

| Process Matrix                 | Processes                             | Dimensions |     |                         |       |               |       |             |       | Machine list        |      |  |
|--------------------------------|---------------------------------------|------------|-----|-------------------------|-------|---------------|-------|-------------|-------|---------------------|------|--|
|                                |                                       | Module     |     | Gear cutting Width (mm) |       | Diameter (mm) |       | Length (mm) |       | Machines (quantity) |      | Machine brands                               |
|                                |                                       | From       | To  | From                    | To    | From          | To    | From        | To    | CNC                 | Konv |  |
| <b>Cylindrical Gears</b>       | Hobbing                               | 0,5        | 50  | 0                       | 1.500 | 10            | 5.000 |             |       | 10                  | 2    | Gleason, Liebherr, Modul, Höfler             |
|                                | Internal gearcutting, disc-cutter     | 5,0        | 30  | 0                       | 1.500 | 500           | 6.000 |             |       | 3                   |      | Gleason, Liebherr, Modul                     |
|                                | Internal gearcutting, shaping         | 1,0        | 8   | 0                       | 300   | 25            | 1.300 |             |       | 2                   | 2    | Gleason, TOS                                 |
|                                | External gear grinding, form grinding | 1,0        | 16  | 0                       | 500   | 30            | 800   |             |       | 2                   |      | Gleason                                      |
|                                | External gear grinding, generating    | 0,5        | 7   | 0                       | 300   | 10            | 330   |             |       | 1                   |      | Burri Reishauer                              |
|                                | Skiving                               | 1,0        | 12  |                         |       | 10            | 5.000 |             |       | 4                   | 4    | Gleason                                      |
| <b>Bevel Gears</b>             | Straight tooth                        | 1,0        | 10  |                         |       | 10            | 550   |             |       | 6                   | 1    | Klingelberg, Modul Serwema                   |
|                                | Spiral bevel                          | 1,0        | 7   |                         |       | 10            | 540   |             |       | 1                   | 4    | Klingelberg Palloid                          |
|                                | Lapping                               | 1,0        | 10  |                         |       | 10            | 550   |             |       |                     | 1    | Klingelberg                                  |
| <b>Worms &amp; worm wheels</b> | Worm shafts cutting                   | 1,0        | 10  |                         |       | 10            | 250   | 30          | 500   | 2                   | 1    | Gleason                                      |
|                                | Worm shafts skiving                   | 1,0        | 8   |                         |       | 10            | 250   | 30          | 500   | 2                   |      | Gleason                                      |
|                                | Worm shafts grinding                  | 1,0        | 10  |                         |       | 10            | 250   | 30          | 500   |                     | 1    | Klingelberg                                  |
|                                | Worm wheel, hobbing                   | 1,0        | 20  |                         |       | 10            | 5.000 |             |       | 8                   | 2    | Gleason, Höfler                              |
| <b>Splines &amp; keyways</b>   | Broaching                             | 0,5        | 3,0 |                         |       | 10            | 150   | 5           | 100   |                     | 2    | Rausch, Stenhoj                              |
|                                | Key seating                           |            |     |                         |       | B=3           | B=50  | 5           | 400   | 1                   |      | Gierth                                       |
|                                | Key slotting                          |            |     |                         |       | B=5           | B=20  | 5           | 250   | 1                   |      | Perini                                       |
| <b>Turning &amp; milling</b>   | Turning / milling / drilling          |            |     |                         |       | 10            | 650   | 10          | 1.000 | 15                  | 4    | Okuma, DMG, Monforts, Fadal                  |
|                                | Vertical turning / milling / drilling |            |     |                         |       | 300           | 5.000 | 10          | 1.000 | 6                   |      | Pietro Carnaghi, Honor, Sedin, Shenyang, DMG |
| <b>Grinding</b>                | External grinding                     |            |     |                         |       | 10            | 300   | 10          | 1.000 | 3                   | 1    | Studer, Kellenberger, Tachella, TOS          |
|                                | Internal grinding                     |            |     |                         |       | 10            | 300   | 10          | 1.000 | 2                   |      | Emag, Studer                                 |
|                                | Surface grinding                      |            |     |                         |       | 10            | 500   | 5           | 1.000 | 2                   |      | Jakobsen                                     |
| <b>Surface treatment</b>       | Case hardening                        |            |     |                         |       | 10            | 1.000 | 5           | 1.200 | 2                   |      | IVA  |
|                                | Induction hardening                   |            |     |                         |       | 10            | 7.000 | 5           | 1.000 | 4                   |      | EMA  |
|                                | Metallization                         |            |     |                         |       | 10            | 5.000 | 10          | 3.500 |                     | 1    |  |
| <b>Measuring</b>               | Gear measuring                        | 0,5        | 40  |                         |       | 10            | 5.000 | 1           | 1.000 | 3                   |      | Gleason, Zeiss, Römer                        |
|                                | 3D-measuring                          |            |     |                         |       | 10            | 5.000 | 1           | 1.000 | 3                   |      | Zeiss, Römer, Etalon                         |
|                                | 2D-measuring                          |            |     | 0                       | 1.250 |               |       | 1           | 3.000 | 1                   |      | Trimos                                       |