

# HSC/ UGV

Konventionelles & Hochgeschwindigkeitsfräsen

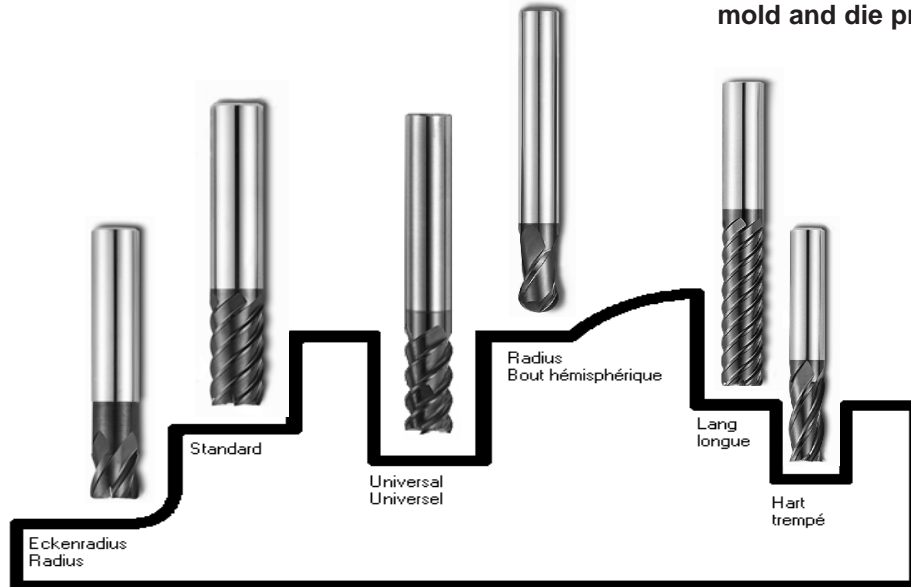
Usinage conventionnelle et de grande vitesse

Conventional and high speed milling HSC

Neue Fräserausführungen, optimiert zum Hochgeschwindigkeitsfräsen und für Bearbeitungen im Formen- und Gesenkbau.

Nouvelles exécutions de fraises pour usinage conventionnelle et en haute vitesse et pour les moulinistes

New types of optimized endmills for conventional applications but more and more for high speed milling and for applications in the mold and die production.



**Richtwerte für Schnittgeschwindigkeit & Vorschub Seite 2.67!**  
**Valeurs indicatives pour vitesses de coupe et avances sont sur page 2.67 !**  
**Recommended cutting data for cutting speeds & feeds consult page 2.67!**

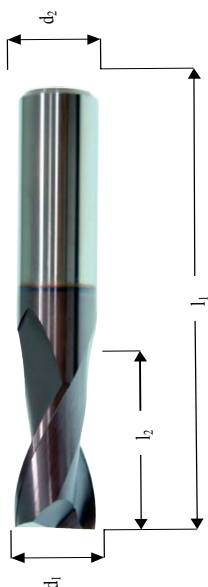
## 2506V40..

### Bohrnutenfräser

### Fraise à rainurer

### Slotting endmill

|   |  |  |
|---|--|--|
| Norm : Werksnorm  | Norme : norme usine  | Standard : factory   |
| Hartmetallsorte : Feinstkorn, 6-8%Co  | Nuance MD : Grain fin 6-8 % Co   | Carbide grade : Micro grain, 6-8%Co  |
| Beschichtung : Auf Basis TIALN  | revêtement : Base TIALN  | coating : basis TIALN  |
| Schaft, Drallwinkel: DIN 6535HA, 30°RSP   | Tige, angle hélice : DIN 6535HA, 30°à dr.  | Shank, helice : DIN 6535HA, 30° RH   |
| Span<, Schneiden: 6-8°, 2, Zentrumsschn.  | Angle d.cpe., dents : 6-8°, 2, c.au centre   | cutting<, flutes : 6-8°, 2, centre cut   |
| Anwendung: Standardfräser zum Nuten-, Nuten- u. Schlitzfräsen für Stahl- u. Guss- | Application : fraise standard pour fraiser des rainures et logement de clavettes, p. des matériaux aciers, fonte, métaux non ferreux et plastiques | Application: Standard end mill for slotting, slotting- & slitting, for Steel- & casted materials, non ferrous metals, plastics |
| Werkstoffe, NE-Metalle, Kunststoffe   |  |  |



|      |      | Stück/pièces/pcs. 1-4 |    | ab/dès/from 5 |           |           |  | Stück/pièces/pcs. 1-4 |      | ab/dès/from 5 |    |     |           |           |  |
|------|------|-----------------------|----|---------------|-----------|-----------|--|-----------------------|------|---------------|----|-----|-----------|-----------|--|
| d1e8 | d2h6 | l1                    | l2 | Z             | 2506V40.. | 2506V40.. |  | d1e8                  | d2h6 | l1            | l2 | Z   | 2506V40.. | 2506V40.. |  |
|      |      |                       |    | CHF           |           | CHF       |  |                       |      |               |    | CHF |           | CHF       |  |
| 0.3  | 3    | 38                    | 1  | 2             | 18.05     | 16.80     |  | 3.5                   | 3    | 40            | 12 | 2   | 19.75     | 18.40     |  |
| 0.4  | 3    | 38                    | 3  | 2             | 18.05     | 16.80     |  | 4                     | 4    | 40            | 12 | 2   | 19.75     | 18.40     |  |
| 0.5  | 3    | 38                    | 3  | 2             | 18.05     | 16.80     |  | 5                     | 5    | 50            | 14 | 2   | 25.40     | 21.10     |  |
| 0.6  | 3    | 38                    | 3  | 2             | 18.05     | 16.80     |  | 6                     | 6    | 50            | 16 | 2   | 25.40     | 23.70     |  |
| 0.8  | 3    | 38                    | 4  | 2             | 18.05     | 16.80     |  | 7                     | 7    | 60            | 20 | 2   | 29.90     | 27.90     |  |
| 1    | 3    | 38                    | 5  | 2             | 18.05     | 16.80     |  | 8                     | 8    | 60            | 20 | 2   | 33.30     | 31.10     |  |
| 1.2  | 3    | 38                    | 5  | 2             | 18.05     | 16.80     |  | 9                     | 9    | 70            | 22 | 2   | 47.95     | 44.80     |  |
| 1.5  | 3    | 38                    | 5  | 2             | 18.05     | 16.80     |  | 10                    | 10   | 70            | 22 | 2   | 47.95     | 44.80     |  |
| 1.6  | 3    | 38                    | 6  | 2             | 18.05     | 16.80     |  | 11                    | 11   | 70            | 22 | 2   | 70.55     | 65.85     |  |
| 1.8  | 3    | 38                    | 6  | 2             | 18.05     | 16.80     |  | 12                    | 12   | 70            | 22 | 2   | 67.15     | 62.70     |  |
| 2    | 3    | 38                    | 9  | 2             | 18.05     | 16.80     |  | 14                    | 14   | 75            | 25 | 2   | 89.75     | 83.75     |  |
| 2.4  | 3    | 38                    | 10 | 2             | 18.05     | 16.80     |  | 16                    | 16   | 75            | 25 | 2   | 118.50    | 110.60    |  |
| 2.5  | 3    | 38                    | 10 | 2             | 18.05     | 16.80     |  | 18                    | 18   | 100           | 30 | 2   | 183.95    | 172.20    |  |
| 2.8  | 3    | 38                    | 10 | 2             | 18.05     | 16.80     |  | 20                    | 20   | 100           | 30 | 2   | 160.85    | 150.10    |  |
| 3    | 3    | 38                    | 12 | 2             | 18.05     | 16.80     |  |                       |      |               |    |     |           |           |  |

### Bohrnutenfräser

Norm: 0.40 - 3.00 mm Werksnorm  
3.00 -25 DIN 6527 lang

Hartmetallsorte: Feinstkorn 8-10 % Co Beschichtung: Auf Basis TIALN Schaft, Drill-<: DIN 6535HA, 45° RSP Span-<, Schneiden: 6-8°, 3, Z.-schnitt Anwendung: Standardfräser zum Nuten-, Nuten-Schlitzfräsen, gute Oberflächen-, hohe Massgenauigkeit.

