,5        | 5,2      | 10,5      | 9,0      | 0,2      | 0,2       | 23,03              | 521 | 23,03              | 521 |
|          | 14,00. R/L .2,00.6,5 | 17         | 2,0                       | 6,5        | 5,2      | 11,5      | 9,0      | 0,2      | 0,2       | 23,03              | 522 | 23,03              | 522 |
|          | 14,00. R/L .2,50.5,5 | 16         | 2,5                       | 5,5        | 5,2      | 10,5      | 9,0      | 0,2      | 0,2       | 23,03              | 525 | 23,03              | 525 |
|          | 14,00. R/L .2,50.6,5 | 17         | 2,5                       | 6,5        | 5,2      | 11,5      | 9,0      | 0,2      | 0,2       | 23,03              | 526 | 23,03              | 526 |
|          | 14,00. R/L .3,00.5,5 | 16         | 3,0                       | 5,5        | 5,2      | 10,5      | 9,0      | 0,2      | 0,2       | 23,03              | 530 | 23,03              | 530 |
|          | 14,00. R/L .3,00.6,5 | 17         | 3,0                       | 6,5        | 5,2      | 11,5      | 9,0      | 0,2      | 0,2       | 23,03              | 531 | 23,03              | 531 |
| 16       | 16,00. R/L .2,00.4,3 | 16         | 2,0                       | 4,3        | 5,4      | 10,2      | 11,0     | 0,2      | 0,2       | 20,02              | 720 | 20,02              | 720 |
| P        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| M        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| K        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| N        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| S        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| H        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |
| O        |                      |            |                           |            |          |           |          |          |           |                    | •   |                    | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do wytaczania wstecznego



CWX500

CWX500

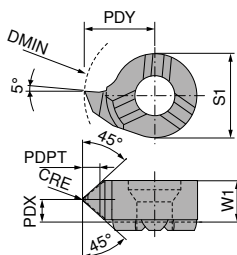
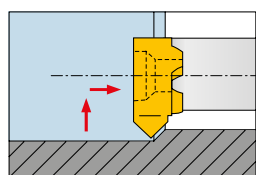


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie         | DMIN<br>mm | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | CDX<br>mm | lewe               |     | prawe              |     |
|----------|--------------------|------------|------------|----------|-----------|-----------|----------|----------|-----------|--------------------|-----|--------------------|-----|
|          |                    |            |            |          |           |           |          |          |           | 73 332 ...         |     | 73 330 ...         |     |
| 08       | 8,00. R/L .30°1,3  | 7,8        | 1,3        | 3,50     | 1,0       | 4,65      | 6,0      | 0,2      | 0,6       | EUR<br>Y5<br>21,29 | 013 | EUR<br>Y5<br>21,29 | 013 |
| 09       | 9,00. R/L .30°1,7  | 9,0        | 1,7        | 3,55     | 1,2       | 5,50      | 6,2      | 0,2      | 0,8       | 20,82              | 117 | 20,82              | 117 |
|          | 9,00. R/L .30°2,3  | 10,0       | 2,3        | 3,55     | 1,2       | 6,50      | 6,2      | 0,2      | 0,8       | 20,82              | 123 | 20,82              | 123 |
| 11       | 11,00. R/L .30°2,3 | 11,0       | 2,3        | 4,30     | 1,6       | 6,70      | 8,0      | 0,2      | 1,0       | 20,60              | 323 | 20,60              | 323 |
| 14       | 14,00. R/L .30°3,5 | 13,8       | 3,5        | 5,40     | 2,4       | 8,70      | 9,0      | 0,2      | 1,5       | 21,29              | 535 | 21,29              | 535 |
| P        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| M        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| K        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| N        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| S        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| H        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |
| O        |                    |            |            |          |           |           |          |          |           |                    | •   |                    | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do wytaczania i fazowania



CWX500

CWX500

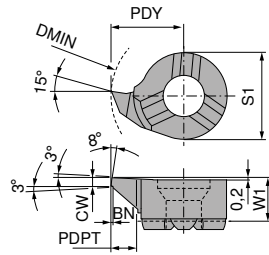
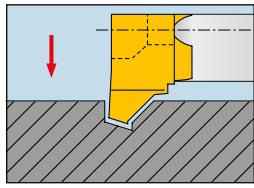


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie         | DMIN<br>mm | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | CRE<br>mm | CDX<br>mm | lewe               |     | prawe              |     |
|----------|--------------------|------------|------------|----------|-----------|-----------|----------|-----------|-----------|--------------------|-----|--------------------|-----|
|          |                    |            |            |          |           |           |          |           |           | 73 336 ...         |     | 73 334 ...         |     |
| 08       | 8,00. R/L .45°1,4  | 8          | 1,4        | 3,50     | 1,8       | 4,8       | 6,0      | 0,2       | 0,6       | EUR<br>Y5<br>17,59 | 010 | EUR<br>Y5<br>17,59 | 010 |
| 09       | 9,00. R/L .45°1,3  | 9          | 1,3        | 3,55     | 1,8       | 5,5       | 6,2      | 0,2       | 0,8       | 17,82              | 110 | 17,82              | 110 |
| 11       | 11,00. R/L .45°1,5 | 11         | 1,5        | 4,30     | 2,2       | 6,7       | 8,0      | 0,2       | 1,0       | 17,59              | 310 | 17,59              | 310 |
| 14       | 14,00. R/L .45°1,5 | 14         | 1,5        | 5,40     | 2,8       | 9,0       | 9,0      | 0,2       | 1,2       | 18,98              | 510 | 18,98              | 510 |
| P        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| M        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| K        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| N        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| S        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| H        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |
| O        |                    |            |            |          |           |           |          |           |           |                    | •   |                    | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia wstępnego i fazowania



CW500

CW500

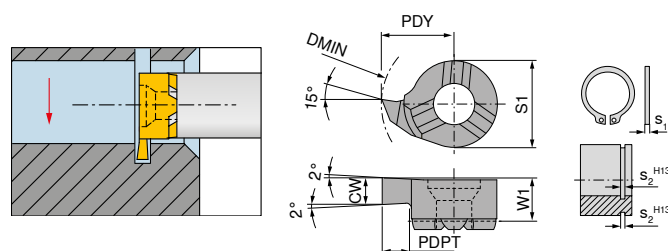


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie           | DMIN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | BN<br>mm | lewe       |     | prawe      |     |
|----------|----------------------|------------|----------|------------|----------|-----------|----------|----------|------------|-----|------------|-----|
|          |                      |            |          |            |          |           |          |          | 73 340 ... |     | 73 338 ... |     |
|          |                      |            |          |            |          |           |          |          | EUR<br>Y5  |     | EUR<br>Y5  |     |
| 08       | 8,00. R/L .1,00.45°  | 8          | 1        | 1,0        | 3,3      | 4,8       | 6,0      | 0,2      | 18,06      | 100 | 18,06      | 100 |
| 09       | 9,00. R/L .1,00.45°  | 9          | 1        | 1,5        | 3,6      | 5,5       | 6,2      | 0,2      | 18,40      | 215 | 18,40      | 215 |
| 11       | 11,00. R/L .1,00.45° | 11         | 1        | 1,5        | 4,2      | 6,7       | 8,0      | 0,2      | 18,06      | 315 | 18,06      | 315 |
| 14       | 14,00. R/L .1,00.45° | 14         | 1        | 1,5        | 5,3      | 9,0       | 9,0      | 0,2      | 18,06      | 515 | 18,06      | 515 |
| 16       | 16,00. R/L .1,00.45° | 16         | 1        | 1,5        | 5,4      | 10,2      | 11,0     | 0,2      | 18,06      | 715 | 18,06      | 715 |
| P        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| M        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| K        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| N        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| S        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| H        |                      |            |          |            |          |           |          |          | •          |     | •          |     |
| O        |                      |            |          |            |          |           |          |          | •          |     | •          |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia rowków



Rysunki pokazują wykonanie prawe

CWX500

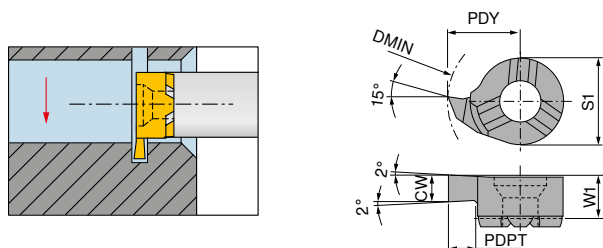
CWX500



| Wielkość | Oznaczenie          | DMIN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | S1<br>mm | S2 H13<br>mm | PDY<br>mm | S1<br>mm | lewe       |     | prawe      |     |
|----------|---------------------|------------|----------|------------|----------|----------|--------------|-----------|----------|------------|-----|------------|-----|
|          |                     |            |          |            |          |          |              |           |          | 73 312 ... |     | 73 310 ... |     |
|          |                     |            |          |            |          |          |              |           |          | EUR<br>Y5  |     | EUR<br>Y5  |     |
| 08       | 8,00. R/L .073.1,0  | 8          | 0,73     | 1,0        | 3,3      | 0,6      | 0,7          | 4,8       | 6,0      | 16,43      | 073 | 16,43      | 073 |
|          | 8,00. R/L .083.1,0  | 8          | 0,83     | 1,0        | 3,3      | 0,7      | 0,8          | 4,8       | 6,0      | 16,43      | 083 | 16,43      | 083 |
|          | 8,00. R/L .093.1,0  | 8          | 0,93     | 1,0        | 3,3      | 0,8      | 0,9          | 4,8       | 6,0      | 16,43      | 093 | 16,43      | 093 |
|          | 8,00. R/L .100.1,0  | 8          | 1,00     | 1,0        | 3,3      |          |              | 4,8       | 6,0      | 16,43      | 110 | 16,43      | 110 |
|          | 8,00. R/L .120.1,0  | 8          | 1,20     | 1,0        | 3,3      | 1,0      | 1,1          | 4,8       | 6,0      | 16,43      | 112 | 16,43      | 112 |
|          | 8,00. R/L .140.1,0  | 8          | 1,40     | 1,0        | 3,3      | 1,2      | 1,3          | 4,8       | 6,0      | 16,43      | 114 | 16,43      | 114 |
|          | 8,00. R/L .150.1,0  | 8          | 1,50     | 1,0        | 3,3      |          |              | 4,8       | 6,0      | 16,43      | 115 | 16,43      | 115 |
|          | 8,00. R/L .170.1,0  | 8          | 1,70     | 1,0        | 3,3      | 1,5      | 1,6          | 4,8       | 6,0      | 16,43      | 117 | 16,43      | 117 |
|          | 8,00. R/L .200.1,0  | 8          | 2,00     | 1,0        | 3,3      |          |              | 4,8       | 6,0      | 16,43      | 120 | 16,43      | 120 |
| 09       | 9,00. R/L .073.1,2  | 9          | 0,73     | 1,2        | 3,6      | 0,6      | 0,7          | 5,5       | 6,2      | 16,66      | 173 | 16,66      | 173 |
|          | 9,00. R/L .083.1,3  | 9          | 0,83     | 1,3        | 3,6      | 0,7      | 0,8          | 5,5       | 6,2      | 16,66      | 183 | 16,66      | 183 |
|          | 9,00. R/L .093.1,5  | 9          | 0,93     | 1,5        | 3,6      | 0,8      | 0,9          | 5,5       | 6,2      | 16,66      | 193 | 16,66      | 193 |
|          | 9,00. R/L .100.1,8  | 9          | 1,00     | 1,8        | 3,6      |          |              | 5,5       | 6,2      | 16,66      | 210 | 16,66      | 210 |
|          | 9,00. R/L .120.1,8  | 9          | 1,20     | 1,8        | 3,6      | 1,0      | 1,1          | 5,5       | 6,2      | 16,66      | 212 | 16,66      | 212 |
|          | 9,00. R/L .140.1,8  | 9          | 1,40     | 1,8        | 3,6      | 1,2      | 1,3          | 5,5       | 6,2      | 16,66      | 214 | 16,66      | 214 |
|          | 9,00. R/L .150.1,8  | 9          | 1,50     | 1,8        | 3,6      |          |              | 5,5       | 6,2      | 16,66      | 215 | 16,66      | 215 |
|          | 9,00. R/L .170.1,8  | 9          | 1,70     | 1,8        | 3,6      | 1,5      | 1,6          | 5,5       | 6,2      | 16,66      | 217 | 16,66      | 217 |
|          | 9,00. R/L .200.1,8  | 9          | 2,00     | 1,8        | 3,6      |          |              | 5,5       | 6,2      | 16,66      | 220 | 16,66      | 220 |
|          | 9,00. R/L .250.1,8  | 9          | 2,50     | 1,8        | 3,6      |          |              | 5,5       | 6,2      | 16,66      | 225 | 16,66      | 225 |
|          | 9,00. R/L .300.1,8  | 9          | 3,00     | 1,8        | 3,6      |          |              | 5,5       | 6,2      | 16,66      | 230 | 16,66      | 230 |
| 11       | 11,00. R/L .073.1,2 | 11         | 0,73     | 1,2        | 4,2      | 0,6      | 0,7          | 6,7       | 8,0      | 16,43      | 373 | 16,43      | 373 |
|          | 11,00. R/L .083.1,3 | 11         | 0,83     | 1,3        | 4,2      | 0,7      | 0,8          | 6,7       | 8,0      | 16,43      | 383 | 16,43      | 383 |
|          | 11,00. R .093.1,5   | 11         | 0,93     | 1,5        | 4,2      | 0,9      | 0,9          | 6,7       | 8,0      |            |     | 16,43      | 393 |
|          | 11,00. L .093.1,5   | 11         | 0,93     | 1,5        | 4,2      | 0,8      | 0,9          | 6,7       | 8,0      | 16,43      | 393 |            |     |
|          | 11,00. R/L .100.2,3 | 11         | 1,00     | 2,3        | 4,2      |          |              | 6,7       | 8,0      | 16,43      | 310 | 16,43      | 310 |
|          | 11,00. R/L .120.2,3 | 11         | 1,20     | 2,3        | 4,2      | 1,0      | 1,1          | 6,7       | 8,0      | 16,43      | 312 | 16,43      | 312 |
|          | 11,00. R/L .140.2,3 | 11         | 1,40     | 2,3        | 4,2      | 1,2      | 1,3          | 6,7       | 8,0      | 16,43      | 314 | 16,43      | 314 |
|          | 11,00. R/L .150.2,3 | 11         | 1,50     | 2,3        | 4,2      |          |              | 6,7       | 8,0      | 16,43      | 315 | 16,43      | 315 |
|          | 11,00. R/L .170.2,3 | 11         | 1,70     | 2,3        | 4,2      | 1,5      | 1,6          | 6,7       | 8,0      | 16,43      | 317 | 16,43      | 317 |
|          | 11,00. R/L .200.2,3 | 11         | 2,00     | 2,3        | 4,2      |          |              | 6,7       | 8,0      | 16,43      | 320 | 16,43      | 320 |
|          | 11,00. R/L .250.2,3 | 11         | 2,50     | 2,3        | 4,2      |          |              | 6,7       | 8,0      | 16,43      | 325 | 16,43      | 325 |
|          | 11,00. R/L .300.2,3 | 11         | 3,00     | 2,3        | 4,2      |          |              | 6,7       | 8,0      | 16,43      | 330 | 16,43      | 330 |
| 14       | 14,00. R/L .073.1,2 | 14         | 0,73     | 1,2        | 5,3      | 0,6      | 0,7          | 9,0       | 9,0      | 16,43      | 573 | 16,43      | 573 |
|          | 14,00. R/L .083.1,3 | 14         | 0,83     | 1,3        | 5,3      | 0,7      | 0,8          | 9,0       | 9,0      | 16,43      | 583 | 16,43      | 583 |
|          | 14,00. R/L .093.1,5 | 14         | 0,93     | 1,5        | 5,3      | 0,8      | 0,9          | 9,0       | 9,0      | 16,43      | 593 | 16,43      | 593 |
|          | 14,00. R/L .120.4,0 | 14         | 1,20     | 4,0        | 5,3      | 1,0      | 1,1          | 9,0       | 9,0      | 16,43      | 512 | 16,43      | 512 |
|          | 14,00. R/L .140.4,0 | 14         | 1,40     | 4,0        | 5,3      | 1,2      | 1,3          | 9,0       | 9,0      | 16,43      | 514 | 16,43      | 514 |
|          | 14,00. R/L .150.4,0 | 14         | 1,50     | 4,0        | 5,3      |          |              | 9,0       | 9,0      | 16,43      | 515 | 16,43      | 515 |
|          | 14,00. R/L .170.4,0 | 14         | 1,70     | 4,0        | 5,3      | 1,5      | 1,6          | 9,0       | 9,0      | 16,43      | 517 | 16,43      | 517 |
|          | 14,00. R/L .200.4,0 | 14         | 2,00     | 4,0        | 5,3      |          |              | 9,0       | 9,0      | 16,43      | 520 | 16,43      | 520 |
|          | 14,00. R/L .250.4,0 | 14         | 2,50     | 4,0        | 5,3      |          |              | 9,0       | 9,0      | 16,43      | 525 | 16,43      | 525 |
|          | 14,00. R/L .300.4,0 | 14         | 3,00     | 4,0        | 5,3      |          |              | 9,0       | 9,0      | 16,43      | 530 | 16,43      | 530 |
| 16       | 16,00. R/L .073.1,2 | 16         | 0,73     | 1,2        | 5,4      | 0,6      | 0,7          | 10,2      | 11,0     | 18,06      | 773 | 18,06      | 773 |
|          | 16,00. R/L .083.1,3 | 16         | 0,83     | 1,3        | 5,4      | 0,7      | 0,8          | 10,2      | 11,0     | 18,06      | 783 | 18,06      | 783 |
|          | 16,00. R/L .093.1,5 | 16         | 0,93     | 1,5        | 5,4      | 0,8      | 0,9          | 10,2      | 11,0     | 18,06      | 793 | 18,06      | 793 |
|          | 16,00. R/L .120.4,3 | 16         | 1,20     | 4,3        | 5,4      | 1,0      | 1,1          | 10,2      | 11,0     | 18,06      | 712 | 18,06      | 712 |
|          | 16,00. R/L .140.4,3 | 16         | 1,40     | 4,3        | 5,4      | 1,2      | 1,3          | 10,2      | 11,0     | 18,06      | 714 | 18,06      | 714 |
|          | 16,00. R/L .150.4,3 | 16         | 1,50     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 715 | 18,06      | 715 |
|          | 16,00. R/L .170.4,3 | 16         | 1,70     | 4,3        | 5,4      | 1,5      | 1,6          | 10,2      | 11,0     | 18,06      | 717 | 18,06      | 717 |
|          | 16,00. R/L .200.4,3 | 16         | 2,00     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 720 | 18,06      | 720 |
|          | 16,00. R/L .250.4,3 | 16         | 2,50     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 725 | 18,06      | 725 |
|          | 16,00. R/L .300.4,3 | 16         | 3,00     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 730 | 18,06      | 730 |
|          | 16,00. R/L .350.4,3 | 16         | 3,50     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 735 | 18,06      | 735 |
|          | 16,00. R/L .400.4,3 | 16         | 4,00     | 4,3        | 5,4      |          |              | 10,2      | 11,0     | 18,06      | 740 | 18,06      | 740 |
| P        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| M        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| K        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| N        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| S        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| H        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |
| O        |                     |            |          |            |          |          |              |           |          |            | •   |            | •   |

