

Solid carbide

Inserts

Face milling cutters

Square shoulder cutters

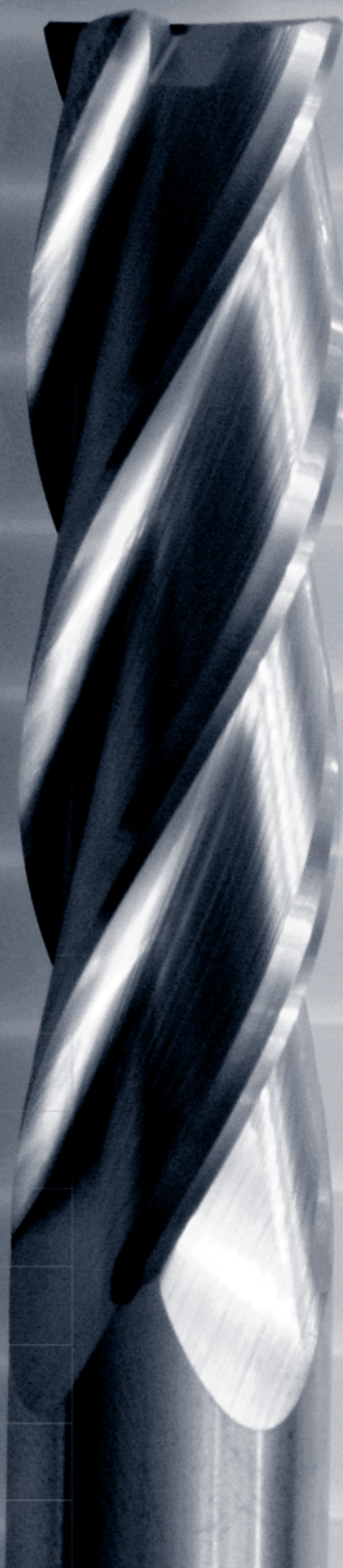
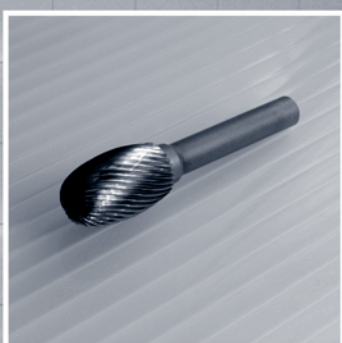
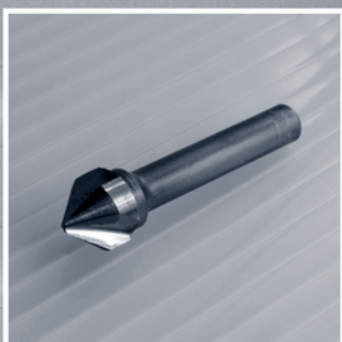
Slot cutters

Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide



Solid carbide

| | |
|------------------------|------|
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Solid carbide

Drills

Boring heads

Arbors and
adaptors

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters














Porcupine cutters

Specific applications and Sets




Profile milling

Solid carbide



End mills

| | | | | | |
|---|---|--|--|--|--|
| <p>6020 2 Flutes</p>  <p>Page H.04</p> | <p>6120 2 Flutes (Long)</p>  <p>Page H.04</p> | <p>7405 2 Flutes</p>  <p>Page H.05</p> | <p>7415 2 Flutes (Long)</p>  <p>Page H.05</p> | <p>6915 2 Flutes</p>  <p>Page H.06</p> | <p>6030 3 Flutes</p>  <p>Page H.06</p> |
| <p>6130 3 Flutes (Long)</p>  <p>Page H.07</p> | <p>6040 4 Flutes</p>  <p>Page H.07</p> | <p>6041 4 Flutes</p>  <p>Page H.08</p> | <p>6140 4 Flutes (Long)</p>  <p>Page H.08</p> | <p>6137 6/8 Flutes</p>  <p>Page H.09</p> | <p>6197 6/8 Flutes</p>  <p>Page H.09</p> |
| <p>6060 6 Flutes</p>  <p>Page H.10</p> | | | | | |

Torus end mills

| | | | | | |
|--|---|--|--|--|--|
| <p>6327 2 Flutes</p>  <p>Page H.11</p> | <p>6337 2 Flutes (Long)</p>  <p>Page H.11</p> | <p>6427 4 Flutes</p>  <p>Page H.12</p> | <p>6437 4 Flutes (Long)</p>  <p>Page H.12</p> | | |
|--|---|--|--|--|--|

Contour end mills

| | | | | | |
|--|---|--|--|--|--|
| <p>7965 2 Flutes</p>  <p>Page H.13</p> | <p>7975 2 Flutes with front out</p>  <p>Page H.13</p> | | | | |
|--|---|--|--|--|--|

Ball nose end mills

| | | | | | |
|--|---|--|--|--|--|
| <p>6320 2 Flutes</p>  <p>Page H.14</p> | <p>6420 2 Flutes (Long)</p>  <p>Page H.14</p> | <p>6945 2 Flutes</p>  <p>Page H.15</p> | <p>6955 2 Flutes (Long)</p>  <p>Page H.15</p> | <p>7597 2 Flutes</p>  <p>Page H.16</p> | <p>6330 3 Flutes</p>  <p>Page H.16</p> |
| <p>6430 3 Flutes</p>  <p>Page H.17</p> | <p>6340 4 Flutes</p>  <p>Page H.17</p> | <p>6440 4 Flutes</p>  <p>Page H.18</p> | <p>6521 2 Flutes</p>  <p>Page H.19</p> | <p>6541 4 Flutes</p>  <p>Page H.19</p> | |

Drills

7020

Hard-metal twist drills
2 Flutes



Page H.20

7030

Hard-metal twist drills
3 Flutes



Page H.21

7120

Hard-metal twist drills
2 Flutes (Long)



Page H.22

Others

80

Solid carbide center drill



Page H.23

81

Solid carbide center drill
for C.N.C. 90°



Page H.23

82

Solid carbide center drill
for C.N.C. 120°



Page H.24

83

Solid carbide
Countersinks



Page H.24

84

Solid carbide
Countersinks



Page H.25

85

Centerless ground
carbide



Page H.25

Tungsten carbide burrs

90

Cylindrical



Page H.26

91

Cylindrical round top



Page H.26

92

Tree radius nose



Page H.27

93

Tree pointed



Page H.27

94

Cone



Page H.28

95

Olive (Egg)



Page H.28

96

Ball



Page H.29

97

Inverted cone



Page H.29

98

Deburring 60°



Page H.30

99

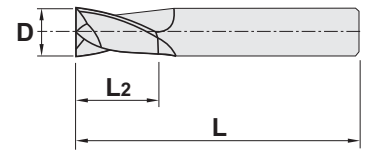
Deburring 90°



Page H.30

- Inserts
- Face milling cutters
- Square shoulder cutters
- Slot cutters
- Porcupine cutters
- Specific applications and Sets
- Profile milling
- Solid carbide

Characteristics:
Solid carbide 2 flutes end mills.



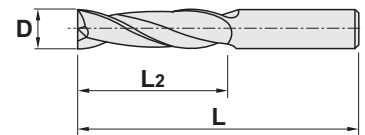
☆ Not suitable ★ Suitable ⬢ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 6020 | | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|---|----|-----|----|-----|-----|------|-------|
| Ref. | 602001 | 2 | 1 | 40 | 5 | ○ | ○ | | ○ |
| | 602002 | 2 | 2 | 40 | 8 | ● | ○ | | ● |
| | 602003 | 2 | 3 | 40 | 12 | ● | ○ | | ● |
| | 602004 | 2 | 4 | 40 | 12 | ● | ○ | | ● |
| | 602005 | 2 | 5 | 50 | 14 | ● | ○ | | ● |
| | 602006 | 2 | 6 | 50 | 16 | ● | ○ | | ● |
| | 602007 | 2 | 7 | 60 | 20 | ● | ○ | | ● |
| | 602008 | 2 | 8 | 60 | 20 | ● | ○ | | ● |
| | 602009 | 2 | 9 | 60 | 20 | ● | ○ | | ● |
| | 602010 | 2 | 10 | 70 | 22 | ● | ○ | | ● |
| | 602011 | 2 | 11 | 70 | 22 | ● | ○ | | ● |
| | 602012 | 2 | 12 | 70 | 22 | ● | ○ | | ● |
| | 602014 | 2 | 14 | 75 | 25 | ● | ○ | | ○ |
| | 602016 | 2 | 16 | 80 | 28 | ● | ○ | | ○ |
| | 602018 | 2 | 18 | 80 | 28 | ● | ○ | | ○ |
| | 602020 | 2 | 20 | 100 | 35 | ● | ○ | | ○ |
| | 602022 | 2 | 22 | 100 | 35 | ○ | ○ | | |
| | 602025 | 2 | 25 | 100 | 35 | ○ | ○ | | ○ |
| | 602030 | 2 | 30 | 100 | 35 | ○ | ○ | | ○ |
| | 602032 | 2 | 32 | 100 | 35 | ○ | ○ | | ○ |

Characteristics:
Solid carbide 2 flutes end mills.
(Long)



☆ Not suitable ★ Suitable ⬢ Especially suitable

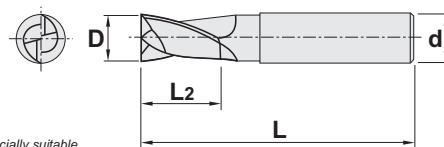
| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 6120 | | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|---|----|-----|----|-----|-----|------|-------|
| Ref. | 612003 | 2 | 3 | 60 | 25 | ○ | | | ○ |
| | 612004 | 2 | 4 | 60 | 25 | ○ | | | ○ |
| | 612005 | 2 | 5 | 70 | 30 | ○ | | | ○ |
| | 612006 | 2 | 6 | 70 | 30 | ○ | | | ○ |
| | 612008 | 2 | 8 | 80 | 35 | ○ | | | ○ |
| | 612010 | 2 | 10 | 100 | 45 | ○ | | | ○ |
| | 612012 | 2 | 12 | 100 | 45 | ○ | | | ○ |
| | 612014 | 2 | 14 | 100 | 45 | ○ | | | ○ |
| | 612016 | 2 | 16 | 100 | 45 | ○ | | | ○ |
| | 612018 | 2 | 18 | 100 | 45 | ○ | | | ○ |
| | 612020 | 2 | 20 | 125 | 55 | ○ | | | ○ |
| | 612025 | 2 | 25 | 125 | 55 | ○ | | | ○ |
| | 612032 | 2 | 32 | 125 | 55 | ○ | | | ○ |

Characteristics:

Solid carbide 2 flutes torus end mills for aluminium.



☆ Not suitable ★ Suitable ★ Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

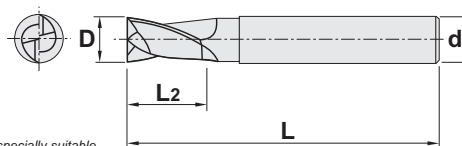
Normally available for immediate delivery ●
Only available in a limited quantity ○

7405

| Ref. | Flutes | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|-----|----|-----|-----|------|-------|
| 740503 | 2 | 3 | 6 | 57 | 4 | ○ | | | |
| 740504 | 2 | 4 | 6 | 57 | 5 | ○ | | | |
| 740505 | 2 | 5 | 6 | 57 | 7 | ○ | | | |
| 740506 | 2 | 6 | 6 | 57 | 7 | ○ | | | |
| 740508 | 2 | 8 | 8 | 63 | 9 | ○ | | | |
| 740510 | 2 | 10 | 10 | 72 | 11 | ○ | | | |
| 740512 | 2 | 12 | 12 | 83 | 12 | ○ | | | |
| 740516 | 2 | 16 | 16 | 92 | 16 | ○ | | | |
| 740520 | 2 | 20 | 20 | 104 | 20 | ○ | | | |
| 740525 | 2 | 25 | 25 | 106 | 25 | ○ | | | |

Characteristics:

Solid carbide 2 flutes torus end mills for aluminium. (Long)



☆ Not suitable ★ Suitable ★ Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

7415

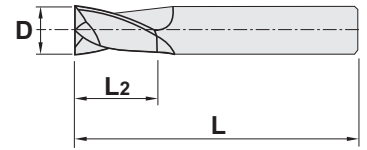
| Ref. | Flutes | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|-----|----|-----|-----|------|-------|
| 741506 | 2 | 6 | 6 | 80 | 7 | ○ | | | |
| 741508 | 2 | 8 | 8 | 80 | 9 | ○ | | | |
| 741510 | 2 | 10 | 10 | 100 | 11 | ○ | | | |
| 741512 | 2 | 12 | 12 | 100 | 12 | ○ | | | |
| 741516 | 2 | 16 | 16 | 100 | 16 | ○ | | | |
| 741520 | 2 | 20 | 20 | 125 | 20 | ○ | | | |
| 741525 | 2 | 25 | 25 | 150 | 25 | ○ | | | |

- Solid carbide
- Drills
- Boring heads
- Arbors and adaptors

- Inserts
- Face milling cutters
- Square shoulder cutters
- Slot cutters
- Porcupine cutters
- Specific applications and Sets
- Profile milling
- Solid carbide

Characteristics:

Solid carbide 2 flutes end mills for aluminium.



