



# E

ROZWIERTAKI

REAMERS

REIBAHLEN

РАЗВЁРТКИ

E

# PN NRZEe

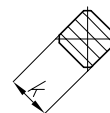
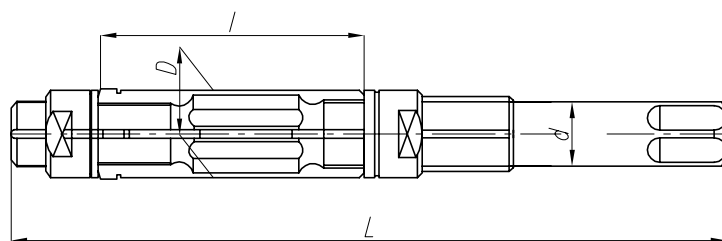
E

Rozwiertaki nastawne ręczne

Adjustable hand reamers

Schnellverstell-handreibahlen

Развёртки регулируемые ручные



PN  
NRZe

| Dmin – Dmax | d    | L   | l    | k    | Code No 0641-422- |   |
|-------------|------|-----|------|------|-------------------|---|
| 8 - 8.5     | 4.5  | 100 | 30   | 3.55 | 007075            | ● |
| 8.5 - 9     | 4.5  | 100 | 30   | 3.55 | 007087            | ● |
| 9 - 9.7     | 5    | 106 | 31.5 | 4    | 007106            | ● |
| 9.7 - 10.5  | 5.6  | 118 | 35.5 | 4.5  | 007208            | ● |
| 10.5 - 12   | 6.3  | 132 | 42.5 | 5    | 007300            | ● |
| 12 - 13.5   | 7.1  | 140 | 45   | 5.6  | 007401            | ● |
| 13.5 - 15.5 | 8    | 150 | 50   | 6.3  | 007503            | ● |
| 15.5 - 17.5 | 10   | 160 | 50   | 8    | 007605            | ● |
| 17.5 - 19.5 | 11.2 | 180 | 63   | 9    | 007707            | ● |
| 19.5 - 21.5 | 12.5 | 190 | 63   | 10   | 007809            | ● |
| 21.5 - 24.5 | 12.5 | 212 | 80   | 10   | 007900            | ● |
| 24.5 - 27.5 | 14   | 224 | 80   | 11.2 | 008005            | ● |
| 27.5 - 31.5 | 16   | 250 | 85   | 12.5 | 008107            | ● |
| 31.5 - 37.5 | 18   | 300 | 106  | 14   | 008209            | ● |
| 37.5 - 45   | 22.4 | 335 | 125  | 18   | 008300            | ● |
| 45 - 55     | 25   | 335 | 125  | 20   | 008402            | ● |
| 55 - 67     | 31.5 | 400 | 140  | 25   | 008504            | ● |

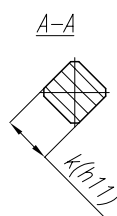
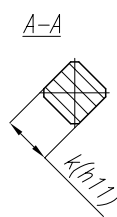
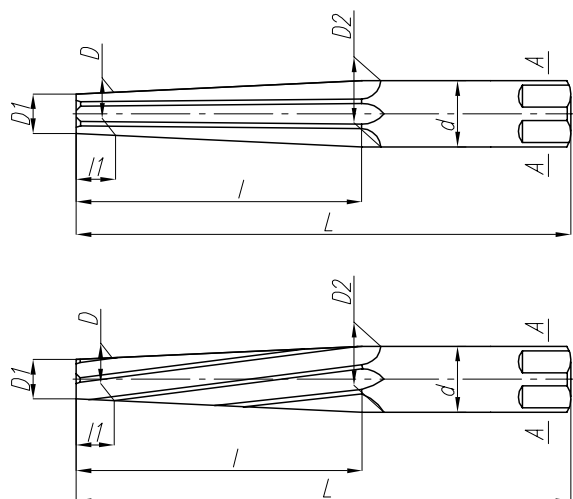
# DIN 9 A/B

Rozwiertaki ręczne o zbieżności 1:50

Hand reamers taper pin 1:50

HSS-Stiftlochreibahnen, Kegel 1:50

Развёртки ручные с конусом 1:50



E

**DIN  
9  
A/B**

**Z=5+11**

**1:50**

A - ostrza proste / straight flutes / spiralgenutet / простые лезвия  
B - ostrza śrubowe / spiral flutes / Schraubenschneiden / винтовые левого хода лезвия

| D (h9) | D1   | D2   | d (h11) | L   | l   | l1 | k    | z  | HSS               |                   |
|--------|------|------|---------|-----|-----|----|------|----|-------------------|-------------------|
|        |      |      |         |     |     |    |      |    | Code No 0641-419- | Code No 0641-419- |
|        |      |      |         |     |     |    |      |    | Form A            | Form B            |
| 4      | 3.9  | 5.26 | 5       | 93  | 68  | 5  | 4    | 5  | 001095            | 005098            |
| 5      | 4.9  | 6.36 | 6.3     | 100 | 73  | 5  | 5    | 5  | 001100            | 005100            |
| 6      | 5.9  | 8    | 8       | 135 | 105 | 5  | 6.3  | 5  | 001201            | 005202            |
| 8      | 7.9  | 10.8 | 10      | 180 | 145 | 5  | 8    | 7  | 001507            | 005304            |
| 10     | 9.9  | 13.4 | 12.5    | 215 | 175 | 5  | 10   | 7  | 001609            | 005406            |
| 12     | 11.8 | 16   | 14      | 255 | 210 | 10 | 11.2 | 7  | 001700            | 005508            |
| 16     | 15.8 | 20.4 | 18      | 280 | 230 | 10 | 14   | 9  | 002009            | 005600            |
| 20     | 19.8 | 24.8 | 22.4    | 310 | 250 | 10 | 18   | 9  | 002100            | 005701            |
| 25     | 24.7 | 30.7 | 28      | 370 | 300 | 15 | 22.4 | 9  | 002202            | 005803            |
| 30     | 29.7 | 36.1 | 31.5    | 400 | 320 | 15 | 25   | 9  | 002304            | 005905            |
| 40     | 39.7 | 46.5 | 40      | 430 | 340 | 15 | 31.5 | 11 | 002406            | 006000            |
| 50     | 49.7 | 56.9 | 50      | 460 | 360 | 15 | 40   | 11 | 002508            | 006101            |