**Materialien:** Stahl-, Guss-, Chrom-Nickel- u. Titanwerkstoffe sowie NE-Metalle u. Kunststoffe

| d1e8 | d2h6 | I1 | I2 | Z | Bst.Nr./no.cde. | Stk./pcs. | ab/dès/from |  |
|------|------|----|----|---|-----------------|-----------|-------------|--|
|      |      |    |    |   | order no.       | 1-4       | 5           |  |
|      |      |    |    |   | 2512V4520AKT112 | CHF       | CHF         |  |
| 0.4  | 3    | 38 | 2  | 3 | 0040            | 24.50     | 22.05       |  |
| 0.6  | 3    | 38 | 2  | 3 | 0060            | 24.50     | 22.05       |  |
| 0.8  | 3    | 38 | 3  | 3 | 0080            | 24.50     | 22.05       |  |
| 1.0  | 3    | 38 | 3  | 3 | 0100            | 24.50     | 22.05       |  |
| 1.2  | 3    | 38 | 4  | 3 | 0120            | 24.50     | 22.05       |  |
| 1.5  | 3    | 38 | 5  | 3 | 0150            | 24.50     | 22.05       |  |
| 1.6  | 3    | 38 | 5  | 3 | 0160            | 24.50     | 22.05       |  |
| 1.8  | 3    | 38 | 6  | 3 | 0180            | 24.50     | 22.05       |  |
| 2.0  | 3    | 38 | 6  | 3 | 0200            | 24.50     | 22.05       |  |
| 2.4  | 3    | 38 | 7  | 3 | 0240            | 24.50     | 22.05       |  |
| 2.5  | 3    | 38 | 7  | 3 | 0250            | 24.50     | 22.05       |  |
| 2.8  | 3    | 38 | 7  | 3 | 0280            | 24.50     | 22.05       |  |
| 3.0  | 3    | 38 | 7  | 3 | 0300            | 24.50     | 22.05       |  |
| 3.5  | 6    | 57 | 7  | 3 | 0350            | 37.50     | 34.55       |  |

### Fraise à rainurer

Norme: 0.40 - 3.00 mm norme usine  
3.00-25 sel. DIN 6527 longue

Nuance MD: Grain très fin 8-10 % Co Revêtement: Base TIALN, Tige, < hélice: DIN 6535HA, 45° RSP, < coupe, dents: 6-8°, 3, cp. au centre, **Application:** Fraise standard pour fraiser des rainures et logement de clavettes, dimension précis pour des excellente état de surface. **Matériaux:** aciers, fonte, acier inoxydable, nickel, titane, métaux non ferreux et plastiques

| d1e8 | d2h6 | I1  | I2 | Z | Bst.Nr./no.cde. | Stk./pcs. | ab/dès/from |  |
|------|------|-----|----|---|-----------------|-----------|-------------|--|
|      |      |     |    |   | order no.       | 1-4       | 5           |  |
|      |      |     |    |   | 2512V4520..     | CHF       | CHF         |  |
| 4.0  | 4    | 40  | 12 | 3 | 0400            | 30.00     | 27.00       |  |
| 5.0  | 5    | 50  | 14 | 3 | 0500            | 38.70     | 34.80       |  |
| 5.75 | 6    | 57  | 10 | 3 | 0575            | 42.00     | 37.80       |  |
| 6.0  | 6    | 57  | 10 | 3 | 0600            | 38.70     | 34.85       |  |
| 7.0  | 8    | 63  | 13 | 3 | 0700            | 54.00     | 48.60       |  |
| 8.0  | 8    | 63  | 16 | 3 | 0800            | 46.00     | 41.40       |  |
| 9.0  | 10   | 72  | 16 | 3 | 0900            | 76.70     | 69.05       |  |
| 10.0 | 10   | 72  | 19 | 3 | 1000            | 71.30     | 64.20       |  |
| 12.0 | 12   | 83  | 22 | 3 | 1200            | 96.70     | 87.05       |  |
| 14.0 | 14   | 83  | 22 | 3 | 1400            | 130.70    | 117.63      |  |
| 16.0 | 16   | 92  | 26 | 3 | 1600            | 172.70    | 155.45      |  |
| 18.0 | 18   | 92  | 26 | 3 | 1800            | 244.00    | 219.60      |  |
| 20.0 | 20   | 104 | 32 | 3 | 2000            | 265.30    | 219.60      |  |
| 25.0 | 25   | 110 | 40 | 3 | 2500            | 432.00    | 388.80      |  |

### Schafffräser 4 Schneiden

Norm: DIN 6527 lang

Hartmetallsorte: Feinstkorn 10 % Co Beschichtung: Auf Basis TIALN Schaft, Drill-<: DIN 6535HB, 45° RSP

Span-<, Schneiden: 6-8°, 4, Z.-Schnitt Besonderheiten: Kerndicke verstärkt **Anwendung:** Verst. Schafffräser z. Umfang- u. Konturenfräsen, wenn die norm. Fräserstabilität nicht ausreicht.

**Geeignete Materialien:** Grauguss, Temperguss, Stahl, Stahlguss, Chrom- u. Nickelwerkstoffe, hochwarmfeste Stähle, Titan u. Titanlegierungen, NE-Met. u. Kunststoff

### Fraises 2 tailles 4 dents

Norme: sel. DIN 6527 longue

Nuance MD: Grain très fin 10 % Co revêtement: Base TIALN Tige, < hélice: DIN 6535HA, 45° RSP

Angle d.coup./dents: 6-8°, 4, cpe. au cent. Spécialité: épaisseur de lame renforcé **Application:** fraise renforcé p. fraiser des circonférences et contourage, quand la stabilité normale des fraises ne suffit pas. **Matériaux adaptables:** Fonte grise, fonte malléable, acier, aciers moulés, alliages de chrom et nickel, aciers réfractaires, titane et alliages, métaux n. ferreux et plastiques

