

## Fullcut Mill

Fresas de placas intercambiables con excelentes afilado y tenacidad que logran el mismo rendimiento que las fresas integrales.



### Filo de corte afilado gracias a los grandes ángulos de ataque tanto axiales como radiales

Filo de corte positivo tanto radial como axial logra un fresado uniforme y silencioso.



### Asombroso rendimiento de corte, gracias al cuerpo integral y al cono de doble contacto

El diseño integral con cuerpo cónico y contacto de frontal con el cabezal de la máquina aporta una precisión y rigidez superiores, con lo que se consiguen unas condiciones de corte que de otro modo solo serían posibles en máquinas más grandes.

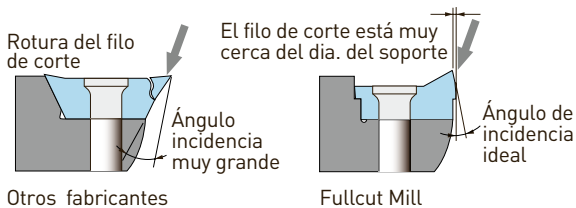
Tipo BBT y BDV



Tipo HSK



### Un filo de corte fuerte reduce la acumulación de material en el filo



### Magnífico rendimiento de corte incluso con una máquina con cono #40

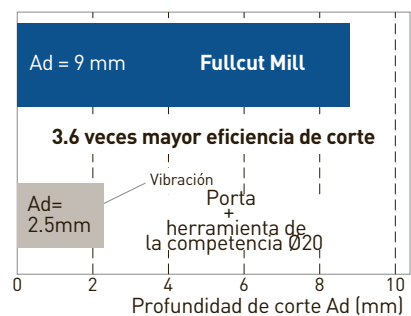
Comparación de DOC axial entre el tipo integral con doble contacto y el tipo de mango cilíndrico. Rendimiento de corte 3,6 veces superior al de otro fabricante.

#### Condiciones de corte

Máquina: BBT40 (BIG-PLUS®)  
 Ranurado: 20 mm  
 Material: C50 (S50C)  
 RPM: 2 400 min<sup>-1</sup>  
 Vc: V = 150 m/min  
 Avance: 0.12 mm/diente



Excelente superficie



## Fullcut Mill Tipo FCR

Las placas exclusivas diseñadas para fresado en rampa permiten cortes multifuncionales.

- Herramienta: Ø 16 - 33

Rigidez superior con cuerpo integral y sistema de doble contacto.

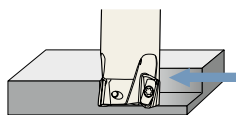
Tipo BBT and BDV

Tipo HSK

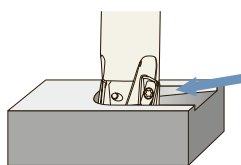
Tipo Mango cilíndrico



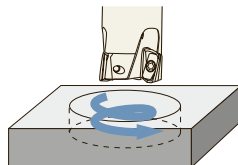
Fresado de escuadrado



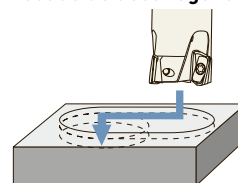
En rampa



Fresado helicoidal



Fresado de desahogo taladrando



## Fullcut Mill Tipo FCM

- Herramienta: Ø 12 - 100

Variedad de tipos, incluyendo el cuerpo integral.

Tipo BBT y BDV

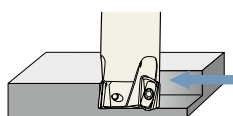
Tipo HSK

Tipo Mango cilíndrico

Tipo portafresas



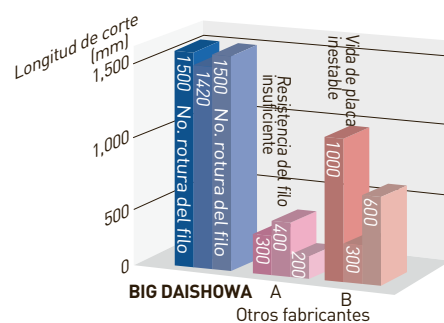
Fresado de escuadrado



### El filo de corte resistente del Fullcut Mill está contrastado



Una evaluación de la longitud de corte/vida útil medidas en el mecanizado de las piezas de trabajo más difíciles fresando una serie continuada de agujeros. Se trata de la situación en la que con más frecuencia provoca roturas en el filo de corte.

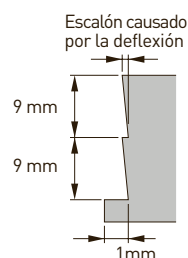


### Acabado con fresa de placas - ¿Por qué no?

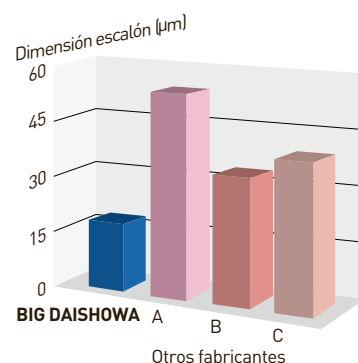


Placa con el radio mínimo de 0,2 mm y escuadrado soberbio para lograr un fresado de alta precisión comparable con el de herramientas integrales de metal duro.

Material: SUS304  
C/M Vertical: No. 40  
Dia. herramienta: Ø 25 mm  
Avance: 0.12 mm/diente



La verticalidad viene dada por los parámetros de corte, material a trabajar, rigidez de la máquina y la pieza a trabajar.



## Fullcut Mill FCM - Tipo Estándar con BBT

La fresa de placa intercambiable que combina afilado y rigidez.

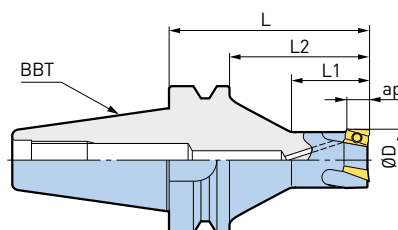


Fig. 1

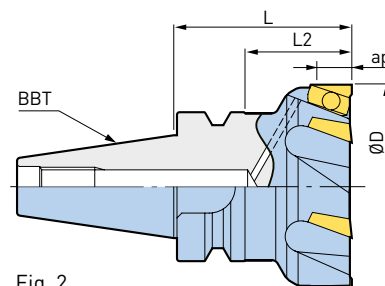


Fig. 2

| Modelo             | Artículo No. | Fig. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|--------------------|--------------|------|----|-----|----|-----|----|---------------|------------------|-----------|
| BBT30-FCM16092-65  | 966.216      | 1    | 16 | 65  | 23 | 43  | 9  | 2             | ARG16            | 0.48      |
| BBT30-FCM20093-65  | 966.217      | 1    | 20 | 65  | 28 | 43  | 9  | 3             | ARG20            | 0.49      |
| BBT30-FCM25093-65  | 966.218      | 1    | 25 | 65  | 33 | 43  | 9  | 3             | ARG25            | 0.52      |
| BBT30-FCM25093-105 | 100644.001.0 | 1    | 25 | 105 | 34 | 83  | 9  | 3             | ARG25            | 0.75      |
| BBT30-FCM32113-65  | 966.219      | 1    | 32 | 65  | 38 | 43  | 11 | 3             | ARG32            | 0.56      |
| BBT30-FCM32113-105 | 100644.002.0 | 1    | 32 | 105 | 44 | 83  | 11 | 3             | ARG32            | 0.85      |
| BBT30-FCM40114-50  | 966.220      | 1    | 40 | 50  | 25 | 28  | 11 | 4             | ARG40            | 0.54      |
| BBT30-FCM50115-50  | 966.120      | 2    | 50 | 50  | -  | 28  | 11 | 5             | ARG40            | 0.65      |
| BBT30-FCM63116-55  | 100644.004.0 | 2    | 63 | 55  | -  | 33  | 11 | 6             | ARG63            | 0.85      |
| BBT40-FCM16092-85  | 966.221      | 1    | 16 | 85  | 23 | 58  | 9  | 2             | ARG16            | 1.20      |
| BBT40-FCM16092-105 | 966.121      | 1    | 16 | 105 | 30 | 78  | 9  | 2             | ARG16            | 1.30      |
| BBT40-FCM16092-120 | 966.122      | 1    | 16 | 120 | 25 | 93  | 9  | 2             | ARG16            | 1.40      |
| BBT40-FCM16092-150 | 966.123      | 1    | 16 | 150 | 25 | 123 | 9  | 2             | ARG16            | 1.70      |
| BBT40-FCM20093-85  | 966.222      | 1    | 20 | 85  | 28 | 58  | 9  | 3             | ARG20            | 1.20      |
| BBT40-FCM20093-105 | 966.124      | 1    | 20 | 105 | 35 | 78  | 9  | 3             | ARG20            | 1.30      |
| BBT40-FCM20093-120 | 966.125      | 1    | 20 | 120 | 30 | 93  | 9  | 3             | ARG20            | 1.40      |
| BBT40-FCM20093-150 | 966.126      | 1    | 20 | 150 | 30 | 123 | 9  | 3             | ARG20            | 1.80      |
| BBT40-FCM25093-85  | 966.223      | 1    | 25 | 85  | 33 | 58  | 9  | 3             | ARG25            | 1.20      |
| BBT40-FCM25093-120 | 966.127      | 1    | 25 | 120 | 45 | 93  | 9  | 3             | ARG25            | 1.50      |
| BBT40-FCM25093-135 | 966.128      | 1    | 25 | 135 | 40 | 108 | 9  | 3             | ARG25            | 1.60      |
| BBT40-FCM25093-165 | 966.129      | 1    | 25 | 165 | 40 | 138 | 9  | 3             | ARG25            | 1.90      |
| BBT40-FCM32113-85  | 966.224      | 1    | 32 | 85  | 38 | 58  | 11 | 3             | ARG32            | 1.30      |
| BBT40-FCM32113-120 | 966.130      | 1    | 32 | 120 | 60 | 93  | 11 | 3             | ARG32            | 1.60      |
| BBT40-FCM32113-135 | 966.131      | 1    | 32 | 135 | 50 | 108 | 11 | 3             | ARG32            | 1.70      |
| BBT40-FCM32113-165 | 966.132      | 1    | 32 | 165 | 40 | 138 | 11 | 3             | ARG32            | 2.20      |
| BBT40-FCM40114-85  | 966.225      | 1    | 40 | 85  | 43 | 58  | 11 | 4             | ARG40            | 1.40      |
| BBT40-FCM40114-120 | 966.133      | 1    | 40 | 120 | 65 | 93  | 11 | 4             | ARG40            | 1.80      |
| BBT40-FCM40114-135 | 966.134      | 1    | 40 | 135 | 60 | 108 | 11 | 4             | ARG40            | 2.00      |
| BBT40-FCM40114-165 | 966.135      | 1    | 40 | 165 | 50 | 138 | 11 | 4             | ARG40            | 2.50      |
| BBT40-FCM50115-70  | 966.226      | 1    | 50 | 70  | 38 | 43  | 11 | 5             | ARG40            | 1.40      |
| BBT40-FCM50115-120 | 966.136      | 1    | 50 | 120 | 65 | 93  | 11 | 5             | ARG40            | 2.20      |
| BBT40-FCM50115-135 | 966.137      | 1    | 50 | 135 | 60 | 108 | 11 | 5             | ARG40            | 2.40      |
| BBT40-FCM50115-165 | 966.138      | 1    | 50 | 165 | 50 | 138 | 11 | 5             | ARG40            | 3.00      |

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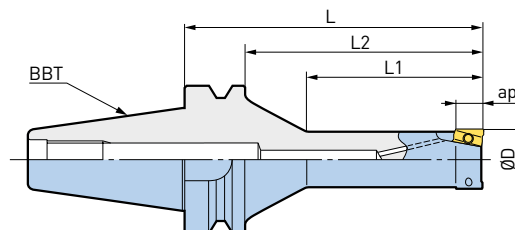
1. Pueden utilizarse portaherramientas BIG-PLUS® en centros de mecanizado con husillos DV convencionales.
2. Se incluye la llave.
3. Las placas han de pedirse por separado.