☆ Not suitable ★ Suitable ⚡ Especially suitable

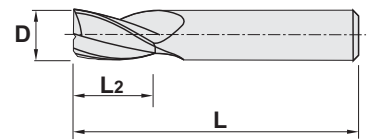
| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ⚡ | ⚡ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 6915 | | ✂ | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|----------|---|------|-----|----|-----|-----|------|-------|
| Ref. | 691501 | 2 | 1,0 | 38 | 5 | ○ | | | |
| | 691501.5 | 2 | 1,5 | 38 | 5 | ○ | | | |
| | 691502 | 2 | 2,0 | 38 | 8 | ○ | | | |
| | 691502.5 | 2 | 2,5 | 38 | 8 | ○ | | | |
| | 691503 | 2 | 3,0 | 38 | 12 | ○ | | | |
| | 691504 | 2 | 4,0 | 40 | 12 | ○ | | | |
| | 691505 | 2 | 5,0 | 50 | 14 | ○ | | | |
| | 691506 | 2 | 6,0 | 50 | 16 | ○ | | | |
| | 691508 | 2 | 8,0 | 63 | 20 | ○ | | | |
| | 691510 | 2 | 10,0 | 72 | 22 | ○ | | | |
| | 691512 | 2 | 12,0 | 73 | 22 | ○ | | | |
| | 691514 | 2 | 14,0 | 75 | 25 | ○ | | | |
| | 691516 | 2 | 16,0 | 82 | 28 | ○ | | | |
| | 691518 | 2 | 18,0 | 84 | 28 | ○ | | | |
| | 691520 | 2 | 20,0 | 104 | 35 | ○ | | | |

Characteristics:

Solid carbide 3 flutes end mills.



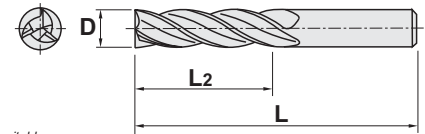
☆ Not suitable ★ Suitable ⚡ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 6030 | | ✂ | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|---|----|-----|----|-----|-----|------|-------|
| Ref. | 603001 | 3 | 1 | 40 | 5 | ○ | ○ | | ○ |
| | 603002 | 3 | 2 | 40 | 8 | ● | ○ | | ○ |
| | 603003 | 3 | 3 | 40 | 12 | ● | ○ | | ○ |
| | 603004 | 3 | 4 | 40 | 12 | ● | ○ | | ○ |
| | 603005 | 3 | 5 | 50 | 14 | ● | ○ | | ○ |
| | 603006 | 3 | 6 | 50 | 16 | ● | ○ | | ○ |
| | 603007 | 3 | 7 | 60 | 20 | ● | ○ | | ○ |
| | 603008 | 3 | 8 | 60 | 20 | ● | ○ | | ○ |
| | 603010 | 3 | 10 | 70 | 22 | ● | ○ | | ○ |
| | 603012 | 3 | 12 | 70 | 22 | ● | ○ | | ○ |
| | 603014 | 3 | 14 | 75 | 25 | ● | ○ | | ○ |
| | 603016 | 3 | 16 | 80 | 28 | ● | ○ | | ○ |
| | 603018 | 3 | 18 | 80 | 28 | ● | ○ | | ○ |
| | 603020 | 3 | 20 | 100 | 35 | ● | ○ | | ○ |
| | 603025 | 3 | 25 | 100 | 35 | ○ | ○ | | ○ |

Characteristics:
Solid carbide 3 flutes end mills.
(Long)



☆ Not suitable ★ Suitable ✦ Especially suitable

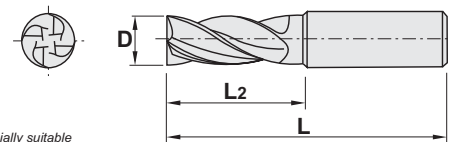
| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ✦ | ✦ | ✦ | ✦ | ★ | ✦ | ★ | ✦ | ★ | ★ | ✦ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6130

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|----|-----|-----|------|-------|
| 613003 | 3 | 25 | 25 | 25 | ○ | | | |
| 613004 | 3 | 25 | 25 | 25 | ○ | | | |
| 613005 | 3 | 30 | 30 | 30 | ○ | | | |
| 613006 | 3 | 30 | 30 | 30 | ○ | | | |
| 613007 | 3 | 35 | 35 | 35 | ○ | | | |
| 613008 | 3 | 35 | 35 | 35 | ○ | | | |
| 613010 | 3 | 45 | 45 | 45 | ○ | | | |
| 613012 | 3 | 45 | 45 | 45 | ○ | | | |
| 613014 | 3 | 45 | 45 | 45 | ○ | | | |
| 613016 | 3 | 45 | 45 | 45 | ○ | | | |
| 613018 | 3 | 45 | 45 | 45 | ○ | | | |
| 613020 | 3 | 55 | 55 | 55 | ○ | | | |
| 613022 | 3 | 55 | 55 | 55 | ○ | | | |
| 613025 | 3 | 55 | 55 | 55 | ○ | | | |
| 613030 | 3 | 55 | 55 | 55 | ○ | | | |
| 613032 | 3 | 55 | 55 | 55 | ○ | | | |

Characteristics:
Solid carbide 4 flutes end mills.



☆ Not suitable ★ Suitable ✦ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ✦ | ✦ | ✦ | ✦ | ★ | ★ | ★ | ✦ | ★ | ★ | ✦ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6040

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 604001 | 4 | 1 | 40 | 5 | ○ | ○ | | ○ |
| 604002 | 4 | 2 | 40 | 8 | ● | ● | | ● |
| 604003 | 4 | 3 | 40 | 12 | ● | ● | | ● |
| 604004 | 4 | 4 | 40 | 12 | ● | ● | | ● |
| 604005 | 4 | 5 | 50 | 14 | ● | ● | | ● |
| 604006 | 4 | 6 | 50 | 16 | ● | ● | | ● |
| 604007 | 4 | 7 | 60 | 20 | ● | ● | | ● |
| 604008 | 4 | 8 | 60 | 20 | ● | ● | | ● |
| 604009 | 4 | 9 | 60 | 20 | ● | ● | | ● |
| 604010 | 4 | 10 | 70 | 22 | ● | ● | | ● |
| 604012 | 4 | 12 | 70 | 22 | ● | ● | | ● |
| 604014 | 4 | 14 | 75 | 25 | ● | ● | | ● |
| 604016 | 4 | 16 | 80 | 28 | ● | ● | | ● |
| 604018 | 4 | 18 | 80 | 28 | ● | ● | | ● |
| 604020 | 4 | 20 | 100 | 35 | ● | ● | | ● |
| 604022 | 4 | 22 | 100 | 35 | ○ | ○ | | |
| 604025 | 4 | 25 | 100 | 35 | ○ | ○ | | ○ |
| 604030 | 4 | 30 | 100 | 35 | ○ | ○ | | |
| 604032 | 4 | 32 | 100 | 35 | ○ | ○ | | |

Solid carbide

Drills

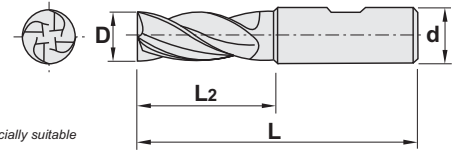
Boring heads

Arbors and adaptors

Inserts



Characteristics:
Solid carbide 4 flutes end mills.
DIN 6527L30°



☆ Not suitable ★ Suitable ⬢ Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6041

| Ref. | Flutes | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|-----|----|-----|-----|------|-------|
| 604102 | 4 | 2 | 6 | 50 | 6 | ○ | | | |
| 604103 | 4 | 3 | 6 | 57 | 7 | ○ | | | |
| 604104 | 4 | 4 | 6 | 57 | 8 | ○ | | | |
| 604105 | 4 | 5 | 6 | 57 | 10 | ○ | | | |
| 604106 | 4 | 6 | 6 | 57 | 10 | ○ | | | |
| 604107 | 4 | 7 | 8 | 63 | 13 | ○ | | | |
| 604108 | 4 | 8 | 8 | 63 | 16 | ○ | | | |
| 604109 | 4 | 9 | 10 | 72 | 16 | ○ | | | |
| 604110 | 4 | 10 | 10 | 72 | 19 | ○ | | | |
| 604111 | 4 | 11 | 12 | 83 | 22 | ○ | | | |
| 604112 | 4 | 12 | 12 | 83 | 22 | ○ | | | |
| 604113 | 4 | 13 | 14 | 83 | 22 | ○ | | | |
| 604114 | 4 | 14 | 14 | 83 | 22 | ○ | | | |
| 604115 | 4 | 15 | 16 | 92 | 26 | ○ | | | |
| 604116 | 4 | 16 | 16 | 92 | 26 | ○ | | | |
| 604118 | 4 | 18 | 18 | 92 | 26 | ○ | | | |
| 604120 | 4 | 20 | 20 | 104 | 32 | ○ | | | |
| 604122 | 4 | 22 | 25 | 104 | 32 | ○ | | | |
| 604125 | 4 | 25 | 25 | 104 | 32 | ○ | | | |
| 604130 | 4 | 30 | 32 | 104 | 32 | ○ | | | |
| 604132 | 4 | 32 | 32 | 104 | 32 | ○ | | | |

Square shoulder cutters

Slot cutters

Porcupine cutters

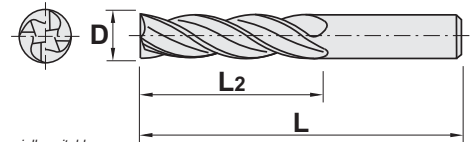
Specific applications and Sets

Profile milling

Solid carbide



Characteristics:
Solid carbide 4 flutes end mills.
(Long)



☆ Not suitable ★ Suitable ⬢ Especially suitable

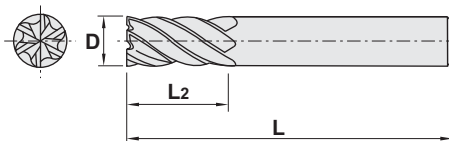
| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6140

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 614003 | 4 | 3 | 60 | 25 | ○ | | | |
| 614004 | 4 | 4 | 60 | 25 | ○ | | | |
| 614005 | 4 | 5 | 70 | 30 | ○ | | | |
| 614006 | 4 | 6 | 70 | 30 | ○ | | | |
| 614007 | 4 | 7 | 80 | 35 | ○ | | | |
| 614008 | 4 | 8 | 80 | 35 | ○ | | | |
| 614010 | 4 | 10 | 100 | 45 | ○ | | | |
| 614012 | 4 | 12 | 100 | 45 | ○ | | | |
| 614014 | 4 | 14 | 100 | 45 | ○ | | | |
| 614016 | 4 | 16 | 100 | 45 | ○ | | | |
| 614018 | 4 | 18 | 100 | 45 | ○ | | | |
| 614020 | 4 | 20 | 125 | 55 | ○ | | | |
| 614022 | 4 | 22 | 125 | 55 | ○ | | | |
| 614025 | 4 | 25 | 125 | 55 | ○ | | | |
| 614030 | 4 | 30 | 125 | 55 | ○ | | | |
| 614032 | 4 | 32 | 125 | 55 | ○ | | | |

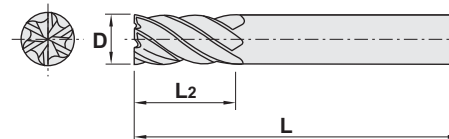
Characteristics:
Solid carbide end mills (Positive rake angle).
For hard machining.



☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6137 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|---|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ⚙ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | | ♻ | D | L | L2 | | | | | | | | | | | | |
| 613706 | 6 | 6 | 60 | 20 | | | | | | | | | | | | | ○ |
| 613708 | 6 | 8 | 80 | 25 | | | | | | | | | | | | | ○ |
| 613710 | 6 | 10 | 80 | 30 | | | | | | | | | | | | | ○ |
| 613712 | 6 | 12 | 100 | 36 | | | | | | | | | | | | | ○ |
| 613716 | 6 | 16 | 106 | 46 | | | | | | | | | | | | | ○ |
| 613720 | 8 | 20 | 125 | 60 | | | | | | | | | | | | | ○ |
| 613725 | 8 | 25 | 150 | 75 | | | | | | | | | | | | | ○ |

Characteristics:
Solid carbide end mills (Negative rake angle).
For hard machining.

