

Material 1

Structural-deep drawing-free cutting steels.

St37: 1.0037 C10: 1.0301 10 S 20: 1.0721

St42: 1.0040 C15: 1.0401

| CUTTING RATE (C_{m^2} /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|--|---------|--------|---------|--------|---------|--------|--------|--------|---------------|----------------|---|----------------|---|------|---------|------|---------|------|---------|------|--------|--|---|
| <table style="width: 100%;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">15-25</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">25-40</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">35-50</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">40-60</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">100 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">15-25</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">25-40</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">35-50</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">40-60</td></tr> </table> | 10 | 15-25 | 25 | 25-40 | 40 | 35-50 | 65 | 40-60 | cutting speed | 100 m/min | <table style="width: 100%;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">190-310</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">125-200</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">110-160</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">78-11</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;"></td> <td style="text-align: center; padding-top: 10px;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">190-310</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">125-200</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">110-160</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">78-11</td></tr> </table> | 10 | 190-310 | 25 | 125-200 | 40 | 110-160 | 65 | 78-11 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) |
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| 10 | 15-25 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 25-40 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 35-50 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 40-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 100 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">190-310</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">125-200</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">110-160</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">78-11</td></tr> </table> | 10 | 190-310 | 25 | 125-200 | 40 | 110-160 | 65 | 78-11 | | | | | | | | | | | | | | | | |
| 10 | 190-310 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 125-200 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 110-160 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 78-11 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 100 | 50-75 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 70-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 75-110 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 75-110 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 95-85 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 200 | 48-70 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 70-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 50-75 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 40-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 35-50 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 75-60 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 50-75 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 70-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 75-110 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 25-40 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 20-30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 15-25 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 15-25 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 55-45 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1000</td><td style="padding: 2px 5px;">50-75</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1200</td><td style="padding: 2px 5px;">70-100</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">1500</td><td style="padding: 2px 5px;">75-110</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">2000</td><td style="padding: 2px 5px;">75-110</td></tr> </table> | 1000 | 50-75 | 1200 | 70-100 | 1500 | 75-110 | 2000 | 75-110 | | | | | | | | | | | | | | | | |
| 1000 | 50-75 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 70-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 75-110 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 75-110 | | | | | | | | | | | | | | | | | | | | | | | | |

Material 2

Structural steel, heat treatable steels

St50: 1.0050 C35: 1.0501

St60: 1.0060 C45: 1.0503

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | |
|---|-----------------------|-------|------|-------|------|-------|------|-------|--|------|---------|------|---------|------|---------|------|---------|
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>12-18</td></tr> <tr><td>25</td><td>20-30</td></tr> <tr><td>40</td><td>25-38</td></tr> <tr><td>65</td><td>30-45</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">75 m/min</p> | 10 | 12-18 | 25 | 20-30 | 40 | 25-38 | 65 | 30-45 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>150-230</td></tr> <tr><td>25</td><td>100-150</td></tr> <tr><td>40</td><td>80-120</td></tr> <tr><td>65</td><td>58-88</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">K</div> Raker tooth (s) Hook tooth (k) | 10 | 150-230 | 25 | 100-150 | 40 | 80-120 | 65 | 58-88 |
| 10 | 12-18 | | | | | | | | | | | | | | | | |
| 25 | 20-30 | | | | | | | | | | | | | | | | |
| 40 | 25-38 | | | | | | | | | | | | | | | | |
| 65 | 30-45 | | | | | | | | | | | | | | | | |
| 10 | 150-230 | | | | | | | | | | | | | | | | |
| 25 | 100-150 | | | | | | | | | | | | | | | | |
| 40 | 80-120 | | | | | | | | | | | | | | | | |
| 65 | 58-88 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>40-50</td></tr> <tr><td>150</td><td>50-75</td></tr> <tr><td>200</td><td>55-80</td></tr> <tr><td>300</td><td>55-80</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">70-65 m/min</p> | 100 | 40-50 | 150 | 50-75 | 200 | 55-80 | 300 | 55-80 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>51-70</td></tr> <tr><td>150</td><td>42-64</td></tr> <tr><td>200</td><td>31-51</td></tr> <tr><td>300</td><td>23-34</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">Emulsion 5-10% oil</div> Cooling lubrication | 100 | 51-70 | 150 | 42-64 | 200 | 31-51 | 300 | 23-34 |
| 100 | 40-50 | | | | | | | | | | | | | | | | |
| 150 | 50-75 | | | | | | | | | | | | | | | | |
| 200 | 55-80 | | | | | | | | | | | | | | | | |
| 300 | 55-80 | | | | | | | | | | | | | | | | |
| 100 | 51-70 | | | | | | | | | | | | | | | | |
| 150 | 42-64 | | | | | | | | | | | | | | | | |
| 200 | 31-51 | | | | | | | | | | | | | | | | |
| 300 | 23-34 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>50-75</td></tr> <tr><td>500</td><td>40-55</td></tr> <tr><td>600</td><td>30-45</td></tr> <tr><td>800</td><td>25-38</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">50-48 m/min</p> | 400 | 50-75 | 500 | 40-55 | 600 | 30-45 | 800 | 25-38 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>12-18</td></tr> <tr><td>500</td><td>8-11</td></tr> <tr><td>600</td><td>5-7.5</td></tr> <tr><td>800</td><td>3-5</td></tr> </table> | 400 | 12-18 | 500 | 8-11 | 600 | 5-7.5 | 800 | 3-5 |
| 400 | 50-75 | | | | | | | | | | | | | | | | |
| 500 | 40-55 | | | | | | | | | | | | | | | | |
| 600 | 30-45 | | | | | | | | | | | | | | | | |
| 800 | 25-38 | | | | | | | | | | | | | | | | |
| 400 | 12-18 | | | | | | | | | | | | | | | | |
| 500 | 8-11 | | | | | | | | | | | | | | | | |
| 600 | 5-7.5 | | | | | | | | | | | | | | | | |
| 800 | 3-5 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>20-30</td></tr> <tr><td>1200</td><td>15-25</td></tr> <tr><td>1500</td><td>12-18</td></tr> <tr><td>2000</td><td>12-18</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">45-38 m/min</p> | 1000 | 20-30 | 1200 | 15-25 | 1500 | 12-18 | 2000 | 12-18 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>2-3</td></tr> <tr><td>1200</td><td>1,2-2</td></tr> <tr><td>1500</td><td>0,8-1,2</td></tr> <tr><td>2000</td><td>0,6-0,9</td></tr> </table> | 1000 | 2-3 | 1200 | 1,2-2 | 1500 | 0,8-1,2 | 2000 | 0,6-0,9 |
| 1000 | 20-30 | | | | | | | | | | | | | | | | |
| 1200 | 15-25 | | | | | | | | | | | | | | | | |
| 1500 | 12-18 | | | | | | | | | | | | | | | | |
| 2000 | 12-18 | | | | | | | | | | | | | | | | |
| 1000 | 2-3 | | | | | | | | | | | | | | | | |
| 1200 | 1,2-2 | | | | | | | | | | | | | | | | |
| 1500 | 0,8-1,2 | | | | | | | | | | | | | | | | |
| 2000 | 0,6-0,9 | | | | | | | | | | | | | | | | |

Material 3

Cementation steel, heat treatable steel
 16MnCr5: 1.7131, 42 CrMo 4: 1.225,
 50 CrV 4: 1.8159

