

MACHINING GUIDELINES

| | Turning | | | | | | Milling | | | | | | Drilling | | | | | | Belt saw | | | | | | Circular saw | | | | | |
|-----------------|---------------|------------|-----------------|---------------|---------|--|---------------|------------|------------|---------------|---------|---------------|------------|------------|---------------|--|---------------|------------|---------------|-------------|---------------|------------|---------------|-------------|--------------|-----|--|--|--|--|
| | α | γ | x | ν | s | | α | γ | ν | ν | ϕ | γ | ν | s | α | γ | ν | t | α | γ | ν | t | α | γ | ν | t | | | | |
| | ° | ° | ° | m/mN | mm/U | | ° | ° | m/mN | | ° | ° | m/mN | mm/U | ° | ° | m/mN | mm | ° | ° | m/mN | mm | ° | ° | m/mN | mm | | | | |
| | Setting Angle | Reke Angle | Recessing Angle | Cutting Speed | Feed | | Setting Angle | Reke Angle | Peak Angle | Cutting Speed | Feed | Setting Angle | Reke Angle | Peak Angle | Cutting Speed | Twisting Angle β to be ca. 12° bis 16° | Setting Angle | Reke Angle | Cutting Speed | Tooth Pitch | Setting Angle | Reke Angle | Cutting Speed | Tooth Pitch | | | | | | |
| PVC | 8-10 | 0-5 | 50-60 | 200-750 | 0.3-0.5 | | 5-10 | 3-5 | 60-100 | 30-120 | 0.1-0.5 | 5-10 | 300-1000 | | 5-10 | 30-40 | 0-5 | 1200 | 3 | 5-10 | 0-5 | 3000-4000 | 3-5 | | | | | | | |
| PP/PE-HD | 6-10 | 0-5 | 45-60 | 250-500 | 0.1-0.5 | | 5-15 | 10-20 | 60-90 | 50-150 | 0.1-0.3 | 5-15 | 250-500 | | 20-30 | 20-30 | 2-5 | 500 | 3-8 | 20-30 | 6-10 | 2000 | 3-8 | | | | | | | |
| ABS | 5-15 | 25-30 | 15 | 200-500 | 0.2-0.5 | | 8-12 | 10-30 | 60-90 | 50-200 | 0.2-0.3 | 10-30 | 300-500 | | 15-30 | 15-30 | 0-5 | 300 | 2-8 | 5-10 | 0-5 | 1000 | 2-5 | | | | | | | |
| PMMA | 5-10 | 0-4 | 15 | 200-300 | 0.1-0.2 | | 3-8 | 0-4 | 60-90 | 20-60 | 0.1-0.5 | 3-8 | 2000 | | 30-40 | 30-40 | 0-5 | 1200 | 3 | 5-10 | 0-5 | 1500-2000 | 3-5 | | | | | | | |