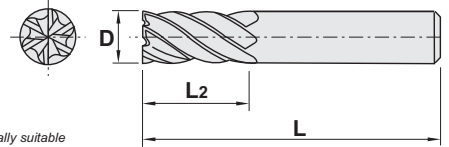


☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6197 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|---|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ⚙ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | | ♻ | D | L | L2 | | | | | | | | | | | | |
| 619706 | 6 | 6 | 60 | 20 | | | | | | | | | | | | | ○ |
| 619708 | 6 | 8 | 80 | 25 | | | | | | | | | | | | | ○ |
| 619710 | 6 | 10 | 80 | 30 | | | | | | | | | | | | | ○ |
| 619712 | 6 | 12 | 100 | 36 | | | | | | | | | | | | | ○ |
| 619716 | 6 | 16 | 106 | 46 | | | | | | | | | | | | | ○ |
| 619720 | 8 | 20 | 125 | 60 | | | | | | | | | | | | | ○ |
| 619725 | 8 | 25 | 150 | 75 | | | | | | | | | | | | | ○ |

- Solid carbide
- Drills
- Boring heads
- Arbors and adaptors

Characteristics:
Solid carbide 6 flutes end mills.



☆ Not suitable ★ Suitable ⚡ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6060

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 606003 | 6 | 3 | 40 | 12 | ● | ○ | ○ | ○ |
| 606004 | 6 | 4 | 40 | 12 | ● | ○ | ○ | ○ |
| 606005 | 6 | 5 | 50 | 14 | ● | ○ | ○ | ○ |
| 606006 | 6 | 6 | 50 | 16 | ● | ○ | ○ | ○ |
| 606007 | 6 | 7 | 60 | 20 | ● | ○ | ○ | ○ |
| 606008 | 6 | 8 | 60 | 20 | ● | ○ | ○ | ○ |
| 606009 | 6 | 9 | 60 | 20 | ● | ○ | ○ | ○ |
| 606010 | 6 | 10 | 70 | 22 | ● | ○ | ○ | ○ |
| 606011 | 6 | 11 | 70 | 22 | ● | ○ | ○ | ○ |
| 606012 | 6 | 12 | 70 | 22 | ● | ○ | ○ | ○ |
| 606014 | 6 | 14 | 75 | 25 | ● | ○ | ○ | ○ |
| 606016 | 6 | 16 | 80 | 28 | ● | ○ | ○ | ○ |
| 606018 | 6 | 18 | 80 | 28 | ● | ○ | ○ | ○ |
| 606020 | 6 | 20 | 100 | 35 | ● | ○ | ○ | ○ |
| 606022 | 6 | 22 | 100 | 35 | ● | ○ | ○ | ○ |
| 606025 | 6 | 25 | 100 | 35 | ● | ○ | ○ | ○ |

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

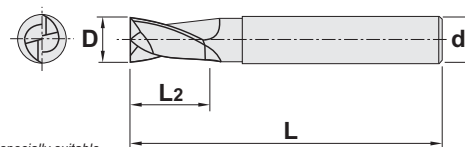
Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide

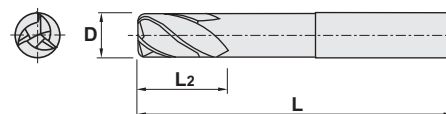
Characteristics:
Solid carbide 2 flutes torus end mills.



☆ Not suitable ★ Suitable ★ Especially suitable

| 6327 | | Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | | | | | | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | d | L | L2 | | | | | | | | | | | | |
| 632703 | 2 | 3 | 6 | 57 | 4 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632704 | 2 | 4 | 6 | 57 | 5 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632705 | 2 | 5 | 6 | 57 | 6 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632706 | 2 | 6 | 6 | 57 | 7 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632708 | 2 | 8 | 8 | 63 | 9 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632710 | 2 | 10 | 10 | 72 | 11 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632712 | 2 | 12 | 12 | 83 | 12 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632716 | 2 | 16 | 16 | 92 | 16 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632718 | 2 | 18 | 18 | 92 | 18 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |
| 632720 | 2 | 20 | 20 | 104 | 20 | ★ | ★ | ★ | ☆ | ☆ | ★ | ☆ | | | | | ○ |

Characteristics:
Solid carbide 2 flutes torus end mills. (Long)



☆ Not suitable ★ Suitable ★ Especially suitable

| 6337 | | Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | | | | | | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | L | L2 | | | | | | | | | | | | | |
| 633706 | 2 | 6 | 80 | 7 | | | | | | | | | | | | | ○ |
| 633708 | 2 | 8 | 80 | 9 | | | | | | | | | | | | | ○ |
| 633710 | 2 | 10 | 100 | 11 | | | | | | | | | | | | | ○ |
| 633712 | 2 | 12 | 120 | 12 | | | | | | | | | | | | | ○ |
| 633716 | 2 | 16 | 160 | 16 | | | | | | | | | | | | | ○ |

- Solid carbide
- Drills
- Boring heads
- Arbors and adaptors

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

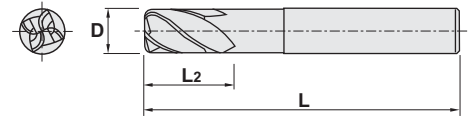
Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide

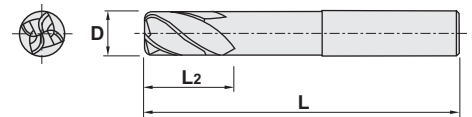
Characteristics:
Solid carbide 4 flutes torus end mills.



☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6427 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | | | |
|--------|---|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|--|--|--|--|--|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | | | | | | | | | | | | | |
| Ref. | | ★ | ★ | ⚙ | ⚙ | ⚙ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| 642706 | 4 | 6 | | | | | | | | | | | | | | | | | |
| 642708 | 4 | 8 | | | | | | | | | | | | | | | | | |
| 642710 | 4 | 10 | | | | | | | | | | | | | | | | | |
| 642712 | 4 | 12 | | | | | | | | | | | | | | | | | |
| 642716 | 4 | 16 | | | | | | | | | | | | | | | | | |
| 642718 | 4 | 18 | | | | | | | | | | | | | | | | | |
| 642720 | 4 | 20 | | | | | | | | | | | | | | | | | |

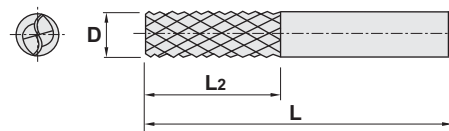
Characteristics:
Solid carbide 4 flutes torus end mills. (Long)



☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6437 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | | | |
|--------|---|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|--|--|--|--|--|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | | | | | | | | | | | | | |
| Ref. | | ★ | ★ | ⚙ | ⚙ | ⚙ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| | | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | | | | | | | |
| 643706 | 4 | 6 | | | | | | | | | | | | | | | | | |
| 643708 | 4 | 8 | | | | | | | | | | | | | | | | | |
| 643710 | 4 | 10 | | | | | | | | | | | | | | | | | |
| 643712 | 4 | 12 | | | | | | | | | | | | | | | | | |
| 643716 | 4 | 16 | | | | | | | | | | | | | | | | | |

Characteristics:
Solid carbide 2 flutes contour end mills for plastics.



☆ Not suitable ★ Suitable ★ Especially suitable

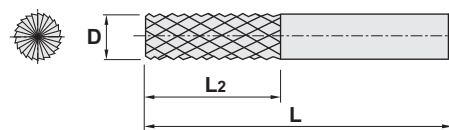
| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

7965

| Ref. | | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|---|----|-----|----|----|-----|-----|------|-------|
| 796502 | 2 | 2 | 38 | 10 | ○ | | | | |
| 796503 | 2 | 3 | 38 | 12 | ○ | | | | |
| 796504 | 2 | 4 | 40 | 15 | ○ | | | | |
| 796505 | 2 | 5 | 50 | 16 | ○ | | | | |
| 796506 | 2 | 6 | 50 | 18 | ○ | | | | |
| 796508 | 2 | 8 | 63 | 25 | ○ | | | | |
| 796510 | 2 | 10 | 72 | 30 | ○ | | | | |
| 796512 | 2 | 12 | 73 | 30 | ○ | | | | |
| 796514 | 2 | 14 | 75 | 30 | ○ | | | | |
| 796516 | 2 | 16 | 82 | 30 | ○ | | | | |
| 796518 | 2 | 18 | 84 | 32 | ○ | | | | |
| 796520 | 2 | 20 | 104 | 35 | ○ | | | | |

Characteristics:
Solid carbide 2 flutes contour end mills for plastics, with front cut.



☆ Not suitable ★ Suitable ★ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

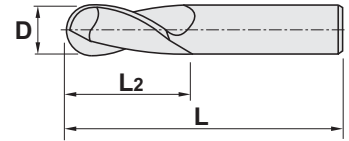
7975

| Ref. | | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|---|----|-----|----|----|-----|-----|------|-------|
| 797502 | 2 | 2 | 38 | 10 | ○ | | | | |
| 797503 | 2 | 3 | 38 | 12 | ○ | | | | |
| 797504 | 2 | 4 | 40 | 15 | ○ | | | | |
| 797505 | 2 | 5 | 50 | 16 | ○ | | | | |
| 797506 | 2 | 6 | 50 | 18 | ○ | | | | |
| 797508 | 2 | 8 | 63 | 25 | ○ | | | | |
| 797510 | 2 | 10 | 72 | 30 | ○ | | | | |
| 797512 | 2 | 12 | 73 | 30 | ○ | | | | |
| 797514 | 2 | 14 | 75 | 30 | ○ | | | | |
| 797516 | 2 | 16 | 82 | 30 | ○ | | | | |
| 797518 | 2 | 18 | 84 | 32 | ○ | | | | |
| 797520 | 2 | 20 | 104 | 35 | ○ | | | | |

Solid carbide
Drills
Boring heads
Arbors and adaptors

- Inserts
- Face milling cutters
- Square shoulder cutters
- Slot cutters
- Porcupine cutters
- Specific applications and Sets
- Profile milling
- Solid carbide

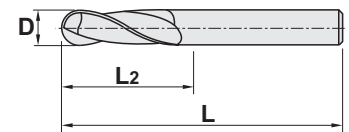
Characteristics:
Solid carbide 2 flutes ball nose end mills.



☆ Not suitable ★ Suitable ⚡ Especially suitable

| 6320 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | L | L2 | | | | | | | | | | | | | |
| 632001 | 2 | 1 | 40 | 5 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 632002 | 2 | 2 | 40 | 8 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632003 | 2 | 3 | 40 | 12 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632004 | 2 | 4 | 40 | 12 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632005 | 2 | 5 | 50 | 14 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632006 | 2 | 6 | 50 | 16 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632008 | 2 | 8 | 60 | 20 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632010 | 2 | 10 | 70 | 22 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632012 | 2 | 12 | 70 | 22 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 632014 | 2 | 14 | 75 | 25 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 632016 | 2 | 16 | 80 | 28 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 632018 | 2 | 18 | 80 | 28 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 632020 | 2 | 20 | 100 | 35 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 632025 | 2 | 25 | 100 | 35 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |

Characteristics:
Solid carbide 2 flutes ball nose end mills. (Long)

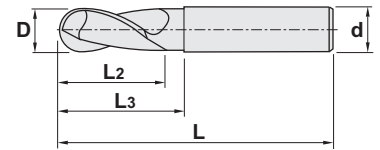


☆ Not suitable ★ Suitable ⚡ Especially suitable

| 6420 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | L | L2 | | | | | | | | | | | | | |
| 642003 | 2 | 3 | 60 | 25 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642004 | 2 | 4 | 60 | 25 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642005 | 2 | 5 | 70 | 30 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642006 | 2 | 6 | 70 | 30 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642008 | 2 | 8 | 80 | 35 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642010 | 2 | 10 | 100 | 45 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642012 | 2 | 12 | 100 | 45 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642014 | 2 | 14 | 100 | 45 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 642016 | 2 | 16 | 100 | 45 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642018 | 2 | 18 | 100 | 45 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |
| 642020 | 2 | 20 | 125 | 55 | | ● | ○ | | | | | | ● | ○ | | ● | |
| 642025 | 2 | 25 | 125 | 55 | | ○ | ○ | | | | | | ○ | ○ | | ○ | |

Characteristics:

Solid carbide 2 flutes ball nose end mills for aluminium.