# DIN 206 A/B

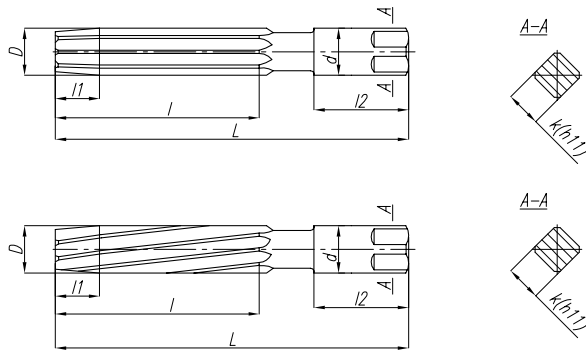
E

Rozwiertaki ręczne

Hand reamers

Handreibahlen

Развёртки ручные



**DIN  
206  
A/B**

**Z=6÷12**



A - ostrza proste / straight flutes / spiralgenutet / простые лезвия  
 B - ostrza śrubowe / spiral flutes / Schraubenschneiden / винтовые левого хода лезвия

| D (H7) | d (e9) | L   | l   | l1 | l2  | k    | z  | HSS               |        |
|--------|--------|-----|-----|----|-----|------|----|-------------------|--------|
|        |        |     |     |    |     |      |    | Code No 0641-415- |        |
|        |        |     |     |    |     |      |    | Form A            | Form B |
| 4      | 4      | 76  | 38  | 12 | 28  | 3.15 | 6  | 001002            | 011000 |
| 4.5    | 4.5    | 81  | 41  | 12 | 30  | 3.55 | 6  | 001104            | 011102 |
| 5      | 5      | 87  | 44  | 12 | 32  | 4    | 6  | 001206            | 011204 |
| 5.5    | 5.5    | 93  | 47  | 12 | 35  | 4.5  | 6  | 001308            | 011306 |
| 6      | 6      | 93  | 47  | 12 | 35  | 4.5  | 6  | 001400            | 011408 |
| 7      | 7      | 107 | 54  | 17 | 40  | 5.6  | 6  | 001501            | 011500 |
| 8      | 8      | 115 | 58  | 17 | 45  | 6.3  | 6  | 001603            | 011601 |
| 9      | 9      | 124 | 62  | 17 | 50  | 7.1  | 6  | 001705            | 011703 |
| 10     | 10     | 133 | 66  | 17 | 52  | 8    | 6  | 001807            | 011805 |
| 11     | 11     | 142 | 71  | 20 | 55  | 9    | 8  | 001909            | 011907 |
| 12     | 12     | 152 | 76  | 20 | 60  | 10   | 8  | 002003            | 012001 |
| 13     | 13     | 152 | 76  | 20 | 60  | 10   | 8  | 002105            | 012103 |
| 14     | 14     | 163 | 81  | 24 | 65  | 11.2 | 8  | 002207            | 012205 |
| 15     | 15     | 163 | 81  | 24 | 65  | 11.2 | 8  | 002309            | 012307 |
| 16     | 16     | 175 | 87  | 24 | 70  | 12.5 | 8  | 002400            | 012409 |
| 17     | 17     | 175 | 87  | 24 | 70  | 12.5 | 8  | 002502            | 012500 |
| 18     | 18     | 188 | 93  | 24 | 75  | 14   | 10 | 002604            | 012602 |
| 19     | 19     | 188 | 93  | 27 | 75  | 14   | 10 | 002706            | 012704 |
| 20     | 20     | 201 | 100 | 27 | 75  | 16   | 10 | 002808            | 012806 |
| 21     | 21     | 201 | 100 | 27 | 75  | 16   | 10 | 002900            | 012908 |
| 22     | 22     | 215 | 107 | 27 | 80  | 18   | 10 | 003004            | 013002 |
| 23     | 23     | 215 | 107 | 27 | 80  | 18   | 10 | 003106            | 013104 |
| 24     | 24     | 231 | 115 | 30 | 80  | 20   | 10 | 003208            | 013206 |
| 25     | 25     | 231 | 115 | 30 | 80  | 20   | 10 | 003300            | 013308 |
| 26     | 26     | 231 | 115 | 30 | 80  | 20   | 10 | 003401            | 013400 |
| 27     | 27     | 247 | 124 | 32 | 85  | 22.4 | 10 | 003503            | 013501 |
| 28     | 28     | 247 | 124 | 32 | 85  | 22.4 | 10 | 003605            | 013603 |
| 30     | 30     | 247 | 124 | 32 | 85  | 22.4 | 10 | 003707            | 013705 |
| 32     | 32     | 265 | 133 | 36 | 90  | 25   | 12 | 003809            | 013807 |
| 34     | 34     | 284 | 142 | 36 | 100 | 28   | 12 | 003900            | 013909 |
| 35     | 35     | 284 | 142 | 36 | 100 | 28   | 12 | 004005            | 014003 |
| 36     | 36     | 284 | 142 | 36 | 100 | 28   | 12 | 004107            | 014105 |
| 38     | 38     | 305 | 152 | 36 | 110 | 31.5 | 12 | 004209            | 014207 |
| 40     | 40     | 305 | 152 | 36 | 110 | 31.5 | 12 | 004300            | 014309 |
| 42     | 42     | 305 | 152 | 36 | 110 | 31.5 | 12 | 004402            | 014400 |
| 44     | 44     | 326 | 163 | 40 | 115 | 35.5 | 12 | 004504            | 014502 |
| 45     | 45     | 326 | 163 | 40 | 115 | 35.5 | 12 | 004606            | 014604 |
| 46     | 46     | 326 | 163 | 40 | 115 | 35.5 | 12 | 004708            | 014706 |
| 48     | 48     | 347 | 174 | 40 | 125 | 40   | 12 | 004800            | 014808 |
| 50     | 50     | 347 | 174 | 40 | 125 | 40   | 12 | 004901            | 014900 |