→ v<sub>c</sub> strona 59

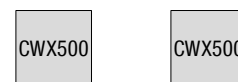
## MiniCut – Płytki do toczenia rowków



Rysunki pokazują wykonanie prawe

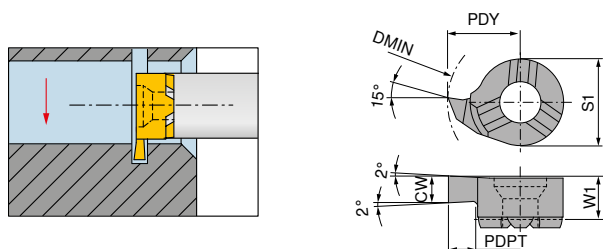
| Wielkość | Oznaczenie          | DMIN<br>mm | CW <sup>+0,03</sup><br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm |
|----------|---------------------|------------|---------------------------|------------|----------|-----------|----------|
| 14       | 14,00. R/L 1,50.5,5 | 16         | 1,5                       | 5,5        | 5,2      | 10,5      | 9        |
|          | 14,00. R/L 2,00.5,5 | 16         | 2,0                       | 5,5        | 5,2      | 10,5      | 9        |
|          | 14,00. R/L 2,50.5,5 | 16         | 2,5                       | 5,5        | 5,2      | 10,5      | 9        |
|          | 14,00. R/L 3,00.5,5 | 16         | 3,0                       | 5,5        | 5,2      | 10,5      | 9        |

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

→ v<sub>c</sub> strona 59

| lewe              | prawe             |
|-------------------|-------------------|
| <b>73 372 ...</b> | <b>73 370 ...</b> |
| EUR Y5            | EUR Y5            |
| 18,98 715         | 18,98 715         |
| 18,98 720         | 18,98 720         |
| 18,98 725         | 18,98 725         |
| 18,98 730         | 18,98 730         |

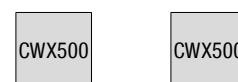
## MiniCut – Płytki do toczenia rowków



Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie          | DMIN<br>mm | CW <sup>+0,03</sup><br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm |
|----------|---------------------|------------|---------------------------|------------|----------|-----------|----------|
| 14       | 14,00. R/L 1,50.6,5 | 17         | 1,5                       | 6,5        | 5,2      | 11,5      | 9        |
|          | 14,00. R/L 2,00.6,5 | 17         | 2,0                       | 6,5        | 5,2      | 11,5      | 9        |
|          | 14,00. R/L 2,50.6,5 | 17         | 2,5                       | 6,5        | 5,2      | 11,5      | 9        |
|          | 14,00. R/L 3,00.6,5 | 17         | 3,0                       | 6,5        | 5,2      | 11,5      | 9        |

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

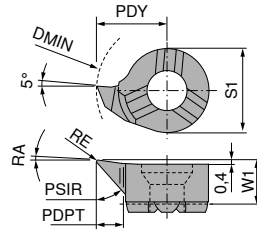
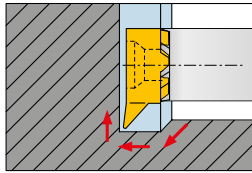
→ v<sub>c</sub> strona 59

12

## MiniCut – Płytki do podcinania wewnętrznego

CWX500

CWX500



Rysunki pokazują wykonanie prawe

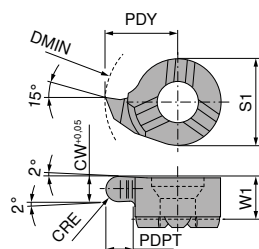
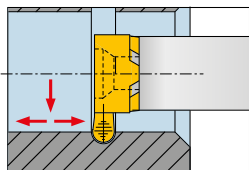
| Wielkość | Oznaczenie         | DMIN<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | CDX<br>mm | PSIR<br>° | RA<br>° | lewe       |     | prawe      |     |
|----------|--------------------|------------|------------|----------|-----------|----------|----------|-----------|-----------|---------|------------|-----|------------|-----|
|          |                    |            |            |          |           |          |          |           |           |         | 73 328 ... |     | 73 326 ... |     |
| 08       | 8,00. R/L .30°1,0  | 7,8        | 1,0        | 3,5      | 4,65      | 6,0      | 0,2      | 0,4       | 30        | 3       | EUR Y5     |     | EUR Y5     |     |
|          | 8,00. R/L .47°1,2  | 7,8        | 1,2        | 3,5      | 4,65      | 6,0      | 0,2      | 0,4       | 47        | 3       | 21,40      | 010 | 21,40      | 010 |
| 09       | 9,00. R/L .47°1,5  | 9,0        | 1,5        | 3,6      | 5,50      | 6,2      | 0,2      | 0,5       | 47        | 3       | 18,51      | 012 | 18,51      | 012 |
|          |                    |            |            |          |           |          |          |           |           |         | 18,40      | 115 | 18,40      | 115 |
| 11       | 11,00. R/L .30°2,3 | 11,0       | 2,3        | 4,2      | 6,70      | 8,0      | 0,2      | 0,6       | 30        | 3       | 20,82      | 423 | 20,82      | 423 |
|          | 11,00. R/L .47°2,3 | 11,0       | 2,3        | 4,2      | 6,70      | 8,0      | 0,2      | 0,6       | 47        | 3       | 18,06      | 323 | 18,06      | 323 |
| 14       | 13,70. R/L .47°3,0 | 13,7       | 3,0        | 5,3      | 8,70      | 9,0      | 0,2      | 0,8       | 47        | 3       | 18,51      | 530 | 18,51      | 530 |
|          | 13,70. R/L .30°4,0 | 13,7       | 4,0        | 5,3      | 8,70      | 9,0      | 0,2      | 0,8       | 30        | 3       | 21,40      | 540 | 21,40      | 540 |
| 16       | 15,80. R/L .30°4,3 | 15,8       | 4,3        | 5,4      | 10,20     | 11,0     | 0,2      | 1,0       | 30        | 3       | 23,50      | 744 | 23,50      | 744 |
| P        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| M        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| K        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| N        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| S        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| H        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |
| O        |                    |            |            |          |           |          |          |           |           |         | •          |     | •          |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia rowków i kopiowania (pełny promień)

CWX500

CWX500

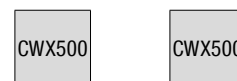
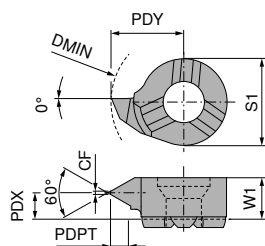
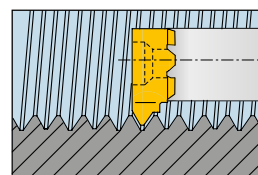


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie           | DMIN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | S1<br>mm | CRE<br>mm | lewe       |     | prawe      |     |
|----------|----------------------|------------|----------|------------|----------|-----------|----------|-----------|------------|-----|------------|-----|
|          |                      |            |          |            |          |           |          |           | 73 320 ... |     | 73 318 ... |     |
|          |                      |            |          |            |          |           |          |           | EUR        |     | EUR        |     |
|          |                      |            |          |            |          |           |          |           | Y5         |     | Y5         |     |
| 08       | 8,00. R/L .0,80.1,0  | 8          | 0,8      | 1,0        | 3,3      | 4,8       | 6,0      | 0,4       | 19,44      | 008 | 19,44      | 008 |
|          | 8,00. R/L .1,20.1,0  | 8          | 1,2      | 1,0        | 3,3      | 4,8       | 6,0      | 0,6       | 19,44      | 012 | 19,44      | 012 |
|          | 8,00. R/L .1,80.1,0  | 8          | 1,8      | 1,0        | 3,3      | 4,8       | 6,0      | 0,9       | 19,44      | 018 | 19,44      | 018 |
|          | 8,00. R/L .2,00.1,0  | 8          | 2,0      | 1,0        | 3,3      | 4,8       | 6,0      | 1,0       | 19,78      | 020 | 19,78      | 020 |
| 09       | 9,00. R/L .0,80.1,6  | 9          | 0,8      | 1,6        | 3,6      | 5,5       | 6,2      | 0,4       | 20,49      | 108 | 20,49      | 108 |
|          | 9,00. R/L .1,20.1,6  | 9          | 1,2      | 1,6        | 3,6      | 5,5       | 6,2      | 0,6       | 20,49      | 112 | 20,49      | 112 |
|          | 9,00. R/L .1,80.1,6  | 9          | 1,8      | 1,6        | 3,6      | 5,5       | 6,2      | 0,9       | 20,49      | 118 | 20,49      | 118 |
|          | 9,00. R/L .2,00.1,6  | 9          | 2,0      | 1,6        | 3,6      | 5,5       | 6,2      | 1,0       | 20,49      | 120 | 20,49      | 120 |
| 11       | 11,00. R/L .0,80.2,3 | 11         | 0,8      | 2,3        | 4,2      | 6,7       | 8,0      | 0,4       | 20,02      | 308 | 20,02      | 308 |
|          | 11,00. R/L .1,20.2,3 | 11         | 1,2      | 2,3        | 4,2      | 6,7       | 8,0      | 0,6       | 20,02      | 312 | 20,02      | 312 |
|          | 11,00. R/L .1,60.2,3 | 11         | 1,6      | 2,3        | 4,2      | 6,7       | 8,0      | 0,8       | 20,49      | 316 | 20,49      | 316 |
|          | 11,00. R/L .1,80.2,3 | 11         | 1,8      | 2,3        | 4,2      | 6,7       | 8,0      | 0,9       | 20,02      | 318 | 20,02      | 318 |
|          | 11,00. R/L .2,00.2,3 | 11         | 2,0      | 2,3        | 4,2      | 6,7       | 8,0      | 1,0       | 20,02      | 320 | 20,02      | 320 |
|          | 11,00. R/L .2,40.2,3 | 11         | 2,4      | 2,3        | 4,2      | 6,7       | 8,0      | 1,2       | 20,49      | 324 | 20,49      | 324 |
|          | 11,00. R/L .3,00.2,3 | 11         | 3,0      | 2,3        | 4,2      | 6,7       | 8,0      | 1,5       | 20,02      | 330 | 20,02      | 330 |
| 14       | 14,00. R/L .0,80.4,0 | 14         | 0,8      | 4,0        | 5,3      | 9,0       | 9,0      | 0,4       | 21,29      | 508 | 21,29      | 508 |
|          | 14,00. R/L .1,20.4,0 | 14         | 1,2      | 4,0        | 5,3      | 9,0       | 9,0      | 0,6       | 20,95      | 512 | 20,95      | 512 |
|          | 14,00. R/L .1,80.4,0 | 14         | 1,8      | 4,0        | 5,3      | 9,0       | 9,0      | 0,9       | 20,95      | 518 | 20,95      | 518 |
|          | 14,00. R/L .2,00.4,0 | 14         | 2,0      | 4,0        | 5,3      | 9,0       | 9,0      | 1,0       | 20,95      | 520 | 20,95      | 520 |
|          | 14,00. R/L .2,20.4,0 | 14         | 2,2      | 4,0        | 5,3      | 9,0       | 9,0      | 1,1       | 20,95      | 522 | 20,95      | 522 |
|          | 14,00. R/L .3,00.4,0 | 14         | 3,0      | 4,0        | 5,3      | 9,0       | 9,0      | 1,5       | 20,95      | 530 | 20,95      | 530 |
| 16       | 16,00. R/L .1,60.4,3 | 16         | 1,6      | 4,3        | 5,4      | 10,2      | 11,0     | 0,8       | 21,87      | 716 | 21,87      | 716 |
|          | 16,00. R/L .1,80.4,3 | 16         | 1,8      | 4,3        | 5,4      | 10,2      | 11,0     | 0,9       | 21,53      | 718 | 21,53      | 718 |
|          | 16,00. R/L .2,00.4,3 | 16         | 2,0      | 4,3        | 5,4      | 10,2      | 11,0     | 1,0       | 21,87      | 720 | 21,87      | 720 |
|          | 16,00. R/L .2,20.4,3 | 16         | 2,2      | 4,3        | 5,4      | 10,2      | 11,0     | 1,1       | 21,53      | 722 | 21,53      | 722 |
|          | 16,00. R/L .2,40.4,3 | 16         | 2,4      | 4,3        | 5,4      | 10,2      | 11,0     | 1,2       | 21,87      | 724 | 21,87      | 724 |
|          | 16,00. R/L .3,00.4,3 | 16         | 3,0      | 4,3        | 5,4      | 10,2      | 11,0     | 1,5       | 21,53      | 730 | 21,53      | 730 |
|          | 16,00. R/L .3,20.4,3 | 16         | 3,2      | 4,3        | 5,4      | 10,2      | 11,0     | 1,6       | 21,87      | 732 | 21,87      | 732 |
|          | 16,00. R/L .4,00.4,3 | 16         | 4,0      | 4,3        | 5,4      | 10,2      | 11,0     | 2,0       | 21,53      | 740 | 21,53      | 740 |
| P        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| M        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| K        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| N        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| S        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| H        |                      |            |          |            |          |           |          |           |            | •   |            | •   |
| O        |                      |            |          |            |          |           |          |           |            | •   |            | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia gwintów (profil częściowy)

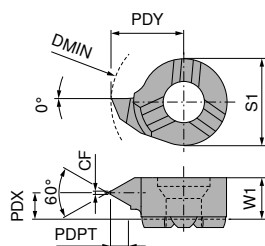
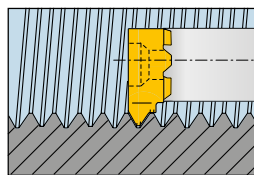


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie               | DMIN<br>mm | TP<br>mm   | CF<br>mm | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | lewe       |     | prawe      |     |
|----------|--------------------------|------------|------------|----------|------------|----------|-----------|-----------|----------|------------|-----|------------|-----|
|          |                          |            |            |          |            |          |           |           |          | 73 344 ... |     | 73 342 ... |     |
| 08       | 8,00. R/L .0,5/0,75.60°  | 8          | 0,5 - 0,75 | 0,06     | 0,43       | 3,50     | 2,7       | 4,8       | 6,0      | EUR Y5     |     | EUR Y5     |     |
|          | 8,00. R/L .1,0/1,25.60°  | 8          | 1,0 - 1,25 | 0,12     | 0,70       | 3,50     | 2,7       | 4,8       | 6,0      | 21,53      | 012 | 21,53      | 012 |
|          | 8,00. R/L .1,5/1,75.60°  | 8          | 1,5 - 1,75 | 0,18     | 0,95       | 3,50     | 2,5       | 4,8       | 6,0      | 21,53      | 014 | 21,53      | 014 |
| 09       | 9,00. R/L .0,5/0,75.60°  | 9          | 0,5 - 0,75 | 0,06     | 0,27       | 3,55     | 3,2       | 5,5       | 6,2      | 21,87      | 112 | 21,87      | 112 |
|          | 9,00. R/L .1,0/1,25.60°  | 9          | 1,0 - 1,25 | 0,12     | 0,54       | 3,55     | 3,0       | 5,5       | 6,2      | 21,87      | 114 | 21,87      | 114 |
|          | 9,00. R/L .1,5/1,75.60°  | 9          | 1,5 - 1,75 | 0,18     | 0,81       | 3,55     | 2,8       | 5,5       | 6,2      | 21,87      | 116 | 21,87      | 116 |
|          | 9,00. R/L .1,75/2,0.60°  | 9          | 1,75 - 2,0 | 0,20     | 0,95       | 3,55     | 2,6       | 5,5       | 6,2      | 21,87      | 118 | 21,87      | 118 |
|          | 9,00. R/L .2,0/2,5.60°   | 9          | 2,0 - 2,5  | 0,25     | 1,08       | 3,55     | 2,5       | 5,5       | 6,2      | 21,87      | 120 | 21,87      | 120 |
|          | 9,00. R/L .2,5/3,0.60°   | 9          | 2,5 - 3,0  | 0,31     | 1,35       | 3,55     | 2,1       | 5,5       | 6,2      | 21,87      | 122 | 21,87      | 122 |
|          | 9,00. R/L .3,0/3,5.60°   | 9          | 3,0 - 3,5  | 0,37     | 1,62       | 3,55     | 1,9       | 5,5       | 6,2      | 21,87      | 124 | 21,87      | 124 |
| 11       | 11,00. R/L .0,5/0,75.60° | 11         | 0,5 - 0,75 | 0,06     | 0,75       | 4,30     | 3,5       | 6,7       | 8,0      | 21,53      | 312 | 21,53      | 312 |
|          | 11,00. R/L .1,0/1,25.60° | 11         | 1,0 - 1,25 | 0,12     | 0,55       | 4,30     | 3,5       | 6,7       | 8,0      | 21,53      | 314 | 21,53      | 314 |
|          | 11,00. R/L .1,5/1,75.60° | 11         | 1,5 - 1,75 | 0,18     | 0,81       | 4,30     | 3,5       | 6,7       | 8,0      | 21,53      | 316 | 21,53      | 316 |
|          | 11,00. R/L .2,0/2,5.60°  | 11         | 2,0 - 2,5  | 0,25     | 1,08       | 4,30     | 3,0       | 6,7       | 8,0      | 21,53      | 310 | 21,53      | 310 |
|          | 11,00. R/L .2,5/3,0.60°  | 11         | 2,5 - 3,0  | 0,31     | 1,35       | 4,30     | 3,0       | 6,7       | 8,0      | 21,53      | 320 | 21,53      | 320 |
| 14       | 14,00. R/L .1,0/1,25.60° | 14         | 1,0 - 1,25 | 0,12     | 0,55       | 5,40     | 4,7       | 9,0       | 9,0      | 21,53      | 512 | 21,53      | 512 |
|          | 14,00. R/L .1,5/1,75.60° | 14         | 1,5 - 1,75 | 0,18     | 0,81       | 5,40     | 4,5       | 9,0       | 9,0      | 21,53      | 514 | 21,53      | 514 |
|          | 14,00. R/L .2,0/2,5.60°  | 14         | 2,0 - 2,5  | 0,25     | 1,08       | 5,40     | 4,2       | 9,0       | 9,0      | 21,53      | 510 | 21,53      | 510 |
|          | 14,00. R/L .2,5/3,0.60°  | 14         | 2,5 - 3,0  | 0,31     | 1,35       | 5,40     | 4,7       | 9,0       | 9,0      | 21,53      | 520 | 21,53      | 520 |
| 16       | 16,00. R/L .1,0/1,25.60° | 16         | 1,0 - 1,25 | 0,12     | 0,55       | 5,50     | 4,7       | 10,2      | 11,0     | 21,53      | 712 | 21,53      | 712 |
|          | 16,00. R/L .1,5/1,75.60° | 16         | 1,5 - 1,75 | 0,18     | 0,81       | 5,50     | 4,5       | 10,2      | 11,0     | 21,53      | 714 | 21,53      | 714 |
|          | 16,00. R/L .2,0/2,5.60°  | 16         | 2,0 - 2,5  | 0,25     | 1,08       | 5,50     | 4,2       | 10,2      | 11,0     | 21,53      | 716 | 21,53      | 716 |
|          | 16,00. R/L .2,5/3,0.60°  | 16         | 2,5 - 3,0  | 0,31     | 1,35       | 5,50     | 4,2       | 10,2      | 11,0     | 21,53      | 710 | 21,53      | 710 |
| P        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| M        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| K        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| N        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| S        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| H        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |
| O        |                          |            |            |          |            |          |           |           |          | •          |     | •          |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia gwintów (profil pełny)

