

444 760



FUTURA



| MAT  | 1.1                 | 1.2                    | 1.3                     | 1.4                    | 1.5                     | 1.6.1-1.6.4            | 1.6.5/1.6.6             |
|--|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| <b>Nutenfräsen · Slot milling · Rainurage · Cava</b> |                     |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]                                  | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6  | 3                   | 2.710                  | 98                      | 2.070                  | 71                      | 1.750                  | 57                      |
| 8  | 3                   | 2.030                  | 110                     | 1.550                  | 80                      | 1.310                  | 64                      |
| 10   | 4                   | 1.620                  | 143                     | 1.240                  | 104                     | 1.050                  | 83                      |
| 12   | 4                   | 1.350                  | 162                     | 1.040                  | 119                     | 880                    | 95                      |
| 14   | 4                   | 1.160                  | 167                     | 890                    | 122                     | 750                    | 97                      |
| 16   | 4                   | 1.020                  | 163                     | 780                    | 119                     | 660                    | 95                      |
| 18   | 4                   | 900                    | 162                     | 690                    | 118                     | 580                    | 94                      |
| 20   | 4                   | 810                    | 162                     | 620                    | 118                     | 530                    | 95                      |
| 22   | 6                   | 740                    | 244                     | 560                    | 176                     | 480                    | 143                     |
| 25   | 6                   | 650                    | 234                     | 500                    | 171                     | 420                    | 136                     |
| 30   | 6                   | 540                    | 211                     | 410                    | 152                     | 350                    | 123                     |
| d <sub>1</sub>                                       | 6,0-30,0            |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |

| MAT  | 2 (< 200 HB)        | 2 (> 200 HB)           | 3                       | 3.2                    | 3.3/3.4                 | 4.1                    | 4.2/4.3                 |
|--|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| <b>Nutenfräsen · Slot milling · Rainurage · Cava</b> |                     |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]                                  | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6  | 3                   | 1.960                  | 67                      | 1.430                  | 46                      | 3.850                  | 125                     |
| 8  | 3                   | 1.470                  | 75                      | 1.070                  | 52                      | 2.890                  | 140                     |
| 10   | 4                   | 1.180                  | 99                      | 860                    | 68                      | 2.310                  | 183                     |
| 12   | 4                   | 980                    | 112                     | 720                    | 78                      | 1.920                  | 207                     |
| 14   | 4                   | 840                    | 115                     | 610                    | 79                      | 1.650                  | 214                     |
| 16   | 4                   | 740                    | 112                     | 540                    | 78                      | 1.440                  | 207                     |
| 18   | 4                   | 650                    | 111                     | 480                    | 78                      | 1.280                  | 207                     |
| 20   | 4                   | 590                    | 112                     | 430                    | 77                      | 1.150                  | 207                     |
| 22   | 6                   | 540                    | 169                     | 390                    | 116                     | 1.050                  | 312                     |
| 25   | 6                   | 470                    | 161                     | 340                    | 110                     | 920                    | 298                     |
| 30   | 6                   | 390                    | 144                     | 290                    | 102                     | 770                    | 270                     |
| d <sub>1</sub>                                       | 6,0-30,0            |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |

| MAT  | 4.4                 | 5.1                    | 5.2                     | 5.3                    | 6.1/6.2                 | 6.3                    | 7                       |
|--|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| <b>Nutenfräsen · Slot milling · Rainurage · Cava</b> |                     |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]                                  | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6  | 3                   | 4.640                  | 167                     | 1.670                  | 54                      | 960                    | 29                      |
| 8  | 3                   | 3.480                  | 188                     | 1.250                  | 61                      | 720                    | 33                      |
| 10   | 4                   | 2.790                  | 246                     | 1.000                  | 79                      | 570                    | 43                      |
| 12   | 4                   | 2.320                  | 278                     | 840                    | 91                      | 480                    | 49                      |
| 14   | 4                   | 1.990                  | 287                     | 720                    | 93                      | 410                    | 50                      |
| 16   | 4                   | 1.740                  | 278                     | 630                    | 91                      | 360                    | 49                      |
| 18   | 4                   | 1.550                  | 279                     | 560                    | 91                      | 320                    | 49                      |
| 20   | 4                   | 1.390                  | 278                     | 500                    | 90                      | 290                    | 49                      |
| 22   | 6                   | 1.270                  | 419                     | 460                    | 137                     | 260                    | 73                      |
| 25   | 6                   | 1.110                  | 400                     | 400                    | 130                     | 230                    | 70                      |
| 30   | 6                   | 930                    | 363                     | 330                    | 116                     | 190                    | 63                      |
| d <sub>1</sub>                                       | 6,0-30,0            |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>                                       | 1,0x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |



| <b>444 760</b>  |                     |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
|---|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
|   | 1.1                 | 1.2                    | 1.3                     | 1.4                    | 1.5                     | 1.6.1-1.6.4            | 1.6.5/1.6.6             |                        |                         |                        |                         |                        |                         |                        |                         |
| <b>Seitenfräsen · Side milling · Contournage · Contornatura</b> |                     |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]   | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6   | 3                   | 2.710                  | 137                     | 2.070                  | 99                      | 1.750                  | 79                      | 1.110                  | 48                      | 720                    | 29                      | 1.110                  | 48                      | 880                    | 35                      |
| 8   | 3                   | 2.030                  | 153                     | 1.550                  | 111                     | 1.310                  | 89                      | 840                    | 54                      | 540                    | 33                      | 840                    | 54                      | 660                    | 40                      |
| 10  | 4                   | 1.620                  | 200                     | 1.240                  | 145                     | 1.050                  | 116                     | 670                    | 70                      | 430                    | 42                      | 670                    | 70                      | 530                    | 52                      |
| 12  | 4                   | 1.350                  | 227                     | 1.040                  | 166                     | 880                    | 133                     | 560                    | 80                      | 360                    | 48                      | 560                    | 80                      | 440                    | 59                      |
| 14  | 4                   | 1.160                  | 234                     | 890                    | 170                     | 750                    | 136                     | 480                    | 82                      | 310                    | 50                      | 480                    | 82                      | 380                    | 61                      |
| 16  | 4                   | 1.020                  | 228                     | 780                    | 166                     | 660                    | 133                     | 420                    | 80                      | 270                    | 48                      | 420                    | 80                      | 330                    | 59                      |
| 18  | 4                   | 900                    | 227                     | 690                    | 165                     | 580                    | 132                     | 370                    | 79                      | 240                    | 48                      | 370                    | 79                      | 290                    | 58                      |
| 20  | 4                   | 810                    | 227                     | 620                    | 165                     | 530                    | 134                     | 330                    | 79                      | 210                    | 47                      | 330                    | 79                      | 260                    | 58                      |
| 22  | 6                   | 740                    | 342                     | 560                    | 246                     | 480                    | 200                     | 300                    | 118                     | 200                    | 74                      | 300                    | 118                     | 240                    | 89                      |
| 25  | 6                   | 650                    | 328                     | 500                    | 239                     | 420                    | 191                     | 270                    | 116                     | 170                    | 69                      | 270                    | 116                     | 210                    | 85                      |
| 30  | 6                   | 540                    | 295                     | 410                    | 213                     | 350                    | 172                     | 220                    | 102                     | 140                    | 61                      | 220                    | 102                     | 180                    | 79                      |
| d <sub>1</sub>  | 6,0-30,0            |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>  | 1,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>  | 0,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |

|   | 2 (< 200 HB)        | 2 (> 200 HB)           | 3                       | 3.2                    | 3.3/3.4                 | 4.1                    | 4.2/4.3                 |                        |                         |                        |                         |                        |                         |                        |                         |
|---|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| <b>Seitenfräsen · Side milling · Contournage · Contornatura</b> |                     |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]   | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6   | 3                   | 1.960                  | 94                      | 1.430                  | 65                      | 3.850                  | 175                     | 5.310                  | 294                     | 2.550                  | 129                     | 9.930                  | 551                     | 8.330                  | 420                     |
| 8   | 3                   | 1.470                  | 106                     | 1.070                  | 73                      | 2.890                  | 197                     | 3.980                  | 331                     | 1.910                  | 144                     | 7.440                  | 619                     | 6.250                  | 473                     |
| 10  | 4                   | 1.180                  | 138                     | 860                    | 95                      | 2.310                  | 256                     | 3.180                  | 431                     | 1.530                  | 188                     | 5.960                  | 808                     | 5.000                  | 616                     |
| 12  | 4                   | 980                    | 156                     | 720                    | 109                     | 1.920                  | 290                     | 2.650                  | 490                     | 1.270                  | 213                     | 4.960                  | 917                     | 4.170                  | 701                     |
| 14  | 4                   | 840                    | 161                     | 610                    | 111                     | 1.650                  | 299                     | 2.270                  | 503                     | 1.090                  | 220                     | 4.250                  | 942                     | 3.570                  | 720                     |
| 16  | 4                   | 740                    | 157                     | 540                    | 109                     | 1.440                  | 290                     | 1.990                  | 490                     | 960                    | 215                     | 3.720                  | 917                     | 3.130                  | 701                     |
| 18  | 4                   | 650                    | 156                     | 480                    | 109                     | 1.280                  | 290                     | 1.770                  | 491                     | 850                    | 214                     | 3.310                  | 918                     | 2.780                  | 701                     |
| 20  | 4                   | 590                    | 157                     | 430                    | 108                     | 1.150                  | 290                     | 1.590                  | 490                     | 760                    | 213                     | 2.980                  | 918                     | 2.500                  | 700                     |
| 22  | 6                   | 540                    | 237                     | 390                    | 162                     | 1.050                  | 437                     | 1.450                  | 737                     | 690                    | 319                     | 2.710                  | 1.377                   | 2.270                  | 1.049                   |
| 25  | 6                   | 470                    | 225                     | 340                    | 154                     | 920                    | 417                     | 1.270                  | 704                     | 610                    | 307                     | 2.380                  | 1.319                   | 2.000                  | 1.008                   |
| 30  | 6                   | 390                    | 202                     | 290                    | 143                     | 770                    | 378                     | 1.060                  | 637                     | 510                    | 278                     | 1.990                  | 1.195                   | 1.670                  | 912                     |
| d <sub>1</sub>  | 6,0-30,0            |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>  | 1,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>  | 0,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |

|   | 4.4                 | 5.1                    | 5.2                     | 5.3                    | 6.1/6.2                 | 6.3                    | 7                       |                        |                         |                        |                         |                        |                         |                        |                         |
|---|---------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|------------------------|-------------------------|
| <b>Seitenfräsen · Side milling · Contournage · Contornatura</b> |                     |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| d <sub>1</sub> [mm]   | z                   | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] | n [min <sup>-1</sup> ] | v <sub>f</sub> [mm/min] |
| 6   | 3                   | 4.640                  | 234                     | 1.670                  | 76                      | 960                    | 41                      | 640                    | 26                      | 400                    | 17                      | 240                    | 10                      | 5.730                  | 318                     |
| 8   | 3                   | 3.480                  | 263                     | 1.250                  | 85                      | 720                    | 46                      | 480                    | 29                      | 300                    | 19                      | 180                    | 11                      | 4.300                  | 358                     |
| 10  | 4                   | 2.790                  | 344                     | 1.000                  | 111                     | 570                    | 60                      | 380                    | 37                      | 240                    | 25                      | 140                    | 14                      | 3.440                  | 466                     |
| 12  | 4                   | 2.320                  | 390                     | 840                    | 127                     | 480                    | 69                      | 320                    | 43                      | 200                    | 29                      | 120                    | 16                      | 2.870                  | 530                     |
| 14  | 4                   | 1.990                  | 401                     | 720                    | 131                     | 410                    | 70                      | 270                    | 44                      | 170                    | 29                      | 100                    | 16                      | 2.460                  | 546                     |
| 16  | 4                   | 1.740                  | 390                     | 630                    | 127                     | 360                    | 69                      | 240                    | 43                      | 150                    | 29                      | 90                     | 16                      | 2.150                  | 530                     |
| 18  | 4                   | 1.550                  | 391                     | 560                    | 127                     | 320                    | 69                      | 210                    | 42                      | 130                    | 28                      | 80                     | 16                      | 1.910                  | 529                     |
| 20  | 4                   | 1.390                  | 389                     | 500                    | 126                     | 290                    | 69                      | 190                    | 43                      | 120                    | 29                      | 70                     | 16                      | 1.720                  | 530                     |
| 22  | 6                   | 1.270                  | 587                     | 460                    | 191                     | 260                    | 102                     | 170                    | 63                      | 110                    | 43                      | 70                     | 26                      | 1.560                  | 793                     |
| 25  | 6                   | 1.110                  | 559                     | 400                    | 181                     | 230                    | 99                      | 150                    | 60                      | 100                    | 43                      | 60                     | 24                      | 1.380                  | 765                     |
| 30  | 6                   | 930                    | 508                     | 330                    | 162                     | 190                    | 88                      | 130                    | 57                      | 80                     | 37                      | 50                     | 22                      | 1.150                  | 691                     |
| d <sub>1</sub>  | 6,0-30,0            |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>p</sub>  | 1,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |
| a <sub>e</sub>  | 0,5x d <sub>1</sub> |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |                        |                         |