# Identification(Shoulder Milling)

Reduce the cutting parameters by the coefficient values shown according to the length of overhang.
For long edge and oversize types heads refer to their specific recommended conditions.

(inch)

| Workpiece Material | Carbon Steels, Alloy Steels, Mild Steels, Copper, Copper Alloys | | | Pre-hardened Steels, Carbon Steels, Alloy Steels, Alloy Tool Steels | | | Austenitic Stainless Steels, Ferritic and Martensitic Stainless Steels, Titanium Alloys | | |
|---|---|---|---|---|---|---|---|---|---|
| **L/D** | Revolution n (min-1) | Feed per Tooth fz (IPT) | Width of Cut ae | Revolution n (min-1) | Feed per Tooth fz (IPT) | Width of Cut ae | Revolution n (min-1) | Feed per Tooth fz (IPT) | Width of Cut ae |
| **2** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| **3** | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| **4** | 80% | 90% | 70% | 80% | 90% | 70% | 80% | 90% | 70% |
| **5** | 60% | 80% | 40% | 60% | 80% | 40% | 60% | 80% | 40% |
| **6** | 50% | 70% | 30% | 50% | 70% | 30% | 50% | 70% | 30% |
| **7** | 40% | 70% | 20% | 40% | 70% | 20% | 30% | 60% | 20% |
| **8** | 40% | 60% | 10% | 40% | 60% | 10% | 30% | 50% | 10% |
| **9** | 30% | 60% | 10% | 30% | 60% | 10% | 20% | 50% | 10% |

| Workpiece Material | Precipitation Hardening Stainless Steels, Cobalt Chromium Alloys | | | Heat Resistant Alloys<br><br>Inconel718 | | |
|---|---|---|---|---|---|---|
| **L/D** | Revolution n (min-1) | Feed per Tooth fz (IPT) | Width of Cut ae | Revolution n (min-1) | Feed per Tooth fz (IPT) | Width of Cut ae |
| **2** | 100% | 100% | 100% | 100% | 100% | 100% |
| **3** | 100% | 100% | 100% | 100% | 100% | 100% |
| **4** | 80% | 90% | 70% | 80% | 90% | 70% |
| **5** | 60% | 80% | 40% | 60% | 80% | 40% |
| **6** | 50% | 70% | 30% | 50% | 70% | 30% |
| **7** | 30% | 60% | 20% | 30% | 60% | 20% |
| **8** | 30% | 50% | 10% | 30% | 50% | 10% |
| **9** | 20% | 50% | 10% | 20% | 50% | 10% |

# iMX-CH3L
Chamfer head, 3 flute

## Recommended Cutting Conditions
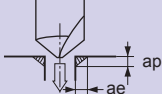
### Chamfer Milling (Hole Circumference)

(inch)

| Workpiece Material | | Carbon Steels, Alloy Steels, Gray Cast Irons | | | | Alloy Tool Steels, Carbon Steels, Alloy Steels, Pre-hardened Steels | | | | Austenitic Stainless Steels, Titanium Alloys | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| DC | | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Width of Cut ae | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Width of Cut ae | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Width of Cut ae |
| (mm) | (inch) | | | | | | | | | | | | |
| | .3750 | 1300 | 6.2 | .071 | .071 | 1300 | 4.7 | .071 | .071 | 1000 | 3.6 | .071 | .071 |
| 10 | .3937 | 1300 | 6.2 | .071 | .071 | 1300 | 4.7 | .071 | .071 | 970 | 3.5 | .071 | .071 |
| 12 | .4724 | 1100 | 5.3 | .085 | .085 | 1100 | 4.0 | .085 | .085 | 810 | 2.9 | .085 | .085 |
| | .5000 | 990 | 4.8 | .085 | .085 | 990 | 3.6 | .085 | .085 | 760 | 2.7 | .085 | .085 |
| | .6250 | 790 | 3.8 | .094 | .094 | 790 | 2.8 | .094 | .094 | 610 | 2.2 | .094 | .094 |
| 16 | .6299 | 790 | 3.8 | .094 | .094 | 790 | 2.8 | .094 | .094 | 610 | 2.2 | .094 | .094 |
| | .7500 | 660 | 3.2 | .102 | .102 | 660 | 2.4 | .102 | .102 | 510 | 1.8 | .102 | .102 |
| 20 | .7874 | 630 | 3.0 | .102 | .102 | 630 | 2.3 | .102 | .102 | 490 | 1.8 | .102 | .102 |
| Depth of Cut | | | | | | | | | | | | | |