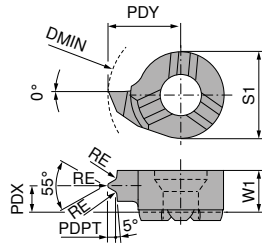
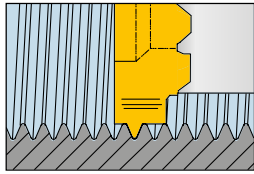


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie          | DMIN<br>mm | TP<br>mm | CF<br>mm | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | lewe               |     | prawe              |     |
|----------|---------------------|------------|----------|----------|------------|----------|-----------|-----------|----------|--------------------|-----|--------------------|-----|
|          |                     |            |          |          |            |          |           |           |          | 73 348 ...         |     | 73 346 ...         |     |
| 09       | 9,00. R/L .0,5.60°  | 9          | 0,50     | 0,06     | 0,27       | 3,55     | 3,25      | 5,5       | 6,2      | EUR<br>Y5<br>24,41 | 405 | EUR<br>Y5<br>24,41 | 405 |
|          | 9,00. R/L .1,0.60°  | 9          | 1,00     | 0,12     | 0,54       | 3,55     | 3,00      | 5,5       | 6,2      | 24,41              | 410 | 24,41              | 410 |
|          | 9,00. R/L .1,5.60°  | 9          | 1,50     | 0,18     | 0,81       | 3,55     | 2,80      | 5,5       | 6,2      | 24,41              | 415 | 24,41              | 415 |
|          | 9,00. R/L .1,75.60° | 9          | 1,75     | 0,20     | 0,95       | 3,55     | 2,70      | 5,5       | 6,2      | 24,41              | 418 | 24,41              | 418 |
|          | 9,00. R/L .2,0.60°  | 9          | 2,00     | 0,25     | 1,08       | 3,55     | 2,60      | 5,5       | 6,2      | 24,41              | 420 | 24,41              | 420 |
|          | 9,00. R/L .2,5.60°  | 9          | 2,50     | 0,31     | 1,35       | 3,55     | 2,50      | 5,5       | 6,2      | 24,41              | 425 | 24,41              | 425 |
|          | 9,00. R/L .3,0.60°  | 9          | 3,00     | 0,37     | 1,62       | 3,55     | 2,20      | 5,5       | 6,2      | 24,41              | 430 | 24,41              | 430 |
| 11       | 11,00. R/L .1,0.60° | 11         | 1,00     | 0,12     | 0,54       | 4,30     | 3,50      | 6,7       | 8,0      | 23,95              | 314 | 23,95              | 314 |
|          | 11,00. R/L .1,5.60° | 11         | 1,50     | 0,18     | 0,81       | 4,30     | 3,50      | 6,7       | 8,0      | 23,95              | 316 | 23,95              | 316 |
|          | 11,00. R/L .2,0.60° | 11         | 2,00     | 0,25     | 1,08       | 4,30     | 3,20      | 6,7       | 8,0      | 23,95              | 310 | 23,95              | 310 |
|          | 11,00. R/L .2,5.60° | 11         | 2,50     | 0,31     | 1,35       | 4,30     | 3,00      | 6,7       | 8,0      | 23,95              | 320 | 23,95              | 320 |
|          | 11,00. R/L .3,0.60° | 11         | 3,00     | 0,37     | 1,62       | 4,30     | 2,90      | 6,7       | 8,0      | 23,95              | 330 | 23,95              | 330 |
| 14       | 14,00. R/L .0,5.60° | 14         | 0,50     | 0,06     | 0,27       | 5,40     | 3,50      | 9,0       | 9,0      | 24,89              | 510 | 24,89              | 510 |
|          | 14,00. R/L .1,0.60° | 14         | 1,00     | 0,12     | 0,54       | 5,40     | 3,50      | 9,0       | 9,0      | 22,10              | 512 | 22,10              | 512 |
|          | 14,00. R/L .1,5.60° | 14         | 1,50     | 0,18     | 0,81       | 5,40     | 3,30      | 9,0       | 9,0      | 22,10              | 514 | 22,10              | 514 |
|          | 14,00. R/L .2,0.60° | 14         | 2,00     | 0,25     | 1,08       | 5,40     | 4,20      | 9,0       | 9,0      | 22,10              | 610 | 22,10              | 610 |
|          | 14,00. R/L .2,5.60° | 14         | 2,50     | 0,31     | 1,35       | 5,40     | 4,70      | 9,0       | 9,0      | 22,10              | 520 | 22,10              | 520 |
| 16       | 16,00. R/L .1,0.60° | 16         | 1,00     | 0,12     | 0,54       | 5,50     | 4,70      | 10,2      | 11,0     | 26,73              | 712 | 26,73              | 712 |
|          | 16,00. R/L .1,5.60° | 16         | 1,50     | 0,18     | 0,81       | 5,50     | 4,50      | 10,2      | 11,0     | 26,73              | 714 | 26,73              | 714 |
|          | 16,00. R/L .2,0.60° | 16         | 2,00     | 0,25     | 1,08       | 5,50     | 4,20      | 10,2      | 11,0     | 26,73              | 716 | 26,73              | 716 |
|          | 16,00. R/L .2,5.60° | 16         | 2,50     | 0,31     | 1,35       | 5,50     | 4,20      | 10,2      | 11,0     | 26,73              | 710 | 26,73              | 710 |
|          | 16,00. R/L .3,0.60° | 16         | 3,00     | 0,37     | 1,62       | 5,50     | 4,00      | 10,2      | 11,0     | 26,73              | 720 | 26,73              | 720 |
|          | 16,00. R/L .3,5.60° | 16         | 3,50     | 0,43     | 1,89       | 5,50     | 3,80      | 10,2      | 11,0     | 26,73              | 730 | 26,73              | 730 |
|          | 16,00. R/L .4,0.60° | 16         | 4,00     | 0,50     | 2,16       | 5,50     | 3,60      | 10,2      | 11,0     | 26,73              | 740 | 26,73              | 740 |
| P        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| M        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| K        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| N        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| S        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| H        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| O        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia gwintów (profil pełny)



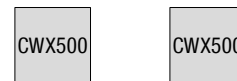
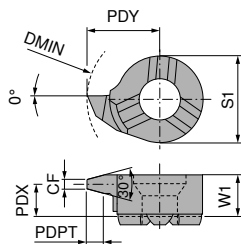
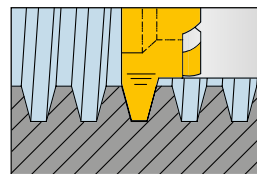
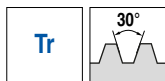
Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie            | DMIN<br>mm | TP<br>mm | TPI<br>1/" | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | RE<br>mm | lewe       |     | prawe      |     |
|----------|-----------------------|------------|----------|------------|------------|----------|-----------|-----------|----------|----------|------------|-----|------------|-----|
|          |                       |            |          |            |            |          |           |           |          |          | 73 352 ... |     | 73 350 ... |     |
|          |                       |            |          |            |            |          |           |           |          |          | EUR<br>Y5  |     | EUR<br>Y5  |     |
| 11       | 11,00. R/L .1,814.55° | 11         | 1,814    | 14         | 1,16       | 4,30     | 3,0       | 6,7       | 8        | 0,24     | 31,83      | 306 | 31,83      | 306 |
|          | 11,00. R/L .1,337.55° | 11         | 1,337    | 19         | 0,85       | 4,30     | 2,7       | 6,7       | 8        | 0,18     | 31,83      | 304 | 31,83      | 304 |
| 14       | 14,00. R/L .1,814.55° | 14         | 1,814    | 14         | 1,16       | 5,35     | 3,6       | 9,0       | 9        | 0,24     | 31,83      | 506 | 31,83      | 506 |
|          | 14,00. R/L .1,337.55° | 14         | 1,337    | 19         | 0,85       | 5,35     | 3,8       | 9,0       | 9        | 0,18     | 31,83      | 504 | 31,83      | 504 |
| 16       | 16,00. R/L .2,309.55° | 16         | 2,309    | 11         | 1,48       | 5,50     | 3,5       | 10,2      | 11       | 0,31     | 34,03      | 708 | 34,03      | 708 |
|          | 16,00. R/L .1,814.55° | 16         | 1,814    | 14         | 1,16       | 5,50     | 3,9       | 10,2      | 11       | 0,24     | 34,03      | 706 | 34,03      | 706 |
| P        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| M        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| K        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| N        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| S        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| H        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |
| O        |                       |            |          |            |            |          |           |           |          |          | •          |     | •          |     |

→ v<sub>c</sub> strona 59

# MiniCut – Płytki do toczenia gwintów (profil częściowy)

▲ Gwint trapezowy DIN 103

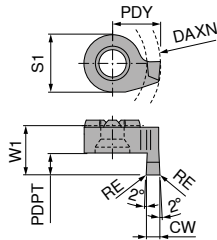
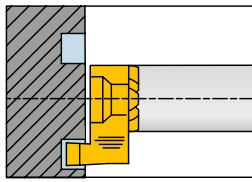


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie          | DMIN<br>mm | TP<br>mm | CF<br>mm | PDPT<br>mm | W1<br>mm | PDX<br>mm | PDY<br>mm | S1<br>mm | lewe               |     | prawe              |     |
|----------|---------------------|------------|----------|----------|------------|----------|-----------|-----------|----------|--------------------|-----|--------------------|-----|
|          |                     |            |          |          |            |          |           |           |          | 73 356 ...         |     | 73 354 ...         |     |
| 09       | 9,00. R/L .1,5.30°  | 9          | 1,5      | 0,47     | 0,90       | 3,55     | 3,00      | 5,5       | 6,2      | EUR<br>Y5<br>22,56 | 415 | EUR<br>Y5<br>22,56 | 415 |
|          | 9,00. R/L .2,0.30°  | 9          | 2,0      | 0,60     | 1,25       | 3,55     | 2,85      | 5,5       | 6,2      | 22,56              | 420 | 22,56              | 420 |
|          | 9,00. R/L .3,0.30°  | 9          | 3,0      | 0,96     | 1,75       | 3,55     | 2,25      | 5,5       | 6,2      | 22,56              | 430 | 22,56              | 430 |
|          | 9,00. R/L .4,0.30°  | 10         | 4,0      | 1,33     | 2,25       | 3,55     | 2,25      | 5,5       | 6,2      | 22,56              | 440 | 22,56              | 440 |
| 11       | 11,00. R/L .1,5.30° | 11         | 1,5      | 0,47     | 0,90       | 4,30     | 3,70      | 6,7       | 8,0      | 22,21              | 315 | 22,21              | 315 |
|          | 11,00. R/L .2,0.30° | 11         | 2,0      | 0,60     | 1,25       | 4,30     | 3,50      | 6,7       | 8,0      | 22,21              | 320 | 22,21              | 320 |
|          | 11,00. R/L .3,0.30° | 11         | 3,0      | 0,96     | 1,75       | 4,30     | 3,20      | 6,7       | 8,0      | 22,21              | 330 | 22,21              | 330 |
|          | 11,00. R/L .4,0.30° | 11         | 4,0      | 1,33     | 2,25       | 3,95     | 2,60      | 6,7       | 8,0      | 21,53              | 340 | 21,53              | 340 |
| 14       | 14,00. R/L .2,0.30° | 14         | 2,0      | 0,60     | 1,25       | 5,30     | 4,30      | 9,0       | 9,0      | 22,21              | 520 | 22,21              | 520 |
|          | 14,00. R/L .3,0.30° | 14         | 3,0      | 0,96     | 1,75       | 5,30     | 4,00      | 9,0       | 9,0      | 22,21              | 530 | 22,21              | 530 |
|          | 14,00. R/L .4,0.30° | 14         | 4,0      | 1,33     | 2,25       | 5,30     | 3,60      | 9,0       | 9,0      | 22,21              | 540 | 22,21              | 540 |
|          | 14,00. R/L .5,0.30° | 14         | 5,0      | 1,69     | 2,75       | 5,30     | 3,30      | 9,0       | 9,0      | 22,21              | 550 | 22,21              | 550 |
| 16       | 16,00. R/L .2,0.30° | 16         | 2,0      | 0,60     | 1,25       | 5,50     | 4,50      | 9,7       | 11,0     | 25,35              | 720 | 25,35              | 720 |
|          | 16,00. R/L .3,0.30° | 16         | 3,0      | 0,96     | 1,75       | 5,50     | 4,30      | 9,7       | 11,0     | 25,35              | 730 | 25,35              | 730 |
|          | 16,00. R/L .4,0.30° | 16         | 4,0      | 1,33     | 2,25       | 5,50     | 4,00      | 9,7       | 11,0     | 25,35              | 740 | 25,35              | 740 |
|          | 16,00. R/L .5,0.30° | 16         | 5,0      | 1,69     | 2,75       | 5,50     | 3,55      | 9,7       | 11,0     | 24,53              | 750 | 24,53              | 750 |
|          | 16,00. R/L .6,0.30° | 16         | 6,0      | 1,92     | 3,50       | 5,50     | 3,30      | 10,2      | 11,0     | 26,73              | 760 | 26,73              | 760 |
| P        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| M        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| K        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| N        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| S        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| H        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |
| O        |                     |            |          |          |            |          |           |           |          |                    | •   |                    | •   |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia rowków czołowych



CW500

CW500

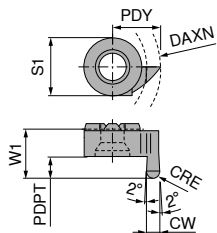
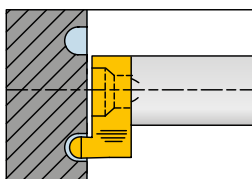


Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie         | DAXN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | RE<br>mm | S1<br>mm | lewe<br>73 364 ... |     | prawe<br>73 362 ... |     |
|----------|--------------------|------------|----------|------------|----------|-----------|----------|----------|--------------------|-----|---------------------|-----|
|          |                    |            |          |            |          |           |          |          | EUR<br>Y5          |     | EUR<br>Y5           |     |
| 14       | 14,00. R/L 1,0,1,5 | 14         | 1,0      | 1,5        | 8,3      | 9         |          | 9        | 17,48              | 510 | 17,48               | 510 |
|          | 14,00. R/L 1,5,2,5 | 14         | 1,5      | 2,5        | 8,3      | 9         | 0,2      | 9        | 17,48              | 515 | 17,48               | 515 |
|          | 14,00. R/L 2,0,3,0 | 14         | 2,0      | 3,0        | 8,3      | 9         | 0,2      | 9        | 17,48              | 520 | 17,48               | 520 |
|          | 14,00. R/L 2,0,5,0 | 14         | 2,0      | 5,0        | 10,3     | 9         | 0,2      | 9        | 20,02              | 620 | 20,02               | 620 |
|          | 14,00. R/L 2,5,3,0 | 14         | 2,5      | 3,0        | 8,3      | 9         | 0,2      | 9        | 17,48              | 525 | 17,48               | 525 |
|          | 14,00. R/L 2,5,5,0 | 14         | 2,5      | 5,0        | 10,3     | 9         | 0,2      | 9        | 20,02              | 625 | 20,02               | 625 |
|          | 14,00. R/L 3,0,3,0 | 14         | 3,0      | 3,0        | 8,3      | 9         | 0,2      | 9        | 17,48              | 530 | 17,48               | 530 |
|          | 14,00. R/L 3,0,5,0 | 14         | 3,0      | 5,0        | 10,3     | 9         | 0,2      | 9        | 20,02              | 630 | 20,02               | 630 |
| P        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| M        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| K        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| N        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| S        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| H        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |
| O        |                    |            |          |            |          |           |          |          | •                  |     | •                   |     |

→ v<sub>c</sub> strona 59

## MiniCut – Płytki do toczenia rowków czołowych (pełny promień)



CW500

CW500



Rysunki pokazują wykonanie prawe

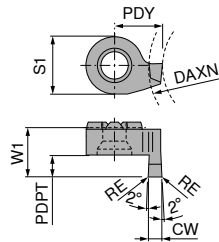
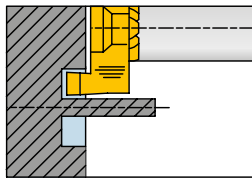
| Wielkość | Oznaczenie         | DAXN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | CRE<br>mm | S1<br>mm | lewe<br>73 376 ... |     | prawe<br>73 374 ... |     |
|----------|--------------------|------------|----------|------------|----------|-----------|-----------|----------|--------------------|-----|---------------------|-----|
|          |                    |            |          |            |          |           |           |          | EUR<br>Y5          |     | EUR<br>Y5           |     |
| 14       | 14,00. R/L 1,0,1,5 | 14         | 1,0      | 1,5        | 8,3      | 9         | 0,5       | 9        | 21,53              | 510 | 21,53               | 510 |
|          | 14,00. R/L 1,6,2,5 | 14         | 1,6      | 2,5        | 8,3      | 9         | 0,8       | 9        | 21,53              | 516 | 21,53               | 516 |
|          | 14,00. R/L 2,0,3,0 | 14         | 2,0      | 3,0        | 8,3      | 9         | 1,0       | 9        | 21,53              | 520 | 21,53               | 520 |
|          | 14,00. R/L 2,5,3,0 | 14         | 2,5      | 3,0        | 8,3      | 9         | 1,2       | 9        | 21,53              | 525 | 21,53               | 525 |
|          | 14,00. R/L 3,0,3,0 | 14         | 3,0      | 3,0        | 8,3      | 9         | 1,5       | 9        | 21,53              | 530 | 21,53               | 530 |
| P        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| M        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| K        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| N        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| S        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| H        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |
| O        |                    |            |          |            |          |           |           |          | •                  |     | •                   |     |

→ v<sub>c</sub> strona 59

# MiniCut – Płytki do toczenia rowków czołowych w czopach

CWX500

CWX500



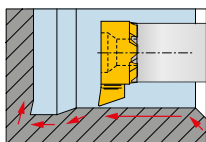
Rysunki pokazują wykonanie prawe

| Wielkość | Oznaczenie          | DAXN<br>mm | CW<br>mm | PDPT<br>mm | W1<br>mm | PDY<br>mm | RE<br>mm | S1<br>mm | lewe       |     | prawe      |     |
|----------|---------------------|------------|----------|------------|----------|-----------|----------|----------|------------|-----|------------|-----|
|          |                     |            |          |            |          |           |          |          | 73 360 ... |     | 73 358 ... |     |
| 14       | 14/12. R/L .1.0.1,5 | 12         | 1,0      | 1,5        | 8,3      | 7,0       |          | 9        | EUR Y5     |     | EUR Y5     |     |
|          | 14/12. R/L .1.5.2,5 | 12         | 1,5      | 2,5        | 8,3      | 7,5       | 0,2      | 9        | 18,06      | 310 | 18,06      | 310 |
|          | 14/12. R/L .2.0.3,0 | 12         | 2,0      | 3,0        | 8,3      | 8,0       | 0,2      | 9        | 18,40      | 315 | 18,40      | 315 |
|          | 14/12. R/L .2.0.5,0 | 12         | 2,0      | 5,0        | 10,3     | 8,0       | 0,2      | 9        | 18,40      | 320 | 18,40      | 320 |
|          | 14/12. R/L .2.5.3,0 | 12         | 2,5      | 3,0        | 8,3      | 8,5       | 0,2      | 9        | 21,19      | 420 | 21,19      | 420 |
|          | 14/12. R/L .2.5.5,0 | 12         | 2,5      | 5,0        | 10,3     | 8,5       | 0,2      | 9        | 18,40      | 325 | 18,40      | 325 |
|          | 14/12. R/L .3.0.3,0 | 12         | 3,0      | 3,0        | 8,3      | 9,0       | 0,2      | 9        | 21,19      | 425 | 21,19      | 425 |
|          | 14/12. R/L .3.0.5,0 | 12         | 3,0      | 5,0        | 10,3     | 9,0       | 0,2      | 9        | 18,40      | 330 | 18,40      | 330 |
|          |                     |            |          |            |          |           |          |          | 21,19      | 430 | 21,19      | 430 |
| P        |                     |            |          |            |          |           |          |          |            |     |            |     |
| M        |                     |            |          |            |          |           |          |          |            |     |            |     |
| K        |                     |            |          |            |          |           |          |          |            |     |            |     |
| N        |                     |            |          |            |          |           |          |          |            |     |            |     |
| S        |                     |            |          |            |          |           |          |          |            |     |            |     |
| H        |                     |            |          |            |          |           |          |          |            |     |            |     |
| O        |                     |            |          |            |          |           |          |          |            |     |            |     |