| PC/PPE | 5-12 | 6-8 | 45-60 | 200-350 | 0.1-0.5 | | 8-10 | 10-20 | 90 | 50-100 | 0.1-0.3 | 10-20 | 250-350 | | 15-30 | 15-30 | 5-8 | 300-500 | 2-8 | 15-30 | 5-8 | 1800-2500 | 2-8 | | | | | | | |
| PA | 6-10 | 0-5 | 45-60 | 200-500 | 0.1-0.4 | | 5-15 | 10-25 | 90 | 50-150 | 0.1-0.3 | 10-25 | 250-500 | | 15-30 | 15-30 | 0-5 | 300-500 | 2-8 | 15-30 | 0-8 | 1800-2500 | 2-8 | | | | | | | |
| PDM | 6-8 | 0-5 | 45-60 | 300-600 | 0.1-0.4 | | 5-10 | 5-30 | 90 | 50-200 | 0.1-0.3 | 5-30 | 250-500 | | 20-30 | 20-30 | 0-5 | 500-800 | 2-5 | 5-10 | 0-10 | 1000-2500 | 2-5 | | | | | | | |
| PET | 0-15 | 0-15 | 45-60 | 200-500 | 0.1-0.5 | | 5-16 | 10-30 | 90-110 | 50-100 | 0.1-0.3 | 10-30 | 250-500 | | 15-40 | 15-40 | 0-8 | 300 | 2-8 | 10-15 | 0-15 | 1000-3000 | 2-5 | | | | | | | |
| PVDF | 5-15 | 5-15 | 10 | 150-500 | 0.1-0.3 | | 10-16 | 5-20 | 110-130 | 150-300 | 0.1-0.3 | 5-20 | 250-500 | | 20-30 | 20-30 | 5-8 | 300-500 | 2-5 | 5-10 | 0-10 | 1000-2500 | 2-5 | | | | | | | |
| E-CFTE | 6-10 | 0-5 | 45-60 | 250-500 | 0.1-0.5 | | 5-15 | 10-20 | 60-90 | 50-150 | 0.1-0.3 | 10-20 | 250-500 | | 20-30 | 20-30 | 2-8 | 500 | 3-8 | 20-30 | 6-10 | 2000 | 3-8 | | | | | | | |
| PSU/PPSU | 5-10 | 0-5 | 45-60 | 250-400 | 0.2-0.3 | | 5-15 | 10-20 | 60-90 | 30-90 | 0.1-0.3 | 10-20 | 250-500 | | 15-30 | 15-30 | 0-4 | 500 | 2-5 | 15-30 | 0-15 | 2000 | 2-5 | | | | | | | |
| PEI | 5-10 | 0-10 | 45-60 | 300-400 | 0.2-0.3 | | 5-15 | 10-20 | 60-90 | 30-90 | 0.1-0.4 | 10-20 | 200-400 | | 15-30 | 15-30 | 0-4 | 500 | 2-5 | 15-30 | 0-15 | 2000 | 2-5 | | | | | | | |
| PEEK | 5-10 | 3-8 | 45-60 | 200-500 | 0.1-0.4 | | 5-15 | 10-25 | 90-120 | 70-200 | 0.1-0.3 | 10-25 | 180-450 | | 15-30 | 15-30 | 0-5 | 500-800 | 3-5 | 15-30 | 0-10 | 1800-2500 | 2-5 | | | | | | | |
| GF mod | 6-8 | 2-8 | 45-60 | 150-200 | 0.1-0.5 | | 6 | 5-10 | 90-120 | 80-100 | 0.1-0.3 | 5-10 | 80-100 | | 15-30 | 15-30 | 10-15 | 200-300 | 3-5 | 15-30 | 10-15 | 500-1500 | 3-5 | | | | | | | |