☆ Not suitable ★ Suitable ★ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

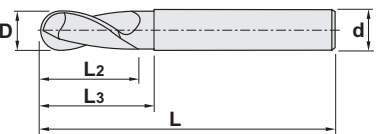
Normally available for immediate delivery ●
Only available in a limited quantity ○

6945

| Ref. | Flutes | D | d | L | L2 | L3 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|-----|----|----|-----|-----|------|-------|
| 694502 | 2 | 2 | 6 | 57 | 4 | 6 | ○ | | | |
| 694503 | 2 | 3 | 6 | 57 | 6 | 9 | ○ | | | |
| 694504 | 2 | 4 | 6 | 57 | 8 | 12 | ○ | | | |
| 694505 | 2 | 5 | 6 | 57 | 10 | 15 | ○ | | | |
| 694506 | 2 | 6 | 6 | 57 | 12 | 20 | ○ | | | |
| 694508 | 2 | 8 | 8 | 63 | 16 | 20 | ○ | | | |
| 694510 | 2 | 10 | 10 | 72 | 20 | 31 | ○ | | | |
| 694512 | 2 | 12 | 12 | 83 | 24 | 37 | ○ | | | |
| 694516 | 2 | 16 | 16 | 92 | 32 | 43 | ○ | | | |
| 694520 | 2 | 20 | 20 | 104 | 40 | 53 | ○ | | | |

Characteristics:

Solid carbide 2 flutes ball nose end mills for aluminium. (Long)



☆ Not suitable ★ Suitable ★ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6955

| Ref. | Flutes | D | d | L | L2 | L3 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|----|-----|----|----|-----|-----|------|-------|
| 695502 | 2 | 2 | 6 | 80 | 4 | 12 | ○ | | | |
| 695503 | 2 | 3 | 6 | 80 | 6 | 15 | ○ | | | |
| 695504 | 2 | 4 | 6 | 80 | 8 | 18 | ○ | | | |
| 695505 | 2 | 5 | 6 | 80 | 10 | 25 | ○ | | | |
| 695506 | 2 | 6 | 6 | 80 | 12 | 30 | ○ | | | |
| 695508 | 2 | 8 | 8 | 80 | 16 | 35 | ○ | | | |
| 695510 | 2 | 10 | 10 | 100 | 20 | 40 | ○ | | | |
| 695512 | 2 | 12 | 12 | 120 | 24 | 50 | ○ | | | |
| 695516 | 2 | 16 | 16 | 160 | 32 | 55 | ○ | | | |
| 695520 | 2 | 20 | 20 | 160 | 40 | 60 | ○ | | | |

Solid carbide

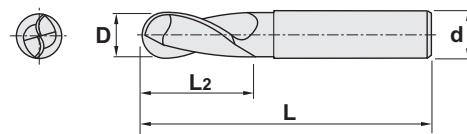
Drills

Boring heads

Arbors and adaptors

- Inserts
- Face milling cutters
- Square shoulder cutters
- Slot cutters
- Porcupine cutters
- Specific applications and Sets
- Profile milling
- Solid carbide

Characteristics:
Solid carbide 2 flutes ball nose end mills.



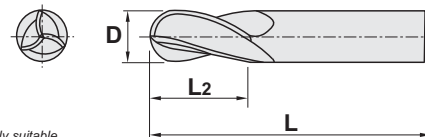
☆ Not suitable ★ Suitable ⚡ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ★ | ★ | ⚡ | ⚡ | ⚡ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 7597 | | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|---|----|----|-----|-----|-----|------|-------|
| Ref. | 759702 | 2 | 2 | 6 | 80 | | | | ○ |
| | 759703 | 2 | 3 | 6 | 80 | | | | ○ |
| | 759704 | 2 | 4 | 6 | 80 | | | | ○ |
| | 759705 | 2 | 5 | 6 | 80 | | | | ○ |
| | 759706 | 2 | 6 | 6 | 80 | | | | ○ |
| | 759708 | 2 | 8 | 8 | 100 | | | | ○ |
| | 759710 | 2 | 10 | 10 | 120 | | | | ○ |
| | 759712 | 2 | 12 | 12 | 120 | | | | ○ |
| | 759716 | 2 | 16 | 16 | 160 | | | | ○ |
| | 759720 | 2 | 20 | 20 | 160 | | | | ○ |
| | 759725 | 2 | 25 | 25 | 160 | | | | ○ |

Characteristics:
Solid carbide 3 flutes ball nose end mills.



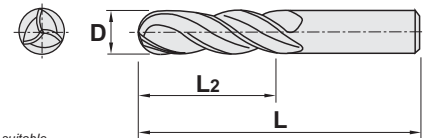
☆ Not suitable ★ Suitable ⚡ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 6330 | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|---|----|-----|-----|-----|------|-------|
| Ref. | 633001 | 3 | 1 | 40 | ○ | ○ | | |
| | 633002 | 3 | 2 | 40 | ○ | ○ | | |
| | 633003 | 3 | 3 | 40 | ○ | ○ | | |
| | 633004 | 3 | 4 | 40 | ○ | ○ | | |
| | 633005 | 3 | 5 | 50 | ○ | ○ | | |
| | 633006 | 3 | 6 | 50 | ○ | ○ | | |
| | 633007 | 3 | 7 | 60 | ○ | ○ | | |
| | 633008 | 3 | 8 | 60 | ○ | ○ | | |
| | 633009 | 3 | 9 | 60 | ○ | ○ | | |
| | 633010 | 3 | 10 | 70 | ○ | ○ | | |
| | 633011 | 3 | 11 | 70 | ○ | ○ | | |
| | 633012 | 3 | 12 | 70 | ○ | ○ | | |
| | 633013 | 3 | 13 | 75 | ○ | ○ | | |
| | 633014 | 3 | 14 | 75 | ○ | ○ | | |
| | 633015 | 3 | 15 | 75 | ○ | ○ | | |
| | 633016 | 3 | 16 | 80 | ○ | ○ | | |
| | 633018 | 3 | 18 | 80 | ○ | ○ | | |
| | 633020 | 3 | 20 | 100 | ○ | ○ | | |
| | 633022 | 3 | 22 | 100 | ○ | ○ | | |
| | 633025 | 3 | 25 | 100 | ○ | ○ | | |
| | 633030 | 3 | 30 | 100 | ○ | ○ | | |
| | 633032 | 3 | 32 | 100 | ○ | ○ | | |

Characteristics:
Solid carbide 3 flutes ball nose end mills.



☆ Not suitable ★ Suitable ✪ Especially suitable

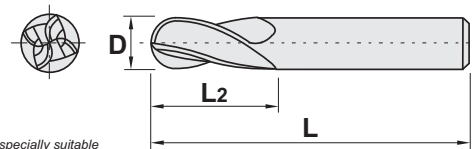
| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ✪ | ✪ | ✪ | ✪ | ★ | ✪ | ★ | ✪ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6430

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 643003 | 3 | 3 | 60 | 25 | ○ | | | |
| 643004 | 3 | 4 | 60 | 25 | ○ | | | |
| 643005 | 3 | 5 | 70 | 30 | ○ | | | |
| 643006 | 3 | 6 | 70 | 30 | ○ | | | |
| 643008 | 3 | 8 | 80 | 35 | ○ | | | |
| 643010 | 3 | 10 | 100 | 45 | ○ | | | |
| 643012 | 3 | 12 | 100 | 45 | ○ | | | |
| 643014 | 3 | 14 | 100 | 45 | ○ | | | |
| 643016 | 3 | 16 | 100 | 45 | ○ | | | |
| 643018 | 3 | 18 | 100 | 45 | ○ | | | |
| 643020 | 3 | 20 | 125 | 55 | ○ | | | |
| 643022 | 3 | 22 | 125 | 55 | ○ | | | |
| 643025 | 3 | 25 | 125 | 55 | ○ | | | |
| 643030 | 3 | 30 | 125 | 55 | ○ | | | |
| 643032 | 3 | 32 | 125 | 55 | ○ | | | |

Characteristics:
Solid carbide 4 flutes ball nose end mills.



☆ Not suitable ★ Suitable ✪ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ✪ | ✪ | ✪ | ✪ | ★ | ★ | ★ | ✪ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6340

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 634001 | 4 | 1 | 40 | 5 | ● | ○ | | ○ |
| 634002 | 4 | 2 | 40 | 8 | ● | ○ | | ○ |
| 634003 | 4 | 3 | 40 | 12 | ● | ○ | | ○ |
| 634004 | 4 | 4 | 40 | 12 | ● | ○ | | ○ |
| 634005 | 4 | 5 | 50 | 14 | ● | ○ | | ○ |
| 634006 | 4 | 6 | 50 | 16 | ● | ○ | | ○ |
| 634008 | 4 | 8 | 60 | 20 | ● | ○ | | ○ |
| 634010 | 4 | 10 | 70 | 22 | ● | ○ | | ○ |
| 634012 | 4 | 12 | 70 | 22 | ● | ○ | | ○ |
| 634014 | 4 | 14 | 75 | 25 | ● | ○ | | ○ |
| 634016 | 4 | 16 | 80 | 28 | ● | ○ | | ○ |
| 634018 | 4 | 18 | 80 | 28 | ● | ○ | | ○ |
| 634020 | 4 | 20 | 100 | 35 | ● | ○ | | ○ |
| 634025 | 4 | 25 | 100 | 35 | ● | ○ | | ○ |

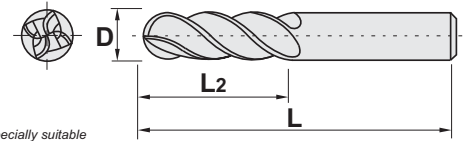
Solid carbide

Drills

Boring heads

Arbors and adaptors

Characteristics:
Solid carbide 4 flutes ball nose end mills.
(Long)



☆ Not suitable ★ Suitable ⬢ Especially suitable

| Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ⬢ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

6440

| Ref. | Flutes | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|--------|--------|----|-----|----|-----|-----|------|-------|
| 644003 | 4 | 3 | 60 | 25 | ○ | | | ○ |
| 644004 | 4 | 4 | 60 | 25 | ○ | | | ○ |
| 644005 | 4 | 5 | 70 | 30 | ○ | | | ○ |
| 644006 | 4 | 6 | 70 | 30 | ○ | | | ○ |
| 644008 | 4 | 8 | 80 | 35 | ○ | | | ○ |
| 644010 | 4 | 10 | 100 | 45 | ○ | | | ○ |
| 644012 | 4 | 12 | 100 | 45 | ○ | | | ○ |
| 644014 | 4 | 14 | 100 | 45 | ○ | | | ○ |
| 644016 | 4 | 16 | 100 | 45 | ○ | | | ○ |
| 644018 | 4 | 18 | 100 | 45 | ○ | | | ○ |
| 644020 | 4 | 20 | 125 | 55 | ○ | | | ○ |
| 644025 | 4 | 25 | 125 | 55 | ○ | | | ○ |

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

Porcupine cutters

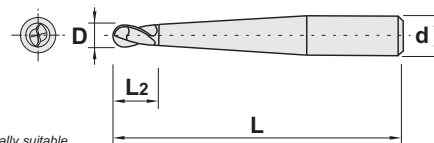
Specific applications and Sets

Profile milling

Solid carbide

Characteristics:

Solid carbide 2 flutes ball nose copy milling cutters.

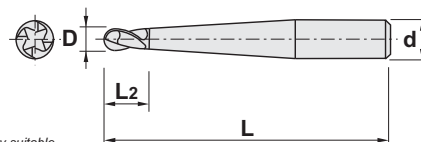


☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6521 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|--------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | d | L | L2 | | | | | | | | | | | | |
| 652103 | 2 | 3 | 6 | 57 | 4 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 652104 | 2 | 4 | 6 | 57 | 5 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 652105 | 2 | 5 | 8 | 63 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 652106 | 2 | 6 | 8 | 63 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 652108 | 2 | 8 | 10 | 72 | 10 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 652110 | 2 | 10 | 12 | 73 | 12 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |

Characteristics:

Solid carbide 4 flutes ball nose copy milling cutters.

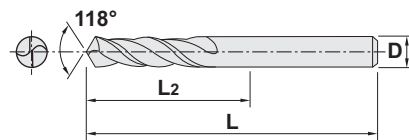


☆ Not suitable ★ Suitable ⚙ Especially suitable

| 6541 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|---------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|-----|------|-------|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | ★ | ★ | ★ | ★ | ★ | ★ | ★ | K10 | TiN | TiCN | TiAlN |
| Ref. | Flutes | D | d | L | L2 | | | | | | | | | | | | |
| 654104 | 4 | 4 | 8 | 100 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 654105 | 4 | 5 | 8 | 63 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ○ |
| 654105L | 4 | 5 | 8 | 100 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 654106 | 4 | 6 | 8 | 63 | 6 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ○ |
| 654106L | 4 | 6 | 10 | 100 | 9 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 654108 | 4 | 8 | 10 | 72 | 10 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ○ |
| 654108L | 4 | 8 | 10 | 100 | 12 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 654110 | 4 | 10 | 12 | 73 | 12 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ○ |
| 654110L | 4 | 10 | 12 | 100 | 15 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |
| 654112 | 4 | 12 | 16 | 150 | 15 | ★ | ★ | ★ | ★ | ★ | ★ | ★ | | | | | ● |

Solid carbide
Drills
Boring heads
Arbors and adaptors

Characteristics:
Hard-metal twist drills
2 Flutes
DIN 6539 3xD Z=2



☆ Not suitable ★ Suitable ● Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

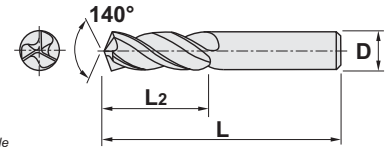
● Normally available for immediate delivery
○ Only available in a limited quantity