### Accesorios & Recambios

|                                               |                                             |                           |                                              |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Adaptador para cono BBT50</p> <p>► 471</p> | <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo Largo con BBT

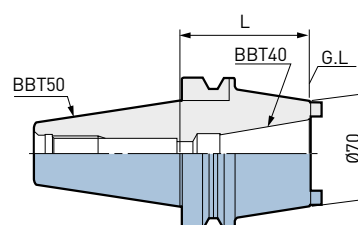
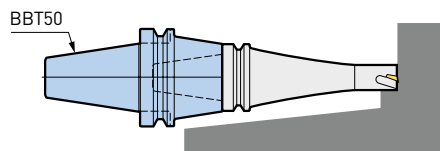
La fresa de placa intercambiable que combina afilado y rigidez.



| Modelo              | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|---------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| BBT30-FCM16092L-85  | 966.081      | 16 | 85  | 45 | 63  | 9  | 2             | ARG16            | 0.50      |
| BBT30-FCM20092L-85  | 966.082      | 20 | 85  | 50 | 63  | 9  | 2             | ARG20            | 0.60      |
| BBT30-FCM25092L-85  | 966.083      | 25 | 85  | 50 | 63  | 9  | 2             | ARG25            | 0.60      |
| BBT30-FCM32112L-85  | 966.084      | 32 | 85  | 60 | 63  | 11 | 2             | ARG32            | 0.70      |
| BBT40-FCM16092L-105 | 966.085      | 16 | 105 | 45 | 78  | 9  | 2             | ARG16            | 1.20      |
| BBT40-FCM16092L-120 | 966.086      | 16 | 120 | 45 | 93  | 9  | 2             | ARG16            | 1.40      |
| BBT40-FCM20092L-120 | 966.087      | 20 | 120 | 60 | 93  | 9  | 2             | ARG20            | 1.30      |
| BBT40-FCM20092L-135 | 966.088      | 20 | 135 | 60 | 108 | 9  | 2             | ARG20            | 1.40      |
| BBT40-FCM25092L-135 | 966.089      | 25 | 135 | 75 | 108 | 9  | 2             | ARG25            | 1.50      |
| BBT40-FCM25092L-150 | 966.090      | 25 | 150 | 75 | 123 | 9  | 2             | ARG25            | 1.60      |
| BBT40-FCM32112L-135 | 966.091      | 32 | 135 | 80 | 108 | 11 | 2             | ARG32            | 1.60      |
| BBT40-FCM32112L-150 | 966.092      | 32 | 150 | 90 | 123 | 11 | 2             | ARG32            | 1.80      |





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2. Se incluye la llave.
3. Las placas han de pedirse por separado.

### Adaptador para cono BBT50



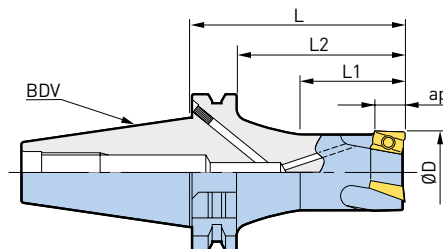
| Modelo         | Artículo No. | L  | Peso (kg) |
|----------------|--------------|----|-----------|
| BBT50-BBT40-50 | 803.730      | 50 | 3.60      |
| BBT50-BBT40-90 | 803.731      | 90 | 5.00      |

### Accesorios & Recambios

| Adaptador para cono BBT50                                                           | Placas Fullcut Mill FCM                                                             | Llave                                                                               | Tornillos sujeción placa                                                            |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |
| ► 471                                                                               | ► 480                                                                               | ► 493                                                                               | ► 493                                                                               |

## Fullcut Mill FCM - Tipo Estándar con BDV

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.



| Modelo             | Artículo No. | ØD | L   | L1  | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|--------------------|--------------|----|-----|-----|-----|----|---------------|------------------|-----------|
| BDV40-FCM16092-85  | 966.206      | 16 | 85  | 23  | 65  | 9  | 2             | ARG16            | 1.10      |
| BDV40-FCM16092-105 | 966.161      | 16 | 105 | 35  | 85  | 9  | 2             | ARG16            | 1.20      |
| BDV40-FCM16092-120 | 966.162      | 16 | 120 | 34  | 100 | 9  | 2             | ARG16            | 1.20      |
| BDV40-FCM20093-85  | 966.207      | 20 | 85  | 35  | 65  | 9  | 3             | ARG20            | 1.10      |
| BDV40-FCM20093-105 | 966.163      | 20 | 105 | 40  | 85  | 9  | 3             | ARG20            | 1.20      |
| BDV40-FCM20093-120 | 966.164      | 20 | 120 | 39  | 100 | 9  | 3             | ARG20            | 1.20      |
| BDV40-FCM25093-85  | 966.208      | 25 | 85  | 33  | 65  | 9  | 3             | ARG25            | 1.10      |
| BDV40-FCM25093-120 | 966.165      | 25 | 120 | 45  | 100 | 9  | 3             | ARG25            | 1.30      |
| BDV40-FCM25093-135 | 966.166      | 25 | 135 | 40  | 115 | 9  | 3             | ARG25            | 1.40      |
| BDV40-FCM32113-85  | 966.209      | 32 | 85  | 38  | 65  | 11 | 3             | ARG32            | 1.20      |
| BDV40-FCM32113-120 | 966.167      | 32 | 120 | 60  | 100 | 11 | 3             | ARG32            | 1.40      |
| BDV40-FCM32113-135 | 966.168      | 32 | 135 | 50  | 115 | 11 | 3             | ARG32            | 1.60      |
| BDV40-FCM40114-85  | 966.210      | 40 | 85  | 45  | 65  | 11 | 4             | ARG40            | 1.30      |
| BDV40-FCM40114-120 | 966.169      | 40 | 120 | 65  | 100 | 11 | 4             | ARG40            | 1.70      |
| BDV40-FCM40114-135 | 966.170      | 40 | 135 | 60  | 115 | 11 | 4             | ARG40            | 1.80      |
| BDV40-FCM50115-70  | 966.211      | 50 | 70  | 50  | 50  | 11 | 5             | ARG40            | 1.40      |
| BDV40-FCM50115-120 | 966.171      | 50 | 120 | 100 | 100 | 11 | 5             | ARG40            | 2.10      |
| BDV40-FCM50115-135 | 966.172      | 50 | 135 | 115 | 115 | 11 | 5             | ARG40            | 2.30      |

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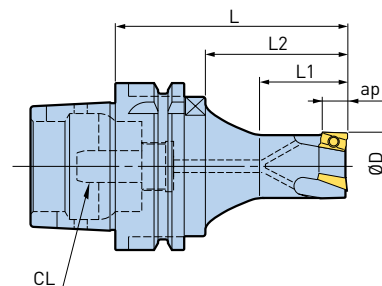
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### Accesorios & Recambios

|                                             |                           |                                              |
|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo Estándar con HSK-A

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.



| Modelo               | Artículo No. | ØD | L   | L1  | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|----------------------|--------------|----|-----|-----|-----|----|---------------|------------------|-----------|
| HSK-A40-FCM16092-65  | 966.101      | 16 | 65  | 23  | 37  | 9  | 2             | ARG16            | 0.28      |
| HSK-A40-FCM20093-65  | 966.102      | 20 | 65  | 28  | 37  | 9  | 3             | ARG20            | 0.30      |
| HSK-A40-FCM25093-65  | 966.103      | 25 | 65  | 35  | 37  | 9  | 3             | ARG25            | 0.34      |
| HSK-A40-FCM32113-65  | 966.104      | 32 | 65  | 35  | 37  | 11 | 3             | ARG32            | 0.39      |
| HSK-A40-FCM40114-65  | 966.105      | 40 | 65  | 45  | -   | 11 | 4             | ARG40            | 0.47      |
| HSK-A40-FCM50115-65  | 966.106      | 50 | 65  | 45  | -   | 11 | 5             | ARG40            | 0.59      |
| HSK-A50-FCM16092-75  | 966.107      | 16 | 75  | 23  | 41  | 9  | 2             | ARG16            | 0.60      |
| HSK-A50-FCM20093-75  | 966.108      | 20 | 75  | 28  | 41  | 9  | 3             | ARG20            | 0.60      |
| HSK-A50-FCM25093-75  | 966.109      | 25 | 75  | 33  | 41  | 9  | 3             | ARG25            | 0.60      |
| HSK-A50-FCM32113-75  | 966.110      | 32 | 75  | 39  | 41  | 11 | 3             | ARG32            | 0.70      |
| HSK-A50-FCM40114-75  | 966.111      | 40 | 75  | 48  | -   | 11 | 4             | ARG40            | 0.80      |
| HSK-A50-FCM50115-75  | 966.112      | 50 | 75  | 48  | -   | 11 | 5             | ARG40            | 0.90      |
| HSK-A63-FCM16092-85  | 966.231      | 16 | 85  | 23  | 51  | 9  | 2             | ARG16            | 0.90      |
| HSK-A63-FCM16092-105 | 966.141      | 16 | 105 | 30  | 71  | 9  | 2             | ARG16            | 1.00      |
| HSK-A63-FCM16092-120 | 966.142      | 16 | 120 | 25  | 86  | 9  | 2             | ARG16            | 1.10      |
| HSK-A63-FCM16092-150 | 966.143      | 16 | 150 | 25  | 116 | 9  | 2             | ARG16            | 1.20      |
| HSK-A63-FCM20093-85  | 966.232      | 20 | 85  | 28  | 51  | 9  | 3             | ARG20            | 0.90      |
| HSK-A63-FCM20093-105 | 966.144      | 20 | 105 | 35  | 71  | 9  | 3             | ARG20            | 1.00      |
| HSK-A63-FCM20093-120 | 966.145      | 20 | 120 | 30  | 86  | 9  | 3             | ARG20            | 1.10      |
| HSK-A63-FCM20093-150 | 966.146      | 20 | 150 | 30  | 116 | 9  | 3             | ARG20            | 1.30      |
| HSK-A63-FCM25093-85  | 966.233      | 25 | 85  | 33  | 51  | 9  | 3             | ARG25            | 1.00      |
| HSK-A63-FCM25093-120 | 966.147      | 25 | 120 | 45  | 86  | 9  | 3             | ARG25            | 1.10      |
| HSK-A63-FCM25093-135 | 966.148      | 25 | 135 | 40  | 101 | 9  | 3             | ARG25            | 1.20      |
| HSK-A63-FCM25093-165 | 966.149      | 25 | 165 | 40  | 131 | 9  | 3             | ARG25            | 1.40      |
| HSK-A63-FCM32113-85  | 966.234      | 32 | 85  | 38  | 51  | 11 | 3             | ARG32            | 1.00      |
| HSK-A63-FCM32113-120 | 966.150      | 32 | 120 | 60  | 86  | 11 | 3             | ARG32            | 1.20      |
| HSK-A63-FCM32113-135 | 966.151      | 32 | 135 | 50  | 101 | 11 | 3             | ARG32            | 1.40      |
| HSK-A63-FCM32113-165 | 966.152      | 32 | 165 | 40  | 131 | 11 | 3             | ARG32            | 1.60      |
| HSK-A63-FCM40114-85  | 966.235      | 40 | 85  | 43  | 51  | 11 | 4             | ARG40            | 1.10      |
| HSK-A63-FCM40114-120 | 966.153      | 40 | 120 | 65  | 86  | 11 | 4             | ARG40            | 1.40      |
| HSK-A63-FCM40114-135 | 966.154      | 40 | 135 | 60  | 101 | 11 | 4             | ARG40            | 1.60      |
| HSK-A63-FCM40114-165 | 966.155      | 40 | 165 | 50  | 131 | 11 | 4             | ARG40            | 1.90      |
| HSK-A63-FCM50115-70  | 966.236      | 50 | 70  | 28  | 28  | 11 | 5             | ARG40            | 1.20      |
| HSK-A63-FCM50115-120 | 966.156      | 50 | 120 | 78  | 78  | 11 | 5             | ARG40            | 1.90      |
| HSK-A63-FCM50115-135 | 966.157      | 50 | 135 | 93  | 93  | 11 | 5             | ARG40            | 2.10      |
| HSK-A63-FCM50115-165 | 966.158      | 50 | 165 | 123 | 123 | 11 | 5             | ARG40            | 2.50      |

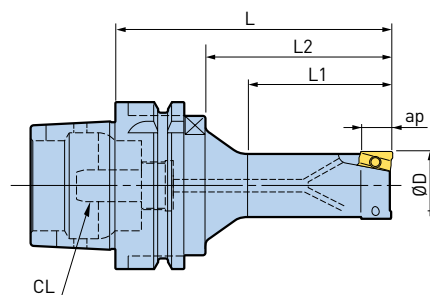
1. Los tubos de refrigerante (CL) y las placas han de pedirse por separado.
2. Se incluye la llave.