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|---------|-------|---------|-------|--------|-------|---------|-------|---------------|----------------|--|----------------|--|------|---------|------|---------|------|--------|------|---------|--|--|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>10-16</td></tr> <tr><td>25</td><td>15-26</td></tr> <tr><td>40</td><td>20-32</td></tr> <tr><td>65</td><td>25-38</td></tr> </table> </td> </tr> <tr> <td>cutting speed</td> <td style="text-align: center;">65 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>10-16</td></tr> <tr><td>25</td><td>15-26</td></tr> <tr><td>40</td><td>20-32</td></tr> <tr><td>65</td><td>25-38</td></tr> </table> | 10 | 10-16 | 25 | 15-26 | 40 | 20-32 | 65 | 25-38 | cutting speed | 65 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>125-200</td></tr> <tr><td>25</td><td>75-130</td></tr> <tr><td>40</td><td>60-100</td></tr> <tr><td>65</td><td>49-74</td></tr> </table> </td> </tr> <tr> <td></td> <td style="text-align: center;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>125-200</td></tr> <tr><td>25</td><td>75-130</td></tr> <tr><td>40</td><td>60-100</td></tr> <tr><td>65</td><td>49-74</td></tr> </table> | 10 | 125-200 | 25 | 75-130 | 40 | 60-100 | 65 | 49-74 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>10-16</td></tr> <tr><td>25</td><td>15-26</td></tr> <tr><td>40</td><td>20-32</td></tr> <tr><td>65</td><td>25-38</td></tr> </table> | 10 | 10-16 | 25 | 15-26 | 40 | 20-32 | 65 | 25-38 | | | | | | | | | | | | | | | | |
| 10 | 10-16 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 15-26 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 20-32 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 25-38 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 65 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>125-200</td></tr> <tr><td>25</td><td>75-130</td></tr> <tr><td>40</td><td>60-100</td></tr> <tr><td>65</td><td>49-74</td></tr> </table> | 10 | 125-200 | 25 | 75-130 | 40 | 60-100 | 65 | 49-74 | | | | | | | | | | | | | | | | |
| 10 | 125-200 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 75-130 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 60-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 49-74 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>30-48</td></tr> <tr><td>150</td><td>40-60</td></tr> <tr><td>200</td><td>45-65</td></tr> <tr><td>300</td><td>45-65</td></tr> </table> </td> </tr> <tr> <td>cutting speed</td> <td style="text-align: center;">60-55 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>30-48</td></tr> <tr><td>150</td><td>40-60</td></tr> <tr><td>200</td><td>45-65</td></tr> <tr><td>300</td><td>45-65</td></tr> </table> | 100 | 30-48 | 150 | 40-60 | 200 | 45-65 | 300 | 45-65 | cutting speed | 60-55 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>38-61</td></tr> <tr><td>150</td><td>34-51</td></tr> <tr><td>200</td><td>28-41</td></tr> <tr><td>300</td><td>19-27</td></tr> </table> </td> </tr> <tr> <td></td> <td style="text-align: center;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 5-10% oil</div> Cooling lubrication </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>38-61</td></tr> <tr><td>150</td><td>34-51</td></tr> <tr><td>200</td><td>28-41</td></tr> <tr><td>300</td><td>19-27</td></tr> </table> | 100 | 38-61 | 150 | 34-51 | 200 | 28-41 | 300 | 19-27 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 5-10% oil</div> Cooling lubrication |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>30-48</td></tr> <tr><td>150</td><td>40-60</td></tr> <tr><td>200</td><td>45-65</td></tr> <tr><td>300</td><td>45-65</td></tr> </table> | 100 | 30-48 | 150 | 40-60 | 200 | 45-65 | 300 | 45-65 | | | | | | | | | | | | | | | | |
| 100 | 30-48 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 40-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 45-65 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 45-65 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 60-55 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>38-61</td></tr> <tr><td>150</td><td>34-51</td></tr> <tr><td>200</td><td>28-41</td></tr> <tr><td>300</td><td>19-27</td></tr> </table> | 100 | 38-61 | 150 | 34-51 | 200 | 28-41 | 300 | 19-27 | | | | | | | | | | | | | | | | |
| 100 | 38-61 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 34-51 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 28-41 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 19-27 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 5-10% oil</div> Cooling lubrication | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 40-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 30-48 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 25-38 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 20-32 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 50-40 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>10-15</td></tr> <tr><td>500</td><td>6-9</td></tr> <tr><td>600</td><td>4-6</td></tr> <tr><td>800</td><td>2,5-4</td></tr> </table> | 400 | 10-15 | 500 | 6-9 | 600 | 4-6 | 800 | 2,5-4 | | | | | | | | | | | | | | | | |
| 400 | 10-15 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 6-9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 4-6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 2,5-4 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 15-26 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 12-20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 10-16 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 10-16 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 37-33 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>1,5-2,5</td></tr> <tr><td>1200</td><td>1,1-1,6</td></tr> <tr><td>1500</td><td>0,6-1</td></tr> <tr><td>2000</td><td>0,5-0,8</td></tr> </table> | 1000 | 1,5-2,5 | 1200 | 1,1-1,6 | 1500 | 0,6-1 | 2000 | 0,5-0,8 | | | | | | | | | | | | | | | | |
| 1000 | 1,5-2,5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 1,1-1,6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 0,6-1 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 0,5-0,8 | | | | | | | | | | | | | | | | | | | | | | | | |

Material 4

Ball bearing steels, heat treatable steels

100Cr6: 1.3505, C125W: 1.1663

EN -31

| CUTTING RATE (Cm^2 /min) | | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | |
|---------------------------------------|--|-----------------------|-------|------|-------|------|-------|------|-------|---------------------------------------|---|------|---------|------|---------|------|-------|------|---------|--------------------|-----------------------------------|
| \varnothing mm cutting speed | <table border="1"><tr><td>10</td><td>10-15</td></tr><tr><td>25</td><td>15-24</td></tr><tr><td>40</td><td>20-30</td></tr><tr><td>65</td><td>25-36</td></tr></table> 60-58 m/min | 10 | 10-15 | 25 | 15-24 | 40 | 20-30 | 65 | 25-36 | \varnothing mm cutting speed | <table border="1"><tr><td>10</td><td>125-200</td></tr><tr><td>25</td><td>75-120</td></tr><tr><td>40</td><td>60-95</td></tr><tr><td>65</td><td>49-70</td></tr></table> <table border="1"><tr><td>K</td><td>Raker tooth (s) Hook tooth (k)</td></tr></table> | 10 | 125-200 | 25 | 75-120 | 40 | 60-95 | 65 | 49-70 | K | Raker tooth (s) Hook tooth (k) |
| 10 | 10-15 | | | | | | | | | | | | | | | | | | | | |
| 25 | 15-24 | | | | | | | | | | | | | | | | | | | | |
| 40 | 20-30 | | | | | | | | | | | | | | | | | | | | |
| 65 | 25-36 | | | | | | | | | | | | | | | | | | | | |
| 10 | 125-200 | | | | | | | | | | | | | | | | | | | | |
| 25 | 75-120 | | | | | | | | | | | | | | | | | | | | |
| 40 | 60-95 | | | | | | | | | | | | | | | | | | | | |
| 65 | 49-70 | | | | | | | | | | | | | | | | | | | | |
| K | Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>100</td><td>30-45</td></tr><tr><td>150</td><td>35-55</td></tr><tr><td>200</td><td>40-60</td></tr><tr><td>300</td><td>40-60</td></tr></table> 55-50 m/min | 100 | 30-45 | 150 | 35-55 | 200 | 40-60 | 300 | 40-60 | \varnothing mm cutting speed | <table border="1"><tr><td>100</td><td>38-57</td></tr><tr><td>150</td><td>30-47</td></tr><tr><td>200</td><td>25-38</td></tr><tr><td>300</td><td>17-25</td></tr></table> <table border="1"><tr><td>Emulsion 3% oil</td><td>Cooling lubrication</td></tr></table> | 100 | 38-57 | 150 | 30-47 | 200 | 25-38 | 300 | 17-25 | Emulsion 3% oil | Cooling lubrication |
| 100 | 30-45 | | | | | | | | | | | | | | | | | | | | |
| 150 | 35-55 | | | | | | | | | | | | | | | | | | | | |
| 200 | 40-60 | | | | | | | | | | | | | | | | | | | | |
| 300 | 40-60 | | | | | | | | | | | | | | | | | | | | |
| 100 | 38-57 | | | | | | | | | | | | | | | | | | | | |
| 150 | 30-47 | | | | | | | | | | | | | | | | | | | | |
| 200 | 25-38 | | | | | | | | | | | | | | | | | | | | |
| 300 | 17-25 | | | | | | | | | | | | | | | | | | | | |
| Emulsion 3% oil | Cooling lubrication | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>400</td><td>35-55</td></tr><tr><td>500</td><td>30-45</td></tr><tr><td>600</td><td>25-36</td></tr><tr><td>800</td><td>20-30</td></tr></table> 45-35 m/min | 400 | 35-55 | 500 | 30-45 | 600 | 25-36 | 800 | 20-30 | \varnothing mm cutting speed | <table border="1"><tr><td>400</td><td>9-13</td></tr><tr><td>500</td><td>6-9</td></tr><tr><td>600</td><td>4-6</td></tr><tr><td>800</td><td>2,5-4</td></tr></table> | 400 | 9-13 | 500 | 6-9 | 600 | 4-6 | 800 | 2,5-4 | | |
| 400 | 35-55 | | | | | | | | | | | | | | | | | | | | |
| 500 | 30-45 | | | | | | | | | | | | | | | | | | | | |
| 600 | 25-36 | | | | | | | | | | | | | | | | | | | | |
| 800 | 20-30 | | | | | | | | | | | | | | | | | | | | |
| 400 | 9-13 | | | | | | | | | | | | | | | | | | | | |
| 500 | 6-9 | | | | | | | | | | | | | | | | | | | | |
| 600 | 4-6 | | | | | | | | | | | | | | | | | | | | |
| 800 | 2,5-4 | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>1000</td><td>15-24</td></tr><tr><td>1200</td><td>12-20</td></tr><tr><td>1500</td><td>10-15</td></tr><tr><td>2000</td><td>10-15</td></tr></table> 33-28 m/min | 1000 | 15-24 | 1200 | 12-20 | 1500 | 10-15 | 2000 | 10-15 | \varnothing mm cutting speed | <table border="1"><tr><td>1000</td><td>1,5-2,5</td></tr><tr><td>1200</td><td>1,1-1,6</td></tr><tr><td>1500</td><td>0,6-1</td></tr><tr><td>2000</td><td>0,5-0,8</td></tr></table> | 1000 | 1,5-2,5 | 1200 | 1,1-1,6 | 1500 | 0,6-1 | 2000 | 0,5-0,8 | | |
| 1000 | 15-24 | | | | | | | | | | | | | | | | | | | | |
| 1200 | 12-20 | | | | | | | | | | | | | | | | | | | | |
| 1500 | 10-15 | | | | | | | | | | | | | | | | | | | | |
| 2000 | 10-15 | | | | | | | | | | | | | | | | | | | | |
| 1000 | 1,5-2,5 | | | | | | | | | | | | | | | | | | | | |
| 1200 | 1,1-1,6 | | | | | | | | | | | | | | | | | | | | |
| 1500 | 0,6-1 | | | | | | | | | | | | | | | | | | | | |
| 2000 | 0,5-0,8 | | | | | | | | | | | | | | | | | | | | |