7020

| Ref. | D | L | L2 | K10 | Ref. | D | L | L2 | K10 |
|----------|-----|----|----|-----|----------|------|-----|----|-----|
| 702000.5 | 0.5 | 26 | 6 | ● | 702006.8 | 6.8 | 74 | 34 | ● |
| 702000.6 | 0.6 | 26 | 6 | ● | 702006.9 | 6.9 | 74 | 34 | ● |
| 702000.7 | 0.7 | 26 | 6 | ● | 702007.0 | 7.0 | 74 | 34 | ● |
| 702000.8 | 0.8 | 26 | 6 | ● | 702007.1 | 7.1 | 74 | 34 | ● |
| 702000.9 | 0.9 | 26 | 6 | ● | 702007.2 | 7.2 | 74 | 34 | ● |
| 702001.0 | 1.0 | 26 | 6 | ● | 702007.3 | 7.3 | 74 | 34 | ● |
| 702001.1 | 1.1 | 28 | 7 | ● | 702007.4 | 7.4 | 74 | 34 | ● |
| 702001.2 | 1.2 | 30 | 8 | ● | 702007.5 | 7.5 | 74 | 34 | ● |
| 702001.3 | 1.3 | 30 | 8 | ● | 702007.6 | 7.6 | 79 | 36 | ● |
| 702001.4 | 1.4 | 32 | 9 | ● | 702007.7 | 7.7 | 79 | 36 | ● |
| 702001.5 | 1.5 | 32 | 9 | ● | 702007.8 | 7.8 | 79 | 36 | ● |
| 702001.6 | 1.6 | 34 | 10 | ● | 702007.9 | 7.9 | 79 | 36 | ● |
| 702001.7 | 1.7 | 34 | 10 | ● | 702008.0 | 8.0 | 79 | 36 | ● |
| 702001.8 | 1.8 | 36 | 11 | ● | 702008.1 | 8.1 | 79 | 36 | ● |
| 702001.9 | 1.9 | 36 | 11 | ● | 702008.2 | 8.2 | 79 | 36 | ● |
| 702002.0 | 2.0 | 38 | 12 | ● | 702008.3 | 8.3 | 79 | 36 | ● |
| 702002.1 | 2.1 | 38 | 12 | ● | 702008.4 | 8.4 | 79 | 36 | ● |
| 702002.2 | 2.2 | 40 | 13 | ● | 702008.5 | 8.5 | 79 | 36 | ● |
| 702002.3 | 2.3 | 40 | 13 | ● | 702008.6 | 8.6 | 84 | 40 | ● |
| 702002.4 | 2.4 | 43 | 14 | ● | 702008.7 | 8.7 | 84 | 40 | ● |
| 702002.5 | 2.5 | 43 | 14 | ● | 702008.8 | 8.8 | 84 | 40 | ● |
| 702002.6 | 2.6 | 43 | 14 | ● | 702008.9 | 8.9 | 84 | 40 | ● |
| 702002.7 | 2.7 | 46 | 16 | ● | 702009.0 | 9.0 | 84 | 40 | ● |
| 702002.8 | 2.8 | 46 | 16 | ● | 702009.1 | 9.1 | 84 | 40 | ● |
| 702002.9 | 2.9 | 46 | 16 | ● | 702009.2 | 9.2 | 84 | 40 | ● |
| 702003.0 | 3.0 | 46 | 16 | ● | 702009.3 | 9.3 | 84 | 40 | ● |
| 702003.1 | 3.1 | 49 | 18 | ● | 702009.4 | 9.4 | 84 | 40 | ● |
| 702003.2 | 3.2 | 49 | 18 | ● | 702009.5 | 9.5 | 84 | 40 | ● |
| 702003.3 | 3.3 | 49 | 18 | ● | 702009.6 | 9.6 | 86 | 43 | ● |
| 702003.4 | 3.4 | 52 | 20 | ● | 702009.7 | 9.7 | 86 | 43 | ● |
| 702003.5 | 3.5 | 52 | 20 | ● | 702009.8 | 9.8 | 86 | 43 | ● |
| 702003.6 | 3.6 | 52 | 20 | ● | 702009.9 | 9.9 | 86 | 43 | ● |
| 702003.7 | 3.7 | 52 | 20 | ● | 702010.0 | 10.0 | 86 | 43 | ● |
| 702003.8 | 3.8 | 55 | 22 | ● | 702010.2 | 10.2 | 86 | 43 | ● |
| 702003.9 | 3.9 | 55 | 22 | ● | 702010.5 | 10.5 | 86 | 43 | ● |
| 702004.0 | 4.0 | 55 | 22 | ● | 702011.0 | 11.0 | 95 | 47 | ● |
| 702004.1 | 4.1 | 55 | 22 | ● | 702011.5 | 11.5 | 95 | 47 | ● |
| 702004.2 | 4.2 | 55 | 22 | ● | 702012.0 | 12.0 | 102 | 51 | ● |
| 702004.3 | 4.3 | 58 | 24 | ● | 702012.5 | 12.5 | 102 | 51 | ● |
| 702004.4 | 4.4 | 58 | 24 | ● | 702013.0 | 13.0 | 102 | 51 | ● |
| 702004.5 | 4.5 | 58 | 24 | ● | 702013.5 | 13.5 | 107 | 54 | ● |
| 702004.6 | 4.6 | 58 | 24 | ● | 702014.0 | 14.0 | 107 | 54 | ● |
| 702004.7 | 4.7 | 58 | 24 | ● | 702014.5 | 14.5 | 111 | 56 | ● |
| 702004.8 | 4.8 | 62 | 26 | ● | 702015.0 | 15.0 | 111 | 56 | ● |
| 702004.9 | 4.9 | 62 | 26 | ● | 702015.5 | 15.5 | 115 | 58 | ● |
| 702005.0 | 5.0 | 62 | 26 | ● | 702016.0 | 16.0 | 115 | 58 | ● |
| 702005.1 | 5.1 | 62 | 26 | ● | 702016.5 | 16.5 | 119 | 60 | ● |
| 702005.2 | 5.2 | 62 | 26 | ● | 702017.0 | 17.0 | 119 | 60 | ● |
| 702005.3 | 5.3 | 62 | 26 | ● | 702017.5 | 17.5 | 123 | 62 | ● |
| 702005.4 | 5.4 | 66 | 28 | ● | 702018.0 | 18.0 | 123 | 62 | ● |
| 702005.5 | 5.5 | 66 | 28 | ● | 702018.5 | 18.5 | 127 | 64 | ● |
| 702005.6 | 5.6 | 66 | 28 | ● | 702019.0 | 19.0 | 127 | 64 | ● |
| 702005.7 | 5.7 | 66 | 28 | ● | 702019.5 | 19.5 | 131 | 66 | ● |
| 702005.8 | 5.8 | 66 | 28 | ● | 702020.0 | 20.0 | 131 | 66 | ● |
| 702005.9 | 5.9 | 66 | 28 | ● | | | | | |
| 702006.0 | 6.0 | 66 | 28 | ● | | | | | |
| 702006.1 | 6.1 | 70 | 31 | ● | | | | | |
| 702006.2 | 6.2 | 70 | 31 | ● | | | | | |
| 702006.3 | 6.3 | 70 | 31 | ● | | | | | |
| 702006.4 | 6.4 | 70 | 31 | ● | | | | | |
| 702006.5 | 6.5 | 70 | 31 | ● | | | | | |
| 702006.6 | 6.6 | 70 | 31 | ● | | | | | |
| 702006.7 | 6.7 | 70 | 31 | ● | | | | | |



Characteristics:
 Hard-metal twist drills
 3 Flutes
 DIN 6539 3xD Z=3



☆ Not suitable ★ Suitable ⬤ Especially suitable

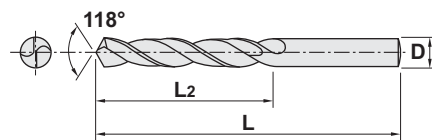
| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------|------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | <850 N/mm ² | >850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
 Only available in a limited quantity ○

| 7030 | | | | | 7030 | | | | |
|----------|-----|----|----|-----|----------|------|-----|----|-----|
| Ref. | D | L | L2 | K10 | Ref. | D | L | L2 | K10 |
| 703003.0 | 3.0 | 46 | 16 | ● | 703009.3 | 9.3 | 84 | 40 | ○ |
| 703003.1 | 3.1 | 49 | 18 | ○ | 703009.4 | 9.4 | 84 | 40 | ○ |
| 703003.2 | 3.2 | 49 | 18 | ○ | 703009.5 | 9.5 | 84 | 40 | ○ |
| 703003.3 | 3.3 | 49 | 18 | ○ | 703009.6 | 9.6 | 89 | 43 | ○ |
| 703003.4 | 3.4 | 52 | 20 | ○ | 703009.7 | 9.7 | 89 | 43 | ○ |
| 703003.5 | 3.5 | 52 | 20 | ○ | 703009.8 | 9.8 | 89 | 43 | ○ |
| 703003.6 | 3.6 | 52 | 20 | ○ | 703009.9 | 9.9 | 89 | 43 | ○ |
| 703003.7 | 3.7 | 52 | 20 | ○ | 703010.0 | 10.0 | 89 | 43 | ● |
| 703003.8 | 3.8 | 55 | 22 | ○ | 703010.2 | 10.2 | 89 | 43 | ○ |
| 703003.9 | 3.9 | 55 | 22 | ○ | 703010.5 | 10.5 | 89 | 43 | ○ |
| 703004.0 | 4.0 | 55 | 22 | ● | 703011.0 | 11.0 | 95 | 47 | ● |
| 703004.1 | 4.1 | 55 | 22 | ○ | 703011.5 | 11.5 | 95 | 47 | ○ |
| 703004.2 | 4.2 | 55 | 22 | ○ | 703012.0 | 12.0 | 102 | 51 | ● |
| 703004.3 | 4.3 | 58 | 24 | ○ | 703012.5 | 12.5 | 102 | 51 | ○ |
| 703004.4 | 4.4 | 58 | 24 | ○ | 703013.0 | 13.0 | 102 | 51 | ● |
| 703004.5 | 4.5 | 58 | 24 | ○ | 703013.5 | 13.5 | 107 | 54 | ○ |
| 703004.6 | 4.6 | 58 | 24 | ○ | 703014.0 | 14.0 | 107 | 54 | ● |
| 703004.7 | 4.7 | 58 | 24 | ○ | 703014.5 | 14.5 | 111 | 56 | ○ |
| 703004.8 | 4.8 | 62 | 26 | ○ | 703015.0 | 15.0 | 111 | 56 | ● |
| 703004.9 | 4.9 | 62 | 26 | ○ | 703015.5 | 15.5 | 115 | 58 | ○ |
| 703005.0 | 5.0 | 62 | 26 | ● | 703016.0 | 16.0 | 115 | 58 | ● |
| 703005.1 | 5.1 | 62 | 26 | ○ | 703016.5 | 16.5 | 119 | 60 | ○ |
| 703005.2 | 5.2 | 62 | 26 | ○ | 703017.0 | 17.0 | 119 | 60 | ● |
| 703005.3 | 5.3 | 62 | 26 | ○ | 703017.5 | 17.5 | 123 | 62 | ○ |
| 703005.4 | 5.4 | 66 | 28 | ○ | 703018.0 | 18.0 | 123 | 62 | ● |
| 703005.5 | 5.5 | 66 | 28 | ○ | 703018.5 | 18.5 | 127 | 64 | ○ |
| 703005.6 | 5.6 | 66 | 28 | ○ | 703019.0 | 19.0 | 127 | 64 | ● |
| 703005.7 | 5.7 | 66 | 28 | ○ | 703019.5 | 19.5 | 131 | 66 | ○ |
| 703005.8 | 5.8 | 66 | 28 | ○ | 703020.0 | 20.0 | 131 | 66 | ● |
| 703005.9 | 5.9 | 66 | 28 | ○ | | | | | |
| 703006.0 | 6.0 | 66 | 28 | ● | | | | | |
| 703006.1 | 6.1 | 70 | 31 | ○ | | | | | |
| 703006.2 | 6.2 | 70 | 31 | ○ | | | | | |
| 703006.3 | 6.3 | 70 | 31 | ○ | | | | | |
| 703006.4 | 6.4 | 70 | 31 | ○ | | | | | |
| 703006.5 | 6.5 | 70 | 31 | ○ | | | | | |
| 703006.6 | 6.6 | 70 | 31 | ○ | | | | | |
| 703006.7 | 6.7 | 70 | 31 | ○ | | | | | |
| 703006.8 | 6.8 | 74 | 34 | ○ | | | | | |
| 703006.9 | 6.9 | 74 | 34 | ○ | | | | | |
| 703007.0 | 7.0 | 74 | 34 | ● | | | | | |
| 703007.1 | 7.1 | 74 | 34 | ○ | | | | | |
| 703007.2 | 7.2 | 74 | 34 | ○ | | | | | |
| 703007.3 | 7.3 | 74 | 34 | ○ | | | | | |
| 703007.4 | 7.4 | 74 | 34 | ○ | | | | | |
| 703007.5 | 7.5 | 74 | 34 | ○ | | | | | |
| 703007.6 | 7.6 | 79 | 36 | ○ | | | | | |
| 703007.7 | 7.7 | 79 | 36 | ○ | | | | | |
| 703007.8 | 7.8 | 79 | 36 | ○ | | | | | |
| 703007.9 | 7.9 | 79 | 36 | ○ | | | | | |
| 703008.0 | 8.0 | 79 | 36 | ● | | | | | |
| 703008.1 | 8.1 | 79 | 36 | ○ | | | | | |
| 703008.2 | 8.2 | 79 | 36 | ○ | | | | | |
| 703008.3 | 8.3 | 79 | 36 | ○ | | | | | |
| 703008.4 | 8.4 | 79 | 36 | ○ | | | | | |
| 703008.5 | 8.5 | 79 | 36 | ○ | | | | | |
| 703008.6 | 8.6 | 84 | 40 | ○ | | | | | |
| 703008.7 | 8.7 | 84 | 40 | ○ | | | | | |
| 703008.8 | 8.8 | 84 | 40 | ○ | | | | | |
| 703008.9 | 8.9 | 84 | 40 | ○ | | | | | |
| 703009.0 | 9.0 | 84 | 40 | ● | | | | | |
| 703009.1 | 9.1 | 84 | 40 | ○ | | | | | |
| 703009.2 | 9.2 | 84 | 40 | ○ | | | | | |