### Accesorios & Recambios

|                                             |                                                      |                           |                                              |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Tubos para refrigerante Tipo A/E</p> <p>► 250</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo Largo con HSK-A

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.



| Modelo                | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-----------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| HSK-A63-FCM16092L-85  | 966.093      | 16 | 85  | 40 | 51  | 9  | 2             | ARG16            | 0.90      |
| HSK-A63-FCM16092L-120 | 966.094      | 16 | 120 | 45 | 86  | 9  | 2             | ARG16            | 1.00      |
| HSK-A63-FCM20092L-105 | 966.095      | 20 | 105 | 50 | 71  | 9  | 2             | ARG20            | 1.00      |
| HSK-A63-FCM20092L-120 | 966.096      | 20 | 120 | 60 | 86  | 9  | 2             | ARG20            | 1.00      |
| HSK-A63-FCM25092L-105 | 966.097      | 25 | 105 | 55 | 71  | 9  | 2             | ARG25            | 1.10      |
| HSK-A63-FCM25092L-120 | 966.098      | 25 | 120 | 65 | 86  | 9  | 2             | ARG25            | 1.10      |
| HSK-A63-FCM32112L-120 | 966.099      | 32 | 120 | 70 | 86  | 11 | 2             | ARG32            | 1.20      |
| HSK-A63-FCM32112L-135 | 966.100      | 32 | 135 | 80 | 101 | 11 | 2             | ARG32            | 1.40      |

1. Los tubos de refrigerante (CL) y las placas han de pedirse por separado.
2. Se incluye la llave.

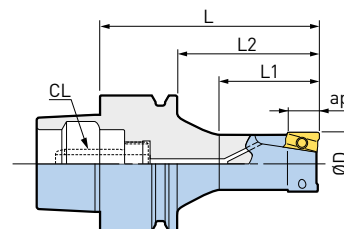
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### Accesorios & Recambios

|                                             |                                                      |                           |                                              |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Tubos para refrigerante Tipo A/E</p> <p>► 250</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo Estándar con HSK-E

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.



| Modelo              | Artículo No. | ØD | L  | L1 | L2 | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|---------------------|--------------|----|----|----|----|----|---------------|------------------|-----------|
| HSK-E25-FCM16092-45 | 966.173      | 16 | 45 | 23 | 35 | 9  | 2             | ARG16            | 0.08      |
| HSK-E32-FCM16092-55 | 966.174      | 16 | 55 | 23 | 35 | 9  | 2             | ARG16            | 0.17      |
| HSK-E40-FCM16092-65 | 966.115      | 16 | 65 | 28 | 45 | 9  | 2             | ARG16            | 0.27      |

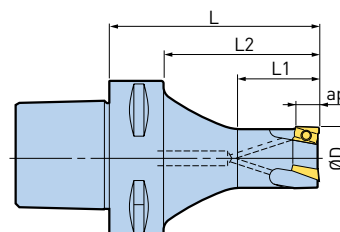
1. Los tubos de refrigerante (CL) y las placas han de pedirse por separado.
2. Se incluye la llave.

### Accesorios & Recambios

|                                             |                                                      |                           |                                              |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Tubos para refrigerante Tipo A/E</p> <p>► 250</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo Estándar con BIG CAPTO

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.






| Modelo          | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-----------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| C5-FCM16092-65  | 805.858      | 16 | 65  | 23 | 45  | 9  | 2             | ARG16            | 0.52      |
| C5-FCM16092-90  | 805.859      | 16 | 90  | 30 | 70  | 9  | 2             | ARG16            | 0.60      |
| C5-FCM20093-65  | 973.609      | 20 | 65  | 28 | 45  | 9  | 3             | ARG20            | 0.50      |
| C5-FCM20093-90  | 805.860      | 20 | 90  | 35 | 70  | 9  | 3             | ARG20            | 0.60      |
| C5-FCM25093-65  | 805.861      | 25 | 65  | 33 | 45  | 9  | 3             | ARG25            | 0.60      |
| C5-FCM25093-90  | 805.862      | 25 | 90  | 40 | 70  | 9  | 3             | ARG25            | 0.70      |
| C5-FCM32113-65  | 805.863      | 32 | 65  | 38 | 45  | 11 | 3             | ARG32            | 0.60      |
| C5-FCM32113-90  | 805.864      | 32 | 90  | 45 | 70  | 11 | 3             | ARG32            | 0.80      |
| C5-FCM40114-50  | 805.865      | 40 | 50  | 25 | 30  | 11 | 4             | ARG40            | 0.60      |
| C5-FCM40114-90  | 805.866      | 40 | 90  | 60 | 70  | 11 | 4             | ARG40            | 1.00      |
| C5-FCM50115-50  | 805.867      | 50 | 50  | 25 | 30  | 11 | 5             | ARG40            | 0.80      |
| C5-FCM50115-90  | 805.868      | 50 | 90  | 65 | 70  | 11 | 5             | ARG40            | 1.20      |
| C6-FCM16092-85  | 100650.001.0 | 16 | 85  | 24 | 63  | 9  | 2             | ARG16            | 1.10      |
| C6-FCM16092-110 | 100650.002.0 | 16 | 110 | 30 | 88  | 9  | 2             | ARG16            | 1.20      |
| C6-FCM16092-135 | 100650.003.0 | 16 | 135 | 27 | 113 | 9  | 2             | ARG16            | 1.20      |
| C6-FCM20093-85  | 100650.004.0 | 20 | 85  | 28 | 63  | 9  | 3             | ARG20            | 1.10      |
| C6-FCM20093-110 | 100650.005.0 | 20 | 110 | 34 | 88  | 9  | 3             | ARG20            | 1.20      |
| C6-FCM20093-135 | 100650.006.0 | 20 | 135 | 32 | 113 | 9  | 3             | ARG20            | 1.30      |
| C6-FCM25093-85  | 100650.007.0 | 25 | 85  | 33 | 63  | 9  | 3             | ARG25            | 1.10      |
| C6-FCM25093-110 | 100650.008.0 | 25 | 110 | 47 | 88  | 9  | 3             | ARG25            | 1.20      |
| C6-FCM25093-135 | 100650.009.0 | 25 | 135 | 44 | 113 | 9  | 3             | ARG25            | 1.40      |
| C6-FCM32113-85  | 100650.010.0 | 32 | 85  | 38 | 63  | 11 | 3             | ARG32            | 1.20      |
| C6-FCM32113-110 | 100650.011.0 | 32 | 110 | 61 | 88  | 11 | 3             | ARG32            | 1.30      |
| C6-FCM32113-135 | 100650.012.0 | 32 | 135 | 54 | 113 | 11 | 3             | ARG32            | 1.50      |
| C6-FCM40114-85  | 100650.013.0 | 40 | 85  | 44 | 63  | 11 | 4             | ARG40            | 1.30      |
| C6-FCM40114-110 | 100650.014.0 | 40 | 110 | 65 | 88  | 11 | 4             | ARG40            | 1.50      |
| C6-FCM40114-135 | 100650.015.0 | 40 | 135 | 61 | 113 | 11 | 4             | ARG40            | 1.90      |
| C6-FCM50115-70  | 100650.016.0 | 50 | 70  | 43 | 48  | 11 | 5             | ARG40            | 1.30      |
| C6-FCM50115-110 | 100650.017.0 | 50 | 110 | 70 | 88  | 11 | 5             | ARG40            | 1.90      |
| C6-FCM50115-135 | 100650.018.0 | 50 | 135 | 72 | 113 | 11 | 5             | ARG40            | 2.30      |

1. Se incluye la llave.
2. Las placas han de pedirse por separado.

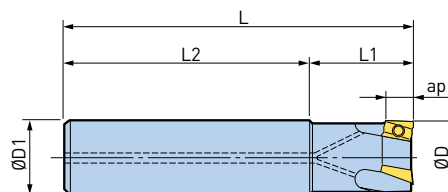
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### Accesorios & Recambios

|                                                                                                                                 |                                                                                                               |                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <p>Placas Fullcut Mill FCM</p>  <p>► 480</p> | <p>Llave</p>  <p>► 493</p> | <p>Tornillos sujeción placa</p>  <p>► 493</p> |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

## Fullcut Mill FCM - Tipo Estándar

La fresa de placa intercambiable que combina afilado y rigidez, sin igual.



| Modelo            | Artículo No. | ØD | ØD1 | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-------------------|--------------|----|-----|-----|----|-----|----|---------------|------------------|-----------|
| ST16-FCM12091-90  | 966.237      | 12 | 16  | 90  | 15 | 70  | 9  | 1             | ARG16            | 0.12      |
| ST16-FCM14091-90  | 966.238      | 14 | 16  | 90  | 17 | 70  | 9  | 1             | ARG16            | 0.12      |
| ST16-FCM16092-90  | 966.239      | 16 | 16  | 90  | 25 | 65  | 9  | 2             | ARG16            | 0.12      |
| ST20-FCM20093-110 | 966.240      | 20 | 20  | 110 | 30 | 80  | 9  | 3             | ARG20            | 0.23      |
| ST25-FCM25093-120 | 966.241      | 25 | 25  | 120 | 35 | 85  | 9  | 3             | ARG25            | 0.41      |
| ST32-FCM32113-130 | 966.242      | 32 | 32  | 130 | 35 | 95  | 11 | 3             | ARG32            | 0.70      |
| ST32-FCM40114-130 | 966.243      | 40 | 32  | 130 | 40 | 90  | 11 | 4             | ARG40            | 0.80      |
| ST32-FCM40114-180 | 802.963      | 40 | 32  | 180 | 40 | 140 | 11 | 4             | ARG40            | 1.10      |
| ST32-FCM50115-130 | 966.244      | 50 | 32  | 130 | 40 | 90  | 11 | 5             | ARG40            | 0.97      |

1. Se incluye la llave.
2. Las placas han de pedirse por separado.

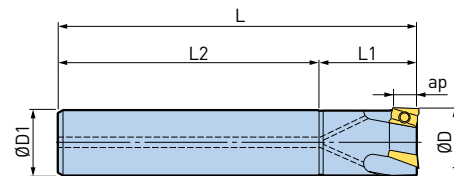
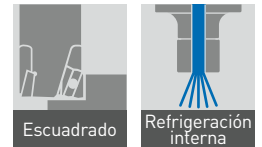
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### Accesorios & Recambios

|                                             |                           |                                              |
|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Tipo sobredimensionado

La fresa de placa que combina definición y rigidez es insuperable.



