

MULTI FLUTE SHORT ROUGHING
- SIDE CUTTING

ESH751, ESH752 Series

ESH753, ESH762 Series

| MATERIAL | CARBON STEELS ALLOY STEELS TOOL STEELS | | | | CARBON STEELS ALLOY STEELS TOOL STEELS | | | | CARBON STEELS ALLOY STEELS TOOL STEELS | | | |
|----------|--|------|----|-------|--|------|----|-------|--|------|----|-------|
| HARDNESS | | | | | ~ HRc20 | | | | HRc20 ~ HRc30 | | | |
| STRENGTH | ~ 500N/mm ² | | | | 500 ~ 800N/mm ² | | | | 800 ~ 1000N/mm ² | | | |
| DIAMETER | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz |
| 6.0 | 1800 | 80 | 35 | 0.015 | 1600 | 60 | 30 | 0.013 | 1200 | 55 | 25 | 0.015 |
| 8.0 | 1400 | 105 | 35 | 0.025 | 1100 | 75 | 30 | 0.023 | 900 | 65 | 25 | 0.024 |
| 10.0 | 1100 | 150 | 35 | 0.034 | 900 | 120 | 30 | 0.033 | 800 | 110 | 25 | 0.034 |
| 12.0 | 900 | 180 | 35 | 0.050 | 800 | 140 | 30 | 0.044 | 630 | 110 | 25 | 0.044 |
| 14.0 | 800 | 180 | 35 | 0.056 | 700 | 140 | 30 | 0.050 | 560 | 110 | 25 | 0.049 |
| 16.0 | 700 | 180 | 35 | 0.064 | 560 | 140 | 30 | 0.063 | 450 | 110 | 25 | 0.061 |
| 18.0 | 630 | 180 | 35 | 0.071 | 500 | 140 | 30 | 0.070 | 400 | 110 | 25 | 0.069 |
| 20.0 | 560 | 180 | 35 | 0.080 | 450 | 140 | 30 | 0.078 | 400 | 110 | 25 | 0.069 |
| 22.0 | 500 | 220 | 35 | 0.088 | 450 | 170 | 30 | 0.076 | 350 | 140 | 25 | 0.080 |
| 25.0 | 450 | 220 | 35 | 0.098 | 400 | 170 | 30 | 0.085 | 310 | 140 | 25 | 0.090 |
| 28.0 | 400 | 210 | 35 | 0.088 | 350 | 160 | 30 | 0.076 | 280 | 130 | 25 | 0.077 |
| 30.0 | 350 | 210 | 35 | 0.100 | 310 | 160 | 30 | 0.086 | 250 | 130 | 25 | 0.087 |
| 32.0 | 350 | 210 | 35 | 0.100 | 280 | 160 | 30 | 0.095 | 220 | 130 | 20 | 0.098 |

| MATERIAL | CARBON STEELS ALLOY STEELS TOOL STEELS | | | | ALUMINUM ALUMINUM ALLOYS | | | |
|----------|--|------|----|-------|-----------------------------|------|----|-------|
| HARDNESS | HRc30 ~ HRc40 | | | | | | | |
| STRENGTH | 1000 ~ 1300N/mm ² | | | | | | | |
| DIAMETER | RPM | FEED | Vc | fz | RPM | FEED | Vc | fz |
| 6.0 | 800 | 30 | 15 | 0.013 | 4500 | 200 | 85 | 0.015 |
| 8.0 | 560 | 35 | 15 | 0.021 | 3100 | 230 | 80 | 0.025 |
| 10.0 | 450 | 60 | 15 | 0.033 | 2500 | 350 | 80 | 0.035 |
| 12.0 | 400 | 70 | 15 | 0.044 | 2000 | 400 | 75 | 0.050 |
| 14.0 | 350 | 70 | 15 | 0.050 | 1800 | 420 | 80 | 0.058 |
| 16.0 | 280 | 70 | 15 | 0.063 | 1600 | 450 | 80 | 0.070 |
| 18.0 | 250 | 70 | 15 | 0.070 | 1400 | 470 | 80 | 0.084 |
| 20.0 | 220 | 70 | 15 | 0.080 | 1200 | 500 | 75 | 0.104 |
| 22.0 | 220 | 85 | 15 | 0.077 | 1100 | 470 | 75 | 0.085 |
| 25.0 | 180 | 85 | 15 | 0.094 | 1000 | 450 | 80 | 0.090 |
| 28.0 | 160 | 85 | 15 | 0.089 | 900 | 510 | 80 | 0.094 |
| 30.0 | 160 | 85 | 15 | 0.089 | 900 | 530 | 85 | 0.098 |
| 32.0 | 140 | 85 | 15 | 0.101 | 800 | 500 | 80 | 0.104 |

RPM = rev./min.
Feed = mm/min.
Vc = m/min.
fz = mm/tooth



*The FEED, in long & extra long types, should be reduced by around 50%