Solid carbide
 Drills
 Boring heads
 Arbors and adaptors

Characteristics:
Hard-metal twist drills 2 flutes
(Long)
DIN 338 5xD Z=2



☆ Not suitable
★ Suitable
⬢ Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

● Normally available for immediate delivery
○ Only available in a limited quantity

7120

| Ref. | D | L | L2 | K10 | Ref. | D | L | L2 | K10 |
|----------|-----|-----|----|-----|----------|------|-----|-----|-----|
| 712001.0 | 1.0 | 34 | 12 | ● | 712007.3 | 7.3 | 109 | 69 | ○ |
| 712001.1 | 1.1 | 36 | 14 | ○ | 712007.4 | 7.4 | 109 | 69 | ○ |
| 712001.2 | 1.2 | 38 | 16 | ○ | 712007.5 | 7.5 | 109 | 69 | ○ |
| 712001.3 | 1.3 | 38 | 16 | ● | 712007.6 | 7.6 | 117 | 75 | ○ |
| 712001.4 | 1.4 | 40 | 18 | ○ | 712007.7 | 7.7 | 117 | 75 | ○ |
| 712001.5 | 1.5 | 40 | 18 | ○ | 712007.8 | 7.8 | 117 | 75 | ○ |
| 712001.6 | 1.6 | 43 | 20 | ○ | 712007.9 | 7.9 | 117 | 75 | ○ |
| 712001.7 | 1.7 | 43 | 20 | ○ | 712008.0 | 8.0 | 117 | 75 | ● |
| 712001.8 | 1.8 | 46 | 22 | ○ | 712008.1 | 8.1 | 117 | 75 | ○ |
| 712001.9 | 1.9 | 46 | 22 | ○ | 712008.2 | 8.2 | 117 | 75 | ○ |
| 712002.0 | 2.0 | 49 | 24 | ● | 712008.3 | 8.3 | 117 | 75 | ○ |
| 712002.1 | 2.1 | 49 | 24 | ○ | 712008.4 | 8.4 | 117 | 75 | ○ |
| 712002.2 | 2.2 | 53 | 27 | ○ | 712008.5 | 8.5 | 117 | 75 | ○ |
| 712002.3 | 2.3 | 53 | 27 | ○ | 712008.6 | 8.6 | 125 | 81 | ○ |
| 712002.4 | 2.4 | 57 | 30 | ○ | 712008.7 | 8.7 | 125 | 81 | ○ |
| 712002.5 | 2.5 | 57 | 30 | ○ | 712008.8 | 8.8 | 125 | 81 | ○ |
| 712002.6 | 2.6 | 57 | 30 | ○ | 712008.9 | 8.9 | 125 | 81 | ○ |
| 712002.7 | 2.7 | 60 | 33 | ○ | 712009.0 | 9.0 | 125 | 81 | ● |
| 712002.8 | 2.8 | 60 | 33 | ○ | 712009.1 | 9.1 | 125 | 81 | ○ |
| 712002.9 | 2.9 | 60 | 33 | ○ | 712009.2 | 9.2 | 125 | 81 | ○ |
| 712003.0 | 3.0 | 60 | 33 | ● | 712009.3 | 9.3 | 125 | 81 | ○ |
| 712003.1 | 3.1 | 65 | 33 | ○ | 712009.4 | 9.4 | 125 | 81 | ○ |
| 712003.2 | 3.2 | 65 | 36 | ○ | 712009.5 | 9.5 | 125 | 81 | ○ |
| 712003.3 | 3.3 | 65 | 36 | ○ | 712009.6 | 9.6 | 133 | 87 | ○ |
| 712003.4 | 3.4 | 70 | 36 | ○ | 712009.7 | 9.7 | 133 | 87 | ○ |
| 712003.5 | 3.5 | 70 | 39 | ○ | 712009.8 | 9.8 | 133 | 87 | ○ |
| 712003.6 | 3.6 | 70 | 39 | ○ | 712009.9 | 9.9 | 133 | 87 | ○ |
| 712003.7 | 3.7 | 70 | 39 | ○ | 712010.0 | 10.0 | 133 | 87 | ● |
| 712003.8 | 3.8 | 75 | 43 | ○ | 712010.2 | 10.2 | 133 | 87 | ○ |
| 712003.9 | 3.9 | 75 | 43 | ○ | 712010.5 | 10.5 | 133 | 87 | ○ |
| 712004.0 | 4.0 | 75 | 43 | ● | 712010.8 | 10.8 | 142 | 94 | ○ |
| 712004.1 | 4.1 | 75 | 43 | ○ | 712011.0 | 11.0 | 142 | 94 | ● |
| 712004.2 | 4.2 | 75 | 43 | ○ | 712011.5 | 11.5 | 142 | 94 | ○ |
| 712004.3 | 4.3 | 80 | 47 | ○ | 712012.0 | 12.0 | 151 | 101 | ● |
| 712004.4 | 4.4 | 80 | 47 | ○ | 712012.5 | 12.5 | 151 | 101 | ○ |
| 712004.5 | 4.5 | 80 | 47 | ○ | 712013.0 | 13.0 | 151 | 101 | ● |
| 712004.6 | 4.6 | 80 | 47 | ○ | 712013.5 | 13.5 | 160 | 108 | ○ |
| 712004.7 | 4.7 | 80 | 47 | ○ | 712014.0 | 14.0 | 160 | 108 | ● |
| 712004.8 | 4.8 | 86 | 52 | ○ | 712014.5 | 14.5 | 169 | 114 | ○ |
| 712004.9 | 4.9 | 86 | 52 | ○ | 712015.0 | 15.0 | 169 | 114 | ● |
| 712005.0 | 5.0 | 86 | 52 | ● | 712015.5 | 15.5 | 178 | 120 | ○ |
| 712005.1 | 5.1 | 86 | 52 | ○ | 712016.0 | 16.0 | 178 | 120 | ● |
| 712005.2 | 5.2 | 86 | 52 | ○ | | | | | |
| 712005.3 | 5.3 | 86 | 52 | ○ | | | | | |
| 712005.4 | 5.4 | 93 | 57 | ○ | | | | | |
| 712005.5 | 5.5 | 93 | 57 | ○ | | | | | |
| 712005.6 | 5.6 | 93 | 57 | ○ | | | | | |
| 712005.7 | 5.7 | 93 | 57 | ○ | | | | | |
| 712005.8 | 5.8 | 93 | 57 | ○ | | | | | |
| 712005.9 | 5.9 | 93 | 57 | ○ | | | | | |
| 712006.0 | 6.0 | 93 | 57 | ● | | | | | |
| 712006.1 | 6.1 | 101 | 63 | ○ | | | | | |
| 712006.2 | 6.2 | 101 | 63 | ○ | | | | | |
| 712006.3 | 6.3 | 101 | 63 | ○ | | | | | |
| 712006.4 | 6.4 | 101 | 63 | ○ | | | | | |
| 712006.5 | 6.5 | 101 | 63 | ○ | | | | | |
| 712006.6 | 6.6 | 101 | 63 | ○ | | | | | |
| 712006.7 | 6.7 | 101 | 63 | ○ | | | | | |
| 712006.8 | 6.8 | 109 | 69 | ○ | | | | | |
| 712006.9 | 6.9 | 109 | 69 | ○ | | | | | |
| 712007.0 | 7.0 | 109 | 69 | ● | | | | | |
| 712007.1 | 7.1 | 109 | 69 | ○ | | | | | |
| 712007.2 | 7.2 | 109 | 69 | ○ | | | | | |

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

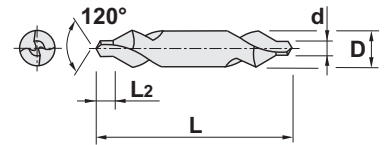
Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide

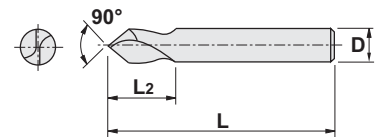
Characteristics:
Solid carbide center drill.



☆ Not suitable ★ Suitable ⬠ Especially suitable

| 80 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-----------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|--|--|--|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | | | | | | | | | | | |
| | | D | d | L | L2 | K10 | TiN | TiCN | TiAlN | | | | | | | | |
| Ref. | 800000.80 | 3,15 | 0,80 | 38 | 1,3 | ● | | | | | | | | | | | |
| | 800001.00 | 3,15 | 1,00 | 38 | 1,6 | ● | | | | | | | | | | | |
| | 800001.25 | 3,15 | 1,25 | 38 | 1,9 | ● | | | | | | | | | | | |
| | 800001.60 | 4,00 | 1,60 | 38 | 2,4 | ● | | | | | | | | | | | |
| | 800002.00 | 5,00 | 2,00 | 50 | 2,9 | ● | | | | | | | | | | | |
| | 800002.50 | 6,00 | 2,50 | 50 | 3,6 | ● | | | | | | | | | | | |
| | 800003.15 | 8,00 | 3,15 | 60 | 4,4 | ○ | | | | | | | | | | | |
| | 800004.00 | 10,00 | 4,00 | 60 | 5,6 | ○ | | | | | | | | | | | |
| | 800005.00 | 12,00 | 5,00 | 60 | 6,0 | ○ | | | | | | | | | | | |

Characteristics:
Solid carbide center drill for C.N.C.
90°



☆ Not suitable ★ Suitable ⬠ Especially suitable

| 81 | | Steels | | | | | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|--------|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|---|--|--|--|
| | | <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | | | | | | | | | | | |
| | | D | L | L2 | K10 | TiN | TiCN | TiAlN | | | | | | | | | |
| Ref. | 810006 | 6 | 50 | 16 | ● | | | | | | | | | | | | |
| | 810008 | 8 | 60 | 20 | ● | | | | | | | | | | | | |
| | 810010 | 10 | 70 | 22 | ● | | | | | | | | | | | | |
| | 810012 | 12 | 70 | 22 | ● | | | | | | | | | | | | |
| | 810014 | 14 | 75 | 25 | ○ | | | | | | | | | | | | |
| | 810016 | 16 | 80 | 25 | ○ | | | | | | | | | | | | |
| | 810020 | 20 | 100 | 30 | ○ | | | | | | | | | | | | |

Solid carbide
Drills
Boring heads
Arbors and adaptors

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

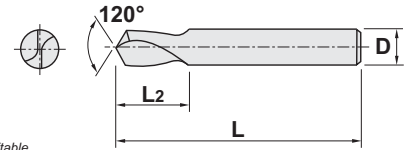
Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide

Characteristics:
Solid carbide center drill for C.N.C.
120°



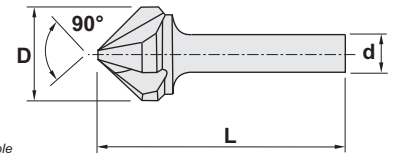
☆ Not suitable ★ Suitable ⬤ Especially suitable

| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 82 | | D | L | L2 | K10 | TiN | TiCN | TiAlN |
|------|--------|----|-----|----|-----|-----|------|-------|
| Ref. | 820006 | 6 | 50 | 16 | ● | | | |
| | 820008 | 8 | 60 | 20 | ● | | | |
| | 820010 | 10 | 70 | 22 | ● | | | |
| | 820012 | 12 | 70 | 22 | ● | | | |
| | 820014 | 14 | 75 | 25 | ○ | | | |
| | 820016 | 16 | 80 | 25 | ○ | | | |
| | 820020 | 20 | 100 | 30 | ○ | | | |

Characteristics:
Solid carbide countersinks 3 flutes.