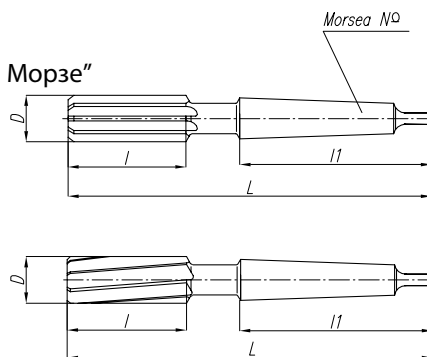
# DIN 208 A/B

Rozwiertaki maszynowe z chwytem stożkowym Morse'a

Machine reamers with Morse taper shank

Maschinenreibahlen, Morsekegel

Развёртки машинные  
с хвостовиком типа „конус Морзе“



**DIN 208 A/B**  
**Z=6÷12**



E

A - ostrza proste / straight flutes / spiralgenutet / простые лезвия  
B - ostrza śrubowe / spiral flutes / Schraubenschneiden / винтовые левого хода лезвия

| D (H7) | L   | l  | l1   | Morse taper No | z  | HSS               |                   |
|--------|-----|----|------|----------------|----|-------------------|-------------------|
|        |     |    |      |                |    | Code No 0641-414- | Code No 0641-414- |
|        |     |    |      |                |    | Form A            | Form B            |
| 5      | 133 | 23 | 65.5 | 1              | 6  | 000059            | 005000            |
| 5.5    | 138 | 26 | 65.5 | 1              | 6  | 000061            | 005012            |
| 6      | 138 | 26 | 65.5 | 1              | 6  | 000074            | 005053            |
| 7      | 150 | 31 | 65.5 | 1              | 6  | 000107            | 005101            |
| 8      | 156 | 33 | 65.5 | 1              | 6  | 000209            | 005203            |
| 9      | 162 | 36 | 65.5 | 1              | 6  | 000300            | 005305            |
| 10     | 168 | 38 | 65.5 | 1              | 6  | 000402            | 005407            |
| 11     | 175 | 41 | 65.5 | 1              | 8  | 000504            | 005509            |
| 12     | 182 | 44 | 65.5 | 1              | 8  | 000606            | 005600            |
| 13     | 182 | 44 | 65.5 | 1              | 8  | 000708            | 005702            |
| 14     | 189 | 47 | 65.5 | 1              | 8  | 000800            | 005804            |
| 15     | 204 | 50 | 80   | 2              | 8  | 000901            | 005906            |
| 16     | 210 | 52 | 80   | 2              | 8  | 001006            | 006000            |
| 17     | 214 | 54 | 80   | 2              | 8  | 001108            | 006102            |
| 18     | 219 | 56 | 80   | 2              | 10 | 001200            | 006204            |
| 19     | 223 | 58 | 80   | 2              | 10 | 001301            | 006306            |
| 20     | 228 | 60 | 80   | 2              | 10 | 001403            | 006408            |
| 21     | 232 | 62 | 80   | 2              | 10 | 001505            | 006500            |
| 22     | 237 | 64 | 80   | 2              | 10 | 001607            | 006601            |
| 23     | 241 | 66 | 80   | 2              | 10 | 001702            | 006703            |
| 24     | 268 | 68 | 99   | 3              | 10 | 001800            | 006805            |
| 25     | 268 | 68 | 99   | 3              | 10 | 001902            | 006907            |
| 26     | 273 | 70 | 99   | 3              | 10 | 002007            | 007001            |
| 27     | 277 | 71 | 99   | 3              | 10 | 002109            | 007103            |
| 28     | 277 | 71 | 99   | 3              | 10 | 002200            | 007205            |
| 29     | 281 | 73 | 99   | 3              | 10 | 002254            | 007259            |
| 30     | 281 | 73 | 99   | 3              | 10 | 002302            | 007307            |
| 31     | 285 | 75 | 99   | 3              | 12 | 002356            | 007350            |
| 32     | 317 | 77 | 124  | 4              | 12 | 002404            | 007409            |
| 34     | 321 | 78 | 124  | 4              | 12 | 002506            | 007500            |
| 35     | 321 | 78 | 124  | 4              | 12 | 002608            | 007602            |
| 36     | 325 | 79 | 124  | 4              | 12 | 002700            | 007704            |
| 38     | 329 | 81 | 124  | 4              | 12 | 002801            | 007806            |
| 40     | 329 | 81 | 124  | 4              | 12 | 002903            | 007908            |
| 42     | 333 | 82 | 124  | 4              | 12 | 003008            | 008002            |
| 44     | 336 | 83 | 124  | 4              | 12 | 003100            | 008104            |
| 45     | 336 | 83 | 124  | 4              | 12 | 003201            | 008206            |
| 46     | 340 | 84 | 124  | 4              | 12 | 003303            | 008308            |
| 48     | 344 | 86 | 124  | 4              | 12 | 003405            | 008400            |
| 50     | 344 | 86 | 124  | 4              | 12 | 003507            | 008501            |