It is recommended to use only sharpened HSS tools(High Speed Steel.)

Due to the danger of stress cracking we do recommend to use no cooling agents oil based(or to clean the parts well after machining). Amorphous materials should be annealed during machining

To avoid treatment problems we recommend a heating up of the materials on approx. 120 °C. Use only sharpened tools with small feed.

With these materials we should be paid attention to a good exhaust of the machining area.

CHEMICAL RESISTANCE

| | Konz. (%) | PVC-U | | PP | | PE-UHMW | | PMMA | | PS-HI | | ABS | | PC | | PPE | |
|-----------------------------|-----------|-------|------|------|------|---------|------|------|------|-------|------|------|------|------|------|------|------|
| | | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C | 20°C | 60°C |
| Acetone | 100 | - | - | + | +0 | + | +0 | - | - | - | - | - | - | - | - | - | - |
| Formic acid | 10 | + | 0 | + | + | + | + | - | - | + | + | + | + | + | + | + | + |
| Ammonia | konz | + | 0 | + | + | + | + | + | + | + | + | + | + | - | - | + | + |
| Ammonium chloride | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Amyl alcohol | | + | 0 | + | + | + | + | - | - | + | 0 | + | - | 0 | 0 | + | + |
| Apple juice | | + | + | | | | | + | | + | | + | | 0 | 0 | + | + |
| Benzene | | - | - | 0 | - | + | +0 | - | - | - | - | - | - | - | - | - | - |
| Bleaching solution | 12.5Cl | + | + | 0 | 0 | | | | | | | | | - | - | - | - |
| Boric acid | 100 | + | 0 | + | + | + | + | | | + | 0 | | | | + | | |
| Brake fluid | | + | + | + | + | + | + | | | - | - | - | - | | | | |
| Butyl acetate | | - | - | 0 | - | + | | - | - | - | - | - | - | - | - | - | - |
| Calcium chloride | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Chlorine, gas | 100 | 0 | 0 | - | - | | | 0 | | - | - | - | - | 0 | | | |
| Chlorobenzene | 100 | - | - | | 0/- | | | | | - | - | - | - | - | - | - | - |
| Chloroform | | - | - | 0 | - | | | - | - | - | - | - | - | - | - | - | - |
| Cyclohexene | 100 | + | 0 | + | - | + | + | - | - | | | + | | - | - | + | + |
| Cyclohexanone | 100 | - | - | + | 0/- | + | | - | - | - | - | - | - | - | - | - | + |
| Diethylene oxide, THF | | - | - | 0 | | | | - | - | | | | | | | | |
| 1,4 Dioxane | 100 | - | - | 0/- | | + | | | | - | - | - | - | +0 | - | 0 | |
| Diesel fuel | | + | | | + | + | + | + | | | | + | | 0 | | + | + |
| Acetic acid | 100 | + | - | + | 0 | + | + | - | - | + | | - | - | - | - | + | + |
| Vinegar, standard | 5-10 | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Ethyl acetate | 100 | - | - | + | +0 | + | | - | - | - | - | - | - | - | - | + | + |
| Ethylene alcohol | 96 | + | 0 | + | + | + | + | +0 | - | + | | - | - | +0 | 0 | + | + |
| Ethylene chloride | 100 | - | - | +0 | | | | - | - | - | - | - | - | - | - | - | - |
| Hydrofluoric acid | 40 | + | 0 | + | + | + | + | - | - | - | - | 0 | - | - | - | + | + |
| Formaldehyde, aqu | 40 | + | + | + | + | + | + | + | | + | + | + | 0 | + | | + | + |
| Frost protection agent | | + | + | + | + | + | + | + | | + | + | + | + | + | | + | + |
| Glycerin | 100 | + | + | + | + | + | + | + | | + | + | + | + | +0 | 0 | + | + |
| Glycol | 100 | + | + | + | + | + | + | + | | + | + | + | + | + | | + | + |
| Heating oil | | + | + | + | +0 | + | + | + | | | | + | + | 0 | | + | + |
| Heptane | 100 | + | + | 0 | 0 | + | +0 | + | | | | + | | + | | + | + |
| Isopropyl alcohol | 100 | + | | + | + | + | + | +0 | | | | 0 | - | 0 | | + | + |
| Mercurochrome | | 0 | - | + | 0 | + | + | - | - | | | 0 | | 0 | | + | + |
| Potassium hydroxide liquor | 50 | + | + | + | + | + | + | + | | + | 0 | + | +0 | - | - | + | + |
| Cresol | | - | - | + | + | + | + | - | - | | | - | - | - | - | - | - |