| d1e8 | d2h6 | I1  | I2 | Z | Bst.Nr./no.cde. | Stk./pcs.     | 1-4    | 5   |  |
|------|------|-----|----|---|-----------------|---------------|--------|-----|--|
|      |      |     |    |   |                 | order no.     | CHF    | CHF |  |
|      |      |     |    |   |                 | 2518V45AKT112 | CHF    | CHF |  |
| 3.0  | 6    | 57  | 8  | 4 | 0300            | 29.85         | 27.90  |     |  |
| 3.5  | 6    | 57  | 10 | 4 | 0350            | 29.85         | 27.90  |     |  |
| 4.0  | 6    | 57  | 11 | 4 | 0400            | 29.85         | 27.90  |     |  |
| 4.5  | 6    | 57  | 11 | 4 | 0450            | 31.05         | 29.00  |     |  |
| 5.0  | 6    | 57  | 13 | 4 | 0500            | 30.35         | 28.30  |     |  |
| 6.0  | 6    | 57  | 13 | 4 | 0600            | 30.35         | 28.30  |     |  |
| 7.0  | 8    | 63  | 16 | 4 | 0700            | 42.90         | 40.05  |     |  |
| 8.0  | 8    | 63  | 19 | 4 | 0800            | 40.05         | 37.35  |     |  |
| 9.0  | 10   | 72  | 19 | 4 | 0900            | 78.50         | 57.95  |     |  |
| 10.0 | 10   | 72  | 22 | 4 | 1000            | 62.10         | 57.90  |     |  |
| 11.0 | 12   | 83  | 26 | 4 | 1100            | 98.75         | 92.20  |     |  |
| 12.0 | 12   | 83  | 26 | 4 | 1200            | 85.80         | 80.10  |     |  |
| 13.0 | 14   | 83  | 26 | 4 | 1300            | 127.50        | 119.05 |     |  |
| 14.0 | 14   | 83  | 26 | 4 | 1400            | 110.60        | 103.25 |     |  |
| 16.0 | 16   | 92  | 32 | 4 | 1600            | 149.00        | 139.05 |     |  |
| 18.0 | 18   | 92  | 32 | 4 | 1800            | 211.10        | 197.00 |     |  |
| 20.0 | 20   | 104 | 38 | 4 | 2000            | 230.20        | 214.90 |     |  |
| 25.0 | 25   | 110 | 36 | 4 | 2500            | 379.50        | 354.50 |     |  |

### Schafffräser 6+ Schneiden

Norm, HM. Sorte: DIN 6527 lang/extra lang, Beschichtung: Feinstkorn, 10-12 % Co, TIALN Schaft, Drill-<: DIN 6535HB, 45° RSP

Span-<, Schneiden: 10-12°, 6, Z. Schnitt Besonderheiten: Kerndicke verstärkt **Anwendung:** Zum Umfang- u. Konturenfräsen, insbesondere z. Schichten, hohe Kontur- u. Profilgenauigkeit, hervorstechende Oberflächen- güte. **Geeignete Materialien:** Grauguss, Temperguss, Stahl, Stahlguss, Chrom- u. Nickelwerkstoffe, hoch- warmfeste Stähle, Titan u. Titanlegierungen, NE-Metalle u. Kunststoffe

### Fraises 2 tailles 6+ dents

Norme, nua. MD: DIN 6527 long/ext. longue Revêtement: Grain très fin 10-12% Co, TIALN Tige, < hélice: DIN 6535HB, 45° RSP

< de coupe, dents: 10-12°, 6, cp. au centre. Spécialité: épaisseur de lame renforcé **Application:** Pour fraiser des circonférences et contourage, spécialement pour la finition. **Haute précision pour le contourage et le profilé.** **Matériaux adaptables:** Fonte grise, font malléable, acier, alliages de chrom et nickel, aciers réfractaires, titane et alliages de titane, métaux non ferreux et plastiques.

| d1e8  | d2h6 | I1  | I2  | Z  | Bst.Nr./no.cde. | Stk./pcs. | 1-4     | 5   |  |
|-------|------|-----|-----|----|-----------------|-----------|---------|-----|--|
|       |      |     |     |    |                 | order no. | CHF     | CHF |  |
|       |      |     |     |    |                 | 2516V30.. | CHF     | CHF |  |
| 6.0*  | 6    | 57  | 13  | 6  | 0600            | 28.20     | 26.30   |     |  |
| 6.0   | 6    | 62  | 18  | 6  | 0618            | 47.65     | 46.05   |     |  |
| 8.0*  | 8    | 63  | 19  | 6  | 0800            | 36.10     | 33.75   |     |  |
| 8.0   | 8    | 68  | 24  | 6  | 0824            | 61.90     | 60.45   |     |  |
| 10.0* | 10   | 72  | 22  | 6  | 1000            | 55.85     | 52.15   |     |  |
| 10.0  | 10   | 80  | 30  | 6  | 1030            | 95.30     | 92.10   |     |  |
| 10.0  | 10   | 95  | 45  | 6  | 1045            | 164.95    | 159.40  |     |  |
| 12.0* | 12   | 83  | 26  | 6  | 1200            | 76.80     | 71.65   |     |  |
| 12.0  | 12   | 93  | 36  | 6  | 1236            | 129.40    | 125.05  |     |  |
| 12.0  | 12   | 110 | 53  | 6  | 1253            | 198.35    | 191.75  |     |  |
| 14.0* | 14   | 83  | 26  | 6  | 1400            | 95.90     | 89.50   |     |  |
| 14.0  | 14   | 99  | 42  | 6  | 1442            | 179.20    | 173.15  |     |  |
| 16.0* | 16   | 92  | 32  | 6  | 1600            | 129.80    | 121.10  |     |  |
| 16.0  | 16   | 108 | 48  | 6  | 1648            | 216.15    | 209.00  |     |  |
| 16    | 16   | 123 | 63  | 8  | 1663            | 282.90    | 273.50  |     |  |
| 16    | 16   | 135 | 80  | 8  | 1680            | 324.15    | 313.30  |     |  |
| 18.0* | 18   | 92  | 32  | 8  | 1800            | 231.10    | 224.00  |     |  |
| 18    | 18   | 114 | 54  | 8  | 1854            | 305.65    | 295.50  |     |  |
| 20.0* | 20   | 104 | 38  | 8  | 2000            | 271.60    | 294.00  |     |  |
| 20    | 20   | 125 | 60  | 8  | 2060            | 335.00    | 294.70  |     |  |
| 20    | 20   | 141 | 75  | 10 | 2075            | 534.70    | 493.10  |     |  |
| 20    | 20   | 166 | 100 | 10 | 2090            | 624.20    | 603.40  |     |  |
| 20    | 20   | 191 | 125 | 10 | 2095            | 833.30    | 805.50  |     |  |
| 25.0* | 25   | 110 | 40  | 8  | 2500            | 379.70    | 367.00  |     |  |
| 25    | 25   | 150 | 75  | 8  | 2575            | 587.20    | 567.60  |     |  |
| 25    | 25   | 255 | 175 | 12 | 2595            | 1235.00   | 1193.80 |     |  |
| 32.0* | 32   | 110 | 40  | 8  | 3200            | 537.35    | 519.50  |     |  |

## 2512V4520..



2518V45..

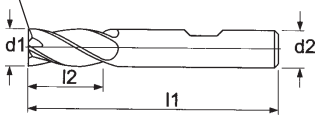


2516V30..



**2512V20..**

E Eckfase/chanfrein



NEU/NOUVEAU!