\* Rozwiertaki odmiana A o średnicach od 30 do 50mm w klasie IT7 i powyżej wykonujemy w terminie do 10 dni

# DIN 212 C/D

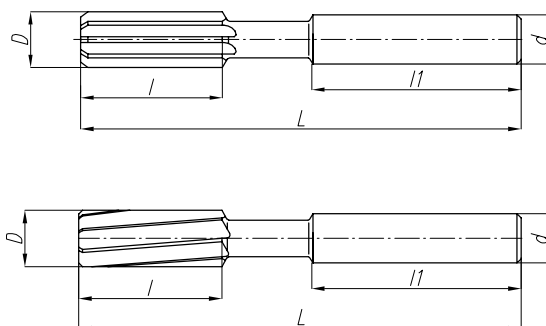
E

Rozwiertaki maszynowe z chwytem walcowym

Machine reamers with plain shank

Maschinenreibahlen, Zylinderschaft

Развёртки машинные с цилиндрическим хвостовиком



**DIN  
212  
C/D**

**Z=6+10**

C - ostrza proste / straight flutes / spiralgenutet / простые лезвия

D - ostrza śrubowe / spiral flutes / Schraubenschneiden / винтовые лезвия

| D (H7) | d (h9) | L   | l  | l1 | z  | HSS               |                   |
|--------|--------|-----|----|----|----|-------------------|-------------------|
|        |        |     |    |    |    | Code No 0641-413- | Code No 0641-413- |
|        |        |     |    |    |    | Form C            | Form D            |
| 4      | 4      | 75  | 19 | 32 | 6  | 001000            | 025407            |
| 4.5    | 4.5    | 80  | 21 | 33 | 6  | 001101            | 025509            |
| 5      | 5      | 86  | 23 | 34 | 6  | 001203            | 025600            |
| 5.5    | 5.6    | 93  | 26 | 36 | 6  | 001305            | 025702            |
| 6      | 5.6    | 93  | 26 | 36 | 6  | 001407            | 025804            |
| 6.5    | 6.3    | 101 | 28 | 38 | 6  | 001450            | 025906            |
| 7      | 7.1    | 109 | 31 | 40 | 6  | 001509            | 026000            |
| 8      | 8      | 117 | 33 | 42 | 6  | 001600            | 026102            |
| 9      | 9      | 125 | 36 | 44 | 6  | 001702            | 026204            |
| 10     | 10     | 133 | 38 | 46 | 6  | 001804            | 026306            |
| 11     | 10     | 142 | 41 | 46 | 8  | 001906            | 026408            |
| 12     | 10     | 151 | 44 | 46 | 8  | 002000            | 026500            |
| 13     | 10     | 151 | 44 | 46 | 8  | 002102            | 026601            |
| 14     | 12.5   | 160 | 47 | 50 | 8  | 002204            | 026703            |
| 15     | 12.5   | 162 | 50 | 50 | 8  | 002306            | 026805            |
| 16     | 12.5   | 170 | 52 | 50 | 8  | 002408            | 026907            |
| 17     | 14     | 175 | 54 | 52 | 8  | 002500            | 027001            |
| 18     | 14     | 182 | 56 | 52 | 10 | 002601            | 027103            |
| 19     | 16     | 189 | 58 | 58 | 10 | 002703            | 027205            |
| 20     | 16     | 195 | 60 | 58 | 10 | 002805            | 027307            |

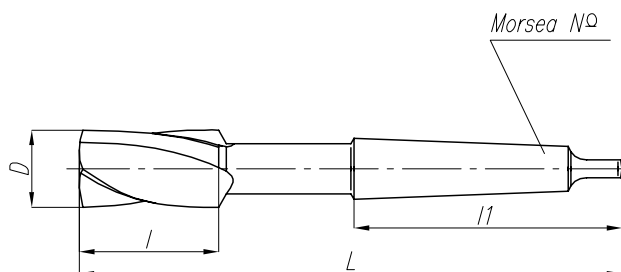
# PN NRTa

Rozwiertaki maszynowe zdzieraki z chwytem stożkowym Morse'a, krótkie

Roughing machine reamers with Morse taper shank, short

Vorreibende kurze Spindelmaschinenreibahlen, Morsekegel, kurz

Развёртки машинные обдирочные с хвостовиком типа „конус Морзе“, короткие



|            |     |
|------------|-----|
| PN<br>NRTa | Z=4 |
|------------|-----|

