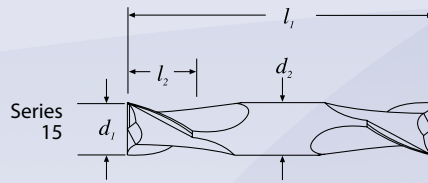


## 2 Flute – Double End – Square End

Series 15



### TOLERANCES

$d_1 = +.000 - .002$   
 $d_2 = -.0001 - .0004$

### Series 15 • 15M



End Mills – Double End – Square End – Micrograin Solid Carbide – 2 Flute – 30° Right Hand Spiral – Right Hand Cutting – Center Cutting  
\* With Flat

### Serie 15 • 15M



Fresas – Doble punta – Punta plana – Carburo sólido con micrograno – 2 filos – Hélice a derecha 30° – Corte a derecha – Corte al centro  
\* Con en el Mango

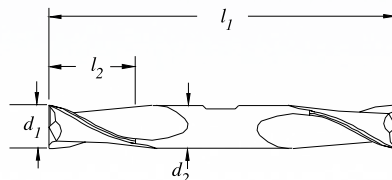
### Série 15 • 15M



Fraises – Tailée aux 2 bouts – Bout plat – Carbure monobloc, micrograin – 2 dents – Hélice à droite, 30° – Coupe à droite – Coupe au centre  
\* Avec Méplat

| Cutting Diameter<br>$d_1$ | Length of Cut<br>$l_2$ | Overall Length<br>$l_1$ | Shank Diameter<br>$d_2$ | Uncoated<br>EDP No. | Ti-NAMITE<br>(TiN)<br>EDP No. | Ti-NAMITE-C<br>(TiCN)<br>EDP No. | Ti-NAMITE-A<br>(AlTiN)<br>EDP No. | Series<br>Number |
|---------------------------|------------------------|-------------------------|-------------------------|---------------------|-------------------------------|----------------------------------|-----------------------------------|------------------|
| 1/32                      | 1/16                   | 1-1/2                   | 1/8                     | 31501               | 31541                         | 39651                            | 31316                             | 15               |
| 3/64                      | 3/32                   | 1-1/2                   | 1/8                     | 31503               | 31543                         | 39653                            | 31317                             | 15               |
| 1/16                      | 1/8                    | 1-1/2                   | 1/8                     | 31505               | 31545                         | 39655                            | 31318                             | 15               |
| 5/64                      | 1/8                    | 1-1/2                   | 1/8                     | 31507               | 31547                         | 39657                            | 31319                             | 15               |
| 3/32                      | 3/16                   | 1-1/2                   | 1/8                     | 31509               | 31549                         | 39659                            | 31320                             | 15               |
| 7/64                      | 3/16                   | 1-1/2                   | 1/8                     | 31511               | 31551                         | 39661                            | 31321                             | 15               |
| 1/8                       | 1/4                    | 1-1/2                   | 1/8                     | 31513               | 31553                         | 39663                            | 31322                             | 15               |
| *1/8                      | 3/8                    | 3-1/16                  | 3/8                     | 31101               | 31034                         | 31045                            | 31056                             | 11               |
| 9/64                      | 5/16                   | 2                       | 3/16                    | 31515               | 31555                         | 39665                            | 31323                             | 15               |
| 5/32                      | 5/16                   | 2                       | 3/16                    | 31517               | 31557                         | 39667                            | 31324                             | 15               |
| *5/32                     | 7/16                   | 3-1/8                   | 3/8                     | 31103               | 31035                         | 31046                            | 31057                             | 11               |
| 11/64                     | 5/16                   | 2                       | 3/16                    | 31519               | 31559                         | 39669                            | 31325                             | 15               |
| 3/16                      | 3/8                    | 2                       | 3/16                    | 31521               | 31561                         | 39671                            | 31326                             | 15               |
| *3/16                     | 1/2                    | 3-1/4                   | 3/8                     | 31105               | 31036                         | 31047                            | 31058                             | 11               |
| 13/64                     | 1/2                    | 2-1/2                   | 1/4                     | 31523               | 31563                         | 39673                            | 31327                             | 15               |
| 7/32                      | 1/2                    | 2-1/2                   | 1/4                     | 31525               | 31565                         | 39675                            | 31328                             | 15               |
| *7/32                     | 9/16                   | 3-3/8                   | 3/8                     | 31107               | 31037                         | 31048                            | 31059                             | 11               |
| 15/64                     | 1/2                    | 2-1/2                   | 1/4                     | 31527               | 31567                         | 39677                            | 31329                             | 15               |
| 1/4                       | 1/2                    | 2-1/2                   | 1/4                     | 31529               | 31569                         | 39679                            | 31330                             | 15               |
| *1/4                      | 5/8                    | 3-3/8                   | 3/8                     | 31109               | 31038                         | 31049                            | 31060                             | 11               |
| 9/32                      | 1/2                    | 2-1/2                   | 5/16                    | 31531               | 31571                         | 39681                            | 31331                             | 15               |
| *9/32                     | 11/16                  | 3-3/8                   | 3/8                     | 31111               | 31039                         | 31050                            | 31061                             | 11               |
| 5/16                      | 1/2                    | 2-1/2                   | 5/16                    | 31533               | 31573                         | 39683                            | 31332                             | 15               |
| *5/16                     | 3/4                    | 3-1/2                   | 3/8                     | 31113               | 31040                         | 31051                            | 31062                             | 11               |
| *11/32                    | 3/4                    | 3-1/2                   | 3/8                     | 31115               | 31041                         | 31052                            | 31063                             | 11               |
| 3/8                       | 9/16                   | 2-1/2                   | 3/8                     | 31535               | 31575                         | 39685                            | 31333                             | 15               |
| *3/8                      | 3/4                    | 3-1/2                   | 3/8                     | 31117               | 31042                         | 31053                            | 31064                             | 11               |
| 7/16                      | 9/16                   | 2-3/4                   | 7/16                    | 31537               | 31577                         | 39687                            | 31334                             | 15               |
| *7/16                     | 7/8                    | 4                       | 1/2                     | 31119               | 31043                         | 31054                            | 31065                             | 11               |
| 1/2                       | 5/8                    | 3                       | 1/2                     | 31539               | 31579                         | 39689                            | 31335                             | 15               |
| *1/2                      | 1                      | 4                       | 1/2                     | 31121               | 31044                         | 31055                            | 31066                             | 11               |