**Schafffräser ext kurz Fraise extra courte Extra short endmill**

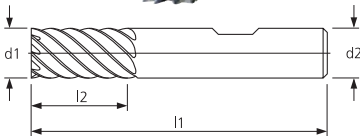
Schneidentyp : Werksnorm, Typ N, Hartmetallsorte, Beschichtung: Feinstkorn, TiALN, Schaft: DIN 6535HB (Weldon), Spiral < 30°, Z=3. **Anwendung:** Universalfräser zum Nuten-, Nuten-Schlitzfräsen, gute Oberflächen, hohe Massgenauigkeit. **Materialien:** Stahl und Gusseisen, auch geeignet auch für Chrom- u. Nickelwerkstoffe, hochwärmfeste Stähle, Titan und Titanlegierungen, NE-Metalle und Kunststoffe

Type de pointe: norme usine, Type N, Nuance MD, revêtement: Grain très fin, TiALN, Tieg: DIN 6535HB (Weldon), angle hõlice 30° Dents: 3. **Application:** Fraise standard pour fraiser des rainures et logement de clavettes, dimension précis pour des excellente état de surface. **Matériaux:** aciers, fonte. Moins approprié: alliages de chrom et nickel, aciers réfractaires, titane et alliages, métaux n.ferreux et plastiques

Head type factory standard N, carbide micro grain, TiALN-coated, shank acc. DIN 6535HB (Weldon) helix angle 30°, teeth z= 3. **Application:** Standard endmill for slotting, slotting and slitting, for good surfaces, high dimensional accuracy. **Materials:** Steel & casted materials. Also suitable for stainless steel, chromium-nickel steels, high temperature steels, titanium alloys, non ferrous materials and plastics

| d1e8 | d2h6 | l1 | l2  | Z | E    | Bst.Nr./no.cde. | Stk./pcs. | ab/des/from | d1e8  | d2h6 | l1 | l2 | Z | E    | Bst.Nr./no.cde. | Stk./pcs. | ab/des/from |
|------|------|----|-----|---|------|-----------------|-----------|-------------|-------|------|----|----|---|------|-----------------|-----------|-------------|
|      |      |    |     |   |      | order no.       | 1-9       | 10          |       |      |    |    |   |      | order no.       | 1-9       | 10          |
|      |      |    |     |   |      | 2512V20..       | CHF       | CHF         |       |      |    |    |   |      | 2512V20..       | CHF       | CHF         |
| 0.30 | 3    | 38 | 1.5 | 3 | 0.05 | 0030            | 15.50     | 13.50       | 5.50  | 5    | 38 | 8  | 3 | 0.10 | 0500            | 15.50     | 13.50       |
| 0.40 | 3    | 38 | 1.5 | 3 | 0.05 | 0040            | 15.50     | 13.50       | 5.75  | 6    | 38 | 8  | 3 | 0.10 | 0575            | 16.00     | 13.50       |
| 0.50 | 3    | 38 | 1.5 | 3 | 0.05 | 0050            | 15.50     | 13.50       | 6.00  | 6    | 38 | 8  | 3 | 0.10 | 0600            | 15.50     | 13.50       |
| 0.60 | 3    | 38 | 1.5 | 3 | 0.05 | 0060            | 15.50     | 13.50       | 6.75  | 8    | 43 | 11 | 3 | 0.10 | 0675            | 24.20     | 21.15       |
| 0.80 | 3    | 38 | 2.0 | 3 | 0.05 | 0080            | 15.50     | 13.50       | 7.00  | 8    | 43 | 11 | 3 | 0.10 | 0700            | 23.70     | 20.70       |
| 1.00 | 6    | 38 | 3.0 | 3 | 0.05 | 0100            | 15.50     | 13.50       | 7.75  | 8    | 43 | 11 | 3 | 0.10 | 0775            | 24.20     | 21.15       |
| 1.20 | 6    | 38 | 3.0 | 3 | 0.05 | 0120            | 15.50     | 13.50       | 8.00  | 8    | 43 | 11 | 3 | 0.15 | 0800            | 23.70     | 20.70       |
| 1.50 | 6    | 38 | 3.0 | 3 | 0.05 | 0150            | 15.50     | 13.50       | 8.70  | 10   | 48 | 11 | 3 | 0.15 | 0870            | 29.40     | 25.65       |
| 1.80 | 6    | 38 | 3.0 | 3 | 0.05 | 0180            | 15.50     | 13.50       | 9.00  | 10   | 48 | 11 | 3 | 0.15 | 0900            | 29.40     | 25.65       |
| 2.00 | 6    | 38 | 4.0 | 3 | 0.05 | 0200            | 15.50     | 13.50       | 9.70  | 10   | 48 | 11 | 3 | 0.15 | 0970            | 29.40     | 25.65       |
| 2.50 | 6    | 38 | 5.0 | 3 | 0.05 | 0250            | 15.50     | 13.50       | 10.00 | 10   | 50 | 13 | 3 | 0.15 | 1000            | 29.40     | 25.65       |
| 3.00 | 6    | 38 | 5.0 | 3 | 0.05 | 0300            | 15.50     | 13.50       | 12.00 | 12   | 55 | 15 | 3 | 0.20 | 1200            | 48.90     | 42.75       |
| 3.50 | 6    | 38 | 6.0 | 3 | 0.10 | 0350            | 15.50     | 13.50       | 14.00 | 14   | 58 | 15 | 3 | 0.20 | 1400            | 67.50     | 58.95       |
| 4.00 | 6    | 38 | 7.0 | 3 | 0.10 | 0400            | 15.50     | 13.50       | 16.00 | 16   | 62 | 18 | 3 | 0.20 | 1600            | 81.90     | 71.55       |
| 4.50 | 6    | 38 | 8.0 | 3 | 0.10 | 0450            | 15.50     | 13.50       | 18.00 | 18   | 70 | 20 | 3 | 0.20 | 1800            | 115.40    | 100.80      |
| 5.00 | 6    | 38 | 8.0 | 3 | 0.10 | 0500            | 15.50     | 13.50       | 20.00 | 20   | 75 | 22 | 3 | 0.30 | 2000            | 133.90    | 117.00      |

**2516V40..**



**Vollhartmetall Hartfräser**

Zum HSC-und Hartfräsen ab HRC 48-65. Sehr gute Oberfläche, hohe Kontur- und Profiltgenauigkeit. Zur Trockenbearbeitung bestens geeignet. Grundausführung mit Eckenphase, Ausführung mit Radius auf Anfrage. Schaftausführung nach DIN 6535 HA und HB (Weldon) lieferbar.

**Fraises MD p. fraiser dur**

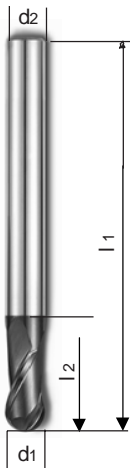
Pour fraier à UGV et des matériaux durs à 48 - 65 HRC (dureté Rockwell C), surfaces très fines, haute précision concernant contour et profile. Aussi très capables de travailler sec. Exécution de base avec arrêtes. Exécution avec radius sur demande. Tieg selon DIN 6535HA et HB (Weldon)

**Endmill f. hard materials**

For HSC- and hard material milling from HRC48-65. Excellent surface quality and high accuracy in contouring and profiling. Ideal for dry cutting. Basic execution with chamfered edge. Edge-radius on request. Shank available according DIN 6535 HA und HB (Weldon).

|      |      |    |    |   |                  | Stk./pcs. | 1 - 4  | ab/des/from 5 |      |      |     |    |   |                  | Stk./pcs. | 1 - 4  | ab/des/from 5 |
|------|------|----|----|---|------------------|-----------|--------|---------------|------|------|-----|----|---|------------------|-----------|--------|---------------|
| d1e8 | d2h6 | l1 | l2 | Z | Best.Nr./no.cde. | 2516V40.. | CHF    | CHF           | d1e8 | d2h6 | l1  | l2 | Z | Best.Nr./no.cde. | 2516V40.. | CHF    | CHF           |
| 3    | 6    | 57 | 8  | 4 | 030              |           | 31.60  | 29.45         | 14   | 14   | 83  | 26 | 6 | 140              |           | 145.60 | 136.00        |
| 4    | 6    | 57 | 8  | 4 | 040              |           | 31.60  | 29.45         | 16   | 16   | 92  | 32 | 6 | 160              |           | 202.00 | 188.60        |
| 5    | 6    | 57 | 11 | 6 | 052              |           | 31.60  | 29.45         | 18   | 18   | 92  | 32 | 8 | 180              |           | 280.30 | 229.65        |
| 6    | 6    | 57 | 13 | 6 | 060              |           | 31.60  | 29.45         | 20   | 20   | 104 | 38 | 8 | 200              |           | 291.20 | 271.80        |
| 8    | 8    | 63 | 19 | 6 | 080              |           | 52.45  | 49.00         | 25   | 25   | 110 | 40 | 8 | 250              |           | 426.60 | 398.00        |
| 10   | 10   | 72 | 22 | 6 | 100              |           | 84.60  | 79.00         | 32   | 32   | 110 | 40 | 8 | 320              |           | 606.70 | 566.00        |
| 12   | 12   | 83 | 26 | 6 | 120              |           | 107.20 | 100.00        |      |      |     |    |   |                  |           |        |               |