| D (h8) | L   | l  | l1  | z | Morse taper No | HSS               |   |
|--------|-----|----|-----|---|----------------|-------------------|---|
|        |     |    |     |   |                | Code No 0641-412- |   |
| 7.8    | 128 | 25 | 66  | 4 | 1              | 000104            | ○ |
| 8.8    | 140 | 29 | 66  | 4 | 1              | 000117            | ○ |
| 9.8    | 140 | 29 | 66  | 4 | 1              | 000206            | ○ |
| 10.75  | 153 | 33 | 66  | 4 | 1              | 000219            | ○ |
| 11.75  | 153 | 33 | 66  | 4 | 1              | 000308            | ○ |
| 12.75  | 153 | 33 | 66  | 4 | 1              | 000310            | ○ |
| 13.75  | 169 | 38 | 66  | 4 | 1              | 000400            | ○ |
| 14.75  | 184 | 38 | 80  | 4 | 2              | 000412            | ○ |
| 15.75  | 184 | 38 | 80  | 4 | 2              | 000501            | ○ |
| 16.75  | 184 | 38 | 80  | 4 | 2              | 000514            | ○ |
| 17.75  | 203 | 44 | 80  | 4 | 2              | 000603            | ○ |
| 18.7   | 203 | 44 | 80  | 4 | 2              | 000616            | ○ |
| 19.7   | 203 | 44 | 80  | 4 | 2              | 000705            | ○ |
| 20.7   | 203 | 44 | 80  | 4 | 2              | 000718            | ○ |
| 21.7   | 244 | 51 | 80  | 4 | 2              | 000807            | ○ |
| 22.7   | 244 | 51 | 80  | 4 | 2              | 000810            | ○ |
| 23.7   | 244 | 51 | 99  | 4 | 3              | 000909            | ○ |
| 24.7   | 244 | 51 | 99  | 4 | 3              | 001003            | ○ |
| 25.7   | 244 | 51 | 99  | 4 | 3              | 001105            | ○ |
| 26.7   | 271 | 60 | 99  | 4 | 3              | 001118            | ○ |
| 27.7   | 271 | 60 | 99  | 4 | 3              | 001207            | ○ |
| 29.7   | 271 | 60 | 99  | 4 | 3              | 001309            | ○ |
| 31.6   | 296 | 60 | 99  | 4 | 3              | 001400            | ○ |
| 33.6   | 326 | 69 | 124 | 4 | 4              | 001502            | ○ |
| 34.6   | 326 | 69 | 124 | 4 | 4              | 001604            | ○ |
| 35.6   | 326 | 69 | 124 | 4 | 4              | 001706            | ○ |
| 37.6   | 326 | 69 | 124 | 4 | 4              | 001808            | ○ |
| 39.6   | 326 | 69 | 124 | 4 | 4              | 001900            | ○ |
| 41.6   | 326 | 69 | 124 | 4 | 4              | 002004            | ○ |
| 43.6   | 363 | 80 | 124 | 4 | 4              | 002106            | ○ |
| 44.6   | 363 | 80 | 124 | 4 | 4              | 002208            | ○ |
| 45.6   | 363 | 80 | 124 | 4 | 4              | 002300            | ○ |
| 47.6   | 363 | 80 | 124 | 4 | 4              | 002401            | ○ |
| 49.6   | 363 | 80 | 124 | 4 | 4              | 002503            | ○ |

# PN NRTb

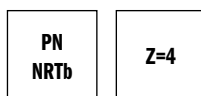
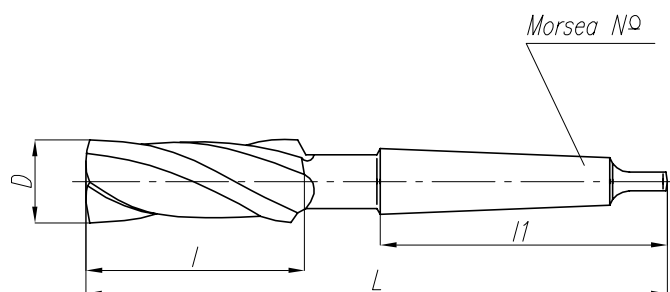
E