| Workpiece Material | | Hardenned Steels (40-55HRC) | | | | Heat Resistant Alloys Inconel718 | | | |
|---|---|---|---|---|---|---|---|---|---|
| DC | | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Width of Cut ae | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Width of Cut ae |
| (mm) | (inch) | | | | | | | | |
| | .3750 | 1000 | 2.4 | .071 | .071 | 1000 | 4.8 | .071 | .071 |
| 10 | .3937 | 970 | 2.3 | .071 | .071 | 970 | 4.7 | .071 | .071 |
| 12 | .4724 | 810 | 1.9 | .085 | .085 | 810 | 3.9 | .085 | .085 |
| | .5000 | 760 | 1.8 | .085 | .085 | 760 | 3.6 | .085 | .085 |
| | .6250 | 610 | 1.5 | .094 | .094 | 610 | 2.9 | .094 | .094 |
| 16 | .6299 | 610 | 1.5 | .094 | .094 | 610 | 2.9 | .094 | .094 |
| | .7500 | 510 | 1.2 | .102 | .102 | 510 | 2.4 | .102 | .102 |
| 20 | .7874 | 490 | 1.2 | .102 | .102 | 490 | 2.4 | .102 | .102 |
| Depth of Cut | | | | | | | | | |

Note 1) Vibration may occur if the rigidity of machine or workpiece material is low.
In this case, please reduce the revolution and the feed rate proportionately.
Note 2) For stainless steels, titanium alloys and heat resistant alloys, the use of water-soluble coolant is effective.
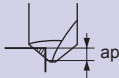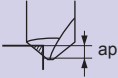
# iMX-CH3L
Chamfer head, 3 flute

## Recommended Cutting Conditions

### ■ Chamfer Milling (Shape Circumference)

(inch)

| Workpiece Material | | Carbon Steels, Alloy Steels, Gray Cast Irons | | | Alloy Tool Steels, Carbon Steels, Alloy Steels, Pre-hardened Steels | | | Austenitic Stainless Steels, Titanium Alloys | | |
|---|---|---|---|---|---|---|---|---|---|---|
| DC | | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap |
| (mm) | (inch) | | | | | | | | | |
| | .3750 | 3400 | 20.4 | .079 | 2300 | 12.4 | .079 | 2000 | 9.6 | .079 |
| 10 | .3937 | 3200 | 19.2 | .079 | 2200 | 11.9 | .079 | 1900 | 9.1 | .079 |
| 12 | .4724 | 2700 | 16.2 | .094 | 1900 | 10.3 | .094 | 1600 | 7.7 | .094 |
| | .5000 | 2500 | 15.0 | .094 | 1800 | 9.7 | .094 | 1500 | 7.2 | .094 |
| | .6250 | 2000 | 12.0 | .107 | 1400 | 7.6 | .107 | 1200 | 5.8 | .107 |
| 16 | .6299 | 2000 | 12.0 | .107 | 1400 | 7.6 | .107 | 1200 | 5.8 | .107 |
| | .7500 | 1700 | 10.2 | .126 | 1200 | 6.5 | .126 | 990 | 4.8 | .126 |
| 20 | .7874 | 1600 | 9.6 | .126 | 1100 | 5.9 | .126 | 950 | 4.6 | .126 |
| Depth of Cut | | | | | | | | | | |



| Workpiece Material | | Hardenned Steels (40-55HRC) | | | Heat Resistant Alloys / Inconel718 | | |
|---|---|---|---|---|---|---|---|
| DC | | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap | Revolution n (min-1) | Feed Rate vf (IPM) | Depth of Cut ap |
| (mm) | (inch) | | | | | | |
| | .3750 | 1700 | 6.1 | .079 | 1000 | 4.8 | .079 |
| 10 | .3937 | 1600 | 5.8 | .079 | 970 | 4.7 | .079 |
| 12 | .4724 | 1300 | 4.7 | .094 | 810 | 3.9 | .094 |
| | .5000 | 1300 | 4.7 | .094 | 760 | 3.6 | .094 |
| | .6250 | 1000 | 3.6 | .107 | 610 | 2.9 | .107 |
| 16 | .6299 | 1000 | 3.6 | .107 | 610 | 2.9 | .107 |
| | .7500 | 840 | 3.0 | .126 | 510 | 2.4 | .126 |
| 20 | .7874 | 800 | 2.9 | .126 | 490 | 2.4 | .126 |
| Depth of Cut | | | | | | | |



Note 1) Vibration may occur if the rigidity of machine or workpiece material is low.
    In this case, please reduce the revolution and the feed rate proportionately.
Note 2) For stainless steels, titanium alloys and heat resistant alloys, the use of water-soluble coolant is effective.