

|              |                                                                                                                                                                                                                                                                                                                                         |
|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Kühlung      |     |
| Toleranz     | d04                                                                                                                                                                                                                                                                                                                                     |
| Beschichtung | TAC- $\alpha$                                                                                                                                                                                                                                                                                                                           |



| Werkstoff /<br>Material           | Festigkeit /<br>strength<br>(N/mm <sup>2</sup> ) | Vc<br>m/min | Ø 0,1 - 0,3                                                                       |                                                                                   | Ø 0,4 - 0,8                                                                       |                                                                                   | Ø 0,9 - 1,2                                                                         |                                                                                     | Ø 1,3 - 1,5                                                                         |                                                                                     | Ø 1,6 - 1,9                                                                         |                                                                                     | Ø 2 - 2,3                                                                           |                                                                                     | Ø 2,4 - 2,7                                                                         |                                                                                     | Ø 2,8 - 3,0                                                                         |                                                                                     |  |  |
|-----------------------------------|--------------------------------------------------|-------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--|--|
|                                   |                                                  |             |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|                                   |                                                  |             | ae=<br>0,15xD                                                                     | ae=<br>0,1xD                                                                      | ae=<br>0,15xD                                                                     | ae=<br>0,1xD                                                                      | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        | ae=<br>0,15xD                                                                       | ae=<br>0,1xD                                                                        |  |  |
|                                   |                                                  |             | ap=<br>L <sub>2</sub> max                                                         | ap=<br>0,1xD                                                                      | ap=<br>L <sub>2</sub> max                                                         | ap=<br>0,1xD                                                                      | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        | ap=<br>L <sub>2</sub> max                                                           | ap=<br>0,1xD                                                                        |  |  |
|                                   |                                                  |             | fz<br>(mm/Z)                                                                      | fz<br>(mm/Z)                                                                      | fz<br>(mm/Z)                                                                      | fz<br>(mm/Z)                                                                      | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        | fz<br>(mm/Z)                                                                        |  |  |
| Stahl / Steel                     | < 850                                            |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Stahl / Steel                     | < 1100                                           |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Stahl / Steel                     | < 1400                                           |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Gehärteter Stahl / Hardness Steel | < 55HRC                                          |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Gehärteter Stahl / Hardness Steel | < 60HRC                                          |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Gehärteter Stahl / Hardness Steel | < 67HRC                                          |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Gehärteter Stahl / Hardness Steel | ≤ 70HRC                                          |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| INOX                              | < 700                                            |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| INOX                              | < 850                                            |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Guss / Castings                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Aluminium / Al                    |                                                  | 500         | 0,011                                                                             | 0,014                                                                             | 0,016                                                                             | 0,02                                                                              | 0,023                                                                               | 0,026                                                                               | 0,026                                                                               | 0,03                                                                                | 0,03                                                                                | 0,034                                                                               | 0,033                                                                               | 0,037                                                                               | 0,035                                                                               | 0,038                                                                               | 0,037                                                                               | 0,04                                                                                |  |  |
| Kupfer / Cooper                   |                                                  | 180         | 0,01                                                                              | 0,013                                                                             | 0,015                                                                             | 0,019                                                                             | 0,022                                                                               | 0,025                                                                               | 0,025                                                                               | 0,029                                                                               | 0,029                                                                               | 0,033                                                                               | 0,032                                                                               | 0,036                                                                               | 0,034                                                                               | 0,037                                                                               | 0,036                                                                               | 0,039                                                                               |  |  |
| Kunststoffe / Plastics            |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Inconel                           |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Titan / Titanium                  |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
|                                   |                                                  |             |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |  |  |
| Grafit / Graphite                 |                                                  | 350         | 0,011                                                                             | 0,014                                                                             | 0,016                                                                             | 0,02                                                                              | 0,023                                                                               | 0,026                                                                               | 0,026                                                                               | 0,03                                                                                | 0,03                                                                                | 0,034                                                                               | 0,033                                                                               | 0,037                                                                               | 0,035                                                                               | 0,038                                                                               | 0,037                                                                               | 0,04                                                                                |  |  |
| GFK / CFK                         |                                                  | 200         | 0,01                                                                              | 0,013                                                                             | 0,015                                                                             | 0,019                                                                             | 0,022                                                                               | 0,025                                                                               | 0,025                                                                               | 0,029                                                                               | 0,029                                                                               | 0,033                                                                               | 0,032                                                                               | 0,036                                                                               | 0,034                                                                               | 0,037                                                                               | 0,036                                                                               | 0,039                                                                               |  |  |

Bitte beachten, hierbei handelt es sich lediglich um Richtwerte! / Caution, these are only guide values!

Hinweis:  
Fz Angaben Tabelle ist für kurze Auskraglänge (L3), je länger, dementsprechen Fz prozentual verringern  
Fz information at the table is for a short projection length (L3), the longer, accordingly reduce Fz as a percentage