| Linseed oil | | + | + | + | + | + | + | + | | + | | + | + | + | + | + | + |
| Methyl alcohol | 100 | + | +0 | + | + | + | + | - | - | + | | - | - | - | - | + | + |
| Methylene chloride | 100 | - | - | 0/- | - | 0/- | - | - | - | - | - | - | - | - | - | - | - |
| Methyl ethyl ketone | 100 | - | - | + | 0 | + | + | - | - | - | - | - | - | - | - | - | - |
| Milk | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + |
| 2-Hydropropionic acid | 90 | + | + | + | + | + | + | + | | + | +0 | +0 | | + | | - | - |
| Mineral oils, aromatic free | | + | + | + | +0 | + | + | + | | | | | | | | | |
| Sodium Hydrogen sulphite | | + | + | + | + | + | + | + | | + | 0 | + | | + | | | |
| Sodium carbonate, aqu | | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + | + |
| Sodium chloride, aqu | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + |
| Sodium nitrate, aqu | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + |
| Sodium thiosulfate | | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + |
| Sodium hydroxide liquor | 15 | + | + | + | + | + | + | + | | + | + | + | + | - | - | + | + |
| Sodium hydroxide liquor | 60 | + | + | + | + | + | + | - | - | - | - | + | - | - | - | + | + |
| Nitrobenzene | | - | - | + | +0 | + | + | - | - | - | - | - | - | - | - | - | - |
| Oxalic acid | | + | + | + | + | + | + | + | | + | | + | + | + | | + | + |
| Ozone, gas | < 0.5 ppm | + | + | - | - | +0 | - | + | | + | | + | + | 0 | | | |
| Paraffine oil | 100 | + | 0 | + | + | + | + | + | | + | + | + | + | + | | + | + |
| Perchloroethylene | | - | - | 0 | - | 0 | - | 0 | | - | - | - | - | - | - | - | - |
| Petroleum ether | 100 | + | + | + | 0 | + | 0 | + | | - | - | - | - | 0 | | | |
| Petroleum, aromatic free | 100 | + | + | | | | | 0 | | - | - | 0 | 0/- | 0 | - | + | + |
| Phenol, aqu | ca. 9 | 0 | - | + | + | + | + | - | - | + | 0 | 0 | | - | - | - | - |
| Phosphoric acid | 50 | + | + | + | + | + | + | - | - | + | + | + | + | + | | + | + |
| Propyl alcohol | | + | 0 | + | + | + | + | | | + | | + | - | + | | + | + |
| Pyridine | | - | - | + | + | 0 | | | | - | - | - | - | - | - | - | - |
| Nitric acid | 10 | + | + | + | + | + | + | + | + | + | - | + | | 0 | | - | - |
| Nitric acid | 50 | + | + | - | - | 0 | 0/- | - | - | - | - | +0 | | - | - | - | - |
| Hydrochloric acid | 10 | + | + | + | + | + | + | + | | + | + | + | 0/- | + | | + | + |
| Hydrochloric acid | konz | + | + | + | /0 | + | + | + | | 0 | - | +0 | - | 0/- | - | + | + |
| Carbon disulphide | 100 | - | - | 0 | - | - | - | - | | - | - | - | - | - | - | - | - |
| Sulphuric acid | 96 | + | +0 | 0/- | - | 0 | - | - | | - | - | - | - | - | - | - | - |
| Hydrogen sulphide | | + | + | + | + | + | + | + | | 0 | | + | | + | | + | + |
| Silicone oil | | + | + | + | + | + | + | + | | + | + | + | | + | + | + | + |
| Food oil | | + | + | + | + | + | + | + | | + | + | + | | + | + | + | + |
| Carbon tetrachloride | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| Tetrahydrofurane | 100 | - | - | 0/- | | | | | | - | - | - | - | - | - | - | - |
| Toluene | 100 | - | - | + | - | - | - | - | | - | - | - | - | - | - | - | - |
| Transformer oil | | + | | + | +0 | + | + | + | | + | +0 | + | +0 | | | | |
| Fuel, aromatic free | | + | + | + | + | + | + | + | | - | - | +0 | | 0 | | - | - |
| Premoum Fuel | | - | - | + | + | + | + | - | | - | - | - | - | - | - | - | - |
| Trichloroethylene | 100 | - | - | 0 | - | - | - | - | | - | - | - | - | - | - | - | - |
| Water | | + | + | + | + | + | + | + | | + | + | + | + | + | +0 | + | + |
| Hydrogen peroxide | 10 | + | + | + | + | + | + | + | | + | + | + | + | + | + | + | + |
| Xylene | | - | - | - | - | - | - | - | | - | - | - | - | - | - | - | - |
| Citric acid | 10 | | | | | | | | | | | + | + | | | | |