Material 5

High speed steel

S6-5-2: 1.3343, S2-10-1-8: 1.3247

| CUTTING RATE (Cm^2 /min) | | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | |
|---------------------------------------|--|-----------------------|-------|------|-------|------|-------|------|-------|---------------------------------------|--|------|---------|------|-------|------|---------|------|---------|--------------------|
| \varnothing mm cutting speed | <table border="1"><tr><td>10</td><td>7-11</td></tr><tr><td>25</td><td>12-18</td></tr><tr><td>40</td><td>15-22</td></tr><tr><td>65</td><td>17-27</td></tr></table> 50-47 m/min | 10 | 7-11 | 25 | 12-18 | 40 | 15-22 | 65 | 17-27 | \varnothing mm cutting speed | <table border="1"><tr><td>10</td><td>90-140</td></tr><tr><td>25</td><td>60-90</td></tr><tr><td>40</td><td>48-70</td></tr><tr><td>65</td><td>33-53</td></tr></table> <table border="1"><tr><td>K</td></tr></table> Raker tooth (s) Hook tooth (k) | 10 | 90-140 | 25 | 60-90 | 40 | 48-70 | 65 | 33-53 | K |
| 10 | 7-11 | | | | | | | | | | | | | | | | | | | |
| 25 | 12-18 | | | | | | | | | | | | | | | | | | | |
| 40 | 15-22 | | | | | | | | | | | | | | | | | | | |
| 65 | 17-27 | | | | | | | | | | | | | | | | | | | |
| 10 | 90-140 | | | | | | | | | | | | | | | | | | | |
| 25 | 60-90 | | | | | | | | | | | | | | | | | | | |
| 40 | 48-70 | | | | | | | | | | | | | | | | | | | |
| 65 | 33-53 | | | | | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>100</td><td>20-33</td></tr><tr><td>150</td><td>25-40</td></tr><tr><td>200</td><td>30-45</td></tr><tr><td>300</td><td>30-45</td></tr></table> 45-40 m/min | 100 | 20-33 | 150 | 25-40 | 200 | 30-45 | 300 | 30-45 | \varnothing mm cutting speed | <table border="1"><tr><td>100</td><td>25-42</td></tr><tr><td>150</td><td>21-34</td></tr><tr><td>200</td><td>19-29</td></tr><tr><td>300</td><td>12-19</td></tr></table> <table border="1"><tr><td>Emulsion 3% oil</td></tr></table> Cooling lubrication | 100 | 25-42 | 150 | 21-34 | 200 | 19-29 | 300 | 12-19 | Emulsion 3% oil |
| 100 | 20-33 | | | | | | | | | | | | | | | | | | | |
| 150 | 25-40 | | | | | | | | | | | | | | | | | | | |
| 200 | 30-45 | | | | | | | | | | | | | | | | | | | |
| 300 | 30-45 | | | | | | | | | | | | | | | | | | | |
| 100 | 25-42 | | | | | | | | | | | | | | | | | | | |
| 150 | 21-34 | | | | | | | | | | | | | | | | | | | |
| 200 | 19-29 | | | | | | | | | | | | | | | | | | | |
| 300 | 12-19 | | | | | | | | | | | | | | | | | | | |
| Emulsion 3% oil | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>400</td><td>25-40</td></tr><tr><td>500</td><td>20-33</td></tr><tr><td>600</td><td>17-27</td></tr><tr><td>800</td><td>15-22</td></tr></table> 36-29 m/min | 400 | 25-40 | 500 | 20-33 | 600 | 17-27 | 800 | 15-22 | \varnothing mm cutting speed | <table border="1"><tr><td>400</td><td>8-12</td></tr><tr><td>500</td><td>5-8</td></tr><tr><td>600</td><td>4-5.7</td></tr><tr><td>800</td><td>2,4-3,5</td></tr></table> | 400 | 8-12 | 500 | 5-8 | 600 | 4-5.7 | 800 | 2,4-3,5 | |
| 400 | 25-40 | | | | | | | | | | | | | | | | | | | |
| 500 | 20-33 | | | | | | | | | | | | | | | | | | | |
| 600 | 17-27 | | | | | | | | | | | | | | | | | | | |
| 800 | 15-22 | | | | | | | | | | | | | | | | | | | |
| 400 | 8-12 | | | | | | | | | | | | | | | | | | | |
| 500 | 5-8 | | | | | | | | | | | | | | | | | | | |
| 600 | 4-5.7 | | | | | | | | | | | | | | | | | | | |
| 800 | 2,4-3,5 | | | | | | | | | | | | | | | | | | | |
| \varnothing mm cutting speed | <table border="1"><tr><td>1000</td><td>12-18</td></tr><tr><td>1200</td><td>10-15</td></tr><tr><td>1500</td><td>7-11</td></tr><tr><td>2000</td><td>7-11</td></tr></table> 27-22 m/min | 1000 | 12-18 | 1200 | 10-15 | 1500 | 7-11 | 2000 | 7-11 | \varnothing mm cutting speed | <table border="1"><tr><td>1000</td><td>1,5-2,3</td></tr><tr><td>1200</td><td>1-1,6</td></tr><tr><td>1500</td><td>0,6-0,9</td></tr><tr><td>2000</td><td>0,4-0,7</td></tr></table> | 1000 | 1,5-2,3 | 1200 | 1-1,6 | 1500 | 0,6-0,9 | 2000 | 0,4-0,7 | |
| 1000 | 12-18 | | | | | | | | | | | | | | | | | | | |
| 1200 | 10-15 | | | | | | | | | | | | | | | | | | | |
| 1500 | 7-11 | | | | | | | | | | | | | | | | | | | |
| 2000 | 7-11 | | | | | | | | | | | | | | | | | | | |
| 1000 | 1,5-2,3 | | | | | | | | | | | | | | | | | | | |
| 1200 | 1-1,6 | | | | | | | | | | | | | | | | | | | |
| 1500 | 0,6-0,9 | | | | | | | | | | | | | | | | | | | |
| 2000 | 0,4-0,7 | | | | | | | | | | | | | | | | | | | |

Material 6

Cold work tool steels

X210Cr12: 1.2080, X155CrVMo121: 1.239

(D3)

(D2)

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | |
|---|-----------------------|-------|------|-------|------|-------|------|-------|--|------|-------|------|----------|------|---------|------|---------|
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>5-7</td></tr> <tr><td>25</td><td>8-12</td></tr> <tr><td>40</td><td>10-15</td></tr> <tr><td>65</td><td>11-18</td></tr> </table> <p>cutting speed 35-32 m/min</p> | 10 | 5-7 | 25 | 8-12 | 40 | 10-15 | 65 | 11-18 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>64-89</td></tr> <tr><td>25</td><td>40-61</td></tr> <tr><td>40</td><td>32-48</td></tr> <tr><td>65</td><td>22-35</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">S</div> Raker tooth (s) Hook tooth (k) | 10 | 64-89 | 25 | 40-61 | 40 | 32-48 | 65 | 22-35 |
| 10 | 5-7 | | | | | | | | | | | | | | | | |
| 25 | 8-12 | | | | | | | | | | | | | | | | |
| 40 | 10-15 | | | | | | | | | | | | | | | | |
| 65 | 11-18 | | | | | | | | | | | | | | | | |
| 10 | 64-89 | | | | | | | | | | | | | | | | |
| 25 | 40-61 | | | | | | | | | | | | | | | | |
| 40 | 32-48 | | | | | | | | | | | | | | | | |
| 65 | 22-35 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>13-22</td></tr> <tr><td>150</td><td>17-27</td></tr> <tr><td>200</td><td>18-28</td></tr> <tr><td>300</td><td>20-25</td></tr> </table> <p>cutting speed 30-25 m/min</p> | 100 | 13-22 | 150 | 17-27 | 200 | 18-28 | 300 | 20-25 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>16-28</td></tr> <tr><td>150</td><td>15-23</td></tr> <tr><td>200</td><td>11-18</td></tr> <tr><td>300</td><td>8-11</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">Dry cut</div> Cooling lubrication | 100 | 16-28 | 150 | 15-23 | 200 | 11-18 | 300 | 8-11 |
| 100 | 13-22 | | | | | | | | | | | | | | | | |
| 150 | 17-27 | | | | | | | | | | | | | | | | |
| 200 | 18-28 | | | | | | | | | | | | | | | | |
| 300 | 20-25 | | | | | | | | | | | | | | | | |
| 100 | 16-28 | | | | | | | | | | | | | | | | |
| 150 | 15-23 | | | | | | | | | | | | | | | | |
| 200 | 11-18 | | | | | | | | | | | | | | | | |
| 300 | 8-11 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>17-27</td></tr> <tr><td>500</td><td>13-22</td></tr> <tr><td>600</td><td>11-18</td></tr> <tr><td>800</td><td>10-15</td></tr> </table> <p>cutting speed 24-20 m/min</p> | 400 | 17-27 | 500 | 13-22 | 600 | 11-18 | 800 | 10-15 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>5,5-9</td></tr> <tr><td>500</td><td>3,5-6</td></tr> <tr><td>600</td><td>2,5-4</td></tr> <tr><td>800</td><td>2-2,5</td></tr> </table> | 400 | 5,5-9 | 500 | 3,5-6 | 600 | 2,5-4 | 800 | 2-2,5 |
| 400 | 17-27 | | | | | | | | | | | | | | | | |
| 500 | 13-22 | | | | | | | | | | | | | | | | |
| 600 | 11-18 | | | | | | | | | | | | | | | | |
| 800 | 10-15 | | | | | | | | | | | | | | | | |
| 400 | 5,5-9 | | | | | | | | | | | | | | | | |
| 500 | 3,5-6 | | | | | | | | | | | | | | | | |
| 600 | 2,5-4 | | | | | | | | | | | | | | | | |
| 800 | 2-2,5 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>8-12</td></tr> <tr><td>1200</td><td>7-10</td></tr> <tr><td>1500</td><td>5-7</td></tr> <tr><td>2000</td><td>4-7</td></tr> </table> <p>cutting speed 18-15 m/min</p> | 1000 | 8-12 | 1200 | 7-10 | 1500 | 5-7 | 2000 | 4-7 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>1-1,5</td></tr> <tr><td>1200</td><td>0,7-1,11</td></tr> <tr><td>1500</td><td>0,4-0,6</td></tr> <tr><td>2000</td><td>0,3-0,5</td></tr> </table> | 1000 | 1-1,5 | 1200 | 0,7-1,11 | 1500 | 0,4-0,6 | 2000 | 0,3-0,5 |
| 1000 | 8-12 | | | | | | | | | | | | | | | | |
| 1200 | 7-10 | | | | | | | | | | | | | | | | |
| 1500 | 5-7 | | | | | | | | | | | | | | | | |
| 2000 | 4-7 | | | | | | | | | | | | | | | | |
| 1000 | 1-1,5 | | | | | | | | | | | | | | | | |
| 1200 | 0,7-1,11 | | | | | | | | | | | | | | | | |
| 1500 | 0,4-0,6 | | | | | | | | | | | | | | | | |
| 2000 | 0,3-0,5 | | | | | | | | | | | | | | | | |