**2483V50..**



**VHM-Radiusfräser kurz/lang, TiALN-beschichtet**

Rechtsschneidend, Rechts-drall 30°, mit glatter Zylinderschaft DIN 6335 HA, DIN 6335 HB (Weldon) möglich, **Hauptanwendung:** Stahl, Stahl-Legierungen, Guss-eisen, <55 HRC

**Fraises à bout hémisph. courte/longue, rev.TiAlN**

Coupe à droite, hélice à droite 30°, avec queue cylindrique selon DIN 6335 HA, DIN 6335 HB possible, **application principale:** acier, alliages d'acier, fonte, < 55 HRC

**Ball type carbid endmill short/long TiALN-coated**

RH, helice RH 30°, shank according DIN 6335 HA standard or DIN 6335 HB (Weldon) on request, **Application:** Steel, alloyed steels, cast iron, < 55 HRC

|      |      |    |    |        |   | Stk./pcs.        | 1 - 4     | ab/des/from 5 |       |      |      |    |     |        | Stk./pcs. | 1 - 4            | ab/des/from 5 |        |        |
|------|------|----|----|--------|---|------------------|-----------|---------------|-------|------|------|----|-----|--------|-----------|------------------|---------------|--------|--------|
| d1f8 | d2h6 | l2 | l1 | r±0.01 | Z | Best.Nr./no.cde. | 2483V50.. | CHF           | CHF   | d1f8 | d2h6 | l2 | l1  | r±0.01 | Z         | Best.Nr./no.cde. | 2483V50..     | CHF    | CHF    |
|      |      |    |    |        |   | radius           | order no. | CHF           | CHF   |      |      |    |     |        |           | radius           | order no.     | CHF    | CHF    |
| 0.4  | 4    | 3  | 38 | 0.20   | 2 | 004              |           | 36.65         | 34.20 | 5    | 6    | 10 | 57  | 2.50   | 2         | 050              |               | 29.35  | 27.40  |
| 0.5  | 4    | 3  | 38 | 0.25   | 2 | 005              |           | 33.30         | 31.05 | 6    | 6    | 10 | 57  | 3.00   | 2         | 060              |               | 29.35  | 27.40  |
| 0.6  | 4    | 3  | 38 | 0.30   | 2 | 006              |           | 29.35         | 27.40 | 8    | 8    | 16 | 63  | 4.00   | 2         | 080              |               | 38.40  | 35.80  |
| 0.8  | 4    | 3  | 38 | 0.40   | 2 | 008              |           | 29.35         | 27.40 | 9    | 10   | 16 | 72  | 4.50   | 2         | 090              |               | 55.85  | 52.15  |
| 1    | 4    | 5  | 38 | 0.50   | 2 | 010              |           | 29.35         | 27.40 | 10   | 10   | 19 | 72  | 5.00   | 2         | 100              |               | 53.65  | 50.00  |
| 1.5  | 4    | 5  | 38 | 0.75   | 2 | 015              |           | 29.35         | 27.40 | 12   | 12   | 22 | 83  | 6.00   | 2         | 120              |               | 81.85  | 76.40  |
| 2    | 6    | 7  | 57 | 1.00   | 2 | 020              |           | 29.35         | 27.40 | 14   | 14   | 22 | 83  | 7.00   | 2         | 140              |               | 110.05 | 102.70 |
| 2.5  | 6    | 7  | 57 | 1.25   | 2 | 025              |           | 29.35         | 27.40 | 16   | 16   | 26 | 92  | 8.00   | 2         | 160              |               | 141.65 | 132.15 |
| 3    | 6    | 7  | 57 | 1.50   | 2 | 030              |           | 29.35         | 27.40 | 18   | 18   | 26 | 92  | 9.00   | 2         | 180              |               | 160.85 | 150.00 |
| 4    | 6    | 8  | 57 | 2.00   | 2 | 040              |           | 29.35         | 27.40 | 20   | 20   | 32 | 104 | 10.00  | 2         | 200              |               | 225.15 | 210.15 |

VHM-Schaftfräser ungleicher Drall 35/38° gegen Rattern, Schaft HB(Weldon)

Ultra harte NANO-Beschichtung

Vorteile für den Kunden:

- bis zu 60 % höhere Vorschübe
- höhere Standzeiten
- erhöhte Schnitttiefen
- vibrationsfreier Lauf
- geeignet für Schruppen und Schlichten
- bessere Oberflächengüte
- auch für VA-Stähle, Aluminium, Titan und Hartbearbeitung verfügbar!

Schaftfräser 4 Schneiden Drall 35/38°, kurz

Fraises en carbure à hélice variable 35/38° contre le brouter, tige HB (Weldon)

Revêtement NANO ultra dur

Avantages p. nos clients:

- avance jusqu'à 60 % plus haute
- durée de vie plus haute
- épaisseur de coupe plus haute
- marche sans vibration
- appropriée pour ébaucher et finition
- meilleures surfaces
- Disponible aussi pour aciers INOX, aluminium, titane, et fraiser dur!

Fraises 4 dents, hélice 35/38°, courtes

Carbide endmills with variable helix angle 35 / 38 °, against vibrations, shank HB (Weldon)

Ultra hard NANO coating

Avantages for our clients

- feed rate til 60 % higher
- higher tool life up to 4x
- higher cutting depth
- vibration- free operation
- suitable for roughing and finishing
- improved workpiece surface quality
- Suitable also for stainless steel, aluminium, titanium and for hard materials!

Endmill 4 flutes, helix 35/38°, short



**Neu/Nouveau !!**  
mit ungleicher Drallsteigung  
hélice d'angle variable

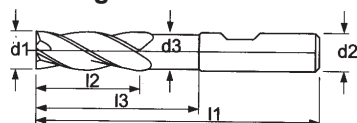
VHM-Schaftfräser im Set ungleicher Drall 35/38 °gegen Rattern, 6,8,10,12,16 mm, Schäfte:

HB (Weldon), mit Halsfreischliff

HA (zylindrisch), mit Halsfreischliff

Vorteile für unsere Kunden:

- bis zu 60 % höhere Vorschübe
- höhere Standzeiten
- erhöhte Schnitttiefen
- vibrationsfreier Lauf
- geeignet für Schruppen und Schlichten
- bessere Oberflächengüte
- auch für VA-Stähle, Aluminium, Titan und Hartbearbeitung verfügbar!



HB (Weldon) HA (zylindrisch zylindrique)

Best.Nr./no.cde HB: 2518V3810S.010

Best.Nr./no.cde HA: 2518V3810S.020

Fraises en carbure en jeu à hélice variable 35/38 °, contre le brouter, 6,8,10,12,16 mm, tiges:

HB (Weldon) avec affûtage de la gorge

HA (zylindrique) avec affûtage de la gorge

Avantages pour nos clients:

- avance jusqu'à 60 % plus haute
- durée de vie plus haute
- épaisseur de coupe plus haute
- marche sans vibration
- approprié pour ébaucher et finir
- meilleure qualité de la surface
- applicable aussi pour aciers inoxydables, aluminium, titane et pour fraisage dur!