TECHNICAL PROPERTIES

| Attribute of the used raw material | | Norm | Einheit z.B. Unit l.e. Unite p.ex | MC NYLON | | | | | | | | POM C | POM ESD | POM AS | HDPE | PE-UHMW | PP |
|--|------------------|-------------------|---|------------------------|----------------------|------------------------|-------------------|------------------------|------------------------|-----------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|----|
| | | | | 일 반 | +MOS2 | +oil | +Wax | +Lube | +GF | AST | | | | | | | |
| I. Physical Propertis | | I. 물리적 특성 | | | | | | | | | | | | | | | |
| 1. Specific gravity(p) | 1. 비중 | ISO 1183 | g/cm ³ | 1.2 | 1.16 | 1.14 | 1.14 | 1.14 | 1.30 | 1.23 | 1.39 | 1.38 | 1.33 | 0.95 | 0.93 | 0.9 | |
| 2. Water absorption | 2. 수분 흡수율 | DIN 53495 | % | 1.0 | 1.1 | 1.0 | 0.7 | - | - | 1.2 | 0.2 | 0.3 | 0.3 | 0.01 | 0.01 | 0.0 | |
| 3. Max. permissible service temperature (no stronger mech. stress involve) | 3. 사용온도 | - | - | - | - | - | - | - | - | - | - | - | - | DIN 8075 | DIN 8075 | - | |
| upper temperature limit | 최소 | - | ℃ | 110 | 100 | 110 | 110 | 110 | 110 | - | 110 | 110 | 110 | 90 | 90 | 100 | |
| lower temperature limit | 최대 | - | ℃ | -40 | - | -40 | -40 | -40 | -40 | - | -50 | -50 | -50 | -50 | -150 | 5 | |
| II. Mechanical Properties | | II. 기계적 특성 | | | | | | | | | | | | | | | |
| 1. Tensile strength at yield (σ _s) | 1. 인장강도 | ISO 527 | MPa | 85 | 80 | 75 | 80 | 80 | 110 | 70 | 63 | 41 | 45 | 22 | 17 | 33 | |
| 2. Elongation at yield (ε _s) | 2. 항복점 | ISO 527 | % | - | - | - | - | - | - | - | 10 | 10 | 10 | 11 | 20 | 14 | |
| 3. Tensile strength at break (σ _R) | 3. 장력 | ISO 527 | MPa | - | - | - | - | - | - | - | - | - | - | 31 | 40 | - | |
| 4. Elongation at break (ε _R) | 4. 파단점 | ISO 527 | % | >20 | >20 | >25 | >20 | >20 | >25 | >20 | 31 | - | - | ≥600 | ≥350 | ≥5 | |
| 5. Impact strenght (α _n) | 5. 충격강도 | ISO 179 | KJ/m ² | 106 | 115 | 115 | - | 110 | - | 115 | o.B. | - | 50 | o.B. | o.B. | o.B. | |
| 6. Notch impact strenght (α _k) | 6. IZOD 충격강도 | ISO 179 | KJ/m ² | 3.4 | 6.5 | 4.9 | - | 5.4 | - | 3.0 | 6 | - | 4 | 20 | o.B. | 13 | |
| 7. Ball indentation hardn.(H _k)/ Rockwell | 7. ROCKWELL 충격강도 | ISO 2039-1 | MPa | 115 | 110 | 119 | - | 118 | - | 120 | 135 | - | 100 | 40 | 36 | 71 | |
| 8. Flexural strenght(σ 3.5%) | 8. 굴곡강도 | DIN 53505 | MPa | 85 | 85 | 96 | 80 | 105 | - | 111 | - | 59 | 52 | 30 | 27 | - | |