Material 7

Heat treatable steels, nitriding steels
 40CrMnMo7: 1.2311, 55NiCrMoV 6:1.2713
 X40 CrMoV5 1: 1.2344, 34CrAL6: 1.8504
 40CrMnNiMo 8 6 4: 1.2738

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | |
|---|-----------------------|-------|------|-------|------|-------|------|-------|---|------|--------|------|---------|------|---------|------|---------|--------------------|
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>6-10</td></tr> <tr><td>25</td><td>9-16</td></tr> <tr><td>40</td><td>12-20</td></tr> <tr><td>65</td><td>15-23</td></tr> </table> <p>cutting speed 45-42 m/min</p> | 10 | 6-10 | 25 | 9-16 | 40 | 12-20 | 65 | 15-23 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>76-125</td></tr> <tr><td>25</td><td>46-82</td></tr> <tr><td>40</td><td>38-64</td></tr> <tr><td>65</td><td>30-45</td></tr> </table> <div style="margin-top: 20px;"> <table border="1" style="display: inline-table;"> <tr><td style="text-align: center;">K</td></tr> </table> Raker tooth (s) Hook tooth (k) </div> | 10 | 76-125 | 25 | 46-82 | 40 | 38-64 | 65 | 30-45 | K |
| 10 | 6-10 | | | | | | | | | | | | | | | | | |
| 25 | 9-16 | | | | | | | | | | | | | | | | | |
| 40 | 12-20 | | | | | | | | | | | | | | | | | |
| 65 | 15-23 | | | | | | | | | | | | | | | | | |
| 10 | 76-125 | | | | | | | | | | | | | | | | | |
| 25 | 46-82 | | | | | | | | | | | | | | | | | |
| 40 | 38-64 | | | | | | | | | | | | | | | | | |
| 65 | 30-45 | | | | | | | | | | | | | | | | | |
| K | | | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>18-30</td></tr> <tr><td>150</td><td>24-37</td></tr> <tr><td>200</td><td>28-37</td></tr> <tr><td>300</td><td>28-37</td></tr> </table> <p>cutting speed 40-36 m/min</p> | 100 | 18-30 | 150 | 24-37 | 200 | 28-37 | 300 | 28-37 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>23-38</td></tr> <tr><td>150</td><td>20-31</td></tr> <tr><td>200</td><td>18-24</td></tr> <tr><td>300</td><td>12-16</td></tr> </table> <div style="margin-top: 20px;"> <table border="1" style="display: inline-table;"> <tr><td style="text-align: center;">Emulsion 5% oil</td></tr> </table> Cooling lubrication </div> | 100 | 23-38 | 150 | 20-31 | 200 | 18-24 | 300 | 12-16 | Emulsion 5% oil |
| 100 | 18-30 | | | | | | | | | | | | | | | | | |
| 150 | 24-37 | | | | | | | | | | | | | | | | | |
| 200 | 28-37 | | | | | | | | | | | | | | | | | |
| 300 | 28-37 | | | | | | | | | | | | | | | | | |
| 100 | 23-38 | | | | | | | | | | | | | | | | | |
| 150 | 20-31 | | | | | | | | | | | | | | | | | |
| 200 | 18-24 | | | | | | | | | | | | | | | | | |
| 300 | 12-16 | | | | | | | | | | | | | | | | | |
| Emulsion 5% oil | | | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>24-37</td></tr> <tr><td>500</td><td>18-30</td></tr> <tr><td>600</td><td>15-23</td></tr> <tr><td>800</td><td>12-20</td></tr> </table> <p>cutting speed 32-26 m/min</p> | 400 | 24-37 | 500 | 18-30 | 600 | 15-23 | 800 | 12-20 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>8-12</td></tr> <tr><td>500</td><td>5-8</td></tr> <tr><td>600</td><td>3,5-5,5</td></tr> <tr><td>800</td><td>2-3</td></tr> </table> | 400 | 8-12 | 500 | 5-8 | 600 | 3,5-5,5 | 800 | 2-3 | |
| 400 | 24-37 | | | | | | | | | | | | | | | | | |
| 500 | 18-30 | | | | | | | | | | | | | | | | | |
| 600 | 15-23 | | | | | | | | | | | | | | | | | |
| 800 | 12-20 | | | | | | | | | | | | | | | | | |
| 400 | 8-12 | | | | | | | | | | | | | | | | | |
| 500 | 5-8 | | | | | | | | | | | | | | | | | |
| 600 | 3,5-5,5 | | | | | | | | | | | | | | | | | |
| 800 | 2-3 | | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>9-16</td></tr> <tr><td>1200</td><td>7-12</td></tr> <tr><td>1500</td><td>6-10</td></tr> <tr><td>2000</td><td>6-10</td></tr> </table> <p>cutting speed 24-20 m/min</p> | 1000 | 9-16 | 1200 | 7-12 | 1500 | 6-10 | 2000 | 6-10 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>1-2</td></tr> <tr><td>1200</td><td>0,7-1,3</td></tr> <tr><td>1500</td><td>0,5-0,8</td></tr> <tr><td>2000</td><td>0,4-0,6</td></tr> </table> | 1000 | 1-2 | 1200 | 0,7-1,3 | 1500 | 0,5-0,8 | 2000 | 0,4-0,6 | |
| 1000 | 9-16 | | | | | | | | | | | | | | | | | |
| 1200 | 7-12 | | | | | | | | | | | | | | | | | |
| 1500 | 6-10 | | | | | | | | | | | | | | | | | |
| 2000 | 6-10 | | | | | | | | | | | | | | | | | |
| 1000 | 1-2 | | | | | | | | | | | | | | | | | |
| 1200 | 0,7-1,3 | | | | | | | | | | | | | | | | | |
| 1500 | 0,5-0,8 | | | | | | | | | | | | | | | | | |
| 2000 | 0,4-0,6 | | | | | | | | | | | | | | | | | |

Material 8

Stainless steels

X5CrNi1810: n1.4301, X6CrNiMoTi1810: 1.451

| CUTTING RATE (Cm^2 /min) | | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | |
|--------------------------------|--|---|------------------------|-----------------------------------|-------|------|-------|------|-------|------------------|---|------|--------|------|---------|------|----------|------|---------|
| \varnothing mm | <table border="1"><tr><td>10</td><td>6-8</td></tr><tr><td>25</td><td>8-10</td></tr><tr><td>40</td><td>10-12</td></tr><tr><td>65</td><td>10-14</td></tr></table> | 10 | 6-8 | 25 | 8-10 | 40 | 10-12 | 65 | 10-14 | \varnothing mm | <table border="1"><tr><td>10</td><td>75-100</td></tr><tr><td>25</td><td>40-50</td></tr><tr><td>40</td><td>32-38</td></tr><tr><td>65</td><td>20-27</td></tr></table> | 10 | 75-100 | 25 | 40-50 | 40 | 32-38 | 65 | 20-27 |
| 10 | 6-8 | | | | | | | | | | | | | | | | | | |
| 25 | 8-10 | | | | | | | | | | | | | | | | | | |
| 40 | 10-12 | | | | | | | | | | | | | | | | | | |
| 65 | 10-14 | | | | | | | | | | | | | | | | | | |
| 10 | 75-100 | | | | | | | | | | | | | | | | | | |
| 25 | 40-50 | | | | | | | | | | | | | | | | | | |
| 40 | 32-38 | | | | | | | | | | | | | | | | | | |
| 65 | 20-27 | | | | | | | | | | | | | | | | | | |
| cutting speed | 40-37 m/min | <table border="1"><tr><td>K</td><td>Raker tooth (s) Hook tooth (k)</td></tr></table> | K | Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | |
| K | Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table border="1"><tr><td>100</td><td>12-15</td></tr><tr><td>150</td><td>12-20</td></tr><tr><td>200</td><td>15-25</td></tr><tr><td>300</td><td>15-25</td></tr></table> | 100 | 12-15 | 150 | 12-20 | 200 | 15-25 | 300 | 15-25 | \varnothing mm | <table border="1"><tr><td>100</td><td>15-19</td></tr><tr><td>150</td><td>10-17</td></tr><tr><td>200</td><td>9-16</td></tr><tr><td>300</td><td>6-10</td></tr></table> | 100 | 15-19 | 150 | 10-17 | 200 | 9-16 | 300 | 6-10 |
| 100 | 12-15 | | | | | | | | | | | | | | | | | | |
| 150 | 12-20 | | | | | | | | | | | | | | | | | | |
| 200 | 15-25 | | | | | | | | | | | | | | | | | | |
| 300 | 15-25 | | | | | | | | | | | | | | | | | | |
| 100 | 15-19 | | | | | | | | | | | | | | | | | | |
| 150 | 10-17 | | | | | | | | | | | | | | | | | | |
| 200 | 9-16 | | | | | | | | | | | | | | | | | | |
| 300 | 6-10 | | | | | | | | | | | | | | | | | | |
| cutting speed | 35-32 m/min | <table border="1"><tr><td>Emulsion 10-15% oil</td><td>Cooling lubrication</td></tr></table> | Emulsion 10-15% oil | Cooling lubrication | | | | | | | | | | | | | | | |
| Emulsion 10-15% oil | Cooling lubrication | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table border="1"><tr><td>400</td><td>12-20</td></tr><tr><td>500</td><td>12-15</td></tr><tr><td>600</td><td>10-14</td></tr><tr><td>800</td><td>10-12</td></tr></table> | 400 | 12-20 | 500 | 12-15 | 600 | 10-14 | 800 | 10-12 | \varnothing mm | <table border="1"><tr><td>400</td><td>3-5</td></tr><tr><td>500</td><td>2-3</td></tr><tr><td>600</td><td>1,5-2,5</td></tr><tr><td>800</td><td>1,3-1,5</td></tr></table> | 400 | 3-5 | 500 | 2-3 | 600 | 1,5-2,5 | 800 | 1,3-1,5 |
| 400 | 12-20 | | | | | | | | | | | | | | | | | | |
| 500 | 12-15 | | | | | | | | | | | | | | | | | | |
| 600 | 10-14 | | | | | | | | | | | | | | | | | | |
| 800 | 10-12 | | | | | | | | | | | | | | | | | | |
| 400 | 3-5 | | | | | | | | | | | | | | | | | | |
| 500 | 2-3 | | | | | | | | | | | | | | | | | | |
| 600 | 1,5-2,5 | | | | | | | | | | | | | | | | | | |
| 800 | 1,3-1,5 | | | | | | | | | | | | | | | | | | |
| cutting speed | 28-22 m/min | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table border="1"><tr><td>1000</td><td>6-10</td></tr><tr><td>1200</td><td>6-8</td></tr><tr><td>1500</td><td>4-7</td></tr><tr><td>2000</td><td>-</td></tr></table> | 1000 | 6-10 | 1200 | 6-8 | 1500 | 4-7 | 2000 | - | \varnothing mm | <table border="1"><tr><td>1000</td><td>0,8-1</td></tr><tr><td>1200</td><td>0,5-0,7</td></tr><tr><td>1500</td><td>0,35-0,6</td></tr><tr><td>2000</td><td>-</td></tr></table> | 1000 | 0,8-1 | 1200 | 0,5-0,7 | 1500 | 0,35-0,6 | 2000 | - |
| 1000 | 6-10 | | | | | | | | | | | | | | | | | | |
| 1200 | 6-8 | | | | | | | | | | | | | | | | | | |
| 1500 | 4-7 | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | |
| 1000 | 0,8-1 | | | | | | | | | | | | | | | | | | |
| 1200 | 0,5-0,7 | | | | | | | | | | | | | | | | | | |
| 1500 | 0,35-0,6 | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | |
| cutting speed | 21-20 m/min | | | | | | | | | | | | | | | | | | |