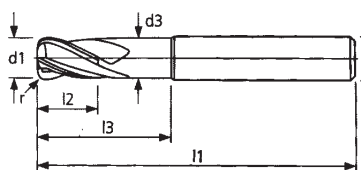
Satz/Jeu 6-16mm CHF 199.-



**2518V3810..**

| d1 h10        | d2 h6 | d3   | l1  | l2 | l3   | C      | Z | Netto Preis       | AKTION | Best.Nr./no.cde. |
|---------------|-------|------|-----|----|------|--------|---|-------------------|--------|------------------|
|               |       |      |     |    |      |        |   | Prix net          | ACTION | Best.Nr./no.cde. |
| 2518V3810_218 |       |      |     |    |      | x 45 ° |   | CHF               | CHF    | order no.        |
| 4             | 6     | 3.8  | 57  | 11 | 18.0 | 0.04   | 4 | <del>42.10</del>  | 24.80  | 2518V3810. 040   |
| 5             | 6     | 4.8  | 57  | 13 | 18.0 | 0.05   | 4 | <del>42.10</del>  | 24.80  | 2518V3810. 050   |
| 5.7           | 6     | 5.5  | 57  | 13 | 19.6 | 0.06   | 4 | <del>42.10</del>  | 24.80  | 2518V3810. 057   |
| 6             | 6     | 5.7  | 57  | 13 | 20.0 | 0.06   | 4 | <del>42.10</del>  | 24.80  | 2518V3810. 060   |
| 7.7           | 8     | 7.4  | 63  | 19 | 25.5 | 0.08   | 4 | <del>57.20</del>  | 33.90  | 2518V3810. 077   |
| 8             | 8     | 7.7  | 63  | 19 | 26.0 | 0.08   | 4 | <del>57.20</del>  | 33.90  | 2518V3810. 080   |
| 9.7           | 10    | 9.4  | 72  | 22 | 30.5 | 0.10   | 4 | <del>85.20</del>  | 50.30  | 2518V3810. 097   |
| 10            | 10    | 9.5  | 72  | 22 | 30.0 | 0.10   | 4 | <del>85.20</del>  | 50.30  | 2518V3810. 100   |
| 11.7          | 12    | 11.2 | 83  | 26 | 35.3 | 0.12   | 4 | <del>109.6</del>  | 64.60  | 2518V3810. 117   |
| 12            | 12    | 11.5 | 83  | 26 | 36.0 | 0.12   | 4 | <del>109.6</del>  | 64.60  | 2518V3810. 120   |
| 13.7          | 14    | 13.2 | 83  | 26 | 37.0 | 0.14   | 4 | <del>144.20</del> | 85.00  | 2518V3810. 137   |
| 14            | 14    | 13.5 | 83  | 26 | 38.0 | 0.14   | 4 | <del>144.20</del> | 85.00  | 2518V3810. 140   |
| 15.6          | 16    | 15.1 | 92  | 32 | 44.0 | 0.16   | 4 | <del>189.40</del> | 111.40 | 2518V3810. 156   |
| 16            | 16    | 15.5 | 92  | 32 | 42.0 | 0.16   | 4 | <del>189.40</del> | 111.40 | 2518V3810. 160   |
| 19.5          | 18    | 19.0 | 104 | 38 | 51.0 | 0.20   | 4 | <del>286.40</del> | 168.70 | 2518V3810. 195   |
| 20            | 20    | 19.5 | 104 | 38 | 52.0 | 0.20   | 4 | <del>286.40</del> | 167.70 | 2518V3810. 200   |

2518V40..



Torusfräser , 4 Schneiden

Norm,Hartmetall: Werk,Ultra-Feinstkorn Beschichtung: Auf Basis TIALN Schaft,Drall<-: DIN 6535HA, 25° RSP Schneiden: 4, Z,Schnitt, Stirnschneiden hohlgeschliffen Besonderheiten: Mit zylindrisch feingeschliffenem Schaftteil

**Anwendung:** Zum HSC-und Hartfräsen von Werkstoffen ab 48 - 65 HRC, sehr gute Oberfläche, zur Trockenbearbeitung bestens geeignet.

Fraises à rayon à pointe

Norme, MD : usine, grain ULTRA fin Revêtement: Base TIALN Tige, < hélice: DIN 6535HA, 25° RSP dents: 4, coupe au centre, affûtage spéciale des lèvres Spécialité:tiege réctifié à haute précision

**Application:** pour fraiser à UGV et des matériaux durs à 48 - 65 HRC, surfaces très fines, aussi très capables de travailler sec

End mill, 4 flutes, radius

Standard, carbide: factory, Ultra-Micro-grain. Coating: Basis TIALN Shank,helice<-: DIN 6535HA, 25° RH Flutes: 4, centre cut, front flutes hollow ground

Speciality: Shank micro ground **Application:** For HSC-and milling of hard , difficult to machine materials from 48 - 65 HRC. Very accurate surfaces, very suitable for dry cutting.

| 2518V40.. |     |      |     |    |    |    |   |                  |           | 2518V40..  |     |             |    |      |    |      |    |    |    |    |     |                  |           |            |        |             |   |
|-----------|-----|------|-----|----|----|----|---|------------------|-----------|------------|-----|-------------|----|------|----|------|----|----|----|----|-----|------------------|-----------|------------|--------|-------------|---|
| d1e8      | r   | d2h6 | d3  | l1 | l2 | l3 | Z | Best.Nr./no.cde. | 2518V40.. | Stck./pcs. | 1-4 | ab/des/from | 5  | d1e8 | r  | d2h6 | d3 | l1 | l2 | l3 | Z   | Best.Nr./no.cde. | 2518V40.. | Stck./pcs. | 1-4    | ab/des/from | 5 |
|           |     |      |     |    |    |    |   |                  |           | order no.  | CHF | CHF         |    |      |    |      |    |    |    |    |     |                  | order no. | CHF        | CHF    |             |   |
| 2         | 0.2 | 3    | 1.9 | 50 | 3  | 13 | 4 | 020              |           | 50.80      |     | 47.40       | 8  | 1.5  | 8  | 7.4  | 63 | 9  | 27 | 4  | 084 |                  | 73.40     |            | 68.50  |             |   |
| 3         | 0.3 | 3    | 2.7 | 50 | 4  | 14 | 4 | 030              |           | 50.80      |     | 47.40       | 8  | 2.0  | 8  | 7.4  | 63 | 9  | 27 | 4  | 086 |                  | 73.40     |            | 68.50  |             |   |
| 3         | 1.0 | 3    | 2.7 | 50 | 4  | 14 | 4 | 032              |           | 50.80      |     | 47.40       | 8  | 3.0  | 8  | 7.4  | 63 | 9  | 27 | 4  | 088 |                  | 73.40     |            | 68.50  |             |   |
| 4         | 0.4 | 4    | 3.7 | 50 | 5  | 16 | 4 | 040              |           | 53.65      |     | 50.00       | 10 | 0.5  | 10 | 9.2  | 72 | 11 | 32 | 4  | 100 |                  | 95.90     |            | 89.50  |             |   |
| 4         | 1.0 | 4    | 3.7 | 50 | 5  | 16 | 4 | 042              |           | 53.65      |     | 50.00       | 10 | 1.0  | 10 | 9.2  | 72 | 11 | 32 | 4  | 102 |                  | 95.90     |            | 89.50  |             |   |
| 5         | 0.5 | 5    | 4.6 | 54 | 6  | 18 | 4 | 050              |           | 53.65      |     | 50.00       | 10 | 1.5  | 10 | 9.2  | 72 | 11 | 32 | 4  | 104 |                  | 95.90     |            | 89.50  |             |   |
| 5         | 1.0 | 5    | 4.6 | 54 | 6  | 18 | 4 | 052              |           | 53.65      |     | 50.00       | 10 | 2.0  | 10 | 9.2  | 72 | 11 | 32 | 4  | 106 |                  | 95.90     |            | 89.50  |             |   |
| 6         | 1   | 6    | 5.5 | 57 | 7  | 21 | 4 | 060              |           | 55.85      |     | 52.15       | 12 | 0.5  | 14 | 11.0 | 83 | 12 | 38 | 4  | 120 |                  | 138.25    |            | 129.00 |             |   |
| 6         | 1   | 6    | 5.5 | 57 | 7  | 21 | 4 | 062              |           | 55.85      |     | 52.15       | 12 | 1.0  | 16 | 11.0 | 83 | 12 | 38 | 4  | 122 |                  | 138.25    |            | 129.00 |             |   |
| 6         | 2   | 6    | 5.5 | 57 | 7  | 21 | 4 | 064              |           | 55.85      |     | 52.15       | 12 | 1.5  | 18 | 11.0 | 83 | 12 | 38 | 4  | 124 |                  | 138.25    |            | 129.00 |             |   |
| 8         | 1   | 8    | 7.4 | 63 | 9  | 27 | 4 | 080              |           | 73.40      |     | 68.50       | 12 | 2.0  | 20 | 11.0 | 83 | 12 | 38 | 4  | 126 |                  | 138.25    |            | 129.00 |             |   |
| 8         | 1   | 8    | 7.4 | 63 | 9  | 27 | 4 | 082              |           | 73.40      |     | 68.50       |    |      |    |      |    |    |    |    |     |                  |           |            |        |             |   |