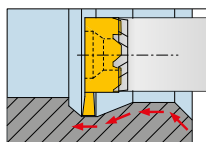
→ v<sub>c</sub> strona 59

## MiniCut – Zestaw

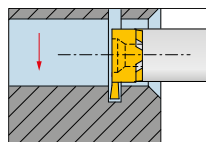
- ▲ obszerny asortyment płytek o rozmiarze 9
- ▲ CWX500



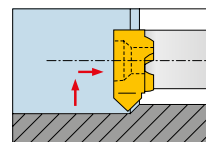
Toczenie kopiowe (K)



Wytaczanie (A)



Toczenie rowków (E)



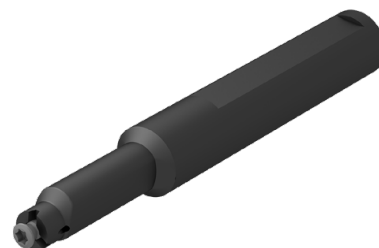
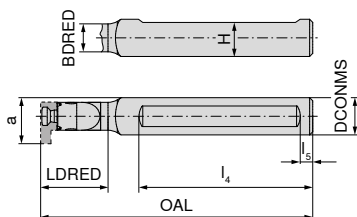
Fazowanie (F)



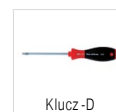
12

| Wielkość | Narzędzie                        | Oznaczenie        | Nr artykułu | Ø otworu<br>mm | Szerokość<br>mm | Głębokość skrawania<br>mm | sztuka | Rys. | 73 528 ... |     |
|----------|----------------------------------|-------------------|-------------|----------------|-----------------|---------------------------|--------|------|------------|-----|
|          |                                  |                   |             |                |                 |                           |        |      | EUR Y5     |     |
| 09       | płytkę do toc. rowków            | 9,00. R .1,00.1,8 | 73 310 210  | 9              | 1,00            | 1,8                       | 1      | E    |            |     |
|          | Płytkę do toc. precyzyjnego      | 9,00. R .2,00.2,0 | 73 314 120  | 9              | 2,0 +0,05       | 2,0                       | 1      | A    |            |     |
|          | Płytkę do toc. kopiowego         | 9,00. R .3,60.10° | 73 386 136  | 9              | 3,6             |                           | 1      | K    |            |     |
|          | Płytkę do toc. kopiowego         | 9,00. R .3,60.20° | 73 322 236  | 9              | 3,6             |                           | 1      | K    | 200,50     | 125 |
|          | Płytkę do fazowania i wytaczania | 9,00. R .45°.1,3  | 73 334 110  | 9              |                 | 1,3                       | 1      | F    |            |     |
|          | Nóż tokarski                     | 9,00/16.N.25.1,0  | 73 522 125  |                |                 |                           | 1      |      |            |     |
|          | Kłucz mocujący                   |                   | 70 950 105  |                |                 |                           | 1      |      |            |     |

## MiniCut – Stalowa oprawka narzędziowa



|          |                   |      |                      |     |                |       |       |      |                | 73 522 ... |     |
|----------|-------------------|------|----------------------|-----|----------------|-------|-------|------|----------------|------------|-----|
| Wielkość | Oznaczenie        | a    | DCONMS <sub>17</sub> | OAL | l <sub>4</sub> | LDRED | BDRED | H    | l <sub>5</sub> | EUR        |     |
| 08       | 8,00/16.N.12.1,0  | 7,8  | 16                   | 80  | 60             | 12    | 6,0   | 15,0 | 5              | Y5         | 012 |
|          | 8,00/16.N.22.1,0  | 7,8  | 16                   | 90  | 60             | 22    | 6,0   | 15,0 | 5              | 85,64      | 122 |
| 09       | 9,00/16.N.14.1,8  | 8,6  | 16                   | 95  | 60             | 14    | 7,4   | 15,0 | 5              | 98,18      |     |
|          | 9,00/16.N.25.1,8  | 8,6  | 16                   | 105 | 60             | 25    | 7,4   | 15,0 | 5              | 86,73      | 014 |
| 11       | 11,00/16.N.16.2,3 | 10,7 | 16                   | 97  | 60             | 16    | 8,0   | 14,5 | 5              | 99,47      | 125 |
|          | 11,00/16.N.29.2,3 | 10,7 | 16                   | 110 | 60             | 29    | 8,0   | 14,5 | 5              | 85,64      | 016 |
| 14       | 14,00/16.N.18.4,0 | 13,8 | 16                   | 100 | 60             | 18    | 11,0  | 14,5 | 5              | 98,18      | 018 |
|          | 14,00/16.N.38.4,0 | 13,8 | 16                   | 120 | 60             | 38    | 11,0  | 14,5 | 5              | 98,18      | 138 |
| 16       | 16,00/16.N.22.4,3 | 15,7 | 16                   | 100 | 60             | 22    | 11,0  | 14,5 | 5              |            |     |
|          | 16,00/16.N.42.4,3 | 15,7 | 16                   | 120 | 60             | 42    | 11,0  | 14,5 | 5              | 85,64      | 022 |
|          |                   |      |                      |     |                |       |       |      |                | 98,18      | 142 |



Klucz - D

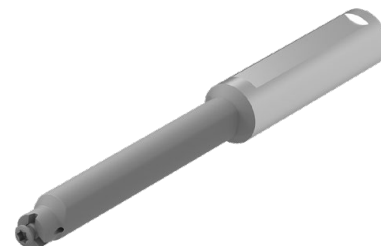
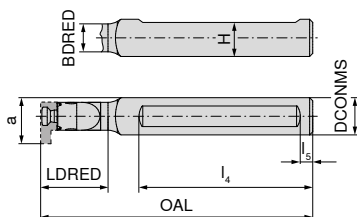


Śruba zaciskowa

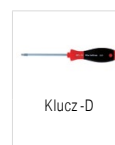
Części zamienne  
Wielkość

|    |     |       |     | 80 950 ... |      | 73 082 ... |     |
|----|-----|-------|-----|------------|------|------------|-----|
|    |     |       |     | EUR        |      | EUR        |     |
| 08 | T08 | 8,03  | 110 | Y7         | M2,6 | Y5         | 002 |
| 09 | T08 | 8,03  | 110 |            | M2,6 |            | 002 |
| 11 | T10 | 9,41  | 112 |            | M3,5 |            | 003 |
| 14 | T15 | 9,56  | 113 |            | M4   |            | 004 |
| 16 | T20 | 10,25 | 114 |            | M5   |            | 005 |

## MiniCut – Oprawka mocująca z węglika – tłumiąca drgania



|          |                      |      |                      |     |                |       |       |      |                | 73 520 ... |
|----------|----------------------|------|----------------------|-----|----------------|-------|-------|------|----------------|------------|
| Wielkość | Oznaczenie           | a    | DCONMS <sub>17</sub> | OAL | I <sub>4</sub> | LDRED | BDRED | H    | I <sub>5</sub> | EUR<br>Y5  |
| 08       | 8,00/12.N.21.1,0 HM  | 7,8  | 12                   | 80  | 48             | 21    | 6,0   | 11,0 | 5              | 140,90     |
|          | 8,00/12.N.30.1,0 HM  | 7,8  | 12                   | 90  | 48             | 30    | 6,0   | 11,0 | 5              | 153,00     |
|          | 8,00/12.N.42.1,0 HM  | 7,8  | 12                   | 100 | 48             | 42    | 6,0   | 11,0 | 5              | 180,60     |
|          | 8,00/12.N.50.1,0 HM  | 7,8  | 12                   | 115 | 48             | 50    | 6,0   | 11,0 | 5              | 204,80     |
| 09       | 9,00/12.N.22.1,0 HM  | 8,6  | 12                   | 90  | 60             | 22    | 7,4   | 11,0 | 5              | 158,60     |
|          | 9,00/12.N.30.2,0 HM  | 8,6  | 12                   | 98  | 60             | 30    | 7,4   | 11,0 | 5              | 185,00     |
|          | 9,00/12.N.42.3,0 HM  | 8,6  | 12                   | 110 | 60             | 42    | 7,4   | 11,0 | 5              | 208,10     |
|          | 9,00/12.N.56.4,0 HM  | 8,6  | 12                   | 122 | 60             | 56    | 7,4   | 11,0 | 5              | 235,60     |
| 11       | 11,00/12.N.29.2,3 HM | 10,7 | 12                   | 95  | 60             | 29    | 8,0   | 10,5 | 5              | 140,90     |
|          | 11,00/12.N.42.2,3 HM | 10,7 | 12                   | 110 | 60             | 42    | 8,0   | 10,5 | 5              | 153,00     |
|          | 11,00/12.N.56.2,3 HM | 10,7 | 12                   | 120 | 60             | 56    | 8,0   | 10,5 | 5              | 180,60     |
|          | 11,00/12.N.64.2,3 HM | 10,7 | 12                   | 130 | 60             | 64    | 8,0   | 10,5 | 5              | 204,80     |
| 14       | 14,00/12.N.34.4,0 HM | 13,8 | 12                   | 100 | 60             | 34    | 11,0  | 10,5 | 5              | 171,80     |
|          | 14,00/12.N.45.4,0 HM | 13,8 | 12                   | 110 | 60             | 45    | 11,0  | 10,5 | 5              | 193,70     |
|          | 14,00/12.N.64.4,0 HM | 13,8 | 12                   | 130 | 60             | 64    | 11,0  | 10,5 | 5              | 230,20     |
|          | 14,00/16.N.34.4,0 HM | 13,8 | 16                   | 100 | 60             | 34    | 11,0  | 14,5 | 5              | 201,50     |
|          | 14,00/16.N.45.4,0 HM | 13,8 | 16                   | 110 | 60             | 45    | 11,0  | 14,5 | 5              | 231,20     |
|          | 14,00/16.N.64.4,0 HM | 13,8 | 16                   | 130 | 60             | 64    | 11,0  | 14,5 | 5              | 263,10     |
|          | 14,00/16.N.75.4,0 HM | 13,8 | 16                   | 145 | 60             | 75    | 11,0  | 14,5 | 5              | 281,90     |
| 16       | 16,00/12.N.40.4,3 HM | 15,7 | 12                   | 130 | 60             | 40    | 11,0  | 10,5 | 5              | 182,80     |
|          | 16,00/12.N.56.4,3 HM | 15,7 | 12                   | 130 | 60             | 56    | 11,0  | 10,5 | 5              | 193,70     |
|          | 16,00/12.N.80.4,3 HM | 15,7 | 12                   | 150 | 60             | 80    | 11,0  | 10,5 | 5              | 230,20     |
|          | 16,00/16.N.40.4,3 HM | 15,7 | 16                   | 130 | 60             | 40    | 11,0  | 14,5 | 5              | 231,20     |
|          | 16,00/16.N.56.4,3 HM | 15,7 | 16                   | 130 | 60             | 56    | 11,0  | 14,5 | 5              | 231,20     |
|          | 16,00/16.N.80.4,3 HM | 15,7 | 16                   | 150 | 60             | 80    | 11,0  | 14,5 | 5              | 263,10     |



Klucz -D

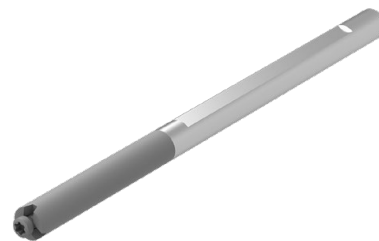
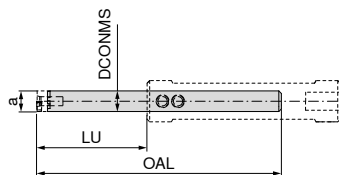


Śruba zaciskowa

Części zamienne  
Wielkość

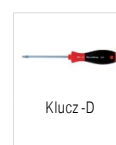
|    |     |       |     |      |      |     |
|----|-----|-------|-----|------|------|-----|
| 08 | T08 | 8,03  | 110 | M2,6 | 3,24 | 002 |
| 09 | T08 | 8,03  | 110 | M2,6 | 3,24 | 002 |
| 11 | T10 | 9,41  | 112 | M3,5 | 3,24 | 003 |
| 14 | T15 | 9,56  | 113 | M4   | 3,24 | 004 |
| 16 | T20 | 10,25 | 114 | M5   | 3,24 | 005 |

## MiniCut – Oprawka narzędziowa z węgla



|          |              |        |     |    |    | 73 525 ... |                   |
|----------|--------------|--------|-----|----|----|------------|-------------------|
| Wielkość | Oznaczenie   | DCONMS | OAL | LU | a  | EUR        |                   |
|          |              | mm     | mm  | mm | mm | Y5         |                   |
| 08       | 8,0/6.N16/2  | 6      | 65  | 18 | 8  | 223,60     | 818               |
|          | 8,0/6.N40/4  | 6      | 103 | 40 | 8  | 254,30     | 840               |
| 11       | 11,0/8.N20/2 | 8      | 79  | 20 | 11 | 283,00     | 120 <sup>1)</sup> |
|          | 11,0/8.N50/4 | 8      | 129 | 50 | 11 | 321,50     | 150 <sup>1)</sup> |

1) z chłodzeniem wewnętrznym



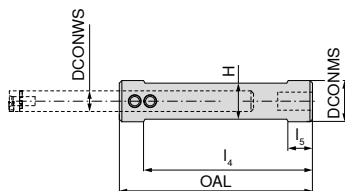
Klucz-D



Śruba zaciskowa

|                 |  |  |     | 80 950 ... |     | 73 082 ... |     |
|-----------------|--|--|-----|------------|-----|------------|-----|
|                 |  |  |     | EUR        |     | EUR        |     |
| Części zamienne |  |  |     | Y7         |     | Y5         |     |
| Wielkość        |  |  |     |            |     |            |     |
| 08              |  |  | T08 | 8,03       | 110 | 3,24       | 002 |
| 11              |  |  | T10 | 9,41       | 112 | 3,24       | 003 |

## MiniCut – Oprawka bazowa do oprawki Flexo z węgla spiekanego



|          |            |        |        |    |     |    |    | 73 526 ... |     |
|----------|------------|--------|--------|----|-----|----|----|------------|-----|
| Wielkość | Oznaczenie | DCONWS | DCONMS | H  | OAL | l4 | l5 | EUR        |     |
|          |            | mm     | mm     | mm | mm  | mm | mm | Y5         |     |
| 08       | 8/16.75    | 6      | 16     | 14 | 75  | 55 | 10 | 131,70     | 816 |
|          | 8/20.90    | 6      | 20     | 18 | 90  | 70 | 10 | 131,70     | 820 |
| 11       | 11/16.75   | 8      | 16     | 14 | 75  | 55 | 10 | 131,70     | 116 |
|          | 11/20.90   | 8      | 20     | 18 | 90  | 70 | 10 | 131,70     | 120 |



Klucz-I

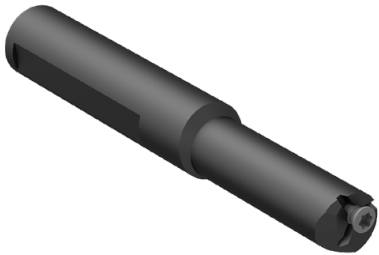
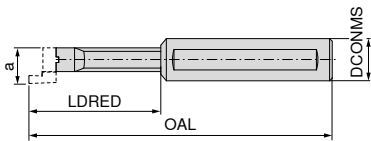


Śruba zaciskowa

|                 |  |  |       | 70 950 ... |     | 73 082 ... |     |
|-----------------|--|--|-------|------------|-----|------------|-----|
|                 |  |  |       | EUR        |     | EUR        |     |
| Części zamienne |  |  |       | 2A/28      |     | Y5         |     |
| Dla nr artykułu |  |  |       |            |     |            |     |
| 73 526 816      |  |  | SW2,5 | 2,57       | 175 | 3,05       | 010 |
| 73 526 820      |  |  | SW2,5 | 2,57       | 175 | 3,05       | 010 |
| 73 526 116      |  |  | SW2,5 | 2,57       | 175 | 3,05       | 009 |
| 73 526 120      |  |  | SW2,5 | 2,57       | 175 | 3,05       | 010 |

# MiniCut – Stalowa oprawka narzędziowa

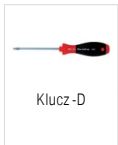
▲ do obróbki osiowej



| Wielkość | Oznaczenie           | a<br>mm | DCONMS<br>mm | OAL<br>mm | LDRED<br>mm | lewe             |            | prawe            |            |
|----------|----------------------|---------|--------------|-----------|-------------|------------------|------------|------------------|------------|
|          |                      |         |              |           |             | 73 523 ...       |            | 73 524 ...       |            |
| 14       | 14,0/16. R/L .25.1,0 | 13,5    | 16           | 90        | 25          | EUR<br>Y5        |            | EUR<br>Y5        |            |
|          | 14,0/16. R/L .45.1,0 | 13,5    | 16           | 110       | 45          | 117,70<br>125,30 | 025<br>145 | 117,70<br>125,30 | 025<br>145 |

Części zamienne  
Wielkość

|    |     |            |           |      |     |    |            |           |      |     |
|----|-----|------------|-----------|------|-----|----|------------|-----------|------|-----|
| 14 | T15 | 80 950 ... | EUR<br>Y7 | 9,56 | 113 | M4 | 73 082 ... | EUR<br>Y5 | 3,24 | 004 |
|----|-----|------------|-----------|------|-----|----|------------|-----------|------|-----|



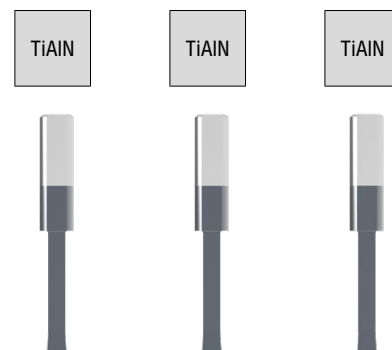
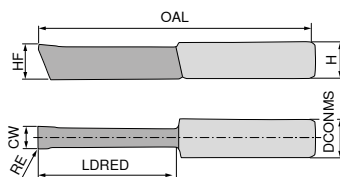
Klucz -D