| 9. Modulus of elasticity(Et) | 9. 탄성율 | ISO 178 | MPa | 3100 | 3050 | 2650 | 2450 | 3300 | - | 2990 | 2600 | 2690 | 1650 | 900 | 680 | 145 | |
| III. Thermal Properties | | III. 열적 특성 | | | | | | | | | | | | | | | |
| 1. Vical softening temp. VST/B/50 VST/A/%0 | 1. 연화점 | ISO 306 | ℃ | - | - | - | - | - | - | - | 150 | - | 130 | 74 | 80 | 83 | |
| | | | ℃ | - | - | - | - | - | - | - | - | - | - | 125 | - | - | |
| 2. Heat deflection temperature HDT/B HDT/A | 2. 열변형 온도 | ISO 75 | ℃ | 215 | 205 | - | - | 211 | - | 217 | 155 | - | - | 70 | 65 | 95 | |
| | | | ℃ | 182 | 127 | 71 | - | - | - | - | 95 | 82 | 71 | 41 | 42 | - | |
| 3. Cof. of linear therm. expansion (α) | 3. 선팽창계수 | DIN 53752 | K ⁻¹ × 10 ⁻⁴ | - | - | - | - | - | - | - | 1.1 | - | 1.3 | 1.55 | 2 | 1.5 | |
| 4. Thermal conductivity at 20℃(λ) | 4. 열전도도 | DIN 52612 | W/(m ×K) | 0.25 | 0.25 | - | - | - | - | - | 0.31 | - | - | 0.43 | 0.42 | 0.2 | |
| IV. Electrical Properties | | IV. 전기적 특성 | | | | | | | | | | | | | | | |
| 1. Volume resistivity (ρ _b) | 1. 체적저항 | VDE 0303 | Ω ×cm | 9.1 × 10 ¹³ | 7 × 10 ¹⁵ | 7.4 × 10 ¹⁶ | - | 5.6 × 10 ¹⁴ | 9.1 × 10 ¹³ | 1.5 × 10 ⁷ | ≥10 ¹³ | ≤10 ³ | ≤10 ¹⁰ | ≥10 ¹⁵ | ≥10 ¹⁴ | ≥10 ¹⁶ | |
| 2. Surface resistivity (R ₀) | 2. 표면저항 | VDE 0303 | Ω | >10 ¹³ | >10 ¹³ | >10 ¹² | >10 ¹² | 10 ¹² | ≥10 ¹³ | - | ≥10 ¹³ | ≤10 ⁶ | ≤10 ¹⁰ | ≥10 ¹⁶ | ≥10 ¹² | ≥10 ¹⁶ | |
| 3. Dielectric constant at 1MHz(ε _r) | 3. 유전율 | DIN 53483 | | 7.42 | - | 3.08 | - | - | 3.12 | - | 3.8 | - | - | 2.3 | 3 | 2.3 | |
| 4. Diel. loss factor at 1 MHz(tanδ) | 4. 유전정점 | DIN 53483 | | 0.175 | - | 0.018 | - | - | 0.02 | - | 0.005 | - | - | 0.0002 | 0.0001 | 0.000 | |
| 5. Dielectric strenght | 5. 유전파괴전압 | VDE 0303 | kV/mm | 20.4 | - | 22.4 | 25 | 25 | 25.0 | - | 40 | - | - | 17 | 45 | - | |
| 6. Tracking resistance | 6. 내 트래킹 저항 | DIN 53483 | | KB 600 | - | KB 600 | KB 600 | KB 600 | KB 600 | - | CTI 600 | - | - | KB ≥600 | KB ≥600 | KB ≥600 | |
| V. Additional Data | | V. 기타 | | | | | | | | | | | | | | | |
| 1. Bondability | 1. 접착성 | | | | | | | | | | + | + | + | 0 | - | 0 | |
| 2. Friction coefficient | 2. 마찰계수 | DIN 53375 | | | | | | | | | 0.35 | - | - | 0.3 | 0.25 | 0.3 | |
| 3. Flammability | 3. 연소성 | UL 94 | | V ₂ | V ₂ | V ₂ | V ₂ | V ₂ | V ₂ | V ₂ | HB | HB | HB | HB | HB | HB | |
| 4. UV stabilisation | 4. UV 안정성 | | | | | | | | | | 0 | 0 | 0 | 0 | - | 0 | |