☆ Not suitable ★ Suitable ⬤ Especially suitable

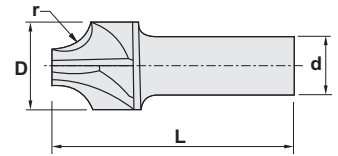
| Steels | | | | | INOX < | INOX > | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|------------------------------|------------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | INOX < 850 N/mm ² | INOX > 850 N/mm ² | CAST IRON | Ti | Cu, Ms | Al | Plastics |
| ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ | ★ |

Normally available for immediate delivery ●
Only available in a limited quantity ○

| 83 | | D | d | L | z | K10 | TiN | TiCN | TiAlN |
|------|----------|------|----|----|---|-----|-----|------|-------|
| Ref. | 833005.3 | 5,3 | 6 | 50 | 3 | ○ | | | |
| | 833005.8 | 5,8 | 6 | 50 | 3 | ○ | | | |
| | 833006.3 | 6,3 | 6 | 50 | 3 | ○ | | | |
| | 833007.3 | 7,3 | 6 | 50 | 3 | ○ | | | |
| | 833008.3 | 8,3 | 6 | 50 | 3 | ○ | | | |
| | 833009.4 | 9,4 | 8 | 50 | 3 | ○ | | | |
| | 833010.4 | 10,4 | 6 | 50 | 3 | ○ | | | |
| | 833012.4 | 12,4 | 8 | 56 | 3 | ○ | | | |
| | 833013.4 | 13,4 | 8 | 60 | 3 | ○ | | | |
| | 833014.4 | 14,4 | 8 | 60 | 3 | ○ | | | |
| | 833016.5 | 16,4 | 10 | 60 | 3 | ○ | | | |
| | 833019.5 | 19,5 | 10 | 60 | 3 | ○ | | | |
| | 833020.5 | 20,5 | 10 | 60 | 3 | ○ | | | |
| | 833025.0 | 25,0 | 10 | 67 | 3 | ○ | | | |
| | 833031.0 | 31,0 | 12 | 71 | 3 | ○ | | | |



Characteristics:
Solid carbide countersinks with radius.



☆ Not suitable ★ Suitable ⬤ Especially suitable

| Steels | | | | | INOX | INOX | CAST IRON | Ti | Cu, Ms | Al | Plastics |
|------------------------|------------------------|--------------------------|--------------------------|---------|-------------------------|-------------------------|-----------|----|--------|----|----------|
| <400 N/mm ² | <850 N/mm ² | <1.100 N/mm ² | <1.300 N/mm ² | >45 HRC | < 850 N/mm ² | > 850 N/mm ² | | | | | |
| ⬤ | ⬤ | ⬤ | ★ | ★ | ⬤ | ★ | ⬤ | ★ | ★ | ⬤ | ★ |

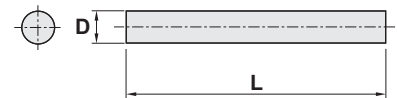
Normally available for immediate delivery ●
Only available in a limited quantity ○

84

| Ref. | D | d | r | L | z | K10 | TiN | TiCN | TiAlN |
|-----------|------|----|-------|----|---|-----|-----|------|-------|
| 844001.00 | 8,0 | 8 | 1,00 | 50 | 4 | ● | | | |
| 844001.25 | 8,0 | 8 | 1,25 | 50 | 4 | ○ | | | |
| 844001.50 | 10,0 | 10 | 1,50 | 50 | 4 | ○ | | | |
| 844001.75 | 10,0 | 10 | 1,75 | 50 | 4 | ○ | | | |
| 844002.00 | 12,0 | 12 | 2,00 | 50 | 4 | ● | | | |
| 844002.25 | 12,0 | 12 | 2,25 | 50 | 4 | ○ | | | |
| 844002.50 | 12,0 | 12 | 2,50 | 50 | 4 | ○ | | | |
| 844003.00 | 14,0 | 12 | 3,00 | 55 | 4 | ● | | | |
| 844003.50 | 16,0 | 12 | 3,50 | 55 | 4 | ○ | | | |
| 844004.00 | 16,0 | 12 | 4,00 | 60 | 4 | ● | | | |
| 844004.50 | 18,0 | 12 | 4,50 | 60 | 4 | ○ | | | |
| 844005.50 | 20,0 | 16 | 5,00 | 65 | 4 | ● | | | |
| 844006.00 | 21,0 | 16 | 6,00 | 65 | 4 | ● | | | |
| 844008.00 | 26,5 | 20 | 8,00 | 70 | 4 | ● | | | |
| 844010.00 | 32,0 | 20 | 10,00 | 70 | 4 | ○ | | | |
| 844012.00 | 38,0 | 20 | 12,00 | 75 | 6 | ○ | | | |



Characteristics:
Centerless ground carbide.



85

Normally available for immediate delivery ●
Only available in a limited quantity ○

| Ref. | D | L | K10 | TiN | TiCN | TiAlN |
|--------|----|-----|-----|-----|------|-------|
| 850002 | 2 | 100 | ● | | | |
| 850003 | 3 | 100 | ● | | | |
| 850004 | 4 | 100 | ● | | | |
| 850005 | 5 | 100 | ● | | | |
| 850006 | 6 | 100 | ● | | | |
| 850007 | 7 | 100 | ● | | | |
| 850008 | 8 | 100 | ● | | | |
| 850009 | 9 | 100 | ● | | | |
| 850010 | 10 | 100 | ● | | | |
| 850012 | 12 | 100 | ● | | | |
| 850014 | 14 | 100 | ○ | | | |
| 850016 | 16 | 100 | ○ | | | |
| 850018 | 18 | 100 | ○ | | | |
| 850020 | 20 | 100 | ○ | | | |

- Solid carbide
- Drills
- Boring heads
- Arbors and adaptors

Inserts

Face milling cutters

Square shoulder cutters

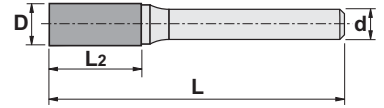
Slot cutters

Porcupine cutters

Specific applications and Sets

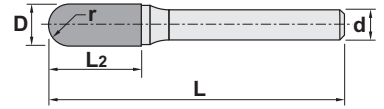
Profile milling

Solid carbide



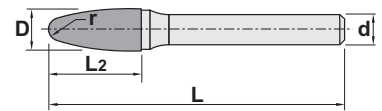
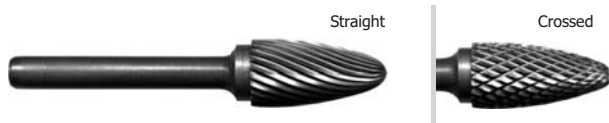
| 900 | | Characteristics: Cylindrical - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|-------|--|---|---|----|----|---|---|-----|------|-------|
| Ref. | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| 90003 | | 3 | 3 | 40 | 14 | - | ● | | | |
| 90006 | | 6 | 3 | 44 | 14 | - | ● | | | |
| 90008 | | 8 | 6 | 63 | 18 | - | ● | | | |
| 90010 | | 10 | 6 | 65 | 20 | - | ● | | | |
| 90012 | | 12 | 6 | 70 | 25 | - | ● | | | |
| 90016 | | 16 | 6 | 70 | 25 | - | ● | | | |

| 901 | | Characteristics: Cylindrical - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|-------|--|--|---|----|----|---|---|-----|------|-------|
| Ref. | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| 90106 | | 6 | 3 | 44 | 14 | - | ● | | | |
| 90108 | | 8 | 6 | 63 | 18 | - | ● | | | |
| 90110 | | 10 | 6 | 65 | 20 | - | ● | | | |
| 90112 | | 12 | 6 | 70 | 25 | - | ● | | | |
| 90116 | | 16 | 8 | 70 | 25 | - | ● | | | |



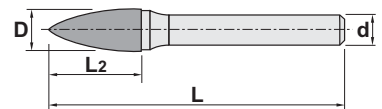
| 910 | | Characteristics: Cylindrical round top - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|-------|--|---|---|----|----|-----|---|-----|------|-------|
| Ref. | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| 91003 | | 3 | 3 | 40 | 14 | 1,5 | ● | | | |
| 91006 | | 6 | 3 | 44 | 14 | 3,0 | ● | | | |
| 91008 | | 8 | 6 | 63 | 18 | 4,0 | ● | | | |
| 91010 | | 10 | 6 | 65 | 20 | 5,0 | ● | | | |
| 91012 | | 12 | 6 | 70 | 25 | 6,0 | ● | | | |
| 91016 | | 16 | 8 | 70 | 25 | 8,0 | ● | | | |

| 911 | | Characteristics: Cylindrical round top - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|-------|--|--|---|----|----|-----|---|-----|------|-------|
| Ref. | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| 91106 | | 6 | 3 | 44 | 14 | 3,0 | ● | | | |
| 91108 | | 8 | 6 | 63 | 18 | 4,0 | ● | | | |
| 91110 | | 10 | 6 | 65 | 20 | 5,0 | ● | | | |
| 91112 | | 12 | 6 | 70 | 25 | 6,0 | ● | | | |
| 91116 | | 16 | 8 | 70 | 25 | 8,0 | ● | | | |



| 920 | | Characteristics: Tree radius nose - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|--|---|----|----|-----|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 92003 | 3 | 3 | 40 | 12 | 0,8 | ● | | | |
| | 92006 | 6 | 3 | 44 | 14 | 1,5 | ● | | | |
| | 92008 | 8 | 6 | 61 | 16 | 2,0 | ● | | | |
| | 92010 | 10 | 6 | 65 | 20 | 2,5 | ● | | | |
| | 92012 | 12 | 6 | 70 | 25 | 3,0 | ● | | | |
| | 92016 | 16 | 8 | 70 | 25 | 5,0 | ● | | | |

| 921 | | Characteristics: Tree radius nose - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|---|---|----|----|-----|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 92106 | 6 | 3 | 44 | 14 | 1,5 | ● | | | |
| | 92108 | 8 | 6 | 61 | 16 | 2,0 | ● | | | |
| | 92110 | 10 | 6 | 65 | 20 | 2,5 | ● | | | |
| | 92112 | 12 | 6 | 70 | 25 | 3,0 | ● | | | |
| | 92116 | 16 | 8 | 70 | 25 | 5,0 | ● | | | |



| 930 | | Characteristics: Tree pointed - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|--|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 93003 | 3 | 3 | 40 | 12 | - | ● | | | |
| | 93006 | 6 | 3 | 44 | 14 | - | ● | | | |
| | 93008 | 8 | 6 | 62 | 16 | - | ● | | | |
| | 93010 | 10 | 6 | 65 | 20 | - | ● | | | |
| | 93012 | 12 | 6 | 70 | 25 | - | ● | | | |
| | 93016 | 16 | 8 | 72 | 27 | - | ● | | | |

| 931 | | Characteristics: Tree pointed - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|---|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 93106 | 6 | 3 | 44 | 14 | - | ● | | | |
| | 93108 | 8 | 6 | 62 | 16 | - | ● | | | |
| | 93110 | 10 | 6 | 65 | 20 | - | ● | | | |
| | 93112 | 12 | 6 | 70 | 25 | - | ● | | | |
| | 93116 | 16 | 8 | 72 | 27 | - | ● | | | |

Solid carbide
Drills
Boring heads
Arbors and adaptors

Inserts

Face milling cutters

Square shoulder cutters

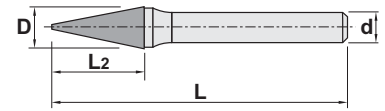
Slot cutters

Porcupine cutters

Specific applications and Sets

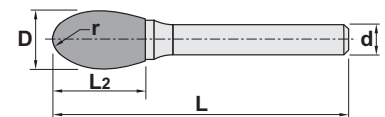
Profile milling

Solid carbide



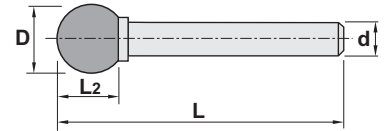
| | | Characteristics: Cone - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|--------------|----------------------------------|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 94003 | 3 | 3 | 50 | 12 | - | ● | | | |
| | 94006 | 6 | 3 | 44 | 14 | - | ● | | | |
| | 94008 | 8 | 6 | 62 | 16 | - | ● | | | |
| | 94010 | 10 | 6 | 63 | 18 | - | ● | | | |
| | 94012 | 12 | 6 | 65 | 20 | - | ● | | | |
| | 94016 | 16 | 8 | 70 | 25 | - | ● | | | |

| | | Characteristics: Cone - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|--------------|---------------------------------|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 94106 | 6 | 3 | 44 | 14 | - | ● | | | |
| | 94108 | 8 | 6 | 62 | 16 | - | ● | | | |
| | 94110 | 10 | 6 | 63 | 18 | - | ● | | | |
| | 94112 | 12 | 6 | 65 | 20 | - | ● | | | |
| | 94116 | 16 | 8 | 70 | 25 | - | ● | | | |