Śruba zaciskowa

# SlotCut – Noże oprawkowe DIN 138

▲  $b_1$  = szerokość rowka



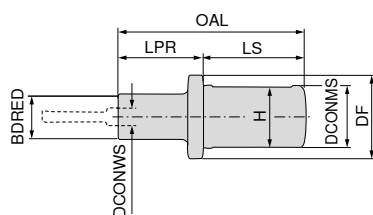
| Oznaczenie    | $b_1$ P9/JS9/C11 | CW   | HF  | RE   | OAL | LDRED | DMIN | DCONMS <sub>h6</sub> | H   | uchwyt zaciskowy | 73 600 ...     | 73 601 ... | 73 602 ...         |
|---------------|------------------|------|-----|------|-----|-------|------|----------------------|-----|------------------|----------------|------------|--------------------|
|               |                  |      |     |      |     |       |      |                      |     |                  | EUR<br>Y5      | EUR<br>Y5  | EUR<br>Y5          |
| NPU.0198.01.1 | 2                | 1,98 | 5,5 | 0,10 | 38  | 12,5  | 6    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0200.01.1 | 2                | 2,01 | 5,5 | 0,10 | 38  | 12,5  | 6    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0210.03.1 | 2                | 2,10 | 5,5 | 0,35 | 38  | 12,5  | 6    | 7                    | 6,3 | NHU              | 45,13          | 099        | 45,13 099          |
| NPU.0298.01.1 | 3                | 2,98 | 6,2 | 0,10 | 38  | 12,5  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0300.01.1 | 3                | 3,01 | 6,2 | 0,10 | 38  | 12,5  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0310.03.1 | 3                | 3,10 | 6,2 | 0,35 | 38  | 12,5  | 7    | 7                    | 6,3 | NHU              | 45,13          | 099        | 45,13 100          |
| NPU.0310.05.1 | 3                | 3,10 | 6,2 | 0,50 | 38  | 12,5  | 7    | 7                    | 6,3 | NHU              | 45,13          | 100        |                    |
| NPU.0398.01.1 | 4                | 3,98 | 6,2 | 0,10 | 40  | 15,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0398.02.2 | 4                | 3,98 | 6,2 | 0,20 | 50  | 25,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0400.01.1 | 4                | 4,01 | 6,2 | 0,10 | 40  | 15,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0400.02.1 | 4                | 4,01 | 6,2 | 0,20 | 40  | 15,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0400.02.2 | 4                | 4,01 | 6,2 | 0,20 | 50  | 25,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0410.05.1 | 4                | 4,10 | 6,2 | 0,50 | 40  | 15,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0410.05.2 | 4                | 4,10 | 6,2 | 0,50 | 50  | 25,0  | 7    | 7                    | 6,3 | NHU              | 43,28<br>56,71 | 101<br>102 | 43,28<br>56,71 102 |
| NPU.0498.02.2 | 5                | 4,98 | 5,8 | 0,20 | 50  | 25,0  | 7    | 7                    | 6,3 | NHU              |                |            |                    |
| NPU.0500.02.2 | 5                | 5,01 | 5,8 | 0,20 | 50  | 25,0  | 8    | 7                    | 6,3 | NHU              |                |            |                    |

Tolerancja **C 11** dla 73 600 ..., tolerancja **JS 9** dla 73 601 ..., tolerancja **P 9** dla 73 602 ...

## SlotCut – Oprawka do noży

### Zakres dostawy:

Oprawka zaciskowa ze śrubą mocującą, bez noża oprawkowego



| Oznaczenie | DCONWS | BDRED | DCONMS <sub>g6</sub> | DF | OAL | LS | LPR | H  | Nóż oprawkowy | 73 610 ... |
|------------|--------|-------|----------------------|----|-----|----|-----|----|---------------|------------|
|            |        |       |                      |    |     |    |     |    |               | EUR<br>Y5  |
| NHU.25     | 7      | 18    | 25                   | 33 | 73  | 40 | 33  | 23 | NPU           | 221,50     |
| NHU.32     | 7      | 20    | 32                   | 40 | 73  | 40 | 33  | 30 | NPU           | 231,10 032 |



Klucz-I



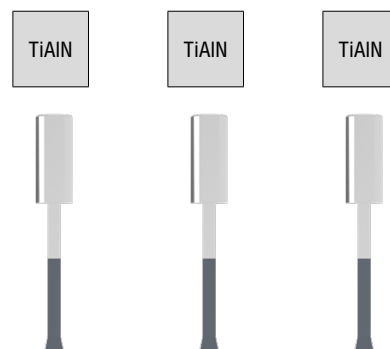
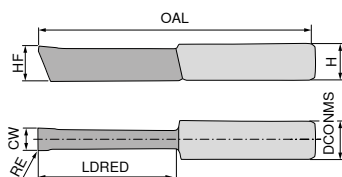
Śruba zaciskowa

### Części zamienne Dla nr artykułu

|            |       | 70 950 ...           | 73 082 ...        |
|------------|-------|----------------------|-------------------|
| 73 610 025 | SW2,5 | EUR<br>2A/28<br>2,57 | EUR<br>Y5<br>2,99 |
| 73 610 032 | SW2,5 | 175                  | 001               |

# SlotCut – Noże oprawkowe – DIN 138

▲ b<sub>1</sub> = szerokość rowka



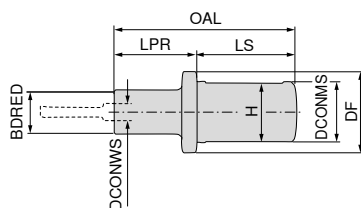
| Oznaczenie    | b <sub>1</sub> JS9/P9/C11<br>mm | CW<br>mm | HF<br>mm | RE<br>mm | OAL<br>mm | LDRED<br>mm | DMIN<br>mm | DCONMS <sub>g6</sub><br>mm | H<br>mm | uchwyt<br>zaciskowy | 73 606 ... |     | 73 607 ... |     | 73 608 ... |     |
|---------------|---------------------------------|----------|----------|----------|-----------|-------------|------------|----------------------------|---------|---------------------|------------|-----|------------|-----|------------|-----|
|               |                                 |          |          |          |           |             |            |                            |         |                     | EUR<br>Y5  |     | EUR<br>Y5  |     | EUR<br>Y5  |     |
| NP10.398.02.2 | 4                               | 3,98     | 9        | 0,2      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               |            |     | 63,07      | 101 |            |     |
| NP10.398.02.3 | 4                               | 3,98     | 9        | 0,2      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               |            |     | 78,93      | 102 |            |     |
| NP10.400.02.2 | 4                               | 4,01     | 9        | 0,2      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               |            |     |            |     | 63,07      | 101 |
| NP10.400.02.3 | 4                               | 4,01     | 9        | 0,2      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               |            |     |            |     | 78,93      | 102 |
| NP10.410.05.2 | 4                               | 4,10     | 9        | 0,5      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               | 63,07      | 101 |            |     |            |     |
| NP10.410.05.3 | 4                               | 4,10     | 9        | 0,5      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               | 78,93      | 102 |            |     |            |     |
| NP10.498.02.2 | 5                               | 4,98     | 9        | 0,2      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               |            |     | 63,07      | 103 |            |     |
| NP10.498.02.3 | 5                               | 4,98     | 9        | 0,2      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               |            |     | 78,93      | 104 |            |     |
| NP10.500.02.2 | 5                               | 5,01     | 9        | 0,2      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               |            |     |            |     | 63,07      | 103 |
| NP10.500.02.3 | 5                               | 5,01     | 9        | 0,2      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               |            |     |            |     | 78,93      | 104 |
| NP10.510.05.2 | 5                               | 5,10     | 9        | 0,5      | 50        | 25          | 10         | 10                         | 9,2     | NH 10               | 63,07      | 103 |            |     |            |     |
| NP10.510.05.3 | 5                               | 5,10     | 9        | 0,5      | 66        | 41          | 10         | 10                         | 9,2     | NH 10               | 78,93      | 104 |            |     |            |     |

1 Tolerancja **C 11** dla 73 606 ..., tolerancja **P 9** dla 73 607 ..., tolerancja **JS 9** dla 73 608 ...

## SlotCut – Oprawka do noży

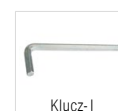
### Zakres dostawy:

Oprawka zaciskowa ze śrubą mocującą, bez noża oprawkowego



12

| Oznaczenie  | DCONWS<br>mm | BDRED<br>mm | DCONMS <sub>g6</sub><br>mm | DF<br>mm | OAL<br>mm | LS<br>mm | LPR<br>mm | H<br>mm | Nóż oprawkowy | 73 612 ... |     |
|-------------|--------------|-------------|----------------------------|----------|-----------|----------|-----------|---------|---------------|------------|-----|
|             |              |             |                            |          |           |          |           |         |               | EUR<br>Y5  |     |
| NH10.0025.1 | 10           | 20          | 25                         | 33       | 73        | 40       | 33        | 23      | NP10          | 221,50     | 025 |
| NH10.0032.1 | 10           | 20          | 32                         | 40       | 73        | 40       | 33        | 30      | NP10          | 221,50     | 032 |



Klucz-I

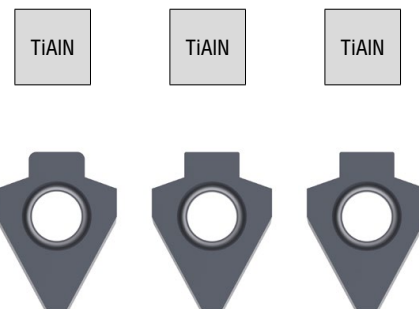
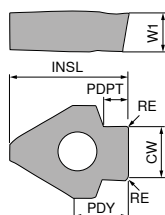


Wkręt bez łba

### Części zamienne Dla nr artykułu

|            |     |      |     |        |      |     |
|------------|-----|------|-----|--------|------|-----|
| 73 612 032 | SW3 | 2,57 | 176 | M6x5,5 | 3,54 | 031 |
| 73 612 025 | SW3 | 2,57 | 176 | M6x5,5 | 3,54 | 031 |

## SlotCut – Noże oprawkowe – DIN 138

▲ b<sub>1</sub> = szerokość rowka

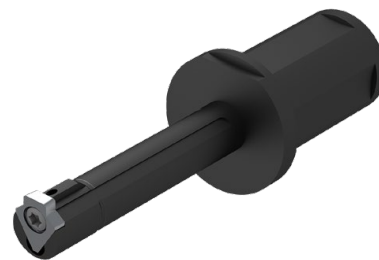
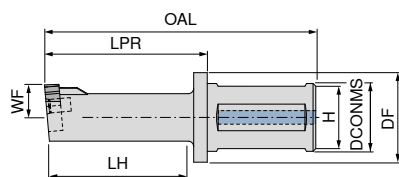
| Oznaczenie    | b <sub>1</sub> P9/JS9/C11<br>mm | CW<br>mm | RE<br>mm | PDY<br>mm | INSL<br>mm | PDPT<br>mm | DMIN<br>mm | W1<br>mm | uchwyt zaciskowy | 73 603 ... |     | 73 604 ... |     | 73 605 ... |     |
|---------------|---------------------------------|----------|----------|-----------|------------|------------|------------|----------|------------------|------------|-----|------------|-----|------------|-----|
|               |                                 |          |          |           |            |            |            |          |                  | EUR<br>Y5  |     | EUR<br>Y5  |     | EUR<br>Y5  |     |
| NV15.0398.02  | 4                               | 3,98     | 0,20     | 6,5       | 13,0       | 2,3        | 15         | 3,2      | NHV 15           |            |     |            |     | 40,05      | 110 |
| NV15.0401.02  | 4                               | 4,01     | 0,20     | 6,5       | 13,0       | 2,3        | 15         | 3,2      | NHV 15           |            |     | 40,05      | 110 |            |     |
| NV15.0410.050 | 4                               | 4,10     | 0,50     | 6,5       | 13,0       | 2,2        | 15         | 3,2      | NHV 15           | 40,05      | 108 |            |     | 40,05      | 111 |
| NV15.0498.02  | 5                               | 4,98     | 0,20     | 6,5       | 13,0       | 2,8        | 15         | 3,2      | NHV 15           |            |     |            |     |            |     |
| NV15.0501.02  | 5                               | 5,01     | 0,20     | 6,5       | 13,0       | 2,8        | 15         | 3,2      | NHV 15           |            |     | 40,05      | 111 |            |     |
| NV15.0510.050 | 5                               | 5,10     | 0,50     | 6,5       | 13,0       | 2,5        | 15         | 3,2      | NHV 15           | 40,05      | 109 |            |     | 40,05      | 112 |
| NV15.0598.02  | 6                               | 5,98     | 0,20     | 6,5       | 13,0       | 3,3        | 15         | 3,2      | NHV 15           |            |     |            |     |            |     |
| NV15.0601.02  | 6                               | 6,01     | 0,20     | 6,5       | 13,0       | 3,3        | 15         | 3,2      | NHV 15           |            |     | 40,05      | 112 |            |     |
| NV15.0612.085 | 6                               | 6,12     | 0,85     | 6,5       | 13,0       | 2,6        | 15         | 3,2      | NHV 15           | 40,05      | 110 |            |     |            |     |
| NPV.0498.02   | 5                               | 4,98     | 0,20     | 8,0       | 17,3       | 2,7        | 22         | 5,3      | NHV 22           |            |     |            |     | 40,05      | 100 |
| NPV.0501.02   | 5                               | 5,01     | 0,20     | 8,0       | 17,3       | 2,7        | 22         | 5,3      | NHV 22           |            |     | 40,05      | 100 |            |     |
| NPV.0598.02   | 6                               | 5,98     | 0,20     | 8,0       | 17,3       | 3,4        | 22         | 5,3      | NHV 22           |            |     |            |     | 40,05      | 101 |
| NPV.0601.02   | 6                               | 6,01     | 0,20     | 8,0       | 17,3       | 3,4        | 22         | 5,3      | NHV 22           |            |     | 40,05      | 101 |            |     |
| NPV.0612.085  | 6                               | 6,12     | 0,85     | 8,0       | 17,3       | 2,6        | 22         | 5,3      | NHV 22           | 40,05      | 101 |            |     |            |     |
| NPV.0713.085  | 7                               | 7,13     | 0,85     | 8,0       | 17,3       | 3,3        | 22         | 5,3      | NHV 22           | 40,05      | 102 |            |     |            |     |
| NPV.0798.02   | 8                               | 7,98     | 0,20     | 8,0       | 17,3       | 4,1        | 22         | 5,3      | NHV 22/30        |            |     |            |     | 40,05      | 102 |
| NPV.0801.02   | 8                               | 8,01     | 0,20     | 8,0       | 17,3       | 4,1        | 22         | 5,3      | NHV 22/30        |            |     | 40,05      | 102 |            |     |
| NPV.0813.105  | 8                               | 8,13     | 1,05     | 8,0       | 17,3       | 3,4        | 22         | 5,3      | NHV 22/30        | 40,05      | 103 |            |     |            |     |
| NPV.0998.03   | 10                              | 9,98     | 0,30     | 8,0       | 17,3       | 4,2        | 30         | 5,3      | NHV 30           |            |     |            |     | 40,05      | 103 |
| NPV.1001.03   | 10                              | 10,01    | 0,30     | 8,0       | 17,3       | 4,2        | 30         | 5,3      | NHV 30           |            |     | 40,05      | 103 |            |     |
| NPV.1013.105  | 10                              | 10,13    | 1,05     | 10,9      | 20,2       | 4,2        | 40         | 5,3      | NHV 38           | 40,05      | 104 |            |     | 40,05      | 104 |
| NPV.1197.03   | 12                              | 11,97    | 0,30     | 10,9      | 20,2       | 5,7        | 40         | 5,3      | NHV 38           |            |     |            |     |            |     |
| NPV.1202.05   | 20                              | 12,02    | 0,50     | 10,9      | 20,2       | 8,5        | 40         | 5,3      | NHV 38           |            |     | 40,05      | 105 |            |     |
| NPV.1202.03   | 12                              | 12,02    | 0,30     | 10,9      | 20,2       | 5,7        | 40         | 5,3      | NHV 38           |            |     | 40,05      | 104 |            |     |
| NPV.1215.135  | 12                              | 12,15    | 1,35     | 10,9      | 20,2       | 5,1        | 40         | 5,3      | NHV 38           | 40,05      | 105 |            |     |            |     |
| NPV.1215.175  | 16                              | 12,15    | 1,75     | 10,9      | 20,2       | 6,6        | 40         | 5,3      | NHV 38           | 40,05      | 106 |            |     |            |     |
| NPV.1215.225  | 24                              | 12,15    | 2,25     | 10,9      | 20,2       | 8,5        | 40         | 5,3      | NHV 38           | 40,05      | 107 |            |     |            |     |
| NPV.1397.03   | 14                              | 13,97    | 0,30     | 10,9      | 20,1       | 7,5        | 45         | 5,3      | NHV 45           |            |     |            |     | 45,36      | 106 |
| NPV.1402.03   | 14                              | 14,02    | 0,30     | 10,9      | 20,1       | 7,5        | 45         | 5,3      | NHV 45           |            |     | 45,36      | 106 |            |     |
| NPV.1597.03   | 16                              | 15,97    | 0,30     | 10,9      | 20,1       | 7,5        | 45         | 5,3      | NHV 45           |            |     |            |     | 45,36      | 107 |
| NPV.1602.03   | 16                              | 16,02    | 0,30     | 10,9      | 20,1       | 7,5        | 45         | 5,3      | NHV 45           |            |     | 45,36      | 107 |            |     |
| NPV.1797.05   | 18                              | 17,97    | 0,50     | 10,9      | 20,1       | 9,5        | 45         | 5,3      | NHV 45           |            |     |            |     | 45,36      | 108 |
| NPV.1802.05   | 18                              | 18,02    | 0,50     | 10,9      | 20,1       | 9,5        | 45         | 5,3      | NHV 45           |            |     | 45,36      | 108 |            |     |
| NPV.1997.05   | 20                              | 19,97    | 0,50     | 10,9      | 20,1       | 10,0       | 45         | 5,3      | NHV 45           |            |     |            |     | 45,36      | 109 |
| NPV.2002.05   | 20                              | 20,02    | 0,50     | 10,9      | 20,1       | 10,0       | 45         | 5,3      | NHV 45           |            |     | 45,36      | 109 |            |     |

Tolerancja **C 11** dla 73 603 ..., tolerancja **JS 9** dla 73 604 ..., tolerancja **P 9** dla 73 605 ...

## SlotCut – Oprawki zaciskowe do noży oprawkowych

### Zakres dostawy:

Oprawka zaciskowa ze śrubą mocującą, bez noża oprawkowego



| Oznaczenie | DCONMS <sub>g6</sub><br>mm | DMIN<br>mm | DF<br>mm | OAL<br>mm | LH<br>mm | LPR<br>mm | H<br>mm | WF<br>mm | Nóż oprawkowy |
|------------|----------------------------|------------|----------|-----------|----------|-----------|---------|----------|---------------|
| NHV.15.1   | 25                         | 15         | 33       | 75        | 25       | 35        | 23      | 8,4      | NV15          |
| NHV.15.2   | 25                         | 15         | 33       | 90        | 40       | 50        | 23      | 8,4      | NV15          |
| NHV.15.3   | 25                         | 15         | 33       | 110       | 60       | 70        | 23      | 8,4      | NV15          |

73 613 ...