| Modelo            | Artículo No. | ØD | ØD1 | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-------------------|--------------|----|-----|-----|----|-----|----|---------------|------------------|-----------|
| ST15-FCM16092-120 | 807.455      | 16 | 15  | 120 | 25 | 95  | 9  | 2             | ARG16            | 0.15      |
| ST16-FCM17092-120 | 966.181      | 17 | 16  | 120 | 25 | 95  | 9  | 2             | ARG16            | 0.17      |
| ST19-FCM20092-165 | 807.456      | 20 | 19  | 165 | 30 | 135 | 9  | 2             | ARG20            | 0.33      |
| ST19-FCM20093-135 | 807.457      | 20 | 19  | 135 | 30 | 105 | 9  | 3             | ARG20            | 0.26      |
| ST20-FCM21092-165 | 966.182      | 21 | 20  | 165 | 30 | 135 | 9  | 2             | ARG20            | 0.37      |
| ST20-FCM21093-135 | 966.183      | 21 | 20  | 135 | 30 | 105 | 9  | 3             | ARG20            | 0.29      |
| ST24-FCM25092-180 | 807.458      | 25 | 24  | 180 | 35 | 145 | 9  | 2             | ARG25            | 0.59      |
| ST24-FCM25093-150 | 807.459      | 25 | 24  | 150 | 35 | 115 | 9  | 3             | ARG25            | 0.48      |
| ST25-FCM26092-165 | 966.184      | 26 | 25  | 165 | 38 | 127 | 9  | 2             | ARG25            | 0.59      |
| ST25-FCM26093-150 | 966.185      | 26 | 25  | 150 | 38 | 112 | 9  | 3             | ARG25            | 0.53      |
| ST28-FCM32112-180 | 807.460      | 32 | 28  | 180 | 48 | 132 | 11 | 2             | ARG32            | 0.81      |
| ST28-FCM32113-180 | 807.461      | 32 | 28  | 180 | 48 | 132 | 11 | 3             | ARG32            | 0.79      |
| ST32-FCM33112-180 | 966.186      | 33 | 32  | 180 | 48 | 132 | 11 | 2             | ARG32            | 1.00      |
| ST32-FCM33113-180 | 966.187      | 33 | 32  | 180 | 48 | 132 | 11 | 3             | ARG32            | 1.00      |

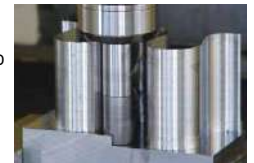
1. Se incluye la llave.
2. Las placas han de pedirse por separado.
3. Para fresado de ranuras de tipo medio-pesado o pesado con un saliente superior a 2,5 veces el diámetro, se recomiendan modelos de 2 cortes.

### Ejemplo de aplicación

|                           |                    |
|---------------------------|--------------------|
| Modelo                    | ST32-FCM33112-180  |
| Material                  | C55 (S55C)         |
| Vel. de corte Vc (m/min.) | 120                |
| Avance fz (mm/diente)     | 0.1                |
| Axial DOC ap (mm)         | 10 mm x 10 pasadas |
| Radial DOC ae (mm)        | Max. 33 mm         |

### Resultado

Se logra un fresado de escuadrado profundo con una largoitud del saliente de 110 mm y profundidad de pasada axial de 10 mm.



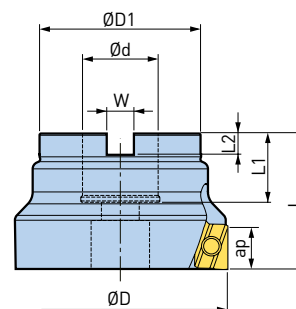
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### Accesorios & Recambios

|                                             |                           |                                              |
|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 480</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCM - Arbor Type

De acuerdo a la Formaa FMH del nuevo cono estándar de planeado.



| Modelo             | Artículo No. | $\varnothing D$ | $\varnothing d$ | $\varnothing D1$ | L  | L1 | L2 | ap | W    | N.º de placas | Tamaño del placa | Peso (kg) |
|--------------------|--------------|-----------------|-----------------|------------------|----|----|----|----|------|---------------|------------------|-----------|
| FMH22-FCM50115-40  | 966.212      | 50              | 22              | 47               | 40 | 20 | 6  | 11 | 10.4 | 5             | ARG40            | 0.40      |
| FMH22-FCM63116-40  | 966.213      | 63              | 22              | 47               | 40 | 20 | 6  | 11 | 10.4 | 6             | ARG63            | 0.50      |
| FMH27-FCM80116-50  | 966.214      | 80              | 27              | 60               | 50 | 22 | 7  | 11 | 12.4 | 6             | ARG80            | 1.10      |
| FMH27-FCM100116-50 | 805.461      | 100             | 27              | 76               | 50 | 22 | 7  | 11 | 12.4 | 6             | ARG80            | 1.90      |

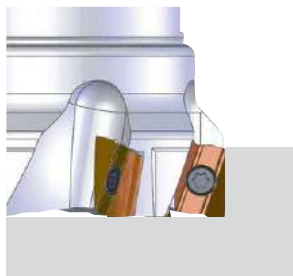
1. Se incluye la llave.
2. Las placas han de pedirse por separado.

### Ejemplo de aplicación

**Fresa de placas intercambiables, que logra un escuadrado excelente y un gran acabado de superficie.**

Mecanizado con el modelo de Fullcut Mill: FMH22-FCM63116-40

Modelo de cono portafresas: BBT40-FMH22-47-45



#### Verticalidad

|                           |     |
|---------------------------|-----|
| Vel. de corte Vc (m/min.) | 150 |
| Avance fz (mm/diente)     | 0.1 |
| Axial DOC ap (mm)         | 5   |
| Radial DOC ae (mm)        | 0.1 |

|                     |            |
|---------------------|------------|
| <b>BIG DAISHOWA</b> | 10 $\mu$ m |
| Otro fabricante     | 40 $\mu$ m |

#### Planeado con Wiper

|                           |     |
|---------------------------|-----|
| Vel. de corte Vc (m/min.) | 250 |
| Avance fz (mm/diente)     | 0.2 |
| Axial DOC ap (mm)         | 0.1 |
| Radial DOC ae (mm)        | 50  |

|                     |                 |
|---------------------|-----------------|
| <b>BIG DAISHOWA</b> | Ra=0.51 $\mu$ m |
| Otro fabricante     | Ra=1.56 $\mu$ m |

### Accesorios & Recambios

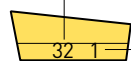
|                                                  |                                                  |                                                    |                                             |                           |                                              |
|--------------------------------------------------|--------------------------------------------------|----------------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Face Mill Arbor Tipo FMH BBT</p> <p>▶ 102</p> | <p>Face Mill Arbor Tipo FMH BDV</p> <p>▶ 161</p> | <p>Face Mill Arbor Tipo FMH HSK-A</p> <p>▶ 211</p> | <p>Placas Fullcut Mill FCM</p> <p>▶ 480</p> | <p>Llave</p> <p>▶ 493</p> | <p>Tornillos sujeción placa</p> <p>▶ 493</p> |
|--------------------------------------------------|--------------------------------------------------|----------------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|

## Placas intercambiables para Fullcut Mill FCM



Descripción del marcado

Dimensión placa



Calidad

1: ACZ310  
2: DS20  
P2: ACP200  
3F: ACM300F  
P3: ACP300

| Modelo             | Artículo No. | ØD      | ap | R de punta | Calidad de placa | Material          |
|--------------------|--------------|---------|----|------------|------------------|-------------------|
| ARG160902(DS20)    | 978.801      | 12 - 17 | 9  | 0.2        | DS20             | Aluminio          |
| ARG160902(ACM300F) | 807.728      | 12 - 17 | 9  | 0.2        | ACM300F          | Acero inoxidable  |
| ARG160902(ACP300)  | 978.812      | 12 - 17 | 9  | 0.2        | ACP300           | Acero general     |
| ARG160902(ACZ310)  | 800.488      | 12 - 17 | 9  | 0.2        | ACZ310           | Fundición         |
| ARG160904(DS20)    | 966.249      | 12 - 17 | 9  | 0.4        | DS20             | Aluminio          |
| ARG160904(ACP200)  | 978.827      | 12 - 17 | 9  | 0.4        | ACP200           | Acero pretemplado |
| ARG160904(ACM300F) | 807.729      | 12 - 17 | 9  | 0.4        | ACM300F          | Acero inoxidable  |
| ARG160904(ACP300)  | 966.245      | 12 - 17 | 9  | 0.4        | ACP300           | Acero general     |
| ARG160904(ACZ310)  | 966.248      | 12 - 17 | 9  | 0.4        | ACZ310           | Fundición         |
| ARG200902(DS20)    | 978.807      | 20, 21  | 9  | 0.2        | DS20             | Aluminio          |
| ARG200902(ACM300F) | 807.730      | 20, 21  | 9  | 0.2        | ACM300F          | Acero inoxidable  |
| ARG200902(ACP300)  | 978.813      | 20, 21  | 9  | 0.2        | ACP300           | Acero general     |
| ARG200902(ACZ310)  | 800.046      | 20, 21  | 9  | 0.2        | ACZ310           | Fundición         |
| ARG200904(DS20)    | 966.254      | 20, 21  | 9  | 0.4        | DS20             | Aluminio          |
| ARG200904(ACP200)  | 978.804      | 20, 21  | 9  | 0.4        | ACP200           | Acero pretemplado |
| ARG200904(ACM300F) | 807.731      | 20, 21  | 9  | 0.4        | ACM300F          | Acero inoxidable  |
| ARG200904(ACP300)  | 966.250      | 20, 21  | 9  | 0.4        | ACP300           | Acero general     |
| ARG200904(ACZ310)  | 966.253      | 20, 21  | 9  | 0.4        | ACZ310           | Fundición         |
| ARG250902(DS20)    | 978.803      | 25, 26  | 9  | 0.2        | DS20             | Aluminio          |
| ARG250902(ACM300F) | 807.732      | 25, 26  | 9  | 0.2        | ACM300F          | Acero inoxidable  |
| ARG250902(ACP300)  | 978.814      | 25, 26  | 9  | 0.2        | ACP300           | Acero general     |
| ARG250902(ACZ310)  | 800.047      | 25, 26  | 9  | 0.2        | ACZ310           | Fundición         |
| ARG250904(DS20)    | 966.259      | 25, 26  | 9  | 0.4        | DS20             | Aluminio          |
| ARG250904(ACP200)  | 800.048      | 25, 26  | 9  | 0.4        | ACP200           | Acero pretemplado |
| ARG250904(ACM300F) | 807.733      | 25, 26  | 9  | 0.4        | ACM300F          | Acero inoxidable  |
| ARG250904(ACP300)  | 966.255      | 25, 26  | 9  | 0.4        | ACP300           | Acero general     |
| ARG250904(ACZ310)  | 966.258      | 25, 26  | 9  | 0.4        | ACZ310           | Fundición         |
| ARG321102(DS20)    | 966.270      | 32, 33  | 11 | 0.2        | DS20             | Aluminio          |
| ARG321102(ACM300F) | 807.735      | 32, 33  | 11 | 0.2        | ACM300F          | Acero inoxidable  |
| ARG321102(ACP300)  | 978.828      | 32, 33  | 11 | 0.2        | ACP300           | Acero general     |
| ARG321102(ACZ310)  | 800.049      | 32, 33  | 11 | 0.2        | ACZ310           | Fundición         |
| ARG321104(DS20)    | 966.264      | 32, 33  | 11 | 0.4        | DS20             | Aluminio          |
| ARG321104(ACP200)  | 800.051      | 32, 33  | 11 | 0.4        | ACP200           | Acero pretemplado |
| ARG321104(ACM300F) | 807.736      | 32, 33  | 11 | 0.4        | ACM300F          | Acero inoxidable  |
| ARG321104(ACP300)  | 966.260      | 32, 33  | 11 | 0.4        | ACP300           | Acero general     |
| ARG321104(ACZ310)  | 966.263      | 32, 33  | 11 | 0.4        | ACZ310           | Fundición         |

### C.1

#### Precaución

- Es importante utilizar la placa correcta para el diámetro de la Fullcut Mill. Si no se utiliza la placa correcta, las condiciones de corte no serán las adecuadas y empeorará el resultado.
- Placas con radio R0.2 están disponibles para corte ligero.
- No hay compatibilidad con el tipo FCR.

