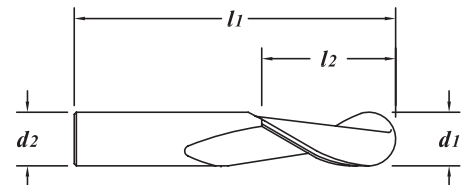




## TOLERANCES

|             |                                     |                                     |
|-------------|-------------------------------------|-------------------------------------|
| $d_1$       | +0,000 -0,025mm (+.000" -.001")     |                                     |
| $d_2$       | 3mm - 6mm                           | +0,0000 -0,0075mm (+.0000" -.0003") |
|             | 1/4" - 1"                           | -0,0025 -0,0100mm (-.0001" -.0004") |
| Ball radius | +0,0000 -0,0127mm (+.0000" -.0005") |                                     |

**HSAL - Ball End - ALUMASTAR Coated**  
**HSAL - Vollradius - ALUMASTAR-Beschichtet**  
**HSAL - Cabeza Esférica - Recubrimiento de ALUMASTAR**  
**HSAL - Hemispherique - Revêtement ALUMASTAR**  
**HSAL - Sferica - Rivestimento in ALUMASTAR**  
**HSAL - 球头 - ALUMASTAR 涂层**



Solid submicron grain carbide end mill - center cutting  
 Specific coating engineered to repel aluminum  
 Engineered to run at 750-2500 SFM (225-750 M/Min.)  
**For high speed machining of aluminum**  
 High velocity - high metal removal rate (for spindles 10,000 RPM and above)  
 Need to use properly balanced holders  
 Holds perpendicularity  
 Flats can be added within 48 hours



Hochleistungs- Vollhartmetallfräser aus Feinkornhartmetall - Zentrumschnitt  
 Spezielle Beschichtung entwickelt zu abstoßen Aluminium  
 Entwickelt für Vorschübe von 225 - 750 M/Min. (750 - 2500 SFM)  
**Für die Hochgeschwindigkeitsbearbeitung von Aluminium**  
 Hohe Geschwindigkeit - Hohe Abtragungsraten (Für Spindeldrehzahlen über 10.000 min<sup>-1</sup>)  
 Benutzen Sie korrekt gewuchtete Spannmittel  
 Hilft die Perpendicularität zu halten  
 Kann mit einer Fläche innerhalb von 48 Stunden werden  
 Radius Toleranz: +0,000 / -0,025 (+.000" -.001")



Fresa de submicrograno sólido carburo de alto rendimiento - corte centrado  
 Recubrimiento concebido específicamente para repeler el aluminio  
 Diseñado para trabajar a 225-750 M/Min. (750-2500 SFM)  
**Para el mecanizado a alta velocidad de aluminio**  
 Alta velocidad - alto índice de desalojo de viruta (Para husillos de 10.000 r.p.m. o mas)  
 Use portaherramientas adecuadaente equilibrados  
 Ayuda a mantener la perpendicularidad  
 Puede ser modificado con un plano en 48 horas  
 Tolerancia de la cabeza esférica +0,000 / -0,025 (+.000" -.001")



Fraises carbure submicrograin - coupe au centre  
 Revêtement special conçu pour l'aluminium  
 Développement pour usiner a 225-750 M/Min. (750-2500 SFM)  
**Pour haute vitesse usinage pour l'aluminium**  
 Haute velocite et haut volume copeaux (Pour les mandrins 10,000 RPM et plus)  
 Utilisation avec porte outils équilibrés  
 Aide a tenir la perpendicularité  
 Peut etre modifier avec un surface plat sous un delai de 48 heures  
 Tolerance du rayon de hemispherique +0,000 / -0,025 (+.000" -.001")



Super sub-micrograno metallo duro - taglio al centro  
 Rivestimento specifico costruito per respingere alluminio  
 Costruito per alta velocità 225-750 M/Min. (750-2500 SFM)  
**Per lavorazioni ad alta velocità su alluminio**  
 Alta velocità - Alto volume di materiale asportato (Per 10.000 Giri al minuto e superiori)  
 Usare mandrini bilanciati  
 Rispettare la perpendicolarità  
 Può essere modificata in 48 ore  
 Tolleranza del raggio +0,000 / -0,025 (+.000" -.001")



高速加工铝合金整体硬质合金立铣刀 - 中心切削  
 特殊涂层专为加工铝合金  
 适用于按750-2500英尺/分 (225-750 米/分) 线速度运转的专用涂层  
**适合高速加工铝合金**  
 高速—高切削率 用于主轴转速在10,000 RPM及更高  
 使用动平衡的刀夹  
 保持垂直  
 可在48小时内磨成削平柄  
 半径公差 +0,000 / -0,025 (+.000" -.001")

| EDP#  | $d_1$ † |                    | $d_2$<br>Shank<br>Diameter | $l_1$<br>Overall<br>Length | $l_2$<br>Flute<br>Length |        |
|-------|---------|--------------------|----------------------------|----------------------------|--------------------------|--------|
|       | Decimal | Diameter<br>Metric |                            |                            |                          |        |
| 42522 | .1575   | <b>4,00</b>        | <b>6,0</b>                 | <b>50</b>                  | <b>12</b>                |        |
| 42582 | .1875   | 3/16"              | 4,76                       | 3/16"                      | 2"                       | 9/16"  |
| 42642 | .1969   | <b>5,00</b>        | <b>6,0</b>                 | <b>65</b>                  | <b>16</b>                |        |
| 42702 | .2362   | <b>6,00</b>        | <b>6,0</b>                 | <b>65</b>                  | <b>19</b>                |        |
| 42762 | .2500   | 1/4"               | 6,35                       | 1/4"                       | 2-1/2"                   | 3/4"   |
| 42842 | .2756   | <b>7,00</b>        | <b>8,0</b>                 | <b>65</b>                  | <b>19</b>                |        |
| 42902 | .3125   | 5/16"              | 7,94                       | 5/16"                      | 2-1/2"                   | 3/4"   |
| 42962 | .3150   | <b>8,00</b>        | <b>8,0</b>                 | <b>65</b>                  | <b>19</b>                |        |
| 43022 | .3750   | 3/8"               | 9,52                       | 3/8"                       | 2-1/2"                   | 7/8"   |
| 43102 | .3937   | <b>10,00</b>       | <b>10,0</b>                | <b>70</b>                  | <b>24</b>                |        |
| 43182 | .4724   | <b>12,00</b>       | <b>12,0</b>                | <b>75</b>                  | <b>32</b>                |        |
| 43242 | .5000   | 1/2"               | 12,70                      | 1/2"                       | 3"                       | 1-1/4" |
| 43322 | .6250   | 5/8"               | 15,87                      | 5/8"                       | 4"                       | 1-5/8" |
| 43382 | .6299   | <b>16,00</b>       | <b>16,0</b>                | <b>100</b>                 | <b>40</b>                |        |
| 43442 | .7500   | 3/4"               | 19,05                      | 3/4"                       | 4"                       | 1-5/8" |
| 43482 | .7874   | <b>20,00</b>       | <b>20,0</b>                | <b>100</b>                 | <b>32</b>                |        |
| 43542 | .9843   | <b>25,00</b>       | <b>25,0</b>                | <b>100</b>                 | <b>38</b>                |        |
| 43602 | 1.000   | 1"                 | 25,40                      | 1"                         | 4"                       | 1-5/8" |