EUR

Y5

190,00

025

208,50

125

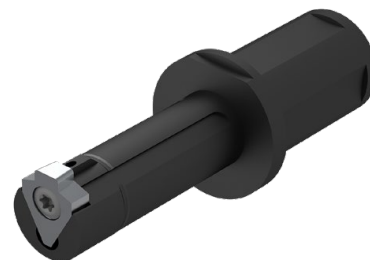
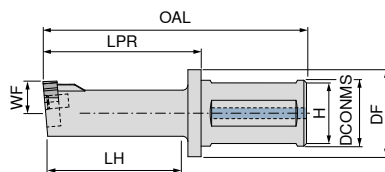
237,60

225

## SlotCut – Oprawki zaciskowe do noży oprawkowych

### Zakres dostawy:

Oprawka zaciskowa ze śrubą mocującą, bez noża oprawkowego



| Oznaczenie | DCONMS <sub>g6</sub><br>mm | DMIN<br>mm | DF<br>mm | OAL<br>mm | LH<br>mm | LPR<br>mm | H<br>mm | WF<br>mm | Nóż oprawkowy |
|------------|----------------------------|------------|----------|-----------|----------|-----------|---------|----------|---------------|
| NHV.22     | 25                         | 22         | 33       | 100       | 50       | 60        | 23      | 12,0     | NPV           |
| NHV.30     | 32                         | 30         | 45       | 100       | 50       | 60        | 30      | 16,5     | NPV           |
| NHV.30     | 32                         | 30         | 45       | 125       | 75       | 85        | 30      | 16,5     | NPV           |
| NHV.38     | 32                         | 38         | 45       | 100       | 50       | 60        | 30      | 22,0     | NPV           |
| NHV.38     | 32                         | 38         | 45       | 125       | 75       | 85        | 30      | 22,0     | NPV           |
| NHV.45     | 40                         | 45         | 55       | 120       | 50       | 60        | 38      | 24,0     | NPV           |
| NHV.45     | 40                         | 45         | 55       | 175       | 105      | 115       | 38      | 24,0     | NPV           |
| NHV.45     | 40                         | 45         | 55       | 225       | 155      | 165       | 38      | 24,0     | NPV           |

73 611 ...

EUR

Y5

207,40

025

207,40

032

235,40

532

207,40

132

235,40

632

280,80

040

380,20

140

428,70

240

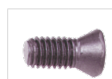
### Części zamienne

#### DCONMS<sub>g6</sub>

|    |     |       |     |       |      |     |
|----|-----|-------|-----|-------|------|-----|
| 25 | T20 | 10,25 | 114 | M5x13 | 4,40 | 007 |
| 32 | T20 | 10,25 | 114 | M5x13 | 4,40 | 007 |
| 40 | T20 | 10,25 | 114 | M5x13 | 4,40 | 007 |



Klucz -D



Śruba zaciskowa

80 950 ...

EUR

Y7

10,25

114

73 082 ...

EUR

Y5

4,40

007

## Przykłady materiałów dla tabeli parametrów

|   | Podgrupa materiałów                                       | Indeks | Skład / Struktura / Obróbka termiczna              |                         | Wytrzymałość<br>N/mm <sup>2</sup> / HB / HRC | Numer<br>materiału | Oznaczenie<br>materiału    | Numer<br>materiału | Oznaczenie<br>materiału |
|---|-----------------------------------------------------------|--------|----------------------------------------------------|-------------------------|----------------------------------------------|--------------------|----------------------------|--------------------|-------------------------|
| P | Stal niestopowa                                           | P.1.1  | < 0,15 % C                                         | wyżarzona               | 420 N/mm <sup>2</sup> / 125 HB               | 1.0401             | C15                        | 1.1141             | Ck15                    |
|   |                                                           | P.1.2  | < 0,45 % C                                         | wyżarzona               | 640 N/mm <sup>2</sup> / 190 HB               | 1.1191             | C45E                       | 1.0718             | 9SMnPb28                |
|   |                                                           | P.1.3  |                                                    | ulepszona cieplnie      | 840 N/mm <sup>2</sup> / 250 HB               | 1.1191             | C45E                       | 1.0535             | C55                     |
|   |                                                           | P.1.4  | < 0,75 % C                                         | wyżarzona               | 910 N/mm <sup>2</sup> / 270 HB               | 1.1223             | C60R                       | 1.0535             | C55                     |
|   |                                                           | P.1.5  |                                                    | ulepszona cieplnie      | 1010 N/mm <sup>2</sup> / 300 HB              | 1.1223             | C60R                       | 1.0727             | 45S20                   |
|   | Stal niskostopowa                                         | P.2.1  |                                                    | wyżarzona               | 610 N/mm <sup>2</sup> / 180 HB               | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6               |
|   |                                                           | P.2.2  |                                                    | ulepszona cieplnie      | 930 N/mm <sup>2</sup> / 275 HB               | 1.7131             | 16MnCr5                    | 1.6587             | 17CrNiMo6               |
|   |                                                           | P.2.3  |                                                    | ulepszona cieplnie      | 1010 N/mm <sup>2</sup> / 300 HB              | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6                  |
|   |                                                           | P.2.4  |                                                    | ulepszona cieplnie      | 1200 N/mm <sup>2</sup> / 375 HB              | 1.7225             | 42CrMo4                    | 1.3505             | 100Cr6                  |
|   | Stal wysokostopowa<br>i wysokostopowa<br>stal narzędziowa | P.3.1  |                                                    | wyżarzona               | 680 N/mm <sup>2</sup> / 200 HB               | 1.4021             | X20Cr13                    | 1.4034             | X46Cr13                 |
|   |                                                           | P.3.2  |                                                    | hartowana i odpuszczana | 1100 N/mm <sup>2</sup> / 300 HB              | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13                 |
|   |                                                           | P.3.3  |                                                    | hartowana i odpuszczana | 1300 N/mm <sup>2</sup> / 400 HB              | 1.2343             | X38CrMoV5-1                | 1.4034             | X46Cr13                 |
|   | Stal nierdzewna                                           | P.4.1  | ferrytyczna / martenzytyczna                       | wyżarzona               | 680 N/mm <sup>2</sup> / 200 HB               | 1.4016             | X6Cr17                     | 1.2316             | X36CrMo16               |
|   |                                                           | P.4.2  | martenzytyczna                                     | ulepszona cieplnie      | 1010 N/mm <sup>2</sup> / 300 HB              | 1.4112             | X90CrMoV18                 | 1.2316             | X36CrMo16               |
| M | Stal nierdzewna                                           | M.1.1  | austenityczna / austenityczno-ferrytyczna          | hartowana               | 610 N/mm <sup>2</sup> / 180 HB               | 1.4301             | X5CrNi18-10                | 1.4571             | X6CrNiMoTi17-12-2       |
|   |                                                           | M.2.1  | austenityczna                                      | ulepszona cieplnie      | 300 HB                                       | 1.4841             | X15CrNiSi25-21             | 1.4539             | X1NiCrMoCu25-20-5       |
|   |                                                           | M.3.1  | austenityczna / ferrytyczna (Duplex)               |                         | 780 N/mm <sup>2</sup> / 230 HB               | 1.4462             | X2CrNiMoN22-5-3            | 1.4501             | X2CrNiMoCuWN25-7-4      |
| K | Żeliwo szare                                              | K.1.1  | perlityczne / ferrytyczne                          |                         | 350 N/mm <sup>2</sup> / 180 HB               | 0.6010             | GG-10                      | 0.6025             | GG-25                   |
|   |                                                           | K.1.2  | perlityczne (martenzytyczne)                       |                         | 500 N/mm <sup>2</sup> / 260 HB               | 0.6030             | GG-30                      | 0.6045             | GG-45                   |
|   | Żeliwo sferoidalne                                        | K.2.1  | ferrytyczne                                        |                         | 540 N/mm <sup>2</sup> / 160 HB               | 0.7040             | GGG-40                     | 0.7060             | GGG-60                  |
|   |                                                           | K.2.2  | perlityczne                                        |                         | 845 N/mm <sup>2</sup> / 250 HB               | 0.7070             | GGG-70                     | 0.7080             | GGG-80                  |
|   | Żeliwo ciągliwe                                           | K.3.1  | ferrytyczne                                        |                         | 440 N/mm <sup>2</sup> / 130 HB               | 0.8035             | GTW-35-04                  | 0.8045             | GTW-45                  |
|   |                                                           | K.3.2  | perlityczne                                        |                         | 780 N/mm <sup>2</sup> / 230 HB               | 0.8165             | GTS-65-02                  | 0.8170             | GTS-70-02               |
| N | Aluminium – stop do<br>przeróbki plastycznej              | N.1.1  | nietwardzalny wydzieleniowo                        |                         | 60 HB                                        | 3.0255             | Al99,5                     | 3.3315             | AlMg1                   |
|   |                                                           | N.1.2  | utwardzalny wydzieleniowo                          | utwardzony              | 340 N/mm <sup>2</sup> / 100 HB               | 3.1355             | AlCuMg2                    | 3.2315             | AlMgSi1                 |
|   | Aluminium – stop odlewniczy                               | N.2.1  | ≤ 12 % Si, nietwardzalny wydzieleniowo             |                         | 250 N/mm <sup>2</sup> / 75 HB                | 3.2581             | G-AlSi12                   | 3.2163             | G-AlSi9Cu3              |
|   |                                                           | N.2.2  | ≤ 12 % Si, utwardzalny wydzieleniowo               | utwardzony              | 300 N/mm <sup>2</sup> / 90 HB                | 3.2134             | G-AlSi5Cu1Mg               | 3.2373             | G-AlSi9Mg               |
|   |                                                           | N.2.3  | > 12 % Si, nietwardzalny wydzieleniowo             |                         | 440 N/mm <sup>2</sup> / 130 HB               |                    | G-AlSi17Cu4Mg              |                    | G-AlSi18CuNiMg          |
|   | Miedź i<br>stopy miedzi<br>(brąz / mosiądz)               | N.3.1  | Stopy automatowy, 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, miedź bezołowiowa i<br>miedź elektrolityczna |                         | 340 N/mm <sup>2</sup> / 100 HB               | 2.0060             | E-Cu57                     | 2.0590             | CuZn40Fe                |
|   | Stopy magnezu                                             | N.4.1  | Magnez i stopy magnezu                             |                         | 70 HB                                        | 3.5612             | MgAl6Zn                    | 3.5312             | MgAl3Zn                 |
| S | Stopy żaroodporne                                         | S.1.1  | na bazie Fe                                        | wyżarzane               | 680 N/mm <sup>2</sup> / 200 HB               | 1.4864             | X12NiCrSi 36-16            | 1.4865             | G-X40NiCrSi38-18        |
|   |                                                           | S.1.2  |                                                    | utwardzone              | 950 N/mm <sup>2</sup> / 280 HB               | 1.4980             | X6NiCrTiMoVB25-15-2        | 1.4876             | X10NiCrAlTi32-20        |
|   |                                                           | S.2.1  |                                                    | wyżarzane               | 840 N/mm <sup>2</sup> / 250 HB               | 2.4631             | NiCr20TiAl (Nimonic80A)    | 3.4856             | NiCr22Mo9Nb             |
|   |                                                           | S.2.2  | na bazie Ni lub Co                                 | utwardzone              | 1180 N/mm <sup>2</sup> / 350 HB              | 2.4668             | NiCr19Nb5Mo3 (Inconel 718) | 2.4955             | NiFe25Cr20NbTi          |
|   |                                                           | S.2.3  |                                                    | odlewane                | 1080 N/mm <sup>2</sup> / 320 HB              | 2.4765             | CoCr20W15Ni                | 1.3401             | G-X120Mn12              |
|   | Stopy tytanu                                              | S.3.1  | Czysty tytan                                       |                         | 400 N/mm <sup>2</sup>                        | 3.7025             | Ti99,8                     | 3.7034             | Ti99,7                  |
|   |                                                           | S.3.2  | Stopy α + β                                        | utwardzone              | 1050 N/mm <sup>2</sup> / 320 HB              | 3.7165             | TiAl6V4                    | Ti-6246            | Ti-6Al-2Sn-4Zr-6Mo      |
|   |                                                           | S.3.3  | Stopy β                                            |                         | 1400 N/mm <sup>2</sup> / 410 HB              | Ti555.3            | Ti-5Al-5V-5Mo-3Cr          | R56410             | Ti-10V-2Fe-3Al          |
| H | Stal hartowana                                            | H.1.1  |                                                    | hartowana i odpuszczana | 46–55 HRC                                    |                    |                            |                    |                         |
|   |                                                           | H.1.2  |                                                    | hartowana i odpuszczana | 56–60 HRC                                    |                    |                            |                    |                         |
|   |                                                           | H.1.3  |                                                    | hartowana i odpuszczana | 61–65 HRC                                    |                    |                            |                    |                         |
|   |                                                           | H.1.4  |                                                    | hartowana i odpuszczana | 66–70 HRC                                    |                    |                            |                    |                         |
|   | Żeliwo utwardzone                                         | H.2.1  |                                                    | odlewane                | 400 HB                                       |                    |                            |                    |                         |
|   | Utwardzone żeliwo sferoidalne                             | H.3.1  |                                                    | hartowane i odpuszczane | 55 HRC                                       |                    |                            |                    |                         |
| O | Materiały niemetalowe                                     | O.1.1  | Tworzywa sztuczne, duroplastyczne                  |                         | ≤ 150 N/mm <sup>2</sup>                      |                    |                            |                    |                         |
|   |                                                           | O.1.2  | Tworzywa sztuczne, termoplastyczne                 |                         | ≤ 100 N/mm <sup>2</sup>                      |                    |                            |                    |                         |
|   |                                                           | O.2.1  | wzmocnione włóknem aramidowym                      |                         | ≤ 1000 N/mm <sup>2</sup>                     |                    |                            |                    |                         |
|   |                                                           | O.2.2  | wzmocnione włóknem szklanym/węglowym               |                         | ≤ 1000 N/mm <sup>2</sup>                     |                    |                            |                    |                         |
|   |                                                           | O.3.1  | Grafit                                             |                         |                                              |                    |                            |                    |                         |

\* wytrzymałość na  
rozciąganie

## Parametry skrawania

|        | UltraMini<br>K10F<br>bez powłoki | UltraMini<br>K10F-TiN | UltraMini<br>K10-TiAlN | UltraMini<br>DPX 57S | MiniCut<br>CWX500 | UltraMini<br>TiAlN+ | MiniCut<br>CBN |
|--------|----------------------------------|-----------------------|------------------------|----------------------|-------------------|---------------------|----------------|
| Indeks | $v_c$ w m/min                    |                       |                        |                      |                   |                     |                |
| P.1.1  |                                  | 90                    | 110                    | 110                  | 160               | 110                 |                |
| P.1.2  |                                  | 80                    | 100                    | 100                  | 140               | 100                 |                |
| P.1.3  |                                  | 60                    | 80                     | 80                   | 140               | 80                  |                |
| P.1.4  |                                  | 60                    | 80                     | 80                   | 110               | 80                  |                |
| P.1.5  |                                  | 60                    | 60                     | 60                   | 100               | 60                  |                |
| P.2.1  |                                  | 60                    | 80                     | 80                   | 110               | 80                  |                |
| P.2.2  |                                  | 60                    | 60                     | 60                   | 100               | 60                  |                |
| P.2.3  |                                  | 50                    | 60                     | 60                   | 90                | 60                  |                |
| P.2.4  |                                  | 50                    | 60                     | 60                   | 80                | 60                  |                |
| P.3.1  |                                  | 50                    | 60                     | 60                   | 80                | 60                  |                |
| P.3.2  |                                  | 30                    | 50                     | 50                   | 70                | 50                  |                |
| P.3.3  |                                  | 30                    | 30                     | 30                   | 50                | 30                  |                |
| P.4.1  |                                  | 60                    | 70                     | 70                   | 100               | 70                  |                |
| P.4.2  |                                  | 50                    | 60                     | 60                   | 90                | 60                  |                |
| M.1.1  |                                  | 60                    | 80                     | 80                   | 80                | 80                  |                |
| M.2.1  |                                  | 50                    | 60                     | 60                   | 70                | 60                  |                |
| M.3.1  |                                  | 40                    | 50                     | 50                   | 60                | 50                  |                |
| K.1.1  |                                  | 80                    | 100                    | 100                  | 90                | 100                 |                |
| K.1.2  |                                  | 60                    | 70                     | 70                   | 100               | 70                  |                |
| K.2.1  |                                  | 60                    | 60                     | 60                   | 80                | 60                  |                |
| K.2.2  |                                  | 50                    | 60                     | 60                   | 70                | 60                  |                |
| K.3.1  |                                  | 80                    | 100                    | 100                  | 120               | 100                 |                |
| K.3.2  |                                  | 70                    | 80                     | 80                   | 100               | 80                  |                |
| N.1.1  | 100                              | 200                   | 230                    | 230                  | 290               | 230                 |                |
| N.1.2  | 100                              | 180                   | 220                    | 220                  | 280               | 220                 |                |
| N.2.1  | 90                               | 160                   | 190                    | 190                  | 240               | 190                 |                |
| N.2.2  | 70                               | 140                   | 170                    | 170                  | 200               | 170                 |                |
| N.2.3  | 50                               | 80                    | 100                    | 100                  | 120               | 100                 |                |
| N.3.1  | 80                               | 140                   | 170                    | 170                  | 210               | 170                 |                |
| N.3.2  | 70                               | 120                   | 140                    | 140                  | 180               | 140                 |                |
| N.3.3  | 50                               | 100                   | 120                    | 120                  | 130               | 120                 |                |
| N.4.1  | 50                               | 100                   | 120                    | 120                  | 100               | 120                 |                |
| S.1.1  |                                  | 30                    | 50                     | 50                   | 50                | 50                  |                |
| S.1.2  |                                  | 30                    | 30                     | 30                   | 30                | 30                  | 30             |
| S.2.1  |                                  | 30                    | 50                     | 50                   | 50                | 50                  | 50             |
| S.2.2  |                                  | 30                    | 30                     | 30                   | 40                | 30                  | 30             |
| S.2.3  |                                  |                       | 30                     | 30                   | 30                | 30                  | 30             |
| S.3.1  |                                  | 30                    | 50                     | 50                   | 50                | 50                  |                |
| S.3.2  |                                  | 20                    | 30                     | 30                   | 40                | 30                  |                |
| S.3.3  |                                  |                       | 20                     | 20                   | 30                | 20                  | 20             |
| H.1.1  |                                  | 30                    | 40                     | 40                   | 50                | 40                  | 40             |
| H.1.2  |                                  |                       | 30                     | 30                   | 40                | 30                  | 30             |
| H.1.3  |                                  |                       |                        | 20                   |                   | 30                  | 30             |
| H.1.4  |                                  |                       |                        |                      |                   |                     |                |
| H.2.1  |                                  |                       |                        |                      |                   |                     |                |
| H.3.1  |                                  | 20                    | 30                     | 30                   | 40                | 30                  | 30             |
| O.1.1  | 50                               | 90                    | 110                    | 110                  | 150               | 110                 |                |
| O.1.2  | 50                               | 100                   | 120                    | 120                  | 150               | 120                 |                |
| O.2.1  |                                  | 90                    | 110                    | 110                  | 130               | 110                 |                |
| O.2.2  |                                  | 60                    | 80                     | 80                   | 100               | 80                  |                |
| O.3.1  | 50                               | 100                   | 120                    | 120                  | 150               | 120                 |                |

|  | UltraMini | MiniCut |
|--|-----------|---------|
|  | f w mm/U  |         |

Wytaczanie i kopiowanie 0,02-0,05 0,03-0,10

Wytaczanie i kopiowanie –  
toczenie materiałów twardych 0,02-0,06 0,03-0,10

Wytaczanie i kopiowanie –  
superstopy 0,02-0,08

Wytaczanie 0,02-0,05 0,01-0,03

Toczenie wsteczne 0,02-0,04 0,03-0,10

Wytaczanie i fazowanie 0,01-0,03 0,03-0,10

Wstępne toczenie rowków i  
fazowanie 0,01-0,02 0,01-0,03

Toczenie rowków 0,01-0,02 0,01-0,03

Podcięcia wewnętrzne 0,01-0,03 0,03-0,08

Toczenie rowków i kopiowanie 0,01-0,02 0,01-0,03

Toczenie rowków czołowych 0,02-0,05 0,02-0,05



Parametry skrawania są zdecydowanie zależne od warunków zewnętrznych, na przykład stabilności mocowania narzędzia i przedmiotu obrabianego, materiału i typu obrabiarki! Podane wartości prezentują potencjalne parametry skrawania, które należy skorygować o ok.  $\pm 20\%$  w zależności od warunków zastosowania narzędzia!