| Modelo             | Artículo No. | ØD      | ap | R de punta | Calidad de placa | Material          |
|--------------------|--------------|---------|----|------------|------------------|-------------------|
| ARG401102(DS20)    | 978.821      | 40, 50  | 11 | 0.2        | DS20             | Aluminio          |
| ARG401102(ACM300F) | 807.737      | 40, 50  | 11 | 0.2        | ACM300F          | Acero inoxidable  |
| ARG401102(ACP300)  | 800.052      | 40, 50  | 11 | 0.2        | ACP300           | Acero general     |
| ARG401102(ACZ310)  | 800.053      | 40, 50  | 11 | 0.2        | ACZ310           | Fundición         |
| ARG401104(DS20)    | 966.269      | 40, 50  | 11 | 0.4        | DS20             | Aluminio          |
| ARG401104(ACP200)  | 978.809      | 40, 50  | 11 | 0.4        | ACP200           | Acero pretemplado |
| ARG401104(ACM300F) | 807.738      | 40, 50  | 11 | 0.4        | ACM300F          | Acero inoxidable  |
| ARG401104(ACP300)  | 966.265      | 40, 50  | 11 | 0.4        | ACP300           | Acero general     |
| ARG401104(ACZ310)  | 966.268      | 40, 50  | 11 | 0.4        | ACZ310           | Fundición         |
| ARG631104(DS20)    | 978.830      | 63      | 11 | 0.4        | DS20             | Aluminio          |
| ARG631104(ACM300F) | 807.739      | 63      | 11 | 0.4        | ACM300F          | Acero inoxidable  |
| ARG631104(ACP300)  | 978.829      | 63      | 11 | 0.4        | ACP300           | Acero general     |
| ARG631108(DS20)    | 966.284      | 63      | 11 | 0.8        | DS20             | Aluminio          |
| ARG631108(ACP200)  | 978.810      | 63      | 11 | 0.8        | ACP200           | Acero pretemplado |
| ARG631108(ACM300F) | 807.740      | 63      | 11 | 0.8        | ACM300F          | Acero inoxidable  |
| ARG631108(ACP300)  | 966.280      | 63      | 11 | 0.8        | ACP300           | Acero general     |
| ARG631108(ACZ310)  | 966.283      | 63      | 11 | 0.8        | ACZ310           | Fundición         |
| ARG801104(DS20)    | 978.832      | 80, 100 | 11 | 0.4        | DS20             | Aluminio          |
| ARG801104(ACM300F) | 807.741      | 80, 100 | 11 | 0.4        | ACM300F          | Acero inoxidable  |
| ARG801104(ACP300)  | 978.831      | 80, 100 | 11 | 0.4        | ACP300           | Acero general     |
| ARG801108(DS20)    | 966.289      | 80, 100 | 11 | 0.8        | DS20             | Aluminio          |
| ARG801108(ACP200)  | 978.811      | 80, 100 | 11 | 0.8        | ACP200           | Acero pretemplado |
| ARG801108(ACM300F) | 807.742      | 80, 100 | 11 | 0.8        | ACM300F          | Acero inoxidable  |
| ARG801108(ACP300)  | 966.285      | 80, 100 | 11 | 0.8        | ACP300           | Acero general     |
| ARG801108(ACZ310)  | 966.288      | 80, 100 | 11 | 0.8        | ACZ310           | Fundición         |

1. ACP300 es la primera recomendación para acero y ACM300F es la primera recomendación para acero inoxidable.
2. Las placas están disponibles en cajas de 10uds.



#### Calidades de placa

| ISO | Calidad | Material          | Recubrimiento |
|-----|---------|-------------------|---------------|
| P20 | ACP200  | Acero pretemplado | TiAlN / AlCrN |
| P30 | ACP300  | Acero general     |               |
| M30 | ACM300F | Acero inoxidable  | TiAlN / TiCN  |
| K10 | ACZ310  | Fundición         |               |
| N20 | DS20    | Aluminio          | DLC           |

#### Precaución

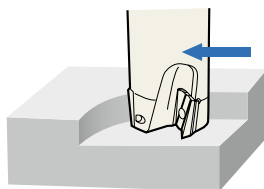
Se recomienda cambiar regularmente los tornillos de sujeción para garantizar que se mantenga la fuerza de sujeción correcta.

#### Accesorios & Recambios

|                                                                                                               |                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <p>Llave</p>  <p>► 493</p> | <p>Tornillos sujeción placa</p>  <p>► 493</p> |
|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

## Fullcut Mill FCM

### Condiciones de corte recomendadas



#### Escuadrado y ranurado

#### Mecanizado ligero o de acabado

| Diá. herramienta | Material           | Acero al carbono<br>Acero aleado | Acero no aleado | Acero pretem-<br>plado < HRC40 | Acero inoxidable | Fundición  | Aluminio     |
|------------------|--------------------|----------------------------------|-----------------|--------------------------------|------------------|------------|--------------|
|                  | Calidad de placa   | ACP300                           |                 | ACP200                         | ACM300F          | ACZ310     | DS20         |
|                  | Refrigeración      | Seco                             |                 |                                |                  |            | Seco/Líquido |
| Ø12 - Ø14        | Vc (m/min)         | 150 - 250                        | 180 - 250       | 80 - 140                       | 140 - 180        | 100 - 200  | 200 - 750    |
|                  | Avance (mm/diente) | 0.1 - 0.2                        | 0.1 - 0.2       | 0.08 - 0.12                    | 0.12 - 0.18      | 0.1 - 0.2  | 0.1 - 0.3    |
| Ø16 - Ø21        | Vc (m/min)         | 150 - 250                        | 180 - 250       | 80 - 140                       | 140 - 180        | 100 - 200  | 200 - 1000   |
|                  | Avance (mm/diente) | 0.1 - 0.2                        | 0.1 - 0.2       | 0.08 - 0.12                    | 0.12 - 0.18      | 0.1 - 0.2  | 0.1 - 0.3    |
| Ø25 - Ø33        | Vc (m/min)         | 180 - 280                        | 200 - 280       | 80 - 140                       | 140 - 200        | 100 - 200  | 200 - 1500   |
|                  | Avance (mm/diente) | 0.1 - 0.24                       | 0.1 - 0.22      | 0.08 - 0.14                    | 0.12 - 0.2       | 0.1 - 0.2  | 0.1 - 0.35   |
| Ø40 - Ø50        | Vc (m/min)         | 180 - 280                        | 200 - 280       | 80 - 140                       | 140 - 200        | 80 - 200   | 200 - 1500   |
|                  | Avance (mm/diente) | 0.1 - 0.24                       | 0.1 - 0.22      | 0.08 - 0.14                    | 0.12 - 0.2       | 0.1 - 0.2  | 0.1 - 0.35   |
| Ø63 - Ø100       | Speed (m/min)      | 100 - 220                        | 150 - 240       | 80 - 120                       | 120 - 180        | 100 - 200  | 200 - 1500   |
|                  | Avance (mm/diente) | 0.1 - 0.24                       | 0.1 - 0.22      | 0.08 - 0.14                    | 0.12 - 0.2       | 0.1 - 0.25 | 0.1 - 0.35   |

#### Precaución

El Fullcut Mill, tipo FCM, no puede utilizarse para el trabajo en el eje Z, como en el caso de rampas, plunging o mandrinado.

#### Mecanizado medio o de desbaste

| Diá. herramienta | Material           | Acero al carbono<br>Acero aleado | Acero no aleado | Acero inoxidable | Fundición   | Aluminio     |
|------------------|--------------------|----------------------------------|-----------------|------------------|-------------|--------------|
|                  | Calidad de placa   | ACP300                           |                 | ACM300F          | ACZ310      | DS20         |
|                  | Refrigeración      | Seco                             |                 |                  |             | Seco/Líquido |
| Ø12 - Ø14        | Vc (m/min)         | 100 - 200                        | 150 - 200       | 120 - 180        | 100 - 180   | 200 - 750    |
|                  | Avance (mm/diente) | 0.08 - 0.14                      | 0.1 - 0.15      | 0.12 - 0.15      | 0.08 - 0.18 | 0.1 - 0.2    |
| Ø16 - Ø21        | Vc (m/min)         | 100 - 200                        | 150 - 200       | 120 - 180        | 100 - 180   | 200 - 1000   |
|                  | Avance (mm/diente) | 0.08 - 0.14                      | 0.1 - 0.15      | 0.12 - 0.15      | 0.08 - 0.18 | 0.1 - 0.2    |
| Ø25 - Ø50        | Vc (m/min)         | 100 - 200                        | 160 - 220       | 120 - 180        | 100 - 200   | 200 - 1500   |
|                  | Avance (mm/diente) | 0.1 - 0.16                       | 0.1 - 0.15      | 0.12 - 0.15      | 0.08 - 0.2  | 0.1 - 0.3    |
| Ø63 - Ø100       | Vc (m/min)         | 100 - 200                        | 150 - 200       | 120 - 180        | 100 - 180   | 200 - 750    |
|                  | Avance (mm/diente) | 0.08 - 0.18                      | 0.1 - 0.16      | 0.12 - 0.15      | 0.1 - 0.2   | 0.1 - 0.3    |

#### Precaución

- Placas con radio R0.2 están disponibles para corte ligero.
- Es preciso seleccionar con cuidado tanto la profundidad axial como radial del corte, así como la velocidad de avance.
- Esta tabla constituye una guía general sobre los datos de corte. Ajustelos conforme a las condiciones de la máquina y la pieza de trabajo, así como el ancho del corte.
- El corte en seco (incluyendo soplado) se recomienda para cortar acero, excepto en el acabado.
- Se recomienda el corte en seco para el acero inoxidable. No obstante, utilice aceite soluble cuando se produzcan incrustaciones importante en el borde.

## Fullcut Mill FCM

### Ejemplo de aplicaciones

#### Ranurado



|                           |                    |
|---------------------------|--------------------|
| Fullcut Mill              | BBT40-FCM32113-85  |
| Placa                     | ARG321104 (ACP300) |
| Material                  | C50 (S50C)         |
| Vel. de corte Vc (m/min.) | 150                |
| Avance fz (mm/diente)     | 0.12               |
| Axial DOC ap (mm)         | 9                  |

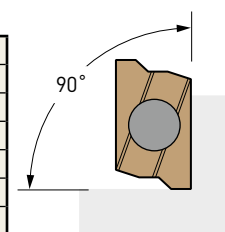


Solo el Fullcut Mill pudo alcanzar estos datos con una máquina con cono No. 40.

#### Escuadrado



|                           |                    |
|---------------------------|--------------------|
| Fullcut Mill              | BBT40-FCM32113-85  |
| Placa                     | ARG321104 (ACP300) |
| Material                  | C50 (S50C)         |
| Vel. de corte Vc (m/min.) | 200                |
| Avance fz (mm/diente)     | 0.15               |
| Axial DOC ap (mm)         | 11                 |
| Radial DOC ae (mm)        | 5                  |



Se consigue una perpendicularidad excelente.

#### Planeado



|                           |                    |
|---------------------------|--------------------|
| Fullcut Mill              | BBT40-FCM50115-70  |
| Placa                     | ARG401104 (ACP300) |
| Material                  | C50 (S50C)         |
| Vel. de corte Vc (m/min.) | 200                |
| Avance fz (mm/diente)     | 0.15               |
| Axial DOC ap (mm)         | 1                  |
| Radial DOC ae (mm)        | 30                 |

|              | Calidad de superficie Rz |
|--------------|--------------------------|
| BIG DAISHOWA | 2.53                     |
| Fabricante A | 3.75                     |
| Fabricante B | 4.32                     |

La calidad de la superficie acabada fue de Rz = 2,53 en Vc = 200 m/min, fz = 0.15 mm/diente en los datos de corte.