Material 9

Heat-resistant steels
X 15CrNiSi 2520: 1.4841

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|---|---------|------|-------|------|-------|------|---------|------|---------------|----------------|--|----------------|--|------|---------|------|-------|------|-------|------|---------|--|--|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>3-5</td></tr> <tr><td>25</td><td>5-7</td></tr> <tr><td>40</td><td>6-8</td></tr> <tr><td>65</td><td>6-8</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">30-27 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>3-5</td></tr> <tr><td>25</td><td>5-7</td></tr> <tr><td>40</td><td>6-8</td></tr> <tr><td>65</td><td>6-8</td></tr> </table> | 10 | 3-5 | 25 | 5-7 | 40 | 6-8 | 65 | 6-8 | cutting speed | 30-27 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>40-60</td></tr> <tr><td>25</td><td>25-35</td></tr> <tr><td>40</td><td>19-25</td></tr> <tr><td>65</td><td>11-15</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;"></td> <td style="text-align: center; padding-top: 10px;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>40-60</td></tr> <tr><td>25</td><td>25-35</td></tr> <tr><td>40</td><td>19-25</td></tr> <tr><td>65</td><td>11-15</td></tr> </table> | 10 | 40-60 | 25 | 25-35 | 40 | 19-25 | 65 | 11-15 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>3-5</td></tr> <tr><td>25</td><td>5-7</td></tr> <tr><td>40</td><td>6-8</td></tr> <tr><td>65</td><td>6-8</td></tr> </table> | 10 | 3-5 | 25 | 5-7 | 40 | 6-8 | 65 | 6-8 | | | | | | | | | | | | | | | | |
| 10 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 5-7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 6-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 6-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 30-27 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>40-60</td></tr> <tr><td>25</td><td>25-35</td></tr> <tr><td>40</td><td>19-25</td></tr> <tr><td>65</td><td>11-15</td></tr> </table> | 10 | 40-60 | 25 | 25-35 | 40 | 19-25 | 65 | 11-15 | | | | | | | | | | | | | | | | |
| 10 | 40-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 25-35 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 19-25 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 11-15 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>6-9</td></tr> <tr><td>150</td><td>7-10</td></tr> <tr><td>200</td><td>8-12</td></tr> <tr><td>300</td><td>7-10</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">25-22 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>6-9</td></tr> <tr><td>150</td><td>7-10</td></tr> <tr><td>200</td><td>8-12</td></tr> <tr><td>300</td><td>7-10</td></tr> </table> | 100 | 6-9 | 150 | 7-10 | 200 | 8-12 | 300 | 7-10 | cutting speed | 25-22 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>7-11</td></tr> <tr><td>150</td><td>6-8</td></tr> <tr><td>200</td><td>5-7</td></tr> <tr><td>300</td><td>3-4</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;"></td> <td style="text-align: center; padding-top: 10px;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 15% oil</div> Cooling lubrication </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>7-11</td></tr> <tr><td>150</td><td>6-8</td></tr> <tr><td>200</td><td>5-7</td></tr> <tr><td>300</td><td>3-4</td></tr> </table> | 100 | 7-11 | 150 | 6-8 | 200 | 5-7 | 300 | 3-4 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 15% oil</div> Cooling lubrication |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>6-9</td></tr> <tr><td>150</td><td>7-10</td></tr> <tr><td>200</td><td>8-12</td></tr> <tr><td>300</td><td>7-10</td></tr> </table> | 100 | 6-9 | 150 | 7-10 | 200 | 8-12 | 300 | 7-10 | | | | | | | | | | | | | | | | |
| 100 | 6-9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 7-10 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 8-12 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 7-10 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 25-22 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>7-11</td></tr> <tr><td>150</td><td>6-8</td></tr> <tr><td>200</td><td>5-7</td></tr> <tr><td>300</td><td>3-4</td></tr> </table> | 100 | 7-11 | 150 | 6-8 | 200 | 5-7 | 300 | 3-4 | | | | | | | | | | | | | | | | |
| 100 | 7-11 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 6-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 5-7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 3-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 15% oil</div> Cooling lubrication | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>6-9</td></tr> <tr><td>500</td><td>6-8</td></tr> <tr><td>600</td><td>5-7</td></tr> <tr><td>800</td><td>4-6</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">20-16 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>6-9</td></tr> <tr><td>500</td><td>6-8</td></tr> <tr><td>600</td><td>5-7</td></tr> <tr><td>800</td><td>4-6</td></tr> </table> | 400 | 6-9 | 500 | 6-8 | 600 | 5-7 | 800 | 4-6 | cutting speed | 20-16 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>1,5-2</td></tr> <tr><td>500</td><td>1-2</td></tr> <tr><td>600</td><td>1-1,5</td></tr> <tr><td>800</td><td>0,5-0,7</td></tr> </table> </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>1,5-2</td></tr> <tr><td>500</td><td>1-2</td></tr> <tr><td>600</td><td>1-1,5</td></tr> <tr><td>800</td><td>0,5-0,7</td></tr> </table> | 400 | 1,5-2 | 500 | 1-2 | 600 | 1-1,5 | 800 | 0,5-0,7 | | |
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| 400 | 6-9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 6-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 5-7 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 4-6 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 20-16 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 1,5-2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 1-2 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 1-1,5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 0,5-0,7 | | | | | | | | | | | | | | | | | | | | | | | | |
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| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>3-5</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 3-5 | 1200 | - | 1500 | - | 2000 | - | | | | | | | | | | | | | | | | |
| 1000 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 15 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>0,3-0,5</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 0,3-0,5 | 1200 | - | 1500 | - | 2000 | - | | | | | | | | | | | | | | | | |
| 1000 | 0,3-0,5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | |

Material 10

Nickel based alloys

Inconel 718: 2.4668, Hastelloy C4: 2.4610

Nimonic 90: 2.4632

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|---------|------|-------|------|---------|------|---------|-----|---------------|----------------|--|------------------|--|------|---------|------|-------|------|---------|------|---------|--|---|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>2-3</td></tr> <tr><td>25</td><td>3-4</td></tr> <tr><td>40</td><td>3-5</td></tr> <tr><td>65</td><td>3-5</td></tr> </table> </td> </tr> <tr> <td>cutting speed</td> <td style="text-align: center;">18-15 m/min</td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>2-3</td></tr> <tr><td>25</td><td>3-4</td></tr> <tr><td>40</td><td>3-5</td></tr> <tr><td>65</td><td>3-5</td></tr> </table> | 10 | 2-3 | 25 | 3-4 | 40 | 3-5 | 65 | 3-5 | cutting speed | 18-15 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>25-38</td></tr> <tr><td>25</td><td>15-20</td></tr> <tr><td>40</td><td>10-16</td></tr> <tr><td>65</td><td>6-10</td></tr> </table> </td> </tr> <tr> <td></td> <td style="text-align: center;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>25-38</td></tr> <tr><td>25</td><td>15-20</td></tr> <tr><td>40</td><td>10-16</td></tr> <tr><td>65</td><td>6-10</td></tr> </table> | 10 | 25-38 | 25 | 15-20 | 40 | 10-16 | 65 | 6-10 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>2-3</td></tr> <tr><td>25</td><td>3-4</td></tr> <tr><td>40</td><td>3-5</td></tr> <tr><td>65</td><td>3-5</td></tr> </table> | 10 | 2-3 | 25 | 3-4 | 40 | 3-5 | 65 | 3-5 | | | | | | | | | | | | | | | | |
| 10 | 2-3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 3-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 18-15 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">10</td><td>25-38</td></tr> <tr><td>25</td><td>15-20</td></tr> <tr><td>40</td><td>10-16</td></tr> <tr><td>65</td><td>6-10</td></tr> </table> | 10 | 25-38 | 25 | 15-20 | 40 | 10-16 | 65 | 6-10 | | | | | | | | | | | | | | | | |
| 10 | 25-38 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 15-20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 10-16 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 6-10 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">K</div> Raker tooth (s) Hook tooth (k) | | | | | | | | | | | | | | | | | | | | | | | | |
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| 100 | 4-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 4-6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 5-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 5-8 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 15-14 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">100</td><td>5-6,5</td></tr> <tr><td>150</td><td>3-5</td></tr> <tr><td>200</td><td>3-5</td></tr> <tr><td>300</td><td>2-3,4</td></tr> </table> | 100 | 5-6,5 | 150 | 3-5 | 200 | 3-5 | 300 | 2-3,4 | | | | | | | | | | | | | | | | |
| 100 | 5-6,5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 3-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 2-3,4 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion 15-20% oil</div> Cooling lubrication | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>4-6</td></tr> <tr><td>500</td><td>4-5</td></tr> <tr><td>600</td><td>3-4</td></tr> <tr><td>800</td><td>2-4</td></tr> </table> </td> </tr> <tr> <td>cutting speed</td> <td style="text-align: center;">12-10 m/min</td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>4-6</td></tr> <tr><td>500</td><td>4-5</td></tr> <tr><td>600</td><td>3-4</td></tr> <tr><td>800</td><td>2-4</td></tr> </table> | 400 | 4-6 | 500 | 4-5 | 600 | 3-4 | 800 | 2-4 | cutting speed | 12-10 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>1,3-1,9</td></tr> <tr><td>500</td><td>1-1,3</td></tr> <tr><td>600</td><td>0,6-0,8</td></tr> <tr><td>800</td><td>0,3-0,6</td></tr> </table> </td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>1,3-1,9</td></tr> <tr><td>500</td><td>1-1,3</td></tr> <tr><td>600</td><td>0,6-0,8</td></tr> <tr><td>800</td><td>0,3-0,6</td></tr> </table> | 400 | 1,3-1,9 | 500 | 1-1,3 | 600 | 0,6-0,8 | 800 | 0,3-0,6 | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">400</td><td>4-6</td></tr> <tr><td>500</td><td>4-5</td></tr> <tr><td>600</td><td>3-4</td></tr> <tr><td>800</td><td>2-4</td></tr> </table> | 400 | 4-6 | 500 | 4-5 | 600 | 3-4 | 800 | 2-4 | | | | | | | | | | | | | | | | |
| 400 | 4-6 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 4-5 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 3-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 2-4 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 12-10 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 1,3-1,9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 1-1,3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 0,6-0,8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 0,3-0,6 | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>2-3</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> </td> </tr> <tr> <td>cutting speed</td> <td style="text-align: center;">10 m/min</td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>2-3</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 2-3 | 1200 | - | 1500 | - | 2000 | - | cutting speed | 10 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>0,3-0,4</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> </td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>0,3-0,4</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 0,3-0,4 | 1200 | - | 1500 | - | 2000 | - | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>2-3</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 2-3 | 1200 | - | 1500 | - | 2000 | - | | | | | | | | | | | | | | | | |
| 1000 | 2-3 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 10 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1000</td><td>0,3-0,4</td></tr> <tr><td>1200</td><td>-</td></tr> <tr><td>1500</td><td>-</td></tr> <tr><td>2000</td><td>-</td></tr> </table> | 1000 | 0,3-0,4 | 1200 | - | 1500 | - | 2000 | - | | | | | | | | | | | | | | | | |
| 1000 | 0,3-0,4 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | |

Material 11

Cast iron
GG 30

GGG 50

| CUTTING RATE (C_m^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | |
|---|-----------------------|-------|------|-------|------|-------|------|-------|---|------|---------|------|---------|------|---------|------|---------|
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>15-25</td></tr> <tr><td>25</td><td>20-30</td></tr> <tr><td>40</td><td>30-40</td></tr> <tr><td>65</td><td>40-50</td></tr> </table> <p>cutting speed 57-53 m/min</p> | 10 | 15-25 | 25 | 20-30 | 40 | 30-40 | 65 | 40-50 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>190-300</td></tr> <tr><td>25</td><td>100-150</td></tr> <tr><td>40</td><td>95-125</td></tr> <tr><td>65</td><td>75-95</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-top: 10px;">S</div> Raker tooth (s) Hook tooth (k) | 10 | 190-300 | 25 | 100-150 | 40 | 95-125 | 65 | 75-95 |
| 10 | 15-25 | | | | | | | | | | | | | | | | |
| 25 | 20-30 | | | | | | | | | | | | | | | | |
| 40 | 30-40 | | | | | | | | | | | | | | | | |
| 65 | 40-50 | | | | | | | | | | | | | | | | |
| 10 | 190-300 | | | | | | | | | | | | | | | | |
| 25 | 100-150 | | | | | | | | | | | | | | | | |
| 40 | 95-125 | | | | | | | | | | | | | | | | |
| 65 | 75-95 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>50-70</td></tr> <tr><td>150</td><td>60-80</td></tr> <tr><td>200</td><td>60-90</td></tr> <tr><td>300</td><td>50-80</td></tr> </table> <p>cutting speed 50-45 m/min</p> | 100 | 50-70 | 150 | 60-80 | 200 | 60-90 | 300 | 50-80 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>60-90</td></tr> <tr><td>150</td><td>50-65</td></tr> <tr><td>200</td><td>38-57</td></tr> <tr><td>300</td><td>20-34</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-top: 10px;">Dry cut</div> Cooling lubrication | 100 | 60-90 | 150 | 50-65 | 200 | 38-57 | 300 | 20-34 |
| 100 | 50-70 | | | | | | | | | | | | | | | | |
| 150 | 60-80 | | | | | | | | | | | | | | | | |
| 200 | 60-90 | | | | | | | | | | | | | | | | |
| 300 | 50-80 | | | | | | | | | | | | | | | | |
| 100 | 60-90 | | | | | | | | | | | | | | | | |
| 150 | 50-65 | | | | | | | | | | | | | | | | |
| 200 | 38-57 | | | | | | | | | | | | | | | | |
| 300 | 20-34 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>40-70</td></tr> <tr><td>500</td><td>35-60</td></tr> <tr><td>600</td><td>30-50</td></tr> <tr><td>800</td><td>25-40</td></tr> </table> <p>cutting speed 40-32 m/min</p> | 400 | 40-70 | 500 | 35-60 | 600 | 30-50 | 800 | 25-40 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>12-22</td></tr> <tr><td>500</td><td>9-15</td></tr> <tr><td>600</td><td>6-11</td></tr> <tr><td>800</td><td>4-6</td></tr> </table> | 400 | 12-22 | 500 | 9-15 | 600 | 6-11 | 800 | 4-6 |
| 400 | 40-70 | | | | | | | | | | | | | | | | |
| 500 | 35-60 | | | | | | | | | | | | | | | | |
| 600 | 30-50 | | | | | | | | | | | | | | | | |
| 800 | 25-40 | | | | | | | | | | | | | | | | |
| 400 | 12-22 | | | | | | | | | | | | | | | | |
| 500 | 9-15 | | | | | | | | | | | | | | | | |
| 600 | 6-11 | | | | | | | | | | | | | | | | |
| 800 | 4-6 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>20-30</td></tr> <tr><td>1200</td><td>15-25</td></tr> <tr><td>1500</td><td>15-20</td></tr> <tr><td>2000</td><td>12-18</td></tr> </table> <p>cutting speed 30-25 m/min</p> | 1000 | 20-30 | 1200 | 15-25 | 1500 | 15-20 | 2000 | 12-18 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>2,5-4</td></tr> <tr><td>1200</td><td>1,5-2,5</td></tr> <tr><td>1500</td><td>1,3-1,7</td></tr> <tr><td>2000</td><td>0,8-1,1</td></tr> </table> | 1000 | 2,5-4 | 1200 | 1,5-2,5 | 1500 | 1,3-1,7 | 2000 | 0,8-1,1 |
| 1000 | 20-30 | | | | | | | | | | | | | | | | |
| 1200 | 15-25 | | | | | | | | | | | | | | | | |
| 1500 | 15-20 | | | | | | | | | | | | | | | | |
| 2000 | 12-18 | | | | | | | | | | | | | | | | |
| 1000 | 2,5-4 | | | | | | | | | | | | | | | | |
| 1200 | 1,5-2,5 | | | | | | | | | | | | | | | | |
| 1500 | 1,3-1,7 | | | | | | | | | | | | | | | | |
| 2000 | 0,8-1,1 | | | | | | | | | | | | | | | | |