## Orientacyjne wartości parametrów skrawania – 73 000 ... / 73 001 ...

| Indeks | UltraMini<br>DPX77S<br><br>v <sub>c</sub> w m/min | Zgrubna                         |             |             |                                   |             |             |             |                                 |             |             |             |
|--------|---------------------------------------------------|---------------------------------|-------------|-------------|-----------------------------------|-------------|-------------|-------------|---------------------------------|-------------|-------------|-------------|
|        |                                                   | Ø ≤ 2 mm<br>Promień naroża w mm |             |             | Ø 2,5–4 mm<br>Promień naroża w mm |             |             |             | Ø ≥ 5 mm<br>Promień naroża w mm |             |             |             |
|        |                                                   | 0,05                            | 0,1         | 0,15        | 0,05                              | 0,1         | 0,15        | 0,2 / 0,4   | 0,05                            | 0,1         | 0,15        | 0,2 / 0,4   |
|        |                                                   | f w mm/U                        |             |             | f w mm/U                          |             |             |             | f w mm/U                        |             |             |             |
| P.1.1  | 110                                               | 0,026–0,076                     | 0,029–0,082 | 0,031–0,088 | 0,053–0,151                       | 0,058–0,165 | 0,062–0,176 | 0,064–0,184 | 0,099–0,284                     | 0,108–0,309 | 0,116–0,33  | 0,121–0,345 |
| P.1.2  | 100                                               | 0,026–0,076                     | 0,029–0,082 | 0,031–0,088 | 0,053–0,151                       | 0,058–0,165 | 0,062–0,176 | 0,064–0,184 | 0,099–0,284                     | 0,108–0,309 | 0,116–0,33  | 0,121–0,345 |
| P.1.3  | 80                                                | 0,026–0,076                     | 0,029–0,082 | 0,031–0,088 | 0,053–0,151                       | 0,058–0,165 | 0,062–0,176 | 0,064–0,184 | 0,099–0,284                     | 0,108–0,309 | 0,116–0,33  | 0,121–0,345 |
| P.1.4  | 80                                                | 0,023–0,065                     | 0,025–0,071 | 0,026–0,076 | 0,046–0,13                        | 0,05–0,142  | 0,053–0,151 | 0,055–0,158 | 0,085–0,244                     | 0,093–0,266 | 0,099–0,284 | 0,104–0,297 |
| P.1.5  | 60                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| P.2.1  | 80                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| P.2.2  | 60                                                | 0,021–0,06                      | 0,023–0,066 | 0,025–0,07  | 0,042–0,121                       | 0,046–0,132 | 0,049–0,141 | 0,052–0,147 | 0,079–0,227                     | 0,087–0,247 | 0,092–0,264 | 0,097–0,276 |
| P.2.3  | 60                                                | 0,019–0,054                     | 0,021–0,059 | 0,022–0,063 | 0,038–0,109                       | 0,042–0,119 | 0,044–0,127 | 0,046–0,132 | 0,071–0,204                     | 0,078–0,222 | 0,083–0,238 | 0,087–0,248 |
| P.2.4  | 60                                                | 0,018–0,051                     | 0,02–0,056  | 0,021–0,06  | 0,036–0,103                       | 0,039–0,112 | 0,042–0,12  | 0,044–0,125 | 0,067–0,193                     | 0,074–0,21  | 0,079–0,224 | 0,082–0,235 |
| P.3.1  | 60                                                | 0,021–0,06                      | 0,023–0,066 | 0,025–0,07  | 0,042–0,121                       | 0,046–0,132 | 0,049–0,141 | 0,052–0,147 | 0,079–0,227                     | 0,087–0,247 | 0,092–0,264 | 0,097–0,276 |
| P.3.2  | 50                                                | 0,02–0,057                      | 0,022–0,063 | 0,023–0,067 | 0,04–0,115                        | 0,044–0,125 | 0,047–0,134 | 0,049–0,14  | 0,075–0,215                     | 0,082–0,235 | 0,088–0,251 | 0,092–0,262 |
| P.3.3  | 30                                                | 0,016–0,045                     | 0,017–0,049 | 0,018–0,053 | 0,032–0,091                       | 0,035–0,099 | 0,037–0,106 | 0,039–0,11  | 0,06–0,17                       | 0,065–0,185 | 0,069–0,198 | 0,072–0,207 |
| P.4.1  | 70                                                | 0,022–0,064                     | 0,024–0,069 | 0,026–0,074 | 0,044–0,127                       | 0,048–0,138 | 0,052–0,148 | 0,054–0,155 | 0,083–0,238                     | 0,091–0,26  | 0,097–0,277 | 0,101–0,29  |
| P.4.2  | 60                                                | 0,021–0,06                      | 0,023–0,066 | 0,025–0,07  | 0,042–0,121                       | 0,046–0,132 | 0,049–0,141 | 0,052–0,147 | 0,079–0,227                     | 0,087–0,247 | 0,092–0,264 | 0,097–0,276 |
| M.1.1  | 80                                                | 0,015–0,042                     | 0,016–0,046 | 0,017–0,049 | 0,03–0,085                        | 0,032–0,092 | 0,034–0,099 | 0,036–0,103 | 0,056–0,159                     | 0,061–0,173 | 0,065–0,185 | 0,068–0,193 |
| M.2.1  | 60                                                | 0,013–0,038                     | 0,014–0,041 | 0,015–0,044 | 0,026–0,076                       | 0,029–0,082 | 0,031–0,088 | 0,032–0,092 | 0,05–0,142                      | 0,054–0,155 | 0,058–0,165 | 0,06–0,173  |
| M.3.1  | 50                                                | 0,014–0,039                     | 0,015–0,043 | 0,016–0,046 | 0,028–0,079                       | 0,03–0,086  | 0,032–0,092 | 0,033–0,096 | 0,052–0,147                     | 0,056–0,161 | 0,06–0,172  | 0,063–0,179 |
| K.1.1  | 100                                               | 0,026–0,076                     | 0,029–0,082 | 0,031–0,088 | 0,053–0,151                       | 0,058–0,165 | 0,062–0,176 | 0,064–0,184 | 0,099–0,284                     | 0,108–0,309 | 0,116–0,33  | 0,121–0,345 |
| K.1.2  | 70                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| K.2.1  | 60                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| K.2.2  | 60                                                | 0,021–0,059                     | 0,022–0,064 | 0,024–0,069 | 0,041–0,118                       | 0,045–0,129 | 0,048–0,137 | 0,05–0,144  | 0,077–0,221                     | 0,084–0,241 | 0,09–0,257  | 0,094–0,269 |
| K.3.1  | 100                                               | 0,025–0,073                     | 0,028–0,079 | 0,03–0,084  | 0,051–0,145                       | 0,055–0,158 | 0,059–0,169 | 0,062–0,177 | 0,095–0,272                     | 0,104–0,297 | 0,111–0,317 | 0,116–0,331 |
| K.3.2  | 80                                                | 0,021–0,06                      | 0,023–0,066 | 0,025–0,07  | 0,042–0,121                       | 0,046–0,132 | 0,049–0,141 | 0,052–0,147 | 0,079–0,227                     | 0,087–0,247 | 0,092–0,264 | 0,097–0,276 |
| N.1.1  | 230                                               | 0,032–0,091                     | 0,035–0,099 | 0,037–0,106 | 0,064–0,181                       | 0,069–0,198 | 0,074–0,211 | 0,077–0,221 | 0,119–0,34                      | 0,13–0,371  | 0,139–0,396 | 0,145–0,414 |
| N.1.2  | 220                                               | 0,031–0,089                     | 0,034–0,097 | 0,036–0,104 | 0,062–0,178                       | 0,068–0,194 | 0,073–0,208 | 0,076–0,217 | 0,117–0,335                     | 0,128–0,365 | 0,136–0,389 | 0,142–0,407 |
| N.2.1  | 190                                               | 0,03–0,085                      | 0,032–0,092 | 0,034–0,099 | 0,059–0,169                       | 0,065–0,185 | 0,069–0,197 | 0,072–0,206 | 0,111–0,318                     | 0,121–0,346 | 0,129–0,37  | 0,135–0,386 |
| N.2.2  | 170                                               | 0,029–0,083                     | 0,032–0,091 | 0,034–0,097 | 0,058–0,166                       | 0,063–0,181 | 0,068–0,194 | 0,071–0,202 | 0,109–0,312                     | 0,119–0,34  | 0,127–0,363 | 0,133–0,38  |
| N.2.3  | 100                                               | 0,029–0,082                     | 0,031–0,089 | 0,033–0,095 | 0,057–0,163                       | 0,062–0,178 | 0,067–0,19  | 0,07–0,199  | 0,107–0,306                     | 0,117–0,334 | 0,125–0,356 | 0,13–0,373  |
| N.3.1  | 170                                               | 0,03–0,085                      | 0,032–0,092 | 0,034–0,099 | 0,059–0,169                       | 0,065–0,185 | 0,069–0,197 | 0,072–0,206 | 0,111–0,318                     | 0,121–0,346 | 0,129–0,37  | 0,135–0,386 |
| N.3.2  | 140                                               | 0,028–0,08                      | 0,031–0,087 | 0,033–0,093 | 0,056–0,16                        | 0,061–0,175 | 0,065–0,187 | 0,068–0,195 | 0,105–0,301                     | 0,115–0,328 | 0,122–0,35  | 0,128–0,366 |
| N.3.3  | 120                                               | 0,027–0,077                     | 0,029–0,084 | 0,031–0,09  | 0,054–0,154                       | 0,059–0,168 | 0,063–0,18  | 0,066–0,188 | 0,101–0,289                     | 0,11–0,315  | 0,118–0,337 | 0,123–0,352 |
| N.4.1  | 120                                               | 0,027–0,077                     | 0,029–0,084 | 0,031–0,09  | 0,054–0,154                       | 0,059–0,168 | 0,063–0,18  | 0,066–0,188 | 0,101–0,289                     | 0,11–0,315  | 0,118–0,337 | 0,123–0,352 |
| S.1.1  | 50                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| S.1.2  | 30                                                | 0,019–0,053                     | 0,02–0,058  | 0,022–0,062 | 0,037–0,106                       | 0,04–0,115  | 0,043–0,123 | 0,045–0,129 | 0,069–0,198                     | 0,076–0,216 | 0,081–0,231 | 0,085–0,242 |
| S.2.1  | 50                                                | 0,018–0,051                     | 0,02–0,056  | 0,021–0,06  | 0,036–0,103                       | 0,039–0,112 | 0,042–0,12  | 0,044–0,125 | 0,067–0,193                     | 0,074–0,21  | 0,079–0,224 | 0,082–0,235 |
| S.2.2  | 30                                                | 0,014–0,039                     | 0,015–0,043 | 0,016–0,046 | 0,028–0,079                       | 0,03–0,086  | 0,032–0,092 | 0,033–0,096 | 0,052–0,147                     | 0,056–0,161 | 0,06–0,172  | 0,063–0,179 |
| S.2.3  | 30                                                | 0,015–0,042                     | 0,016–0,046 | 0,017–0,049 | 0,03–0,085                        | 0,032–0,092 | 0,034–0,099 | 0,036–0,103 | 0,056–0,159                     | 0,061–0,173 | 0,065–0,185 | 0,068–0,193 |
| S.3.1  | 50                                                | 0,024–0,068                     | 0,026–0,074 | 0,028–0,079 | 0,048–0,136                       | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 | 0,089–0,255                     | 0,097–0,278 | 0,104–0,297 | 0,109–0,311 |
| S.3.2  | 30                                                | 0,019–0,054                     | 0,021–0,059 | 0,022–0,063 | 0,038–0,109                       | 0,042–0,119 | 0,044–0,127 | 0,046–0,132 | 0,071–0,204                     | 0,078–0,222 | 0,083–0,238 | 0,087–0,248 |
| S.3.3  | 20                                                | 0,013–0,038                     | 0,014–0,041 | 0,015–0,044 | 0,026–0,076                       | 0,029–0,082 | 0,031–0,088 | 0,032–0,092 | 0,05–0,142                      | 0,054–0,155 | 0,058–0,165 | 0,06–0,173  |
| H.1.1  | 40                                                | 0,013–0,038                     | 0,014–0,041 | 0,015–0,044 | 0,026–0,076                       | 0,029–0,082 | 0,031–0,088 | 0,032–0,092 | 0,05–0,142                      | 0,054–0,155 | 0,058–0,165 | 0,06–0,173  |
| H.1.2  | 30                                                | 0,011–0,03                      | 0,012–0,033 | 0,012–0,035 | 0,021–0,06                        | 0,023–0,066 | 0,025–0,07  | 0,026–0,074 | 0,036–0,102                     | 0,039–0,111 | 0,042–0,119 | 0,043–0,124 |
| H.1.3  |                                                   |                                 |             |             |                                   |             |             |             |                                 |             |             |             |
| H.1.4  |                                                   |                                 |             |             |                                   |             |             |             |                                 |             |             |             |
| H.2.1  | 30                                                | 0,014–0,041                     | 0,016–0,044 | 0,017–0,048 | 0,029–0,082                       | 0,031–0,089 | 0,033–0,095 | 0,035–0,099 | 0,054–0,153                     | 0,058–0,167 | 0,062–0,178 | 0,065–0,186 |
| H.3.1  | 30                                                | 0,013–0,036                     | 0,014–0,04  | 0,015–0,042 | 0,025–0,073                       | 0,028–0,079 | 0,03–0,084  | 0,031–0,088 | 0,048–0,136                     | 0,052–0,148 | 0,055–0,158 | 0,058–0,166 |
| O.1.1  | 110                                               | 0,031–0,089                     | 0,034–0,097 | 0,036–0,104 | 0,062–0,178                       | 0,068–0,194 | 0,073–0,208 | 0,076–0,217 | 0,117–0,335                     | 0,128–0,365 | 0,136–0,389 | 0,142–0,407 |
| O.1.2  | 120                                               | 0,028–0,079                     | 0,03–0,086  | 0,032–0,092 | 0,055–0,157                       | 0,06–0,171  | 0,064–0,183 | 0,067–0,191 | 0,103–0,295                     | 0,112–0,321 | 0,12–0,343  | 0,126–0,359 |
| O.2.1  | 110                                               | 0,017–0,05                      | 0,019–0,054 | 0,02–0,058  | 0,035–0,1                         | 0,038–0,109 | 0,041–0,116 | 0,043–0,121 | 0,065–0,187                     | 0,071–0,204 | 0,076–0,218 | 0,08–0,228  |
| O.2.2  | 80                                                | 0,017–0,048                     | 0,018–0,053 | 0,02–0,056  | 0,034–0,097                       | 0,037–0,105 | 0,039–0,113 | 0,041–0,118 | 0,064–0,181                     | 0,069–0,198 | 0,074–0,211 | 0,077–0,221 |
| O.3.1  | 120                                               |                                 |             |             |                                   |             |             |             |                                 |             |             |             |



Parametry skrawania są zdecydowanie zależne od warunków zewnętrznych, na przykład stabilności mocowania narzędzia i przedmiotu obrabianego, materiału i typu obrabiarki! Podane wartości prezentują potencjalne parametry skrawania, które należy skorygować o ok. **±20%** w zależności od warunków zastosowania narzędzia!