Rozwiertaki maszynowe zdzieraki z chwytem stożkowym Morse'a, długie

Roughing machine reamers with Morse taper shank, long

Vorreibende kurze Spindelmaschinenreibahlen, Morsekegel, lang

Развёртки машинные обдирочные с хвостовиком типа „конус Морзе”, длинные



| D (h8) | L   | l   | l1  | z | Morse taper No | HSS               |   |
|--------|-----|-----|-----|---|----------------|-------------------|---|
|        |     |     |     |   |                | Code No 0641-412- |   |
| 7.8    | 156 | 75  | 66  | 4 | 1              | 002707            | ○ |
| 8.8    | 162 | 81  | 66  | 4 | 1              | 002710            | ○ |
| 9.8    | 168 | 87  | 66  | 4 | 1              | 002809            | ○ |
| 10.75  | 175 | 94  | 66  | 4 | 1              | 002811            | ○ |
| 11.75  | 175 | 94  | 66  | 4 | 1              | 002900            | ○ |
| 12.75  | 182 | 101 | 66  | 4 | 1              | 002913            | ○ |
| 13.75  | 189 | 108 | 66  | 4 | 1              | 003005            | ○ |
| 14.75  | 212 | 114 | 80  | 4 | 2              | 003018            | ○ |
| 15.75  | 218 | 120 | 80  | 4 | 2              | 003107            | ○ |
| 16.75  | 223 | 125 | 80  | 4 | 2              | 003110            | ○ |
| 17.75  | 228 | 130 | 80  | 4 | 2              | 003209            | ○ |
| 18.7   | 233 | 135 | 80  | 4 | 2              | 003211            | ○ |
| 19.7   | 238 | 140 | 80  | 4 | 2              | 003300            | ○ |
| 20.7   | 243 | 145 | 80  | 4 | 2              | 003313            | ○ |
| 21.7   | 248 | 150 | 80  | 4 | 2              | 003402            | ○ |
| 22.7   | 253 | 155 | 80  | 4 | 2              | 003415            | ○ |
| 23.7   | 281 | 160 | 99  | 4 | 3              | 003504            | ○ |
| 24.7   | 281 | 160 | 99  | 4 | 3              | 003606            | ○ |
| 25.7   | 286 | 165 | 99  | 4 | 3              | 003708            | ○ |
| 26.7   | 291 | 170 | 99  | 4 | 3              | 003800            | ○ |
| 27.7   | 291 | 170 | 99  | 4 | 3              | 003901            | ○ |
| 29.7   | 296 | 175 | 99  | 4 | 3              | 004006            | ○ |
| 31.6   | 306 | 185 | 99  | 4 | 3              | 004108            | ○ |
| 33.6   | 339 | 190 | 124 | 4 | 4              | 004200            | ○ |
| 34.6   | 339 | 190 | 124 | 4 | 4              | 004301            | ○ |
| 35.6   | 344 | 195 | 124 | 4 | 4              | 004403            | ○ |
| 37.6   | 349 | 200 | 124 | 4 | 4              | 004505            | ○ |
| 39.6   | 349 | 200 | 124 | 4 | 4              | 004607            | ○ |
| 41.6   | 354 | 205 | 124 | 4 | 4              | 004709            | ○ |
| 43.6   | 359 | 210 | 124 | 4 | 4              | 004800            | ○ |
| 44.6   | 359 | 210 | 124 | 4 | 4              | 004902            | ○ |
| 45.6   | 364 | 215 | 124 | 4 | 4              | 005007            | ○ |
| 47.6   | 369 | 220 | 124 | 4 | 4              | 005109            | ○ |
| 49.6   | 369 | 220 | 124 | 4 | 4              | 005200            | ○ |



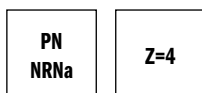
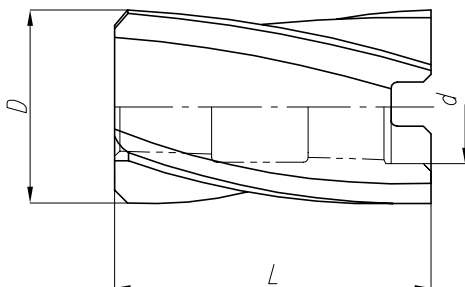
# PN NRNa

Rozwiertaki nasadzane zdzieraki

Roughing shell reamers

Vorreibende Aufsteckreibahlen

Развёртки насадные обдирочные



| D (h8) | d  | L   | z | HSS               |   |
|--------|----|-----|---|-------------------|---|
|        |    |     |   | Code No 0641-431- |   |
| 19.7   | 10 | 40  | 4 | 005103            | ○ |
| 20.7   | 10 | 40  | 4 | 005205            | ○ |
| 21.7   | 10 | 40  | 4 | 005307            | ○ |
| 22.7   | 10 | 40  | 4 | 005409            | ○ |
| 23.7   | 13 | 45  | 4 | 005500            | ○ |
| 24.7   | 13 | 45  | 4 | 005602            | ○ |
| 25.7   | 13 | 45  | 4 | 005704            | ○ |
| 26.7   | 13 | 45  | 4 | 005806            | ● |
| 27.7   | 13 | 45  | 4 | 005908            | ○ |
| 29.7   | 13 | 45  | 4 | 006002            | ● |
| 31.6   | 16 | 50  | 4 | 006104            | ○ |
| 33.6   | 16 | 50  | 4 | 006206            | ● |
| 34.6   | 16 | 50  | 4 | 006308            | ● |
| 35.6   | 19 | 56  | 4 | 006400            | ○ |
| 37.6   | 19 | 56  | 4 | 006501            | ○ |
| 39.6   | 19 | 56  | 4 | 006603            | ○ |
| 41.6   | 19 | 56  | 4 | 006705            | ● |
| 43.6   | 22 | 63  | 4 | 006807            | ○ |
| 44.6   | 22 | 63  | 4 | 006909            | ● |
| 45.6   | 22 | 63  | 4 | 007003            | ● |
| 47.6   | 22 | 63  | 4 | 007105            | ○ |
| 49.6   | 22 | 63  | 4 | 007207            | ● |
| 51.2   | 27 | 71  | 4 | 007309            | ● |
| 54.2   | 27 | 71  | 4 | 007400            | ● |
| 55.2   | 27 | 71  | 4 | 007502            | ○ |
| 57.2   | 27 | 71  | 4 | 007604            | ○ |
| 59.2   | 27 | 71  | 4 | 007706            | ○ |
| 61.2   | 32 | 80  | 4 | 007808            | ○ |
| 62.2   | 32 | 80  | 4 | 007900            | ○ |
| 64.2   | 32 | 80  | 4 | 008004            | ○ |
| 66.2   | 32 | 80  | 4 | 008106            | ○ |
| 70.2   | 32 | 80  | 4 | 008208            | ○ |
| 71.2   | 40 | 90  | 4 | 008300            | ○ |
| 74.2   | 40 | 90  | 4 | 008401            | ○ |
| 79.2   | 40 | 90  | 4 | 008503            | ○ |
| 84     | 40 | 90  | 4 | 008605            | ○ |
| 89     | 50 | 100 | 4 | 008707            | ○ |
| 94     | 50 | 100 | 4 | 008809            | ○ |
| 99     | 50 | 100 | 4 | 008900            | ○ |