2514V50..



Schrupfräser, Z= 3-4

Norm,profil: DIN 6527 lang, HR Hartmetall:Feinstkorn,10-12 % Co Beschichtung: Auf Basis TIALN Schaft,Drall<-: DIN 6535HB(Weldon), 30° RSP, Span<, Schneiden: 6°,3-4,Z.Schnitt Besonderheiten: Kerndicke verstärkt,feine Kordel- verzahnung

**Anwendung:**Hochleistungsfräser z. Schruppen v.Nuten,Schlitzzen, Konturen. **Geeignete Materialien:** Grauguss, Temperguss,Stahl, Stahlguss, Chrom-u.Nickelwerkstoffe, hochwärmfeste Stähle, Titan u. Titanlegierungen

Fraises d'ébauche Z=3-4

Norm,profile:sel.DIN 6527 longue HR, Nuance MD:grain très fin 10-12° Co,Revêtement.:base TIALN Tige, angle hélice: DIN 6535HB, 30° RSP,< de cpe., dents:6°,3-4,cpe.au centre. Spécialité: lame renforcée, denture cordon fine. **Application:**Fraises haute performance p.ébaucher des rainures, des clavettes disques, des circonférences et p.contourner.

**Matériaux:** Fonte grise, fonte malléable, acier,acier moulés, alliages de chrom et nickel,aciers réfractaires, titane et alliages de titane

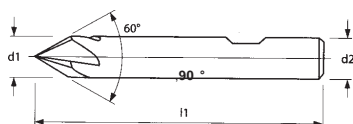
Roughing endmill,Z= 3-4

Stand., profile:DIN 6527 long, HR Carbide:micro-grain,10-12 % Co coating: Basis TIALN Shank,helice<-: DIN 6535HB(Weldon),30° RH, cutting<, Flutes: 6°,3-4,centre cut. Speciality:Core thickness reinforced, fine cordon-teething.

**Application:**High performance endmill for roughing of slots, slits, contouring. **Materials:** Cast iron, steel, cast steel, chromium and nickel materials, high temperature steels, titanium & titanium alloys.

| 2514V50.. |      |    |    |   |                  |           |            |     |             | 2514V50.. |      |      |    |    |      |                  |           |          |        |             |   |
|-----------|------|----|----|---|------------------|-----------|------------|-----|-------------|-----------|------|------|----|----|------|------------------|-----------|----------|--------|-------------|---|
| d1e8      | d2h6 | l1 | l2 | Z | Best.Nr./no.cde. | 2514V50.. | Stck./pcs. | 1-4 | ab/des/from | 5         | d1e8 | d2h6 | l1 | l2 | Z    | Best.Nr./no.cde. | 2514V50.. | Stck./pc | 1-4    | ab/des/from | 5 |
|           |      |    |    |   |                  |           | order no.  | CHF | CHF         |           |      |      |    |    |      |                  | order no. | CHF      | CHF    |             |   |
| 4.0       | 6    | 57 | 11 | 3 | 0400             |           | 40.60      |     | 38.15       | 12.0      | 12   | 83   | 26 | 4  | 1200 |                  | 78.45     |          | 73.25  |             |   |
| 5.0       | 6    | 57 | 12 | 3 | 0500             |           | 40.60      |     | 37.90       | 14.0      | 14   | 83   | 26 | 4  | 1400 |                  | 111.70    |          | 104.30 |             |   |
| 6.0       | 6    | 57 | 13 | 3 | 0600             |           | 36.40      |     | 34.20       | 16.0      | 16   | 92   | 32 | 4  | 1600 |                  | 136.50    |          | 127.40 |             |   |
| 7.0       | 8    | 63 | 19 | 3 | 0700             |           | 44.55      |     | 41.60       | 18.0      | 18   | 92   | 32 | 4  | 1800 |                  | 240.15    |          | 224.35 |             |   |
| 8.0       | 8    | 63 | 19 | 3 | 0800             |           | 44.55      |     | 41.60       | 20.0      | 20   | 104  | 38 | 4  | 2000 |                  | 231.40    |          | 215.90 |             |   |
| 9.0       | 10   | 72 | 22 | 3 | 0900             |           | 58.70      |     | 54.75       | 25.0      | 25   | 110  | 38 | 4  | 2500 |                  | 330.70    |          | 308.65 |             |   |
| 10.0      | 10   | 72 | 22 | 4 | 1000             |           | 58.70      |     | 54.75       | 32.0      | 32   | 110  | 38 | 4  | 3200 |                  | 465.30    |          | 433.70 |             |   |

2354V60..  
2354V90..



VHM Entgrat- und Fasfräser

Norm,Hartmetall: Werk,Ultra-Feinstkorn Beschichtung: Auf Basis TIALN Schaft,Drall<-: DIN 6535HA, 8° RSP Schneiden : 4, Typ N

**Anwendung:** Zum Anfasen und Entgraten sowie Konturarbeiten. Geeignete Materialien: Stahl- u. Gusswerkstoffe, INOX-Stähle, Titan, NE-Metalle,Kunststoffe.

Fraises p.chanfrein./contourn.

Norme, MD: sel.usine, grain très fin Revêtement: base TIALN Tige, < hélice: DIN 6535HA, 8° RSP dents : 4, type N

**Application:** Fraises pour chanfreiner, évaburer et contourner. **Matériaux:** aciers, fonte, acier inoxydables,nickel, titane, métaux non ferreux et plastiques

End mill for champhering contouring

Standard,carbide: Factory,Ultra-micro-grain, Coating: Basis TIALN Schaft,Drall<-: DIN 6535HA, 8° RH Flutes: 4, typ N. **Application:** Champhering and deburring as well as contouring. **Materials:** Cast iron, steel, cast steel, chromium and nickel materials, titanium - titanium alloys, non ferrous metals and plastics.