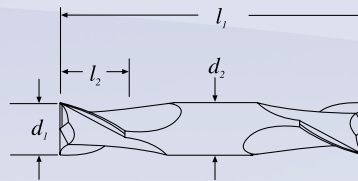
Series 11



Series 11



## TOLERANCES

 $d_1 = +0,000 - 0,05$  $d_2 = +0,000 - 0,01$ 

| Cutting Diameter<br>$d_1$<br>mm | Length of Cut<br>$l_2$<br>mm | Overall Length<br>$l_1$<br>mm | Shank Diameter<br>$d_2$<br>mm | Uncoated | Ti-NAMITE (TiN) | Ti-NAMITE-C (TiCN) | Ti-NAMITE-A (AlTiN) | Series Number |
|---------------------------------|------------------------------|-------------------------------|-------------------------------|----------|-----------------|--------------------|---------------------|---------------|
|                                 |                              |                               |                               | EDP No.  | EDP No.         | EDP No.            | EDP No.             |               |
| 1                               | 2                            | 38                            | 3                             | 41505    | 49010           | 49031              | 49052               | 15M           |
| 1,5                             | 3                            | 38                            | 3                             | 41509    | 49011           | 49032              | 49053               | 15M           |
| 2                               | 4                            | 38                            | 3                             | 41513    | 49012           | 49033              | 49054               | 15M           |
| 2,5                             | 5                            | 38                            | 3                             | 41517    | 49013           | 49034              | 49055               | 15M           |
| 3                               | 6                            | 38                            | 3                             | 41521    | 49014           | 49035              | 49056               | 15M           |
| 3,5                             | 7                            | 50                            | 4                             | 41525    | 49015           | 49036              | 49057               | 15M           |
| 4                               | 8                            | 50                            | 4                             | 41529    | 49016           | 49037              | 49058               | 15M           |
| 4,5                             | 9,5                          | 63                            | 4,5                           | 41533    | 49017           | 49038              | 49059               | 15M           |
| 5                               | 10                           | 63                            | 5                             | 41537    | 49018           | 49039              | 49060               | 15M           |
| 6                               | 12                           | 63                            | 6                             | 41541    | 49019           | 49040              | 49061               | 15M           |
| 7                               | 12                           | 63                            | 8                             | 41545    | 49020           | 49041              | 49062               | 15M           |
| 8                               | 12                           | 63                            | 8                             | 41549    | 49021           | 49042              | 49063               | 15M           |
| 9                               | 14                           | 75                            | 9                             | 41553    | 49022           | 49043              | 49064               | 15M           |
| 10                              | 14                           | 75                            | 10                            | 41557    | 49023           | 49044              | 49065               | 15M           |
| 11                              | 14                           | 75                            | 12                            | 41561    | 49024           | 49045              | 49066               | 15M           |
| 12                              | 16                           | 75                            | 12                            | 41565    | 49025           | 49046              | 49067               | 15M           |