#### Material de baja maquinabilidad



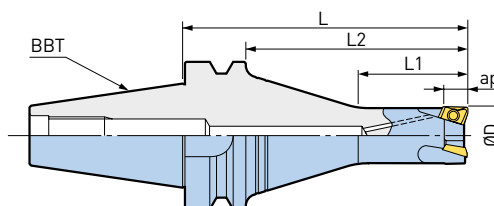
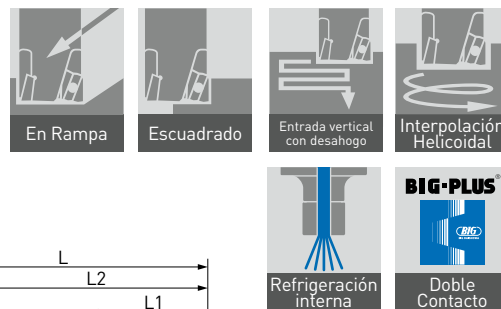
|                           |                         |
|---------------------------|-------------------------|
| Fullcut Mill              | ST25-FCM25093-120       |
| Adaptador                 | BBT50-MEGA25D-105       |
| Placa                     | ARG250904 (ACM300F)     |
| Material                  | SUS304 Acero inoxidable |
| Vel. de corte Vc (m/min.) | 150                     |
| Avance fz (mm/diente)     | 0.2                     |
| Axial DOC ap (mm)         | 9                       |
| Radial DOC ae (mm)        | 3                       |



Un fresado estable y de alta eficiencia (F = 1140 mm/min.) es el resultado.

## Fullcut Mill FCR - Tipo Estándar con BBT

Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo             | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|--------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| BBT30-FCR16082-65  | 966.683      | 16 | 65  | 28 | 43  | 8  | 2             | BRG16            | 0.47      |
| BBT30-FCR20083-65  | 966.685      | 20 | 65  | 28 | 43  | 8  | 3             | BRG20            | 0.49      |
| BBT30-FCR25083-65  | 966.687      | 25 | 65  | 33 | 43  | 8  | 3             | BRG25            | 0.52      |
| BBT30-FCR25083-105 | 100654.001.0 | 25 | 105 | 35 | 83  | 8  | 3             | BRG25            | 0.73      |
| BBT30-FCR32103-65  | 966.689      | 32 | 65  | 40 | 43  | 10 | 3             | BRG32            | 0.56      |
| BBT30-FCR32103-105 | 100654.002.0 | 32 | 105 | 45 | 83  | 10 | 3             | BRG32            | 0.83      |
| BBT40-FCR16082-85  | 966.616      | 16 | 85  | 25 | 58  | 8  | 2             | BRG16            | 1.20      |
| BBT40-FCR16082-120 | 966.617      | 16 | 120 | 30 | 93  | 8  | 2             | BRG16            | 1.50      |
| BBT40-FCR16082-135 | 966.618      | 16 | 135 | 25 | 108 | 8  | 2             | BRG16            | 1.60      |
| BBT40-FCR20083-85  | 966.619      | 20 | 85  | 35 | 58  | 8  | 3             | BRG20            | 1.20      |
| BBT40-FCR20083-120 | 966.620      | 20 | 120 | 30 | 93  | 8  | 3             | BRG20            | 1.50      |
| BBT40-FCR20083-135 | 966.621      | 20 | 135 | 30 | 108 | 8  | 3             | BRG20            | 1.60      |
| BBT40-FCR25083-85  | 966.622      | 25 | 85  | 40 | 58  | 8  | 3             | BRG25            | 1.20      |
| BBT40-FCR25083-120 | 966.623      | 25 | 120 | 45 | 93  | 8  | 3             | BRG25            | 1.50      |
| BBT40-FCR25083-135 | 966.624      | 25 | 135 | 35 | 108 | 8  | 3             | BRG25            | 1.70      |
| BBT40-FCR32103-85  | 966.625      | 32 | 85  | 45 | 58  | 10 | 3             | BRG32            | 1.30      |
| BBT40-FCR32103-120 | 966.626      | 32 | 120 | 50 | 93  | 10 | 3             | BRG32            | 1.60      |
| BBT40-FCR32103-135 | 966.627      | 32 | 135 | 40 | 108 | 10 | 3             | BRG32            | 1.80      |

1. Pueden utilizarse portaherramientas BIG-PLUS® en centros de mecanizado con husillos DV convencionales.
2. Se incluye la llave.
3. Las placas han de pedirse por separado.

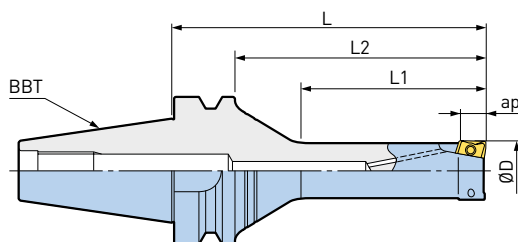
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### Accesorios & Recambios

|                                               |                                             |                           |                                              |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Adaptador para cono BBT50</p> <p>► 471</p> | <p>Placas Fullcut Mill FCM</p> <p>► 490</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCR - Tipo Largo con BBT

Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo              | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|---------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| BBT30-FCR16082L-85  | 966.684      | 16 | 85  | 45 | 63  | 8  | 2             | BRG16            | 0.50      |
| BBT30-FCR20082L-85  | 966.686      | 20 | 85  | 50 | 63  | 8  | 2             | BRG20            | 0.53      |
| BBT30-FCR25082L-85  | 966.688      | 25 | 85  | 50 | 63  | 8  | 2             | BRG25            | 0.60      |
| BBT30-FCR32102L-85  | 966.690      | 32 | 85  | 60 | 63  | 10 | 2             | BRG32            | 0.68      |
| BBT40-FCR16082L-105 | 966.691      | 16 | 105 | 45 | 78  | 8  | 2             | BRG16            | 1.20      |
| BBT40-FCR16082L-120 | 966.692      | 16 | 120 | 45 | 93  | 8  | 2             | BRG16            | 1.40      |
| BBT40-FCR20082L-120 | 966.693      | 20 | 120 | 60 | 93  | 8  | 2             | BRG20            | 1.30      |
| BBT40-FCR20082L-135 | 966.694      | 20 | 135 | 60 | 108 | 8  | 2             | BRG20            | 1.40      |
| BBT40-FCR25082L-135 | 966.695      | 25 | 135 | 75 | 108 | 8  | 2             | BRG25            | 1.50      |
| BBT40-FCR25082L-150 | 966.696      | 25 | 150 | 75 | 123 | 8  | 2             | BRG25            | 1.60      |
| BBT40-FCR32102L-135 | 966.697      | 32 | 135 | 80 | 108 | 10 | 2             | BRG32            | 1.70      |
| BBT40-FCR32102L-150 | 966.698      | 32 | 150 | 90 | 123 | 10 | 2             | BRG32            | 1.70      |

1. Pueden utilizarse portaherramientas BIG-PLUS® en centros de mecanizado con husillos DV convencionales.
2. Se incluye la llave.
3. Las placas han de pedirse por separado.

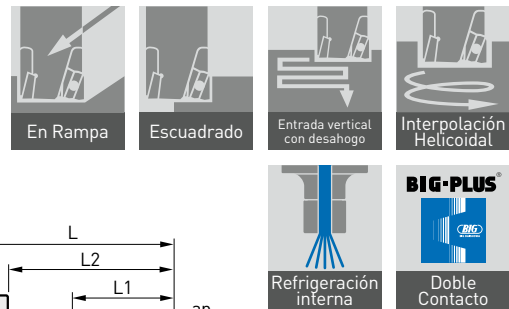
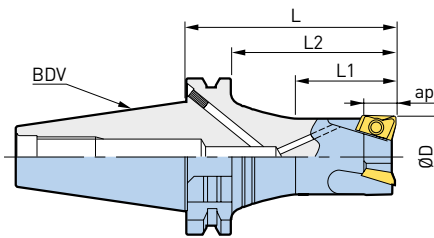
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### Accesorios & Recambios

|                                               |                                             |                           |                                              |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Adaptador para cono BBT50</p> <p>► 471</p> | <p>Placas Fullcut Mill FCM</p> <p>► 490</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|-----------------------------------------------|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCR - Tipo Estándar con BDV

Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo             | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|--------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| BDV40-FCR16082-85  | 966.601      | 16 | 85  | 25 | 65  | 8  | 2             | BRG16            | 1.00      |
| BDV40-FCR16082-120 | 966.602      | 16 | 120 | 30 | 100 | 8  | 2             | BRG16            | 1.20      |
| BDV40-FCR16082-135 | 966.603      | 16 | 135 | 25 | 115 | 8  | 2             | BRG16            | 1.30      |
| BDV40-FCR20083-85  | 966.604      | 20 | 85  | 35 | 65  | 8  | 3             | BRG20            | 1.00      |
| BDV40-FCR20083-120 | 966.605      | 20 | 120 | 30 | 100 | 8  | 3             | BRG20            | 1.30      |
| BDV40-FCR20083-135 | 966.606      | 20 | 135 | 30 | 115 | 8  | 3             | BRG20            | 1.40      |
| BDV40-FCR25083-85  | 966.607      | 25 | 85  | 40 | 65  | 8  | 3             | BRG25            | 1.10      |
| BDV40-FCR25083-120 | 966.608      | 25 | 120 | 45 | 100 | 8  | 3             | BRG25            | 1.30      |
| BDV40-FCR25083-135 | 966.609      | 25 | 135 | 35 | 115 | 8  | 3             | BRG25            | 1.40      |
| BDV40-FCR32103-85  | 966.610      | 32 | 85  | 45 | 65  | 10 | 3             | BRG32            | 1.20      |
| BDV40-FCR32103-120 | 966.611      | 32 | 120 | 50 | 100 | 10 | 3             | BRG32            | 1.40      |
| BDV40-FCR32103-135 | 966.612      | 32 | 135 | 40 | 115 | 10 | 3             | BRG32            | 1.60      |

1. Pueden utilizarse portaherramientas BIG-PLUS® en centros de mecanizado con husillos DV convencionales.
2. Se incluye la llave.
3. Las placas han de pedirse por separado.