Material 12

Titanium, Titanium alloys, Aluminium bronz,
Ampco 18-21

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------------|---------|------|--|--|------|-------|--|--|------|-------|--|--|------|-------|--|---------------|----------------|--|--|--|----------------|------|---------|--|--|------|-------|--|--|------|---------|--|--|------|-------|--|
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="width: 15%; border: 1px solid black; padding: 2px;">10</td> <td style="width: 15%;">4-7</td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">25</td> <td>6-10</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">40</td> <td>7-11</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">65</td> <td>8-12</td> <td></td> </tr> <tr> <td style="text-align: right;">cutting speed</td> <td colspan="3" style="text-align: center;">35-32 m/min</td> </tr> </table> | \emptyset mm | 10 | 4-7 | | | 25 | 6-10 | | | 40 | 7-11 | | | 65 | 8-12 | | cutting speed | 35-32 m/min | | | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="width: 15%; border: 1px solid black; padding: 2px;">10</td> <td style="width: 15%;">50-90</td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">25</td> <td>30-50</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">40</td> <td>22-35</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">65</td> <td>15-23</td> <td></td> </tr> </table> <div style="margin-top: 10px; border: 1px solid black; display: inline-block; padding: 2px;">K</div> <div style="margin-left: 5px;">Raker tooth (s) Hook tooth (k)</div> | \emptyset mm | 10 | 50-90 | | | 25 | 30-50 | | | 40 | 22-35 | | | 65 | 15-23 | |
| \emptyset mm | 10 | 4-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 25 | 6-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 40 | 7-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 65 | 8-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 35-32 m/min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | 10 | 50-90 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 25 | 30-50 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 40 | 22-35 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 65 | 15-23 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| \emptyset mm | 100 | 9-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 150 | 10-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 200 | 14-18 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 300 | 10-15 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 30-27 m/min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | 100 | 12-16 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 150 | 8-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 200 | 9-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 300 | 4-6 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="width: 15%; border: 1px solid black; padding: 2px;">400</td> <td style="width: 15%;">9-13</td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">500</td> <td>8-12</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">600</td> <td>7-11</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">800</td> <td>6-10</td> <td></td> </tr> <tr> <td style="text-align: right;">cutting speed</td> <td colspan="3" style="text-align: center;">25-20 m/min</td> </tr> </table> | \emptyset mm | 400 | 9-13 | | | 500 | 8-12 | | | 600 | 7-11 | | | 800 | 6-10 | | cutting speed | 25-20 m/min | | | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="width: 15%; border: 1px solid black; padding: 2px;">400</td> <td style="width: 15%;">3-4</td> <td style="width: 15%;"></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">500</td> <td>2-3</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">600</td> <td>1,5-2,4</td> <td></td> </tr> <tr> <td></td> <td style="border: 1px solid black; padding: 2px;">800</td> <td>1-1,6</td> <td></td> </tr> </table> | \emptyset mm | 400 | 3-4 | | | 500 | 2-3 | | | 600 | 1,5-2,4 | | | 800 | 1-1,6 | |
| \emptyset mm | 400 | 9-13 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 500 | 8-12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 600 | 7-11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 800 | 6-10 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 25-20 m/min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | 400 | 3-4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 500 | 2-3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 600 | 1,5-2,4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| \emptyset mm | 1000 | 4-7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 18 m/min | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | 1000 | 0,5-0,9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1200 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 1500 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 2000 | - | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Material 13

Horizontal machines
Aluminium, Aluminium alloys
Al 99,9 AlMg4 AlSi6Cr4

| CUTTING RATE (C_{m^2} /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|---|--|--|----------|---------|---------|---------|---------|---------|---------|---------|---------------|--------------|---|----------------|--|------|----------|------|---------|------|---------|------|---------|--|---|
| <table style="width: 100%;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">36-84</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">48-120</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">72-170</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">96-210</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">120 m/min</td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">36-84</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">48-120</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">72-170</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">96-210</td></tr> </table> | 10 | 36-84 | 25 | 48-120 | 40 | 72-170 | 65 | 96-210 | cutting speed | 120 m/min | <table style="width: 100%;"> <tr> <td style="width: 15%;">\emptyset mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">450-1000</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">250-600</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">230-500</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">190-400</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;"></td> <td style="text-align: center; padding-top: 10px;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">450-1000</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">250-600</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">230-500</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">190-400</td></tr> </table> | 10 | 450-1000 | 25 | 250-600 | 40 | 230-500 | 65 | 190-400 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">K</div> Raker tooth (s) Hook tooth (k) |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">36-84</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">48-120</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">72-170</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">96-210</td></tr> </table> | 10 | 36-84 | 25 | 48-120 | 40 | 72-170 | 65 | 96-210 | | | | | | | | | | | | | | | | |
| 10 | 36-84 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 48-120 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 72-170 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 96-210 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \emptyset mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">450-1000</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">250-600</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">230-500</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">190-400</td></tr> </table> | 10 | 450-1000 | 25 | 250-600 | 40 | 230-500 | 65 | 190-400 | | | | | | | | | | | | | | | | |
| 10 | 450-1000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 250-600 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 230-500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 190-400 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 100 | 130-260 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 150-300 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 150-300 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 150-300 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 150 | 130-250 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 95-190 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 60-125 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 600 | 130-270 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 120-250 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 96-230 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 96-200 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 85-180 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 85-180 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 12-30 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 10-20 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 7-15 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 5-12 | | | | | | | | | | | | | | | | | | | | | | | | |

Material 14

Vertical machines

Aluminium, Aluminium alloys

Al99,9 AlMg4 AlSi6Cu4

| CUTTING RATE (C_{m^2} /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|--|--|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---------------|--------------------|--|------------------|---|------|-----------|------|-----------|------|-----------|------|-----------|--|--|
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| 10 | 700-1500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 1000-2000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 1500-2500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 2000-3000 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 2500 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 10 | 500-1500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 4000-8000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 3750-6250 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 150 | 2750-3750 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 2500-3500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 2300-3150 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 2500-2100 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 150 | 1800-2500 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 1250-1750 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 760-1050 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px;">Emulsion >25% oil</div> Cooling lubrication | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing m</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black;">400</td><td>2000-3000</td></tr> <tr><td style="border-right: 1px solid black;">500</td><td>1500-2750</td></tr> <tr><td style="border-right: 1px solid black;">600</td><td>1200-2000</td></tr> <tr><td style="border-right: 1px solid black;">800</td><td>900-1500</td></tr> </table> </td> </tr> <tr> <td style="text-align: center;">cutting speed</td> <td style="text-align: center;">2000-1300 m/min</td> </tr> </table> | \varnothing m | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black;">400</td><td>2000-3000</td></tr> <tr><td style="border-right: 1px solid black;">500</td><td>1500-2750</td></tr> <tr><td style="border-right: 1px solid black;">600</td><td>1200-2000</td></tr> <tr><td style="border-right: 1px solid black;">800</td><td>900-1500</td></tr> </table> | 400 | 2000-3000 | 500 | 1500-2750 | 600 | 1200-2000 | 800 | 900-1500 | cutting speed | 2000-1300 m/min | <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black;">400</td><td>500-750</td></tr> <tr><td style="border-right: 1px solid black;">500</td><td>300-550</td></tr> <tr><td style="border-right: 1px solid black;">600</td><td>200-330</td></tr> <tr><td style="border-right: 1px solid black;">800</td><td>110-185</td></tr> </table> </td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%; border-right: 1px solid black;">400</td><td>500-750</td></tr> <tr><td style="border-right: 1px solid black;">500</td><td>300-550</td></tr> <tr><td style="border-right: 1px solid black;">600</td><td>200-330</td></tr> <tr><td style="border-right: 1px solid black;">800</td><td>110-185</td></tr> </table> | 400 | 500-750 | 500 | 300-550 | 600 | 200-330 | 800 | 110-185 | | |
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| 400 | 2000-3000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 1500-2750 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 1200-2000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 900-1500 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 2000-1300 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 500-750 | | | | | | | | | | | | | | | | | | | | | | | | |
| 500 | 300-550 | | | | | | | | | | | | | | | | | | | | | | | | |
| 600 | 200-330 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 110-185 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 650-1200 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 500-1000 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 400-700 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 300-420 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 1100-600 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 65-120 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 42-83 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 26-46 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 15-20 | | | | | | | | | | | | | | | | | | | | | | | | |

Material 15

Brass

CuZn37: 2.0321, CuZn40Pb2: 2.0402

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|---|---------|---------|---------|---------|---------|---------|---------|---------|---------------|--------------|--|------------------|--|------|---------|------|---------|------|---------|------|---------|--|--|
| <table style="width: 100%;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">24-60</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">35-85</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">60-120</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;"></td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;">cutting speed</td> <td style="text-align: center; padding-top: 10px;">120 m/min</td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">24-60</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">35-85</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">60-120</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;"></td></tr> </table> | 10 | 24-60 | 25 | 35-85 | 40 | 60-120 | 65 | | cutting speed | 120 m/min | <table style="width: 100%;"> <tr> <td style="width: 15%;">\varnothing mm</td> <td style="border: 1px solid black; padding: 5px;"> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">300-750</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">180-430</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">150-300</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">120-230</td></tr> </table> </td> </tr> <tr> <td style="padding-top: 10px;"></td> <td style="text-align: center; padding-top: 10px;"> <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">K</div> Raker tooth (s) Hook tooth (k) </td> </tr> </table> | \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">300-750</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">180-430</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">150-300</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">120-230</td></tr> </table> | 10 | 300-750 | 25 | 180-430 | 40 | 150-300 | 65 | 120-230 | | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">K</div> Raker tooth (s) Hook tooth (k) |
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| 10 | 24-60 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 35-85 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 60-120 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">10</td><td style="padding: 2px 5px;">300-750</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">25</td><td style="padding: 2px 5px;">180-430</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">40</td><td style="padding: 2px 5px;">150-300</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">65</td><td style="padding: 2px 5px;">120-230</td></tr> </table> | 10 | 300-750 | 25 | 180-430 | 40 | 150-300 | 65 | 120-230 | | | | | | | | | | | | | | | | |
| 10 | 300-750 | | | | | | | | | | | | | | | | | | | | | | | | |
| 25 | 180-430 | | | | | | | | | | | | | | | | | | | | | | | | |
| 40 | 150-300 | | | | | | | | | | | | | | | | | | | | | | | | |
| 65 | 120-230 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 100 | 72-156 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 96-192 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 120-240 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 120-240 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
| \varnothing mm | <table style="width: 100%; border-collapse: collapse;"> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">100</td><td style="padding: 2px 5px;">90-200</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">150</td><td style="padding: 2px 5px;">80-160</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">200</td><td style="padding: 2px 5px;">75-150</td></tr> <tr><td style="border-right: 1px solid black; padding: 2px 5px;">300</td><td style="padding: 2px 5px;">50-100</td></tr> </table> | 100 | 90-200 | 150 | 80-160 | 200 | 75-150 | 300 | 50-100 | | | | | | | | | | | | | | | | |
| 100 | 90-200 | | | | | | | | | | | | | | | | | | | | | | | | |
| 150 | 80-160 | | | | | | | | | | | | | | | | | | | | | | | | |
| 200 | 75-150 | | | | | | | | | | | | | | | | | | | | | | | | |
| 300 | 50-100 | | | | | | | | | | | | | | | | | | | | | | | | |
| | <div style="border: 1px solid black; display: inline-block; padding: 2px 5px; margin-right: 5px;">Emulsion 3% oil</div> Cooling lubrication | | | | | | | | | | | | | | | | | | | | | | | | |
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| 400 | 120-250 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 600 | 120-215 | | | | | | | | | | | | | | | | | | | | | | | | |
| 800 | 95-200 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 600 | 25-45 | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 85-170 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 60-130 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 60-105 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 50-95 | | | | | | | | | | | | | | | | | | | | | | | | |
| cutting speed | 120 m/min | | | | | | | | | | | | | | | | | | | | | | | | |
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| 1000 | 11-22 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1200 | 6-13 | | | | | | | | | | | | | | | | | | | | | | | | |
| 1500 | 5-9 | | | | | | | | | | | | | | | | | | | | | | | | |
| 2000 | 3,2-6 | | | | | | | | | | | | | | | | | | | | | | | | |