1) The physical data contained in this table are typical values. They are obtained on the test specimens under specific conditions and represent average values of a large number of tests. The results obtained on this test specimens cannot be applied to finished parts without reservations, as behavior is influenced by processing and shaping.
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2) Corresponding

3) 65(solid rod 160-200mm Ø) 57 (solid rod 220-300mm Ø)

4) 59(solid rod 160-200mm Ø) 51 (solid rod 220-300mm Ø)

5) For rods up to 160mm Ø, tubes and profiles on request.

6) The materials PE-HD and PP are admitted by DIBt.

| | Hipro PP-30GF | PP ESD | ABS | PC | PVC U | PVC C | PVC HI | PVC ESD | PPE | PPE- 30GF | PA 6 | PA 6.6 | PET | PVDF | E-CTFE | PSU | PFSU | PEI | PEI- 30GF | PEEK | PEEK- mod | PEEK- 30GF |
|-----|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|-------------------|-------------------|--------------------------------------|--------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|------------------------|------------------|-------------------|
| 1 | 1.14 | 0.95 | 1.04 | 1.2 | 1.36 | 1.55 | 1.38 | 1.41 | 1.06 | 1.28 | 1.13 | 1.13 | 1.39 | 1.77 | 1.68 | 1.24 | 1.29 | 1.27 | 1.51 | 1.32 | 1.48 | 1.49 |
| 1 | - | 0.1 | 0.4 | 0.35 | 0.2 | 0.2 | 0.2 | - | 0.23 | 0.2 | 3 | 2.8 | 0.2 | ≤0.04 | ≤0.1 | 0.23 | 0.35 | 0.25 | 0.9 | 0.5 | 0.06 | 0.11 |
| | - | - | - | - | DIN 8061 | DIN 8061 | DIN 8061 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 0 | 100 | 100 | 70 | 120 | 60 | 85 | 60 | 60 | 105 | 110 | 70 | 101 | 110 | 150 | 150 | 160 | 180 | 170 | 170 | 260 | 260 | 260 |
| | 5 | 5 | -50 | -150 | -15 | -15 | -40 | -15 | -50 | -50 | -40 | -30 | -20 | -30 | -76 | -100 | -50 | - | - | -40 | -40 | -40 |
| | 57 | 38 | 41 | 65 | 55 | 57 | 49 | 40 | 55 | - | 90/45 | 80/60 | 90 | 50 | 30 | 70 | 76 | 105 | 169 | 97 | 141 | 156 |
| | - | 4 | 4 | - | 3 | 3 | 10 | 4 | 5 | - | 4.5/20 | 40/150 | - | 9 | - | 5.5 | - | 6 | - | 4.9 | - | 3 |
| | 85 | - | 35 | - | 30 | 80 | 30 | 36 | 50 | 105 | - | - | ≥50 | 46 | 54 | - | - | 85 | 159 | - | 118 | 157 |
| 0 | 3 | - | 45 | 110 | 33 | 15 | 30 | 20 | 3 | 2 | ≥50 | - | 15 | 80 | 250 | 50-100 | 30 | 60 | 3 | ≥60 | 3 | 2.7 |
| | 22 | o.B. | o.B. | o.B. | o.B. | o.B. | o.B. | - | o.B. | 25 | o.B. | o.B. | o.B. | 252 | o.B. | o.B. | o.B. | o.B. | - | o.B. | 27.5 | 40 |
| | 6 | o.B. | 37 | 30 | 3 | 8 | 10 | 5 | 15 | 8 | 9/o.B. | - | - | 22 | o.B. | 5.3 | 58 | 6 | 8 | 8.2 | 6.3 | 8.9 |
| | 110 | - | 84 | 110 | 120 | 150 | 100 | - | 100 | 130 | 160/70 | 170/100 | 170 | 80 | R90 | M69 | M80 | M109 | M114 | M99 | - | M103 |