| Obróbka wykańczająca |                                                |             |             |  |                                               |             |             |             |             |                                                |             |             |             |             |
|----------------------|------------------------------------------------|-------------|-------------|--|-----------------------------------------------|-------------|-------------|-------------|-------------|------------------------------------------------|-------------|-------------|-------------|-------------|
| Indeks               | $\varnothing \leq 2$ mm<br>Promień naroża w mm |             |             |  | $\varnothing 2,5-4$ mm<br>Promień naroża w mm |             |             |             |             | $\varnothing \geq 5$ mm<br>Promień naroża w mm |             |             |             |             |
|                      | 0,05                                           | 0,1         | 0,15        |  | 0,05                                          | 0,1         | 0,15        | 0,2         | 0,4         | 0,05                                           | 0,1         | 0,15        | 0,2         | 0,4         |
|                      | f w mm/U                                       |             |             |  | f w mm/U                                      |             |             |             |             | f w mm/U                                       |             |             |             |             |
| P.1.1                | 0,007-0,019                                    | 0,008-0,022 | 0,009-0,025 |  | 0,017-0,049                                   | 0,02-0,058  | 0,023-0,065 | 0,025-0,072 | 0,032-0,092 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| P.1.2                | 0,007-0,019                                    | 0,008-0,022 | 0,009-0,025 |  | 0,017-0,049                                   | 0,02-0,058  | 0,023-0,065 | 0,025-0,072 | 0,032-0,092 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| P.1.3                | 0,007-0,019                                    | 0,008-0,022 | 0,009-0,025 |  | 0,017-0,049                                   | 0,02-0,058  | 0,023-0,065 | 0,025-0,072 | 0,032-0,092 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| P.1.4                | 0,006-0,016                                    | 0,007-0,019 | 0,008-0,022 |  | 0,015-0,042                                   | 0,017-0,05  | 0,02-0,056  | 0,022-0,061 | 0,028-0,079 | 0,023-0,065                                    | 0,027-0,077 | 0,03-0,086  | 0,033-0,095 | 0,043-0,122 |
| P.1.5                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| P.2.1                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| P.2.2                | 0,005-0,015                                    | 0,006-0,018 | 0,007-0,02  |  | 0,014-0,04                                    | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 | 0,021-0,061                                    | 0,025-0,071 | 0,028-0,08  | 0,031-0,088 | 0,04-0,114  |
| P.2.3                | 0,005-0,014                                    | 0,006-0,016 | 0,006-0,018 |  | 0,012-0,036                                   | 0,015-0,042 | 0,016-0,047 | 0,018-0,051 | 0,023-0,066 | 0,019-0,055                                    | 0,022-0,064 | 0,025-0,072 | 0,028-0,079 | 0,036-0,102 |
| P.2.4                | 0,005-0,013                                    | 0,005-0,015 | 0,006-0,017 |  | 0,012-0,034                                   | 0,014-0,039 | 0,015-0,044 | 0,017-0,049 | 0,022-0,063 | 0,018-0,052                                    | 0,021-0,061 | 0,024-0,068 | 0,026-0,075 | 0,034-0,097 |
| P.3.1                | 0,005-0,015                                    | 0,006-0,018 | 0,007-0,02  |  | 0,014-0,04                                    | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 | 0,021-0,061                                    | 0,025-0,071 | 0,028-0,08  | 0,031-0,088 | 0,04-0,114  |
| P.3.2                | 0,005-0,014                                    | 0,006-0,017 | 0,007-0,019 |  | 0,013-0,038                                   | 0,015-0,044 | 0,017-0,049 | 0,019-0,054 | 0,025-0,07  | 0,02-0,058                                     | 0,024-0,068 | 0,027-0,076 | 0,029-0,084 | 0,038-0,108 |
| P.3.3                | 0,004-0,011                                    | 0,005-0,013 | 0,005-0,015 |  | 0,01-0,03                                     | 0,012-0,035 | 0,014-0,039 | 0,015-0,043 | 0,019-0,055 | 0,016-0,046                                    | 0,019-0,053 | 0,021-0,06  | 0,023-0,066 | 0,03-0,085  |
| P.4.1                | 0,006-0,016                                    | 0,007-0,019 | 0,007-0,021 |  | 0,015-0,041                                   | 0,017-0,049 | 0,019-0,055 | 0,021-0,06  | 0,027-0,078 | 0,022-0,064                                    | 0,026-0,075 | 0,029-0,084 | 0,032-0,092 | 0,042-0,119 |
| P.4.2                | 0,005-0,015                                    | 0,006-0,018 | 0,007-0,02  |  | 0,014-0,04                                    | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 | 0,021-0,061                                    | 0,025-0,071 | 0,028-0,08  | 0,031-0,088 | 0,04-0,114  |
| M.1.1                | 0,004-0,011                                    | 0,004-0,012 | 0,005-0,014 |  | 0,01-0,028                                    | 0,011-0,032 | 0,013-0,036 | 0,014-0,04  | 0,018-0,052 | 0,015-0,043                                    | 0,017-0,05  | 0,02-0,056  | 0,022-0,062 | 0,028-0,08  |
| M.2.1                | 0,003-0,01                                     | 0,004-0,011 | 0,004-0,013 |  | 0,009-0,025                                   | 0,01-0,029  | 0,011-0,033 | 0,013-0,036 | 0,016-0,046 | 0,013-0,038                                    | 0,016-0,045 | 0,018-0,05  | 0,019-0,055 | 0,025-0,071 |
| M.3.1                | 0,003-0,01                                     | 0,004-0,012 | 0,005-0,013 |  | 0,009-0,026                                   | 0,011-0,03  | 0,012-0,034 | 0,013-0,037 | 0,017-0,048 | 0,014-0,04                                     | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 |
| K.1.1                | 0,007-0,019                                    | 0,008-0,022 | 0,009-0,025 |  | 0,017-0,049                                   | 0,02-0,058  | 0,023-0,065 | 0,025-0,072 | 0,032-0,092 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| K.1.2                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| K.2.1                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| K.2.2                | 0,005-0,015                                    | 0,006-0,017 | 0,007-0,02  |  | 0,013-0,039                                   | 0,016-0,045 | 0,018-0,051 | 0,02-0,056  | 0,025-0,072 | 0,021-0,059                                    | 0,024-0,069 | 0,027-0,078 | 0,03-0,086  | 0,039-0,111 |
| K.3.1                | 0,006-0,018                                    | 0,007-0,021 | 0,008-0,024 |  | 0,017-0,047                                   | 0,019-0,056 | 0,022-0,062 | 0,024-0,069 | 0,031-0,089 | 0,026-0,073                                    | 0,03-0,085  | 0,034-0,096 | 0,037-0,106 | 0,048-0,136 |
| K.3.2                | 0,005-0,015                                    | 0,006-0,018 | 0,007-0,02  |  | 0,014-0,04                                    | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 | 0,021-0,061                                    | 0,025-0,071 | 0,028-0,08  | 0,031-0,088 | 0,04-0,114  |
| N.1.1                | 0,008-0,023                                    | 0,009-0,027 | 0,011-0,03  |  | 0,02-0,058                                    | 0,024-0,068 | 0,027-0,077 | 0,03-0,084  | 0,038-0,109 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.1.2                | 0,008-0,022                                    | 0,009-0,026 | 0,01-0,03   |  | 0,02-0,058                                    | 0,024-0,068 | 0,027-0,077 | 0,03-0,084  | 0,038-0,109 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.2.1                | 0,007-0,021                                    | 0,009-0,025 | 0,01-0,028  |  | 0,019-0,055                                   | 0,023-0,065 | 0,025-0,073 | 0,028-0,08  | 0,036-0,103 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.2.2                | 0,007-0,021                                    | 0,009-0,024 | 0,01-0,028  |  | 0,019-0,054                                   | 0,022-0,064 | 0,025-0,072 | 0,028-0,079 | 0,036-0,102 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.2.3                | 0,007-0,021                                    | 0,008-0,024 | 0,009-0,027 |  | 0,019-0,053                                   | 0,022-0,062 | 0,025-0,07  | 0,027-0,077 | 0,035-0,1   | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.3.1                | 0,007-0,021                                    | 0,009-0,025 | 0,01-0,028  |  | 0,019-0,055                                   | 0,023-0,065 | 0,025-0,073 | 0,028-0,08  | 0,036-0,103 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.3.2                | 0,007-0,02                                     | 0,008-0,024 | 0,009-0,027 |  | 0,018-0,052                                   | 0,021-0,061 | 0,024-0,069 | 0,027-0,076 | 0,034-0,098 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.3.3                | 0,007-0,019                                    | 0,008-0,023 | 0,009-0,026 |  | 0,018-0,05                                    | 0,021-0,059 | 0,023-0,066 | 0,026-0,073 | 0,033-0,094 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| N.4.1                | 0,007-0,019                                    | 0,008-0,023 | 0,009-0,026 |  | 0,018-0,05                                    | 0,021-0,059 | 0,023-0,066 | 0,026-0,073 | 0,033-0,094 | 0,027-0,078                                    | 0,032-0,091 | 0,036-0,102 | 0,039-0,112 | 0,051-0,145 |
| S.1.1                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| S.1.2                | 0,005-0,013                                    | 0,005-0,016 | 0,006-0,018 |  | 0,012-0,035                                   | 0,014-0,04  | 0,016-0,046 | 0,018-0,05  | 0,023-0,065 | 0,019-0,053                                    | 0,022-0,062 | 0,025-0,07  | 0,027-0,077 | 0,035-0,099 |
| S.2.1                | 0,005-0,013                                    | 0,005-0,015 | 0,006-0,017 |  | 0,012-0,034                                   | 0,014-0,039 | 0,015-0,044 | 0,017-0,049 | 0,022-0,063 | 0,018-0,052                                    | 0,021-0,061 | 0,024-0,068 | 0,026-0,075 | 0,034-0,097 |
| S.2.2                | 0,003-0,01                                     | 0,004-0,012 | 0,005-0,013 |  | 0,009-0,026                                   | 0,011-0,03  | 0,012-0,034 | 0,013-0,037 | 0,017-0,048 | 0,014-0,04                                     | 0,016-0,046 | 0,018-0,052 | 0,02-0,057  | 0,026-0,074 |
| S.2.3                | 0,004-0,011                                    | 0,004-0,012 | 0,005-0,014 |  | 0,01-0,028                                    | 0,011-0,032 | 0,013-0,036 | 0,014-0,04  | 0,018-0,052 | 0,015-0,043                                    | 0,017-0,05  | 0,02-0,056  | 0,022-0,062 | 0,028-0,08  |
| S.3.1                | 0,006-0,017                                    | 0,007-0,02  | 0,008-0,023 |  | 0,016-0,044                                   | 0,018-0,052 | 0,02-0,059  | 0,023-0,064 | 0,029-0,083 | 0,024-0,068                                    | 0,028-0,08  | 0,032-0,09  | 0,035-0,099 | 0,045-0,128 |
| S.3.2                | 0,005-0,014                                    | 0,006-0,016 | 0,006-0,018 |  | 0,012-0,036                                   | 0,015-0,042 | 0,016-0,047 | 0,018-0,051 | 0,023-0,066 | 0,019-0,055                                    | 0,022-0,064 | 0,025-0,072 | 0,028-0,079 | 0,036-0,102 |
| S.3.3                | 0,003-0,01                                     | 0,004-0,011 | 0,004-0,013 |  | 0,009-0,025                                   | 0,01-0,029  | 0,011-0,033 | 0,013-0,036 | 0,016-0,046 | 0,013-0,038                                    | 0,016-0,045 | 0,018-0,05  | 0,019-0,055 | 0,025-0,071 |
| H.1.1                | 0,003-0,01                                     | 0,004-0,011 | 0,004-0,013 |  | 0,009-0,025                                   | 0,01-0,029  | 0,011-0,033 | 0,013-0,036 | 0,016-0,046 | 0,013-0,038                                    | 0,016-0,045 | 0,018-0,05  | 0,019-0,055 | 0,025-0,071 |
| H.1.2                | 0,003-0,008                                    | 0,003-0,009 | 0,004-0,01  |  | 0,007-0,02                                    | 0,008-0,023 | 0,009-0,026 | 0,01-0,029  | 0,013-0,037 | 0,011-0,03                                     | 0,012-0,036 | 0,014-0,04  | 0,015-0,044 | 0,02-0,057  |
| H.1.3                |                                                |             |             |  |                                               |             |             |             |             |                                                |             |             |             |             |
| H.1.4                |                                                |             |             |  |                                               |             |             |             |             |                                                |             |             |             |             |
| H.2.1                | 0,004-0,01                                     | 0,004-0,012 | 0,005-0,014 |  | 0,009-0,027                                   | 0,011-0,031 | 0,012-0,035 | 0,014-0,039 | 0,017-0,05  | 0,014-0,041                                    | 0,017-0,048 | 0,019-0,054 | 0,021-0,059 | 0,027-0,077 |
| H.3.1                | 0,003-0,009                                    | 0,004-0,011 | 0,004-0,012 |  | 0,008-0,024                                   | 0,01-0,028  | 0,011-0,031 | 0,012-0,034 | 0,016-0,044 | 0,013-0,036                                    | 0,015-0,043 | 0,017-0,048 | 0,018-0,053 | 0,024-0,068 |
| O.1.1                | 0,008-0,022                                    | 0,009-0,026 | 0,01-0,03   |  | 0,02-0,058                                    | 0,024-0,068 | 0,027-0,077 | 0,03-0,084  | 0,038-0,109 | 0,027-0,076                                    | 0,031-0,089 | 0,035-0,1   | 0,039-0,11  | 0,05-0,142  |
| O.1.2                | 0,007-0,02                                     | 0,008-0,023 | 0,009-0,026 |  | 0,018-0,051                                   | 0,021-0,06  | 0,024-0,068 | 0,026-0,074 | 0,034-0,096 | 0,028-0,079                                    | 0,032-0,093 | 0,036-0,104 | 0,04-0,114  | 0,052-0,148 |
| O.2.1                | 0,004-0,013                                    | 0,005-0,015 | 0,006-0,017 |  | 0,011-0,033                                   | 0,013-0,038 | 0,015-0,043 | 0,017-0,047 | 0,021-0,061 | 0,018-0,05                                     | 0,021-0,059 | 0,023-0,066 | 0,025-0,073 | 0,033-0,094 |
| O.2.2                | 0,004-0,012                                    | 0,005-0,014 | 0,006-0,016 |  | 0,011-0,032                                   | 0,013-0,037 | 0,015-0,042 | 0,016-0,046 | 0,021-0,059 | 0,017-0,049                                    | 0,02-0,057  | 0,022-0,064 | 0,025-0,07  | 0,032-0,091 |
| O.3.1                |                                                |             |             |  |                                               |             |             |             |             |                                                |             |             |             |             |

# Dłutowniki – wskazówki dotyczące prawidłowego zastosowania

## SlotCut

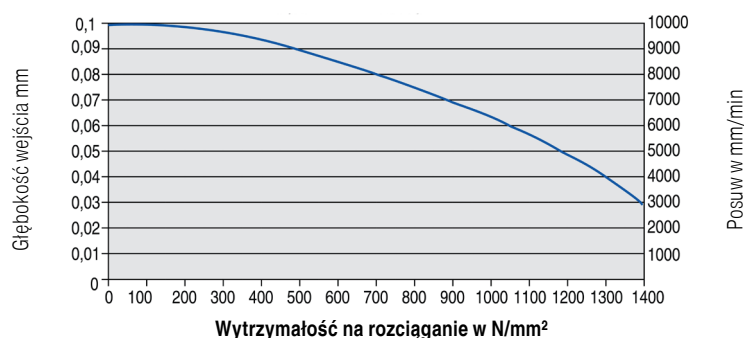
Coraz częściej pojedyncze detale oraz małe i średnie serie są produkowane z rowkami o wysokiej precyzji.

Do wykonania takich rowków w jednym zamocowaniu na każdej maszynie, potrzebne jest zastosowanie dłutowników w odpowiednim systemie.

Dzięki systemowi SlotCut możliwe jest wykonanie rowków w najczęściej występujących tolerancjach. W tym przypadku mamy do dyspozycji cztery rozwiązania. Dwa z nich bazują całkowicie na rozwiązaniu z węgla spiekane, które przynoszą oczekiwany rezultat przy małych średnicach. Dla większych średnic idealne są rozwiązania z zamocowanymi wkładkami.

Dłutowanie na tokarkach jak i centrach obróbczych jest ekonomiczne i przynosi w krótkim czasie wyniki o wysokiej dokładności.

Orientacyjne wartości dla dłutowników



Podane parametry są w dużym stopniu zależne od warunków zewnętrznych, które w zależności od stabilności maszyny, zakresu zastosowania i rodzaju materiału powinny zostać odpowiednio skorygowane.



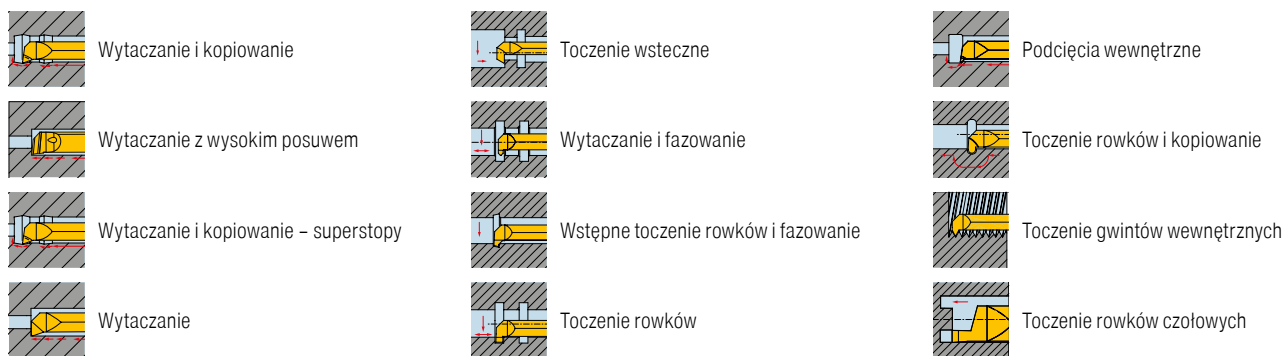
## Rady dla użytkownika

- ▲ Należy unikać obróbki przerywanej.
- ▲ Przy wyjściu należy wyjąć narzędzie z rowka.
- ▲ W miarę możliwości należy wykonywać rowek w górnej części obrabianej, w ten sposób wióra zostaną prawidłowo odprowadzone!
- ▲ Należy zastosować środek chłodzący. Dzięki temu zwiększa się żywotność i jakość powierzchni.
- ▲ Należy zwrócić uwagę na swobodne wyjście na końcu rowka.
- ▲ Nastawienie narzędzia jest niezbędne. W związku z tym należy zwrócić uwagę na średnicę narzędzia.

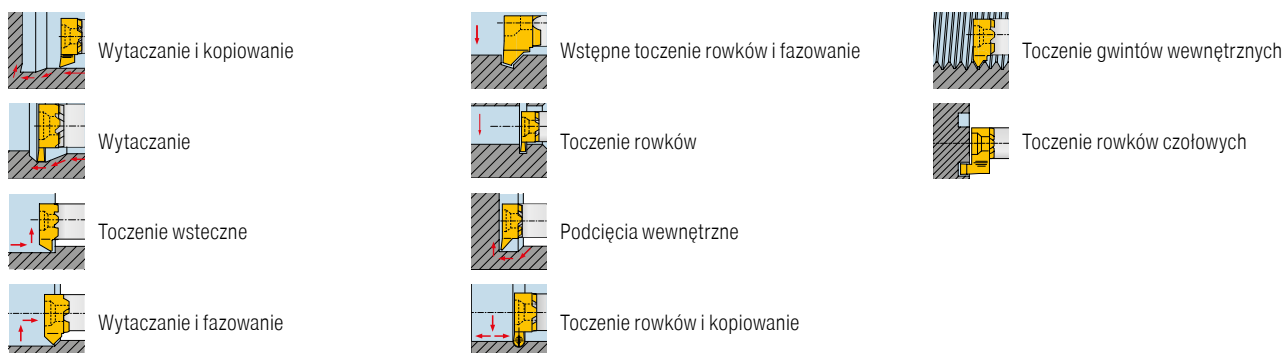


## Objaśnienie symboli

### UltraMini



### MiniCut



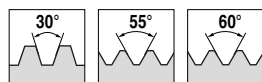
### Powłoki

|                                                                                                                                                       |                                                                                                                                                                                                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div>TiAlN+</div> <ul style="list-style-type: none"> <li>▲ powłoka TiAlN Multilayer</li> <li>▲ maksymalna temperatura zastosowania: 1000°C</li> </ul> | <div>CWX500</div> <ul style="list-style-type: none"> <li>▲ węgiel spiekany, z powłoką TiAlN</li> <li>▲ uniwersalny gatunek węgla spiekanego do obróbki prawie wszystkich materiałów</li> </ul> |
| <div>TiN</div> <ul style="list-style-type: none"> <li>▲ powłoka TiN</li> <li>▲ maksymalna temperatura zastosowania: 450°C</li> </ul>                  | <div>DXP77S</div> <ul style="list-style-type: none"> <li>▲ powłoka TiAlN+X</li> <li>▲ maksymalna temperatura zastosowania: 900°C</li> </ul>                                                    |
| <div>TiAlN</div> <ul style="list-style-type: none"> <li>▲ powłoka TiAlN Multilayer</li> <li>▲ maksymalna temperatura zastosowania: 900°C</li> </ul>   | <div>DPX57S</div> <ul style="list-style-type: none"> <li>▲ powłoka TiCrN</li> <li>▲ maksymalna temperatura zastosowania: 900°C</li> </ul>                                                      |

### Rodzaje gwintów

|                                                 |                                                   |                              |
|-------------------------------------------------|---------------------------------------------------|------------------------------|
| <div>M</div> Gwint metryczny standardowy wg ISO | <div>MF</div> Gwint metryczny drobnzwojowy wg ISO | <div>G</div> Gwint Whitworta |
| <div>Tr</div> Gwint metryczny trapezowy ISO     |                                                   |                              |

### Kąt zarysu gwintu



### Chłodzenie



z wewnętrznym doprowadzeniem  
chłodziwa