Material 16

Copper
KE-Cu: 2.0050

| CUTTING RATE (Cm^2 /min) | FEED RATE (Mm/min) | | | | | | | | | | | | | | | | |
|---|-----------------------|--------|------|--------|------|--------|------|---------|--|------|---------|------|---------|------|---------|------|---------|
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>18-30</td></tr> <tr><td>25</td><td>24-48</td></tr> <tr><td>40</td><td>36-60</td></tr> <tr><td>65</td><td>48-72</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">120 m/min</p> | 10 | 18-30 | 25 | 24-48 | 40 | 36-60 | 65 | 48-72 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>10</td><td>230-380</td></tr> <tr><td>25</td><td>120-240</td></tr> <tr><td>40</td><td>110-190</td></tr> <tr><td>65</td><td>94-140</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">K</div> <p style="margin-left: 20px;">Raker tooth (s) Hook tooth (k)</p> | 10 | 230-380 | 25 | 120-240 | 40 | 110-190 | 65 | 94-140 |
| 10 | 18-30 | | | | | | | | | | | | | | | | |
| 25 | 24-48 | | | | | | | | | | | | | | | | |
| 40 | 36-60 | | | | | | | | | | | | | | | | |
| 65 | 48-72 | | | | | | | | | | | | | | | | |
| 10 | 230-380 | | | | | | | | | | | | | | | | |
| 25 | 120-240 | | | | | | | | | | | | | | | | |
| 40 | 110-190 | | | | | | | | | | | | | | | | |
| 65 | 94-140 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>60-95</td></tr> <tr><td>150</td><td>75-120</td></tr> <tr><td>200</td><td>95-140</td></tr> <tr><td>300</td><td>100-130</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">110 m/min</p> | 100 | 60-95 | 150 | 75-120 | 200 | 95-140 | 300 | 100-130 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>100</td><td>75-120</td></tr> <tr><td>150</td><td>63-100</td></tr> <tr><td>200</td><td>60-90</td></tr> <tr><td>300</td><td>42-55</td></tr> </table> <div style="border: 1px solid black; display: inline-block; padding: 2px; margin-top: 10px;">Emulsion 10-15% oil</div> <p style="margin-left: 20px;">Cooling lubrication</p> | 100 | 75-120 | 150 | 63-100 | 200 | 60-90 | 300 | 42-55 |
| 100 | 60-95 | | | | | | | | | | | | | | | | |
| 150 | 75-120 | | | | | | | | | | | | | | | | |
| 200 | 95-140 | | | | | | | | | | | | | | | | |
| 300 | 100-130 | | | | | | | | | | | | | | | | |
| 100 | 75-120 | | | | | | | | | | | | | | | | |
| 150 | 63-100 | | | | | | | | | | | | | | | | |
| 200 | 60-90 | | | | | | | | | | | | | | | | |
| 300 | 42-55 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>90-120</td></tr> <tr><td>500</td><td>80-100</td></tr> <tr><td>600</td><td>65-90</td></tr> <tr><td>800</td><td>45-65</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">100-80 m/min</p> | 400 | 90-120 | 500 | 80-100 | 600 | 65-90 | 800 | 45-65 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>400</td><td>28-38</td></tr> <tr><td>500</td><td>20-25</td></tr> <tr><td>600</td><td>14-19</td></tr> <tr><td>800</td><td>7-10</td></tr> </table> | 400 | 28-38 | 500 | 20-25 | 600 | 14-19 | 800 | 7-10 |
| 400 | 90-120 | | | | | | | | | | | | | | | | |
| 500 | 80-100 | | | | | | | | | | | | | | | | |
| 600 | 65-90 | | | | | | | | | | | | | | | | |
| 800 | 45-65 | | | | | | | | | | | | | | | | |
| 400 | 28-38 | | | | | | | | | | | | | | | | |
| 500 | 20-25 | | | | | | | | | | | | | | | | |
| 600 | 14-19 | | | | | | | | | | | | | | | | |
| 800 | 7-10 | | | | | | | | | | | | | | | | |
| <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>30-50</td></tr> <tr><td>1200</td><td>28-40</td></tr> <tr><td>1500</td><td>22-35</td></tr> <tr><td>2000</td><td>18-30</td></tr> </table> <p>cutting speed</p> <p style="text-align: center;">75-60 m/min</p> | 1000 | 30-50 | 1200 | 28-40 | 1500 | 22-35 | 2000 | 18-30 | <p>\varnothing mm</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr><td>1000</td><td>4-6,4</td></tr> <tr><td>1200</td><td>3-4,2</td></tr> <tr><td>1500</td><td>1-9,3</td></tr> <tr><td>2000</td><td>1,1-1,9</td></tr> </table> | 1000 | 4-6,4 | 1200 | 3-4,2 | 1500 | 1-9,3 | 2000 | 1,1-1,9 |
| 1000 | 30-50 | | | | | | | | | | | | | | | | |
| 1200 | 28-40 | | | | | | | | | | | | | | | | |
| 1500 | 22-35 | | | | | | | | | | | | | | | | |
| 2000 | 18-30 | | | | | | | | | | | | | | | | |
| 1000 | 4-6,4 | | | | | | | | | | | | | | | | |
| 1200 | 3-4,2 | | | | | | | | | | | | | | | | |
| 1500 | 1-9,3 | | | | | | | | | | | | | | | | |
| 2000 | 1,1-1,9 | | | | | | | | | | | | | | | | |

| MATERIAL | MATERIAL GROUP |
|-----------|--|
| <u>1</u> | Structural-deep drawing-free cutting steels ; St37: 1.0037 C10: 1.0301 10 S 20: 1.0721 ; St42: 1.0040 C15: 1.0401 |
| <u>2</u> | Structural steel,heat treatable steels ; St50: 1.0050 C35: 1.0501; St60: 1.0060 C45: 1.0503; |
| <u>3</u> | Cementation steel,heat treatable steel ; 16MnCr5: 1.7131, 42 CrMo 4: 1.225, 50 CrV 4: 1.8159 |
| <u>4</u> | Ball bearing steels,heat treatable steels ; 100Cr6: 1.3505, C125W:1.1663 |
| <u>5</u> | High speed steel ; S6-5-2: 1.3343, S2-10-1-8: 1.3247 |
| <u>6</u> | Cold work tool steels ; X210Cr12: 1.2080, X155CrVMo121: 1.239 |
| <u>7</u> | Heat treatable steels, nitriding steels ; 40CrMnMo7: 1.2311, 55NiCrMoV 6:1.2713 ; X40 CrMoV5 1: 1.2344, 34CrAL6: 1.8504 40CrMnNiMo 8 6 4: 1.2738 |
| <u>8</u> | Stainless steels; X5CrNi1810: n1.4301, X6CrNiMoTi1810: 1.451 |
| <u>9</u> | Heat-resistant steels; X 15CrNiSi 2520: 1.4841 |
| <u>10</u> | Nickel based alloys; Inconel 718: 2.4668, Hastelloy C4: 2.4610 Nimonic 90: 2.4632 |
| <u>11</u> | Cast iron ; GG 30 GGG 50 |
| <u>12</u> | Titanium, Titanium alloys, Aluminium bronz, ; Ampco 18-21 |
| <u>13</u> | Horizontal machines ; Aluminium, Aluminium alloys Al99,9 AlMg4 AlSi6Cr4 |
| <u>14</u> | Vertical machines ; Aluminium, Aluminium alloys Al99,9 AlMg4 AlSi6Cu4 |
| <u>15</u> | Brass ; CuZn37: 2.0321, CuZn40Pb2: 2.0402 |
| <u>16</u> | Copper ; KE-Cu: 2.0050 |

| Tooth pitch | Max contact length |
|--|--|
| Constant tooth pitch | |
| 32 tpi 24 tpi 18 tpi 14 tpi 10 tpi 8 tpi 6 tpi 4 tpi 3 tpi 2 tpi 1,25 tpi 0,75 tpi | Up to 3mm Up to 6mm Up to 10mm Up to 15mm 15- 30mm 30- 50mm 50- 80mm 80- 120mm 120- 200mm 200- 400mm 300- 800mm 700- 3000mm |
| Variable tooth pitch | |
| 10-14 tpi 8-12 tpi 6-10 tpi 5-8 tpi 4-6 tpi 4-5 tpi 3-4 tpi 2-3 tpi 1,4-2 tpi 0,75- 1,25 tpi | Up to- 30mm 20- 50mm 25- 60mm 35- 80mm 50- 100mm 70- 120mm 80- 150mm 120- 350mm 250- 600mm 500- 3000mm |

EN24 Equivalents

| | |
|------------------------------|-----------|
| BS970: 1955 | EN24 |
| BS970/PD970: 1970 onwards | 817M40 |
| European | 34CrNiMo6 |
| Werkstoff No. | 1.6582 |
| US SAE (AISI) | 4340 |

KV Steel Services is a supplier of EN24 steel to local and national businesses. We stock EN24 in bright bar and blocks and black bar, square, flats and blocks.



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