| | 120 | - | 70 | 85 | 90 | 90 | 80 | - | 75 | 125 | 77 | - | - | 80 | 49 | 106 | 91 | 145 | 228 | 170 | 210 | 250 |
| 0 | 6500 | 2200 | 2100 | 2300 | 3000 | 3000 | 2600 | 3000 | 2300 | 8000 | 3000/1000 | 3100/2000 | 3700 | 2000 | 1690 | 2460 | 2300 | 3200 | 9310 | 3660 | 8100 | 10300 |
| | 130 | - | 98 | 150 | 75 ³⁾ | 105 | 78 | - | 135 | 145 | - | - | - | 140 | - | 188 | - | 211 | 227 | 250 | - | 300 |
| | 160 | - | - | - | - | - | - | - | - | - | 204 | - | - | 160 | - | 185 | - | 215 | - | - | - | - |
| | 155 | - | 97 | 137 | 75 ⁴⁾ | 102 | 69 | - | 130 | 150 | 160 | 200 | - | 145 | 90 | 181 | 214 | 200 | 212 | 240 | 293 | 340 |
| | 140 | - | - | 128 | - | - | - | - | 115 | 140 | 65 | 100 | 75 | 90 | 63 | 174 | 207 | 190 | 210 | 152 | 277 | 315 |
| | 0.7 | - | 1 | 0.65 | 0.8 | 0.6 | 0.8 | - | 0.6 | 0.7 | 0.85 | 0.80 | 0.8 | 1.2 | 0.8 | 0.56 | 0.55 | 0.56 | - | 0.47 | 0.22 | 0.22 |
| 2 | 0.27 | - | 0.25 | 0.21 | 0.14 | 0.14 | 0.17 | - | 0.22 | 0.28 | 0.28 | 0.23 | 0.29 | 0.13 | 0.15 | 0.26 | 0.35 | 0.24 | - | 0.25 | 0.24 | 0.43 |
| 16 | ≥10 ¹⁴ | 50 | ≥10 ¹⁴ | ≥10 ¹⁷ | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ¹⁵ | 7.3 × 10 ³ | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ¹³ /≥10 ¹⁰ | ≥10 ¹³ /≥10 ¹⁰ | ≥10 ¹⁵ | ≥10 ¹³ | ≥10 ¹⁵ | ≥10 ¹³ | ≥10 ¹³ | ≥10 ¹³ | ≥10 ¹³ | 4.9 × 10 ¹⁶ | ≥10 ⁵ | ≥10 ¹³ |
| 16 | ≥10 ¹³ | ≤10 ⁶ | ≥10 ¹³ | - | ≥10 ¹³ | ≥10 ¹³ | ≥10 ¹³ | ≤10 ⁶ | ≥10 ¹³ | ≥10 ¹³ | -/≥10 ¹⁰ | -/≥10 ¹⁰ | ≥10 ¹⁴ | ≥10 ¹⁴ | ≥10 ¹² | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ¹⁵ | ≥10 ⁷ | ≥10 ¹³ |
| | 2.6 | - | 2.8 | 3 | 3 | 3 | 3 | - | 2.6 | 2.9 | 3.5/7 | 3.6/5 | 3.2 | 7.25 | 2.6 | 3.93 | 3.5 | 2.9 | 3.4 | 3.2 | - | 3.3 |
| 02 | - | - | 0.01 | 0.008 | 0.01 | 0.01 | 0.01 | - | 0.001 | 0.0015 | 0.031/0.3 | 0.026/0.2 | 0.041 | 0.18 | - | 0.003 | 0.005 | 0.0013 | 0.0023 | 0.003 | - | 0.004 |
| | 40 | - | 150 | 27 | 20-40 | 20-40 | 20-40 | - | 19 | 22 | 20-50 | 30-50 | 22 | 22 | 21 | 17 | 15 | 33 | 35 | 19 | 24.5 | 175 |
| 500 | KB ≥600 | - | KB ≥600 | CTI 250 | KB 600 | KB 600 | KB 600 | - | CTI 175 | CTI 325 | CTI 600 | CTI 600 | CTI 600 | CTI 300 | CTI ≥600 | CTI 150 | - | CTI 150 | CTI 150 | CTI 150 | - | - |
| | 0 | 0 | + | + | + | + | + | + | + | + | + | + | + | 0 | 0 | + | + | + | + | + | 0 | + |
| | - | - | 0.5 | 0.55 | 0.6 | 0.6 | 0.6 | 0.6 | 0.35 | - | 0.38-0.45 | 0.35-0.42 | 0.25 | 0.34 | 0.3 | 0.4 | - | - | - | 0.34 | 0.11 | 0.42 |
| | HB | HB | HB | HB | V-0 | V-0 | V-0 | V-0 | HB | V-1 | HB | V-2 | HB | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 | V-0 |
| | 0 | 0 | - | - | 0 | - | 0 | - | 0 | 0 | - | - | - | + | + | - | + | + | 0 | 0 | + | 0 |

o.B. no break + yes o limited - no