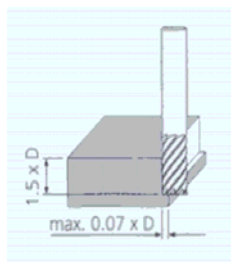
| d1h7       | d2h6 | l1 | Z | Best.Nr./no.cde. | 2354V60.. | Best.Nr./no.cde. | 2354V90.. | 1-4 Stck./pce | 5-9 Stck./pce | ab/des/from | 10    |
|------------|------|----|---|------------------|-----------|------------------|-----------|---------------|---------------|-------------|-------|
|            |      |    |   |                  | 60°       | no.cde.          | 90°       | CHF           | CHF           | CHF         |       |
| 2.354V6029 |      |    |   | Order no.        |           |                  |           |               |               |             |       |
| 4.0*       | 4    | 54 | 4 | 2354V60. 040     |           | 2354V90. 040     |           | 34.30         | 32.00         |             | 30.00 |
| 6.0        | 6    | 57 | 4 | 2354V60. 060     |           | 2354V90. 060     |           | 44.30         | 41.30         |             | 38.80 |
| 8.0        | 8    | 63 | 4 | 2354V60. 080     |           | 2354V90. 080     |           | 56.40         | 52.70         |             | 49.40 |
| 10.0       | 10   | 72 | 4 | 2354V60. 100     |           | 2354V90. 100     |           | 69.30         | 64.70         |             | 60.60 |
| 12.0       | 12   | 83 | 4 | 2354V60. 120     |           | 2354V90. 120     |           | 91.40         | 85.30         |             | 80.00 |

\*Schaftausführung nach DIN 6535HA, \*tiege selon DIN 6535HA \* shank according DIN 6535HA

**Schnittgeschwindigkeit und Vorschub für Hartmetallfräser**

**Vitesse et avance pour les fraises métal dur**

**Cutting speeds and feeds for carbide endmills**



Alle Hartmetallfräser sind mit TA-Beschichtung(TIALN) versehen

Tous les fraises métal dur sont revêtues avec TA (TIALN).

All endmills from carbide are coated with TA (TIAlN)

| Werkstoff material<br>N/mm <sup>2</sup>                                    |                                  | Schnittgeschwindigkeit Vc =<br>(m/min.)<br>cutting speed |                        | Vorschub fz = (mm)<br>feed fz = (mm) |           |           |           |           |           |           |           |
|--|----------------------------------|--|------------------------|--------------------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
|  |                                  | unbesch.<br>uncoated                                     | TA-besch.<br>TA-coated | Ø 6                                  | Ø 8       | Ø 10      | Ø 12      | Ø 14      | Ø 16      | Ø 18      | Ø 20      |
| Stahl ≤ 800<br>steel ≤ 800   | konventionell<br>conventional    | 80-120   | 150-250                | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,06-0,10 | 0,06-0,10 | 0,06-0,12 | 0,08-0,18 | 0,08-0,20 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 400-800                | 0,08-0,10                            | 0,08-0,10 | 0,08-0,12 | 0,10-0,12 | 0,10-0,12 | 0,12-0,15 | 0,15-0,20 | 0,18-0,25 |
| Stahl ≤ 800<br>steel ≤ 800   | konventionell<br>conventional    | 60-100   | 120-200                | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,06-0,10 | 0,06-0,10 | 0,06-0,12 | 0,08-0,18 | 0,08-0,20 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 300-600                | 0,08-0,10                            | 0,08-0,10 | 0,08-0,12 | 0,10-0,12 | 0,10-0,12 | 0,10-0,15 | 0,15-0,20 | 0,18-0,25 |
| Stahl ≤ 1200<br>steel ≤ 1200   | konventionell<br>conventional    | 60-80  | 90-120                 | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,06-0,10 | 0,06-0,10 | 0,06-0,12 | 0,08-0,15 | 0,08-0,20 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 200-400                | 0,08-0,10                            | 0,08-0,10 | 0,08-0,12 | 0,08-0,12 | 0,10-0,12 | 0,12-0,15 | 0,15-0,18 | 0,18-0,25 |
| Rostfreier Stahl (VA)<br>stainless steel (VA)                              | konventionell<br>conventional    | 60-100   | 90-150                 | 0,05-0,06                            | 0,05-0,06 | 0,05-0,08 | 0,05-0,08 | 0,05-0,08 | 0,05-0,10 | 0,06-0,10 | 0,06-0,12 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 200-300                | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,06-0,10 | 0,08-0,10 | 0,10-0,12 | 0,10-0,12 | 0,12-0,15 |
| Hochwarmfeste,<br>Ni-Co-Stähle<br>heat resisting<br>Ni-Co steels           | konventionell<br>conventional    | 30-80  | 50-120                 | 0,05-0,06                            | 0,05-0,06 | 0,05-0,08 | 0,05-0,08 | 0,05-0,08 | 0,05-0,10 | 0,06-0,10 | 0,06-0,12 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 200-250                | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,08-0,10 | 0,08-0,10 | 0,10-0,12 | 0,10-0,12 | 0,12-0,15 |
| Stahlguß<br>steel castings   | konventionell<br>conventional    | 70-100   | 100-150                | 0,05-0,06                            | 0,05-0,06 | 0,05-0,08 | 0,05-0,10 | 0,05-0,10 | 0,05-0,10 | 0,06-0,10 | 0,06-0,12 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 200-350                | 0,06-0,08                            | 0,06-0,08 | 0,06-0,10 | 0,08-0,12 | 0,08-0,12 | 0,08-0,12 | 0,10-0,12 | 0,12-0,15 |
| Grau- und Temperguß<br>cast iron<br>malleable castings                     | konventionell<br>conventional    | 80-150   | 120-220                | 0,06-0,08                            | 0,08-0,10 | 0,08-0,12 | 0,10-0,15 | 0,10-0,16 | 0,10-0,18 | 0,10-0,25 | 0,10-0,30 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 350-450                | 0,08-0,10                            | 0,10-0,12 | 0,12-0,15 | 0,15-0,18 | 0,15-0,20 | 0,18-0,22 | 0,25-0,30 | 0,28-0,36 |
| Aluminium<br>aluminium   | konventionell<br>conventional    | 100-300  | 300-800                | 0,06-0,08                            | 0,08-0,10 | 0,08-0,12 | 0,10-0,15 | 0,10-0,18 | 0,10-0,18 | 0,10-0,20 | 0,10-0,20 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 750-1200               | 0,08-0,10                            | 0,10-0,12 | 0,12-0,15 | 0,15-0,18 | 0,18-0,22 | 0,18-0,22 | 0,20-0,25 | 0,20-0,25 |
| Kupfer, Messing,<br>Bronze, Rotguß<br>copper, brass,<br>bronze, red bronze | konventionell<br>conventional    | 100-200  | 150-500                | 0,06-0,08                            | 0,08-0,10 | 0,08-0,12 | 0,10-0,15 | 0,10-0,18 | 0,10-0,18 | 0,10-0,20 | 0,10-0,20 |
|  | HSC-Bearbeitung<br>HSC-machining |  | 500-800                | 0,08-0,10                            | 0,10-0,12 | 0,12-0,15 | 0,15-0,18 | 0,18-0,22 | 0,18-0,22 | 0,20-0,25 | 0,20-0,25 |