# DIN 219 A/B

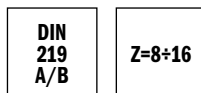
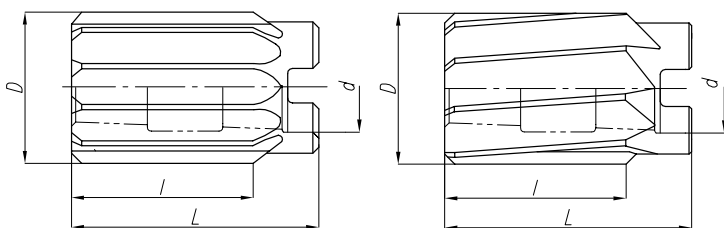
E

Rozwiertaki nasadzane wykańczaki

Finishing shell reamers

Aufsteckreibahlen spiralig

Развёртки насадные чистовые



A - ostrza proste / straight flutes / spiralgenutet / простые лезвия

B - ostrza śrubowe / spiral flutes / Schraubenschneiden / винтовые левого хода лезвия

| D (H7) | d  | L  | l  | z  | HSS               |        |        |   |
|--------|----|----|----|----|-------------------|--------|--------|---|
|        |    |    |    |    | Code No 0641-433- |        |        |   |
|        |    |    |    |    | Form A            | Form B |        |   |
| 18     | 10 | 40 | 28 | 8  | 210104            | ○      | 270103 | ○ |
| 19     | 10 | 40 | 28 | 8  | 210206            | ○      | 270205 | ○ |
| 20     | 10 | 40 | 28 | 8  | 210308            | ○      | 270307 | ○ |
| 21     | 10 | 40 | 28 | 8  | 210400            | ○      | 270409 | ○ |
| 22     | 10 | 40 | 28 | 8  | 210501            | ●      | 270500 | ○ |
| 23     | 10 | 40 | 28 | 8  | 210603            | ●      | 270602 | ○ |
| 24     | 13 | 45 | 32 | 8  | 210705            | ●      | 270704 | ○ |
| 25     | 13 | 45 | 32 | 8  | 210807            | ●      | 270806 | ● |
| 26     | 13 | 45 | 32 | 8  | 210909            | ○      | 270908 | ○ |
| 27     | 13 | 45 | 32 | 8  | 211003            | ○      | 271002 | ○ |
| 28     | 13 | 45 | 32 | 8  | 211105            | ●      | 271104 | ○ |
| 29     | 13 | 45 | 32 | 8  | 211207            | ○      | 271206 | ○ |
| 30     | 13 | 45 | 32 | 8  | 211309            | ●      | 271308 | ● |
| 31     | 16 | 50 | 36 | 10 | 211400            | ●      | 271400 | ○ |
| 32     | 16 | 50 | 36 | 10 | 211502            | ●      | 271501 | ● |
| 33     | 16 | 50 | 36 | 10 | 211604            | ●      | 271603 | ○ |
| 34     | 16 | 50 | 36 | 10 | 211706            | ●      | 271705 | ● |
| 35     | 16 | 50 | 36 | 10 | 211808            | ●      | 271807 | ● |
| 36     | 19 | 56 | 40 | 10 | 211900            | ●      | 271909 | ● |
| 37     | 19 | 56 | 40 | 10 | 212004            | ○      | 272003 | ○ |
| 38     | 19 | 56 | 40 | 10 | 212106            | ●      | 272105 | ● |
| 39     | 19 | 56 | 40 | 10 | 212208            | ○      | 272207 | ○ |
| 40     | 19 | 56 | 40 | 10 | 212300            | ●      | 272309 | ● |
| 41     | 19 | 56 | 40 | 10 | 212401            | ●      | 272400 | ○ |
| 42     | 19 | 56 | 40 | 10 | 212503            | ●      | 272502 | ● |
| 44     | 22 | 63 | 45 | 10 | 212707            | ○      | 272706 | ○ |
| 45     | 22 | 63 | 45 | 12 | 212809            | ●      | 272808 | ● |
| 46     | 22 | 63 | 45 | 12 | 212900            | ○      | 272900 | ● |
| 47     | 22 | 63 | 45 | 12 | 213005            | ○      | 273004 | ● |
| 48     | 22 | 63 | 45 | 12 | 213107            | ●      | 273106 | ● |
| 49     | 22 | 63 | 45 | 12 | 213209            | ○      | 273208 | ○ |
| 50     | 22 | 63 | 45 | 12 | 213300            | ●      | 273300 | ● |
| 52     | 27 | 71 | 50 | 12 | 213402            | ●      | 273401 | ● |
| 54     | 27 | 71 | 50 | 12 | 213504            | ●      | 273503 | ● |
| 55     | 27 | 71 | 50 | 12 | 213606            | ●      | 273605 | ● |
| 56     | 27 | 71 | 50 | 12 | 213708            | ○      | 273707 | ○ |
| 58     | 27 | 71 | 50 | 12 | 213800            | ○      | 273809 | ○ |
| 59     | 27 | 71 | 50 | 12 | 213901            | ○      | 273900 | ○ |
| 60     | 27 | 71 | 50 | 12 | 214006            | ●      | 274005 | ● |