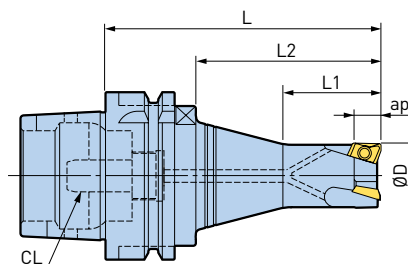
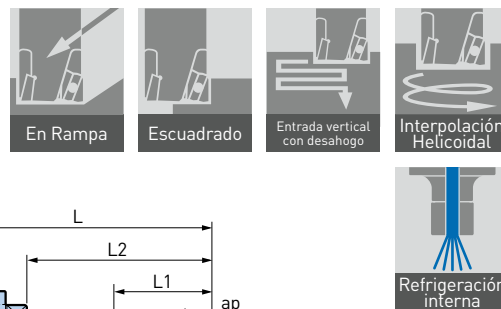
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### Accesorios & Recambios

|                                             |                           |                                              |
|---------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 490</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCR - Tipo Estándar con HSK-A

Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo               | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|----------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| HSK-A50-FCR16082-75  | 966.671      | 16 | 75  | 27 | 41  | 8  | 2             | BRG16            | 0.60      |
| HSK-A50-FCR20083-75  | 966.672      | 20 | 75  | 28 | 41  | 8  | 3             | BRG20            | 0.60      |
| HSK-A50-FCR25083-75  | 966.673      | 25 | 75  | 33 | 41  | 8  | 3             | BRG25            | 0.60      |
| HSK-A50-FCR32103-75  | 966.674      | 32 | 75  | 39 | 41  | 10 | 3             | BRG32            | 0.70      |
| HSK-A63-FCR16082-85  | 966.631      | 16 | 85  | 25 | 51  | 8  | 2             | BRG16            | 0.90      |
| HSK-A63-FCR16082-120 | 966.632      | 16 | 120 | 30 | 86  | 8  | 2             | BRG16            | 1.10      |
| HSK-A63-FCR16082-135 | 966.633      | 16 | 135 | 25 | 101 | 8  | 2             | BRG16            | 1.20      |
| HSK-A63-FCR20083-85  | 966.634      | 20 | 85  | 32 | 51  | 8  | 3             | BRG20            | 0.90      |
| HSK-A63-FCR20083-120 | 966.635      | 20 | 120 | 30 | 86  | 8  | 3             | BRG20            | 1.10      |
| HSK-A63-FCR20083-135 | 966.636      | 20 | 135 | 30 | 101 | 8  | 3             | BRG20            | 1.20      |
| HSK-A63-FCR25083-85  | 966.637      | 25 | 85  | 35 | 51  | 8  | 3             | BRG25            | 1.00      |
| HSK-A63-FCR25083-120 | 966.638      | 25 | 120 | 45 | 86  | 8  | 3             | BRG25            | 1.20      |
| HSK-A63-FCR25083-135 | 966.639      | 25 | 135 | 35 | 101 | 8  | 3             | BRG25            | 1.30      |
| HSK-A63-FCR32103-85  | 966.640      | 32 | 85  | 40 | 51  | 10 | 3             | BRG32            | 1.00      |
| HSK-A63-FCR32103-120 | 966.641      | 32 | 120 | 50 | 86  | 10 | 3             | BRG32            | 1.20      |
| HSK-A63-FCR32103-135 | 966.642      | 32 | 135 | 40 | 101 | 10 | 3             | BRG32            | 1.40      |

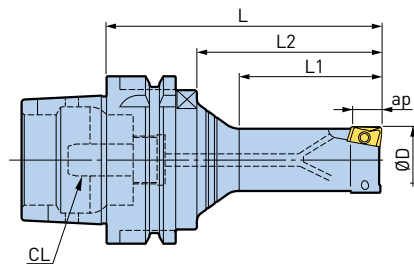
1. Se incluye la llave.
2. Los tubos de refrigerante (CL) y las placas han de pedirse por separado.

### Accesorios & Recambios

|                                             |                                                      |                           |                                              |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 490</p> | <p>Tubos para refrigerante Tipo A/E</p> <p>► 250</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCR - Tipo Largo con HSK-A

Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo                | Artículo No. | ØD | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-----------------------|--------------|----|-----|----|-----|----|---------------|------------------|-----------|
| HSK-A63-FCR16082L-85  | 966.675      | 16 | 85  | 40 | 51  | 8  | 2             | BRG16            | 0.90      |
| HSK-A63-FCR16082L-120 | 966.676      | 16 | 120 | 45 | 86  | 8  | 2             | BRG16            | 1.00      |
| HSK-A63-FCR20082L-105 | 966.677      | 20 | 105 | 50 | 71  | 8  | 2             | BRG20            | 1.00      |
| HSK-A63-FCR20082L-120 | 966.678      | 20 | 120 | 60 | 86  | 8  | 2             | BRG20            | 1.00      |
| HSK-A63-FCR25082L-105 | 966.679      | 25 | 105 | 55 | 71  | 8  | 2             | BRG25            | 1.00      |
| HSK-A63-FCR25082L-120 | 966.680      | 25 | 120 | 65 | 86  | 8  | 2             | BRG25            | 1.10      |
| HSK-A63-FCR32102L-120 | 966.681      | 32 | 120 | 70 | 86  | 10 | 2             | BRG32            | 1.20      |
| HSK-A63-FCR32102L-135 | 966.682      | 32 | 135 | 80 | 101 | 10 | 2             | BRG32            | 1.30      |

1. Se incluye la llave.
2. Los tubos de refrigerante (CL) y las placas han de pedirse por separado.

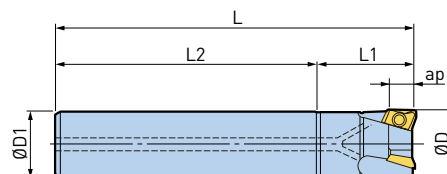
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### Accesorios & Recambios

|                                             |                                                      |                           |                                              |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|
| <p>Placas Fullcut Mill FCM</p> <p>► 490</p> | <p>Tubos para refrigerante Tipo A/E</p> <p>► 250</p> | <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------------------------|------------------------------------------------------|---------------------------|----------------------------------------------|

## Fullcut Mill FCR - Tipo sobredimensionado




Las placas exclusivas diseñadas para fresado en rampa permiten trabajos multifuncionales.



| Modelo            | Artículo No. | ØD | ØD1 | L   | L1 | L2  | ap | N.º de placas | Tamaño del placa | Peso (kg) |
|-------------------|--------------|----|-----|-----|----|-----|----|---------------|------------------|-----------|
| ST15-FCR16082-120 | 805.849      | 16 | 15  | 120 | 25 | 95  | 8  | 2             | BRG16            | 0.15      |
| ST16-FCR17082-120 | 802.191      | 17 | 16  | 120 | 25 | 95  | 8  | 2             | BRG16            | 0.17      |
| ST19-FCR20082-165 | 805.850      | 20 | 19  | 165 | 30 | 135 | 8  | 2             | BRG20            | 0.33      |
| ST19-FCR20083-135 | 805.851      | 20 | 19  | 135 | 30 | 105 | 8  | 3             | BRG20            | 0.26      |
| ST20-FCR21082-165 | 802.192      | 21 | 20  | 165 | 30 | 135 | 8  | 2             | BRG20            | 0.37      |
| ST20-FCR21083-135 | 802.193      | 21 | 20  | 135 | 30 | 105 | 8  | 3             | BRG20            | 0.29      |
| ST24-FCR25082-180 | 805.852      | 25 | 24  | 180 | 35 | 145 | 8  | 2             | BRG25            | 0.59      |
| ST24-FCR25083-150 | 805.853      | 25 | 24  | 150 | 35 | 115 | 8  | 3             | BRG25            | 0.48      |
| ST25-FCR26082-165 | 802.220      | 26 | 25  | 165 | 38 | 127 | 8  | 2             | BRG25            | 0.59      |
| ST25-FCR26083-150 | 802.221      | 26 | 25  | 150 | 38 | 112 | 8  | 3             | BRG25            | 0.52      |
| ST28-FCR32102-180 | 805.854      | 32 | 28  | 180 | 48 | 132 | 10 | 2             | BRG32            | 0.80      |
| ST28-FCR32103-180 | 805.855      | 32 | 28  | 180 | 48 | 132 | 10 | 3             | BRG32            | 0.78      |
| ST32-FCR33102-180 | 802.225      | 33 | 32  | 180 | 48 | 132 | 10 | 2             | BRG32            | 1.00      |
| ST32-FCR33103-180 | 802.226      | 33 | 32  | 180 | 48 | 132 | 10 | 3             | BRG32            | 1.00      |

1. Se incluye la llave.
2. Las placas han de pedirse por separado.
3. Reducir parámetros de corte adecuadamente para aplicaciones con un saliente largo o modelos de 3 cortes.
4. Para fresado de ranuras o en rampa de tipo medio-pesado o pesado con un saliente superior a 2,5 veces el diámetro, se recomiendan modelos de 2 cortes.

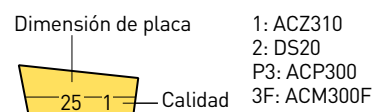
### Accesorios & Recambios

|                                                                                                                                 |                                                                                                               |                                                                                                                                  |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| <p>Placas Fullcut Mill FCM</p>  <p>► 490</p> | <p>Llave</p>  <p>► 493</p> | <p>Tornillos sujeción placa</p>  <p>► 493</p> |
|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|

## Placas intercambiables para Fullcut Mill FCR



### Descripción del marcado



| Modelo             | Artículo No. | ØD      | ap | R de punta | Calidad de placa | Material         |
|--------------------|--------------|---------|----|------------|------------------|------------------|
| BRG160808(DS20)    | 966.653      | 16 - 17 | 8  | 0.8        | DS20             | Aluminio         |
| BRG160808(ACM300F) | 807.135      | 16 - 17 | 8  | 0.8        | ACM300F          | Acero inoxidable |
| BRG160808(ACP300)  | 807.131      | 16 - 17 | 8  | 0.8        | ACP300           | Acero general    |
| BRG160808(ACZ310)  | 966.652      | 16 - 17 | 8  | 0.8        | ACZ310           | Fundición        |
| BRG200808(DS20)    | 966.658      | 20 - 21 | 8  | 0.8        | DS20             | Aluminio         |
| BRG200808(ACM300F) | 807.136      | 20 - 21 | 8  | 0.8        | ACM300F          | Acero inoxidable |
| BRG200808(ACP300)  | 807.132      | 20 - 21 | 8  | 0.8        | ACP300           | Acero general    |
| BRG200808(ACZ310)  | 800.587      | 20 - 21 | 8  | 0.8        | ACZ310           | Fundición        |
| BRG250808(DS20)    | 966.663      | 25 - 26 | 8  | 0.8        | DS20             | Aluminio         |
| BRG250808(ACM300F) | 807.137      | 25 - 26 | 8  | 0.8        | ACM300F          | Acero inoxidable |
| BRG250808(ACP300)  | 807.133      | 25 - 26 | 8  | 0.8        | ACP300           | Acero general    |
| BRG250808(ACZ310)  | 966.662      | 25 - 26 | 8  | 0.8        | ACZ310           | Fundición        |
| BRG321008(DS20)    | 966.668      | 32 - 33 | 10 | 0.8        | DS20             | Aluminio         |
| BRG321008(ACM300F) | 807.138      | 32 - 33 | 10 | 0.8        | ACM300F          | Acero inoxidable |
| BRG321008(ACP300)  | 807.134      | 32 - 33 | 10 | 0.8        | ACP300           | Acero general    |
| BRG321008(ACZ310)  | 966.667      | 32 - 33 | 10 | 0.8        | ACZ310           | Fundición        |
| BRG321032(DS20)    | 966.669      | 32 - 33 | 10 | 3.2        | DS20             | Aluminio         |

1. Las placas están disponibles en cajas de 10uds.

### Precaución

- Es importante utilizar la placa correcta para el diámetro de la Fullcut Mill. Si no se utiliza la placa correcta, las condiciones de corte no serán las adecuadas y empeorará el resultado.
- No son compatibles con los de tipo FCM.