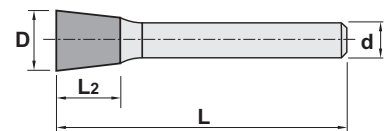
| | | Characteristics: Olive (Egg) - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|--------------|---|---|----|----|-----|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 95003 | 3 | 3 | 40 | 6 | 1,2 | ● | | | |
| | 95006 | 6 | 3 | 39 | 9 | 2,5 | ● | | | |
| | 95008 | 8 | 6 | 59 | 14 | 3,7 | ● | | | |
| | 95010 | 10 | 6 | 61 | 16 | 4,0 | ● | | | |
| | 95012 | 12 | 6 | 65 | 20 | 5,0 | ● | | | |
| | 95016 | 16 | 8 | 70 | 25 | 6,5 | ● | | | |

| | | Characteristics: Olive (Egg) - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|--------------|--|---|----|----|-----|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 95106 | 6 | 3 | 39 | 9 | 2,5 | ● | | | |
| | 95108 | 8 | 6 | 59 | 14 | 3,7 | ● | | | |
| | 95110 | 10 | 6 | 61 | 16 | 4,0 | ● | | | |
| | 95112 | 12 | 6 | 65 | 20 | 5,0 | ● | | | |
| | 95116 | 16 | 8 | 70 | 25 | 6,5 | ● | | | |



| 960 | | Characteristics: Ball - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|----------------------------------|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 96003 | 3 | 3 | 40 | 3 | - | ● | | | |
| | 96006 | 6 | 3 | 35 | 5 | - | ● | | | |
| | 96008 | 8 | 6 | 52 | 7 | - | ● | | | |
| | 96010 | 10 | 6 | 54 | 9 | - | ● | | | |
| | 96012 | 12 | 6 | 56 | 11 | - | ● | | | |
| | 96016 | 16 | 8 | 59 | 14 | - | ● | | | |

| 961 | | Characteristics: Ball - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|---------------------------------|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 96106 | 6 | 3 | 35 | 5 | - | ● | | | |
| | 96108 | 8 | 6 | 52 | 7 | - | ● | | | |
| | 96110 | 10 | 6 | 54 | 9 | - | ● | | | |
| | 96112 | 12 | 6 | 56 | 11 | - | ● | | | |
| | 96116 | 16 | 8 | 59 | 14 | - | ● | | | |

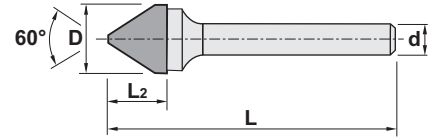


| 970 | | Characteristics: Inverted cone - Straight | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|---|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 97003 | 3 | 3 | 40 | 3 | - | ● | | | |
| | 97006 | 6 | 3 | 36 | 6 | - | ● | | | |
| | 97008 | 8 | 6 | 53 | 8 | - | ● | | | |
| | 97010 | 10 | 6 | 55 | 10 | - | ● | | | |
| | 97012 | 12 | 6 | 57 | 12 | - | ● | | | |
| | 97016 | 16 | 8 | 60 | 15 | - | ● | | | |

| 971 | | Characteristics: Inverted cone - Crossed | | | | | Normally available for immediate delivery ● Only available in a limited quantity ○ | | | |
|------|-------|--|---|----|----|---|---|-----|------|-------|
| | | D | d | L | L2 | r | K10 | TiN | TiCN | TiAlN |
| Ref. | 97106 | 6 | 3 | 36 | 6 | - | ● | | | |
| | 97108 | 8 | 6 | 53 | 8 | - | ● | | | |
| | 97110 | 10 | 6 | 55 | 10 | - | ● | | | |
| | 97112 | 12 | 6 | 57 | 12 | - | ● | | | |
| | 97116 | 16 | 8 | 60 | 15 | - | ● | | | |

Solid carbide
Drills
Boring heads
Arbors and adaptors

Inserts



Face milling cutters

98

Characteristics: Deburring 60°

Normally available for immediate delivery ●

Only available in a limited quantity ○

| Ref. | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|-------|----|---|----|----|-----|-----|------|-------|
| 98006 | 6 | 3 | 50 | 6 | ● | | | |
| 98008 | 8 | 6 | 53 | 8 | ● | | | |
| 98010 | 10 | 6 | 55 | 10 | ● | | | |
| 98012 | 12 | 6 | 57 | 12 | ● | | | |
| 98016 | 16 | 6 | 61 | 16 | ● | | | |

Square shoulder cutters

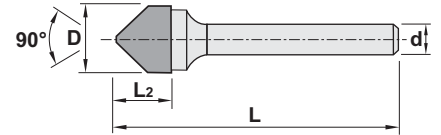
Slot cutters

Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide



99

Characteristics: Deburring 90°

Normally available for immediate delivery ●

Only available in a limited quantity ○

| Ref. | D | d | L | L2 | K10 | TiN | TiCN | TiAlN |
|-------|----|---|----|----|-----|-----|------|-------|
| 99006 | 6 | 6 | 50 | 6 | ● | | | |
| 99008 | 8 | 6 | 53 | 8 | ● | | | |
| 99010 | 10 | 6 | 55 | 10 | ● | | | |
| 99012 | 12 | 6 | 57 | 12 | ● | | | |
| 99016 | 16 | 6 | 61 | 16 | ● | | | |



| |
|---------------------|
| Solid carbide |
| Drills |
| Boring heads |
| Arbors and adaptors |

Inserts

Face milling cutters

Square shoulder cutters

Slot cutters

Porcupine cutters

Specific applications and Sets

Profile milling

Solid carbide

Cutting data for solid carbide

| Material | Condition | Feed rate S=mm/2 Ø | | | | | | Coolant | Cutting speed m/min |
|------------------------------|-------------|--------------------------|-------|------|-------|-------|-------|-------------------------|------------------------|
| | | 2-3 | 4-6 | 7-10 | 11-15 | 16-20 | 21-32 | | |
| Structural steel | R.400/600 | 0.015 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | Emulsion | 60-80 |
| | R.600/1000 | 0.01 | 0.015 | 0.02 | 0.03 | 0.04 | 0.06 | | 40-60 |
| | R.1000/1400 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.06 | | 30-50 |
| Tool steel | HB 230 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.06 | Emulsion | 30-50 |
| | HB 230/285 | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.06 | | 30-40 |
| Stainless steel | Cr. Mo | 0.01 | 0.01 | 0.02 | 0.03 | 0.04 | 0.04 | Emulsion cutting oil | 30-50 |
| | Cr. Ni | 0.01 | 0.01 | 0.02 | 0.02 | 0.03 | 0.05 | | 20-40 |
| Semi-steel | To 220 | 0.01 | 0.02 | 0.04 | 0.06 | 0.07 | 0.09 | Dry-emulsion | 80-100 |
| Malleable cast iron | Over 220 | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | Dry-emulsion | 60-90 |
| Cast steel | R. 800 | 0.01 | 0.02 | 0.03 | 0.04 | 0.05 | 0.07 | Emulsion | 70-130 |
| Titanium and titanium alloys | 456 | 0.01 | 0.02 | 0.02 | 0.03 | 0.04 | 0.06 | Emulsion | 30-60 |
| Aluminium & alloys | 10% SI | 0.02 | 0.03 | 0.05 | 0.07 | 0.10 | 0.12 | Emulsion | 500-800 |
| | 18% SI | 0.01 | 0.02 | 0.03 | 0.05 | 0.07 | 0.10 | | 250-500 |
| Brass, copper, bronze | 456 | 0.01 | 0.02 | 0.03 | 0.05 | 0.07 | 0.10 | Dry-emulsion | 140-250 |
| Layered plastics | 456 | 0.02 | 0.03 | 0.05 | 0.07 | 0.10 | 0.13 | Dry with suction | 100-200 |

Cutting data for solid carbide drills

| Material | Condition | Feed rate S=mm/2 Ø | | | | Coolant | Cutting speed m/min |
|----------------------------|---|--------------------------|-----------|-----------|-----------|-------------------------|------------------------------------|
| | | 1 - 3 | 4 - 7 | 8 - 13 | 14 - 20 | | |
| Structural steel | R.800 R.800-1000 R.1000-1200 R.1200-1400 | 0.01-0.03 | 0.02-0.05 | 0.05-0.08 | 0.08-0.12 | Emulsion | 80-100 70-100 60-90 50-70 |
| | | 0.01-0.03 | 0.02-0.04 | 0.04-0.07 | 0.07-0.10 | | |
| | | 0.01-0.02 | 0.02-0.03 | 0.03-0.06 | 0.06-0.08 | | |
| | | 0.01-0.02 | 0.02-0.03 | 0.03-0.04 | 0.04-0.06 | | |
| Tool steel HRC 20/30 | HB 230 HB 230/285 | 0.01-0.02 | 0.02-0.03 | 0.03-0.06 | 0.06-0.08 | Emulsion | 30-40 20-30 |
| | | 0.01-0.02 | 0.02-0.03 | 0.03-0.04 | 0.04-0.07 | | |
| Steel HRC 50 | | 0.005-0.01 | 0.01-0.02 | 0.02-0.03 | 0.03 | Emulsion | 8-12 |
| Stainless steel | To 230 | 0.01-0.02 | 0.02-0.05 | 0.05-0.08 | 0.08-0.10 | Emulsion | 25-40 |
| Semi-steel | To 285 | 0.02 | 0.03-0.06 | 0.06-0.09 | 0.10-0.16 | Dry | 60-90 |
| Malleable cast iron | R. 700 | 0.02 | 0.02-0.04 | 0.04-0.08 | 0.09-0.15 | Dry | 70-100 |
| Cast steel | | 0.01-0.02 | 0.02-0.05 | 0.05-0.08 | 0.08-0.14 | Emulsion | 60-90 |
| Titanium & titanium alloys | | 0.005-0.01 | 0.01-0.03 | 0.04-0.08 | 0.8-0.10 | Emulsion cutting oil | 30-60 |
| Aluminium & alloys | 10% SI | 0.03-0.06 | 0.06-0.08 | 0.08-0.13 | 0.14-0.20 | Emulsion | 100-140 50-60 |
| | 12% SI | 0.01-0.04 | 0.04-0.06 | 0.06-0.09 | 0.09-0.12 | | |
| Brass, Copper, Bronze | | 0.03-0.06 | 0.06-0.10 | 0.10-0.15 | 0.15-0.20 | Dry | 60-120 |
| Layered plastics | | 0.02-0.04 | 0.04-0.06 | 0.06-0.08 | 0.08-0.12 | Dry | 60-120 |

Cutting data for tungsten carbide burrs

| Material | Condition | HB | Kind of teeth | | Cutting speed m/min |
|--------------------------|--|--------------------|---------------|-------------|----------------------------------|
| | | | Straight cut | Crossed cut | |
| Unalloyed steel | C<0,25% C<1<0,80% C,40% | 110-310 | ● ● ● | ● ● ● | 800-1200 800-1200 800-1200 |
| Low alloyed steel | Annealed Hardened | 125-225 220-450 | ● | ● ● | 700-1000 600-800 |
| High alloyed steel | Annealed Hardened | 150-250 250-500 | ● | ● ● | 600-800 600-800 |
| High alloyed steel | Annealed high speed steel (HSS) Hardened tool steel | 150-250 250-350 | ● | ● ● | 600-800 600-800 |
| Stainless steel | Ferritic-martensitic | 150-270 | ● | ● | 600-800 |
| Steel casting | Unalloyed Low alloyed High alloyed | 150-250 | ● ● ● | ● ● ● | 600-800 600-800 600-800 |
| Stainless steel | Austenitic | 150-270 | ● | ● | 600-800 |
| Stainless steel castings | Ferritic-Martensitic Austenitic Manganese steel | 200 200 250 | ● ● ● | ● ● ● | 400 300 160 |
| Malleable cast iron | Ferritic - Short chip Pearlitic - Long chip | 110-145 200-230 | ● ● | ● ● | 750 650 |
| Grey cast iron | High traction resistant Low traction resistant | 180 260 | ● ● | ● ● | 950 700 |
| Nodular cast iron | Ferritic Pearlitic | 160 250 | ● ● | ● ● | 650 550 |
| Shell cast iron | | 400 | ● | ● | 160 |

Practical advice

- The indicated data are recommended for manual applications with a strength of 5-25N.
- Increase the cutting speed for light deburring.
- For heavy operations, for instance by a robot, the cutting speed must be reduced.

Straight cutting flutes burrs

- Best surface finishing.
- Maximum chip removal in soft materials.
- Excellent tool life.
- Produce needle chips.



Crossed cutting flutes burrs

- Allow a lower spindle speed.
- Smoother operation, even allow speeds.
- High chip removal in hard and soft materials.
- Produce short and rounded chips.



| | | | | |
|---|--|---|--|--|
| Type 90 Surfaces and smooth edges | Type 91 Radius and surfaces | Type 92 General shapes | Type 93 Curved shapes with narrow spaces | Type 94 Narrow spaces |
| Type 95 Complicated shapes | Type 96 Welded shapes and holes in curved surfaces | Type 97 Inverted cone shape | Type 98 30° Degrees chamfering | Type 99 45° Degrees chamfering |