A - ostrza proste/ straight flutes/ spiralgenutet/ простые лезвия

B - ostrza śrubowe/ spiral flutes/ Schraubenschneiden/ винтовые левого хода лезвия

| D (H7) | d  | L   | l  | z  | HSS               |   | HSS               |   |
|--------|----|-----|----|----|-------------------|---|-------------------|---|
|        |    |     |    |    | Code No 0641-433- |   | Code No 0641-433- |   |
|        |    |     |    |    | Form A            |   | Form B            |   |
| 62     | 32 | 80  | 56 | 14 | 214108            | ○ | 274107            | ○ |
| 63     | 32 | 80  | 56 | 14 | 214200            | ○ | 274209            | ○ |
| 65     | 32 | 80  | 56 | 14 | 214301            | ● | 274300            | ● |
| 67     | 32 | 80  | 56 | 14 | 214403            | ○ | 274402            | ○ |
| 68     | 32 | 80  | 56 | 14 | 214505            | ○ | 274504            | ○ |
| 70     | 32 | 80  | 56 | 14 | 214607            | ● | 274606            | ● |
| 71     | 32 | 80  | 56 | 14 | 214610            | ○ | 274708            | ○ |
| 72     | 40 | 90  | 63 | 14 | 214809            | ○ | 274800            | ○ |
| 75     | 40 | 90  | 63 | 14 | 214902            | ○ | 274901            | ○ |
| 78     | 40 | 90  | 63 | 14 | 215007            | ○ | 275006            | ○ |
| 80     | 40 | 90  | 63 | 14 | 215109            | ● | 275108            | ● |
| 81     | 40 | 90  | 63 | 14 | 215200            | ○ | 275200            | ○ |
| 85     | 40 | 90  | 63 | 14 | 215302            | ○ | 275301            | ○ |
| 90     | 50 | 100 | 71 | 16 | 215404            | ○ | 275403            | ○ |
| 95     | 50 | 100 | 71 | 16 | 215506            | ○ | 275505            | ○ |
| 100    | 50 | 100 | 71 | 16 | 215608            | ○ | 275607            | ○ |

\* Rozwiertaki odmiana A o średnicach od 25 do 100mm w klasie IT7 i powyżej wykonujemy w terminie do 10 dni

## Informacje techniczne

Parametry skrawania rozwiertaków

## Technical data

Cutting data for reamers

## Technische Hinweise

## Технические информации

Параметры резания развёрток

**Uwaga:** Dla narzędzi wykonanych ze stali HSS-E parametry należy zwiększyć o 25%.

**Attention:** For tools made of HSS-E use 25% more of recommended parameters.

**Achtung:** Bei Fräsen aus HSS-Stahl müssen die Parameter um 25% vergrößert werden.

**Внимание:** Для инструмента изготовленного из стали HSS-E увеличить параметры на 25%.

| grupa mat.<br>material group<br>группа<br>применения | HSS<br>Vc<br>m/min | dla średnicy<br>for diameter<br>Для диаметра |      |        |      |        |      |
|--|--------------------|--|------|--------|------|--------|------|
|  |                    | fz mm  |      | D (mm) |      | D (mm) |      |
|  |                    | >5   | 10   | 16     | 25   | 40     | 63   |
| 1.1  | 8:10               | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 1.2  | 8:10               | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 1.3  | 8:10               | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 1.4  | 8:10               | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 1.5  | 3:5                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 1.6  | 3:5                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 1.7  | 3:5                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 1.8  | 5:8                | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 1.9  |                    |  |      |        |      |        |      |
| 1.10   |                    |  |      |        |      |        |      |
| 1.11   |                    |  |      |        |      |        |      |
| 2.1  | 2:3                | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 2.2  | 2:3                | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 2.3  | 5:8                | 0,08   | 0,12 | 0,16   | 0,20 | 0,28   | 0,40 |
| 3.1  | 6:8                | 0,13   | 0,16 | 0,20   | 0,24 | 0,40   | 0,40 |
| 3.2  | 3:5                | 0,10   | 0,14 | 0,16   | 0,20 | 0,28   | 0,40 |
| 3.3  | 3:5                | 0,10   | 0,14 | 0,16   | 0,20 | 0,28   | 0,40 |
| 3.4  | 3:5                | 0,10   | 0,14 | 0,16   | 0,20 | 0,28   | 0,40 |
| 3.5  |                    |  |      |        |      |        |      |
| 4.1  | 2:3                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 4.2  | 2:3                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 4.3  |                    |  |      |        |      |        |      |
| 5.1  | 2:3                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 5.2  | 2:3                | 0,06   | 0,08 | 0,12   | 0,16 | 0,24   | 0,32 |
| 5.3  |                    |  |      |        |      |        |      |
| 6.1  | 12:16              | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 6.2  | 12:16              | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 6.3  | 8:10               | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 6.4  | 8:10               | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 7.1  | 12:16              | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 7.2  | 12:16              | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 7.3  | 8:10               | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 7.4  | 8:10               | 0,12   | 0,16 | 0,20   | 0,24 | 0,32   | 0,40 |
| 8.1  | 5:8                | 0,20   | 0,28 | 0,32   | 0,40 | 0,48   | 0,56 |
| 8.2  | 3:5                | 0,16   | 0,24 | 0,28   | 0,36 | 0,40   | 0,48 |
| 8.3  | 3:5                | 0,16   | 0,24 | 0,28   | 0,36 | 0,40   | 0,48 |

grupa materiałowa, patrz str. 16

material group, see page 17

Werkstoffgruppe Zeite 18

группа применения, смотри стр. 19