### Calidades de placa

| ISO | Calidad | Material         | Recubrimiento |
|-----|---------|------------------|---------------|
| P30 | ACP300  | Acero general    | TiAlN / TiCN  |
| M30 | ACM300F | Acero inoxidable |               |
| K10 | ACZ310  | Fundición        |               |
| N20 | DS20    | Aluminio         | DLC           |

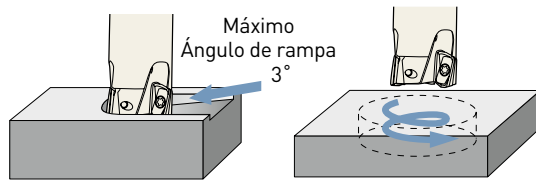
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### Accesorios & Recambios

|                           |                                              |
|---------------------------|----------------------------------------------|
| <p>Llave</p> <p>► 493</p> | <p>Tornillos sujeción placa</p> <p>► 493</p> |
|---------------------------|----------------------------------------------|

## Fullcut Mill FCR

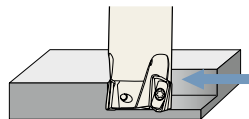
### Condiciones de corte recomendadas



| Diá. herramienta | Parte inferior plana |                   | Agujero interior  |
|------------------|----------------------|-------------------|-------------------|
|                  | Máx. Diá. agujero    | Mín. Diá. agujero | Mín. Diá. agujero |
| Ø16              | Ø30                  | Ø27               | Ø22               |
| Ø20              | Ø38                  | Ø36               | Ø29               |
| Ø25              | Ø48                  | Ø45               | Ø39               |
| Ø32              | Ø62                  | Ø59               | Ø48               |

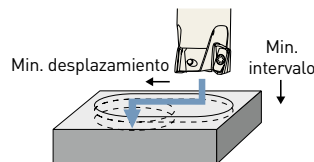
### Interpolación helicoidal y en rampa

| Diá. herramienta | Material           | Acero carbono<br>Acero aleado | No aleado<br>Acero | Acero pretem-<br>plado < HRC40 | Acero<br>inoxidable | Acero para<br>matrices | Fundición   | Aluminio     |
|------------------|--------------------|-------------------------------|--------------------|--------------------------------|---------------------|------------------------|-------------|--------------|
|                  | Calidad de placa   | ACP300                        |                    | ACM300F                        |                     |                        | ACZ310      | DS20         |
|                  | Refrigeración      | Seco                          |                    | Seco                           | Seco                | Seco                   |             | Seco/Líquido |
| Ø16, Ø17         | Vc (m/min)         | 100 - 200                     | 150 - 220          | 60 - 80                        | 100 - 150           | 60 - 80                | 100 - 180   | 200 - 1000   |
|                  | Avance (mm/diente) | 0.06 - 0.12                   | 0.06 - 0.12        | 0.05 - 0.08                    | 0.08 - 0.16         | 0.06 - 0.1             | 0.08 - 0.18 | 0.06 - 0.24  |
| Ø20, Ø25, Ø26    | Vc (m/min)         | 100 - 200                     | 150 - 200          | 60 - 100                       | 120 - 150           | 60 - 100               | 100 - 180   | 200 - 1000   |
|                  | Avance (mm/diente) | 0.08 - 0.2                    | 0.08 - 0.2         | 0.05 - 0.1                     | 0.12 - 0.2          | 0.06 - 0.1             | 0.02 - 0.18 | 0.1 - 0.35   |
| Ø32, Ø33         | Vc (m/min)         | 100 - 200                     | 150 - 200          | 60 - 100                       | 120 - 150           | 60 - 120               | 100 - 180   | 200 - 1000   |
|                  | Avance (mm/diente) | 0.08 - 0.2                    | 0.08 - 0.2         | 0.05 - 0.1                     | 0.12 - 0.2          | 0.08 - 0.12            | 0.06 - 0.2  | 0.1 - 0.35   |



### Escuadrado y ranurado

| Diá. herramienta | Material           | Acero carbono<br>Acero aleado | No aleado<br>Acero | Acero pretem-<br>plado < HRC40 | Acero<br>inoxidable | Acero para<br>matrices | Fundición   | Aluminio     |
|------------------|--------------------|-------------------------------|--------------------|--------------------------------|---------------------|------------------------|-------------|--------------|
|                  | Calidad de placa   | ACP300                        |                    | ACM300F                        |                     |                        | ACZ310      | DS20         |
|                  | Refrigeración      | Seco                          |                    | Seco                           | Seco                | Seco                   |             | Seco/Líquido |
| Ø16, Ø20, Ø21    | Vc (m/min)         | 100 - 200                     | 100 - 200          | 60 - 80                        | 120 - 180           | 80 - 120               | 100 - 180   | 200 - 1000   |
|                  | Avance (mm/diente) | 0.08 - 0.18                   | 0.08 - 0.18        | 0.05 - 0.1                     | 0.12 - 0.18         | 0.08 - 0.12            | 0.08 - 0.18 | 0.1 - 0.3    |
| Ø25, Ø32, Ø33    | Vc (m/min)         | 100 - 200                     | 100 - 200          | 60 - 100                       | 120 - 180           | 80 - 120               | 100 - 180   | 200 - 1500   |
|                  | Avance (mm/diente) | 0.08 - 0.2                    | 0.08 - 0.2         | 0.05 - 0.1                     | 0.12 - 0.2          | 0.08 - 0.12            | 0.08 - 0.2  | 0.1 - 0.35   |



| Diá. herramienta | Max. Interval | Min. Traverse |
|------------------|---------------|---------------|
| Ø16              | 0.5           | 14            |
| Ø20              | 1             | 18            |
| Ø25              | 1             | 23            |
| Ø32              | 2             | 30            |

### Fresado en penetración

| Diá. herramienta | Material           | Acero carbono<br>Acero aleado | No aleado<br>Acero | Acero pretem-<br>plado < HRC40 | Acero<br>inoxidable | Acero para<br>matrices | Fundición  | Aluminio     |
|------------------|--------------------|-------------------------------|--------------------|--------------------------------|---------------------|------------------------|------------|--------------|
|                  | Calidad de placa   | ACP300                        |                    | ACM300F                        |                     |                        | ACZ310     | DS20         |
|                  | Refrigeración      | Seco                          |                    | Seco                           | Seco                | Seco                   |            | Seco/Líquido |
| Ø16, Ø17         | Vc (m/min)         | 80 - 120                      | 80 - 120           | 60                             | 80 - 120            | 60 - 80                | 80 - 160   | 200 - 350    |
|                  | Avance (mm/diente) | 0.06 - 0.1                    | 0.06 - 0.1         | 0.04 - 0.06                    | 0.05 - 0.08         | 0.05 - 0.08            | 0.06 - 0.1 | 0.06 - 0.1   |
| Ø20, Ø25, Ø26    | Vc (m/min)         | 100 - 160                     | 100 - 160          | 60 - 100                       | 100 - 160           | 60 - 100               | 80 - 180   | 200 - 500    |
|                  | Avance (mm/diente) | 0.1 - 0.25                    | 0.1 - 0.25         | 0.1 - 0.25                     | 0.12 - 0.25         | 0.1 - 0.2              | 0.08 - 0.3 | 0.1 - 0.3    |
| Ø32, Ø33         | Vc (m/min)         | 100 - 160                     | 100 - 160          | 60 - 100                       | 100 - 160           | 60 - 100               | 80 - 180   | 200 - 600    |
|                  | Avance (mm/diente) | 0.1 - 0.3                     | 0.1 - 0.3          | 0.1 - 0.3                      | 0.12 - 0.3          | 0.1 - 0.2              | 0.08 - 0.4 | 0.1 - 0.3    |

### Precaución

- La tabla solo es una referencia para determinar las condiciones de corte. Ha de ajustarse conforme a las condiciones de la máquina-herramienta o la pieza de trabajo.
- Puesto que pueden saltar virutas, utilice recintos seguros.

## Fullcut Mill FCR

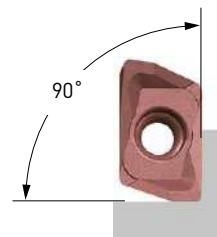
### Ejemplo de aplicaciones

#### Taladro

Diá. 38 con fresado helicoidal



|                           |                      |
|---------------------------|----------------------|
| Fullcut Mill              | BBT40-FCR20083-120   |
| Placa                     | BRG200808 (ACP300)   |
| Material                  | C50 (S50C) / Soplado |
| Vel. de corte Vc (m/min.) | 150                  |
| Avance Vf (mm/min.)       | 1100                 |
| Axial DOC ap (mm)         | 2 mm x 3 veces       |
| Diá. agujero              | Ø 38                 |



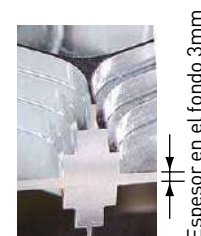
Para acero al carbono de C50, un corte muy uniforme con una velocidad de avance de Vf=1100 mm/min y un escuadrado excelente es el resultado obtenido.

#### Panel de abeja

Cavidades entrada en rampa

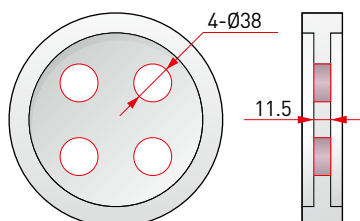


|                           |                           |
|---------------------------|---------------------------|
| Fullcut Mill              | BBT40-FCR20083-85         |
| Placa                     | BRG200808 (DS20)          |
| Material                  | A2017 Duralumin / Soplado |
| Vel. de corte Vc (m/min.) | 750                       |
| Avance Vf (mm/min.)       | 4300                      |
| Axial DOC ap (mm)         | 6 mm x 3 veces            |
| Radial DOC ae (mm)        | max. 20                   |



En piezas poco rígidas con un espesor de 3 mm fijadas con una mordaza, se alcanza un avance de Vf=4300 mm/min en ambos lados de la pieza.

#### Fresado helicoidal



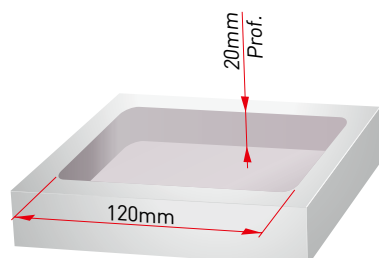
|                           |                    |
|---------------------------|--------------------|
| Fullcut Mill              | BBT40-FCR20083-120 |
| Placa                     | BRG200808 (ACP300) |
| Material                  | 15CrMo5 (SCM415)   |
| Vel. de corte Vc (m/min.) | 150                |
| Avance Vf (mm/min.)       | 480                |
| Axial DOC ap (mm)         | 4 mm x 3 veces     |
| Diá. agujero              | Ø 38               |

Comparado con otro fabricante

Axial DOC **1.3 veces**  
Vida placa **2 veces**

Fresado helicoidal estable con DOC axial de 4 mm en piezas poco rígidas.

#### En rampa



|                           |                                      |
|---------------------------|--------------------------------------|
| Fullcut Mill              | BBT50-BBT40-50<br>BBT40-FCR16082-120 |
| Placa                     | BRG160808 (ACP300)                   |
| Material                  | C50 (S50C)                           |
| Vel. de corte Vc (m/min.) | 120                                  |
| Avance Vf (mm/min.)       | 480                                  |
| Axial DOC ap (mm)         | 4 mm x 5 veces                       |

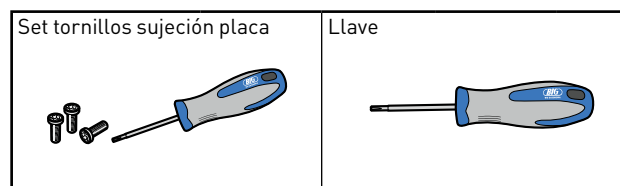
Comparado con otro fabricante

No hay vibración incluso en el rincón de mayor resistencia.

La evacuación suave de la viruta evita su remecanizado y el astillado del filo de corte.

Ejemplo de uso de adaptador BBT50-BBT40. Se obtiene un resultado mejorado comparado con el producto de otro fabricante.

## Recambios para Fullcut Mill, FCM y FCR



| FCM                |         | FCR                |         | Modelo  | Código  | Modelo | Código  | Torx Tipo |
|--------------------|---------|--------------------|---------|---------|---------|--------|---------|-----------|
| Diá. herramienta Ø | Placa   | Diá. herramienta Ø | Placa   |         |         |        |         |           |
| 12                 | ARG1609 | -                  | -       | S2505DS | 966.271 | DA-T8  | 966.274 | T-8       |
| 14, 16, 17         |         | 16, 17             | BRG1608 | S2506DS | 966.272 |        |         |           |
| 20, 21             | 20, 21  | BRG2008            |         |         |         |        |         |           |
| 25, 26             | ARG2509 | 25, 26             | BRG2508 | S3508DS | 966.273 | DA-T15 | 966.275 | T-15      |
| 32, 33             | ARG3211 | 32, 33             | BRG3210 |         |         |        |         |           |
| 40, 50             | ARG4011 |                    |         |         |         |        |         |           |
| 63                 | ARG6311 |                    |         |         |         |        |         |           |
| 80, 100            | ARG8011 |                    |         |         |         |        |         |           |

1. El Set de sujeción de placas contiene (10) tornillos y (1) llave.